

# NEWSLETTER

## KOSOVO

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## Kosovo's AFOLU sector: large potential for emission reduction

The Agriculture, Forestry, and Other Land Use (AFOLU) sector plays a key role for the Kosovar economy by providing income for rural communities and key ecosystem services. The AFOLU sector also bears a high potential for contributing towards the country's emission reduction objectives. To quantify current emissions attributable to the AFOLU sector and to identify promising policy measures for emission reductions, the German Economic Team implemented a national GHG inventory for the AFOLU sector. Our results reveal a high potential of the sector to contribute to emission reductions in Kosovo. Policy measures from existing sectoral laws and strategies will likely further increase the AFOLU sink. Yet, considerably higher emission reductions could be achieved through further policy action in the forestry sector.

### Kosovo's AFOLU sector

The AFOLU sector in Kosovo comprises agricultural activities, forestry practices, and other land management. The sector plays a significant role in the country's economy: agriculture is a major source of income for rural communities, while forestry contributes important ecosystem services, including firewood for residents. However, challenges exist in terms of land degradation, emigration from rural areas, and outdated farming practices that compromise the long-term viability and sustainability of agriculture. These trends also raise the question of the current and future role of the AFOLU sector in Kosovo in the country's envisioned transition to a low-carbon economy.

### Greenhouse gas inventory using IPCC guidelines

To provide a quantitative basis for future emission reductions we quantified national AFOLU emissions using the methodologies laid out in the 2006 IPCC Guidelines for National Greenhouse Gas (GHG) Inventories. Our inventory relies on official statistical data for baseline emissions to quantify sectoral GHG emissions from land use, agricultural practices, and forest. We also used the latest national forest inventory, which was conducted in 2012. An update of the 2012 national forest inventory was under consideration at the time of writing; we therefore used the data from 2012 to quantify emissions and removals in the forestry sector.

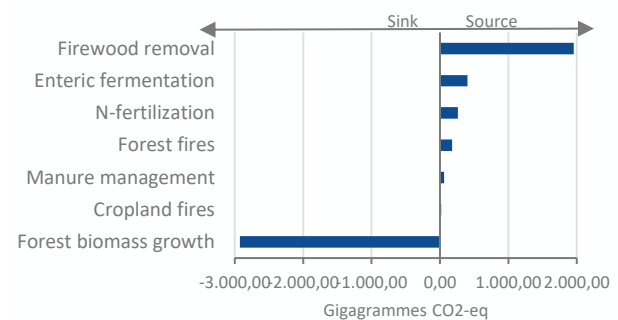
To project emissions from AFOLU until 2030, we reviewed existing government strategies and policy documents and discussed those with local stakeholders in

ministries, donor agencies, and NGOs. We use this information to project the impacts of existing policies and measures (WEM) on AFOLU emissions until 2030. We also implemented a scenario with additional policies and measures (WAM) to identify more ambitious options for emission reductions until 2030.

### Forests are fundamental for the carbon sink

Our analysis shows that the growth of biomass in forested areas constitutes the most important contribution to the GHG sink in the AFOLU sector. The carbon sequestered in Kosovo's forests more than compensates for the emissions generated by livestock and crop production. In total, the forests sequestered almost 3,000 gigagrams of carbon dioxide equivalents (Gg CO<sub>2</sub>eq) in 2021, despite emissions of almost 2,000 Gg of CO<sub>2</sub>eq that were caused by the removal of biomass for firewood, which is the predominant source of energy for heating and cooking in most rural areas of Kosovo. Forest fires, which affected 2,650 hectares in 2021, emitted further 170 Gg CO<sub>2</sub>eq. Methane (CH<sub>4</sub>) emissions that are produced in the digestive processes of ruminant livestock, mainly cattle, constitute the main emission source of Kosovo's agricultural sector, followed by nitrous oxide (N<sub>2</sub>O) emissions, mainly from application of nitrogen fertilizers.

