**GROWING MEDIA PRODUCERS ASSOCIATION**

**SUSTAINABILITY STRATEGY**

**2024**

**FOREWORD**

Today, we find ourselves at a crucial crossroads, where our actions and decisions will have a direct impact not only on our businesses but also on the planet as a whole. As an association uniting many of Lithuania's growing media producers, we have a unique opportunity and responsibility to shape a sustainability path that ensures the continuity of our operations while minimizing our negative impact on the environment.

The world is changing rapidly. Climate change, depletion of natural resources, and increasing social inequality are challenges we face daily. To meet these challenges, we must integrate sustainability principles into every aspect of our activities, from production to consumption, from innovation to everyday operations.

The goal of our strategy is to promote responsible and conscious use of resources, reduce waste and carbon dioxide emissions, and contribute to the restoration of biodiversity. We will also give special attention to social responsibility, ensuring fair working conditions, supporting local communities, and encouraging responsible consumer behavior.

Sustainability is not just a trendy phrase, it is a necessity that requires joint effort and innovative solutions. It is a path that enables us not only to preserve our planet for future generations but also to strengthen the competitiveness and reputation of our businesses in the global market.

This strategy reflects our collective commitment. Each of us, regardless of company size, can and must contribute to building a sustainable future. We encourage the sharing of best practices, collaboration, and exploration of new ways to operate more effectively and sustainably.

Together, we can create meaningful change and demonstrate that Lithuanian businesses are not only economically successful but also responsible members of society who care about our shared wellbeing and the preservation of the environment.

Giedrius Kavaliauskas
Executive Director of the Growing Media Producers Association

**SUMMARY**

The Growing Media Producers Association (ATGA) recognizes that the challenges of climate change, depletion of natural resources, and social injustice require responsible and sustainable practices across all areas of this sector. The objective of this strategy is to integrate sustainability principles into all activities of the association, aiming to reduce environmental impact, promote the conscious use of resources, and support both communities and employees.

The examination of the current situation, data collection, and evaluation have become the foundational elements of this sustainability strategy. A gap analysis identified discrepancies between the current state and desired sustainability goals, highlighting key areas for improvement. In terms of carbon dioxide emissions assessment, it was emphasized that there is currently a lack of a universal, science-based methodological approach that can accurately estimate emissions from peatlands in specific locations. Therefore, a decision was made to examine the real situation and calculate $CO_2$ emissions based on the actual exploited peatland areas. Such calculations will allow for informed decision-making, prioritization, and effective emission reduction.

This systematic approach also helps to establish a reliable monitoring and reporting structure, ensuring transparency and strengthening trust among stakeholders. In the long term, this comprehensive, data-driven approach will not only support the achievement of near-term environmental goals but also contribute to the association’s sustainable growth by embedding sustainability into its operations and decision-making processes.

The beginning of any strategy is a collective focus and the decision to commit. This sustainability strategy is the first step toward realizing a long-term vision of sustainability - one that balances economic needs, environmental requirements, and social responsibility. ATGA members are united in their efforts to foster a responsible, innovative, and sustainable growing media sector. The strategy outlines a coordinated system for the association's members to concentrate initiatives, enhance performance, and engage both internal and external stakeholders.

**ABOUT THE ASSOCIATION**

The Growing Media Producers Association (ATGA) unites many Lithuanian companies operating in the growing media sector, with the aim of promoting the sustainable and responsible development of the industry.

The growing media sector is a vital link in agriculture and horticulture. Our members specialize in the production, supply, and innovation of high-quality peat and other growing media to meet both local and international market needs. ATGA is committed to encouraging environmentally friendly practices, technological advancement, and social responsibility in its activities.

Our mission is to ensure the responsible[1] and sustainable use of natural resources, based on the "Responsible Peatland Managment"[2] strategy, initiated by the International Peat Society[3]. This strategy outlines how to manage peatlands effectively and sustainably - minimizing environmental impact, preserving biodiversity, and ensuring the long-term availability of peat as a valuable resource. Guided by this framework, we seek to align economic interests with environmental standards, promote innovation and collaboration among members, and contribute to nature conservation and biodiversity protection. We believe that responsible practices and a conscious approach to the environment can not only increase the competitiveness of our sector but also ensure a healthier, cleaner planet for future generations.

ATGA members strive for the highest quality standards, continuously improve production processes, and invest in research and development. We also place strong emphasis on employee wellbeing, fair working conditions, and supporting local communities. Each association member is committed to contributing to our shared goal - building a sustainable and innovative growing media industry.

*Table 1. Association members categorized by activity type*

| Peat Extraction and Growing Media Production | Service and Growing Media Component Companies |
|---|---|
| Klasmann Deilmann Šilutė | GJ Magma |
| Klasmann Deilmann Laukesa | Hofer & Pauz GBR |
| Klasmann Deilmann Ežerėlis | Kamineros krovinių terminalas |
| Laveksa | Naujasis Kalcitas |
| Legra | Pelkių atkūrimo ir apsaugos fondas |
| Patyrio samana | Premier Tech Slootweg B.V. |
| Presto durpės | Rempaka |
| Renavo durpynas | Soltera |
| Rekyva | Turftech |
| Sulinkiai | |

At the time of establishment, the association set forth common objectives to achieve its main goal:

- Improve peat industry practices and peatland management;
- Standardize, classify, and specialize production and extraction;
- Provide consultation on rational extraction and business development;
- Share and analyze internal economic information among members;
- Analyze the influence of capital, goods, and raw material markets on member activities;
- Represent member interests in governmental institutions and submit proposals;
- Support economic and professional cooperation with foreign partners;
- Organize exhibitions, seminars, conferences, and professional development on responsible peat extraction, processing, and marketing.

[1] Home Responsibly Produced Peat - Responsibly Produced Peat
[2] Responsible Management - International Peatland Society
[3] IPS - International Peatland Society

The activities of companies within the Growing Media Producers Association are concentrated in regions where they create employment opportunities for local communities. They work closely with local authorities, cultural, educational, and social service institutions, and community organizations. Members support various cultural events, children's camps, and provide sponsorships, as well as host students and pupils for educational and internship purposes.

The Growing Media Producers Association is a member of the Lithuanian Confederation of Industrialists and the International Peat Society[4]. It also collaborates closely with Growing Media Europe[5] and participates in projects and research led by the Peat Alliance.

Peat Alliance research projects focus on analyzing the peat sector and related climate challenges in the European Union. Planned studies will assess how peat used in growing media and soilless cultivation contributes to greenhouse gas (GHG) emissions.

Peat consists of approximately 50% carbon in its dry matter. The Intergovernmental Panel on Climate Change[6] (IPCC) methodology currently used for calculating GHG emissions may overestimate actual emissions due to decomposition rates of peat. Research aims to define precise emission factors for each country and examine the carbon cycling of peat used in production, supporting sustainability goals and assessing long-term effects on soil and plant carbon sequestration.

The project also includes a socioeconomic assessment of the peat industry in Lithuania, Latvia, and Estonia, evaluating the impact of peat extraction in these countries.

Each year, ATGA, along with its Baltic partners, organizes the Baltic Peat Producers Forum[7], the most significant event in the Baltic States dedicated to innovation and sustainable practices in growing media. In 2024, the 22nd edition of the forum brought together several hundred peat industry participants and focused on the theme of sustainability in the peat sector. The forum is a movement toward innovative, responsible, and sustainable peat use in growing media. Participants discussed responsible peat utilization aligned with environmental protection and community empowerment, emphasizing the need to balance natural resource use with ecosystem conservation. We understand the importance of harmonizing the use of peat-based media with the preservation of natural ecosystems. This year's central theme - "Shaping the Future of Growing Media for People and the Planet" - reflected our commitment to implementing innovative practices that nurture the environment and empower communities.

Among ATGA's members is the Peatland Restoration and Conservation Fund, a non-profit environmental NGO dedicated to protecting and restoring peatlands and other ecosystems and ensuring their sustainable use. This partnership is especially valuable in restoring hydrological regimes in exploited peatlands and planning environmental protection projects.

Production types of ATGA member companies:

- Products for horticulture and vegetable farming
- Products for flower farms
- Products for forest seedlings
- Products for mushroom growers
- Bedding for livestock and poultry farms
- Production of growing media additives and other non-metallic mineral products

[4] IPS - International Peatland Society

[5] Home | Growing Media Europe | Soil Industry (growing-media.eu)

[6] https://www.ipcc.ch/

[7] Baltic Peat Producers Forum | growing media

Service companies within the association operate in areas such as:

- Maintenance, design, and manufacture of industrial equipment
- Port logistics services
- Geological surveying and exploration of mineral resources
- Consulting services on ecosystem restoration, protection, and sustainable use, including public education

*Table 2. Market Segmentation of Extraction Companies*

| | | |
|---|---|---|
| 1 | UAB Klasmann-Deilmann Šilutė | 26% |
| 2 | UAB Klasmann-Deilmann Ežerėlis | 18% |
| 3 | AB Rėkyva | 17% |
| 4 | UAB Klasmann-Deilmann Laukėsa | 16% |
| 5 | UAB Sulinkiai | 10% |
| 6 | UAB Renavo durpynas | 5% |
| 7 | UAB Laveksa | 4% |
| 8 | UAB Legra | 2% |
| 9 | UAB Presto durpės | 1% |
| 10 | UAB Patyrio samana | 1% |

Peat is both exported from and imported into Lithuania. In recent years, the annual export volume of raw peat and peat products has averaged around 900 thousand tons.

