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PUBLIC POLICIES PROMOTING FOREST-POSITIVE BUILDINGS: A REVIEW OF TWENTY ONE COUNTRIES

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Research conducted as a contribution to the Forests & Climate Leaders' Partnership initiative on Greening Construction with Sustainable Wood

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I. INTRODUCTION

Buildings account for 38% of energy-related CO^2 emissions worldwide, thus reducing greenhouse gas emissions in the built environment is a priority (UNEP, 2022). The UN predicts 2.5 billion more people will be living in cities by 2050, and much of the demand for new buildings will be in and around cities (UNDESA, 2018). Cement and steel production accounts for about 50% of carbon emissions from construction materials (IFC, 2023). Building with timber, a renewable resource, could reduce the carbon footprint of a large building by up to 40% if the timber is sourced from sustainable forestry.

This analysis of the public policy landscape seeks to identify and describe, for 19 Forest & Climate Leader's Partnership (FCLP) member countries, particularly those in the Greening Construction with Sustainable Wood Coalition, the policies currently in place that are contributing to a resilient value chain for greening construction with sustainable wood (e.g. forest-positive buildings). This analysis will attempt to provide a benchmark that will enable the identification of policy gaps as well as policies that could be replicated in other countries.

Public policy is an action that is directly within the purview of the FCLP member governments, including the arenas of decisions and rule-making through policy and secondly as a source of demand, such as via public procurement. The scope of public policy along the forest to building sector value chain is broad - from addressing forest and land use management, to industry and infrastructure, to economic and urban development, and housing. The coverage and effectiveness of such policy can vary significantly from country to country and even within a country.

Government jurisdictions have various tools they can use to change behaviour and incentivize forest-positive buildings, including through regulations, disincentives, standards, and financial incentives. Incentivizing forest-positive buildings requires careful consideration of a range of factors that could undermine ecological and social values. The amount of timber volume required to meet new demands for building materials will need to come largely from existing forests in the near-term, and although rates of deforestation have dropped in some countries, the global rate of extinction of forest species is now 1,000 times higher than historical norms (Secretariat of the Convention on Biological Diversity, 2024).

FAO (2024b) predicts global roundwood production to increase by 6–32% between 2022 and 2050, and volume to increase between 240 million m^3 and 1,200 million m^3 to 2050, depending on the scenario. FAO's estimates are based on data covering existing markets, and therefore does not consider new future forest product innovations, or the higher concentration of carbon dioxide in the atmosphere and higher temperatures associated with climate change will likely

increase the net growth of forests in some areas, while other areas will suffer increased wildfires, pests, storms and drought (FAO, 2024b). One study estimated that the area of forest plantations could increase by 20 million–40 million ha by 2050 as a means to meet increased wood demand (Nepal et al, 2019), which is roughly between the size of the countries of United Kingdom and Sweden.

FAO (2024b) has made additional estimates to include potential impacts of three emerging forest products considered the most promising wood products for the large-scale substitution of non-renewable materials. This new and additional demand would double the projected increase FAO predicts for global roundwood production, based on its low-growth scenario—272 million m^3 per year by 2050 compared with 2020. The three emerging forest products are: a) mass timber/ cross-laminated timber for construction; b) artificial cellulosic fibres from dissolving woodpulp, mainly used in the textiles industry; and c) woodfuel for bioenergy.

Woodfuel for bioenergy is not included in this policy review. Nevertheless, it is a topic that should be carefully considered in any policy efforts related to increasing wood supply, given its rapidly growing demand and its potential to compete with other wood product uses. In 2023, Asia experienced 20% year-on-year growth in wood pellet demand, led by Japan and South Korea, most of it coming from Indonesia (Earth Insight et. al., 2024).

Innovations in increased harvesting and processing efficiency, recycling, and planting of forests and trees, including in agroforestry systems and building on restoration efforts, can lead to sustainable wood supply in volumes to meet the increase in demand (FAO, 2023), but more details are needed. Wood-use efficiency has only increased by 15% between 1961 and 2022 (FAO, 2024b).

Policies advancing forest-positive buildings are considered part of the emerging 'bioeconomy' concept, defined by the G20 as "an economic system that uses renewable biological resources to produce goods, services, and energy sustainably and efficiently. It represents a shift from a traditional, linear economy, based on fossil fuels and finite raw materials (G20, 2024)." In 2024, the G20 members agreed on ten voluntary, non-binding High-Level Principles on Bioeconomy, the fifth principle of which states, "Advance sustainable consumption and production patterns and the efficient and circular use of biological resources, whilst promoting the restoration and regeneration of degraded areas and ecosystems (*ibid*)." One global policy review found that while more than 40 national states seek to develop and expand their bioeconomies, only a few countries are deploying political means to address the potential risks and goal conflicts of bio-based transformation, and only a minority mention the potentially negative implications of bio-based transformation for sustainable development (Dietz et. al., 2018). This points to a need for further research and policy guidance to ensure trade-offs are well defined and assessed, to minimize

negative side-effects such as overharvesting or land rights disputes. FAO members requested COFO to increase research, information and decision support on the forest bioeconomy and is requested to report on results at COFO 28 in 2025 (FAO COFO, 2024).

This research was conducted as a contribution to the Forests & Climate Leaders' Partnership (FCLP) initiative on Greening Construction with Sustainable Wood. This analysis seeks to assess the current state in public policy for forest-positive buildings. This analysis does not assess policy effectiveness of the policies and measures in place, rather whether polices exist or not across the wood value-chain. Each country summary (found in Annex 1) was researched based on desk-based reviews and literature searches, using the national language (using Google translate) as a means to identify relevant policies through internet searches. This analysis did not rely on AI, and it is noted that most content in the 'AI Overview' generated by Safari while searching was factually wrong or inadequate. Policies were Google translated and reviewed for their content, summarizing key aspects in each country summary sheet. Many FCLP country focal points reviewed their summary sheets, to the extent possible, to ensure their factual content and to add any missing information. This report represents the authors' research findings and does not represent government positions or government-endorsed summaries of policies.

Further FCLP investigation into this topic could further elaborate on these findings, as a basis to identify "low-risk, high-reward" policies, whether policy packages or bundles are more effective than on-off policies, and what has been most effective to encourage behaviour change and maintain standards across the value chain, among other topics for further study.

II. ANALYTICAL FRAMEWORK

An analytical framework was developed to guide this assessment. The components of the analytical framework were identified through a global literature review on policy approaches to sustainable forest management, green building materials, and other relevant topics, as well as literature prioritized by key informants. The goal in developing the analytical framework was to identify major groups of policies or policy 'baskets' that describe areas of action that jurisdictions are pursuing to support forest-positive buildings (refer to Figure 1).

The analytical framework guides the country policy scan, to identify which policies countries and jurisdictions are pursuing, wish to pursue, or as a means to define gap areas in each of the 21 FCLP countries: Commonwealth of Australia, Canada, Republic of Costa Rica, European Union, Republic of Fiji, Republic of Finland, Republic of France, Federal Republic of Germany, Republic of Ghana, Japan, Republic of Kenya, Republic of Korea, the Netherlands, Kingdom of Norway, Republic of Congo, Islamic Republic of Pakistan, Kingdom of Sweden, Tanzania, United Kingdom of Great Britain and Northern Ireland, and United States of America.

It is important to note that Figure 1 depicts the policy baskets that occur at different jurisdictional scales. Different levels of government hold jurisdictional authority over different topical areas. For instance, in a federal government with decentralized land sovereignty, sustainable forest management is likely best pursued at the Provincial level where authority over land is held. Building codes often occur at city or municipal level, and if so, that is appropriate jurisdiction to pursue amending building codes.

FIGURE 1:


PUBLIC POLICY LANDSCAPE
FOR FOREST - POSITIVE BUILDINGS
Buildings account for 38% of energy-related CO^2 emissions globally, and this will increase as 2.5 billion more people will be living in urban areas by 2050. Building with sustainably sourced timber could reduce the carbon footprint of a large building by up to 40%.
CO^2
O^2
bioeconomy
01
start
Sustainable Forest Management
02
Long-Life Wood Products
03
Finish
Forest-Positive Building
SUPPLY-SIDE
1
Sustainable forest management
Clarity and security of tenure
2
Timber tracking, legality and production standards
Trade policies, restrictions on wood imports and avoiding leakage
DELIVERY
3
Innovations in wood product manufacturing
Reclaimed wood and recycled materials
GOVERNANCE AND POLICY
Tools jurisdictions can use to change behaviour and incentivize forest-positive buildings, through regulations, disincentives, standards, and financial incentives.
DEMAND-SIDE
5
INSURANCE
Building codes
Insurance
Taxation and incentives
Finance and investment
4
Green building certification
Public procurement
Emission reduction targets for buildings
Credits: Gabrielle Kissinger - Chandra Oktavia

Sustainable forest management—Is defined by FAO as a "dynamic and evolving concept, which aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations". When sustainably managed, forests and trees make vital contributions to people and the planet by bolstering livelihoods, providing clean air and water, conserving biodiversity and helping combat climate change (FAO, 2024a). Policies promoting sustainable forest management often seek to ensure natural forests are secured and maintained, plantations are established on already existing rotational forest and degraded lands, supporting planting and regeneration, annual allowable harvest rates are predetermined based on assessment of various factors, and may include targets for retention of natural forest, reforestation and afforestation.

Clarity and security of tenure – Forest tenure may be defined as the right – statutory or customary – that determines who can use, manage, control, or transfer forest lands and resources (FAO, 2022). Clarity and security of tenure underpins equitable development and investment—whether a smallholder farmer or timberland investor—and safeguards against infringement of tenure rights. The Voluntary Guidelines on the Responsible Governance of Tenure (VGGT) provides principles and internationally accepted standards for responsible practices (FAO, 2022). In 52 tropical and subtropical countries, 22% of the forest carbon is stewarded by indigenous and local communities (IPLCs), and one-third of that carbon storage is located in areas where IPLCs lack formal recognition of their tenure rights (RRI et. al., 2023). Thus, plantation establishment and logging in such areas could infringe on customary land rights if tenure is not recognized and honoured. In cases where tenure cannot be adequately clarified or secured, the use of Free, Prior, and Informed Consent (FPIC) is a minimum standard (UNDRIP, 2007).

Timber tracking, legality and production standards—There exists a range of policies that aim to address social license or operational risks, or risks to sustainable supply. Sourcing timber that meets sustainability criteria, particularly if imported, requires that wood be verified against various criteria, including:

- Product and production certification, such as Forest Stewardship Council (FSC), Programme for the Endorsement of Forest Certification (PEFC), which include third-party audits and chain of custody (tracking) verification.
- Tests for legality of the wood and restricting high-risk products (EU Timber Regulation, EU Deforestation-free Regulation (EUDR) which includes wood, US Lacey Act, New York's Tropical Deforestation-Free Procurement Act (vetoed by Governor) (State of New York Senate, 2023), Japan's Clean Wood Act which is yet to be fully implemented)
- Avoidance of trade in endangered species listed under CITES, with minimal trade allowed only if a CITES Certificate exists (for instance

in the case of CITES listed species being propagated on plantations and not taken from the wild).

Effective trade policies, restrictions on wood imports and avoiding leakage— Trade policies seek to influence the quantity and quality of products imported into or exported from a market. An example is the EU import restrictions on wood made products (wood, paper, pulp) from Indonesia, which was part of over ten years of negotiation and investment in the EU-Indonesia Voluntary Partnership Agreement of the Forest Legality Governance Enforcement and Trade (FLEGT) (EC DG TRADE, 2024). Tracking wood trade flows is made easier by a range of tools that assist countries (European Forest Institute, 2024; UN COMTRADE, 2024). There is an emerging interest in defining best practices in policies that enable tracking, traceability and trade of deforestation-free wood products for the buildings and construction sector.

Good forest practices in one geographic area which displaces demand, and thus unsustainable timber harvesting, to another area is 'activity-shifting leakage.' This concept is perhaps best reflected in GHG emission reduction terms, such that activities causing carbon loss in a project area is displaced outside the project boundary (IPCC, 2000). In other words, without shifting overall wood product demand, CO^2 gains/losses shift to other jurisdictions to meet demand. In some context-specific cases it may make sense to import wood from other countries, such as in the case of a country with a high percentage of high-conservation-value forests or if sustainable timber supply chains operate over an entire region. Such decisions would need to consider the demand-side impacts on the exporting country. It is also noted that carbon emissions from transporting wood products over large distances can significantly drive up the embodied emissions.

Innovations in wood product manufacturing – Innovative uses of sustainably sourced wood in construction, and in manufactured and processed products, can increase efficiency and reduce waste in wood utilization. "Engineered wood products" refers to new construction method that utilizes wood to replace concrete and steel structural functions to enable multi-story buildings. Mass timber is one type of engineered wood product gaining in prominence. Mass timber is generally larger than dimensional lumber, including: Cross-laminated timber (CLT), Nail-laminated timber (NLT), dowel-laminated timber (DLT), and Glulam are typically sourced from kiln or air-dried softwood lumber. Products such as mass plywood panels (MPP), laminated veneer lumber (LVL), parallel strand lumber (PSL), laminated strand lumber (LSL) and OSB can be sourced from either softwood or hardwood fiber (The Forests Dialogue, 2021). Such technical innovations are often coupled with investments and policies to increase the capacity and skills of the workforce to adopt new practices.

Reclaimed wood and recycled materials— Incentives and innovations to reuse wood is gaining ground, such as reduced waste disposal charges. In Australia, an audit of commercial and industrial waste streams by the New South Wales Department of

Environment, Climate Change and Water found 13% of the total material going to landfills was wood. Recovered timber grading is a growing issue. In the UK, RPS 291 allows, in the short term, for potentially hazardous 'amber' waste wood items removed from domestic premises, demolition sites or other buildings to be stored and processed as non-hazardous provided the material is tested (UK WRA, 2024). In Europe, wood that is recovered from demolitions and reused or upcycled faces challenges in meeting the standard requirements for new timber grading defined in the EU Harmonized Standard EN 14081 series, especially timber source identification. This presents challenges for reusing and upcycling wood, which could be addressed if there were a new standard framework for reused wood (Llana et al, 2024). A similar reframing would be required for fire and fire resistance, such as the European Standard BS EN 13501 series.

Green building certification — Green building certification is utilized to demonstrate that a building reduces its impact on the environment, such as reduced energy use, reduced GHG emissions, or sustainability of building supplies. A review of BREEAM, LEED and Nordic SwanEcolabel identified that all the certification schemes propose the use of reused or recycled wood materials, without any restriction about the origin, instead of new wood materials with sustainable forest management certification. When it came to using non-recycled wood materials, the points-based system of the schemes had fairly low % thresholds for responsible sourcing (> 10% for BREEM and 50% for Nordic SwanEcolabel, and only the Nordic Swan Ecolabel rewards the use of wood materials in relevant building parts, such as structures and façades, in its scoring system (Piccardo et. al., 2021). LEED and Nordic SwanEcolabel also prohibit specific wood species, especially from tropical regions (*ibid*). The European Bank for Reconstruction and Development has a requirement for all investments in building construction to use a green certification such as EDGE, BREEAM or LEED (UNEP, 2022), which will promote these methodologies in emerging markets EBRD serves.

Public procurement – Jurisdictions set procurement policies which can provide significant market demand, and also set an example for others to follow, helping to spur innovation and influence the wider market. In the EU, public purchasing represents 15% of its GDP, having an impact on the market through the products and services acquired by governments from the local to national levels (SEI, 2023). Green Public Procurement is the practice of purchasing goods and services using environmental requirements, with the aim of cutting carbon emissions and mitigating environmental harm throughout the life cycle of the product or service (*ibid*). Procurement can dictate terms, such as low-carbon budgets, which drives innovation by producers to meet the terms. Ghana has considered a Public Procurement Policy on Timber and Timber Products as a means for the government of Ghana, as the largest single consumer, to use its purchasing power to prohibit the use of illegal timber for all projects funded by the government (Oduro et al, 2020). Ghana's draft policy would establish a framework for trading legal timber and wood products in the domestic market. In most European countries, sub-national authorities account for at least half of procurement spending, and in most cases

over 60% (OECD, 2022). In this context, it is useful to have all levels of public authorities (national, regional and municipal) aligned and committed to green procurement policies (SEI, 2023). In Lithuania, since November 2024, newly constructed public buildings must be made of at least 50% wood and organic materials.

Wood in construction policies – Wood in construction or wood encouragement policies are those promoted by a level of government to generate an increase in the use of wood as a building material. They can target increased use of wood in public buildings, and these types of policies can sometimes be characterized more as pro-wood public procurement policies. British Columbia's Wood First Act of 2009 is an example, which sought, "to facilitate a culture of wood by requiring the use of wood as the primary building material in all new provincially funded buildings." In some jurisdictions these policies also seek to influence the amount of wood being used by the private sector in new construction.

Emission reduction targets for buildings—More jurisdictions are adopting policies promoting low-carbon materials and nature-based materials to reduce the long-term embodied carbon of buildings. An OECD review in 2024 found that 54% of countries reviewed have included building-related commitments in their Nationally Determined Contributions (NDCs) to the Paris Climate Agreement, including commitments to achieve zero-emission buildings, use renewable energy, and reduce whole-life cycle carbon. The same assessment found that 61% of the countries reviewed have started developing life cycle assessment (LCA) methodologies and 50% countries have worked on developing LCA databases. Yet, only 11% have set up mandatory declarations or limit value regulations on life cycle CO^2 emissions. Tools to estimate embodied carbon are growing[1] and can be mandated by jurisdictions to be utilized by public and private sector developers. The OECD found that only 7% of countries reviewed include whole-life carbon in legislative and regulatory frameworks, and they are mostly only voluntary. Local action is crucial to implement emission reductions in building and construction. Yet 54% of countries lack monitoring frameworks to track progress on decarbonisation efforts at the local level (*ibid*). This points to the challenge of implementing national level goals, when a majority of the activities to achieve the targets occur at municipal and local levels.

Cities and municipalities are taking action, and this is an appropriate jurisdictional scale, given that building codes often are within their jurisdiction. Cities with carbon neutrality objectives supporting the use of wood as a building material include Copenhagen, Helsinki, Seattle and Vancouver.

Building codes—Many building codes are within municipal or city jurisdictions, but some also occur at Provincial/State levels, and national levels. In 2021, tall mass timber structures were given allowance in the International Building Code (ICC Digital Codes, 2021), which opened the door for national and sub-national jurisdictions to follow suit. The code allowed for the

[1] https://www.naturallywood.com/resource/the-embodied-carbon-pathfinder-web-app/ https://www.athenasmi.org/our-software-data/impact-estimator/

construction of mass timber towers up to 18 stories in the U.S., subject to specified "encapsulation" measures, such as the use of drywall, gypsum or other fire-resistant materials on exposed timber to provide more fire protection. In the Province of British Columbia, all-timber buildings up to 18 storeys are allowed starting in 2024 under the British Columbia Building and Fire Codes (BC Codes 2024). Canada also has a National Building Code, which Provinces can adapt to their jurisdictional context. The National Building Code was altered to promote wood after Canada signed agreements to incentivise wooden construction to meet net-zero targets.

Insurance—Particularly with mass timber construction, in the UK and other jurisdictions, there have been challenges securing construction and property insurance as insurers view these building materials as having increased risk profiles related to fire, water and pest exposure compared to concrete and steel. These concerns have resulted in higher prices or challenges in accessing insurance (Giddings, 2022). Collaborative efforts in the UK resulted in a framework for eliciting, understanding and resolving the risk challenges that have hindering insurance provision for mass timber buildings (Callow and Glockling, 2023) Giddings (2022) summarizes recommendations for a range of actors in the construction process, most notably requesting the UK government to publish an approved 'route to compliance' for mass timber for buildings not subject to the 'combustible materials ban' in The Building Regulations. Insurance risk is viewed differently in North America. Zurich North America launched in 2021 two pioneering Builders Risk insurance policies with up to USD 50 million in capacity, for qualifying risks. One policy provides coverage for the construction risks of one-off mass timber buildings, and the other for multiple mass timber buildings via a Master Builders Risk program.

Taxation and incentives—Jurisdictions can help spur innovation in forest-positive buildings by taxing and lengthening the approval processes for high-carbon buildings,[2] and/or making low-carbon buildings more cost effective. Such tax mechanisms must be administered at the right jurisdiction, but can be motivated at national levels. Private sector innovation responds to these types of public signals. Jurisdictions can also link planning approvals and access to finance to carbon budgets, so that low-carbon projects are promoted. In the Province of British Columbia, Canada, mass timber innovation in the private sector was incentivized through demonstration activities and directed finance initiatives (Province of British Columbia, 2023).

