State of art in soil degradation status, pressures and trends in Kosovo

14 – 16 March 2022
Bar, Montenegro

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Idriz Gashi
Land use and land cover in the country

- Area **10,908 km²**
- In 2019 for agricultural production was used **420,141 ha.**

### Table: Use of agricultural land by categories

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>Difference '19-'18</th>
<th>Difference '19/18 in %</th>
<th>Share in % 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Arable land - field</strong></td>
<td>187,223</td>
<td>186,954</td>
<td>188,359</td>
<td><strong>188,365</strong></td>
<td>5.7</td>
<td>0.0</td>
<td><strong>44.8</strong></td>
</tr>
<tr>
<td>- from which the vegetables in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the open field (first crop)</td>
<td>7,864</td>
<td>8,033</td>
<td>7,818</td>
<td>8,319</td>
<td>501.0</td>
<td>6.4</td>
<td></td>
</tr>
<tr>
<td>- from which the vegetables in</td>
<td>457</td>
<td>467</td>
<td>468</td>
<td>518</td>
<td>49.7</td>
<td>10.6</td>
<td></td>
</tr>
<tr>
<td><strong>Garden</strong></td>
<td>994</td>
<td>1,199</td>
<td>1,003</td>
<td>1,122</td>
<td>119.1</td>
<td>11.9</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>Fruit tree</strong></td>
<td>5,493</td>
<td>6,247</td>
<td>7,687</td>
<td>9,244</td>
<td>1,557.3</td>
<td>20.3</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>Vineyard</strong></td>
<td>3,112</td>
<td>3,199</td>
<td>3,272</td>
<td>3,367</td>
<td>95.3</td>
<td>2.9</td>
<td>0.8</td>
</tr>
<tr>
<td><strong>Plant nursery</strong></td>
<td>196</td>
<td>159</td>
<td>109</td>
<td>111</td>
<td>1.8</td>
<td>1.6</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Meadows and pastures (including common land)</strong></td>
<td>218,808</td>
<td>218,314</td>
<td>218,152</td>
<td><strong>217,932</strong></td>
<td>-220.2</td>
<td>-0.1</td>
<td><strong>51.9</strong></td>
</tr>
<tr>
<td><strong>Total area of agricultural land in use</strong></td>
<td>415,826</td>
<td>416,072</td>
<td>418,582</td>
<td><strong>420,141</strong></td>
<td>1,559.1</td>
<td>0.4</td>
<td>100</td>
</tr>
</tbody>
</table>

*Source: Green Report 2020; Results of the Agricultural Holding Survey ('16,'17,'18,'19)*
The total arable land in Kosovo appears to be 44.8%.

The average of the total utilized agricultural area per capita was 0.24 ha.

Table 25: Size of holdings by arable land area, 2019

<table>
<thead>
<tr>
<th>Farm size</th>
<th>Area (ha)</th>
<th>Share (%)</th>
<th>No. of agricultural holdings</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 and less than 0.5</td>
<td>5,929</td>
<td>3.17</td>
<td>32,020</td>
<td>30.41</td>
</tr>
<tr>
<td>0.5 up to less than 1</td>
<td>12,065</td>
<td>6.45</td>
<td>18,355</td>
<td>17.43</td>
</tr>
<tr>
<td>1 up to less than 2</td>
<td>30,123</td>
<td>16.11</td>
<td>23,022</td>
<td>21.87</td>
</tr>
<tr>
<td>2 up to less than 5</td>
<td>65,202</td>
<td>34.86</td>
<td>24,231</td>
<td>23.01</td>
</tr>
<tr>
<td>5 up to less than 10</td>
<td>39,533</td>
<td>21.14</td>
<td>6,013</td>
<td>5.71</td>
</tr>
<tr>
<td>10 up to less than 20</td>
<td>16,013</td>
<td>8.56</td>
<td>1,203</td>
<td>1.14</td>
</tr>
<tr>
<td>20 up to less than 30</td>
<td>5,146</td>
<td>2.75</td>
<td>245</td>
<td>0.23</td>
</tr>
<tr>
<td>30 and more</td>
<td>13,016</td>
<td>6.96</td>
<td>200</td>
<td>0.19</td>
</tr>
<tr>
<td>Total*</td>
<td>187,026</td>
<td>100</td>
<td>105,289</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Green Report 2020; Results of the Agricultural Holding Survey ('16,'17,'18,'19)

*AHs of northern municipalities are not included.
Land use and land cover in the country
/Organic Production in Kosovo/

Cultivation in 2019
• **522.47 ha** under pumpkin for seed production / organic oil production
• **480 ha** under Medical and aromatic plants, and
• **34.07 ha** under Walnuts.