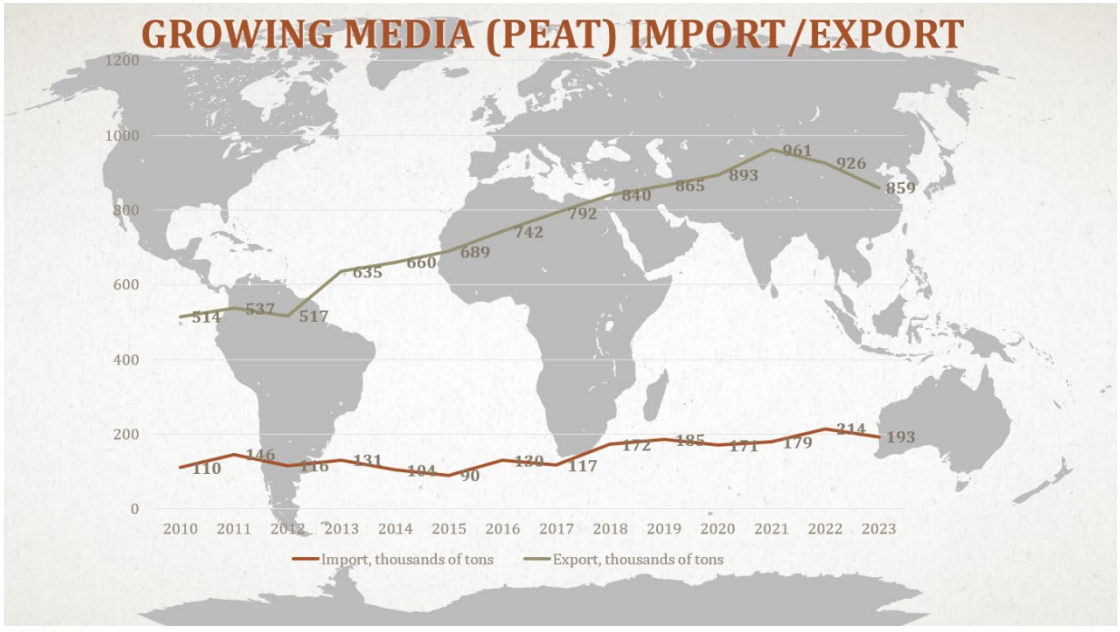



*Figure 1. Export and Import Volumes of Peat Raw Material and Products to/from Lithuania. Official Statistics Portal*

In terms of geographical distribution, the largest volumes of peat are exported to the Netherlands, Poland, Germany, and Italy.

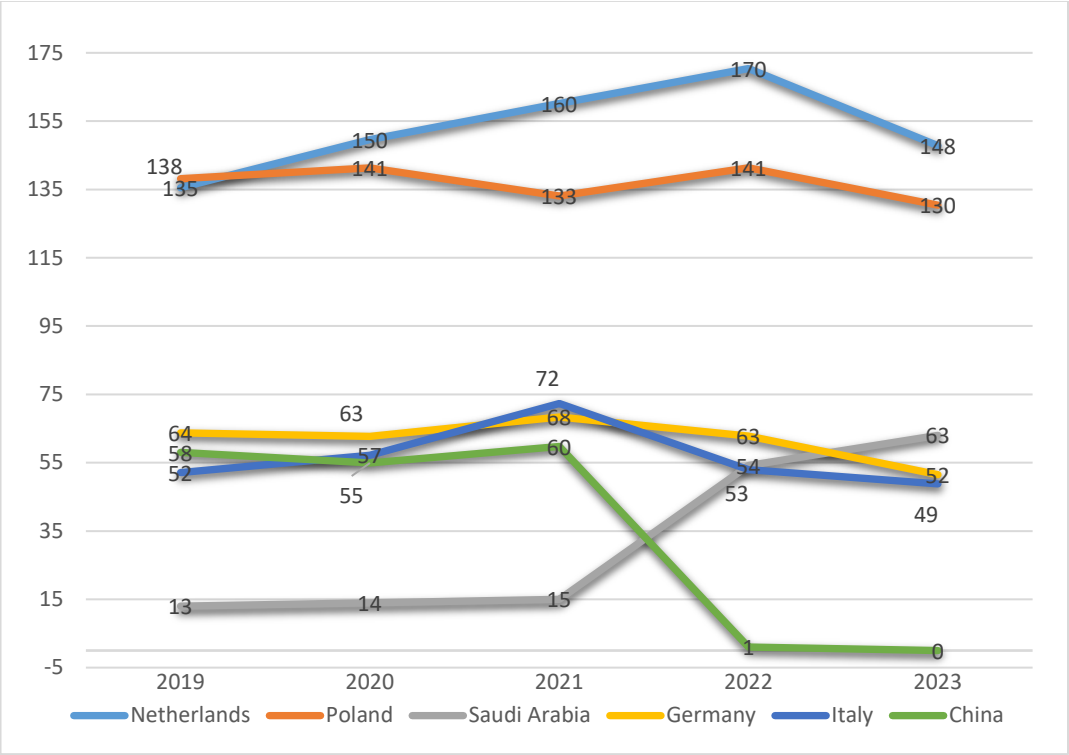



*Figure 2. Export Volumes of Peat Raw Material and Products from Lithuania. Official Statistics Portal*

In recent years, imports of peat and peat-based products into Lithuania have also been increasing. The largest volumes of peat are imported from Latvia. Due to political reasons, peat imports from Belarus have been declining.

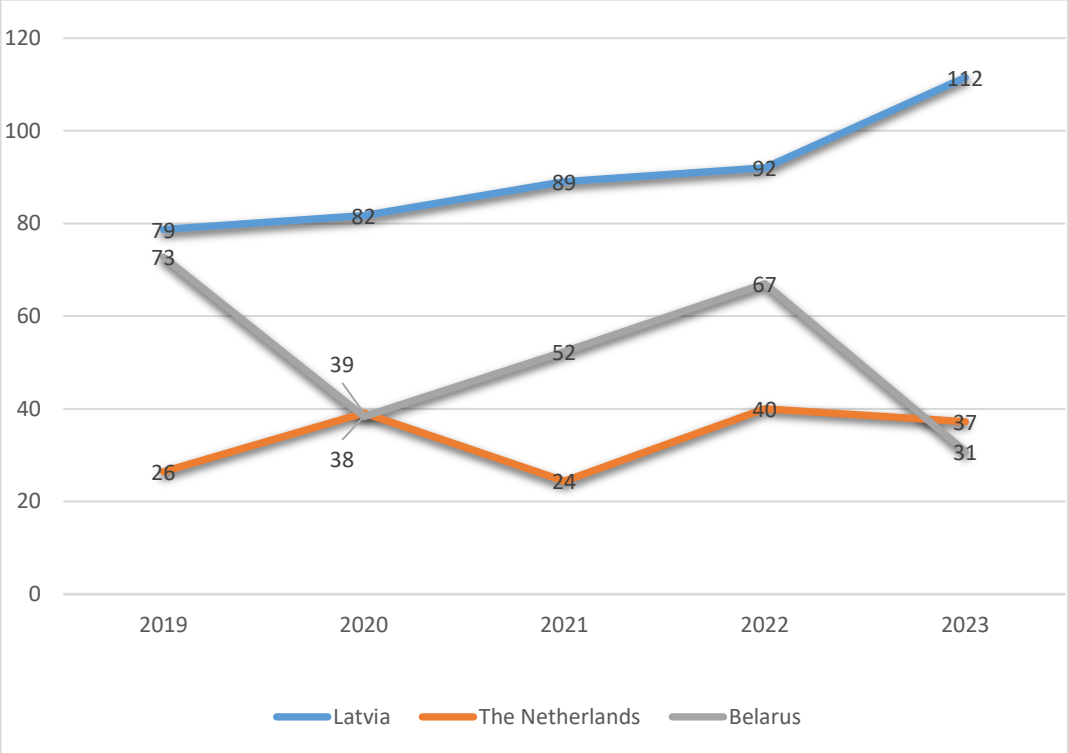



*Figure 3. Import Volumes of Peat Raw Material and Products into Lithuania. Official Statistics Portal*

**PEAT INDUSTRY AND SUSTAINABILITY**

Peatlands are terrestrial wetland ecosystems that cover more than 3% of the Earth's land surface. They are found in various climate zones and regions and form over thousands of years as plant material accumulates in waterlogged soils, trapping a significant amount of stored carbon. In fact, peatlands are the largest terrestrial carbon stores on the planet—absorbing twice as much carbon as all the world's forests and storing about one-third of global carbon soil. As stated by UN environmental expert Diana Kopansky, "Wise use of wetlands must be integrated into strategies addressing climate change."[8]

Peat consists of organic matter that has decomposed over thousands of years. Intact peatlands absorb $CO_2$ from the atmosphere through photosynthesis. Because vegetation in peatlands decomposes incompletely under wet conditions, carbon is not released back into the atmosphere. In the absence of oxygen, plant material breaks down much more slowly, meaning that the carbon contained in the vegetation remains stored rather than being decomposed by microorganisms and returned to the atmosphere. For this reason, peatlands are highly efficient carbon sinks, and peat itself is a significant global carbon reservoir[9]. Though peatlands cover only about 3% of the Earth's surface, they contain more than 600 gigatons of carbon in their soil - up to 44% of all soil carbon - exceeding the carbon stored in all other types of vegetation, including the world's forests.[10]

Peat is used for various purposes, which can be categorized into three main groups:

- Energy – as fuel for electricity and/or heat production, and as a direct heat source in industry, residential buildings, and other applications;
- Horticulture and agriculture – for example, as a growing medium, soil conditioner, animal bedding, or a component of compost;
- Other uses – such as a source of organic and chemical products (e.g., activated carbon, resins, waxes), pharmaceuticals (e.g., steroids and antibiotics), and therapeutic applications (e.g., peat baths and medicinal preparations).

This strategy focuses on the use of peat for growing media production. For many years, and still today, peat has been the primary component in many growing media products and the most important standalone organic substrate. Peat possesses excellent physical properties, such as high air porosity, water retention capacity, low bulk density, and it is generally free from weeds. It also has unique chemical properties, such as high cation exchange capacity and easily adjustable pH[11]. These qualities, combined with their availability in countries important to horticulture, have made peat widely used both as a standalone growing medium and as a component in growing media mixtures.

IMPACT ON THE CLIMATE

Historically, for centuries, peat resources have been used as fuel or as raw material to produce growing media. While peatlands are naturally regenerative systems, the extraction of energy or cultivation-compatible peat requires dry conditions. Therefore, peat is extracted by draining high and low bog areas. Peat has been used as fuel for more than 4,000 years. Since the mid-20th century, peat has also been utilized in horticulture as a raw material for producing various growing media.
Peat extraction, meaning the process of harvesting peat by draining peatlands, has environmental consequences. Beyond the $CO_2$ emissions released during extraction, it also impacts biodiversity. In their natural state, peatlands help cool the climate, reduce flood risks, and support biodiversity.

---

[8] https://www.linkedin.com/pulse/preserving-peatlands-sustainable-future-carbonaires/
[9] https://www.ceh.ac.uk/sites/default/files/Peatland%20factsheet.pdf
[10] https://www.iucn.org/resources/issues-brief/peatlands-and-climate-change#:~:text=Peat%20soils%20contain%20more%20than,types%20including%20the%20world's%20forests.
[11] https://zeltazeme.com/is-it-possible-to-completely-replace-peat/

Peatlands are home to a variety of species, including rare and endangered plants and animals. When these habitats are disturbed, the species that depend on them are put at risk.