### Emissions and removals in the AFOLU sector (2021)



Source: own calculations

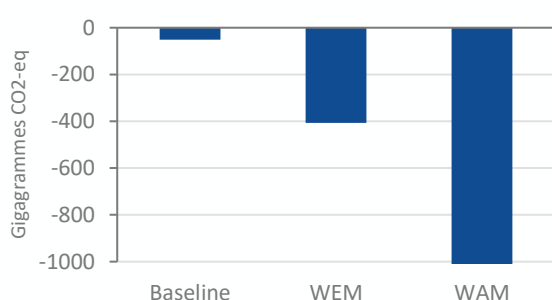
### AFOLU's large potential for emission reductions

Overall, the AFOLU sector removed approximately 51 Gg CO<sub>2</sub>eq from the atmosphere in 2021, while all GHG emissions amounted to 8,916 Gg CO<sub>2</sub>eq. In the WEM scenario, the sink increased to 407 Gg CO<sub>2</sub>eq, compared to a national total of 6,829 Gg CO<sub>2</sub>eq. In the WAM, the sink could enlarge to 1,045 Gg CO<sub>2</sub>eq while total national emissions stand at 5,772 Gg CO<sub>2</sub>eq. Hence, AFOLU has a large potential to substantially contribute to national emission reductions goals.

The improvement of the AFOLU sink in the WEM and WAM scenarios in 2030 is mainly due to increased biomass storage in the forests of Kosovo. Reasons for the

higher carbon capture are the decrease in firewood consumption due to the projected decline in rural population and the anticipated partial shift to alternative energy sources. With additional policies and measures (WAM), the CO<sub>2</sub> sink could be substantially enhanced. For example, policies that foster further reduction of firewood consumption can facilitate more biomass regrowth in forested areas compared to the WEM scenario. A reduction of the area affected by forest fires, such as through silvicultural improvements, and incentives to reduce the number of ruminant livestock contribute to emission reductions and therefore to a larger sink in the WAM.

#### Net GHG emissions in baseline, WEM & WAM scenario



Source: own calculations

#### Policy measures with focus on forestry sector needed

Implementing effective policies in the AFOLU sector can contribute to a considerable enhancement of the carbon sink. We identified the following policy measures as especially promising: promotion of efficient cooking and heating stoves, prevention of uncontrolled firewood procurement, and higher use of low-emission fuels (e.g., liquid petroleum gas and pellets). These measures reduce firewood demand and thus firewood extraction, the key driver of emissions in the AFOLU sector. Key bottlenecks to increase the carbon sink in the WAM include budgetary constraints for forest development, a decrease in the few enrolments in forest education, a lack of technical skills and labour, and few research activities in forestry. The implementation of silvicultural improvements in forest will therefore constitute a key challenge for harnessing the potential from forestry.

Limitations in the availability and quality of statistical data, such as the lack of longer time series and subnational data, constrain the depth and detail of the emission accounting. Spatially detailed data on changes in agricultural and forest land use, such as from earth observation, are not available, which limits a fine-scale assessment of land use emissions. The lack of country-specific emission factors restricts the simulations to default regional or global values. Our findings therefore remain constrained to the national level. Without subnational

spatial variation, regionally targeted policies are difficult to implement.

#### Outlook

In summary, Kosovo's AFOLU sector has a large potential to contribute to the country's emission reduction goals. Several policies and measures can help to achieve these reductions with comparatively low efforts while generating valuable co-benefits, such as for rural incomes, living conditions, and the environment. For example, reducing firewood consumption with more efficient stoves or cleaner energy sources cuts emissions, but also prevents indoor air pollution and frees rural labour for other activities. Fostering sustainable intensification of agricultural production can provide win-win outcomes by attaining higher yields and higher profitability while reducing import dependency and GHG emissions per kilogram of output. Improving vegetation cover in crop fields through efficient residue management, reduced tillage operations, and wide crop rotations improves carbon storage in soils and vegetation, enhances soil fertility and water retention in soils, lowers erosion, and increases crop yields. These low-hanging fruits should constitute preferred policy options. Future agricultural policy schemes should provide incentives for farmers to produce positive externalities from farming, e.g. through sustainable intensification strategies. This will increase the contribution of the agriculture sector towards the emission reduction goals. This will benefit Kosovo economically and help decoupling economic benefits from its GHG emissions.

This Newsletter is based on the Technical Note [“National Energy and Climate Plan \(NECP\) of the Republic of Kosovo: The AFOLU sector”](#).

Financed by the Federal Ministry for Economic Affairs and Climate Action, the German Economic Team (GET) advises the governments of Ukraine, Belarus\*, Moldova, Kosovo, Armenia, Georgia and Uzbekistan on economic policy matters. Berlin Economics has been commissioned with the implementation of the consultancy.

\*Advisory activities in Belarus are currently suspended.

#### Editor

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