

Forest as a biological asset – An accounting and tax perspective in the Czech Republic

PETRA HLAVÁČKOVÁ^{1*}, JITKA FIALOVÁ², JIŘÍ SCHNEIDER³

¹Department of Forest and Wood Product Economics and Policy, Faculty of Forestry and Wood Technology, Mendel University in Brno, Brno, Czech Republic

²Department of Landscape Management, Faculty of Forestry and Wood Technology, Mendel University in Brno, Brno, Czech Republic

³Department of Environmental Science and Natural Resources, Faculty of Regional Development and International Studies, Mendel University in Brno, Brno, Czech Republic

*Corresponding author: petra.hlavackova@mendelu.cz

Citation: Hlaváčková P., Fialová J., Schneider J. (2025): Forest as a biological asset – An accounting and tax perspective in the Czech Republic. J. For. Sci., 71: 336–346.

Abstract: This paper analyses the accounting and tax treatment of forests as biological assets in the Czech Republic under Act No. 563/1991 Coll., on Accounting, and its implementing regulations. It compares national approaches with the International Financial Reporting Standards (IFRS), focusing on the International Accounting Standard IAS 41 – Agriculture. A comparative-analytical method was used to identify key differences in classification, valuation, and reporting practices. Czech legislation values forests at historical cost and classifies them as non-depreciable land, whereas IFRS requires fair value measurement, capturing biological transformation and the economic potential of forest ecosystems. The findings show that while the Czech framework ensures legal clarity and tax alignment, it lacks integration with environmental accounting frameworks such as the United Nations System of Integrated Environmental Economic Accounts (SEEA) and does not reflect ecosystem services or ESG (environmental, social, governance) reporting needs. In contrast, IFRS provides a dynamic representation of forest assets, supporting transparency and comparability in international contexts. The study contributes to the ongoing harmonisation debate by offering recommendations to improve the alignment of Czech accounting with international standards, thus supporting sustainable forest management and enhancing investment credibility. Its originality lies in combining legislative analysis with international practice review, highlighting the gap between ecological value and financial reporting in forestry.

Keywords: Czech Accounting Standards; environmental sustainability; forest management; International Financial Reporting Standards; taxation

Forests are multifunctional ecosystems that provide a wide range of ecosystem services, including timber production, carbon sequestration, biodiversity conservation, water regulation, and natural hazard protection. Despite their environmental

and social significance, forests are still primarily treated as economic resources in accounting practice, with limited reflection of their broader value. The concept of 'biological assets' under International Accounting Standard IAS 41 (Agriculture)

Supported by the Ministry of Agriculture of the Czech Republic (Research Project No. QK 21010198).

© The authors. This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0).

<https://doi.org/10.17221/31/2025-JFS>

offers a framework for recognising living plants and animals as assets, but its application varies significantly across countries and sectors.

Recent forest economics research increasingly focuses on the valuation of ecosystem services provided by forests (Govigli, Bruzzeze 2023a). However, the production function of forests and revenues from timber sales remain key for forest enterprises (Šafařík et al. 2022; FAO 2024). Šišák (2021) emphasised that non-market functions of forests are often more valuable than their market functions, a view that remains relevant today. According to Holécy (2019), the production function describes the transformation of inputs and production factors into outputs through econometric modelling.

Biological assets are defined by IAS 41 (2009). This definition is further stated and modified in contributions of authors, e.g. Hlaváčková (2009); Mateš and Grosu (2009); Holubová (2010); Čermáková (2013); Dvořáková (2017), as living organisms or plants that have economic value. Their accounting is important for proper business management, and knowledge of their categories is crucial for their proper accounting.

There are different categories of biological assets, and each category requires specific accounting procedures that must be followed for proper business management.

From the point of view of enterprises (or the current legislation should use the concept of commercial enterprises) in forestry (FE), the classification of biological assets is based on the expected benefits that the biological assets bring to the enterprise. The classification of biological assets can be based on the type of asset (forest land, timber, animals, etc.), but also on their functions.

A forest is a biological asset, a natural capital, and therefore an object of the accounting system if the asset is owned by the business. Financial accounting is regulated in different ways and to different extents in different countries around the world. This is due to the traditions, customs, economic and legislative environment of these countries, or their involvement in a wider economic and political grouping such as the European Union. However, globalisation has led to an increasing drive to harmonise accounting and to introduce internationally uniform and comparable accounting or financial reporting practices.

In the Czech Republic, forests are usually reported according to the regulations resulting from Act No. 563/1991 Coll., on Accounting, implementing

decrees and national standards (Czech Accounting Standards – CAS), which differ significantly from International Financial Reporting Standards (IFRS). These differences include valuation methods, timing of recognition, and treatment of changes in fair value. Moreover, the tax implications of forestry activity are often unclear, particularly for private forest owners and companies.

This article describes approaches to forest biological assets from the perspective of Czech legislation (and international regulations, especially IFRS (Dvořáková 2017; Chamber of Auditors 2020; Govigli, Bruzzeze 2023b). National environmental accounting systems that combine economic and environmental information will also be presented.