RISKS

Due to the reasons mentioned above, the peat extraction industry is often considered unsustainable. However, before making such a definitive judgment, several important aspects should be distinguished. Peatlands are drained for various purposes: primarily for agricultural expansion (51.8%), forestry (25.7%), and drainage of tropical wetlands (22.4%). In contrast, only a relatively small portion (0.1% of all global peatland area) is used for peat extraction for energy, growing media, and other product manufacturing.[12,13] Therefore, each sector bears a degree of responsibility for the use of peatlands and their impact on climate change.

Another important point when evaluating the climate impact of peat as a growing medium is the accuracy of that assessment. The main issue is that the environmental impact of peat use in growing media is often assessed either fragmentarily or based on generalized data or indices, which are not grounded in site-specific calculations. As a result, such conclusions may be inaccurate or misleading. For this reason, before discussing mitigation measures, the environmental impact must first be assessed properly and precisely.

*Carbon dioxide emissions assessment*. To reduce negative environmental impacts, it is essential first to properly evaluate those impacts. A proper assessment of emissions from peatland exploitation requires accurate scientific research based on specific locations and types of peat. This involves calculating the precise area under extraction and its characteristics, as not all peatlands emit the same amount of carbon.

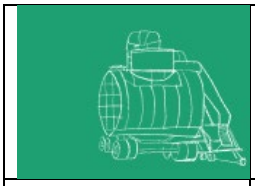
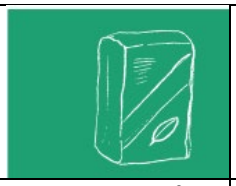
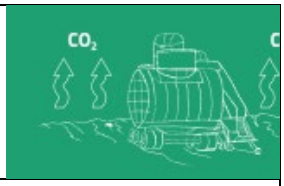
Traditionally, carbon dioxide emissions are calculated using the methodology provided by the Intergovernmental Panel on Climate Change (IPCC)[14]. However, site-specific studies conducted in some countries have revealed that calculated emissions often significantly exceed actual emissions. For example, the Estonian Peat Association commissioned chemical analyses of products from several companies by three laboratories. The compiled data showed that the nominal GHG emissions from Estonia's peat sector were overestimated by 28.5% compared to actual levels. According to the Estonian Peat Association, the sector has for years highlighted discrepancies in $CO_2$ emission calculations related to peat use in growing media. These calculations are usually based on international average carbon content in peat, while Estonia's locally gathered data indicate that actual figures are significantly lower[15].

In Lithuania, we do not currently have specific calculations that accurately evaluate the peat industry's impact on the climate. Assessing the sector's performance based on unverified and incomplete data is misleading.

*Life cycle assessment of the product.* When evaluating the climate impact of peat extraction and growing media production, it is crucial to consider the product's full life cycle stages (see Table 3), as emissions may occur in different geographic locations (e.g., extraction versus export). For instance, a study by the Estonian University of Life Sciences found that regardless of the emissions calculation model used, peat products, after their use, return to the soil and over time significantly increase soil carbon stocks. According to the study, nearly 30% of the carbon in peat never becomes atmospheric emissions. In other words, carbon cannot simultaneously remain sequestered in solid form in the soil and exist in the atmosphere as a gas.[16]

[12] https://peatlands.org/assets/uploads/2019/10/srpm2019finalforprint.pdf
[13] https://www.worldenergy.org/assets/images/imported/2013/10/WER_2013_6_Peat.pdf
[14] https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_07_Ch7_Wetlands.pdf
[15] https://www.pollumajandus.ee/uudised/2024/06/13/teadusuuringud-riik-on-turbasektorile-aastaid-ulekohut-teinud
[16] Teadusuuringud: riik on turbasektorile aastaid ülekohut teinud - Põllumajandusuudised (pollumajandus.ee)

*Table 3. Life Cycle of Peat Extraction and Distribution for Growing Media*[17]

|  |  |  |  |   |
|---|---|---|---|---|
| Extraction | Preparation of Growing Media | Distribution | Use | Decomposition at Extraction Site |
| Collection | Packing | Transportation | Plant Cultivation | Oxidation |
| The initial life cycle stage covers peat extraction activities at peatlands, including equipment use, road construction, drainage, surface preparation, vacuum harvesting, site closure, and transport to processing facilities. | Growing media preparation includes post-extraction operations such as substrate processing, using equipment, infrastructure, and energy. After sieving and mixing with other components, peat is typically compressed and packaged. This stage also considers the energy and infrastructure used in administrative operations. | The distribution stage includes transportation operations from growing media preparation facilities to end-user markets or distribution centers (such as shipping yards, wholesale outlets, or retailers). | The use stage involves plant cultivation with the growing medium. It is difficult to isolate the environmental impact of peat from other cultivation factors, so assessments often exclude inputs and waste from activities like heating, irrigation, and fertilization. | Peat decomposition at the extraction site is not a distinct life cycle stage. Draining peatlands shifts GHG emissions—methane decreases while $CO_2$ increases. Successful restoration can return emissions to near-natural levels. |

*Peat Alternatives in Growing Media.* In recent years, there has been increasing discussion about the environmental impact of using peat in horticulture and the possibilities of replacing it in growing media. The claim that using waste materials such as coconut coir or wood fiber is more environmentally friendly than using peat is, in fact, debatable. This issue is not as straightforward as it may initially seem.

A full life cycle analysis of each material must be considered—including production, processing, transportation, use, and end-of-life—to assess the impact on climate change, resource use, human health, and ecosystem quality. In reality, every raw material has some degree of environmental impact. For instance, coconut coir, compost, wood fiber, and bark all go through one or more processing stages before they can be used as growing media components, each of which contributes to their environmental footprint.

When selecting alternatives to peat, the following aspects should be evaluated: 1) Availability – the component must be readily available in sufficient quantities; 2) Physical properties – such as water retention capacity, absorption, and air porosity; 3) Biological properties – the growing medium must be free from plant pathogens and weeds, and be biologically stable; 4) Consistency – physical, chemical, and biological properties of the components must remain stable across batches and years; 5) Economic feasibility – considering the costs of acquisition, transportation, and secondary processing; 6) Chemical properties – including nutrient content, mineralization, and acidity; 7) Environmental regulations – ensuring the material complies with environmental standards[18].

It is important that the replacement of peat in growing media is not simply a defensive measure—unless it results in actual benefits, such as diverting organic residues into agriculture or enhancing carbon sequestration.

[17] CSPMA_ISR_Report_2014_web_LW.pdf (tourbehorticole.com)

[18] https://zeltazeme.com/is-it-possible-to-completely-replace-peat/

In practice, it is very difficult to find alternatives to peat-based media that are accessible, sustainable, and meet both quality and environmental requirements.

**Use of Peat for Energy**. For a long time, peat was used as fuel in various countries, which gave it a negative reputation as a symbol of environmental harm. This particular use of peat is the least environmentally friendly, not only due to the drainage of peatlands, but also because of the $CO_2$ released during combustion. Peat has a lower calorific value than coal (i.e., it produces less energy per ton burned), yet it emits more $CO_2$ per unit of energy generated, making it one of the least climate-efficient fuels for producing electricity or heat.

According to the World Energy Council, only about 0.35% of global peat resources are currently used for energy[19]. Up until 2017, more than half of extracted peat was used for fuel. In countries like Finland, Ireland, and Sweden, peat was an important local or regional energy source (Joosten & Clarke, 2002).

However, due to environmental pressures, rising carbon trading prices, and climate targets, peat use for energy has significantly decreased in recent years[20]. As shown in Figure 4, peat use for energy is now very low compared to other fuel sources. Within the European Union, as part of the plan to achieve climate neutrality by 2050, the use of peat as a fossil fuel for energy is gradually being replaced by renewable energy sources.

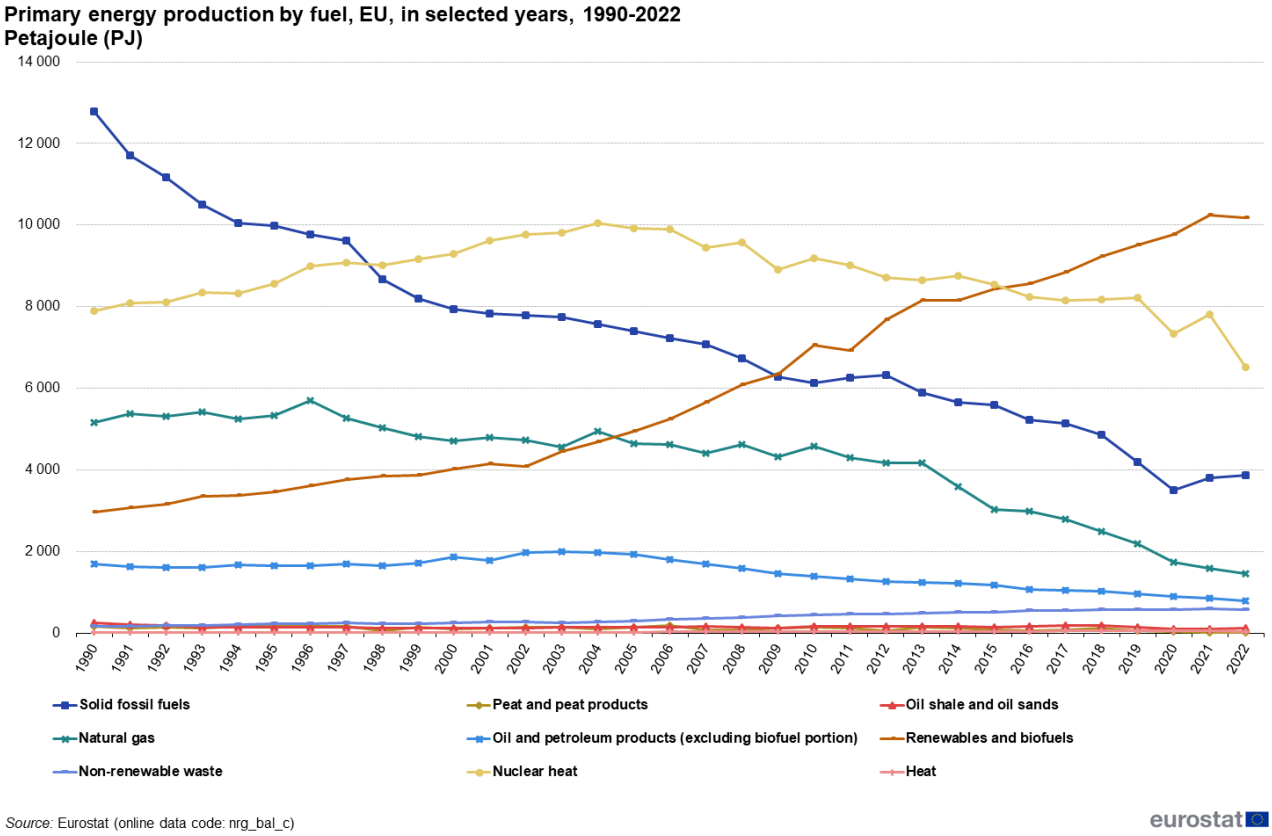



*Figure 4. Energy Consumption by Fuel Type in the European Union, 1990–2022. Source: Eurostat*[21]

In recent years, the use of peat for energy in Lithuania has been steadily declining both, in industry and in households. According to the Official Statistics Portal of Lithuania, peat has not been used as industrial fuel since 2021 (see Table 4). Additionally, peat briquettes and pellets have no longer been used in industrial energy production since 2023.

