



European
Commission



Climate change mitigation from land use, land use change, and forestry (LULUCF) in EU Member States

What is LULUCF and why is it important to climate change mitigation?

The United Nations Framework Convention on Climate Change (UNFCCC) defines rules for how countries should report on their net greenhouse gas (GHG) emissions in national inventories. LULUCF is the inventory sector defined by the UNFCCC that covers emissions and removals of GHGs resulting from direct human-induced use and management of land, changes in land use patterns, and forestry activities.

Trees, woody vegetation, and soils are natural carbon “sinks”, yet the way the land is used and managed can also be a source of emissions, both of carbon and of other GHGs. LULUCF sinks and sources are currently

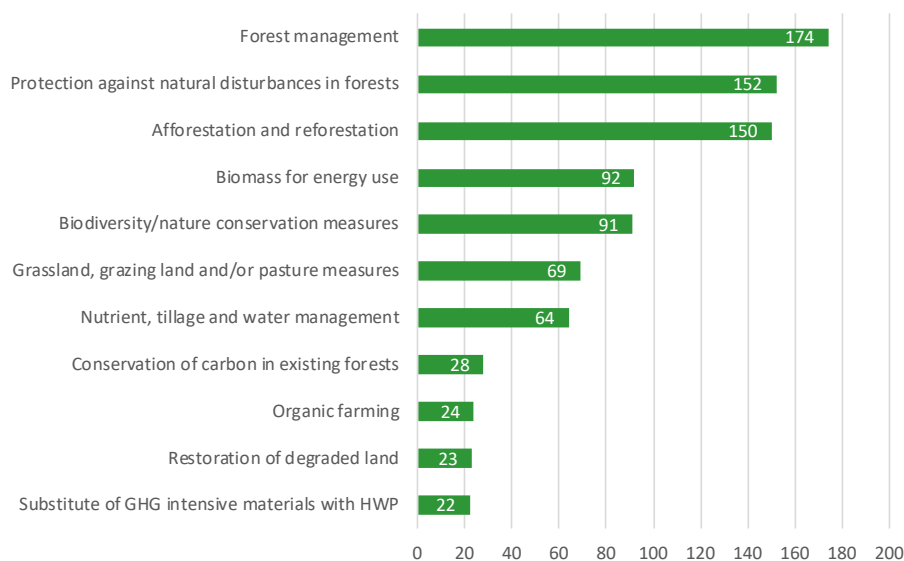
covered by international obligations under the Kyoto Protocol, but not by the EU’s internal climate targets for 2020. They will, however, be included in the EU’s climate and energy targets from 2021 onwards. The relevant changes to EU legislation reflect the commitments made at the 21st Conference of the Parties of the UNFCCC in Paris in December 2015. The “Paris Agreement” is very clear that the contribution from land use and forests in reaching the long term climate mitigation objectives will be critical.

What LULUCF actions do EU Member States take to mitigate climate change?

Member States are required by the current EU legislation to report regularly on the action they are taking to reduce net emissions from LULUCF. A review of the first two rounds of reports submitted by Member States under Article 10 of the LULUCF Decision (Decision No 529/2013/EU) reveals a wide range of activity. Nearly 680 measures and policies were reported. Many of

them focus on forest management and afforestation, but there is also a significant number of measures in the agriculture sector, especially in grassland management and management of nutrients, tillage, and water.

Number of measures and policies reported per area of LULUCF action (Source IEEP, 2017).