However, international standards (especially IAS 41) and national legislation, such as the Czech Accounting Act (Act No. 563/1991 Coll.), approach the issue differently. This article therefore examines the differences in accounting and tax perspectives on forest as a biological asset, emphasising the importance of harmonising accounting standards at a global level.

Forest production, like any sector of the national economy, has its own particularities. As stated by Kupčák (2003), these are mainly high dependence on natural conditions, seasonality and the influence of climatic phenomena, the cycle of forest production, the temporal mismatch between the production and work processes, the biological nature of production, the spatial dispersion, the multifunctionality of forest management and the low possibility of human control of the production process.

Forestry enterprises are therefore different from other business units (Kupčák 2003; Drolet, Le-Bel 2010). In comparison, they are dependent on natural and environmental conditions and are closely linked to their geographical location.

The aim of this article is to critically assess the current accounting and tax treatment of forests in the Czech Republic, using IFRS as a comparative benchmark. Specifically, it examines valuation methods, the role of environmental accounting, and the integration of sustainable forestry into financial reporting frameworks.

MATERIAL AND METHODS

This study adopts a comparative-analytical approach to examine the differences in accounting and tax treatment of forests as biological assets

under Czech Accounting Standards (CAS) and International Financial Reporting Standards (IFRS), with a specific focus on IAS 41 – Agriculture. The methodological framework is based on a structured comparison of the legal, accounting, and tax aspects in both systems. The steps of the analysis are outlined below:

- (i) Legal and regulatory mapping – identification and review of key legislative sources in the Czech Republic and IFRS.
- (ii) Classification and valuation comparison – analysis of asset types (land, timber, plantations) and valuation methods (historical cost *vs.* fair value).
- (iii) Taxation and reserves – examination of tax treatment, cultivation reserves, and depreciation rules.
- (iv) Operational accounting practices – review of forest inventory flows and recognition of production outputs and losses.
- (v) Integration of environmental considerations – analysis of the role of ecosystem services in national *vs.* international frameworks.
- (vi) Synthesis and comparative evaluation – summary of practical and conceptual differences and their implications for reporting and sustainability.

Forest from the perspective of Czech accounting legislation. From the point of view of Czech accounting legislation, forest enterprises must follow three basic accounting rules. These are Act No. 563/1991 Coll., on Accounting (ZoU) (1991), Ordinance No. 500/2002 Coll., implementing certain provisions of Act No. 563/1991 Coll. (2002), on Accounting, as amended, for accounting units that are entrepreneurs accounting in the double-entry bookkeeping system (hereinafter referred to as the Ordinance) and the Czech Accounting Standards for Entrepreneurs (2024). These are CAS 001–023 (CAS 2024).

In the accounting legislation of the Czech Republic, there are only five references to the word forest. Section 32a of the ZoU states that a large accounting entity, including a public interest entity active in the logging sector in native forests, shall prepare a report on payments to the administration of a member state of the European Union or a third country as at the balance sheet date. The obligation of the consolidated report on payments arising from logging activities in the native forests sector is set

out in Section 32c of the ZoU. Section 6(9) of the Ordinance 500/2002 Coll. states that a forest management plan is, *inter alia*, a fixed intangible asset. The fourth and fifth references are made in Article 47 of the Ordinance, namely that the valuation of intangible and tangible fixed assets may include charges for the temporary or permanent withdrawal of forest land [paragraph 1(c)]. Furthermore, the valuation of the acquired land includes forest cover or planting of trees and shrubs (paragraph 9). From the above, the following facts are clear.

Forest and its productive functions are classified as either fixed or current assets in the accounts of forestry undertakings.

The Czech accounting legislation classifies forest as a non-depreciable fixed asset, i.e. as land (it does not lose value over time, on the contrary, it gains value over time), without taking into account the fact that forest land may contain forest vegetation in various stages of development. Similarly, forest plantations are not considered as movable property and are therefore not recorded separately in the accounts. Harvested timber in various stages of completion is classified as inventory. Specifically, according to Czech accounting legislation, forest management plans are also accounted for as intangible fixed assets.

Forest from the perspective of International Financial Reporting Standards. International Financial Reporting Standards (IFRS), formerly International Accounting Standards (IAS), began in the 1970s. The designation IAS or IFRS then corresponds to the time period in which they were developed. IAS standards were issued between 1973 and 2001, while later standards are called IFRS (Dvořáková 2017). Standards are developed by an independent international organisation, the International Accounting Standards Board (IASB). It is a set of international guidelines for accounting and financial reporting.

Companies preparing financial statements in accordance with IAS/IFRS are required to apply all relevant applicable IAS/IFRS standards and their interpretations and implementation guidance (Chamber of Auditors 2020).

Since 2010, forestry practices and state forest enterprises have introduced obligations for selected companies to adopt certain international accounting standards. The aim was to bring state accounting closer to private entities (Dvořáková 2017).