[19] https://www.worldenergy.org/assets/images/imported/2013/10/WER_2013_6_Peat.pdf
[20] https://eu.boell.org/en/2023/09/11/peat-peatlands-raw-materials
[21] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_statistics_-_an_overview

*Table 4. Fuel and Energy Consumption in Industry. Official Statistics Portal* [22]

| | | Final Fuel Consumption in Industry | | | | | |
|---|---|---|---|---|---|---|---|
| | | 2021 | | 2022 | | 2023 | |
| | | TJ | Thousand TOE | TJ | Thousand TOE | TJ | Thousand TOE |
| Total by Economic Activity Types | Industrial Waste (Non-renewable) | 109 | 2,6 | 108 | 2,6 | 57 | 1,3 |
| | Anthracite | - | - | - | - | - | - |
| | Coking (Bituminous) Coal | - | - | - | - | - | - |
| | Other Bituminous Coal | 3859 | 92,2 | 4011 | 95,8 | 2008 | 62,3 |
| | Sub-bituminous Coal | | | | | | |
| | Lignite or Brown Coal | | | | | | |
| | Coke and Semi-coke | 503 | 12,0 | 458 | 10,9 | 389 | 9,3 |
| | **Peat for Fuel** | **-** | **-** | **-** | **-** | **-** | **-** |
| | **Peat Briquettes and Pellets** | **3** | **0,1** | **1** | **0,0** | **-** | **-** |
| | Firewood and Wood Waste for Fuel | 5138 | 122,8 | 4921 | 117,5 | 5086 | 121,6 |
| | Agricultural Waste | 71 | 1,7 | 75 | 1,8 | 69 | 1,6 |
| | Charcoal | - | - | - | - | - | - |
| | Liquid Fuel (<1% Sulfur) | 174 | 4,2 | 14 | 0,2 | 10 | 0,2 |
| | Liquid Fuel (>1% Sulfur) | 25 | 0,6 | 16 | 0,4 | 7 | 0,2 |
| | Liquefied Petroleum Gas (LPG) | 335 | 8,0 | 529 | 12,6 | 841 | 20,1 |
| | Motor Gasoline (with Biofuels) | 8 | 0,2 | 14 | 0,3 | 14 | 0,3 |

According to data from the Official Statistics Portal (Table 5), the use of peat for fuel in households has also significantly decreased in recent years.

*Table 5. Fuel and Energy Consumption in Households (in terajoules). Official Statistics Portal*[23]

| | **2016** | **2017** | **2018** | **2019** | **2020** |
|---|---|---|---|---|---|
| Hard Coal and Lignite | 1515 | 1749 | 1583 | 1327 | 1032 |
| **Peat for Fuel** | **48** | **51** | **70** | **50** | **16** |
| Firewood, Wood Waste, and Agricultural Residues | 20260 | 19686 | 2083 | 19317 | 19270 |
| Secondary Solid Fuels (Coke, Semi-Coke, Coal-Peat Briquettes, Charcoal, Peat Pellets) | 548 | 601 | 680 | 552 | 414 |
| Natural Gas | 6090 | 6438 | 6897 | 6734 | 7300 |
| Petroleum Products, Total | 2026 | 2311 | 2311 | 2490 | 2260 |
| Liquefied and Non-Liquefied Petroleum Gas | 1400 | 1515 | 1466 | 1597 | 1337 |
| Heavy Petroleum Products (Diesel, Fuel Oil, Gas Oil) | 626 | 796 | 845 | 893 | 923 |
| Electricity | 9990 | 10215 | 10744 | 10486 | 10959 |
| Thermal Energy | 19525 | 19879 | 19763 | 18659 | 17598 |

As shown in Tables 4 and 5, according to data from the Official Statistics Portal of Lithuania, the use of peat for energy in the country is rapidly declining. Compared to historical data from 1970, when nearly 1.5 million tons of peat were used for energy production, current extraction levels have decreased more than 100 times. This decline has been influenced by rising excise and $CO_2$ taxes, which have made this type of fuel economically unattractive to consumers. Since 2023, companies within the ATGA association have ceased producing peat for energy purposes.
These trends, combined with regulatory pressure to reduce the use of fossil fuels, have effectively eliminated the environmental impact of peat used for energy. As a result, escalating this topic will soon lose its relevance both in public discourse and environmental policy discussions.

**Use of Peat for Growing Media Production**

When calculating peat usage for growing media production, it is important to note that peat is extracted from areas occupying up to 0.05% of all drained peatlands worldwide[24] (it should be noted that recent research and updated data are currently lacking).

[22] https://osp.stat.gov.lt/statistiniu-rodikliu-analize?hash=8f127891-7e92-4ba3-a8c1-06448e2c3ebf#/

[23] https://osp.stat.gov.lt/lietuvos-aplinka-zemes-ukis-ir-energetika-2021/energetika/kuro-ir-energijos-suvartojimas

[24] Microsoft Word - IPS SRPM Final Draft of july 2019V8~jor080719 edited sw.docx (peatlands.org)

As with energy peat, the extraction of horticultural peat also requires the drainage of peatlands to allow machinery access and facilitate peat drying prior to harvesting. This process increases $CO_2$ emissions while reducing $CH_4$ release. Unlike fuel peat, horticultural peat is not used immediately, once incorporated into growing media, it gradually decomposes and becomes part of the soil over time.
The first life cycle analysis (LCA) of greenhouse gas (GHG) emissions related to horticultural peat extraction was conducted in Canada. The decomposition of peat in growing media accounted for more than 70% of total GHG emissions associated with horticultural peat use. The remaining emissions stemmed from transportation (10%), processing (4%), and land-use change (15%)[25].
It should be noted that, according to data from the Lithuanian Geological Survey, the licensed area for peat extraction in Lithuania is decreasing (see Figure 5).

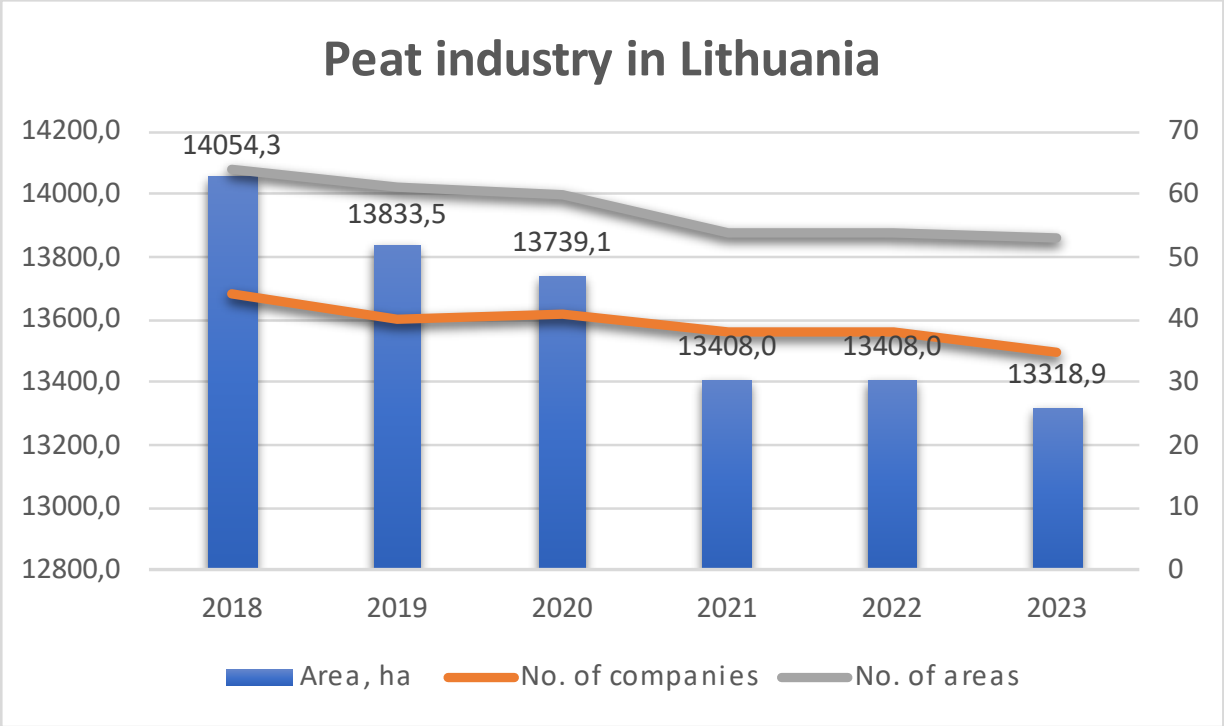



*Figure 5. Licensed Area for Peat Extraction in Lithuania, Lithuanian Geological Surve*

According to a survey of ATGA members, 95% of peat raw material is used in the horticultural sector for the preparation of growing media, including media for mushroom cultivation. 3% is used in the livestock sector, while 2% had previously been used for energy production—however, since 2023, ATGA member companies no longer produce peat for energy purposes.

POTENTIAL FOR SUSTAINABLE USE OF PEATLANDS

Companies are obliged to restore the wetland regime, i.e. recultivate, on areas where peat extraction has been completed. In line with environmental regulations and a shared commitment to climate policy, members of the association are implementing recultivation progressively, without waiting for the full exhaustion of all extraction sites.