• The export of medicinal and aromatic plants as well as pumpkin seeds continues to be a semi-processed product
• Around 95% of all production goes for export to: Germany, Austria, Switzerland, the Netherlands, etc.

Source: Green Report 2020; Results of the Agricultural Holding Survey (‘16,’17,’18,’19)
General assessment of the data available /1

Kosovo Land Atlas IDWE 1974 still serves as the primary source of Kosovo’s land information and land issues – In the absence of other adequate sources of land data

• MAFRD took initiative through the engagement of the Agricultural Institute of Kosovo in another project for the Inventory of agricultural and non-agricultural lands in digital format according to the classification WRB 2014 (updated 2015) for the municipalities of Peja, Kline, Istog, Deçan and Junik.

• The Faculty of Agriculture in Prishtina still uses the land systematisation according to the authors: Škorić, Čirić and Filipovski (1985)

The institutions responsible for land monitoring are;

• Kosovo Agricultural Institute, and
• Kosovo Hydrometeorological Institute.
Main classes of soil adapted according to WRB 2014 (update 2015) in Kosovo are:

<table>
<thead>
<tr>
<th>Type of Soil</th>
<th>Area of covering</th>
<th>Stretches</th>
<th>Located</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithic Leptosol</td>
<td>42,143</td>
<td>In hilly-mountainous regions, respectively along the mountains</td>
<td>Albanian Alps, Sharr mountain, Karadak mountains, Kopaonik, Mountain range of Peja, Gjilan, Leposavic, Prizren, etc.</td>
</tr>
<tr>
<td>Colluvic Regoso</td>
<td>69,830</td>
<td>In valleys</td>
<td>Prizren, the valley of Opoja-Dragashi, the valley of Suhareka, Shtërpcë and Istog.</td>
</tr>
<tr>
<td>Rendzic Leptosols</td>
<td>26,332</td>
<td>In lower exposures in the regions of regosol</td>
<td>Skenderaj, Klina, Istog</td>
</tr>
<tr>
<td>Humic Leptosols</td>
<td>121,822</td>
<td>In hilly-mountainous regions</td>
<td>Dragash, Leposavic, Prizren, Mitrovica, Gjakova, Strpce</td>
</tr>
<tr>
<td>Vetisol</td>
<td>108,444</td>
<td>hilly plain parts of the territory</td>
<td>Lipjan, Rahovec, Vushtrri, Kamenica, Gjilan, Drenas, Ferizaj, Prishtina, etc.</td>
</tr>
<tr>
<td>Haplic Cambisol</td>
<td>282,802</td>
<td>is very acidic and most widespread type of land in Kosovo</td>
<td>Kamenica, Gjilan, Podujeva, Kaçanik, Gjakova, etc</td>
</tr>
<tr>
<td>(Dystric)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haplic Cambisol</td>
<td>173,710</td>
<td>in areas dominated by carbonate flysch with very high degree of base saturation</td>
<td>Peja, Kamenica, Gjilan, Podujeva, Kaçanik, Gjakova, etc</td>
</tr>
<tr>
<td>(Eutric)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcic Cambisol</td>
<td>32,631</td>
<td>in areas dominated by carbonate/dolomite</td>
<td>Peja, Istog, Gjilan, Zubin Potok, Deçan, etc</td>
</tr>
<tr>
<td>Rhodic Cambisol</td>
<td>27,845</td>
<td>in areas dominated by carbonate rocks</td>
<td>Malisheva, Prizren, Klina Gllogoc, Gjakova, etc</td>
</tr>
<tr>
<td>Haplic Fluvisol</td>
<td>83,862</td>
<td>in areas flooded by rivers / areas of vegetable cultivation</td>
<td>(on the Drini i Bardhë side) from Peja, through Gjakova and Klina to Prizren and along other rivers in Deçan, Vushtrri, Podujevë, etc.</td>
</tr>
<tr>
<td>Haplic Planosol</td>
<td>40,245</td>
<td>in areas with precipitation&gt; 700mm</td>
<td>Gjakova, Viti, Ferizaj, Podujeva, Prizren, Gllogoc, Istog, etc.</td>
</tr>
<tr>
<td>Mollic Fluvisol</td>
<td>13,748</td>
<td>in river valleys and is associated with Haplic Fluvisol (Aluvium)</td>
<td>Rahovec, Lipjan, Gjilan, Viti, Gjakova, Shtime, Ferizaj, etc.</td>
</tr>
</tbody>
</table>
## Legal framework linked with agriculture land