Multiple standards can be applied to agricultural activities, which encompass a range of activities,

<https://doi.org/10.17221/31/2025-JFS>

including forestry, from the perspective of international standards. These include, for example, IAS 2 – for inventories, i.e. harvested and approximated timber, IFRS 13 – for fair value measurement, IAS 16 – for land, IAS 20 – for government subsidies, IAS 38 – for intangible fixed assets, but above all IAS 41 – for biological assets, where the value of forest plantations can be included (Hlaváčková 2009).

IAS 41 – Agriculture provides rules for the measurement and recognition of biological assets in the financial statements (Dvořáková 2017). The final version of the standard was issued in December 2000 and is effective for accounting periods beginning on or after 1 January 2003 (Sedláček 2007; Bohušová, Svoboda 2016; Gonçalves et al. 2017). According to IAS 41, the standard is used for the accounting treatment of agricultural activities, which are biological assets, agricultural production at the time of harvest and government subsidies (Dvořáková 2017).

In the forestry sector, the agricultural standard covers the part of forest production that relates from the establishment stage of the forest stand, the growth stage (harvesting period), to the time of harvesting the forest stand (Herbohn, Herbohn 2006; Čermáková 2013).

Figure 1 shows the classification of biological assets according to IAS 41 according to their purpose in the enterprise.

From a valuation perspective, IAS 41 requires biological assets to be measured at fair value less estimated costs to sell from the time of acquisition and initial recognition. Further remeasurement to fair value always takes place at the date

of the financial statements (Mateš, Grosu 2009; Hinke, Stárová 2014; Dvořáková 2017; Gonçalves et al. 2017). Also, production that is harvested from biological assets is measured at fair value at less estimated costs of sale at the time of harvest. This valuation is the cost at the date of harvest for further application of IAS 2 – Inventories (Orbán et al. 2015; Dvořáková 2017). As stated by Elad (2004), Bohušová and Svoboda (2016) or Gonçalves et al. (2017), in general, the reported value of assets under the fair value model is value-relevant. Research on value relevance infers how accounting information is reflected in stock prices and how it affects investors' decision making (Bart et al. 2001). The inclusion of more information in financial statements appears to be the most important advantage of fair value accounting (Bart et al. 2001; Ball 2006; Mala, Chand 2012; Gonçalves et al. 2017). This is because fair value provides more information than historical cost whenever there is an observable market price or an independently observable and reliable estimate of the market price (Ball 2006). From studying these articles, it can also be concluded that the use of fair value is more appropriate for companies that have a higher level of disclosure.

Accounting for specifics in forestry in the Czech Republic. Forest management plans (FMPs) are classified as intangible fixed assets under specific conditions in Czech forestry accounting. In accordance with Act No. 289/1995 Coll. on Forests, entities that manage state forests or own more than 50 ha of forest are legally obliged to produce an FMP. Where the acquisition cost exceeds CZK 60 000 (approx. EUR 2 400), the FMP is recog-

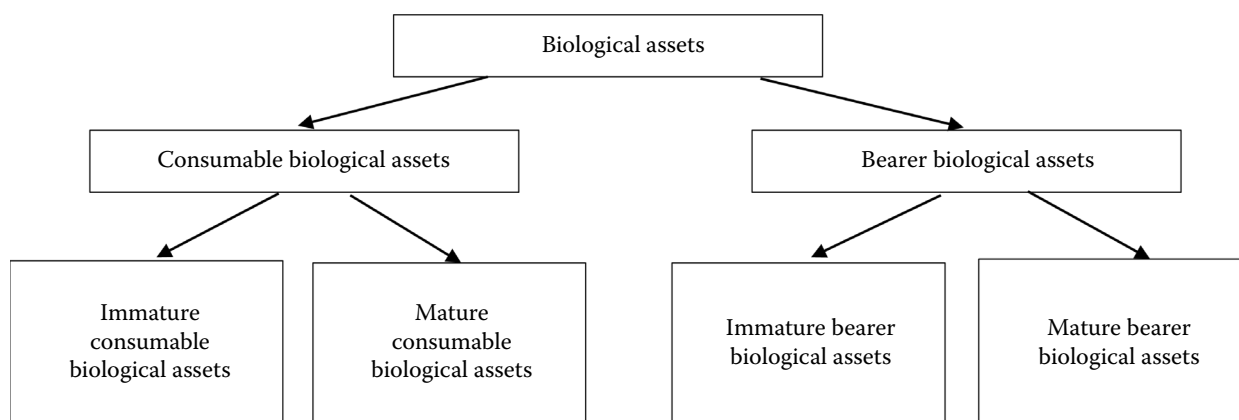


Figure 1. Classification of biological assets according to the International Financial Reporting Standards (IFRS)

Source: Čermáková (2013)

nised as a depreciable asset (MoA 2023). If the FMP is prepared in digital form, the Ministry of Agriculture may provide financial support, which is deducted from the acquisition cost. If the threshold is not met, the FMP is recorded as a service (Šafařík et al. 2021).

Forest land, including vegetation, is treated as tangible fixed assets under the Czech Civil Code (Act No. 89/2012 Coll.). These assets are not subject to depreciation due to their potential for appreciation. The value is recorded at historical cost and includes related acquisition costs (Act No. 151/1997 Coll.). Internally cultivated forest stands do not increase asset value but are treated as operational costs (Dušek 2015).