**The goals of sustainable peatland management are as follows:**

- To protect areas of high conservation value, including those of particular biological, ecological, social, or cultural significance or critical importance, while harmonizing economic activity with the preservation of local ecosystems and biodiversity;

[25] https://peatlands.org/peat/peat-for-horticulture/

- To avoid or minimize impacts on adjacent areas, particularly when extraction zones border regions of high conservation value, considering local circumstances;
- To allow the use of peat only when necessary, especially in sectors where reliable and environmentally friendly alternatives with equivalent properties are difficult to find, such as in horticulture and wellness therapy. Currently, peat remains the most important and valuable component in growing media, providing substrate stability that is crucial for successful plant cultivation;
- To restore extracted peatland areas by re-establishing hydrological conditions favorable to wetland regeneration. This may support ecosystem restoration or alternative wetland uses. In all cases, restoration should follow a locally tailored "best approach" that delivers the greatest environmental benefit, including climate change mitigation. Restoration measures can enhance ecological and biological values, particularly when peat is extracted from degraded, abandoned peatlands and followed by proper recultivation. Data[26] suggests that, this is the only long-term method for carbon sequestration that is both economically efficient and environmentally effective, with any short-term emissions generated during restoration more than offset over time.

**Sustainable Peatland Management Actions:**

- Inventorying peatland areas, identifying those currently in use and those suitable for early-stage recultivation;
- Restoring degraded or exhausted peatland areas by restructuring and re-establishing hydrological regimes favorable to wetland regeneration;
- Promoting sustainable resource use practices in peatlands by providing technical support and strengthening capacity;
- Monitoring and assessing peatland conservation and sustainable use, alongside education and awareness-raising about the importance of peatlands and their preservation.

For this reason, the Growing Media Producers Association has united the efforts of its members in developing sustainability initiatives, with the first step being the preparation of the association's Sustainability Strategy.

[26] https://www.ipcc.ch/report/ar6/wg1/

**METHODOLOGY**

The development of the Growing Media Producers Association's sustainability strategy is based on the integration of three frameworks: the United Nations Sustainable Development Goals (SDGs) are assigned to corresponding Environmental, Social, and Governance (ESG) categories, which in turn reflect the core components of the European Sustainability Reporting Standards (ESRS) (see Table 6).

**United Nations Sustainable Development Goals (SDGs)**[27] The 2030 Agenda for Sustainable Development and its 17 goals (along with associated targets and indicators) represent a global plan to secure a better and more sustainable future for all. The SDGs address global challenges such as poverty, inequality, climate change, environmental degradation, peace, and justice. All 193 United Nations member states have agreed to these goals, and the private sector is encouraged to apply creativity and innovation in solving sustainable development challenges. The SDGs dissolve boundaries between sectors and geographic regions, creating space and opportunities for new ways of working, including collaboration with a broader range of partners and stakeholders.

**Environmental, Social, and Governance (ESG)** - refers to the three key factors used to assess a company's or business's sustainability and societal impact. **Environmental factors** evaluate an organization's impact on nature, as well as risks and opportunities related to issues such as climate change and natural resource conservation. **Social factors** relate to how a company interacts with various groups of people—employees, suppliers, customers, and community members. **Governance factors** assess how the company operates, with a focus on internal controls, compliance with laws, best industry practices, and business ethics.

Each of these areas in the strategy is linked to the relevant SDGs to which association members contribute most directly. The SDGs serve as a universal set of goals that outline the direction of global economic, social, and environmental development through 2030.

The **European Sustainability Reporting Standards (ESRS)**[28] are categorized into environmental, social, and governance sections and are used in the ATGA sustainability strategy as the structural foundation for member commitments—regardless of whether the member companies are subject to the Corporate Sustainability Reporting Directive (CSRD)[29]. The strategy highlights the key standards most relevant to companies in this sector: **ESRS E1** – Climate Change; **ESRS E2** – Pollution; **ESRS E4** – Biodiversity and Ecosystems; **ESRS E5** – Resource Use and Circular Economy; **ESRS S1** – Own Workforce; **ESRS S3** – Affected Communities; **ESRS G1** – Governance and Business Conduct.

[27] https://sdgs.un.org/goals

[28] https://finance.ec.europa.eu/news/commission-adopts-european-sustainability-reporting-standards-2023-07-31_en

[29] https://finance.ec.europa.eu/regulation-and-supervision/financial-services-legislation/implementing-and-delegated-acts/corporate-sustainability-reporting-directive_en

*Table 6. Integration of Frameworks and Standards in the ATGA Sustainability Strategy*

| ESG | E (Environment) | S (Social Responsibility) | G (Governance) |
|---|---|---|---|
| **SDG (Sustainable develoment goals)** |  <br>  <br>  |  <br>  <br>  |  |
| **ESRS (European Sustainability Reporting Standards)** | ESRS E1 – Climate Change<br>ESRS E2 – Pollution<br>ESRS E4 – Biodiversity and Ecosystems<br>ESRS E5 – Resource Use and Circular Economy | ESRS S1 – Own Workforce<br>ESRS S3 – Affected Communities | ESRS G1 – Governance and Business Conduct |

**SDG Impact Standards for Enterprises**

In developing the sustainability strategy, we follow the United Nations SDG Impact Standards for Enterprises[30], which provide guidance on the practices organizations should adopt to assess and manage their impact on the Sustainable Development Goals (SDGs). These standards aim to close the knowledge gap and shift organizations from SDG alignment to SDG action, moving from viewing sustainability as an add-on to business operations toward fully embedding it into core business strategy and implementation.

The SDG Impact Standards guide organizations through clear steps—from developing a sustainability strategy to implementing and disclosing it. The document outlines four main standards (see Figure 6), along with a twelve-step process for putting them into practice:

Standard 1 – Strategy

Standard 2 – Management Approach

Standard 3 – Transparency

Standard 4 – Governance

[30] https://sdgprivatefinance.undp.org/aligning-businesses/sdg-impact-standards/sdg-impact-standards-for-enterprises

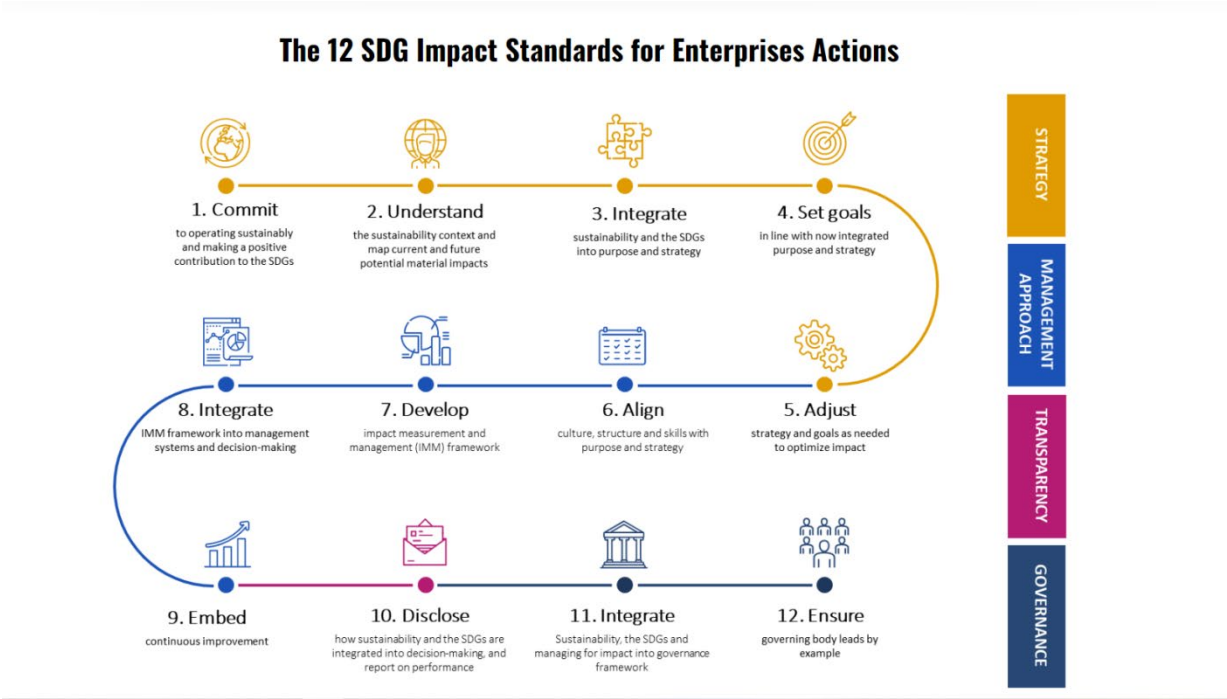



*Figure 6. Actions for Enterprises According to UN SDG Impact Standards*

Accordingly, this ATGA Sustainability Strategy focuses on the first SDG Impact Standard, the development of a sustainability strategy, following the United Nations SDG Impact Standards for Enterprises.
Standard 1 outlines 4key steps: Commit – Understand – Integrate – Set Specific Sustainability Goals.

*Table 7. Steps of the ATGA Sustainability Strategy According to UN SDG Impact Standards for Enterprises.*

| | |
|---|---|
| Commit | In 2023, the Growing Media Producers Association made a commitment to launch a sustainability initiative among its members and allocated time and resources for this purpose. The first step was to establish a clear sustainability direction and ensure the engagement of all member companies. |
| Understand | To unite member efforts, it was essential that everyone shared a common understanding, not only of the importance of sustainability but also of its terminology and context. On October 13, 2023, during a general assembly, a strategic sustainability session and training were held. These included information about global sustainability frameworks and standards, the sustainability context in the peat industry, and hands-on workshops where members shared ideas on directions, actions, and initiatives with potential positive sustainability impact. |
| Integrate | The next step was to integrate sustainability goals into the strategy. In spring 2024, a gap/needs analysis was conducted to assess the current state of sustainability among member companies. This helped identify the most relevant focus areas for the sector and define concrete targets. |
| Set Specific Sustainability Goals | Based on the gap analysis, which provided an overview of the association members' current sustainability practices, specific sustainability goals and a timeline were established for implementation. These goals were agreed upon collectively by the member companies. |

To assess the current state of sustainability within the association, a gap and needs analysis was conducted in spring 2024. This process is crucial for any organization, as it helps companies understand where they stand in terms of sustainability today and where they aim to be in the future. Fundamentally, gap analysis is a valuable tool for various business functions, supporting informed decision-making and enabling targeted actions to close gaps and achieve desired outcomes.

Gap analysis is especially relevant in developing a sustainability strategy for an association, where member companies may be at different stages in their sustainability journey. To define coordinated goals at the association level, individual companies must assess their own positions and confirm their commitments toward a shared objective.

In this case, the gap analysis was conducted among ATGA members based on the European Sustainability Reporting Standards (ESRS). Relevant ESRS elements were selected and grouped into Environmental, Social, and Governance (ESG) categories. This structure allowed companies to identify which ESG elements were already implemented, which were planned for implementation, and which were not currently planned.