<table>
<thead>
<tr>
<th>Issue</th>
<th>Name of acts (laws and by-laws)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Government of Kosovo</strong></td>
<td>Law no. 02 / L-26 On Agricultural Land</td>
</tr>
<tr>
<td></td>
<td>Law no. 04 / L-040 On the Regulation of Agricultural Land</td>
</tr>
<tr>
<td></td>
<td>Law No.03 / L-029 on Agricultural Inspection</td>
</tr>
<tr>
<td></td>
<td>Law no. 2003/3 on Kosovo Forests</td>
</tr>
<tr>
<td><strong>MAFRD</strong></td>
<td>Administrative Instruction MA-No.36 / 06, On the Recultivation of Agricultural Land</td>
</tr>
<tr>
<td></td>
<td>Administrative Instruction MA-No.37 / 06, On the Protection of Agricultural Land from Erosion</td>
</tr>
<tr>
<td></td>
<td>Administrative Instruction MA-No.38 / 06, On the Control of Agricultural Land Fertility</td>
</tr>
<tr>
<td></td>
<td>Administrative Instruction MA-No.41 / 06, On Changing the Destination of Agricultural Land</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Laws within other ministries approved by the Government of Kosovo which correspond and relate directly or indirectly to the management of agricultural lands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law no. 04 / L-174 On Spatial Planning</td>
</tr>
<tr>
<td>Law no. 06 / L-092 On Leasing and Exchange of Immovable Property of the Municipality</td>
</tr>
<tr>
<td>Law no. 03 / L-025 On Environmental Protection</td>
</tr>
<tr>
<td>Law no. 03 / L-233 On Nature Protection</td>
</tr>
<tr>
<td>Law no. 04 / L-159 On Economic Zones</td>
</tr>
<tr>
<td>Law no. 06 / L-005 On Immovable Property Tax</td>
</tr>
<tr>
<td>Law no. 04 / L-034 On Privatization Agency of Kosovo</td>
</tr>
<tr>
<td>Law no. 04 / L-013 On Cadastre</td>
</tr>
<tr>
<td>Law No.06 / L-024 on the Treatment of Unauthorised Constructions</td>
</tr>
<tr>
<td>Law No.03 / L-040 on Local Self-Government</td>
</tr>
<tr>
<td>Law No.05 / L-087 on Minor Offenses</td>
</tr>
</tbody>
</table>

Land Consolidation Strategy 2010-2020
Drivers which affect soil quality

- **Process of urbanization and change of destination of agricultural lands**
  - Kosovo, since 2005, has in force the Law on Agricultural Land, which aims to create a legal basis for the use, protection and regulation of agricultural land.
  - According to some data of MAFRD, *about 500 hectares of agricultural land have changed their designated use within a year*. Agricultural lands have been transformed into supposedly industrial areas, but where various warehouses, business facilities, collective dwellings, etc. dominate.