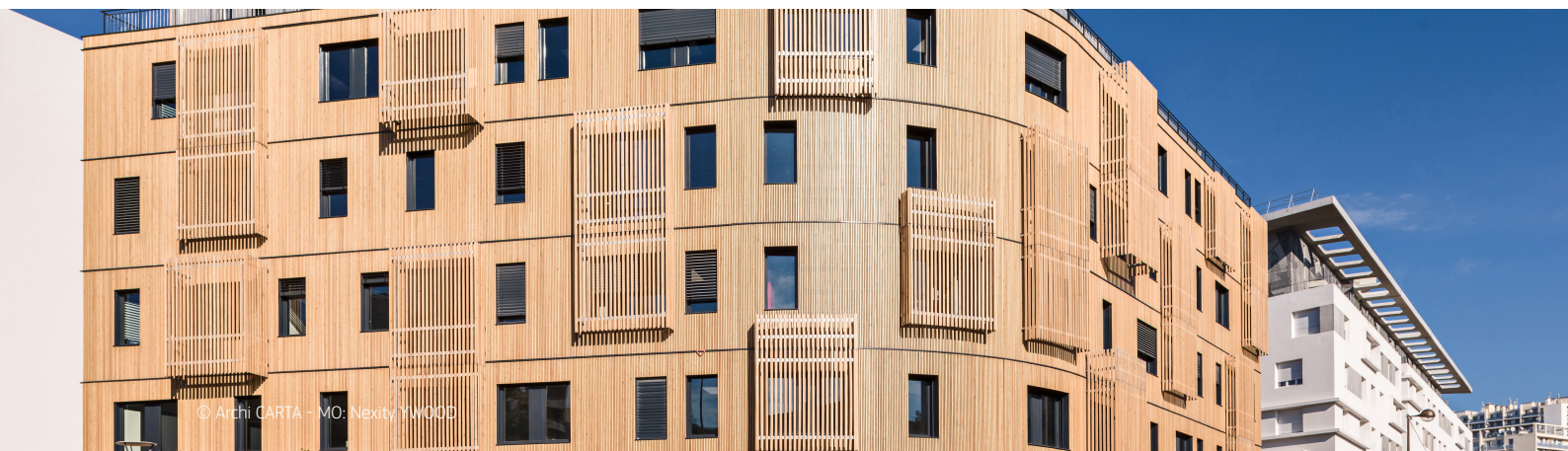
The forest measures reported by Member States often refer to sustainable forest management and to the multi-functionality of forests. Both concepts are aimed at preserving and enhancing the ecological, economic,

and social functions of forests. Some Member States are also exploring practices which aim to maximise the contribution of forests to climate change mitigation; for instance:

Poland is trialling a “**forest carbon farms**” initiative, with the aim of creating a network of areas which deliver climate mitigation benefits in state forests. These carbon farms are expected to help improve know-how and public awareness about the carbon sequestration ability of selected forest types, and how it can be enhanced by changes to forest management, such as shaping forest stand structures of various heights. The initiative also includes a comprehensive monitoring system aimed at a better assessment of the additional effect on forest carbon stocks.

Many Member States focus on the economic potential of forests while at the same time seeking to ensure climate benefits. Such approaches include the harvesting of timber to help substitute for other, more GHG-intensive, materials in other sectors of the

economy. Examples include bioenergy production from forest resource (reported by 19 EU Member States), and replacing materials such as plastic or concrete with wooden products, e.g. in furniture or construction (reported by 11 Member States).



YWood commercial building in Marseille – the tallest wooden building in France in 2016.

France has implemented an action plan to become a pioneer and a global leader in multi-story wooden buildings construction. The implementation of the plan involves many stakeholders mostly from industry, building, and public sectors. The first showcase **tall wooden buildings** should be built in 2018. 36 buildings will be erected in total ranging in height from 6 to 18 floors. The future buildings are advertised as being “comfortable, energy efficient, and carbon storing”. The support provided to the selected projects includes technical, administrative and financial measures, such as joint organisation of architecture competitions, support to construction project management, and facilitated access to additional finance from the French Environment and Energy Management Agency.

Agriculture and soils actions mentioned by Member States include a wide range of measures and policies such as preservation of high nature value grasslands in Belgium or low till systems in Austria. Organic farming

is also frequently linked to LULUCF actions by the reporting Member States. Peat soil related measures attract a lot of attention and are most popular in Estonia, the Netherlands, Germany, and the UK.



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Submerged drains in the Netherlands.