Finance and investment—There are various public sector support mechanisms and tools that can be applied to support greening construction and sustainable wood. The International Finance Corporation (2023) identifies that of the $230 billion of green private debt finance that was made available in 2021 for construction value chains, only 9% of financing has gone into greening the manufacturing of construction materials, which is the activity responsible for almost half the value chain's carbon footprint.

[2] The proceeds from such taxation could be used to invest in low-carbon buildings and new innovation.

Many financing tools have emerged recently in mature and emerging markets for the financing for green buildings, including blended finance, carbon transition and retirement bonds, sustainability-linked debt, venture capital funds, green mortgages, real estate investment trusts (REITs), performance contracts and leasing, and sustainability bonds (IFC, 2023). Those instruments add to other public finance instruments such as subsidies and low-interest loans.

III. COUNTRY RESULTS

Country reports are detailed in Annex 1. This section summarizes the key results in each policy basket area in the wood in construction value chain:

Sustainable forest management: All countries have policies, regulations and various types of guidelines in this area. Many countries have Forest Acts and laws from the 1990's that were the first to recognize the multiple values of the forest and sustainability concerns, in addition to production/extraction priorities. Federal countries usually delegate jurisdictional authority to states/provinces for forest management, so unified goals at national level may not exist. It is notable that a number of countries are identifying climate impacts on their forests that are resulting in forests being an emission source rather than a sink, especially those in the northern hemisphere. A significant number of countries reviewed do not produce enough timber domestically to meet the demand for wood.

Clarity and security of tenure: Most developed countries reviewed have clear tenure rights and lack of conflict. Among developed countries reviewed, most contain a high level of private ownership (>50%), which in some cases includes private industrial landholdings. However, developing countries reviewed contain a very different picture, with most exhibiting some form of tenure conflict, especially in countries where tenure rights are not well defined. Ghana has a unique situation in the state holding ownership of all natural resources, including those on land privately held under customary title. In Ghana, this has led to conflict and lack of clarity on tree stewardship and management. In contrast, more than 50% of Pakistan's land area is open access resources, either controlled by resource users or under weak communal control. This is recognized as a major underlying driver of unregulated deforestation and also a source of land conflict and legal cases. In the Republic of Congo, 13% of forest concessions and 20% of protected areas have on-going land-use conflict, often exacerbated by weak governance and a lack of sectoral coordination which results in land-use conflicts between different stakeholders and sectors such as forestry, agriculture and mining. Some countries are pursuing FPIC, consultations with indigenous communities or joint management agreements as a means to settle conflicts, and also include local and indigenous communities in developing economic activities.

Timber tracking, legality and production standards: Some developing countries prioritize consistent timber grading for structural building use. Kenyan structural timber design is based on Eurocode 5, but the grading in that standard was not based on Kenyan species and machinery, causing challenges. Nordic countries follow a harmonized set of timber grading rules which facilitates use and trade. Environmental product declarations (EPDs) which incorporate lifecycle assessment calculations are increasingly being mandated, most commonly in the EU, but also in North America. EPDs are of growing

interest as a tool for standardized lifecycle assessments, and are an integral part of the EU Construction Products Regulation (new version just started to be implemented in 2025). Voluntary forest certification systems (mostly commonly FSC, PEFC) are applied in most countries, and can assist buyers of timber in verifying the products are sustainably harvested.

Trade policies, restrictions on wood imports and avoiding leakage: The EU is setting a bold new standard with the EU Deforestation Regulation (EUDR) to track both legal and illegal deforestation in the EU and in relation to EU imports. The US implements the Lacey Act, which restricts illegally-sourced wood product imports. Canada, Australia and other developed countries have or are setting improved regulations on timber imports to ensure quality and legality, setting due diligence requirements for importers and processors, and methods of screening for risks. Australia has new rules which just came into affect to update methods to assess and verify the legality of timber and timber products, due to concern that up to 10% of volume ($900 million in value), of Australia's timber imports could come from high-risk sources every year. Australia is similar to many countries reviewed which lack robust methods of tracking imports to ensure they avoid high-risk and illegal timber imports.

For most countries, screening of high-risk imports consists of screening for CITES Appendix-listed species. For some producer countries that received forest sector governance support through the EU Forest Law Enforcement, Governance and Trade (FLEGT) initiative, these mechanisms are referenced as contributing to timber tracking. However, in Ghana's case, FLEGT mechanisms were set up to track exports, but Ghana now imports timber and the mechanism does not provide due diligence on this. Few developing countries reviewed have FLEGT licenses. For some countries such as Kenya, Tanzania, and Republic of Congo, the challenges in tracking timber flows in the supply chain and over borders are significant.

Most countries lack measures for forecasting policy scenarios and assessing resource demand over time and related leakage effects. The EU Joint Research Centre has published woody biomass flows at EU Member State level, as well as at EU-27 aggregate level, for the years 2009 to 2017, as a means to help inform trade-offs between use of wood/biomass for energy and longer wood product lifespan options.

Innovations in wood product manufacturing and training/capacity: This policy scan deliberately sought out publicly-supported programmes and investment, not activities that were advanced by research institutions and industry- and private-sector-funded initiatives. Countries with the most robust actions in this area are those with long-standing timber sectors that face competition, or suffered mill closures, and which experience political interest to channel public investment into these industries for socio-economic purposes, as was the case with the Nordic countries and Canada. In some cases investments in wood product manufacturing and capacity building is a direct result of a national strategy, such as in the case of Japan, Germany and the UK. Canada provides an example of a country investing in manufacturing and capacity building in its export markets in Asia (notably Japan,

Korea and China) as these are destination for its raw or processed wood products. In Fiji and Ghana, traditional building methods using wood and other bio-based materials are shown to be more climate resilient, especially surviving tropical cyclones in Fiji, thus advancing technology and training in these methods has climate and livelihood benefits.

Reclaimed wood and recycled materials: Policies promoting reuse and recycling of wood, or enabling mechanisms to repurpose wood into different uses is a growth area, especially as more countries are adopting circular economy strategies and commitments. In the UK, previous measures resulted in such success that less than 1% of UK timber and wood products go to landfill. However, in most countries reviewed, reuse and repurposing of wood lacks policy and practical frameworks, and in some cases, no records of activity were found. Australia recently introduced an Interim Standard to guide recycled timber manufacturers, suppliers and users with requirements for visually grading recycled hardwood timber intended for use in structural applications. The EU Renovation Wave seeks to renovate 35 million buildings by 2030, with sustainability in materials being a major priority. How much of those materials will be influenced by the 2024 EU construction & demolition waste (CDW) management protocol and guidelines for pre-demolition and pre-renovation audits to increase re-use of products and recycled materials, is yet to be seen.

Green building certification: These standards had previously focussed predominantly on energy use and inputs, but are increasingly including carbon and materials considerations.
NABERS launched its Embodied Carbon rating tool, in partnership with the Green Building Council of Australia. The Leadership in Energy and Environmental Design (LEED) v4 standard recognizes and rewards the use of low carbon building materials. Governments use green building certification as a means to guarantee environmental performance of public buildings, such as in the case of British Columbia, Canada, which has required, since 2007, that all public sector buildings newly constructed or undergoing major renovations achieve LEED Gold or equivalent certification. The UK Net Zero Carbon Buildings Standard, sets out a maximum level of embodied carbon that must not be exceeded in order to assess what constitutes a net-zero building. The UK government's mandates that public procurement and building must adhere to either the BREEAM or NABERS UK standards.

Public procurement: Most countries reviewed that have green procurement policies and that do single out timber as an issue of concern are oriented towards avoiding use of illegal timber. Procurement is in certain cases clearly tied to national emission reduction commitments, such as in Costa Rica. The concept of 'buy clean' was integrated into policies in North America. The US Buy Clean Initiative under the last administration sought to influence the US$630 billion in annual purchasing power of the US government, but it did not include wood. Canada's Green Government Strategy contains a 'buy clean' policy approach that does include wood, promoting the adoption of construction materials with low embodied carbon and that are renewable such as

wood, reclaimed or recycled materials (as well as lower-emission concrete and steel).

The European Green Deal calls on government agencies to lead by example in their procurement and the EU has further announced mandatory procurement objectives and criteria based on the European Circular Action Plan. However, these aspirations need to be nested into national policy frameworks. Sweden provides and example of how this works. Sweden follows the EU Energy Performance of Buildings Directive and EU Ecodesign for Sustainable Products Regulation, which sets green public procurement criteria and requirements. However, green public procurement is non-mandatory and for embodied carbon and circularity, no threshold values are set on the national level.

Wood in Construction policies: Not all countries (and their subnational units) in FCLP have wood in construction policies, with 7 of the 21 countries having no specific policies in this basket. Other countries have strategies or plans, which do not carry the implementation commitment of a policy. For some countries with wood in construction policies, they apply primarily to public buildings, as it is presumably harder to influence the building actions of the private sector. Finland's Wood Building Programme set targets for the share of wood in all new public construction and for the types of buildings with the greatest construction volumes, with goals of 31% of the market share of wood by 2022 and 45% of the market share of wood by 2045. However, in Japan, the 2021 amendments to the Act for Promotion of Use of Wood expanded to include all buildings, and seeks to reduce CO_2 emissions and substitute other materials that have higher carbon and environmental footprint. The Act allows prefectures to formulate their own policies, and their adoption rate is found to be quite high (95%).

Commitments have also been made at municipal levels. Amsterdam's Green Deal Timber Construction mandates that all new buildings constructed after 2025 consist of at least 20% wood or other biobased material. The signatories to a pact with the Île-de-France Region, the Métropole du Grand Paris, and key actors, commits to make a part of their production in wood and bio-based materials (between 10-40%), to use 100% of wood from sustainably managed forests (PEFC, FSC or equivalent) and prioritize the use of wood produced in France (up to a minimum of 30%).

In other sub-national levels, policies develop to respond to needs of and support pre-existing forest-based industries. In New Zealand, the In Sweden, Västerbotten has convened a working group, Trästad, to assist other municipalities to develop their own timber building strategies and promote increased construction in timber. In the UK, in Wales, the Powys County Council adopted a Wood Encouragement Policy that defines eight priorities to advance wood in public and general construction.

In some cases, targets are embedded in national low-carbon plans, such as in the case of Costa Rica's National Decarbonization Plan, which seeks that by 2025, there will be an increase of 10% in the use of wood, bamboo and other local materials in buildings (and a higher target set for 2030). Canada's Green Construction through Wood (GCWood) program supports Canada's commitment to reach 2030 and 2050 emissions

reduction targets and has made specific investments to advance wood construction, particularly through demonstration projects. The GCWood programme also supports updating building codes that allow for taller and larger wood buildings.

Emission reduction targets for buildings: This policy scan reviewed country UNFCCC Paris Agreement NDCs and all relevant national climate legislation to identify if the building and construction sectors are included, and if so, what the country's targets and plans are. In most countries, this takes the form of climate acts and legislation, climate action plans, national low-carbon development strategies, and sector emission reduction strategies. This policy scan did not include reviewing medium- and long-term development policies to evaluate the degree to which these include emission reduction targets.

In developing countries, the emission reduction commitments specific to the construction sector and buildings is varied. Many NDC's and climate acts focus on sectors in the economy that are the source of the greatest emissions, which for most developing countries reviewed is the energy sector, transport and land use change. Emissions from buildings may be reflected in a number of 2006 IPCC guideline[3] categories, such as energy, industrial processes and product use, LULUCF and waste. Countries that are conducting their national GHG inventories strictly following these 2006 guidelines do not separate out buildings and construction. It is observed that countries which do not quantify the amount of GHG emissions attributed to their construction sector and buildings (particularly embodied carbon) do not set corresponding emission reduction targets and goals. Further, emissions reductions plans are often based on historical trajectories of emissions, and not future emissions based on development scenarios.

Nevertheless, some developing countries still articulate prioritized actions in this area. Kenya's National Climate Change Action Plan 2023-2027 contains an aspiration to incentivise tree growing value chain enterprises in its section on Forests, Wildlife and Tourism, and seeks to improve the processing efficiency of forest materials, including recovery rates from 15% to 30%. Costa Rica has ambitious plans for reaching net-zero emissions by 2050, and its NDC seeks to ensure 100% of new buildings will be designed and built using low-emission and resilient systems and technologies under bioclimatic parameters b y 2030. Costa Rica plans to achieve this goal by increasing the use of wood, bamboo and other local materials in buildings.

In other cases, there exist roadmaps or strategies that are aspirational, but not mainstreamed into national policy. For instance, the Ghana Climate Action Roadmap for Buildings and Construction, developed by GlobalABC in 2024, contains an embodied carbon component for new government and public buildings that emphasizes the development of a circular building supply chain. It is not reflected in Ghana's National Climate Change Policy of 2013 or the National Medium-Term Development Policy Framework 2022-2025.

The EU has a unique set of policy commitments that guides its member countries to ratify and incorporate EU

[3] https://www.ipcc-nggip.iges.or.jp/public/2006gl/

targets into their domestic legislation. In 2021 the EU Framework for Achieving Climate Neutrality set an economy-wide GHG emission reduction target of at least 55% by 2030 compared to 1990, and climate-neutrality by 2050. This sets a threshold that is now reflected in member state national legislation. The European Commission published an EU-wide roadmap for reducing whole life cycle carbon emissions in buildings, which sets a baseline for embodied carbon emissions of buildings across European regions, sets out how embodied carbon of European buildings can be expected to evolve by 2050, and assess solutions. Though voluntary for EU member states to consider this input, it assists countries in considering future scenarios and as a basis for developing their policies. It further complements related EU policy commitments, such as: a) the Land Use, Land Use Change and Forestry (LULUCF) Regulation which mandates that EU member states report on and account for changes in carbon stocks not only in forests but also in harvested wood product carbon pools, and b) the EU Carbon Removal Certification Framework, a voluntary EU-wide mechanism to certify carbon removals generated in Europe and help the EU to reach climate neutrality. The framework includes carbon storage activities that capture and store carbon in long-lasting products for at least 35 years, such as wood-based construction products.

Though not a national climate act or law, France's Environmental Regulation 2020 (RE2020), which came into affect in 2022 and becomes increasingly stringent in 2025, 2028 and 2031, sets new energy and environmental regulations for all new construction. In this way, it functions more as a building code with emission reduction targets. The regulations consider continual improve the energy performance of new buildings, reducing the carbon impact of buildings by taking into account all the emissions of the building during its life cycle, from its construction phase to its end of life, and better climate adaptation of buildings to future climate conditions. RE2020's dynamic LCA approach determines the carbon index of each material, and gives more weight to early emissions compared to late emissions, which allows to take into consideration the benefit of carbon-storing materials, therefore encouraging the use of bio-based products. RE2020 contains a wider scope—bio-based materials—and does not specifically single out wood, which allows for use of straw, clay, wood and earth depending on the local building vernacular and locally available materials.

Subnational levels have been at the forefront of defining emission reduction targets, especially if their aspirations are out of sync with national policy, or if their jurisdictional authority over certain domains compels their actions. In the US, California passed a bill in 2022 on embodied carbon emissions in construction materials which requires the California Air Resources Board to develop a framework for measuring and reducing the embodied carbon especially at the materials production stage, with a target of a 40% net reduction in GHG emissions no later than 2035. In Norway, a municipal alliance—FutureBuilt—has brought Oslo, Bærum, Asker, Drammen, Nordre Follo, Lillestrøm, Bergen, Trondheim, Stavanger and Kristiansand together to complete 100 pilot projects that cut carbon emissions in transport, energy and materials by at least

50% compared to current regulations and common practice.

Building codes: The building codes explored through this policy scan influence the uptake of wood construction either by defining minimum or maximum allowable standards for certain materials such as timber, or pursue methods of reducing the carbon footprint of building materials, and using reporting as a means to monitor and enforce meeting targets. A number of countries reviewed, particularly those in less developed economies, lack specific code provisions on timber or bio-based materials, or targets to drive emission reductions.

Jurisdictions often reference international code standards, thus when the 2021 International Building Code (IBC) adopted major changes, including permitting tall wood buildings up to 18 storeys, and 17 new code provisions for tall wood buildings, this change held potential to trickle down into national and sub-national building codes. In the same year, the International Fire Code was also amended for tall mass timber construction. The IBC is the primary construction standard used in the United States. Once the IBC changes, it is up to states in the US to adopt the new provisions and update their codes. Three years later, by 2024, only 20 states, and 17 cities or counties had adopted the revised IBC provisions in their codes. California, Oregon, and Washington states were early to adopt revisions to their building codes to incorporate the IBC 2021 tall timber provisions, and this helped spur an increase in timber projects in those jurisdictions. Canadian provinces also responded to the IBC changes, though British Columbia and Québec had already begun to allow tall wood buildings since 2009 and 2015 respectively. Canada had updated its National Building Code (which Provinces can adapt to their jurisdictional context) only a year earlier than the IBC revisions. Canada's 2020 code allowed wood buildings up to 12 stories. BY 2024 British Columbia's Building and Fire Codes were aligned with the IBC thresholds.

In the EU, Eurocode 5: 'Design of Timber Structures' is the European building code that set the standard member countries must follow. In the Netherlands, France, Sweden and Finland, Eurocode 5 is supplemented by national annexes and specific standards, which specify local application rules and additions needed for the implementation of Eurocode 5. The EU Energy Performance of Buildings Directive (EPBD) is another tool applied in the EU to influence building design and performance, as whole-life carbon reporting for new buildings will be mandatory from 2030. In most EU countries in this scan, whole-life cycle assessment approaches, based on European standard EN 15978, and mandatory declaration of carbon footprint reporting are starting to be implemented. Though Germany also is in the EU, and guidelines and non-binding building code exists at the national level, its federal system contributes to a more nuanced sub-national approach to building code policy uptake. The states of North Rhine-Westphalia and Baden-Württemberg amended their state building codes to promote the use of wood in construction. Federally-prepared guidelines serves as a set of recommendations to public building projects at federal-state, municipal and private sector levels. The consideration of life cycle assessments are emphasized, but not mandatory at this time.

The Fiji National Building Code of 2023 seeks to address climate mitigation, adaptation, and resilience in building design, though it does not mention wood buildings specifically. Fiji's Code mostly references the Australian and New Zealand Standards.
Fire is of course a major subject area in building codes, and Australia has developed a specific standard construction of buildings in bushfire-prone areas. The standard does allow structural timber and external applications of wood, but specifies the minimum construction requirements for buildings in these areas.

Insurance: Problems associated with insuring predominantly wood and multi-story timber buildings appeared to be a major issue impeding uptake of wood in construction during the literature review phase of this policy scan. However, upon researching the issue in each country, it appeared to only be a major issue of concern in the UK. Five countries out of 21 reviewed has some activity in this area, usually as guidance to insurers on how to understand certain risks such as combustibility in multi-story timber building, as in the case of Canada, the Netherlands and Sweden. In Canada, Natural Resources Canada supported The Canadian Wood Council in publishing the Insurance Best Practices Guide to offer guidance to insurers and project developers in lowering costs of Builder's Risk Insurance or 'Course of Construction' insurance. A similar approach was undertaken in the Netherlands, but by the Dutch Trade Association of Insurers, which created a brochure to help underwriting policies and to promote the insurability of timber construction. In Sweden, the Swedish Timber Construction Agency has a knowledge exchange between the wooden construction industry and insurance companies. These activities indicate a minor role for governments in addressing an issue that is not seen as a major problem, and appears to be handled appropriately by the private sector in a number of jurisdictions. For instance, in the US, Zurich Insurance North America launched two policies in 2021, including one that provides coverage for the construction risks of one-off mass timber buildings, and the other for multiple mass timber buildings via a Master Builders Risk program.

The UK is the only set of countries in this policy scan that has experienced a hindrance in uptake of timber construction due to the challenge of obtaining insurance, and for which this was viewed as a barrier to adoption. Hence, the Mass Timber Insurance Playbook of 2024 was launched as a key instigator of future government and industry collaboration to address the issues, but it is unclear to what extent these have been solved through policy.

Taxation and incentives: This is an area in which a majority of countries reviewed had no activities to document. Those countries that have taken steps here illustrate a wide range of incentives, from grants (British Columbia's Mass Timber Demonstration Program and the CleanBC Building Innovation Fund), debt financing (Australia's Clean Energy Finance Corporation Timber Building Program, launched with A$300 million in 2022, to encourage mass timber construction) and incentives such as free access to life cycle assessment reports and services, and fast-tracking development application

approvals in the City of Vincent in Western Australia.