Since 2008, Ordinance No. 500/2002 Coll. requires entities managing forest land exceeding 10 ha to disclose the area and value of forest cover, calculated by multiplying the area (in m²) with an average value of 57 CZK·m⁻² (Šafařík, Hlaváčková 2022). If alternative valuation methods are used, their basis and purpose must be disclosed in the financial statements.

Harvested timber is accounted for as own-production inventory and is tracked in various stages: stump (P), removal roadside (OM), and dispatch warehouse (ES). Timber flows increase in value as they progress through production stages and are valued using the phase calculation approach, known as Method A, pursuant to Czech Accounting Standard No. 015 (CAS 015). Inventory discrepancies are reconciled annually; positive differences are considered revenue, while shortages are classified as either tax-deductible (natural losses) or non-deductible (culpable losses) (CAS 007; Hlaváčková, Šafařík 2021). Establishing internal wastage norms is recommended to manage these differences appropriately (Pecenka et al. 2020).

Cultivation reserves represent statutory reserves defined under Act No. 593/1992 Coll. and are tax-deductible. These are intended to align the timing of income taxation with the actual incurrence of forest regeneration costs, which may occur years after timber harvest. The reserve is calculated based on a budgeted plan of silvicultural work and drawn down as work is completed. If unused, the reserve must be cancelled. Entities must hold corresponding funds in a linked (secured) account with a Czech bank, as specified by Šafařík et al. (2011).

Accounting provisions are recorded in accordance with Czech Accounting Standard No. 004 and represent future obligations. These provisions are charged to cost accounts and matched by liabilities in analytical accounts grouped by purpose (Šafařík et al. 2021).

Differentiating between repairs, maintenance, and technical improvement is critical for determining tax treatment. Technical improvements, such as road widening, drainage construction, and conversion to haul roads, increase asset value and are depreciable (Act No. 586/1992 Coll.). In contrast, repairs and seasonal maintenance activities like pothole patching or snow removal are expensed directly (Morávek 2015). Similar rules apply to forest reservoirs, where reconstruction alters hydraulic functionality, while maintenance is governed by operational protocols.

Where classification is uncertain, entities may seek a binding ruling from the tax authority under Section 33a of the Income Tax Act. This mechanism helps mitigate tax risks in asset management and capital expenditure planning in forestry (Herbohn, Herbohn 2006; Aziz 2015).

Environmental accounting. Environmental accounting can be defined as a set of principles, approaches and activities that contribute to solving environmental problems. It is developed both at the macro level, i.e. at the level of the system of national accounts, and at the micro level, i.e. at the level of corporate accounting (Hlaváčková 2008).

National accounting is generally a rich, inter-related system of information about the national economy. Environmental accounting used in this context refers to the national economy. Environmental accounting is therefore a source of information primarily on the consumption of national resources, both renewable and non-renewable, and could therefore be referred to as natural resource accounting.

The contribution of forestry to the national economy is often measured by its share of gross domestic product (GDP) and by indicators such as export earnings, labour generation and industrial production. However, other indicators that take account of the economy and the environment, such as environmental accounts at the national level, are also used to determine the gross value added of individual sectors. This is a statistical system that links information on the economy and the environment into a common framework.

<https://doi.org/10.17221/31/2025-JFS>

Important policy initiatives at EU level that are relevant to environmental accounts are the Green Deal for Europe, the Eighth Environmental Action Plan, the implementation of the 2030 Agenda in the EU, the New Action Plan for the Circular Economy or the Recovery and Resilience Facility, which led to the creation of the National Recovery Plan in the Czech Republic (CSO 2023).

The European System of Accounts (ESA) is produced in line with the System of National Accounts (SNA) and is the main EU economic statistics tool for the production of economic indicators, including GDP. Satellite accounts are also used to analyse the interrelationships between the environment and the economy (CSO 2023).

Approaches to measuring environmental assets, changes in the state of assets, and the flow of materials or energy between the economy and the environment are formally defined in the United Nations System of Integrated Environmental Economic Accounts (SEEA) (2021). The SEEA applies financial accounting principles, i.e. the principles of the System of National Accounts (SNA), to the environment (Dickie, Neupauer 2019). The SEEA combines economic and environmental information to measure the environmental contribution of the economy and the impact of the economy on the environment. SEEA complements another benchmark framework, Experimental Ecosystem Accounting (EEA) (UN 2021). EEA includes separate accounts for ecosystem services, ecosystem extent, ecosystem condition, and monetary assets. The natural capital accounts are an extension of the ecosystem accounts defined in the EEA framework (Dickie, Neupauer 2019; Stebbings 2021; UN 2021). Assets defined within natural capital accounts have a broader scope than ecosystem assets, as they include environmental resources (e.g. materials and energy). Natural capital accounting (NCA), developed to measure assets and track changes, records the status of assets in terms of stocks and flows, both in monetary and non-monetary terms. The structure of the NCA follows the structure of the SEEA and they are therefore aligned, thus conforming to the principles of national accounting.