- **Expansion of road infrastructure**
  - Road construction has an impact on erosion and other process which effects loss of agriculture land.
  - From the 2016 data of the author Rashica, E
    - 647 km are highways and,
    - 1,304 km are regional roads
    - 571 km are urban roads, and
    - about 6,000 km are local roads

- **Overgrazing**
  - Improper use of pastures, non-application of land reclamation and other agro-technical measures is due to lack of projects, funds, and clear definition of responsibilities in the management of jointly owned pastures.
Drivers which affect soil quality /2

• Improper forest management practices
  • Illegal logging is one of the main reasons for mismanagement of forests & it is also the mix of competencies between state institutions that have managed forests (MAFRD, regional directorates and municipalities).
  • Considering this situation, the Kosovo Forest Agency has tried to draft a law, which would once again concentrate the competencies of forests.

• Forest fires
  • According to data from the Kosovo Forest Agency during the period 2008 to 2018, an area of 14,144 ha of private and public forests was burned.
  • In July 2021, MAFRD established the Task Force for the Protection and Legal Use of Forests in Kosovo by decision of the Government of Kosovo - No. 21/19 dated 14.07.2021.
  • This Task Force was created with one goal: to protect and enable the legal use of forests and also to protect agricultural land in the Republic of Kosovo.

• Privatisation of agricultural lands
  • The process of privatisation of agricultural lands in Kosovo by the Privatization Agency of Kosovo is based mainly on the highest bids offered and has not taken into account other components that have decided the fate of those lands in the future, which during the sale of the lands was not taken into account any strategic plan for the protection and sustainable management of agricultural lands, except in some cases when the lands were sold with a special spin-off.
The main soil degradation processes /1

• **Use of mineral fertilisers**
  - According to data from agricultural questionnaires conducted by the Kosovo Agency of Statistics, *in 2019 were used about 76,467 tons of fertilisers* containing nitrogen (NPK, UREA and KAN).
  - The general trend of fertiliser use in agriculture is increasing.

• **Use of plant protection products**
  - According to the data from the Survey of Agricultural Households for the years 2015-2019 conducted by the Kosovo Agency of Statistics, it results that in *2015 were treated with pesticides 115,083.40 ha*, to mark an increase of 3,967.53 ha of areas treated with pesticides *in 2019, totalling 119,050.93 ha.*

• **Erosion**
  - There is currently no annual data on the effect of erosion.
  - Data conducted from previous research, the Agency for Environmental Protection in Kosovo result has shown that
    - 7.35% have extreme erosive intensity,
    - 16.1% strong,
    - 35.4% medium,
    - 24.55% weak,
    - 10.1% very weak, and
    - 6.5% without erosion..
The main soil degradation processes /2

- **Soil organic carbon**
  - The research that has been done on some soil profile results of SOC content range from 0.02% to 2.79%, depending on the type of soil, depth, the form of land use, the slope of the soil, soil cover, etc.

- **Compaction**
  - Lately, farmers are being supplied with heavier machinery and more advanced equipment; hence this phenomenon is more frequent.

- **Contamination**
  - The following are some of the basic sources of contamination of agricultural land:
  - Contamination from landfill - Kosovo produces a total of 2,554,308 million tons of waste.
  - 4 main sources of waste:
    - a). Municipal,
    - b). Industrial,
    - c). Construction and demolition and
    - d). Mining and quarrying.
  - In terms of the composition of waste that is recycled;
    - 69% are waste from ferrous metals and other metals,
    - 13% plastic waste and
    - 14% waste from paper and cardboard.
  - In 2019, several initiatives for the recycling of glass waste have started. The amount of recycled waste represents only about 5% of the total amount of waste generated nationwide.
The main soil degradation processes /3

• **Contamination from KEK ash dump**
  - In Obiliq alone it is considered that over 600 ha are covered by ash dumps.
  - In addition, thousands of hectares of land under irrigation around KEK are affected by the ash which is dispersed by the wind.

• **Contamination from vehicle junk yards and vehicle used spare parts outlets**
  - These activities contribute to temporary loss of agricultural land.
  - They are everywhere; in the towns and suburbs of the villages and near the main roads.

• **Contamination from vehicle CO2 emissions**
  - In Kosovo the number of vehicles registered in 2019 was 354,878 and it is well known that the quality of diesel products is below standards and most vehicles do not have a catalytic system.