Only two countries illustrate innovative taxation methods to promote wood in construction or improved timberland management. France finds that it's building stock is large enough to meet the requirements of its population, so seeks to incentivize renovation and disincentivize construction of new buildings. Thus, property owners pay VAT at 20% for new building work, 10% for renovations, and just 5.5% for energy-efficient renovations. Japan established both the Forest Environment Tax and the Forest Environment Transfer Tax in FY2019 to secure stable local funding needed for forest management and as a mechanism for each citizen who benefits from forests to share the burden and support forests.

Finance and investment: Among developed countries, there was more evidence of activity on this topic. In contrast, in developing countries reviewed, there was a dearth of reportable activity. This may reflect the need for more research on this policy basket. Investment usually comes in the form of grants, budget allocation and direct payments. These usually appear to be linked to national or sector-specific strategies. For instance, Australia supported its National Forest Industries Plan, investing in regional forestry hubs and to supporting smarter ways to use available and future wood supplies, including salvage operations after the 2019-20 bushfires which burned 130,000 hectares of commercial timber plantations. In British Columbia, Canada, the Forestry Innovation Investment is the provincial Crown agency for forest product market development, making strategic investments to promote market access and export growth.

In the EU, considerable investment flows from EU-wide investment mechanisms that have a broad set of priorities, but due to the scale of funding and investment, benefits activities that fall into various categories. Horizon Europe is the EU's key funding programme for research and innovation, focussed on tackling climate change, helping achieve the UN's Sustainable Development Goals and boosting the EU's competitiveness and growth. Between 2021-2027 it is capitalized at EUR 93.5 billion.

EU member states are channelling their own investment, aligned with national priorities. France's forestry renewal plan of the France 2030 investment plan is a major focus area, among others. Germany had about € 1.6 billion were available in 2023 from the Climate and Transformation Fund, which is part of the Federal Funding for Efficient Buildings (BEG), which, in addition to new construction, supports the renovation of buildings with a total of €13.9 billion. The portion of that being directed towards low-carbon material inputs and wood/timber construction is unknown. Despite the considerable support from the federal government in Germany, states and municipalities (states of Bavaria, Baden-Württemberg, cities of Freiburg, Hamburg) are also providing funds and subsidies for new buildings in wood construction.

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ANNEX 1: COUNTRY POLICY SUMMARIES

AUSTRALIA

Sustainable forest management

Forest policy in Australia is developed and implemented at the national, state and territory levels. State and territory governments have primary responsibility for forest management. State's develop their own plans, such as the New South Wales Forest Management Framework of 2021,[4] which amends the Forestry Legislation Amendment Act 2018, the Local Land Services Act 2013 and the Forestry Act 2012, Plantations and Reafforestation Act 1999, Crown Land Management Act of 2016, and Biodiversity Conservation Act 2016 of New South Wales. Similar legislation exists in other states.

The 1992 National Forest Policy Statement[5], signed by national, state and territorial governments, set the overall framework under which the different levels of government work towards sustainable forest management, and integrates environmental, social and commercial objectives. A key outcome of the National Forest Policy Statement was the development of 10 Regional Forest Agreements[6] (RFAs) across 4 states, most drafted in the late 1990's and early 2000's, which detail objectives in these forest regions. The Victorian Government terminated its 5 RFAs on 31 December 2024 following the cessation of harvesting in public native forests in that state.

Australia's **Sustainable Forest Management Framework of Criteria and Indicators 2008 – Policy Guidelines**,[7] details the 7 criteria and 44 indicators in the framework used for reporting on the state of Australia's forests. It includes the rationale for the inclusion of each indicator in the framework, within the relevant criterion. All such frameworks are developed on the premise that sustainable forest management is a process of continuous improvement. These criteria are based on those developed by the international-level Montréal Process Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests, but were adapted to the Australian context. The criteria include biological diversity, productive capacity, ecosystem health and vitality, soil and water resources, global carbon cycles, socio-economic benefits, legal, institutional and economic frameworks.

Australia has 133.6 million hectares of forest, covering 17% of its total land area. While forest fire is a natural and important element of Australia's forest management for its regenerative and preventative values, Australia has experienced significant extreme, bushfire events over recent

[4] https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0005/1318505/overview-of-the-nsw-fmf.v1.1-march-2021.pdf
[5] https://www.agriculture.gov.au/agriculture-land/forestry/policies/forest-policy-statement
[6] https://www.agriculture.gov.au/agriculture-land/forestry/policies/rfa
[7] https://www.agriculture.gov.au/sites/default/files/abares/forestsaustralia/documents/ciframework.pdf

times. The cumulative area of fire in forest across the five-year period (the sum of the forest fire areas for each of the five years across 2016–17 to 2020–21) was 77.4 million hectares. This highlights the extensive areas that were burned. There exists a National Bushfire Management Policy Statement for Forests and Rangelands 2014[8] which outlines Australian, state and territory government objectives and policies for the management of landscape-level fire in Australia's forests and rangelands.

Tenure clarity and security for forest owners/users

Most of Australia's forests are private and privately managed leasehold forests, accounting for 90.8 million hectares (68% of national forest area). Forest on nature conservation reserve tenure accounts for 22 million hectares of forest (17% national forest area). About 60% of Australia's total forest area is Indigenous forest estate (79.9 million ha). This is an increase of 10.4 million hectares over the area reported in the last State of the Forests Report 2018. The increase has occurred in all Indigenous estate categories, mostly through new Indigenous Protected Areas, Indigenous Land Use Agreements, and areas subject to Native Title. [9]

Timber tracking, legality and production standards

Australia's amended Illegal Logging Prohibition Act 2012[10] and new Illegal Logging Prohibition Rules 2024[11] came into effect on 3 March 2025. The reformed laws change due diligence requirements for importers and processors of regulated timber products and update methods to assess and enforce compliance with the laws. Under Australian law, illegal logging means 'the harvesting of timber in contravention of the laws of the country where the timber is harvested'. It is been estimated[12] that illegal logging comprises 10-15% of global timber production, suggesting Australia may also be exposed to the importation of high risk timber and timber products. Australia has seen isolated cases of high-value Australian timber being illegally logged.

In parallel with the legislative reforms, the Australian government trialled timber identification methods to be used to verify claims of species and/or origin of timber products entering the Australian market. This trial was to inform a key reform introduced in the new laws, which allows the use of timber testing technologies at the border to verify product claims related to species and/or origin. This reform will not be fully implemented until the Australian Government has the necessary systems and regulatory framework in place.

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[8] https://knowledge.aidr.org.au/media/4935/nationalbushfiremanagementpolicy_2014.pdf
[9] https://www.agriculture.gov.au/abares/forestsaustralia/forest-data-maps-and-tools/spatial-data/forest-tenure
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[12] [3]. Eduardo S. Brondizio, Josef Settele, Sandra Diaz, Hien T. Ngo, eds., *The Global Assessment Report on Biodiversity and Ecosystem Services*, (Bonn, Germany: Intergovernmental Panel on Biodiversity and Ecosystem Services 2019), 115.

The Wood Encouragement Policy[13] is a state government-led initiative that states preference for the Australian Forest Management Standard or the Programme for the Endorsement of Forest Certification.

As of June 2023, 20.4 million hectares of Australia's forests were certified for forest management under the Responsible Wood Certification Scheme (Programme for the Endorsement of Forest Certification) and 1.2 million hectares were certified under the Forest Stewardship Council scheme.

Trade policies, restrictions on wood imports and avoiding leakage

Under the Illegal Logging Prohibition Act 2012 and new Illegal Logging Prohibition Rules 2024 mentioned above, importers of regulated timber products and processors of Australian grown raw logs are required to conduct due diligence before importing or processing to minimise the risk of illegally sourced timber or timber products entering Australian supply chains. The risk assessment methods differ between certified timber, timber products/raw logs, and non-certified timber, and timber products/raw logs. Guidance exists for importers of regulated timber products and[14] domestic processors of Australian timber.[15] The Illegal Logging framework only applies to imports and domestic processors, and does not contain guidance material for exporters. Information for exporters is provided under export control provisions.

The Export Control Act 2020, and the Export Control (Wood and Woodchips Rules) 2021 regulate those seeking to export Australian timber. [16] Under this Act an exporter holds an export licence for the export of two tonnes or more of prescribed wood and woodchips. To get a licence, the person/company fills in a questionnaire confirming they have read and complied with the applicable requirements of the following in relation to the export operations and prescribed wood or woodchips to be covered by the licence in the *Environment Protection and Biodiversity Conservation Act 1999*; and each management arrangement, as defined in section 1-7 of the Wood Rules, (if any) that applies to the export operations and prescribed wood or woodchips to be covered by the licence.

Innovations in wood product manufacturing and training/capacity

The Australian Research Council's **Research Hub for Advance Timber**,[17] which was launched in July 2022 with an Australian Government contribution of $3 million, aims to stimulate rapid growth of timber innovation in the mid-rise building market, which could transform Australia's timber processing sector, construction sector, the experiences of building occupants, and even the life of buildings themselves. The Hub aims to develop resources, enablers, and drivers to

[13] https://www.wa.gov.au/system/files/2024-07/fpc-wood-encouragement-policy.pdf
[14] https://www.agriculture.gov.au/agriculture-land/forestry/policies/illegal-logging/importers
[15] https://www.agriculture.gov.au/agriculture-land/forestry/policies/illegal-logging/processors
[16] https://www.agriculture.gov.au/agriculture-land/forestry/industries/export#application-forms-and-downloads
[17] https://www.advance-timber-hub.org

advance sustainable timber, to be the material of choice, leading towards a net zero future for Australia's built environment.

The Australian Government has established an Australia-wide **National Institute for Forest Products Innovation**, in partnership with the University of Tasmania (UTAS). The new Australian Forest and Wood Innovations[18] (AFWI) will receive over $100 million in funding from the Australian Government between 2022-23 to 2026-27. AFWI is based in Launceston at UTAS and will have three regional Research Centres which will undertake forestry research and development.

Additional research centres of the National Institute for Forest Products Innovation, in partnership with states and industry, were established in Gippsland, Victoria (in 2020) and the Mount Gambier and Launceston research centres were supported with matching funds from the state governments and additional co-financing from the forest industry. Some of the research undertaken to date includes: developing structurally reliable glue laminated products from fibre-managed plantation hardwood logs, improved tree breeding, digital tools to support decision making in hardwood timber drying, hyperspectral and thermal sensors on light aircraft for detecting nutrient deficiencies and stress in radiata pine plantations, a feasibility and cost benefit study for innovative forest fire detection technological solutions and optimising forest fire controlling decision making.

Following the 2019-2020 bushfires, the Australian Government committed $80 million in targeted support to help forest industries, and the regional communities that rely on them, recover from the impacts of the bushfires, including: a) $40 million under the Forestry Recovery Development Fund Program to develop new processing lines and invest in upgraded technology and new facilities; b) $15 million under the Construction Softwood Transport Assistance Program to support the transportation of bushfire-salvaged softwood on Kangaroo Island to timber mills that had capacity to manufacture structural timbers for the domestic building industry; c) $15 million under the Forestry Transport Assistance program to assist with the increased costs of transporting burnt salvaged logs further distances to surviving timber mills or storage sits; and d) $10 million under the Salvage Storage Fund to establish storage facilities for fire-affected timber

Reclaimed wood and recycled materials

An Interim Standard[19] was developed to guide recycled timber manufacturers, suppliers and users with requirements for visually grading recycled hardwood timber intended for use in structural applications. It is the first time national visual grading rules have been developed for recycled timber in Australia. It is intended that after a period of application and use, the Interim

[18] https://www.agriculture.gov.au/agriculture-land/forestry/national/australian-forest-and-wood-innovations#research-themes
[19] https://www.woodsolutions.com.au/interim-standard-structural-products

Standard will be reviewed and amended and then will be submitted to Standards Australia for consideration for development as a formal Australian Standard.

Hopefully being considered in future policy to support the Net Zero GHG emissions by 2050 targets, the Built Environment Sector Pathway Review mentions resource efficiency to reduce embodied carbon, and emphasizes such measures as avoiding construction by repurposing empty buildings, ensuring building size meets changing household needs, and encouraging multifamily homes, especially given the exceptionally large sq footage of the average Australian home.[20]

Green building certification

Green Star[21] is a voluntary system managed by the Green Building Council of Australia, which evaluates the environmental/ecological design and construction of new buildings and refurbishments. To obtain a green star rating, projects must meet the eligibility criteria, 10 minimum expectations, the Climate Positive Pathway (essential for five- and six-star ratings and optional for four-star ratings until 2026) and obtain credits in nine categories: a) management; b) indoor environment quality; c) water; d) transport; e) materials; f) land use and ecology; g) innovation; h) emission; and i) energy. For timber there are awards points obtained for using timber that is certified by the Forest Stewardship Council or the Australian Forest Certification Scheme. There is a Life Cycle Assessment calculator[22] that can be applied to determine life cycle impacts, which is desirable for projects using wood which can likely qualify for the Upfront Carbon Emissions Credit.

The **National Australian Built Environment Rating System (NABERS)** provides performance ratings for new or existing buildings. Various ratings are available, such as for carbon neutrality, energy consumption, air quality/indoor environment, on-site renewable energy generation and off-site renewable energy generation, waste generation, recycling, recovery and supply chain management/waste, and water consumption and recycling. Ratings are available across various asset classes, including office buildings, office tenancy, hotels, shopping centers, data centers, hospitals, schools, warehouses and cold stores, and residential aged care and retirement living. It is compulsory to obtain a NABERS Energy rating when selling or leasing an office building larger than 1,000 square meters and new buildings over 1,000 square meters. NABERS has launched its Embodied Carbon rating tool,[23] in partnership with the Green Building Council of Australia.

[20] https://www.climatechangeauthority.gov.au/sites/default/files/documents/2024-09/2024SectorPathwaysReviewBuilt%20Environment.pdf
[21] https://new.gbca.org.au/green-star/certification-process/
[22] https://oneclicklca.zendesk.com/hc/en-us/articles/5506689252892-Australia-Green-Star-Buildings#:~:text=Fill%20in%20the%20building%20materials,has%20a%20default%20service%20life.
[23] https://www.nabers.gov.au/ratings/our-ratings/nabers-embodied-carbon

Public procurement

The **Wood Encouragement Policy for Western Australia**[24] of 2019 (WEPWA) is to encourage the use of responsibly sourced wood in the construction and fit-out of buildings or other structures, on its own or in combination with other materials. The WEPWA does not mandate or give preference to the use of wood, rather it aims to encourage the use of responsibly sourced wood in construction where it: a) represents value for money; b) provides quality and functionality; c) complies with other relevant legislation, policies and guidelines; and d) complies with relevant Australian standards. The WEPWA primarily targets State Government procurement, particularly agencies engaged in construction and infrastructure projects such as office buildings, public transportation facilities, housing developments, and schools, the WEPWA extends its reach to encourage adoption by other entities like Local Governments and private companies. The WEPWA states sustainability of wood supplies can come through compliance with Australian and international standards such as the Australian Forest Management Standard or the Programme for the Endorsement of Forest Certification. Guidance notes accompany the policy.

The **Tasmanian Wood Encouragement Policy** (TWEP) of 2024 applies to inner Budget agencies and other entities subject to the Financial Management Act 2016. TWEP directs agencies to ensure private sector and local government building and construction projects apply the policy where the Tasmanian Government provides support or enters a lease for projects that receive support, including in-kind support. The purpose of TWEP is to demonstrate local and national leadership in highlighting Tasmania's culture of wood, stimulate sustainable economic development within the Tasmanian forest and wood products industry. TWEP also encourages investment in wood processing innovations and technology, contribute to climate change mitigation by encouraging the use of wood; reducing and storing atmospheric carbon in the construction and fabric of the building. TWEP supports agencies to fully consider and demonstrate the use of wood in all aspects of the building, facilitate the sharing of information and encourage education, and these activities complement the Buy Local Policy and associated Treasurer's Instructions.

The Australian Government released its Net Zero in Government Operations Strategy[25] in November 2023, which superseded the Energy Efficiency in Government Operations (EEGO) Policy from 2007 and outlines the approach to achieve net zero in government operations by 2030. This includes a commitment to NABERS Energy rated government office space.

The Australian Government published its Environmentally Sustainable Procurement Policy[26] in April 2024, to be implemented in three phases, the first of which covers government construction services (for projects over $7.5 million) from July 2024. This policy includes an option to use the new NABERS embodied carbon tool for reporting on construction, with a

[24] https://www.wa.gov.au/system/files/2024-07/fpc-wood-encouragement-policy.pdf
[25] https://www.finance.gov.au/sites/default/files/2023-11/Net_Zero_Government_Operations_Strategy.pdf
[26] https://www.dcceew.gov.au/sites/default/files/documents/environmentally-sustainable-procurement-policy.pdf

requirement for a 4-star NABERS embodied carbon rating. It does not single out wood or timber, but does emphasize net zero and circular economy principles, and emphasizes a climate focus area action is to use low emissions materials, while a circularity focus area action is that buildings and fit-outs use less materials, recycled materials, minimise waste, can be deconstructed and reused, are designed for adaptability and flexibility.

Wood in Construction policy

Emission reduction targets for buildings

Australia has set a plan to reach net zero greenhouse gas emissions by 2050. Australia's 2024 emissions projections show Australia is on track to reach 42.7% below 2005 levels by 2030, just shy of its legislated 2030 target of 43% below 2005 levels. The Australian Government has yet to set the country's 2035 targets. That will occur in the updates Nationally Determined Contribution to the Paris Climate Agreement, and Two of the 6 sector plans relate to wood in buildings—the Built Environment plan will cover residential and commercial buildings, as well as urban open spaces and water infrastructure; and the Agriculture and Land plan will cover livestock, cropping, on-farm energy use, forestry and land use. The Net Zero Economy Authority will guide development of the sector plans, and the Built Environment plan will be drafted by the Ministry of Industry and Science and Ministry of Climate Change and Energy. The Sectors Pathway Review on the Built Environment[27] identifies that the energy ratings of most homes is the major priority. The report also identifies that the Department of Climate Change, Energy, the Environment and Water has not quantified scope 3 emissions embodied in building materials or enabled by assets. Infrastructure Australia completed an embodied carbon study for Australian infrastructure and buildings,[28] finding embodied carbon from building activity contributed 10% of national carbon emissions in 2023, with upfront carbon contributing 7%. The share of upfront carbon emissions from infrastructure and buildings is 75%, which comes from the manufacture of construction products, from extracting, harvesting, or recovering raw materials. The other 25% is from transport and construction. The report identifies interventions for decarbonization, including lightweighting of steel, replacement of cementitious materials and recycling and reuse of materials. Of note, it is likely that the National Construction Code 2025 will include voluntary guidance to report and measure embodied emissions using the NABERS tool (see below). The Australian Sustainable Built Environment Council is currently leading development of a policy framework to manage embodied emissions.

The National Australian Built Environment Rating System (NABERS) has launched its Embodied Carbon rating tool,[29] in partnership with the Green Building Council of Australia. The NABERS

[27] https://www.climatechangeauthority.gov.au/sites/default/files/documents/2024-09/2024SectorPathwaysReviewBuilt%20Environment.pdf
[28] https://www.infrastructureaustralia.gov.au/reports/embodied-carbon-projections-australian-infrastructure-and-buildings
[29] https://www.nabers.gov.au/ratings/our-ratings/nabers-embodied-carbon

building performance ratings is national government program administered by the NSW Government, and the operation of NABERS is overseen by a national Steering Committee comprised of all State and Territory representatives, and the Australian Government. The embodied carbon rating tool aligns with Infrastructure NSW, Infrastructure Australia, and Climate Active and is aligned with international standards for measuring embodied carbon in buildings.

Related, the National Emission Factors[30] database is integrated into the NABERS Embodied Carbon rating tool and can be used independently when measuring embodied carbon. It will serve as a reliable resource for emission factors where product-specific Environmental Product Declarations are unavailable. The national emission factors database is a new standard for building product emission factors in Australia.