Environmental information should also be an important part of the company's information system. The definition of environmental accounting, according to Schaltegger et al. (2000), is that this accounting provides information on the environmentally induced financial impacts on en-

terprises and on the environmental aspects of the economic system. It is a way of tracking the effects that financial flows associated with activities that affect the environment have on the system (Hlaváčková 2008). It is divided into financial (EFA) and managerial (EMA) accounting. EFA deals with the expression, valuation, assessment and reporting of environmental liabilities and financially significant (critical) costs related to the environmental impacts of corporate activities, products and services (Schaltegger et al. 2000; Hájek et al. 2012, 2013). EMA is an integral part of management, concerned with identifying, collecting, estimating, analysing, reporting and communicating information on material and energy flows, information on environmental costs and other value-based information that is the basis for decision-making within a given enterprise (Gray 2002; Jasch 2006; Hlaváčková 2008).

Environmental accounting provides very valuable information that can be used both at the level of the enterprise as a whole and at the level of internal departments, processes and performances in the areas of environmental cost management, pricing decision-making, planning and budgeting, investment decision-making, costing, savings and benefits of environment-related projects, planning and implementation of cleaner production projects, pollution prevention and others, environmental protection projects, planning and implementation of environmental management systems, setting quantified environmental targets, environmental profile assessment, indicators, benchmarking, external reporting on the company's environmental performance, external financial reporting on environmental costs and liabilities, other environment-related reporting for statistical offices and local authorities [see e.g. 'Environmental management accounting is beneficial for different sectors, types of companies and organisations and is an important management tool as well as an environmental policy tool that includes an externalities perspective' (Hájek et al. 2012)].

ESG context and sustainability report. Forests play a vital role in climate change mitigation and biodiversity preservation, which makes their treatment in financial reporting crucial for environmental, social, governance (ESG) evaluation (Lee et al. 2025). Investors, regulators, and the public increasingly demand transparency in how natural assets are managed and accounted for. However, existing ac-

counting systems do not yet adequately reflect the sustainability dimension of forest assets.

The EU's Corporate Sustainability Reporting Directive (CSRD) and the European Sustainability Reporting Standards (ESRS) aim to integrate environmental performance into financial disclosures. Forestry companies may soon be required to report not only on financial results, but also on carbon storage, biodiversity impact, and land use changes. This reinforces the need for consistent, meaningful accounting frameworks for forests.

Sustainable forest management (SFM) principles are difficult to translate into numbers, yet financial systems must evolve to reflect the reality that ecological resilience is inseparable from economic value. Ignoring the environmental function of forests in accounting may lead to distorted incentives and underinvestment in long-term forest health.

RESULTS

This section synthesises the findings from the article, outlining the key outcomes and interpretations of forest accounting as a biological asset within both the Czech accounting framework and International Financial Reporting Standards (IFRS).

Differences in asset valuation. The analysis highlights a significant divergence between the Czech accounting system and IFRS in terms of valuation approaches for biological assets. Czech legislation values forest land as a non-depreciable asset, assessed primarily at historical cost, whereas IFRS mandates fair value measurement under IAS 41. This difference affects the reported value of forests in financial statements, with IFRS allowing for a more dynamic representation of forest growth and ecosystem service contributions.

The analysis showed fundamental differences between the approaches of Czech legislation and international accounting standards. While Czech legislation values forests as assets based on historical costs, IFRS uses fair value, which includes not only the growth of the forest stand but also the potential for ecosystem services.

Impact on financial statements. The revaluation process under IFRS, which captures fair value at every reporting date, provides a closer alignment between the ecological growth of the forest and its economic value, potentially leading to greater transparency for investors. However, the absence of an active market for certain forest types can lim-

it the fair value model's applicability, requiring alternative approaches such as discounted cash flow methods or ecosystem service valuations.

The difference in approaches has a major impact on the reported value of forests in financial statements and thus on investors' decision-making. While IFRS encourage dynamic reporting of the growth and environmental benefits of forests, Czech standards provide a more conservative view that does not consider the environmental dimension.

Accounting for forest reserves. Czech legislation includes specific provisions for forestry-related reserves for cultivation activities, reflecting an effort to address the long production cycle inherent in forestry. These statutory reserves support future silvicultural activities, aiding in sustainable forestry management by deferring taxes until the funds are used for cultivation, thereby stabilising financial performance across periods of planting and harvesting. However, these instruments are not sufficiently integrated into the broader framework of environmental accounting.

Inventory management in forestry. Inventory records for forestry products, including timber and seedlings at various stages, highlight the unique production cycle in forestry. Czech standards classify these assets as current production inventory, unlike the IFRS approach where standing timber is considered a biological asset until harvested. The recording of harvested timber as inventory stock creates a distinction that affects both financial outcomes and tax calculations.

Environmental accounting considerations. Incorporating environmental accounting frameworks, such as the United Nations System of Environmental Economic Accounting (SEEA), underscores the relevance of forests beyond their timber value, including carbon sequestration and biodiversity. Such frameworks align with EU environmental policies and help integrate environmental objectives into economic decision-making.