The Netherlands is testing a new approach to preventing peat decomposition (oxidation) on permanent pastures used for dairy farming. Peat decomposes and emits GHG when groundwater levels are low. Due to different stakeholder interests, managing ground water levels is not easy: the productivity of pastures relies on lower ground water levels than those required to prevent the peat soils from oxidising. Peat decomposition however leads not just to GHG emissions, but also to eutrophication of surface water, and problems with infrastructure and housing. **Submerged drains** are therefore an innovative solution. Unlike the usual drains, they are installed around 15 cm below ditchwater level (drainage ditches surround fields in certain parts of the Netherlands). The grassland is drained in wet periods as with usual drainage, but in dry periods, when the groundwater levels get below the ditchwater level, water is infiltrated to reduce peat oxidation.

What are the policy instruments supporting LULUCF actions in the Member States?

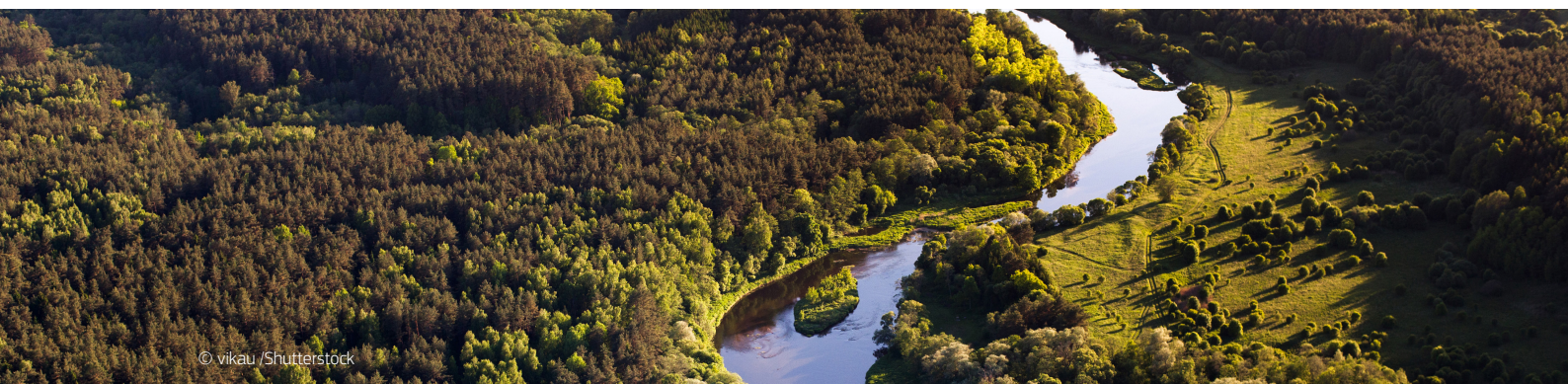
Where Member States report on the provision of financial support to encourage LULUCF actions, the EU Common Agricultural Policy (CAP) is often mentioned as the main funding source. Member States report LULUCF mitigation benefits from the greening of CAP direct payments (particularly the requirements to maintain permanent pasture, and to establish and maintain ecological focus areas). They also emphasise the contribution of CAP Rural Development Programmes (RDPs), particularly the use of the agri-environment-climate measure, the forest investment, the afforestation measure and forest-environmental and climate services measures. Member States rely heavily on the CAP to fund current LULUCF mitigation actions: according to European Commission data, the overall 2014-2020 funding for the rural development measures reported by Member States under Article 10 of the LULUCF Decision is over 7.6 bn EUR, including more than 5.1 bn EUR from the EU budget.

Some LULUCF actions are also based on national forestry policies, shaped in part to reflect the concepts

of sustainable forest management and multi-functional forests. However, the bulk of forestry policy implementation actions are supported under the CAP, such as afforestation, fire prevention, or conservation of forest genetic resources.

Member States also report LULUCF actions linked to other EU policies, such as the LIFE programme, the Natura 2000 legislation, the Nitrates Directive, the INSPIRE Directive, and the Renewable Energy Directive.