The questionnaire was completed by eight companies: KLASMANN-DEILMANN Šilutė, KLASMANN-DEILMANN Laukėsa, KLASMANN-DEILMANN Ežerėlis, LAVEKSA, REKYVA, RENAVAS, SULINKIAI, representing 96% of the peat extraction market share among association members, as well as the growing media additive producer NAUJASIS KALCITAS.

Based on the compiled responses, a gap analysis matrix was created to show which ESG elements have been implemented, which are planned, and which are not. The identified gaps helped evaluate the current status. The next step was to prioritize areas for improvement and develop an action plan or roadmap, outlining specific steps to close those gaps.

The following chapters—Environmental Protection, Social Factors, and Governance—will present individual components of the gap/needs analysis matrix and describe the commitments that member companies plan to make to address them. The strategy also outlines specific sustainability goals that member companies have agreed to pursue collectively.

This is the first-ever Sustainability Strategy of the Growing Media Producers Association. During the strategic sustainability session held in October 2023, association members agreed to aim at reducing negative environmental and social impacts and enhancing positive contributions. A clear decision was made to take another step forward in shaping the business of the future—by developing this sustainability strategy.

The strategy serves as a decision-making tool, not merely a performance assessment or reporting document. By focusing on informed decision-making, the application of standards becomes both an intermediate step and a key indicator of future impact outcomes.

**ENVIRONMENTAL PROTECTION**

*Table 8. ATGA Member Commitments Related to Climate Change Mitigation*

| ESRS | Description | Implemented | Not Implemented | Planned | Not Planned |
|---|---|---|---|---|---|
| **ERSR E1** | **Climate Change** | | | | |
| **E1-1** | Climate transition plan for mitigation | 0 | 8 | **8** | 0 |
| **E1-2** | Policies and strategies related to climate change mitigation and adaptation | 1 | 7 | **8** | 0 |
| **E1-3** | Actions and resources related to the implementation of climate mitigation and adaptation policies | 0 | 0 | **8** | 0 |
| **E1-5** | Energy consumption and structure (Data collection) | 8 | - | **-** | - |

*CLIMATE CHANGE MITIGATION PLAN*

*The goal of association member companies is to develop a climate mitigation plan that sets targets for reducing greenhouse gas (GHG) emissions and outlines actions to address climate change.*

Primary objective: By December 31, 2025, evaluate and calculate each company's GHG emissions using a unified methodology and inventory of the amount of carbon stored in peat layers.
The first step is to assess theoretical GHG emissions using the IPCC methodology.
The second step is to inventory $CO_2$ emissions based on actual production areas by measuring the following indicators:

- Area of production fields listed in permits (ha);
- Area of actively exploited production fields (ha);
- Area of non-exploited fields (ha);
- Area of reclaimed or restored fields (ha).

When assessing GHG emissions, it is important not only to evaluate the size of exploited peatland areas but also to account for the entire production cycle, as emissions are released differently at each stage. Therefore, attention must be paid to the environmental impact occurring throughout these phases.
In Peatland production areas, the cycle consists of three stages[31]:

1) **Preparation** for peat extraction begins with land conversion, which involves constructing a drainage network to remove water from the site. As the groundwater level drops, surface biomass—including all trees, shrubs, and the vegetation layer covering the living peat—is removed and destroyed. This stage may last for several years. Peat extraction areas are also often established on land that had previously been drained for other purposes, usually requiring only minor improvements or adjustments to the drainage system. The main GHG emission in this phase is $CO_2$, released from biomass removal and the decomposition of drained peat.
2) **Extraction**. During this stage, the surface layer of peat is dried, and once dry, peat particles are collected and transported to storage facilities for further processing, packaging, and distribution. Peat extraction may continue for 20 to 50 years or more, until the economically viable volume of peat is exhausted,

[31] CSPMA_ISR_Report_2014_web_LW.pdf (tourbehorticole.com)

leaving behind a regulated basal layer required for site recultivation. The major source of greenhouse gas emissions in this phase is the decomposition of peat—both on-site (from the drained and exposed peat layer) and off-site (as peat is extracted and later used elsewhere).

3) **End of Operation.** Peatland operations are discontinued when peat extraction from a deposit is no longer economically viable. If peatlands are left exposed and unrestored, the remaining non-saturated organic material continues to decompose, resulting in direct $CO_2$ emissions due to oxidation. However, once the production cycle ends and the site is successfully reclaimed and restored, GHG flows can return to levels like those prior to exploitation.

In summary – the initial and most critical step in setting meaningful environmental impact reduction targets and measures is to assess the actual, not nominal, environmental impact. In this context, it means identifying the real GHG emissions released at specific geographical sites and from defined peatland areas. These must also be evaluated in relation to the production cycle within each individual peat deposit.
Only by measuring actual emissions can reduction targets, action phases, mitigation measures, and investment needs be realistically defined, enabling the development of a transition plan with clearly identified actions and resources.

*POLICIES AND STRATEGIES RELATED TO CLIMATE CHANGE MITIGATION AND ADAPTATION*

*The association's member companies commit to developing climate change mitigation strategies, including policies that outline whether and how their actions relate to the following areas: a) climate change mitigation; b) adaptation to climate change; c) energy efficiency; d) the implementation of renewable energy sources, and others.* These policies are intended to be integrated into business operations.

Steps taken or planned to support the development of these strategies include:
A) Within this sustainability strategy, member companies commit to preparing climate mitigation or adaptation strategies/policies by 2030.
B) A planned meeting with the Ministry of Environment and the Geological Survey of Lithuania will address potential legislative changes regarding partial recultivation. Allowing phased recultivation would reduce GHG emissions from exposed but inactive fields—by enabling earlier restoration rather than waiting for the entire deposit to be exhausted. This would also promote the quicker formation of habitats that enhance biodiversity.
C) Collaboration with environmental organizations, universities, and researchers to contribute to ongoing studies and peatland restoration projects.

*CONCRETE ACTIONS*

*Member companies of the association commit to developing detailed action plans aligned with their climate change mitigation and adaptation policies and strategies. These plans will outline specific actions for reducing climate impact and the resources allocated for their implementation.*

ATGA intends to reduce GHG and $CO_2$ emissions through the following measures:
A) Partial and early recultivation of exhausted extraction fields, without waiting for the completion of the entire extraction area defined in the operating permit.

By reclaiming fields immediately after extraction ends in a specific area, it is possible to restore peatland water levels and vegetation more quickly, which contributes to carbon sequestration. This reduces emissions released from exposed, dry peat fields, as decomposition slows significantly in wet conditions.

Partial recultivation enables the gradual restoration of the natural ecosystem—plants, animals, and microorganisms can return to reclaimed areas sooner. This approach reduces long-term biodiversity loss caused by peat extraction. Additionally, dry and abandoned peat fields are vulnerable to wind and water erosion, which can lead to the release of carbon and mineral particles into the environment.
Partial recultivation helps stabilize the soil and reduce this risk. By carrying out phased recultivation, companies can accumulate experience and improve methods by adapting them to local conditions. This allows for more efficient planning of the recultivation of remaining fields and ensures that restoration work is as effective as possible. Recultivating fields in stages is beneficial not only ecologically but also socially. Some restored areas can be adapted for recreation, education, or even agricultural or forestry use.

B) Search for and use of alternative materials in growing media production. The use of alternative materials such as *wood fiber, perlite, coconut fiber, bark compost, or sapropel* in growing media reduces the amount of peat in the final product (substrate).

It is important to pay attention to the use of alternative materials in the production of growing media. For sustainability reasons, alternatives are being sought to partially replace peat. However, there is a challenge: substitutes must meet not only the physical, chemical, and absorption properties required for growing media but also environmental standards. Due to its unique composition and properties, peat cannot be fully replaced in growing media. From an environmental perspective, there is currently no fully sustainable alternative that can replace peat with equally valuable characteristics.
Below is an assessment of some popular alternatives and their environmental aspects:
**Wood fiber** is produced from wood waste, making it a renewable and sustainable raw material. It is biodegradable and often mixed with other substances to improve the structure of the growing medium. However, it is necessary to assess whether this raw material truly renews itself within a reasonable time, how much energy is required for its production, and whether in some regions the wood is harvested irresponsibly, this lowers the sustainability of the product. Wood fiber is often stabilized or treated with chemicals to improve its structure and durability. In terms of growing media quality, it does not always retain as much water as peat.
**Perlite** is made from natural volcanic rock, formed when magma cools and solidifies quickly, retaining a high-water content. Its main source is volcanic glass known as perlitic rock. Perlite is one of the lightest growing media additives, quickly absorbs a lot of water, and also releases it quickly. It is used to improve air access to plant roots and to help retain water. From an environmental point of view, perlite extraction involves intensive land mining, which can damage the natural environment, and its processing requires extremely high temperatures (800–900°C), demanding a lot of energy and contributing to GHG emissions. $CO_2$ emissions during transport also need to be considered. While perlite is not rapidly depleting, it is a non-renewable resource, making its long-term use limited.
**Coconut fiber (Coir)** is obtained from coconut husks. Coconut fiber products are mostly imported from Sri Lanka, India, and the Philippines. Therefore, the real carbon footprint related to transportation must be calculated. As it is a byproduct of the coconut industry (not specifically produced for horticulture), its physical, chemical, and biological properties are not always ideal and can be highly inconsistent. Raw coconut fiber contains high salt levels, primarily potassium and sodium chloride. To reduce these elements in products, the materials are washed and rinsed, which not only consumes a lot of water but often contaminates groundwater. Coconut coir dust can contain viable weed seeds that spread quickly and may carry plant diseases. In some cases, coir dust is steamed to eliminate weeds, again using water and energy. Coconut fiber is often produced in areas where tropical forests once grew before being cleared for coconut plantations. Therefore, compared to responsibly harvested peat, it is not always the better choice.
Regarding the physical properties of growing media, peat can retain 10–20 times its dry weight in water, while coconut fiber retains only about 8–9 times. As a result, coconut-based substrates may require more frequent irrigation than peat-based ones.

**Sapropel** is a natural organic-mineral substance that forms at the bottom of freshwater bodies as a result of the long-term decomposition of plant and animal residues. It is often used as a soil additive or as an alternative to peat. Sapropel is rich in nutrients, - it contains humus, nitrogen, phosphorus, potassium, and other microelements essential for plant growth. Its composition is mainly organic matter, which can range from 40% to 90%, making it highly effective in improving soil structure and fertility. Due to its porous structure, sapropel is capable of absorbing and retaining large amounts of water, which is beneficial for plants in wetter conditions.