These results underscore that while Czech legislation emphasises historical cost and legal compliance, IFRS provides a more comprehensive view of forest assets by valuing biological growth and ecosystem services. Adopting IFRS standards for forestry enterprises could enhance the transparency of financial reporting and potentially attract environmentally conscious investors.

Table 1 shows the main differences between Czech and international accounting standards.

<https://doi.org/10.17221/31/2025-JFS>

Table 1. Main differences in accounting for biological assets between CAS and IFRS

Area	Czech Accounting Standards (CAS)	International Accounting Standards (IAS 41/IAS 2)
Recognition of growth	recognised only at harvest	revalued annually based on biological transformation
Timber inventory	own production stock	inventory recognised after harvest
Cultivation reserves	statutory reserve deductible from the taxes	no specific IFRS reserve mechanism
Losses and shrinkage	subject to internal norms	included in fair value calculation
Environmental accounting	reflected at the national level via SEEA	partially addressed in sustainability disclosures

CAS – Czech Accounting Standards; IFRS – International Financial Reporting Standards; SEEA – United Nations System of Integrated Environmental Economic Accounts

DISCUSSION AND CONCLUSION

The comparative results presented in the previous section demonstrate substantial disparities between the Czech Accounting Standards (CAS) and the International Financial Reporting Standards (IFRS) in the treatment of forests as biological assets. While Czech legislation remains largely anchored in historical cost valuation and legal categorisation of forest land as a non-depreciable asset, IFRS – especially IAS 41 – requires valuation at fair value less estimated costs to sell. This principle aims to provide more relevant, decision-useful information to stakeholders and to better reflect the biological transformation and productive potential of forest assets.

In the Czech context, forests continue to be primarily treated as land assets, with timber and cultivation activities entering the accounting system only at the point of harvest or as inventory flows. This approach, though aligned with tax efficiency and conservative financial management, fails to capture the ongoing biological growth and non-market ecosystem services provided by forest stands. In contrast, the IFRS framework promotes periodic revaluation, which integrates the biological cycle into financial reporting and reflects not only physical outputs but also ecological changes in asset value.

These findings are consistent with broader international literature. For example, Herbohn and Herbohn (2006) examined the implications of IAS 41 in Australian and international forestry enterprises, concluding that while fair value accounting enhances transparency, it also introduces complexity and requires a high level of professional judgment.

Similarly, Gonçalves et al. (2017) demonstrated that the fair value model increases value relevance in capital markets, particularly when reliable market data is available. In the context of Central and Eastern Europe, Hinke and Stárová (2014) highlighted the practical difficulties in applying IFRS to forest assets due to valuation uncertainty and lack of liquidity in the forestry market, a challenge also present in the Czech Republic.

The methodology employed in this paper, a structured comparison of legal, tax, and accounting frameworks, enabled a detailed diagnosis of system-level differences and regulatory gaps. One of the strengths of this approach is its grounding in both conceptual analysis and applied legislation, which allows direct relevance for forest enterprises and policymakers. However, the limitation lies in the absence of empirical financial data or simulation models (e.g. cash flow forecasting or carbon offset valuation), which would provide additional quantitative support to the normative conclusions.

Importantly, the study identified the lack of integration of environmental accounting frameworks in Czech forestry reporting as a missed opportunity. Systems such as the UN SEEA or the European Sustainability Reporting Standards (ESRS) offer ready-made structures for combining economic and ecological indicators, yet their application remains marginal. The forthcoming implementation of the Corporate Sustainability Reporting Directive (CSRD) at the EU level will likely intensify pressure on forestry enterprises to report on biodiversity, carbon storage, and land-use change alongside financial results. Czech legislation is not yet aligned with these requirements.

Harmonisation between CAS and IFRS in the forestry domain could thus yield multiple benefits. Firstly, it would improve the comparability of forest enterprise performance across borders, which is essential for investors and lenders. Secondly, it would enable forestry companies to participate more effectively in emerging mechanisms such as carbon credit trading, ecosystem services markets, or ESG-linked financing platforms. Thirdly, it would strengthen the capacity of the national accounting system to reflect sustainable land use, thereby enhancing the coherence between financial policy and environmental policy – an imperative enshrined in the EU Green Deal and the 2030 Agenda for Sustainable Development.

However, such harmonisation would require several preconditions: (i) the development of sector-specific guidelines for fair value estimation in forestry, potentially issued by the Czech Ministry of Finance or the Chamber of Auditors; (ii) training for accountants and auditors in biological asset valuation; and (iii) gradual legislative reform to include biological growth and natural capital in asset definitions.

In conclusion, forests are not merely production units of raw material, they are long-term ecological assets with vital environmental and social functions. Capturing their value in financial statements is a critical step toward aligning economic reporting with the reality of sustainable forest management. The adoption of IFRS, or at least the integration of its core principles, can provide a more faithful representation of forest dynamics, foster innovation in accounting practice, and support responsible resource governance. At the same time, it is essential to maintain the legal clarity and risk-averse character of Czech accounting to ensure usability and stability in domestic enterprises.