The Australian Government's Energy Efficiency in Government Operations Policy, established in 2007, set a minimum NABERS Energy rating requirement for government-leased offices. State governments followed the lead, with almost all the states and territories adopting a sustainability strategy which included NABERS Energy targets. Mandatory disclosure of energy efficiency for office buildings over 2,000 square metres was introduced by the Australian Government in 2010. The Australian Commercial Building Disclosure (CBD) Program has since expanded and now requires energy efficiency information via a NABERS Energy rating to be provided when commercial office space of more than 1,000 square metres is offered for sale or lease. This has motivated the market to upgrade the energy efficiency of building stock because tenants can make easy comparisons. Government policies have continued to drive change. South Australia was the first state to request 5-star NABERS Energy ratings for new leases in 2017, followed by New South Wales in 2019, and Victoria and Queensland in 2021. Thus, the embodied carbon rating tool is a natural extension of the NABERS methodologies and hopefully will have similar adoption rates.

Building codes

The National Construction Code Volume One[31] of 2019 allowed for structural timber to be used in the construction of mid-rise timber buildings up to 25 metres or eight storeys when fire-protected timber is complemented with an automatic sprinkler system and the insulation installed in the cavity of the timber building element is s non-combustible as required depending on the class of building FRL. The Construction Code expanded the range of building classes where fire protected timber construction systems can be used. It now includes schools, retail premises, hospitals and aged-care facilities in addition to multi-residential, hospitality accommodation and offices. A 2020 Advisory Note[32] further refines concessions for use of timber framing and/or non-combustible materials.

[30] https://www.nabers.gov.au/publications/national-emission-factors-database

[31] https://ncc.abcb.gov.au/editions/2019-a1/ncc-2019-volume-one-amendment-1/section-c-fire-resistance/specification-c11-fire#:~:text=Clause%202.9(a)(ii,These%20include:

[32] https://www.abcb.gov.au/sites/default/files/resources/2022/Advisory-Note-timber-framing-concessions.pdf

The Australian Standard AS 3959-2018 on Construction of buildings in bushfire-prone areas[33] specifies the minimum construction requirements for buildings in these areas. Structural timber can be used in the construction of house frames across all Bushfire Attack Levels (BALs) and AS 3959 also provides requirements when using timber externally in applications such as cladding, windows, decking and pergolas. Design guides are being developed by the timber sector.[34]

Insurance

Taxation and incentives

City of Vincent in Western Australia has prioritized embodied carbon reduction and environmental sustainable design[35]. The City has a policy on sustainable design,[36] offers a GreenTrack service giving free access to Life Cycle Assessment (LCA) reports and services, and changed their planning approval processes to incentivise lower-embodied carbon projects by providing an opportunity to fast-track development application approvals.

The Clean Energy Finance Corporation (CEFC) Timber Building Program[37] was launched with A$300 million in 2022, to encourage mass timber construction across the property sector. It provides debt finance for eligible projects across Australia, including commercial offices, retail, industrial, healthcare and education. Finance may also be available for multi-residential apartments, seniors living and student accommodation projects. Concessional finance may be available under certain circumstances. Eligible projects will be considered on a case-by-case basis and may include those which: a) use low carbon engineered wood products in large-scale construction; b) have secured appropriate materials source, accreditation and embodied carbon outcomes; c) require $20 million-$75 million in CEFC debt finance; and d) are commercially sound, reflecting the rigorous investment requirements of the CEFC and comply with the CEFC Investment Policies, Guidelines and Risk Approach. The finance programme is an outgrowth of a previous report[38] that CEFC completed assessing opportunities for cutting embodied carbon in buildings. That report identified that Australia's estimated proportion of annual emissions that are linked to embodied carbon of materials is 5-10%. The report identified that mass timber construction could play a role in reducing embodied carbon.

[33] https://www.abcb.gov.au/news/2020/open-access-bushfire-standard
[34] https://www.woodsolutions.com.au/publications/building-timber-bushfire-prone-areas-0
[35] https://www.vincent.wa.gov.au/plan-build/plan/design/sustainable-design.aspx
[36] https://www.vincent.wa.gov.au/documents/744/7510-sustainable-design
[37] https://www.cefc.com.au/media/media-release/cefc-targets-timber-transformation-with-300-million-building-program/
[38] https://www.cefc.com.au/document?file=/media/ovrkk5l3/australian-buildings-and-infrastructure-opportunities-for-cutting-embodied-carbon.pdf

Finance and investment

Supporting the National Forest Industries Plan, about $19.8 million was allocated between 2019-2022 to extend the existing 9 Regional Forestry Hubs and create 2 new hubs in the Northern Territory and Eden NSW to deliver strategic planning in key forestry regions. These investments sought to support smarter ways to use available and future wood supplies, including salvage operations after the 2019-20 bushfires which burned 130,000 hectares of commercial timber plantations.[39]

[39] https://www.agriculture.gov.au/agriculture-land/forestry/national-forest-industries-plan

CANADA

Sustainable forest management

As 90% of Canada's forests are under Provincial and territorial government jurisdiction, it is the jurisdictional authority of Provinces and territories to set policy on forest governance on their crown lands. Canada has 24 million hectares of forestland reserved from timber harvest under national parks and other protective designations, about 7% of forestland. The **State of Canada's Forests: Annual Report 2023**[40] provides an overview and indicators that are used to track progress in managing Canada's forests. Relevant laws that forest management must comply with include the *Forest Act*, *Species at Risk Act*, the *Fisheries Act*, the *Migratory Birds Convention Act*, the *Plant Protection Act,* and others. Forestry activities must also comply with international agreements Canada has signed, such as the Convention on Biological Diversity and the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

In the Province of British Columbia, The **Forest & Range Practices Act** outlines how all forest and range practices and resource-based activities are to be conducted on Crown land. A forest stewardship plan must be prepared by all forest agreement holders under the Forest Act. Forest agreement holders must have an approved forest stewardship plan in effect before harvesting or road building activities can begin.

Ontario's sustainable forest policy framework is the **Crown Forest Sustainability Act**, to guide sustainable management of Crown forest to have regard for plant and animal life, including species at risk, as well as water, soil, air and social and economic values. Ontario is collecting light detection and ranging (LiDAR) data for Ontario's managed forests, to produce LiDAR enhanced forest resource inventories, which will help inform the forest management plans that will be implemented between 2028 and 2037.

Following on Ontario's commitments in Sustainable Growth: Ontario's Forest Sector Strategy, the province is pursuing a **Wood Measurement Modernization Plan**,[41] to improve upon volume and quality determinants for measuring harvested trees. Emerging concepts such as LiDAR enhanced forest resource inventories, Area Based Volume Accounting or Sales (Forest Inventory) and Blockchain technology for tracking supply chains may offer opportunity for change in the long term. Changes to the wood measurement program at this level may require complimentary changes to tenure, licensing, inventory systems, weigh scale infrastructure, and policy.

[40] https://natural-resources.canada.ca/sites/nrcan/files/forest/sof2023/NRCAN_SofForest_Annual_2023_EN_accessible-vf(1).pdf
[41] https://www.ontario.ca/files/2024-09/mnr-fid-wood-measurement-modernization-plan-en-2024-09-23.pdf

Tenure clarity and security for forest owners/users

Ninety four percent of Canada's forests are publicly owned—90% by Provincial and territorial governments and 4% by the federal government, national parks, on lands owned by the Department of National Defence, and on lands held in reserve for, or otherwise controlled by, Aboriginal Peoples. Private landowners own 6% of Canada's forests. Increasing amounts of forest are coming under indigenous jurisdiction or co-management arrangements, which is part of Canada's long-standing process of engaging in treaty negotiations and settling indigenous land claims.

As 90% of forests in Provincial jurisdiction, Provincial legislation and policy defines the forest tenures system and the legislation, regulations, agreements, policies and procedures that address the use of Crown land and harvesting of Crown and private timber. For instance, in British Columbia,[42] the allowable annual cut of each timber supply area and tree farm licence is determined by the chief forester at least once every ten years. Forest harvesting by private companies on public lands is allowed through forest management agreements solidified in tenures or licences, usually over long time periods (20–25 years), and adhere to the terms of forest management plans, which must be approved by the province or territory before harvesting occurs.

Fifty five percent of Canada's indigenous people live in or near forests, and the federal and provincial governments continue to advance ways to reconcile the recognition of Aboriginal land and treaty rights as outlined in section 35 of the Constitution Act, 1982. Comprehensive Land Claim Treaties[43] are in on-going negotiation across Canada. In British Columbia, Forest Consultation and Revenue Sharing Agreements[44] provide First Nations with economic benefits returning directly to their community based on harvest activities in their asserted traditional territories. The BC Province has also recognized Haida aboriginal title to their lands[45] (mostly forestland) in 2024, which will shift jurisdictional authority from the Province to the Haida indigenous government for forest and other resource management.

Timber tracking, legality and production standards

Importing forest products into Canada is governed[46] by the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA), the Plant Protection

[42] https://www2.gov.bc.ca/gov/content/industry/forestry/forest-tenures/forest-tenure-administration
[43] https://www.rcaanc-cirnac.gc.ca/eng/1373385502190/1542727338550
[44] https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/consulting-with-first-nations/first-nations-negotiations/forest-consultation-and-revenue-sharing-agreements
[45] https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/consulting-with-first-nations/first-nations-negotiations/first-nations-a-z-listing/haida-nation-council-of/haida-title-agreement
[46] https://ostr-backend-prod.azurewebsites.net/server/api/core/bitstreams/9caab727-6d82-4f00-a40b-9b690ae7a7ea/content

Act, and the Customs Act.[47] Articles without bark and made of processed wood materials (such as those subjected to conditions such as heat, glue, pressure) are approved entry by the Canadian Food Inspection Agency without additional documents. Exports of softwood lumber to the US is subject to the Softwood Lumber Act of 2008.[48]

Forest certification: About 420 million acres of forest in Canada have been certified by third parties, including FSC, SFI, and CSA. About 72% of Crown forest land managed in Canada is certified to third-party standards for sustainable forest management.

In Canada, the **CSA Technical Standard for Measuring Primary Forest Products** (Standard) requires that any new measuring device to quantify volume must be calibrated and deemed legal for trade and then be made available for use in all jurisdictions. Then it must be tested and added to the Standard and jurisdictional manuals and standards to be accepted to generate volume for Crown dues.

In North America, the Engineered Wood Association (APA) developed a standard that addresses the manufacturing, qualification, and quality assurance requirements of CLT panels—the **ANSI/APA PRG 320–2019: Standard for Performance-Rated Cross-Laminated Timber**. The most recent edition was approved by the American National Standards Institute (ANSI) in 2020. In the North American mass timber market, lumber from any softwood species or species combination (e.g., hem-fir; fir-larch; or spruce, pine, fir (SPF) recognized by the **American Lumber Standards Committee** (ALSC) under PS 20 or by the **Canadian Lumber Standards Accreditation Board** (CLSAB) under CSA-0141 with a minimum published specific gravity of 0.35 is permitted for mass timber. Any laminated layer in a CLT panel shall be made from lumber of the same thickness, type, grade, and species or species combination. Adjacent layers in a CLT panel can be made from differing thicknesses, types, grades, and species or species combinations. If SCL is made from any species with a specific gravity greater than 0.35 and meets the standards of ASTM International D5456, it is permitted. Such standards apply to imports as well.

The International Building Code (IBC) recognizes Nail-Laminated Timber (NLT) as a structural material and provides guidance on structural design and fire safety. No product-specific ANSI standard has been developed, but design guides are available for both the US and Canada.[49]

[47] https://publications.gc.ca/collections/collection_2023/eccc/CW70-5-2022-eng.pdf
[48] https://www.cbp.gov/trade/priority-issues/trade-agreements/softwood-lumber
[49] https://timberfinance.ch/wp-content/uploads/2023/05/2023-International-Mass-Timber-Report_Faster-Download-1.pdf

Trade policies, restrictions on wood imports and avoiding leakage

Québec has instituted a trade measure and financial assistance package for the Québec Wood Export Bureau (QWEB), to develop **environmental product declarations (EPDs)**[50] for Québec wood products companies. EPDs are technical fact sheets providing verified, transparent information on the environmental consequences of a product throughout its life cycle (from extraction or harvesting of the resource, to processing manufacturing, transportation, use and end-of-life disposal). An EPD must follow the rules of the ISO 14025:2006 standard product, as well as the product category rules (PCR) established for the concerned products or services.

BC Indigenous and non-Indigenous communities located outside of urban centres experiencing or anticipating impacts by changes in the forest sector, including old growth deferrals can apply for up to C$500,000 per project for **Forest Impact Transition** (REDIP-FIT), which supporting economic recovery and transition in communities affected by changes in the forest sector. This contributes to avoiding leakage.

Innovations in wood product manufacturing and training/capacity

The Province of BC Province introduced a series of **linked steps to support the growth of value-added manufacturing in BC**. Value-added **accelerators** were convened between the Province, in partnership with the BC First Nations Forestry Council, the BC Value-Added Wood Coalition and the Council of Forest Industries to hosting solution tables to bring together First Nations, value-added manufacturers and forest licensees. Together, the tables will develop joint solutions to sustain, grow and diversify B.C.'s value-added sector with a focus on increasing the flow of fibre that manufacturers rely on and finding ways to expand local production of high-value wood products for B.C. and international markets.
In January 2023, the BC Ministry of Forests introduced a new **Value-Added Manufacturing Program**, run by BC Timber Sales, to establish a dedicated fibre supply for small and medium-sized manufacturers.

In addition, the **BC Manufacturing Jobs Fund** (BCMJF) will help manufacturing companies modernize, innovate, and grow by providing funding for capital projects in all regions in B.C., particularly in communities affected by economic impacts or downturns. BCMJF prioritizes helping the forestry sector retrofit and develop new, sustainable value-added business lines.[51] BCMJF will invest up to $180 million in manufacturing projects throughout B.C. The program intake is now closed, as the deadline for application was November 15, 2024. Stream 1 is project readiness investment. Stream 2 is capital investment funding for new or renovated

[50] https://quebecwoodexport.com/en/environmental-product-declaration/
[51] https://www2.gov.bc.ca/assets/gov/employment-business-and-economic-development/economic-development/find-support-organizations/rural-economic-development/photos/bc_manufacturing_jobs_fund_program_guide_june_2024.pdf

manufacturing infrastructure, technology, equipment, and processes. Project size is $500,000 - $100 million and project examples include:

- Refitting idle community assets such as an unused mill site
- Building or expanding a manufacturing facility
- Upgrading equipment or machinery to support new product lines
- Adopting innovative processes to manufacture value-added forestry products from biomass or other alternatives
- Retrofitting a processing facility to expand or adopt new technology or processes

Mass timber.

In 2013, the Government of Canada announced funding dedicated to tall wood building construction in Canada through the **Tall Wood Building Demonstration Initiative** (TWBDI). The program addressed technical barriers in the design and construction of tall wood structures and encouraged greater acceptance of engineered wood products in tall building applications. From 2013 to 2017, the TWBDI linked new scientific advances with technical expertise to showcase the application, feasibility and environmental benefits of innovative wood-based structural solutions for buildings taller than 10 storeys. The TWBDI was a landmark program in terms of helping facilitate the commercial and regulatory uptake of tall wood buildings and influencing several initiatives in Canada and the United States.[52]

In 2024 **The Mass Timber Roadmap: An integrated forest-to-buildings value chain** was published.[53] The Forest Products Association of Canada (FPAC), the Canadian Wood Council (CWC), the Energy Futures Lab (EFL) and the Transition Accelerator convened a series of workshops that resulted in the Mass Timber Roadmap. The roadmap details a series of proposed actions to develop an integrated mass timber supply chain. On the policy front, the Roadmap proposes development of a policy package including grants, tax incentives, R&D programs, and LCA synthesis to help the industry scale-up and build capacity.

The Province of **Quebec's Construction of Mass Timber Buildings Up to 12 Storeys guide** in 2015 as a pre-approved alternative solution for tall wood buildings in the province of Quebec.

Ontario's Forest Sector Strategy[54] spans promoting stewardship and sustainability, 'putting more wood to work,' improving Ontario's cost competitiveness, and fostering innovation, markets and talent. Thus, it links sustainable forest management, climate mitigation and adaptation, respects Aboriginal and treaty rights and cultural values, to forest product innovation, diversification and removing barriers to accessing wood.

The Province of British Colombia adopted the **Mass Timber Action Plan** in 2022.[55] The plan seeks to catalyze action to increase mass timber. Once action area is to troubleshoot the ever

[52] https://ostrnrcan-dostrncan.canada.ca/handle/1845/246503
[53] https://cwc.ca/wp-content/uploads/2024/06/MT_Roadmap_Digital_ENGLISH.pdf
[54] https://files.ontario.ca/mnrf-fid-forest-sector-strategy-en-2020-08-20.pdf
[55] https://www2.gov.bc.ca/assets/gov/business/construction-industry/bc_masstimber_action_plan_2022.pdf

evolving regulatory system for buildings, such as building codes and local government regulation, to work closely with industry and researchers to identify and overcome regulatory barriers and make technical resources more available. In 2024, BC published the 2-year review.[56] The **BC Office of Mass Timber Implementation** is collaborating with 30 companies and First Nations helping existing manufacturers that want to scale-up production, supporting potential new entrants to explore business feasibility, as well as talking to First Nations and sawmills about strengthening log and lumber supply chains, and access to finance.

The Province of British Columbia supports the **naturally:wood** information resource that promotes BC as a global supplier of forest products, and works collaboratively with the Government of British Columbia, Government of Canada, independent academic and research institutes, trade associations and wood products companies.[57]

The Province of Quebec announced in 2019 the **Timber Prefabrication Optimization and Automation Program**,[58] main objective of which is to increase the competitiveness of producers of prefabricated wood products. The program aims to improve, within a period of three years, the manufacturing process or business process of participating companies in order to increase their productivity and turnover. The program encourages timber construction product manufacturers to use Building Information Modelling (BIM).[59]

Québec's Policy for the Use of Wood in Construction sets as a main objective to improve the training given to future construction professionals and technologists. Université Laval and the Université du Québec à Chicoutimi, supported by the Ministère des Forets, de la Faune et des Parcs (MFFP), have included **timber construction in the compulsory course load** of their civil engineering students. The Université Laval has offered the **Integrated Wood Construction postgraduate microprogram** program since 2020, available through distance education.

Reclaimed wood and recycled materials

The key findings from workshop on **Opportunities for Circularity of Wood in Construction, Renovation, and Demolition in Canada**[60] includes and overview and recommendations for federal roles to support expanded circularity of construction, renovation, and demolition materials, with a focus on reclaimed wood.

Deconstruction policies help encourage builders to dismantle structures and maximizing reuse and recycling of materials rather than demolition and disposal. The **City of Vancouver**

[56] https://www2.gov.bc.ca/assets/gov/government/ministries-organizations/ministries/jobs-economic-development-competitiveness/mass_timber_action_plan_progress_update_2024.pdf
[57] https://www.naturallywood.com
[58] https://cdn-contenu.quebec.ca/cdn-contenu/forets/documents/entreprises/aide-financiere/PPBOA/GM_PPBOA_requerant_MRNF.pdf
[59] https://www.mdpi.com/2075-5309/13/6/1474
[60] https://www.canada.ca/en/services/environment/conservation/sustainability/circular-economy/workshop-report-opportunities-circularity-wood-construction-renovation-demolition.html

Voluntary Advanced Deconstruction Permit[61] allows permits to be obtained for one- and two-family homes to provide incentives to take the time required for deconstruction. Previous bylaws required demolition and building permits to be issued simultaneously. With the Voluntary Advanced Deconstruction Permit, applicants commit to completing a compliance report detailing diversion rates for reuse, recycling or recovery of 75% of non-hazardous materials and providing receipts from receiving facilities The incentives are a 50% discount on disposal of residuals from deconstruction at the Vancouver Landfill and early release of the deconstruction permit.

Green building certification

The Canadian Standards Association issued a report in March 2024, **The Circular Built Environment in Canada: A Review of the Current State, Gaps and Opportunities**,[62] which includes a broad overview of relevant topics that includes wood, and including voluntary standards and certification.

Since 2007, the B.C. government has required that all public sector buildings newly constructed or undergoing major renovations achieve **LEED Gold or equivalent** certification. As a green building rating system, LEED v4 for Building Design and Construction (LEED v4: BD+C) rewards projects that use low carbon building materials. A **LEED v4 and Low Carbon Building Materials: Comprehensive Guide**[63] details the requirements for wood, PLC and other low carbon materials. The Canada Green Building Council (CAGBC) acts as a certification and credentialing body, exclusively administering project certifications for Zero Carbon Building Standards, LEED, Investor Ready Energy Efficiency (IREE) and TRUE.

