



Presentation of state of art in soil degradation status, pressures and trends with the example of good practices in Republic of Srpska

Prof. dr Mihajlo Marković
University of Banja Luka, Faculty of Agriculture

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1. Land use and land cover in the country

- In the Republic of Srpska (RS) soil cover is very heterogeneous, with predominate soil types: Dystric Cambisol, Brown soil on limestone and dolomite, Luvisol, Pseudogley and Fluvisol.
- In 2019 there was 1008,000 ha agricultural land (25.80% of the total territory), of which arable land occupies 816,000 ha (82% of the total agricultural land). Of the total arable land, there are 577,000 ha under arable land and gardens, 52,000 ha in orchards, 1,000 ha in vineyards and 185,000 ha in meadows. Pastures cover an area of 191,000 ha.
- Existing national data about agricultural land organization level shows that from total areas planned for irrigation development, land consolidation is realized on 28,524 ha (39.48%), land protection from external waters on 53,375 ha (73.88%) and land protection from inland waters 11,718 ha (16.22%).
- Forests and forest lands of the RS occupy 1,314,889.47 ha or 53% of territory.

2. General assessment of the data available (information about the soil, available data sets, monitoring situation

- The main consistent source of soil data was derived from the basic soil map of RS at a scale of 1:50000;
- During the implementation of the FAO project “Inventory of the Post-War Situation of Land Resources in BiH” (2000-2002) all sheets of the BiH soil map (1985) were scanned and digitized. The same was done for the analytical data (physical and chemical properties) from all annexes containing soil profiles. The old classification was translated into the new soil classification system of BiH as well as into the FAO classification and all information is present available in GIS format.
- In RS has begun the establishment of a land information system, based on cadastral data, partly georeferenced and incorporated into satellite images.
- Currently, global data and the European CORINE database are the only data sources that can be used to monitor land status and losses.
- Problem is inter-institutional cooperation in the exchange of existing databases.

3. Legal framework

Laws:

1. **Law on Agricultural Land** (Official Gazette RS, No. 93/06,86/07,14/10,05/12 and 58/19), partly harmonized with Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage;
2. **Law on Environmental Protection** (Official Gazette RS, No. 71/12, 79/15 и 70/20) partly harmonized with Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage and Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment ;

3. **Law on Spatial Planning and Civil Engineering** (Official Gazette RS, No. 40/13, 106/15, 03/16 and 84/19) partly harmonized with Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings, Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency, Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) and Directive 2006/123/EC of the European Parliament and of the Council of 12 December 2006 on services in the internal market;

4. **Law on Nature Protection** (Official Gazette RS, No. 20/14) partly harmonized with Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version) and Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

Rulebooks are:

1. Rulebook on conditions for performing fertility testing of agricultural land and determining the amount of mineral fertilizers and pesticides (Official Gazette of the Republic of Srpska, No. 35/14)

2. Rulebook on permitted quantities of hazardous and harmful substances in agricultural land and water for irrigation and methods for their testing ("Official Gazette of RS", No. 56/16);
3. Rulebook on conditions for performing activities of determining hazardous and harmful substances in agricultural land and irrigation water (Official Gazette of the Republic of Srpska, No. 72/16);
4. Rulebook on the content of the remediation and reclamation project (Official Gazette of the Republic of Srpska, number: 97/20);
5. Rulebook on the Register of Protected Natural Resources ("Official Gazette of the Republic of Srpska" number: 79/11);
6. Rulebook on the manner of preparation, content and formation of spatial planning documents ("Official Gazette of the Republic of Srpska", No. 69/13);
7. Rulebook on the content, holders of the spatial information system and the methodology of data collection and processing ("Official Gazette of the Republic of Srpska", No. 93/13):

The only planning document in RS that refers to agricultural land is the „Basis for protection, arrangement and use of agricultural land for RS” (combination of strategy and AP for sustainable agricultural land management) and Basis for municipalities in RS (finished only for 4 municipalities: Laktaši, Doboj, Šamac, Gradiška).