However, sapropel extraction also has negative environmental impacts, particularly on lake ecosystems. Excavating sapropel disturbs aquatic vegetation, disrupts animal habitats, and interferes with the ecological balance. Loss of biodiversity is a major issue, as intensive extraction destroys sensitive ecosystems, especially in smaller bodies of water. The process exposes deeper organic layers, whose decomposition can release carbon dioxide, contributing to climate change. Sapropel formation is a slow process, taking thousands of years, making it a non-renewable resource. Intensive extraction threatens its depletion. Additionally, sapropel is highly moist, requiring drying and transportation, which demands significant energy and increases its carbon footprint.

In summary, the use of peat alternatives in growing media production is not a straightforward or environmentally neutral solution. Many alternatives, such as coconut coir or perlite, are imported, contributing to carbon emissions. Others, like perlite or sapropel, are non-renewable or extremely slow-renewing resources, and their extraction can negatively impact the environment. Some alternatives lack the biological or chemical universality required, posing challenges in their practical use in growing media.

C) Planned investments for the implementation of the transition plan are allocated to scientific research aimed at evaluating the environmental impact of alternative materials and ensuring optimal conditions for plant cultivation. Funding is foreseen for a joint Scandinavian and Baltic project, Peat Alliance, which will include four studies. A budget of EUR 240,000 is allocated for four priority projects to be continued until 2029.

D) Participation in and funding of wetland restoration projects carried out by environmental organizations.

E) ATGA companies have committed to completely cease peat extraction for energy use as of 2023, helping reduce $CO_2$ emissions, as unextracted peat will not be burned and thus will avoid additional emissions.

F) Member companies of the association are investing in the development of renewable energy technologies, including solar and wind power.

ENERGY USE AND STRUCTURE

A) Companies monitor and record energy consumption in their operations (thermal energy, electricity consumption, fuel usage), and conduct cost analysis.

B) Energy efficiency is monitored and evaluated in ATGA member companies in accordance with established equipment usage protocols, smart technologies, equipment shut-down during breaks, efficient fuel usage, and clearly described work processes. An increasing share of electricity used comes from renewable energy sources.

C) Many association members have conducted energy consumption analyses, from which insights and recommendations for reducing consumption have been drawn (energy audit reports). Five member companies currently have completed energy audits, and others are encouraged to commit to conducting their own

*Table 9. ATGA Member Commitments Regarding Pollution Reduction*

| ESRS E2 | Pollution | Implemented | Not Implemented | Planned | Not Planned |
|---|---|---|---|---|---|
| **E2-1** | Policies related to pollution | 1 | 7 | **8** | 0 |
| **E2-2** | Actions and resources related to pollution | 0 | 8 | **8** | 0 |
| **E2-4** | Air, water, and soil pollution | 3 – air; 1 – all three; 1 – soil; 2 – water | 3 | **8** | 0 |

*POLICIES RELATED TO POLLUTION*

*Association members commit to developing pollution reduction policies to manage their significant impacts, risks, and opportunities related to pollution prevention and control.*

Based on the nature of their operations, member companies commit to identifying sources of pollutants emitted into the environment (air, water, soil) and, where applicable, monitoring the environmental impact of identified sources. Companies also commit to implementing pollution reduction measures wherever feasible.
In 4 extraction sites (representing 40% of peat extraction companies), the quality of water discharged from peat deposits is monitored, with testing conducted by certified laboratories.
Surface runoff is managed at discharge points through the installation of treatment systems in 4 (40%) of the extraction and processing sites.
Companies also commit to preventing incidents and emergency situations, assessing the consequences of past and potential accidents of various scales, and implementing preventive and control measures to mitigate impacts on people and the environment. For example, fire emergency response plans are in place, outlining the responsibilities of specific employees, actions to be taken, and technical resources (equipment, machinery, etc.) for both prevention and response. Companies conduct fire safety simulation and tabletop training exercises.
To reduce dust emissions, loose peat is transported in covered vehicles, and loading operations are suspended when wind speeds exceed 10 m/s, this is practiced in 4 extraction sites (40% of extraction companies).
Member companies are committed to responsible sorting, storage, and disposal of various operational waste, ensuring it is handed over only to licensed waste management companies or collectors, with preference given to those who recycle the materials. Through this, companies contribute to higher recycling rates and reduced landfill use, promoting a more sustainable waste management model.

*ACTIONS AND RESOURCES RELATED TO POLLUTION*

An analysis of the current situation revealed that member companies of the association do not yet have dedicated documents outlining the key actions taken or planned to achieve the objectives and targets of their pollution policies. However, all growing media production companies and one additives manufacturer have committed to developing an action and resource plan related to pollution.

*AIR, WATER, AND SOIL POLLUTION*

The analysis showed that one association member company has assessed air, water, and soil pollution comprehensively. The remaining companies have evaluated individual elements. However, all ATGA member companies have committed to conducting pollution assessments in all three areas: air, water, and soil.

*Table 10. ATGA Member Commitments Regarding Biodiversity and Ecosystem Impact*

| | | Implemented | Not Implemented | Planned | Not Planned |
|---|---|---|---|---|---|
| **ERSR E4** | Biodiversity and Ecosystem Impact Assessment System | 5 | 3 | 6 | 2 |

*BIODIVERSITY: Association member companies commit to assessing their impact on biodiversity and ecosystems and to outlining actions aimed at avoiding or mitigating significant actual or potential negative impacts, as well as protecting and restoring biodiversity and ecosystems. These actions will also address the management of associated risks, opportunities, and outcomes.*

The term biodiversity refers to the variety of all life on Earth, including all plants, animals, and the ecosystems that support them. Wetlands and peatlands are home to rich and unique biodiversity, providing vital habitats for many species worldwide.

The decline of biodiversity in wetlands and peatlands is driven by several factors: habitat loss, invasive alien species, overexploitation for agriculture, forestry, and peat extraction, pollution by nutrients, and climate change.

Restoring healthy wetland and peatland ecosystems helps reestablish natural balance, delivering long-term benefits for both nature and people, including climate regulation. The positive effects of wetlands are undeniable: they help mitigate drought impacts, reduce flood risks, filter air and water, lower wildfire probability, and provide various social services.

Historically, peatlands were considered unproductive land and were drained. Peat extraction is one of the main causes of peatland degradation, alongside drainage for agriculture and forestry. Extraction significantly impacts climate, hydrology, and biodiversity. Most of the peatland sites operated by association members were drained and developed between 1915 and 1975. Therefore, biodiversity was affected or destroyed at least 50 years ago, and in some areas, more than 110 years ago.

Once peat extraction ends, various post-use options become possible. Active restoration measures accelerate vegetation recovery in abandoned peat fields, reduce GHG emissions, and minimize negative impacts on water systems.

As a result, association members have implemented or are implementing the following environmental peatland restoration projects:

- Novaraiščiai Reserve
- Aukštumala Bog Restoration Project
- Establishment of a Sphagnum moss cultivation site in a section of the Aukštumala peatland (as part of the international project "Reducing $CO_2$ emissions by restoring drained and degraded peatlands in the North European Plain", in collaboration with the Peatland Restoration Fund)
- Experimental reintroduction of wetland plants in abandoned peatland areas of the Ežerėlis site, also in cooperation with the Peatland Restoration Fund
- In 2024, UAB Klasmann-Deilmann Laukėsa signed a long-term cooperation agreement with Tauragė District Municipality, supporting the municipality’s goal to become climate-neutral and agreeing to collaborate on peatland restoration measures aligned with the municipality’s 2030 Climate Neutrality Strategy
- Partial restoration of the Sulinkiai peatland site
- Blocking of the drainage system at Lake Rėkyva and other initiatives

*Table 11. ATGA Member Commitments Regarding Resource Use and Circular Economy*

| | | Implemented | Not Implemented | Planned | Not Planned |
|---|---|---|---|---|---|
| **ERSR E5** | Resources and Circular Economy | 4 | 4 | 7 | 1 |

*ESRS E5 – RESOURCES AND CIRCULAR ECONOMY: Companies are expected to identify the significant positive and negative impacts they have—or may potentially have—on resource use. This includes aspects such as efficient resource use, avoiding resource depletion, and the sustainable extraction and use of renewable resources.*

Product circularity: used growing media is not discarded but rather incorporated into soil as a soil improver for further cultivation, or used for composting in other companies.
When handing over packaging and other types of waste, priority is given to reuse and recycling.

*Table 12. Packaging Waste Reused or Recycled*

| Type of Packaging | 2025 m. | 2030 m. |
|---|---|---|
| **Poaper** | 50 % | 70% |
| **Plastic** | 30 % | 50% |
| **Wood** | 20 % | 30% |

## SOCIAL FACTORS

*Table 13. ATGA Member Commitments Regarding Own Workforce*

| ESRS | Own Workforce | Implemented | Not Implemented | Planned | Not Planned |
|---|---|---|---|---|---|
| **S1-1** | Company policies related to own employees | | | | |
| **S1-9** | Diversity indicators | 6 | 2 | 8 | 0 |

### *OWN WORKFORCE*

*The policy outlines the company's general approach to identifying and managing any significant actual or potential impacts on its own workforce related to the following social factors or issues—including human rights: (a) working conditions and (b) equal treatment and equal opportunities for all.*

ATGA member companies are committed to ensuring safe working conditions for both employees and visitors, to promoting employee health and well-being, and to providing comprehensive support in case of incidents, while minimizing occupational risks as much as possible.
Most association members have already established diversity indicators; the remaining companies have committed to doing so. It is important to note that, due to the specific nature of the work, a gender balance may not be achievable in all positions. However, all companies commit to developing and implementing principles of gender equality and non-discrimination on other grounds.

*Table 14. ATGA Member Commitments Regarding Affected Communities*

| ESRS S3 | Affected Communities | Implemented | Not Implemented | Planned | Not Planned |
|---|---|---|---|---|---|
| **S3-1** | Policies related to affected communities | 0 | 7 | 1 | - |
| **S3-2** | Engagement processes with affected communities regarding impacts | 5 | 2 | 1 | - |

### *AFFECTED COMMUNITIES*

*Association members identify the significant positive and negative impacts on affected communities arising from their operations, particularly in areas where the impact is most likely and most substantial.*

Members of the association commit to developing and applying a policy for engaging with stakeholders and affected communities in their business activities. They also pledge to prepare guidelines that define the nature of their impact on communities and the overall effects of their operations and processes.
For example, under certain weather conditions, companies recognize the impact of transport and vehicle flow on communities, safety concerns, fire hazards, and noise, especially when machinery is used during the day or in shifts. Measures to reduce hazardous impacts, such as work stoppages during high winds (due to dust or fire risk), must be defined in the operational guidelines and consistently followed.
Companies also commit to clearly identifying all actions taken to prevent, mitigate, or remedy actual or potential negative impacts on affected communities, as well as how they address related risks, opportunities, and the outcomes of such actions.