• **Soil sealing**
  - There is no accurate data on the surface covered by this material as many dumps of excavated soil and construction material are illegal.
The main soil degradation processes

• **Salinisation**
  - Salting in Kosovo is not a significant problem as it was only a part of 20 ha in the meadows of Partesh this phenomenon occurs.

• **Acidification**
  - Kosovo has about 26% of Haplic Cambisol (Dystric) soils, which are very acidic and most widespread in Kosovo.

• **Soil biodiversity**
  - Demand for land in Kosovo is high and follows the same trend as in the rest of Europe.
  - Based on the State of Nature Report 2015-2017, there are 184 Nature Protected Areas in Kosovo, that cover an overall area of 126,119.29 ha (11.56% of the area of Kosovo).
  - **Therefore, there is an urgent need to make an inventory of biodiversity resources to protect the remaining valuable biodiversity resources.**

• **Floods**
  - According to a study and assessment conducted by the Kosovo Environmental Protection Agency, over 1,400 ha of riverbeds have been degraded throughout Kosovo.
  - With floods during the autumn of 2006/2007, were destroyed crops in 5232 ha
  - **Therefore, each municipality should develop a strategy and measures to mitigate the increased risk of flooding.**
Problems with soil management

- **Negative effects on fertility**
  - The tradition of agricultural production, in most cases, continues to be accepted by older generations.

- **Physical degradation of the soil**
  - Failure to apply appropriate agro-technical measures reflects the physical degradation of the soil through the destruction of the soil structure and the destruction of the balance of the air-water regime on the ground. This is especially pronounced in vertisol soils.

- **Erosion**
  - in many cases, the use of unproper agro-technical measures also causes the process of erosion, especially during tillage in perennial crops such as vineyards and trees on plots with a particular slope

- **Improper tillage**
  - Proper tillage means tillage in the direction of the isohypses, not in length. Unfortunately this is very little practiced in our conditions.

- **Burning crop residues**
  - Various seminars have been organised in this regard.
  - The trend of burning crop residues is declining significantly
Capacity assessment of the country to deal with sustainable soil management

- Kosovo has three soil laboratories which have professional staff engaged and are equipped with the most modern equipment for soil analysis.
- The legislation in force on agricultural land needs to be updated, because the existing one:
  - does not have a clear definition of competencies of central and local level.
  - does not provide for the establishment of the Agricultural Land Fund, which is more than necessary for the process of consolidation of agricultural lands.
  - the process of land consolidation according to law is very difficult to carry out, etc.

Proposals for for the protection of agricultural lands from degradation, change of destination and fragmentation:

1. **Application of the Integrated Agricultural Land Management**
   - IALM is a strategic approach that promotes responsible use of public land.
   - IALM It is a unifying inter-industrial, cross-sectoral, inter-ministerial instrument to manage and plan lands properly, reducing losses of agricultural lands, degradations, and other present consequences.

2. **Mandatory application of the Agro-Ecological Zoning process at the central and municipal level**
   - Concept of Agro-Ecological Zoning in municipal level is a process of a group of agricultural lands based on the chemical, physical-mechanical and biological properties of the land for agricultural production
Establishment of a partnership at the level of the Western Balkan countries

- Given that all Western Balkan countries have closely similar problems with sustainable agricultural land management, then establishing a joint partnership between Western Balkan countries would be more than necessary, because it would provide a common platform for the sustainable management of agricultural lands would be created.

- This platform, should contain the common standards for all the countries of the Western Balkans, both in terms of representation and in terms of management, the problems, causes and consequences faced by agricultural land that ought to be analysed in detail.

- The platform should then serve to exchange knowledge and best practices, make proposals and lobby at various levels of the Western Balkan countries and regional and European level towards the conservation and sustainable management of agricultural land, especially by degradation and loss of agricultural land for non-agricultural purposes (change of use destination).

- The platform should propose the application of a digital agricultural land monitoring system - which will provide information at any time on specific issues. Information should be transparent and accessible to the general public.

- The objectives, standards applied and the action plan within the platform must be in full compliance with the action plan for the realization of the Green Agenda for the Western Balkans and all the objectives, standards and action plans which are used in the EU member states.
Thank you for attention!