Future developments in this field should focus on building a hybrid framework – one that combines the conceptual depth of international standards with the pragmatic structure of national accounting while embracing the ecological complexity and strategic importance of forests in climate and biodiversity policy.

REFERENCES

- Aziz K. (2015): Material Losses in Cost Accounting. Available at: <https://www.linkedin.com/pulse/material-losses-costaccounting-khalid-aziz>
- Ball R. (2006): International Financial Reporting Standards (IFRS): Pros and cons for investors. *Accounting and Business Research*, 36: 5–27.
- Barth M.E., Beaver W.H., Landsman W.R. (2001): The relevance of the value relevance literature effort financial accounting standard setting: Another view. *Journal of Accounting and Economics*, 31: 77–104.
- Bohušová H., Svoboda P. (2016): Biological assets: In what way should be measured by SMEs? *Procedia – Social and Behavioral Sciences*, 230: 62–69.
- Chamber of Auditors (2020): Metodická pomůcka pro audit společností připravujících účetní závěrku podle Mezinárodních standardů účetního výkaznictví (IFRS) dle stavu k 1. lednu 2020. Prague, Chamber of Auditors of the Czech Republic: 22. (in Czech)
- CAS (2024): České účetní standardy pro účetní jednotky, které účtují podle vyhlášky č. 500/2002 Sb., ve znění pozdějších předpisů. Prague, Ministry of Finance of the Czech Republic: 80. Available at: https://www.mfcr.cz/assets/cs/media/Ucetnictvi_2018_Ceske-ucetni-standardy-pro-500-2002_v02.pdf (in Czech)
- CSO (2023): Environmental Accounts. Prague, Czech Statistical Office. Available at: <https://www.czso.cz/csu/czso/environmentalni-ucty>
- Čermáková M. (2013): Comparison of forest cover representation in the corporate information system according to the legal norms of the Czech Republic and according to the approach of international financial reporting standards IFRS. *Zprávy lesnického výzkumu/Reports of Forestry Research*, 58: 78–84.
- Dickie I., Neupauer S. (2019): Natural capital accounts: Nations and organizations. *Journal of Environmental Economics and Policy*, 8: 379–393.
- Drolet S., LeBel L. (2010): Forest harvesting entrepreneurs, perception of their business status and its influence on performance evaluation. *Forest Policy and Economics*, 12: 2087–298.
- Dušek J. (2015): Normy mank přirozených úbytků, úhynů zvířat a ztraceného zásob: Praktický návod s podklady na jejich určení. Prague, Grada Publishing: 176. (in Czech)
- Dvořáková D. (2017): Finanční účetnictví a výkaznictví podle mezinárodních standardů IFRS. 5th Ed. Brno, Computer Press: 328. (in Czech)
- Elad C. (2004): Fair value accounting in the agricultural sector: Some implications for international accounting harmonization. *European Accounting Review*, 13: 621–641.
- FAO (2024): The State of the World's Forests 2024 – Forest-Sector Innovations Towards a More Sustainable Future. Rome, Food and Agriculture Organization of the United Nations: 104. Available at: <https://openknowledge.fao.org/items/9c056c59-fa14-4887-967f-f64e460be56d>