**GOVERNANCE**

*Table 15. ATGA Member Commitments Regarding Governance*

| ERSR G1 | Governance | Implemented | Not Implemented | Planned | Not Planned |
|---|---|---|---|---|---|
| **G1-1** | Corporate culture and business ethics policy | 5 | 3 | 3 | - |
| **G1-2** | Supplier relationship management | 5 | 3 | 2 | 1 |
| **G1-3** | Anti-corruption measures | 5 | 3 | 4 | - |

*CORPORATE CULTURE AND BUSINESS ETHICS*

*Association member companies that do not yet have a formal corporate culture and ethics policy intend to disclose their approach to business ethics and describe how they promote a positive and responsible company culture.*

*SUPPLIER RELATIONSHIP MANAGEMENT*

*Companies that currently lack formal supplier relationship management procedures plan to develop and share information on how they manage relationships with suppliers and the impact of those practices on their supply chains.*

*ANTI-CORRUPTION MEASURES*

*Companies that do not yet have anti-corruption policies in place commit to developing systems aimed at preventing, detecting, investigating, and responding to corruption and bribery-related incidents or suspicions, including associated employee training.*

**LOOKING AHEAD**

The sustainable development context is dynamic and constantly evolving. Moreover, by collecting data and monitoring the outcomes of our actions, we will gain insight into what works well, what needs improvement, and what does not work at all. The previous sections have outlined in detail the key ESG areas and the intentions of ATGA companies to collect and prepare the necessary information, policies, strategies, and action plans.
Below is a timeline of ATGA company commitments, recognizing that not all companies are able to act at the same time. The letter "V" indicates by which timeframe companies plan to complete certain actions.

*Table 16. ATGA Company Commitment Timeline*

| ESRS | | By 2026 | By 2028 | By 2030 | Comments |
|---|---|---|---|---|---|
| **ESRS E1** | **Climate Change:** | | | | |
| **E1-2** | Policies and strategies related to climate change mitigation and adaptation | VVV | VVV | VV | |
| **E1-3** | Action and resource plan related to climate strategies | VVV | VV | VVV | |
| | Action and resource plan related to climate strategies, EUR | <br>30.000<br>300.000 | <br>30.000<br>300.000 | 15.000<br>30.000<br>300.000 | Laveksa<br>Rėkyva<br>Naujasis Kalcitas |
| **E1-5** | Energy use and structure (Data collection – energy consumption analysis) | VVVVVV | VV | | |
| **ESRS E2** | **Pollution** | | | | |
| **E2-1** | Policies related to pollution | VVVV | VV | VV | |
| **E2-2** | Action and resource plan related to pollution | VVVV | VV | VV | |
| **ESRS E4** | **Biodiversity and Ecosystems** | VVV | V | VVV | Naujasis Kalcitas: not applicable |
| | List of restored/reclaimed peatlands and environmental projects | - Novaraiščio Reserve<br>- Aukštumala Bog Restoration Project<br>- Sphagnum moss cultivation field (part of international project "Reducing $CO_2$ emissions by restoring drained and degraded peatlands in the North European Plain")<br>- Experimental wetland plant reintroduction (Ežerėlis)<br>- 2024: Klasmann-Deilmann Laukėsa signed a long-term cooperation agreement with Tauragė District Municipality on peatland restoration as part of the 2030 Climate Neutrality Strategy<br>- Partial restoration of Sulinkiai peatland<br>- Blocking of Lake Rėkyva drainage system | | | |

| ESRS S1 | Own Workforce | By 2026 | By 2028 | By 2030 | Comments |
|---|---|---|---|---|---|
| **S1-1** | Company policies related to own employees | VVVVVV | VV | | |
| **S1-9** | Diversity indicators | VVVVVV | VV | | |
| **ESRS S3** | **Affected Communities** | | | | |
| **S3-1** | Policies related to affected communities | VVVVV | V | V | Naujasis Kalcitas: not applicable |
| | Current / Planned Community Support Projects: | Klasmann-Deilmann:<br>1. Observation tower repair works – Aukštumala Nature Trail (2024)<br>2. Sponsorship: Šilutė basketball team, Squash League<br>3. Boxer E. Zaremba<br>4. Marijampolė Social Support Center<br>5. Community event sponsorship in Kaunas, Marijampolė, Tauragė, Šilutė regions<br><br>Sulinkiai:<br>1. Šiaulėnai town festival sponsorship<br>2. Support for greenery renewal in Radviliškis<br><br>Laveksa:<br>1. Rudiškės local administration<br>2. Jurdaičiai social care home<br>3. Skaisgirys local administration<br><br>Renavas peatland:<br>1. Annual support for Mažeikiai and Seda town festivals<br>2. General support: Lithuanian Red Cross; ongoing support for Ukrainian soldiers (since 2022)<br><br>Rėkyva:<br>1. Employment opportunities for local residents<br>2. Sponsorship of community festivals<br>3. Support for community landscaping<br>4. Educational programs for local residents | | | |

The definition of strategies and objectives, as outlined in the Sustainable Development Goal Standards for Enterprises, is not a one-time task, it is a process that must be periodically reviewed and updated. This includes evaluating deviations from expected outcomes or impact, recognizing unforeseen positive or negative results, and adjusting future plans as necessary.

Therefore, the development of the ATGA sustainability strategy represents only the first, but solid step. It will trigger future reviews and updates, regular exchange of best practices in peatland conservation and sustainable use among members, and the implementation of management strategies designed to respond to changing peatland conditions.

This process establishes a systematic feedback loop among association members, which helps to continuously improve impact practices and outcomes.

## CONCLUSIONS

**A turning point.** This first ATGA strategy can confidently be called a turning point and an open acknowledgment of the current situation. Operating in a sector traditionally perceived as unsustainable, it is crucial not to ignore environmental impacts, but instead to confront them directly, recognizing negative effects and seeking solutions that may not always be convenient but are necessary for change.

While sustainability in a single company may be defined by its investors and leadership, accepting the challenge to develop a sustainability strategy at the association level, and uniting the efforts of member companies for the first time, marks a bold and decisive step toward a sustainability journey.

The structured data collection initiative launched by ATGA among its founding members is a crucial step toward establishing a solid baseline, which can be used to evaluate progress over time. This baseline forms the foundation of the sustainability strategy, enabling companies to set realistic, measurable goals, monitor performance, and adjust their approach as needed. A unified data collection and analysis methodology ensures consistency and comparability in the future, making progress assessment more transparent and reliable.

### Using Analysis and Data to Drive Positive Change

Analyzing and evaluating the current situation, along with collecting initial data, has become a core element of the sustainability strategy. The gap analysis helped identify discrepancies between the current state and the desired sustainability goals, focusing on areas with the greatest potential for improvement.

In addressing $CO_2$ assessment, it is emphasized that no unified, science-based methodology currently exists for estimating carbon emissions from peatlands in specific geographical areas. Therefore, the association has decided to evaluate the actual situation, accurately measuring carbon dioxide emissions based on the exploited peatland area. This, in turn, will support more informed decision-making and help set priorities and actions for reducing emissions.

Moreover, this structured approach provides the foundation for a robust monitoring and reporting system, which is essential for maintaining transparency and building stakeholder trust. It also enables benchmarking against industry standards and peers, encourages continuous improvement, and facilitates sharing of best practices.

Ultimately, this data-driven approach to sustainability not only helps achieve near-term environmental goals but also supports long-term success by embedding sustainability into core operations and decision-making processes.

### Collaboration and Knowledge Exchange Among Member Companies

Collaboration among association members, especially in sectors traditionally considered unsustainable, such as peat extraction, is essential to achieving positive sustainability outcomes. These sectors face complex, systemic challenges that cannot be effectively addressed through individual efforts alone.

By working together, members can pool resources, share knowledge, and leverage diverse expertise to develop more comprehensive and innovative solutions. In an industry like peat extraction, which has a significant impact on ecosystems and contributes to greenhouse gas emissions, joint action is key to driving change across the sector and adopting more sustainable practices.

Through collaboration, association members can also establish common standards, advocate supportive policies, and present a unified voice to regulators, suppliers, and other stakeholders. Such collective advocacy can accelerate the adoption of best practices and new technologies that reduce environmental impacts, such as alternative extraction methods or the restoration of degraded peatlands.

Furthermore, collaboration fosters a culture of accountability and transparency, as members can compare practices and commit to shared sustainability goals, thereby increasing sector credibility and reputation. Ultimately, by working together, members can achieve a greater collective impact on sustainability than they could individually, driving meaningful progress in an otherwise unsustainable industry.

**A Strategy is Just the Beginning of the Journey.** Before disclosing sustainability-related information, it is essential to begin with a sustainability strategy. A well-developed strategy provides a clear vision, objectives, and goals, ensuring that sustainability efforts are genuine and aligned with the broader strategic aims of the association. This approach helps prioritize initiatives, allocate resources effectively, and manage sustainability-related risks, such as regulatory changes and reputational threats.

By first establishing a strategy, organizations can assess performance against defined objectives, enabling continuous improvement and the disclosure of meaningful information that reflects real progress.

Moreover, a strategy fosters consistency and coherence in sustainability actions and communication, enhancing the credibility of the disclosed information and strengthening stakeholder trust. Involving member companies of the association in the strategy development process ensures that the disclosed information is relevant and meets their expectations.

An active strategy also marks the beginning of a sustainability transformation, laying the groundwork for data collection, situation assessment, the identification of critical areas, and the search for appropriate solutions.

**About the Author**

Dr. Gerda Žigienė is a sustainability strategist and professor of sustainability and finance at Kaunas University of Technology (Lithuania), ESDES Business School (France), and Vaasa University (Finland). She is also an expert for the National Sustainability and Responsibility Index and a board member of the Lithuanian Responsible Business Association (LAVA).

Gerda conducts training sessions and consults companies on sustainability strategy development, sustainability transformation, EU regulations (ESRS, CSRD, SFDR, RTS), and alignment frameworks (SDG-ESG-CSR-ESRS). She also supports organizations in performing double materiality and stakeholder analyses.

She has acquired her expertise in sustainable business development, financing, and regulation through the University of Cambridge's "Sustainable Business Development" program. Gerda also holds the international Certified ESG Analyst designation from the European Federation of Financial Analysts Societies (EFFAS) and has completed the "UN SDG Impact Standards for Enterprises" program developed by Duke University in collaboration with the United Nations.