Public procurement

Canada's **Green Government Strategy: A Government of Canada Directive,**[64] adopted in 2020 implements a 'buy clean' policy approach to promoting the adoption of construction materials with low embodied carbon and that are renewable such as wood, reclaimed or recycled materials (as well as lower-emission concrete and steel). Government departments will ensure that all new buildings and major building retrofits prioritize low carbon and climate resilience. Specifically, all new federal buildings (including build-to-lease and public-private partnerships) will have net-zero emissions unless a GHG life cycle cost analysis indicates net-zero-emissions-ready construction. objectives: a) disclose the amount of embodied carbon in the structural materials of major construction projects by 2022 according to material carbon intensity or a life-cycle analysis; b) reduce the embodied carbon of the structural materials of

[61] https://vancouver.ca/home-property-development/demolition-permit-with-recycling-requirements.aspx
[62] https://www.csagroup.org/wp-content/uploads/CSA-Group-Research-The-Circular-Built-Environment-in-Canada-A-Review-of-the-Current-State-Gaps-and-Opportunities.pdf?srsltid=AfmBOorL_sGOb4Acf36q5nkdwFW7Rbjev4T5ITN2JtHGtEne46aaxbnh
[63] https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/resources/lcm-comprehensive-guide.pdf
[64] https://www.canada.ca/en/treasury-board-secretariat/services/innovation/greening-government/strategy.html

major construction projects by 30%, starting in 2025, using recycled and lower-carbon materials, material efficiency, and performance-based design standards; c) conduct whole building (or asset) life-cycle assessments by 2025 at the latest for major building and infrastructure projects. An Office of the Auditor General review[65] of the previous procurement policies—the Policy on Green Procurement in 2006 and the first version of the Greening Government Strategy—found that Public Services and Procurement Canada did not take steps to stimulate the innovation and market development of or demand for low embodied carbon materials, in despite spending about $4.2 billion to acquire or refurbish federal public infrastructure between 2006 and 2016. The policy did set a Standard on Embodied Carbon in Construction.

Provincial, territorial, and municipal governments comprise a much larger share of procurement spending in Canada than the federal government. The federal government's share is about12% of total spending by all levels of government in Canada. In 2021, Provincial and territorial governments accounted for 44% of spending on infrastructure, and the private sector and local and regional government each accounted for 24%.[66]

Québec's **Policy for the Use of Wood in Construction** includes in its first focus area the objective to enhance the use of wood in the construction of buildings financed by the government. This is a 'leading by example in the government' approach for non-residential, multi-family and infrastructure construction and project will include educational institutions, health institutions, community housing and forest bridges.

In British Columbia, the province committed to **use mass timber in publicly funded buildings**, such that building projects receiving provincial funding, such as schools and student housing, are required to incorporate mass timber in at least one structural system of the building. From 2021-2023, B.C. capital projects added 41 mass timber buildings across the province.

Wood in Construction policy

The **Green Construction through Wood (GCWood) program** encourages the use of innovative wood-based building technologies in construction projects. This program supports Canada's commitment to reach 2030 and 2050 emissions reduction targets under the Paris Agreement and advance long-term priorities regarding GHG emissions reduction. GCWood invests in wood construction projects that: a) reduced GHG emissions from renewable and sustainable resources that help decarbonize the built environment; b) accelerate the adoption of innovative building technologies and systems; c) update building codes that allow for taller and larger wood buildings; d) support affordable housing and community infrastructure. The program utilized demonstration projects to encourage uptake of new technologies: by 2023,

[65] https://www.oag-bvg.gc.ca/internet/English/att__e_44474.html
[66] https://www.oag-bvg.gc.ca/internet/English/att__e_44474.html

the program had funded 4 tall wood building projects, 10 low-rise non-residential building projects, and 2 timber bridge projects.[67]

British Columbia's **Wood First Act of 2009**, "facilitate[s] a culture of wood by requiring the use of wood as the primary building material in all new provincially funded buildings, in a manner consistent with the building regulations within the meaning of the Building Act."[68] The Act is still being implemented.

Quebec adopted a **Policy for the Use of Wood in Construction**[69] in 2020 which seeks to ensure that maximum use is made of wood in buildings and infrastructure. The scope of policy applied to public, para-public and private infrastructures in the residential and non-residential sectors. The policy identifies that in the single-family and multifamily residential sector, timber structures are already used extensively in buildings of four storeys or less, and thus insulation and finishing provide opportunities to use more wood. The non-residential construction sector (commercial, industrial, institutional buildings, civil engineering works, and mid-rise multifamily building sector of five storeys or more), there is significant potential to increase the use of wood as a structural and non-structural material. The policy sets specific targets for each of the Policy's five focus areas: 1) leading by example in the government; 2) regulation; 3) research and innovation; 4) training and technical support; and 5) outreach.

Ontario's Draft Advanced Wood Construction Action Plan[70] as a proposed framework to achieve the wood construction goals in Sustainable Growth: Ontario's Forest Sector Strategy. The plan aims to create demand for wood products to grow the market share of wood in the buildings sector and increase manufacturing of wood-based building components. Public comments on the plan closed on October 1, 2024.

Emission reduction targets for buildings

The **Canadian Net-Zero Emissions Accountability Act** enshrines Canada's commitment to reduce GHG emissions by 40-45% below 2005 levels by 2030 and to achieve net-zero emissions by 2050. Buildings account for 18% of Canada's emissions, when including electricity-related emissions, and is the third largest emitting sector after the oil and gas sector and the transportation sector.

In 2022, Canada's federal government released the **2030 Emissions Reduction Plan: Clean Air, Strong Economy**, which is the first plan issued under the Canadian Net-Zero Emissions Accountability Act. Progress under the plan will be reviewed in progress reports produced in 2023, 2025, and 2027. Though the 2030 Emissions Reduction Plan does not single out wood-

[67] https://natural-resources.canada.ca/science-and-data/funding-partnerships/opportunities/forest-sector/green-construction-through-wood-gcwood-program/20046
[68] https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/00_09018_01
[69] https://cdn-contenu.quebec.ca/cdn-contenu/forets/documents/entreprises/PO_wood_construction_MRNF.pdf
[70] https://ero.ontario.ca/notice/019-8268

based building materials, the federal government commits C$150-million to the **Canada Green Buildings Strategy**, to build off existing initiatives and set out new policy, programs, incentives, and standards needed to drive a massive retrofit of the existing building stock, and construction to the highest zero-carbon standards.

The **Canada Green Buildings Strategy**[71] is mostly focussed on energy reduction, but does promote the adoption of construction materials with low embodied carbon and that are renewable such as wood. Wood is being added to Life Cycle Inventory for construction materials.

Building codes

The **National Building Code of Canada** was updated in 2020, and introduced encapsulated mass timber construction, enabling the construction of wood buildings with up to 12 storeys.[72]

B.C. was the first province to adopt building code changes in 2009, permitting six-storey wood frame residential buildings. Through the Wood First Act and updates to provincial building codes, further revisions have occurred. The **2024 revisions to the BC building code** refined provisions for encapsulated mass timber construction to enable taller mass timber buildings, additional building occupancies, and changes to encapsulation requirements in Ministerial Order BC 2024 1. The **2024 revisions to the BC fire code** provides new requirements related to construction of tall wood buildings in Ministerial Order FSA 2024 01.[73]

Québec's Construction Code was, which is by the Régie du bâtiment du Québec administers the Construction Code, and published a guide to the construction of five or six-storey timber housing, followed in 2015 by instructions and an explanatory guide for mass timber buildings of up to 12 storeys.

The 2024 **Ontario Building Code** will expand the use of engineered wood construction by permitting encapsulated mass timber construction up to 18 storeys in height.

Insurance

Natural Resources Canada supported The Canadian Wood Council in publishing the **Insurance Best Practices Guide**[74] to offer guidance to insurers and project developers in lowering costs

[71] https://natural-resources.canada.ca/transparency/reporting-and-accountability/plans-and-performance-reports/departmental-strategies/the-canada-green-buildings-strategy-transforming-canadas-buildings-sector-for-net-zer/26065#a4e
[72] https://nrc.canada.ca/en/certifications-evaluations-standards/codes-canada/codes-canada-publications/national-building-code-canada-2020
[73] https://www2.gov.bc.ca/gov/content/industry/construction-industry/building-codes-standards/bc-codes/errata-and-revisions
[74] https://cwc.ca/wp-content/uploads/2022/05/20220104_InsuranceBestPracticesGuideLowRez.pdf

of Builder's Risk Insurance or 'Course of Construction' insurance. There are also fact sheets[75] for insurers.

Taxation and incentives

In the 2023 budget, the Made-in-Canada Plan bolsters clean energy industries with strategic investments and targeted manufacturing tax credits, but this did not extend into 2024.

British Columbia has incentivized mass timber innovation in the private sector through two initiatives—the **Mass Timber Demonstration Program** and the **CleanBC Building Innovation Fund**. Since 2020, these initiatives have provided over $7 million to support the advancement of 24 mass timber buildings and related projects.

The **Ontario Forest Sector Investment and Innovation Program** will support industry in building competitiveness and encourage investment in strategic projects in Ontario's forest sector. The program seeks to modernize the industry and encourage innovation to diversify the sector. The Northern Ontario Heritage Fund Corporation (NOHFC) is a vehicle through which the province is investing in projects with the private sector to build harvesting, transportation and processing capacity in the forest industry in the northern part of the province.

Finance and investment

In BC, the **Forestry Innovation Investment** is BC's Crown agency for forest product market development. FII works to strengthen the BC forest sector by promoting the merits of wood and BC forests, fostering leadership and innovation in wood use and expanding markets for BC forest products. The FII expands global markets for BC wood by creating more opportunities in existing and new markets, especially in Asian countries like Japan, South Korea, China, India and Vietnam; showcases BC's leadership in innovative wood use and manufacturing to advance the use of wood at home and abroad; collaborates with government and industry partners to support the growth of the mass timber and engineered wood products sector in BC. FII administers the **Wood First Programme**, which supports the advancement of wood building systems, technologies, and expertise in BC, and raises awareness of BC as a world leader in advanced wood construction and design. The funding for FII's Wood First program comes from B.C. Ministry of Jobs, Economic Development and Innovation.[76]

British Columbia B.C.'s mass timber manufacturing capacity has been a focus of the $180-million **BC Manufacturing Jobs Fund** (BCMJF).[77] Since mid-2023, the BCMJF has supported for-profit organizations to plan and launch high-value industrial and manufacturing projects. This

[75] https://cwc.ca/en/how-to-build-with-wood/insurance/

[76] https://www.bcfii.ca/wp-content/uploads/2024/11/2025-26-Wood-First-Program-Investment-Plan.pdf

[77] https://www2.gov.bc.ca/gov/content/employment-business/economic-development/support-organizations-community-partners/rural-economic-development/manufacturing-jobs-fund

includes $63.6 million that has been committed to 44 projects in the value-added wood sector, which includes mass timber. This provincial investment has helped catalyze $459.9 million in capital investments throughout the province.

Via its **Sustainable Growth: Ontario's Forest Sector Strategy**,[78] Ontario is working with the forest industry, the Centre for Research & Innovation in the Bioeconomy (CRIBE), FPInnovations, and universities and colleges to support the commercialization of innovative forest products and processes. By linking the northern fibre supply with southern biochemical producers and engineered wood products manufacturers, products can be produced that displace non-renewables and support job creation across Ontario. By encouraging prefabricated and modular construction, Ontario can support the use of wood while helping to reduce building costs and construction time. The effort also involves developing value chain roadmaps.

[78] https://www.ontario.ca/page/sustainable-growth-ontarios-forest-sector-strategy

COSTA RICA

Sustainable forest management

The Forest Law 1996[79] (Law 7575) establishes the protection, conservation and management of forest areas as a priority and central responsibility of the State. The government is in charge of regulating and supervising the use and exploitation of forest resources in a sustainable manner. In addition, the government should seek to improve living conditions for rural communities. The law forbids land cover changes in forest and calls for moderate use of natural resources. It established a payment for ecosystem services program (or Programa de Pago por Servicios Ambientales – PSA),[80] to explicitly recognize four environmental services of forests: mitigation of greenhouse gases (fixation, reduction and storage of CO2), protection of water resources, and protection of biodiversity. It updated the legal framework to provide financial incentives for reforestation and provided the legal basis for landholders to be compensated for providing ecosystem services. The law also established the National Forest Financing Fund (Fondo Nacional de Financiamento Forestal, FONAFIFO) was set up through the law to manage the program. The PSA program is based on the principle that "whoever contaminates, pays," And is financed by 3.5% of the national fuel tax and from a fee for water use. In fiscal year 2023, FONAFIFO's receipts of about US$ 28 million were deployed for maintaining at least 250,000 hectares.[81]

Article 48 of Law No. 7554 of October 4, 1995, "Organic Law of the Environment" establishes that: "It is the obligation of the State to conserve, protect and administer forest resources. For these purposes, the law that is issued must regulate the production, use, industrialization and promotion of these resources, guaranteeing their sustainable use, as well as the creation of decent employment and the improvement of the standard of living of social groups directly related to forestry activities.

The **National Forest Development Plan 2011-2020**, enacted by Executive Decree No. 36945-MINAET of December 12, 2011, is the "planning instrument for the use, management and protection of the country's forest resources, in which the guidelines and guidelines to be developed in the national territory are established. This plan provides that the country's forest coverage is maintained and increased sustainably through the enhancement of forests, and other ecosystems and forest land, guaranteeing legal certainty, the land ownership regime and the right of owners to use private property to ensure goods and services essential for the quality of life of the inhabitants. Among other policies, it is established to promote in the public and private sectors, the consumption of national wood from legal and sustainable sources as well as to recognize the importance of the development, review and transparent, consistent

[79] http://www.pgrweb.go.cr/scij/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?nValor1=1&nValor2=41661
[80] https://onfcr.org/psa-2
[81] http://www.fonafifo.go.cr/en/documentos/presupuestos/

and effective application of laws, rules and regulations, in such a way that those involved in the forest production chain are guaranteed their legal certainty, where public institutions expand their facilitating function beyond exercising command and control."

The National Decarbonisation Plan elaborates how Costa Rica seeks to double by 2050 (compared to 2017 levels) its LULUCF carbon sink to achieve its 2050 carbon neutrality goal. The land use and forestry sector became a net emissions sink in Costa Rica in 2014. net GHG emissions declined (by 13% in 2010-17) thanks to increased carbon removals by forests.[82]

Costa Rica's NDC pledges that by 2030, the country will a) increase and maintain its forest cover to 60%, while this type of cover does not compete with the agricultural sector; b) will maintain a zero deforestation rate in mature forests; c) ecosystem-based adaptation will have been promoted within and outside the State's Natural Heritage through the conservation of biodiversity in biological corridors, private reserves, indigenous territories, agricultural farms, and the comprehensive management of natural and cultural heritage, among others; d) the application of complete silvopastoral and agroforestry systems will increase by 69,500 hectares; e) 1,000,000 hectares of forest cover will have been intervened, including secondary growth forest, to avoid land degradation and promote biodiversity; and f) will implement Territorial Forest Environmental Plans, jointly with indigenous territories, as an instrument for implementing the measures established in the National REDD+ Strategy.

In 2019, Executive Decree No. 41772-MINAE **Guiding principles of the productive forestry sector**,[83] affirms the country's commitment to forest protection, REDD+ and the National Decarbonization Plan. It states, "REDD+ recognizes sustainable forest management as a valid and legitimate measure of conservation and increase of carbon reservoirs for which it estimates that there are about 828,917 hectares with potential for sustainable forest management. A total commercial volume is estimated at 13 million m^3 of roundwood, which could provide about 872,761 m^3 of roundwood annually. Notwithstanding the above, according to the National Forestry Office, with the support of its technical studies and records, less than 5% of this potential is exploited." The Decree activates FONAFIFO to, "establish a plan for the reactivation and promotion of wood cultivation with an initial goal of at least five thousand hectares of forest plantations and at least 500,000 trees in agroforestry systems, annually." The decree instructs MINAE to manage the necessary actions, according to the respective legal frameworks, so that the National System of Conservation Areas (SINAC) and the National Environmental Technical Secretariat (SETENA) strengthen the processes to guarantee the efficiency and standardization of the procedures and procedures for the development of the forestry sector. Further, SINAC, in coordination with the sectors involved, must develop and

[82] https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/10/oecd-environmental-performance-reviews-costa-rica-2023_b60596af/ec94fd4e-en.pdf

[83] http://www.pgrweb.go.cr/scij/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?param1=NRTC&nValor1=1&nValor2=89691&nValor3=117809&strTipM=TC

implement a National Strategy for the Control of Illegal Logging. The Decree is to be considered in the update of the National Forest Development Plan (PNDF).

Costa Rica proposed its **Sustainable Landscape Initiative** 2022-2030[84] which seeks to increase national forest coverage to 56.4% by 2030, achieved through a 4% increase in coverage by increasing tree cover on farms and livestock areas. The goal of increase national forest coverage to 60.4% (an additional 4% increase) will be achieved through good agricultural practices, other than livestock, such as low-emission coffee production and National Biodiversity Strategy.

Costa Rica's NBSAP (2015-2025)[85] identifies that dry forests are highly vulnerable. Forests in cold and damp soils and cloud forests have low to moderate levels of deterioration, and a high percentage of these forests are unprotected. Since the 1990s, the coverage of páramos (moors) has declined, as has that of mangrove forests. Wildfires and climate change are affecting forests. In 2024, fire emergencies tripled compared to 2023.[86]

Tenure clarity and security for forest owners/users

The OECD identifies that progress has been slow in identifying the areas for biodiversity conservation and sustainable use to be managed by Indigenous Peoples (Áreas de Cuido) – one of the National Biodiversity Strategy 2016-25 and Action Plan targets. Forests cover 70% of the area within the 24 indigenous territories' (with overlaps between the indigenous territories and the official protected wilderness areas). The restrictions to resource use and ancestral activities in the protected wilderness areas have been a source of conflict. There are positive examples of public-private co-operation to support indigenous-led businesses in their territories. However, the staff devoted to engaging and empowering Indigenous Peoples is limited.[87]

Timber tracking, legality and production standards

Illegal logging does occur and is the top environmental crime reported to SINAC. The Central Conservation Area and the Central Pacific Conservation Area reported the highest number of cases.[88]

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[84] https://www.sinac.go.cr/ES/noticias/Documents/Estrategia%20Nacional%20de%20Restauración%20de%20Paisajes%20de%20Costa%20Rica_digital_vf.pdf

[85] https://www.cbd.int/doc/world/cr/cr-nbsap-v2-es.pdf

[86] https://ticotimes.net/2025/01/09/sinac-issues-alert-over-high-risk-of-forest-fires-in-costa-rica

[87] https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/10/oecd-environmental-performance-reviews-costa-rica-2023_b60596af/ec94fd4e-en.pdf

[88] https://ticotimes.net/2024/05/13/illegal-logging-leads-environmental-crime-reports-in-costa-rica

Madera Legal Costa Rica[89] is the national wood legality certification scheme recognized by the Ministry of Environment and Energy. The certification system is administered by the National Forest Office and is executed through the institutional link with the National System of Conservation Areas and the National Commission for Forest Sustainability, along with the action of the forest regents accredited as forest certifiers. The scope is National wood in pieces and sawn from: a) natural forests, forest plantations including agroforestry systems and agricultural land without forest; b) primary processing industries; and c) sawn wood marketers. The certification is based on compliance with current regulations regarding the use of timber in natural forests, forest plantations including agroforestry systems and land for agricultural use without forest, as well as the industrialization and marketing of wood. The certification is based on a verification process that includes on-site inspection and review of documentary evidence to demonstrate legality and that guarantees compliance with current regulations for the use, extraction and transport of wood, as well as the conservation of forests and development of forest projects. It is a method of demonstrating sustainability and legality. It is a voluntary and low-cost certification scheme, allowing small and medium-sized producers, processors and wood traders to certify their products and differentiate them in the market through the seal and certification QR code.