4. The drivers and soil degradation processes in the country and their impact on soil management and quality

- **Drivers of soil degradation in RS are:** building of settlements on arable areas, surface exploitation of different raw materials, landfills, water accumulations, construction of infrastructures (roads, railroads, etc.), active operation of thermal power plants, industrial facilities, occurrence of water erosion and landslides, improper land and forest management practices, presence of landmines and and radioactive substances, flood and drought;
- **Soil erosion** due to the slope of the terrain, where 23.29% of the territory has a slope of 10-20 degrees, and almost 5% of the territory lies on slopes greater than 50 degrees (north and south of RS). It has a new "dimension,, because the erosive soil material used for agricultural production usually contains certain amounts of substances (nitrates, phosphates, pesticides) which are dangerous and harmful, when moved to another area;
- **Mined areas** -Report on the Work of the Mine Action Center (BH MAC) 2019-in the RS are about 199.59 km² of suspected mined areas (0.8% of its total territory).
- **Frequent fires** in Herzegovina;

- **Drought** is a complex phenomenon with many negative impacts on environment, people making food security very challenging;
- **Exploitation of mineral resources in mines and polluted by the active thermal power plants** (mines: Ugljevik, Gacko, Milići, Stanari and Prijedor, while thermal power plants in municipalities Ugljevik, Gacko, and Stanari are still active);
- Due to the **work of the industry in the pre-war period** there are areas in some municipalities (Banja Luka, Modriča, Brod), which many decades ago were highly polluted with hazardous and toxic substances;
- **Accelerated and aggressive urbanization** of the northern parts (converting agricultural land into construction land is irreversible and final);
- Expansion of settlements creates a **huge amount of solid waste** (pollutes the surrounding areas, can be found **a lot of wild solid-waste landfills** in the vicinity of populated areas);
- **Pollution due to NATO bombing** with depleted uranium in the area of Han Pijesak and Kalinovik.

5. Problems with soil management

- Low connections between institutions;
- Unprofessional staff and almost no data exchange;
- A large fluctuation of the workforce, which adversely affects the link of institutions and staffs;
- Mismanagement practices (land, water and forest) on the field work

6. Capacity assessment of the country to deal with sustainable soil management (administrative, technical, laboratories, education..)

- **Ministry of Spatial Planning, Civil Engineering and Ecology of Republic of Srpska** are responsible for protected areas, non-agricultural land (urban, industries, landfills etc).

- **Ministry of Agriculture, Forestry and Water Management of Republic of Srpska** are the competence for the main land resources (agricultural land, forestry land and waterland) and for creating land politics. In this Ministry, in the Department for Agriculture, Food Industry and Rural Development are established Sector of Agricultural Land. Main jurisdictions of this Sector are: legislative framework related to agricultural land resources, strategic framework, land rights, agricultural land management, agricultural land protection, agricultural land usage, concessions and rent agricultural land property of the RS.
- **Inspection control and supervision** over land is the responsibility of Republic Administration for Inspection in three sectors: Agricultural Inspection Sector-responsible for agricultural land, Forestry Inspection Sector-responsible for forest land and Urban Planning, Civil Engineering and Environmental Inspection Sector-responsible for non-agricultural land. In most municipalities, there are also established inspection departments with these competencies.
- In the **Public Institution "Agricultural Institute of Republika Srpska" Banja Luka** has been established the Institute for Agroecology, which has a well-equipped laboratory for analysis of soil fertility, pesticide residues and hazardous and harmful substances in the soil.

- There is also the Institute for Ecology and Environmental Protection within the Public Scientific-Research Institution **“Institute for Protection and Ecology of the Republic of Srpska” Banja Luka**, which has a well-equipped laboratory for ecological analysis of non-agricultural land.
- The basic centers for the education of new staff are the **agricultural faculties of the universities in Banja Luka and East Sarajevo**, which have exceptional experts and rich study programs. There are also equipped laboratories, but their function is primarily research, and in part only for land analysis for farmers.

7. The example of good practices

- Demining of agricultural and forest land;
- Reconstruction of old and construction new irrigation systems;
- Reconstruction and construction of flood protection infrastructural facilities;
- Revitalization of land in vulnerable and abandoned areas;
- Afforestation;
- Fire-protection measures in forest areas.

Thank you for your attention!

For more information, send questions to:
mihajlo.markovic@agro.unibl.org