There is little sign however that the actions taken by the Member States go beyond the implementation of the CAP, or measures to comply with other EU law; or that they design their policies to exploit LULUCF's mitigation potential in the best feasible way. Only a few policy tools exclusively designed at national level were identified; these include fiscal instruments to encourage higher use of biomass in energy installations.



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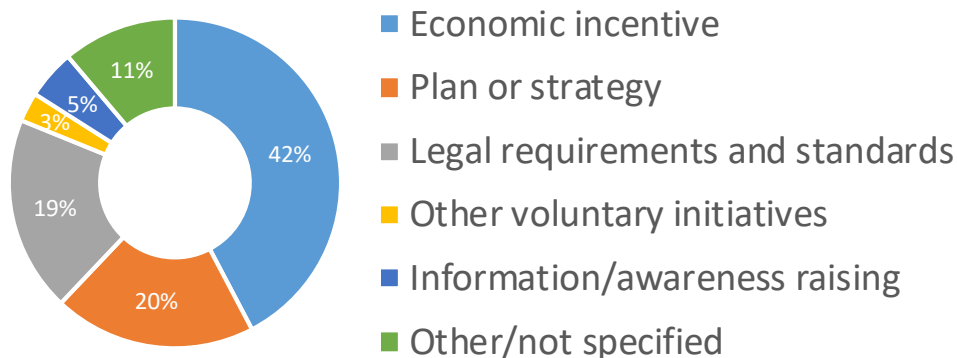
Neris river in Lithuania – part of the Natura 2000 network.

Lithuania reports “Prioritised Action Frameworks (PAFs)” as one of its LULUCF measures, referring to the requirement in Article 8 of the Habitats Directive and to the need to increase uptake of the relevant activities by Lithuanian farmers. Lithuania’s progress report under Article 10 of the LULUCF Decision notes that an additional initiative was added: an approval of a Landscape and Biodiversity Conservation Programme for 2015-2020, including, for Natura 2000 sites, “management measures related to climate mitigation and adaptation activities in grasslands, wetlands, and forests”. The climate components of the programme indicate an enhanced compliance approach, which helps to maximise the LULUCF mitigation potential of actions framed initially to respond to the Natura 2000 legislation.

In terms of types of policy support, the vast majority of reported measures and policies are implemented through economic incentives. Notably, all CAP related measures are counted as economic incentives. Plans and strategies (e.g. Renewable Energy Action Plans

or Forest Management Plans) also play a prominent role in LULUCF related activities. Many Member States refer to their laws and regulations (e.g. Forest Codes), as a source of binding principles and standards that are relevant to climate action in the LULUCF sector.

Type of instruments implementing the reported LULUCF actions (source: IEEP, 2017).



What are the costs and GHG impacts of the actions?

Most Member States did not provide any quantitative estimates of the costs and GHG impacts of their LULUCF actions, and there was little systematic reporting on the uptake of actions. A literature review carried out for this study suggested however that there is significant climate mitigation potential from:

- forest management,
- carbon sequestration in agricultural soils,
- avoided deforestation, and
- use of harvested wood products for non-energy purposes

Although it is not possible to quantify the costs of the LULUCF actions from the basis of the information

reported by Member States, the literature review suggests there are low opportunity costs of mitigation actions in some land use activities, but a high level of capital costs required for the initial land investment. Moreover, management-related measures can be cost-neutral, whereas measures in which the use of the land is changed can be very costly, assuming land purchase is required.

The main reasons for the lack of reported information on costs or GHG impacts appear to be technical uncertainty about measurement of LULUCF sinks and emissions, but also the lack of availability of relevant land use data.



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Open fen area with moderate drainage impact in the northern part of the Läänemaa Suursoo mire complex in Estonia – one of the focus areas under LIFE peat Restore project.

About the project

The factsheet is developed by the project “Analysis of LULUCF actions in EU Member States as reported under Art. 10 of the LULUCF Decision” (CLIMA.001/FRA/2015/0014) carried out for the European Commission by the Institute for European Environmental Policy (IEEP), Ricardo-AEA, and Wageningen Environmental Research in 2017.

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