Technology for digitization and implementation of digital government solutions for efficient forestry management and tracking is supported by the Estonian government. The Estonian Environmental Investment Center is collaborating with the Ministry of Environment and Energy of Costa Rica (MINAE), the National Center of Geoenvironmental Information (CENIGA), the National System of Conservation Areas (SINAC), the National Forestry Office (ONF), and the Estonian technology startup Timbeter. MINAE is exploring opportunities to integrate Timbeter's Artificial Intelligence, machine learning and cloud technology to support their efforts and investments in monitoring and controlling the forestry sector.[90] It is anticipated to feed into the national certification scheme of the legality of wood that the ONF is developing.[91]

Both FSC is implemented in Costa Rica, with about 38,000 ha certified in 2020.[92] A new regional FSC standard came into effect in 2023.

Trade policies, restrictions on wood imports and avoiding leakage

The export of hardwoods is generally prohibited as per the 1996 Forest Law No. 7575, but species quotas and permit details are outlined in the Reform of the Forest Law Regulation Nº 13907-A. [93]

[89] https://onfcr.org/madera-legal-costa-rica

[90] https://timbeter.com/projects/implementing-timbeters-technology-for-the-efficient-forestry-management-in-costa-rica/

[91] https://ceniga.go.cr/digitalizacion-al-servicio-del-sector-forestal-costarricense/

[92] https://fsc.org/sites/default/files/2020-02/Facts_and_Figures_2020-02-17.pdf

[93] http://www.pgrweb.go.cr/scij/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?param1=NRTC&nValor1=1&nValor2=20383&nValor3=21693&strTipM=TC

Innovations in wood product manufacturing and training/capacity

The International Organization of Tropical Woods (ITTO) supports Costa Rica with the **Increasing the competitiveness of commercial reforestation in Costa Rica** project, which seeks to increase the rate of commercial reforestation in the country and achieve a greater supply of wood for the national market, and an increase in GHG removals. It will be developed in the North Huetar Region and the Huetar Caribe Region, specifically in the cantons of San Carlos, Guácimo and Pococí and will be executed by the Technological Institute of Costa Rica (TEC) and the School of Forest Engineering Forest Innovation Research Center (CIF), with a duration of 36 months and budget of US$422,165.

Initiative 20x20[94] is working near Guanacaste to build a wood products economy in secondary forests, with the company Operaciones Forestales Sostenibles S.A., supported by Luxembourg's Forestry and Climate Change Fund through equity and debt investments.

Reclaimed wood and recycled materials

In Costa Rica's NDC, the thematic area of Industry, Trade and Services contains the top contribution of, "By 2030, (this thematic area) will feature innovative "cradle to cradle" production models or a circular economy approach in the main production chains of agro-industry, services, construction and the creative and cultural economy, among others." The thematic area of integrated waste management states that in the first two years of the implementation period of the NDC, Costa Rica will launch its public policy instrument for the promotion of the circular economy.

Costa Rica's **National Strategy for a Circular Economy**[95] was adopted in 2023 and outlines goals and activities to 2030 and beyond. Strategic axis 5 details goals in the Circular construction and resilient infrastructure area: A) this axis seeks to promote the adoption of a circular economy throughout the entire construction and infrastructure industry, from the extraction of raw materials for the manufacture of construction materials, to operational management, maintenance and subsequent demolition of buildings at the end of their useful life. B) This strategic component considers action plans that gradually transform the construction industry in all its links, incorporating design strategies, clean technologies and sustainable construction processes. The goal is to impact the efficiency in the use of resources, also reducing socio-environmental impacts (such as the generation of Construction and Demolition Waste) and increasing the competitiveness of other industries that are part of the life cycle of buildings and infrastructure works. C) to achieve the goals, the coordination and

[94] https://fccf.lu/imf/ofs/

[95] https://minae.go.cr/organizacion/vicegestionestrategica/SEPLASA/Documentos/Estrategia%20National%20Economia%20Circular.pdf

involvement of construction companies and technology providers for the construction industry, related business associations/chambers, authorities responsible for granting permits and regulating construction processes, as well as research centers, bodies of architecture and engineering, and academic institutions that provide technical training programs in these areas of development will be essential.

The **National Bioeconomy Strategy**[96] adopted in 2020 contains strategic axis 5: To promote the application of biological principles in policies and initiatives for urban development, in areas related to solid waste management, the development of recreational spaces and the construction of buildings. The third justification to fulfill the strategic axis is urban design inspired by biological principles, processes and systems. The concept of biocity is adopted which promotes, among others: a) the integration of production, supply, use and recycling systems, which promote circular economy processes in the use of materials and energy; b) the minimization of emissions, waste and losses; c) the integration of spaces for production, housing, recreation and provision of services; d) the application of principles use of biological resources in the design and construction of buildings; and e) the development of biological corridors. One of the activities is: Promote the use of biomaterials that contribute to carbon sequestration in construction of houses and buildings (e.g. wood and other biomaterials).

In 2018, Costa Rica legislated Executive Decree Nº 41032-PLAN-MINAE-RE, the **National Policy of Sustainable Production and Consumption 2018-2030**,[97] which provides for the Environmental Recognition System (SIREA) which recognizes private companies and public institutions and their actions for the benefit of the environment and sustainable development, beyond compliance with the associated regulations. The system also seeks to harmonize all existing instruments of recognition of actor contribution.

Green building certification

LEED and EDGE certifications have been applied in Costa Rica, as well as regional voluntary certification schemes. Both LEED and EDGE are increasingly incorporating materials aspects.

Public procurement

Executive Decree No. 39310 of January 27, 2015, "**National Policy for Sustainable Public Procurement**[98] mandated that the environmental priority is considering the environmental effects that a product or service has throughout its life cycle must be taken into account. Public

[96] https://www.conagebio.go.cr/sites/default/files/2022-11/Estrategia%20Nacional%20Bioeconomía%20CR_0.pdf

[97] http://www.pgrweb.go.cr/scij/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?param1=NRTC&nValor1=1&nValor2=88693&nValor3=116077&strTipM=TC

[98] http://www.pgrweb.go.cr/scij/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?param1=NRTC&nValor1=1&nValor2=80785&nValor3=102645&strTipM=TC

procurement is advanced as a mechanism between consumption and sustainable production in the country. As of 2020, sustainability criteria also apply to building construction or renovation works procured by public institutions, such as actions aimed at the replacement of products with a high carbon footprint, with the use of national harvested wood a priority. An OECD review notes that results have been modest, largely because the overall public procurement system is still fragmented and inefficient. The use of the electronic public procurement system became mandatory in 2016, but its uptake remains incomplete. The new law establishing that all public institutions must carry their purchases through the central procurement system may enable stronger uptake.[99]

In 2019, Directive No. 050-MINAE **Sustainable construction in the public sector**[100] was adopted, with the objective to promote the application of sustainable construction practices in the buildings of the entire Public Administration (central and decentralized), both in those to be built and in the existing buildings that are going to be expanded, adapted, rehabilitated, renovated, improved, maintained or remodeled. Reuse/recycling is prioritized, "The materials and components of an existing building on the project site are used if applicable," and, "The use of recycled and/or recyclable content materials is encouraged, reducing the demand for virgin materials." In relation to lower-carbon materials, "Priority should be given to construction materials and products extracted, harvested and/or manufactured in the locations neighboring the construction site or with a low carbon footprint." In terms of mention of wood, the following applies, "a) priority should be given to materials with third-party sustainability certification; b) the wood used has a sustainability agreement recognized by the competent entity (MINAE); c) the wood used has a certification that it has received adequate preservation treatment."

Executive Decree No. 36499-S-MINAET of March 17, 2011 on **Regulation for the elaboration of Institutional Environmental Management Programs in the Public Sector of Costa Rica**[101] defines a set of procedures as part of the Institutional Environmental Management Program (PGAI) to inform decisions towards carbon neutrality by 2021. It emphasizes a methodology of continuous improvement in identifying, establishing baselines, and approaches for environmental improvement in building operations. It requests institutions to look at all environmental aspects, and does include the reduction of the consumption of materials and the generation of waste in construction, as well as the consumption of water and energy during the construction, operation and end of the life cycle of buildings, through improvements in design and construction techniques, savings measures, as well as the choice of materials with less impact on the environment.

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[99] https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/10/oecd-environmental-performance-reviews-costa-rica-2023_b60596af/ec94fd4e-en.pdf

[100] http://www.pgrweb.go.cr/scij/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?param1=NRTC&nValor1=1&nValor2=89305&nValor3=117186&strTipM=TC

[101] http://www.pgrweb.go.cr/scij/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?param1=NRTC&nValor1=1&nValor2=70903&nValor3=85881&strTipM=TC

Executive Decree No. 41032-PLAN-MINAE-RE of February 21, 2018, the **National Policy for Sustainable Production and Consumption 2018-2030**, includes a public procurement focus in the strategic axis of Sustainable Construction, in which it defines a strategic action for the, "Promulgation of technical and legal instruments aimed at the public sector to promote the incorporation of sustainability and resilience criteria (including energy efficiency) in all phases of the life cycle of the State's construction works".

Wood in Construction policy

The **National Decarbonization Plan**[102] contains three transformation vision targets in axis 5 on development of buildings of different uses (commercial, residential, institutional) under high efficiency standards and low-emission processes and two of these are wood related (the third focusses on energy efficiency): a) By 2025, an increase of 10% in the use of wood, bamboo and other local materials in buildings; b) By 2030, 100% of the new buildings are designed and built adopting low-emission and resilience systems and technologies under bioclimatic parameters.

Emission reduction targets for buildings

Costa Rica's NDC[103] states it is committed to an absolute maximum of net emissions in 2030 of 9.11 million tons of CO2e, including all emissions and all sectors covered by the corresponding National Greenhouse Gas Emissions Inventory. This goal is consistent with the trajectory of the National Decarbonization Plan, the Long-Term Strategy presented by Costa Rica in 2019, which seeks net-zero emissions by 2050 and to achieve the 1.5ºC target in the Paris Climate Agreement. Energy and AFOLU are the largest sources of emissions in Costa Rica. Section 4 of the NDC covers infrastructure and construction, with the first two goals being: A) The country will increase the use of wood, bamboo and other local materials in buildings, including those from sustainably managed forest plantations, to a minimum of **10% increase by 2025 over the 2018 baseline**. In this effort, it will promote traditional knowledge and crafts on these materials through their generational transfer, recognition and dialogue with similar knowledge. B) **By 2030, 100% of new buildings will be designed and built using low-emission and resilient systems** and technologies under bioclimatic parameters.

Costa Rica's **National Decarbonisation Plan**[104] (NDP) sets out decarbonisation goals and actions across all relevant sectors of the economy. Goals 5 and 10 reference promoting the consumption of national wood from plantations and agroforestry systems. *Goal 5* seeks development of buildings of different uses (commercial, residential, institutional) under high efficiency standards and low- emission processes. Activity 5.2.3 seeks to promote the

[102] https://unfccc.int/sites/default/files/resource/NationalDecarbonizationPlan.pdf
[103] https://unfccc.int/reports?f%5B0%5D=corporate_author%3A80
[104] https://unfccc.int/sites/default/files/resource/NationalDecarbonizationPlan.pdf

implementation of bioclimatic design, the reuse of materials, low carbon footprint materials such as cements and green concrete, as well as local inputs (wood from national plantations and / or bamboo). *Goal 10* states that the management of the rural, urban and coastal territory will be oriented towards conservation and sustainable use, growing forest resources and ecosystem services based on nature-based solutions. One of the two objectives to achieve the goal is implementing the country's REDD+ (both urban and rural areas). A key activity is SFM through promotion of the consumption of national wood from plantations and agroforestry systems. Other activities include establishment of a system of custody chain and traceability of wood, and also improving data on emissions reduction accounting for m^3 of wood consumed in the national territory.

The NDC states that adaptation by companies and value chains of products that have the greatest impact on greenhouse gas emissions will be reported through the Carbon Neutrality Country Program and the National Climate Change Metric System.

Building codes

The National Building Code[105] details standards and procedures for wood in construction, but multi-story wood buildings are not mentioned.

Though not a building code, a manual[106] was developed by FONAFIFO and ONF as a basic guide for those who wish to learn and get started on wood as a construction material, both for people who make decisions in the hiring of construction works, builders, master builders, as well as architecture and engineering professionals. It contains an explanation from the Fire Department how safety standards should be applied.

Insurance

Taxation and incentives

The National Decarbonization Plan identifies incentive schemes to promote low-emission construction (green credits, subsidies review, acknowledgments, certifications, awards) to accelerate the adoption of these practices in private and public projects in accordance with the Sustainable Production and Consumption Policy, among other regulations.

Article 29 of the Law on Integrated Waste Management authorizes public bidders to promote the purchase and use of materials and products with low or zero environmental footprint.

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105 http://www.pgrweb.go.cr/scij/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?param1=NRTC&nValor1=1&nValor2=53161&nValor3=91036&strTipM=TC

106 https://onfcr.org/wp-content/uploads/media/uploads/documents/manual_madera_construccion.pdf

Though covering all sectors, Costa Rica's National Decarbonization Plan has been used to successfully mobilize at least US$2.4 billion from international concessional financing sources between its launch in 2019 and the end of 2022. It is unclear how much has benefitted activities in Goals 5 and 10.

Finance and investment

EUROPEAN UNION

Sustainable forest management

This is mostly the jurisdictional domain of EU member countries. The European Commission carries out various functions[107] to help support member countries and pursue shared objectives across EU countries. In July 2021 the Commission published the new **EU Forest Strategy for 2030**.[108] The strategy is a flagship element of the European Green Deal and a key action under the EU biodiversity strategy for 2030. It also supports the EU's greenhouse gas emission reduction target of at least 55 % by 2030 and subsequent climate neutrality by 2050. The strategy aims to improve the quantity and quality of EU forests, reversing negative trends and adapting EU forests to the new conditions, weather extremes and high uncertainty brought about by climate change. The strategy includes a set of regulatory, financial and voluntary measures for 2021-2030, recognizing the multi-functional role of forests. Section 2 on supporting the socio-economic functions of forests details the principles for inclusion of harvested wood products in the strategy. It states, "The longer-lasting the (harvested wood) product, the better it is for climate mitigation, which is then reflected in the increased net removals under Member States' LULUCF reporting and accounting, and, reflecting substitution effects, indirectly reported and accounted as reduced emissions in other sectors. It is crucial that, when building a sustainable and climate-neutral economy, we optimise the use of wood in line with the cascading principle, in particular through market incentives. This means that wood should be used as much as possible for long-lived materials and products to substitute their carbon intensive and fossil-based counterparts, for example in buildings and furniture, whilst acknowledging that not all wood is fit for such purpose. The processing innovations in this field can also provide bio-based materials and products with lower environmental footprint than the fossil-based ones." The Strategy also states, "The supply of wood products should be done in synergy with improving the conservation status of European and global forests, and preserving and restoring biodiversity for forest resilience, climate adaptation and forest multifunctionality. Wood of high ecological value should not be used, and the wood-based bioeconomy should remain within the boundaries of sustainability and be compatible with the EU's 2030 and 2050 climate targets and biodiversity objectives. As indicated in recent studies[109], in the short to medium term, i.e. until 2050, the potential additional benefits from harvested wood products and material substitution are unlikely to compensate for the reduction of the net forest sink associated with the increased harvesting. Member States should pay attention to this risk, which is in their responsibility under relevant applicable legislation."

[107] https://single-market-economy.ec.europa.eu/sectors/raw-materials/related-industries/forest-based-industries/sustainable-forest-management_en
[108] https://environment.ec.europa.eu/strategy/forest-strategy_en
[109] https://publications.jrc.ec.europa.eu/repository/handle/JRC124374

Tenure clarity and security for forest owners/users

This is the jurisdictional domain of EU member countries.

Timber tracking, legality and production standards

The EU Deforestation Regulation (2023)(EUDR)[110] marks a turning point in the global fight against deforestation and forest degradation by addressing both legal and illegal deforestation. Covering seven commodities (rubber, wood, cattle, palm oil, soya, coffee and cocoa) produced in the EU or abroad, it creates due diligence and strict traceability obligations for companies to clean their supply chains from products associated with deforestation and forest degradation.

The EU Deforestation Regulation (EUDR) entered into force in June 2023 and will enter into application on 30 December 2025 for medium and large companies, and 30 June 2026 for small and micro enterprises.

The EUDR tackles all forms of deforestation, illegal and legal, in line with the international commitments to halt all deforestation. Going beyond legality (the deforestation-free element) is necessary to avoid perverse incentives for some countries to lower their legal standards, which can undermine the efforts of companies working with higher standards and countries that have been making efforts in establishing good national systems.

The law aims to eliminate deforestation driven by the EU consumption and production of certain agricultural and industrial commodities: soy, beef, palm oil, wood, cocoa, coffee, rubber and some of their derived products, such as leather, furniture, print products or chocolate. The EUDR is based on the principle of non-discrimination. It will apply even-handedly to commodities produced inside or outside the EU.

The EUDR will ensure that the products that EU citizens buy, use and consume do not contribute to deforestation and forest degradation in the EU and globally. the EUDR's novel character, the swift calendar, the variety of international stakeholders involved and the calls by global partners to have additional time to prepare, the Commission proposed on 2 October 2024 an additional 12-month phasing in period. The co-legislators reached an agreement on the Commission proposal in December 2024, postponing the entry into application of the law until 30 December 2025 (the adopted proposal was published on the OJ on 26 December).

As of 30 December 2025, only deforestation-free (produced on land that was not subject to deforestation or forest degradation after 31 December 2020) and legal products (according to the laws of the country of origin) will be allowed on the EU market. Any shipment within the scope will need to be covered by a Due Diligence Statement.

[110] https://environment.ec.europa.eu/topics/forests/deforestation/regulation-deforestation-free-products_en

The EU **Construction Products Regulation** (CPR)[111] [112] [113]enters into force at the end of 2025 The regulation harmonises the EU rules for marketing construction products, facilitates their free movement in the single market, reduces administrative burdens and promotes the circular economy and technological development. Included in the product families are structural timber products/elements and ancillaries, and wood based panels and elements. The CPR obliges product manufacturers to report the global warming potential of products in the Declaration of Performance and Conformity. Lifecycle assessment calculations, conducted according to EN 15804+A2[114] on Environmental Product Declarations (EPDs), are to be reported as of 2025, and full reporting on EPD indicators is to occur by 2031.

The **Ecodesign for Sustainable Products Regulation** (ESPR)[115] establishes a framework for setting ecodesign requirements on specific product groups. The ESPR aims to significantly improve the sustainability of products placed on the EU market by improving their circularity, energy performance, recyclability and durability. Entering into force on 18 July 2024, the ESPR serves as the backbone of the CPR, holding EU institutions accountable for also fulfilling these objectives within the construction sector.

Trade policies, restrictions on wood imports and avoiding leakage

The **Land Use, Land Use Change and Forestry (LULUCF) Regulation**[116] ensures that EU Member States report and account for changes in carbon stocks not only in forests but also in harvested wood product carbon pools (Article 9). Between 2026 – 2030, EU member states will report emissions and removals, leveraging precise data obtained via advanced monitoring technologies, including geographical data and remote sensing. The LULUCF regulation was revised under the **Fit-for-55**[117] package, the LULUCF amending Regulation (EU) 2023/839 being published in the Official Journal on 21April 2023. .

The European Green Deal included the **Carbon Border Adjustment Mechanism**[118] to ensure that imported products will pay a carbon price at the border for key products, including cement and steel. It does not include wood. In the future, it may include more sectors and products. CBAM will apply in its definitive regime from 2026, while the current transitional phase lasts between 2023 and 2025.

[111] https://op.europa.eu/en/web/eu-law-in-force/bibliographic-details/-/elif-publication/a860ee13-bce2-11ef-91ed-01aa75ed71a1
[112] https://www.europarl.europa.eu/doceo/document/TA-9-2024-0188_EN.html
[113] https://single-market-economy.ec.europa.eu/sectors/construction/construction-products-regulation-cpr/review_en
[114] https://circularecology.com/en-15804-a2-epd-update.html
[115] https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/ecodesign-sustainable-products-regulation_en
[116] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02018R0841-20230511
[117] https://www.consilium.europa.eu/en/infographics/fit-for-55-lulucf-land-use-land-use-change-and-forestry/
[118] https://trade.ec.europa.eu/access-to-markets/en/news/carbon-border-adjustment-mechanism-cbam

The **EU Joint Research Centre**[119] has **published woody biomass flows** at EU Member State level, as well as at EU-27 aggregate level, for the years 2009 to 2017, as a means to help inform trade-offs between use of wood/biomass for energy and longer wood product lifespan options. Wood is a highly versatile material and can be used and reused in cascade in different processes. The developments in wood-based product markets are instrumental to the supply of woody biomass for the different purposes. This is a tool to support evaluating policy trade-offs, such as implementation of the cascading use principle under the Renewable Energy Directive III.