<https://doi.org/10.17221/31/2025-JFS>

- Ferreira A., Moulang C., Hendro B. (2010): Environmental management accounting and innovation: An exploratory analysis. *Accounting, Auditing and Accountability Journal*, 23: 920–948.
- Gonçalves R., Lopes P., Graig R. (2017): Value relevance of biological assets under IFRS. *Journal of International Accounting, Auditing and Taxation*, 29: 118–126.
- Govigli V.M., Bruzzese S. (2023a): Assessing the emotional and spiritual dimension of forests: A review of existing participatory methods. *Forest Policy and Economics*; 153: 102990.
- Govigli V., Bruzzese L. (2023b): IFRS application to biological assets: Analysis and valuation issues. *Accounting in Europe*, 20: 55–74.
- Gray R. (2002): Thirty years of social accounting, auditing and reporting: What (if anything) have we learned? *Accounting, Auditing and Accountability Journal*, 19: 793–819.
- Hájek M. (2013): Problematika externalit při využití environmentálního manažerského účetnictví v lesním hospodářství. *Zprávy lesnického výzkumu/Reports of Forestry Research*, 58: 280–285. (in Czech)
- Hájek M., Pulkrab K., Hyršlová J. (2012): Forestry externalities in environmental management accounting system. *Problems of Management in the 21st Century*, 5: 31–45.
- Herbohn K., Herbohn J. (2006): International Accounting Standard (IAS) 41: What are the implications for reporting forest assets? *Small-scale Forest Economics Management and Policy*, 5: 175–189.
- Hinke J., Stárová M. (2014): The fair value model for the measurement of biological assets and agricultural produce in the Czech Republic. *Procedia Economics and Finance*, 12: 213–220.
- Hlaváčková P. (2008): Environmentální manažerské účetnictví jako nástroj managementu dřevozpracujícího podniku. In: Gejdoš P., Potkány M. (eds): *Controlling and Quality Management in Enterprises*. [CD-ROM]. Zvolen, Technical University in Zvolen: 166–173. (in Czech)
- Hlaváčková P. (2009): The impact of international accounting standards on forestry. In: Strouhal J. (ed.): *Proceedings of the 9th Pedagogical Conference*, Prague, Dec 5, 2009: 40–45.
- Hlaváčková P., Šafařík D. (2022): Accounting and tax aspects of losses on the quantity of harvested and traded timber. In: *Controlling of Business and Production Processing in Forest Based Industry*. Zagreb, WoodEMA: 37–45.
- Holécý J. (2019): *Economics of Forestry*. Zvolen, Technical University in Zvolen: 235.
- Holubová H. (2010): Biological assets – Accounting in compliance with IFRS and Czech accounting standards. [MSc. Thesis.] Prague, University of Economics in Prague. (in Czech)
- IAS 41 (2009): International Accounting Standard IAS 41 – Agriculture. Deloitte. Available at: <https://www.iasplus.com/en/standards/ias/ias41>
- Jasch C. (2006): EMA as the next step in the evolution of Management Accounting. *Journal of Cleaner Production*, 14: 1190–1193.
- Kupčák V. (2003): *Ekonomika lesního hospodářství*. Brno, Mendel University in Brno: 257. (in Czech)
- Lee H., Kim J.H., Jung H.S. (2025): ESG-KIBERT: A new paradigm in ESG evaluation using NLP and industry-specific customization. *Decision Support Systems*, 193: 114440.
- Mala R., Chand P. (2012): Effect of the global financial crisis on accounting convergence. *Accounting and Finance*, 52: 21–46.
- Mateš D., Grosu V. (2009): Evaluating and recognizing biological assets and agricultural activities according to IAS 41. *Lucrări Științifice – Seria Agronomie*, 51: 1–6.
- MoA (2023): *Research, Development and Innovation Strategy of the Ministry of Agriculture for 2023–2032*. Prague, Ministry of Agriculture of the Czech Republic: 174. Available at: <https://eagri.cz/public/portal/-a30164---YZ5Q7CJN/anglicka-verze-koncepcie-vyzkumu-vyvoje-a-inovaci-ministerstva-zemedelstvi-na-obdobi-2023>
- Morávek Z. (2015): Manka a škody u zemědělských podnikatelů. Prague, DAUČ. Available at: <https://www.dauc.cz/clanky/7157/manka-a-skody-u-zemedelskych-podnikatelu> (in Czech)
- Orbán I., Dékán T., Kiss Á. (2015): Measurement of agricultural activities according to International Financial Reporting Standards. *Procedia Economics and Finance*, 32: 777–732.
- Pecenka R., Lenz H., Hering T. (2020): Options for optimizing the drying process and reducing dry matter losses in whole-tree storage of poplar from short-rotation coppices in Germany. *Forests*, 11: 374.
- Sedláček J. (2007): Harmonisation of agricultural accounting. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 55: 152–156.
- Schaltegger S., Hahn T., Burritt R. (2000): *Environmental Management Accounting: Overview and Main Approaches*. Lueneburg and Canberra, Center for Sustainability Management: 19.
- Stebbing E., Hooper T., Austen M.C., Papathanasoupolou E., Xiaoyu Y. (2021): Accounting for benefits from natural capital: Applying a novel composite indicator framework to the marine environment. *Ecosystem Services*, 50: 101308.
- Šafařík D., Dudík R., Hlaváčková P. (2011): Accounting, financial and tax aspects of creating reserves and cultivation activities. *Zprávy lesnického výzkumu/Reports of Forestry Research*, 56: 150–153. (in Czech)
- Šafařík D., Hlaváčková P. (2015): Losses in the amount of produced and sold timber. *Procedia Economics and Finance*, 34: 51–57.

<https://doi.org/10.17221/31/2025-JFS>

- Šafařík D., Hlaváčková P., Březina D. (2021): Determination of standards of raw timber natural losses due to shrinkage at long-term dry storage. *Journal of Forest Science*, 67: 195–203.
- Šafařík D., Hlaváčková P., Michal J. (2022): Potential of forest biomass resources for renewable energy production in the Czech Republic. *Energies*, 15: 47.
- Šišák L. (2001): Social and economic importance of the timber production in the Czech Republic. In: Holécy J., Klubica D. (eds): *Generation and Measurement of Forest Value. Proceedings of a conference with international participation*, Zvolen, Sept 13, 2001: 181–190.
- United Nations (2021a): *System of Environmental-Economic Accounting: Ecosystem Accounting (SEEA EA)*. New York, United Nations: 409. Available at: <https://seea.un.org/ecosystem-accounting>
- United Nations (2021b): *COVID-19 Impacts on the Forest Sector in Eastern Europe, Caucasus and Central Asia*. Geneva, United Nations and the Food and Agriculture Organization of the United Nations: 27. Available at: <https://unece.org/info/publications/pub/363314>

Received: April 1, 2025

Accepted: May 26, 2025

Published online: July 15, 2025