The revised EU Renewable Energy Directive (RED III)[120] came into force in 2023, providing new incentives and rules to support the renewable energies and to meet the target of 40% share of renewables in the EU energy mix by 2030. The RED III also introduces principles and rules for Member States to **prioritise the use of woody biomass in material applications, before burning wood for energy**. Article 3 states, "Member States shall take measures to ensure that energy from biomass is produced in a way that minimises undue distortive effects on the biomass raw material market and an adverse impact on biodiversity, the environment and the climate. To that end, they shall take into account the waste hierarchy set out in Article 4 of Directive 2008/98/EC and shall ensure the application of the principle of the cascading use of biomass, with a focus on support schemes and with due regard to national specificities. Member States shall design support schemes for energy from biofuels, bioliquids and biomass fuels in such a way as to avoid incentivising unsustainable pathways and distorting competition with the material sectors, with a view to ensuring that woody biomass is used according to its highest economic and environmental added value in the following order of priorities: a) wood-based products; b) extending the service life of wood-based products; c) re-use; d) recycling; e) bioenergy; and f) disposal."

The **Carbon Removals and Carbon Farming (CRCF) regulation**[121] was published in December 2024,[122] creating the first EU-wide voluntary framework for certifying carbon removals, carbon farming and carbon storage in products. By establishing EU quality criteria and laying down monitoring and reporting processes, the CRCF Regulation will facilitate investment in innovative carbon removal technologies, as well as sustainable carbon farming solutions. Related initiatives on wood in construction include Horizon EU and New European Bauhaus. Also noted are the Circular Bio-based Europe Joint Undertaking and European Bioeconomy Network.

[119] https://knowledge4policy.ec.europa.eu/visualisation/interactive-sankey-diagrams-woody-biomass-flows-eu-member-states_en
[120] https://eur-lex.europa.eu/eli/dir/2023/2413/oj/eng
[121] https://climate.ec.europa.eu/eu-action/carbon-removals-and-carbon-farming_en
[122] https://data.consilium.europa.eu/doc/document/PE-92-2024-REV-1/en/pdf

Innovations in wood product manufacturing and training/capacity

The **New European Bauhaus,**[123] initiated in 2020, is a bridge between the world of science and technology, art and culture, seeking to leverage green and digital challenges to transform lives for the better, and creates a platform to address complex societal problems through co-creation. The NEB Academy seeks to create new skills and education in the construction sector, accelerating the green transformation of the building sector.

Timber construction products that are marketed in the EU must conform to the requirements of the directly applicable Regulation (EU) No. 305/2011 to ensure the safety of construction projects. In particular, Commission Delegated Regulation (EU) 2016/364 and Commission Delegated Regulation (EU) 2017/2293, which specify the requirements of Regulation (EU) No. 305/2011, deal with the reaction to fire performance of construction products in general and cross-laminated timber (CLT) products covered by the harmonized standard EN 16351. CLT products that fulfill the requirements are deemed to satisfy the classes of performance indicated without testing.

Reclaimed wood and recycled materials

The Waste Framework Directive 2008/98/EC aims to have 70% of Construction and Demolition waste prepared for re-use, recycled or other material recovery by 2020.

The European Commission conducted a study on **EU End-of-Waste Criteria of Construction and Demolition Waste**,[124] [125] in order to assess the need for EU-wide end-of-waste criteria. The study was completed by the end of 2024 and produced a priority ranked list of waste streams for possible development of EU-wide end-of-waste and by-product criteria.

The **EU construction & demolition waste (CDW) management protocol including guidelines for pre-demolition and pre-renovation audits of construction works**[126] of 2024 provides guidance on better CDW management to increase re-use of products and recycled materials to deliver significant environmental, economic and social benefits. CDW comprises the largest waste stream in the EU.

The **Woodcircles**[127] project is a four-year innovation project co-funded by the European Union that aims to develop circular and sustainable solutions for wood in construction. Woodcircles is a multi-stakeholder collaboration between 20 European partners across the wood construction value chain. Solutions to **promote circularity in wood use** include: a) Upcycling of

[123] https://new-european-bauhaus.europa.eu/index_en
[124] https://op.europa.eu/en/publication-detail/-/publication/89a1cfe5-60fd-11ef-a8ba-01aa75ed71a1/language-en
[125] https://eu-cdw-eow-prioritylist-tauw-group.hub.arcgis.com
[126] https://op.europa.eu/en/publication-detail/-/publication/d63d5a8f-64e8-11ef-a8ba-01aa75ed71a1/language-en
[127] https://woodcircles.eu

wood construction waste destined for incineration to new construction products; b) digital tools to map the wood from existing buildings, constructions, and furniture; c) developing two new value chains for recycled wood: engineered wood products and insulation; d) prototyping and demonstrating an 'Urban Sawmill' facility to convert low-value, inhomogeneous wood construction waste into standardised, value-added products; e) designing a wood-based building system optimised for disassembly to enabling efficient re-use and recycling of wood construction materials in the future; and f) producing a pilot demonstration building that will tour three European cities (Rotterdam, Tartu, and Turin).

The strengthened rules in the revised **EU Renewable Energy Directive** introduce an obligation for EU countries to design their national support schemes in accordance with the biomass cascading principle, whereby woody biomass is used according to its highest economic and environmental added value.

The **Renovation Wave**[128] is a EU strategy which aims to improve energy efficiency, boost the economy and deliver better living-standards for Europeans. The target is to renovate 35 million buildings by 2030. One of the measures in the strategy seeks to ensure that the construction sector is fit to drive sustainable renovations and uses sustainable materials.

Green building certification

In the EU, the **European framework for sustainable buildings**[129] **Level(s)** has been developed to provide a common language for assessing and reporting on the sustainability performance of buildings. It is a simple entry point for applying circular economy principles in the built environment. Level(s) offers an extensively tested system for measuring and supporting improvements, from design to end of life. It can be applied to residential buildings or offices.

Public procurement

Wood in Construction policy

An Opinion[130] was adopted by the European Economic and Social Committee (EESC) on **Wooden construction for CO2 reduction in building sector**. It calls for: a) an increase in the use of sustainable wood in construction, especially in public buildings, is essential to reduce carbon emissions and must be promoted through active and responsible forest management in the EU; b) quality-based procurement procedures, including allowing innovative solutions

[128] https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/renovation-wave_en
[129] https://environment.ec.europa.eu/topics/circular-economy/levels_en#:~:text=Level(s)-,Level(s),and%20resources%20to%20help%20you.
[130] https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/wooden-construction-co2-reduction-building-sector

and including sustainability and life-cycle criteria, are a prerequisite for achieving climate objectives and promoting timber construction; c) establishment of minimum standards for life-cycle carbon emissions from buildings and for the corresponding carbon reporting requirement across the construction sector; d) scrutiny of barriers to timber construction arising from formal, legal and technical requirements.

The governments of Austria and Finland convene and support the European Wood Policy Platform "**woodPoP**,"[131] a **policy dialogue platform** bringing together all relevant actors to advance the sustainable use of wood. It develops wood-related policy solutions, measures and recommendations to strengthen wood-based circular bioeconomy. In November 2024, the Platform published its policy paper, **A Wood-Based Circular Bioeconomy for a Sustainable Europe**.[132] It contains a set of principles, and recommendations on a range of policy-related topics.

Emission reduction targets for buildings

In 2021 EU regulation, the **EU Framework for Achieving Climate Neutrality**[133] presented an economy-wide greenhouse gas emissions reduction target of at least 55% by 2030 compared to 1990, and climate-neutrality by 2050. The European Commission commissioned Ramboll Management Consulting to complete an **EU-wide roadmap for reducing whole life cycle carbon emissions in buildings**.[134] The report establishes a baseline for embodied carbon emissions of buildings across European regions; sets out how embodied carbon of European buildings can be expected to evolve by 2050; sets out the trajectory towards climate objectives for operational carbon in various scenarios; and identifies and assesses the impact of whole life carbon emissions reduction solutions. The World Green Building Council published the EU Whole Life Carbon Roadmap for buildings [135] in 2022 as a reference to also help guide decision-making.

EU member States will need to publish roadmaps by 2027 for introducing limit values on the whole life cycle carbon emissions of new buildings from 2030 onwards. The lack of reduction requirements makes ambition levels in the short to medium term uncertain.[136]

The EU Climate Law requested Member States to submit updated National Energy and Climate Plans (NECPs).[137] These are ten-year plans for 2021-2030. Following the submission of the draft

[131] https://woodpop.eu
[132] https://woodpop.eu/wp-content/uploads/2024/11/WoodPop-Policy-Paper-High-Level-Meeeting.pdf
[133] https://data.consilium.europa.eu/doc/document/PE-27-2021-INIT/en/pdf
[134] https://7520151.fs1.hubspotusercontent-na1.net/hubfs/7520151/RMC/Content/Ramboll%2c%20BPIE%2c%20KU%20Leuven_Technical%20Report_July%202023.pdf
[135] https://globalabc.org/resources/publications/eu-policy-whole-life-carbon-roadmap-buildings#:~:text=This%20Roadmap%20outlines%20the%20key,WLC)%20at%20the%20building%20level.
[136] https://cdn.ceps.eu/wp-content/uploads/2025/01/2025-01_ERCC_MCE-Construction.pdf
[137] https://commission.europa.eu/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en#final-necps

updated NECPs in 2023, Member States were due to submit their final updated NECPs by 30 June 2024, taking account of the Commission's assessment and recommendations.

In November 2024, the EU passed the **Carbon Removal Certification Framework**[138] as a voluntary EU-wide mechanism to certify carbon removals generated in Europe and help the EU to reach climate neutrality. The framework includes carbon storage activities that capture and store carbon in long-lasting products for at least 35 years, such as wood-based construction products.

Building codes

Eurocode 5: Design of Timber Structures[139] is the European building code that set the standard member countries must follow. Eurocode 5 applies to the design of buildings and other civil engineering works in timber (solid timber, sawn, planed or in pole form, glued laminated timber or wood-based structural products) or wood-based panels jointed together with adhesives or mechanical fasteners.

The European Standard EN338 establishes strength classes for all structural timber.[140] European Standard EN 14080[141] sets the performance requirements of glued laminated and solid timber. European Standard EN 408[142] specifies test methods for determining the following properties of structural timber and glued laminated timber.

In the EU, there is a labelling system, Conformité Européenne (European Conformity), abbreviated as CE. CE-marking ensures that the product meets certain specifications and can cross borders within the European Economic Area. However, national building regulations mandate whether the product can be used in a particular country, and the level of product performance that must be met in that country.

Insurance

Taxation and incentives

[138] https://data.consilium.europa.eu/doc/document/PE-92-2024-REV-1/en/pdf
[139] https://eurocodes.jrc.ec.europa.eu/EN-Eurocodes/eurocode-5-design-timber-structures
[140] https://www.en-standard.eu/csn-en-338-structural-timber-strength-classes/?srsltid=AfmBOooviYRTeKpEcMMVArRNHOq8ma5mXL9MZkvkVSiSfVtQ6tg8aY3i
[141] https://www.en-standard.eu/bs-en-14080-2013-timber-structures-glued-laminated-timber-and-glued-solid-timber-requirements/?srsltid=AfmBOorXaTAxJzxrJiQmh7QxPcxgu2XqwS_ALKx8aJ6yo9fiGycB-aYA
[142] https://www.en-standard.eu/bs-en-408-2010-a1-2012-timber-structures-structural-timber-and-glued-laminated-timber-determination-of-some-physical-and-mechanical-properties/#:~:text=This%20European%20Standard%20specifies%20test,the%20grain%3B%20modulus%20of%20elasticity

The **European Industrial Plan**[143] supports emerging innovation with strategic investments and targeted manufacturing tax credits

Finance and investment

Horizon Europe[144] is the EU's key **funding programme for research and innovation**. Following the Multiannual Financial Framework Midterm Review (MTR) decision, the indicative funding amount for Horizon Europe for the period 2021-2027 is EUR 93.5 billion, focussed on tackling climate change, help achieve the UN's Sustainable Development Goals and boosts the EU's competitiveness and growth.

[143] https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/green-deal-industrial-plan_en
[144] https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en

FIJI

Sustainable forest management

The **National Forest Policy 2007**[145] specifies the sector's goal is the sustainable management of Fiji's forests to maintain their natural potential and to achieve greater social, economic and environmental benefits for current and future generations. The objectives are to: a) ensure ecosystem stability through conservation of forest biodiversity, water catchments and soil fertility; b) ensure sustainable supply of forest products and services by maintaining a sufficiently large permanent forest area under efficient and effective management; c) increase engagement by landowners and communities in sustainable forest management and an equitable distribution of benefits from forest products and processes including ensured protection of intellectual property rights; d) increase employment in the forestry sector, sufficient supply of domestic markets and increased foreign exchange earnings through sustainable forest-based industry development and trade; and e) enhance national capacity to manage and develop the forest sector in a collaborative approach with involvement of all stakeholders.

Fiji's **Forest Act** of 1992 and amendments to 2016[146], establish the administrative, management and utilization principles and practices. Subsidiary legislations include Forest Timber Marks Regulation, Forest Sawmills Regulation, Fiji Code of Practice in Wood Processing Facilities 2023 and others.[147] The Fiji **Forest Harvesting Code of Practice** of 2013[148] provides practical guidance to landowners and the forest industry on forest management practices including the implementation of diameter limits.

The Fiji **REDD-Plus Policy of 2011**[149] is embedded in the National Forest Policy (but its a separate policy document) and has the overall objective of enhancing the national forest-based carbon balance by supporting and strengthening initiatives that address the drivers of forest-based carbon emissions and promoting the drivers of forest-based carbon sinks.

The Green Growth Framework for Fiji of 2014[150] is based on guiding principles of: a) Reducing carbon 'footprints' at all levels; b) improving resource utilization and productivity (simply put, doing more with less); c) developing a new integrated approach, with all stakeholders collaborating and collectively working together for the common good. The cross-cutting nature of issues relating to sustainable development requires harmony and synergy in the

[145] https://www.forestry.gov.fj/docs/policies/FijiForestPolicyStatementSummary.pdf
[146] https://www.laws.gov.fj/Acts/DisplayAct/636
[147] https://www.laws.gov.fj/Acts/DisplayAct/636
[148] https://www.forestry.gov.fj/docs/legis/FFHCOP2013.pdf
[149] https://www.forestry.gov.fj/docs/policies/REDDPolicy.pdf
[150] https://prdrse4all.spc.int/system/files/green_growth_framework_for_fiji_16_sept_2014_lowres_1.pdf

formulation of strategies; d) strengthening socio-cultural education of responsible environmental stewardship and civic responsibility; e) increasing the adoption of comprehensive risk management practices; f) supporting the adoption of sound environment auditing of past and planned developments, in order to provide support to initiatives which not only provide economic benefits but also improve the environmental situation; g) enhancing structural reforms in support of fair competition and efficiency; and h) incentivising investment in the rational and efficient use of natural resources. It reviews existing legislation, and proposes revisiting ones that are not effective, such as the Mahogany Industry Development Act[151] and Decree of 2010, due to poor enforcement of the Decree.

Fiji was one of the last countries to qualify for the World Bank Forest Carbon Partnership Fund,[152] with potential to earn to $12.5 million for reductions of 2.5 MtCO2e over 1.7 million ha.

Fiji is in the process of producing a **Planted Forest Policy**, with assistance from FAO. Fijis Cabinet approved development of the new policy in 2024. In a report to Parliament in 2022,[153] MOF described the intent of the draft Planted Forest Policy, noting that the scale of plantations could only be determined following a National Forest Inventory (to be finalized in 2025) to gauge domestic needs and economic performance expected from the sector. The two major plantation forest companies, Fiji Pine Limited (FPL) and Fiji Hardwood Corporation Limited (FHCL) regularly carry out inventories of their forests, including pre-harvest inventories. The Policy will guide the establishment and development of new plantation enterprises involving teak and sandalwood, eucalyptus and acacia, as well as existing commercial-scale plantation forests within both FPL and FHCL lease areas. These will include new plantation development for the production of fuel wood, fibre, bio-fuels as well as carbon forests, community forests, small scale tree planting schemes, agroforestry including food forests, urban forestry and private woodlots. This will ease the burden on native forests, allowing them to provide services such as sequestrating carbon, improving biodiversity values and the maintenance of other environmental services, with timber being a lesser by-product. Plantations already supply more than 90% of wood production in the country and native forest production is very small at only around 30,000 m^3/year or less. MOF identified there is potential for a considerable increase in the extent and area of planted forest and there is sufficient under-utilised land in Fiji that can accommodate these new developments. However, there is a need for a clear and coherent national policy framework to guide strategic actions and investments in these planted forests to reposition forestry as a desirable and sustainable land use. There is also the need to have accurate baseline information regarding these forestry areas to ensure that the right species and practices are selected and applied to achieve the desired goals.

Fiji's forest areas cover is about 1.1 million hectares, about 60% of Fiji's land area. Out of this, natural forests accounts for 82%, softwood plantations accounts for 7.4%, hardwood

[151] https://www.laws.gov.fj/Acts/DisplayAct/645
[152] https://www.forestcarbonpartnership.org/country/fiji
[153] https://www.parliament.gov.fj/wp-content/uploads/2022/05/Appendices-Forestry2.pdf

plantations accounts for 6.5% and mangrove forests accounts for 4.1%.[154] Between 2006- 2016 annual forest loss was about 2500 ha, and over the same period about 1,800 ha were newly forested,[155] though unclear if forest loss came from natural forests and gains occurred in plantations. The main drivers of deforestation are commercial and smallholder agriculture, with the traditional practices of shifting cultivation being gradually replaced by commercial agriculture to establish cash crops such as kava and taro, which are a common cause of deforestation at the forest frontier. Timber harvesting is the main driver of forest degradation. Although commercial harvesting in native forests has been largely replaced by timber extraction from plantations, harvesting for domestic and informal markets continues to drive unregulated forest degradation. Forest management has therefore shifted from timber production to conservation and sustainable management, focusing more on the social functions of forests with the aim to improve the quality of water resources, improving agricultural land, contributing to biodiversity protection and climate change mitigation, and reducing vulnerability to natural disasters, particularly floods.[156]

The Government initiated a national tree planting campaign to plant 30 million trees in 15 years (30MT15Y) in September 2019 with the aim to strengthen Fiji's commitment to addressing climate change and to increase the forestry sector's contribution to economic growth. As of April 2024, a total of 19,129,390 trees involving 17,212 hectares have been planted and forest landscapes restored.[157]

Fiji's **National Development Plan 2025-2029 and Vision 2050**[158] reaffirms Fiji's global commitments on REDD+, FCPF and halting biodiversity loss.

With regard to introducing and implementing sustainable Forest management, it identifies: a) conduct forest resource assessment, forest inventory and production of forest maps; b) develop the Emissions Reduction Programme for Fiji; c) develop and refine the National Forest Inventory to include functions for both wood and non-wood; d) develop plans for the sustainable management of forest resources through the development of relevant forestry related models including the development of volume and biomass allometric equations for the major tree species of Fiji; e) develop or enhance Forest Monitoring Systems and review overall governance framework of forest related boards and committees.

With regards to encouraging wood and non-wood forest product development, it identifies: a) strengthen wood and non-wood forest product research, development, and promotion through the provision of appropriate infrastructure and expertise including facilities, machines and equipment; b) support MSMEs in the development of niche products; c) review and pursue re-planting strategies of pine trees locally in villages; d) provide portable sawmills to villages for building

[154] https://www.finance.gov.fj/wp-content/uploads/2024/02/Fact-Sheet-Forestry.pdf
[155] https://unfccc.int/sites/default/files/resource/Fiji_Low%20Emission%20Development%20%20Strategy%202018%20-%202050.pdf
[156] Ibid.
[157] https://www.finance.gov.fj/wp-content/uploads/2024/09/NPDF_final-9.pdf
[158] https://www.finance.gov.fj/wp-content/uploads/2024/09/NPDF_final-9.pdf

houses in rural interior areas.

With regards to improving the socioeconomic impacts of forest stewardship, it identifies: a) provide technical training and support to all stakeholders; b) establish Forest Products Marketing Framework; c) promote community-based businesses for product development and suppliers to the local market; d) provide technical support for the utilisation of wood residues from forest harvesting areas and timber processing facilities; e) increase participation of youth and women in forest- related businesses through initiatives such as technical training; f) develop the standard of forest products to comply with international standards.

The section on land management and development emphasizes land use master planning to address sectoral trade-offs and engage all stakeholders.

Fiji also has non wood forest species such as agar wood, coconut, dilo, sandalwood, bamboo, and candle nut which are highly profitable, and a priority for developing further processing and products.[159]

In 2021-2022, Fiji's exports of wood chips, sawn timber, slabs, and other products amounted to $101.2 million. Pine chips contributed 50% with a total value of $50.1 million, followed by sawn timber at $36.2 million (36%), slabs at $8.9 million (9%) and decking at $3.5 million (3%). The rest of the forest product types have comparatively small amounts of revenue. The major export destinations were China at $43.2 million, Japan at $24.9 million, the USA at $16.0 million, the Dominican Republic at $4.8 million, Australia at $3.5 million and others totalling $8.7 million. Major imported products include plywood, particle board, hard board, laminated board and sawn timber, for a total import value of FJ$12.0 million. This implies that Fiji is meeting most of its domestic needs for wood products, and imports are comparatively small.

Tenure clarity and security for forest owners/users

Fiji's forests have important traditional social and cultural values. Over 80% of Fiji's land and forests are owned by family clans (mataqalis), for whom these forests are their main source of livelihood. The use of these lands are regulated by the iTaukei Land Trust Board, according to the iTaukei Land Trust Act. These acts form the backbone of Fiji's land tenure system. Traditionally owned land is not for sale. Leases of iTaukei land, under the Land Trust Act, can be issued for up to 99 years. Any expansion of forest and can only take place in accordance with the iTaukei Land Trust Act and taking into account the interests of the local population, especially the landowners.[160]

[159] https://www.parliament.gov.fj/wp-content/uploads/2023/09/92-Ministry-of-Forestry-Annual-Report-2021–2022.pdf
[160] https://unfccc.int/sites/default/files/resource/Fiji_Low%20Emission%20Development%20%20Strategy%202018%20-%202050.pdf

Timber tracking, legality and production standards

Fiji implements a Monitoring of forest harvesting operations (MCS Project) to monitor commercial forest harvesting operations to ensure that they comply with the Fiji Forest Harvesting Code of Practice (FFHCOP). Nation wide training on the Code has been carried out to support its full implementation. The overall compliance rate between 2021-2022 was 71.0%.[161]

In 2024, the Forest Stewardship Council Interim Standard for Natural Forest and Plantation Forest Management Certification in Fiji was developed.[162]

Fiji is seeking to certify its mahogany[163] under Forest Stewardship Council. In 2022, the Fiji Hardwood Corporation Ltd (FHCL) launched the Forest Certification Gap Analysis and Roadmap[164] Report. In 2025, the corporation must submit three key reports including an environmental impact assessment, a social impact report and a high conservation value forest report. It is hoped that FSC certification will allow Fiji's mahogany products to access high-value international markets, and benefit stakeholders right across the industry, especially the landowners.

PEFC does not appear to be active in Fiji.

Trade policies, restrictions on wood imports and avoiding leakage

Fiji's **Trade Policy Framework** (2015 - 2025)[165] contains the following recommendations for trade in the forestry sector: a) ensure that policy on the utilization and exporting of wood resources are developed on the basis of rigorous and clearly defined principles that emphasize the maximization of the economic return to Fiji from its forest resources; b) discourage the exports of raw or sawn timber and work towards increasing value adding focusing on high yield products; c) identify high value niche markets for Fiji's forest products; d) promote the proper certification of forestry resources; and; e) promote and cultivate Fijian branded mahogany. Efforts are progressing to implement the recommendations, including the two companies involved, looking at increasing value addition, focusing on export niche markets, as one of their main objectives. Most of the wood supply coming from plantations. Fiji Pine Limited (FPL) has already been FSC certified and Fiji Hardwood Corporation Limited (FHCL) is working towards it.

[161] https://www.parliament.gov.fj/wp-content/uploads/2023/09/92-Ministry-of-Forestry-Annual-Report-2021–2022.pdf
[162] https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://consultation-platform.fsc.org/en/consultations/document/c4aee276b6612/2205&ved=2ahUKEwi558L9yM6MAxUfJjQIHTp5KXMQFnoECBgQAQ&usg=AOvVaw0aYacwx-nQOxDSBQTcChx_
[163] https://www.fbcnews.com.fj/news/mahogany-certification-drive-to-unlock-millions-for-fiji/
[164] https://www.forestry.gov.fj/pressdetail.php?id=124
[165] https://www.mitt.gov.fj/wp-content/uploads/2018/10/Fijian-Trade-Policy-Framework-min.pdf

The United Kingdom is looking to expand its trade into mahogany timbers and suggests Fiji as a possible source to supply tropical hardwoods to the UK.[166]

Innovations in wood product manufacturing and training/capacity

Refer to mention of Fiji's **National Development Plan 2025-2029 and Vision 2050**[167] in the section above on sustainable forest management.

The Ministry monitors sawmills on a quarterly basis, to ensure that licensing conditions are in line with the Sawmill Policy and Forest (Sawmills) Regulations 1968. An inspection checklist is used to monitor the sawmill performances with the aim of achieving efficiency and effectiveness of sawmill operations and better utilisation of resources. The monitoring results on log yard and housekeeping, machine standard and conditions, health, and safety of workers, and validation of log input and sawn output data. Low rates of compliance are noted, ranging from a low of 36% to a high of 67% in the Western, Central and Northern regions.[168]

The Ministry of Forestry worked on developing a report on "Determining the wood quality of 'other' forest resources of relevance,"[169] to assess the potential use of 31 identified lesser-known species or other forest resources in Fiji to feed into engineered wood product manufacturing. The Ministry of Forestry also provides training for timber processing facilities and resource owners through the Timber Industry Training Centre.[170]

To address quality concerns in timber for buildings, the Ministry of Forestry, through its Forest Products, Trade and Training Division, created an education and awareness campaign around Fiji, targeting all timber retailers to enhance their knowledge and understanding on timber grades and timber treatment standards, and address the issue of the trading of substandard timber with their suppliers. The campaign was also supported by the Fijian Competition and Consumer Commission.[171]

Australia ACIAR supported research in Fiji on new wood product engineering processes using aged coconut palms for veneer products. The engineering support comes from the Queensland Department of Primary Industries (QDPI) Forest Product Innovation team, which has been working with partners in Fiji and Australia on a process to create timber veneers from coconut palms. The new veneer process recovers double the amount of usable wood when compared with traditional sawn timber production processes. It also requires less investment in equipment and uses less energy than conventional veneer processes.

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[166] https://woodcentral.com.au/fijis-green-gold-why-uk-wants-a-piece-of-rising-mahogany-trade/
[167] https://www.finance.gov.fj/wp-content/uploads/2024/09/NPDF_final-9.pdf
[168] https://www.parliament.gov.fj/wp-content/uploads/2023/09/92-Ministry-of-Forestry-Annual-Report-2021–2022.pdf
[169] https://lrd.spc.int/sites/default/files/2024-01/35-determining-wood-quality-of-other-fijian-forest-resources-with-potential-suitability-for-ewps.pdf
[170] https://www.parliament.gov.fj/wp-content/uploads/2023/09/92-Ministry-of-Forestry-Annual-Report-2021–2022.pdf
[171] https://www.forestry.gov.fj/pressdetail.php?id=141

Fiji has about 40,000 hectares of aged and unproductive coconut palms, mostly over 60 years old and are considered as senile. There has been limited incentives to remove senile palms and replant with either new coconut palms or other crops. If the palms hold value as a timber resource, it may help subsidise replanting, bringing more land back into production and increasing income opportunities for local smallholders.[172] [173]

Reclaimed wood and recycled materials

The Fiji Build Green Home Building Manual[174] recommends at least 20% of building materials to be from recycled or reused materials.

One journal article in Sustainability developed a methodology to estimate the amount of construction material in coastal buildings which are lost due to climate change-induced sea level rise, and used Fiji as a case study. Sea level rise predictions were based on IPCC estimates for the years 2050 and 2100. This study combines the concept of a geographic information system based digital inundation analysis with the concept of a material stock analysis. The findings showed that about 4.5% of all existing buildings on Fiji will be inundated by 2050 because of an expected global sea level rise of 0.22 m (scenario 1) and 6.2% by 2100 for a sea level rise of 0.63 m (scenario 2). The number of buildings inundated by 2050 would be equivalent to 40% of the average number of new constructed buildings in Fiji in a single year. Overall, the amount of materials present in buildings which will be inundated by 2050 is 900,000 metric tons (815,650 metric tons of concrete, 52,100 metric tons of timber, and 31,680 metric tons of steel). By 2100, this amount is expected to grow to 1,151,000 metric tons (1,130,160 metric tons of concrete, 69,760 metric tons of timber, and 51,320 metric tons of steel).[175] Such research can be useful in considering the feasibility of relocation and recycling and disposal of building materials to allow for communities to prepare and avoid the more dire consequences.

Green building certification

Leadership in Energy and Environmental Design (LEED), an international green building certification system, has a specific version adapted for Fiji, and has been applied to two buildings in Fiji.

[172] https://www.aciar.gov.au/media-search/blogs/engineered-wood-coconut-palms-points-new-industry-fiji
[173] https://lrd.spc.int/sites/default/files/2024-02/49-financial-and-economic-modelling-report-6fijian-application-forest-to-millvenn-et-al-2023.pdf
[174] https://issuu.com/comarchitect.org/docs/fhbm_draft_2_for_review
[175] https://www.mdpi.com/2071-1050/12/3/834

Public procurement

Public procurement policies in Fiji do not include environmental or green growth standards.[176]

Wood in Construction policy

Though Fiji does not have a wood in construction policy, there is a vernacular architecture long in existence of traditional wooden houses known as "bure," using local materials, and it is a symbol of Fijian culture.[177] Given present and future climate impacts, particularly cyclones, traditional building methods using wood, bamboo, palm wood and other locally sourced materials and traditional techniques are proven to be more able to withstand impacts, and easily replaceable as materials are available locally within the area.[178]

The National Housing Policy (NHP) 2025–2030[179] outlines Fiji's strategic framework to improve housing systems, ensure adequate and affordable shelter for all, and bolster climate resilience in the built environment. Centered around the constitutional right to housing, the NHP sets a national vision for an effective, inclusive, and sustainable housing sector. It focuses on four key strategic areas: enabling and formalizing the supply of decent housing, enhancing affordability and access—especially for vulnerable and low-income groups—strengthening housing resilience and quality, and building sectorial capacity and partnerships.

A central theme of the NHP is the shift toward sustainable construction and resilience, which directly supports the use of wood and other natural building materials. Specifically, the policy encourages the adoption of green and sustainable construction methods—including the use of local timber—to strengthen climate resilience, reduce carbon emissions, and support economic opportunities through forestry-based livelihoods. This approach aligns with the objectives of the Ministry of Forestry, which promotes wood construction through sustainable forest management and plantation development, and underlines wood's importance as a renewable, culturally appropriate, and climate-smart building resource.

The NHP's alignment with national policies such as the Forest Policy 2007, the Planted Forest Policy under development, and Fiji's updated Building Code reinforces a unified direction: to integrate forest products, especially sustainably harvested timber, into affordable and resilient housing solutions. These synergies not only ease pressure on native forests but also support Fiji's commitments to sustainable development, low-carbon growth, and inclusive economic transformation—particularly for rural and forest-based communities.

[176] https://2021-2025.state.gov/reports/2024-investment-climate-statements/fiji/
[177] https://www.jstage.jst.go.jp/article/aija/81/724/81_1303/_article/-char/en
[178] https://www.sciencedirect.com/science/article/pii/S2212420922005209
[179] https://www.housing.gov.fj/_files/ugd/bbc96f_e9bea2f9095a45149f146b246d713844.pdf

Emission reduction targets for buildings

Fiji's **updated NDC**[180] to the Paris Climate Agreement reaffirms its previous NDC commitment to reduce 30% of BAU CO_2 emissions from the energy sector by 2030. Of the 30% reduction of BAU baseline CO_2 emissions, 10% will be achieved unconditionally using available resources in the country and 20% achieved conditionally, based on international assistance. The NDC also contains Target 8: Relocate highly vulnerable communities, and implement the concept of 'build back better'. Target 11 seeks to plant 30 million trees by 2035.

Fiji's **Climate Change Act 2021**[181] affirms the REDD+ Policy, steps to be taken to engage in emission reduction programmes in the land use sectors and the roles of relevant actors such as the Minister (of Forests?), Conservator of Forests and the iTaukei Land Trust Board in cases of emission reduction projects.

Fiji's **Low Emission Development Strategy 2018-2030**[182] covers all sectors, but the main focus is on energy, which is the largest source of emissions. Fiji aims to reach net zero carbon emissions by 2050 across all sectors of its economy through pathways defined in the LEDS. Notably, Fiji finds it is able to achieve net negative emissions as a result of extensive afforestation measures, reduced deforestation, and increased use of sustainable forest plantations in the AFOLU sector.

The AFOLU section details forestry activities releasing emissions and those contributing to carbon removals. For the AFOLU sector, commercial and smallholder agriculture are the main drivers of deforestation and emissions. It indicates that pine and hardwood plantations remove more carbon from the atmosphere than what deforestation and the establishment of the plantations emits. The LEDS notes that the spread in plantation areas of African Tulip, an invasive tree species, will reduce the growth of commercial species, and is projected to limit plantation growth by 5%. Fiji plans to establish about 77,400 ha plantations in Fiji over the next 15 years. For the sake of simplicity and to avoid double counting, emissions from wood utilization are included in the AFOLU sector in the LEDS. This means that Fiji has not calculated emissions from the woody biomass for energy. Activities such as emissions caused by the use of machinery in the management of forests and agricultural land, emissions caused by the transport of forestry and agricultural goods, and emissions resulting from the production of food or the processing of wood are counted in the energy and transport sectors.

The Commercial, Industrial, and Manufacturing Sectors section mentions wood manufacturing and processing. Although commercial harvesting of native forests has been significantly replaced by timber extraction from plantations, this timber harvesting to supply commercial markets is the main contributor to unregulated forest degradation. For Fiji's net zero energy sector, many commercial plantations for biomass production will need to be

[180] https://unfccc.int/sites/default/files/NDC/2022-06/Republic%20of%20Fiji%27s%20Updated%20NDC%2020201.pdf
[181] https://faolex.fao.org/docs/pdf/fij208300.pdf
[182] https://unfccc.int/sites/default/files/resource/Fiji_Low%20Emission%20Development%20%20Strategy%202018%20-%202050.pdf

planted. The LEDS notes that the material use of wood in manufacturing generally produces significantly lower emissions than when manufacturing comparable products made of non-renewable materials. Recommendations that relate to low carbon building materials include: a) Mainstreaming low carbon development into all tourism-, commercial-, and manufacturing-related plans, frameworks, and legislation; and b) Promoting use of wood in commercial, industrial, and manufacturing sectors and the production of wood and biomass-based products.

Building codes

In 2023, the Fiji National Building Code[183] was updated to incorporate the Climate Change Act of 2021 target of a 30% reduction in energy demand/use and to address climate mitigation, adaptation, and resilience in building design. The Fiji National Building Code mostly references the Australian and New Zealand Standards as Fiji shares the same geographical location

Insurance

Taxation and incentives

Finance and investment

[183] https://issuu.com/comarchitect.org/docs/fiji_national_building_code_-_draft_2

FINLAND

Sustainable forest management

The **Forest Act 1997**[184](revised in 2014) provides a framework for forest management in Finland. The main principle is the obligation to regenerate after logging, the multi-functionality of forests, emphasizing safeguarding of ecological sustainability as well as promotion of diverse use of forests, landscape management and water protection. The Act requires that the forest owner delivers a mandatory forest use declaration before felling. Forest use declarations are monitored by a competent authority.

The **National Forest Strategy**[185] 2023–2035 guides Finland's forest policy. The vision is 'growing wellbeing from forests and for forests,' and the objectives are: a) Finland is a competitive operating environment for a responsible forest-based sector that is capable of renewing itself; b) Forests are in active, sustainable and diverse use; c) Finland strengthens the vitality, diversity and adaptability of forests; d) Finland strengthens knowledge-based management and competence in the forest-based sector. The Strategy identifies goals within each objective. The strategy takes into account the principle of comprehensive sustainable development and the important role of forests in climate change mitigation and adaptation.

The **Best Practices for Sustainable Forest Management**[186] are a collection of guidelines for forest owners on how to manage their forests. The best practices offer alternatives for forest management and information on their effects. The best practices are voluntary and complement national forest legislation with practical guidelines. The Best Practices for forest management are offered as a service by the ministry of agriculture and forestry to Finnish forest owners and professionals and are part of the national forest strategy implementation.

The **National Forest Inventory**[187] (NFI) data is based on statistical sampling and a new inventory of forest resources is implemented every 5-10 years. Accurate forest data is the base for planning forest management activities. The latest National Forest Inventory shows that the increase in forest growth has changed to a slight decrease in growth. The decline in growth may be due, among other things, to a change in the age structure of forests and the decrease in the growth level in recent years related to the variation in tree growth. The Natural Resources Institute Finland has launched more detailed analyses of the reasons for the decrease in growth. The demand for domestic wood is growing.

[184] https://www.finlex.fi/fi/lainsaadanto/1996/1093
[185] https://julkaisut.valtioneuvosto.fi/handle/10024/165271
[186] https://metsanhoidonsuositukset.fi/en
[187] https://www.luke.fi/en/statistics/forest-resources -and- https://mmm.fi/en/forests/forestry/forest-inventories

Tenure clarity and security for forest owners/users

The **National Forest Strategy** identifies that Finnish forests are mainly owned by private individuals and families. In many places, the structure of forest holdings is fragmented. About three quarters of the forests in southern and central Finland are privately owned. Most state-owned forests are located in northern and eastern Finland. Private forest owners own 60%, the state owns 26%, companies (including forest industry) own 9% and other entities own 5% of productive forest land. State forests are managed by the state forest company Metsähallitus. The average size of a private forest holding is about 30 hectares. The Sámi in Finland do not have specific land rights and reindeer husbandry can be carried out in a reindeer husbandry area, regardless of the ownership and management of the land.[188]

Timber tracking, legality and production standards

The Forest Act defines legality for wood going to sawmills. The Forest Use Declaration and the Certificate of Measurement on Delivery allows for timber tracking, and this relates to Finnish exports into the EU and beyond. The EUTR mandates that operators who place timber and timber products on the EU market must have a due diligence system for timber legality.

The forest certification schemes actively used in Finland are **PEFC and FSC**. Over 90% of Finnish commercial forests are certified under these two schemes.

CE marking[189] determines the performance of construction products. The CE marking shows conformity of the product with the declared performance and compliance with the Harmonised European Standard (hEN) or European Technical Approval/Assessment. This allows buyers to easily compare construction products, and makes the trading of products across borders easier.

Trade policies, restrictions on wood imports and avoiding leakage

Finland implements the **EU Regulation on Deforestation-free Products** (EUDR) (Regulation (EU) 2023/1115) which entered into force in 2023 and ensures that the EU-consumption of wood, cattle, cocoa, coffee, oil palm, rubber and soy and certain products made from them does not contribute to global deforestation and forest degradation. The current application date for the EUDR is December 2025. Finland's forest use declaration is also the core of the control system in the EU Timber Regulation, the purpose of which is to prevent the entry of illegally produced timber on the EU market.

188

https://bristoluniversitypressdigital.com/display/book/9781529224832/ch009.xml#:~:text=However%2C%20in%20Finland%2C%20the%20situation%20is%20entirely,the%20ownership%20and%20management%20of%20the%20land.

189 https://ym.fi/en/ce-marking

Innovations in wood product manufacturing and training/capacity

The **Aid Scheme for Growth and Development from Wood** under the Wood Building Programme aims to promote the use of wood in construction by granting support for various kinds of research and development projects. The measures under the aid scheme include the allocation of funding to selected themes within the sector, activating different stakeholders and encouraging new players. The projects to be supported should have a broad impact and boost growth in the sector. The maximum amount of funding to be granted in total is EUR 5 million.

The Ministry of Agriculture and Forestry has prepared the **Solutions to climate-smart land use**[190] research and innovation programme in cooperation with the research community and relevant stakeholders. The aim is to support decision-making by producing information that anticipates changes in the operating environment in how agriculture, forestry and other land use can be targeted in a more climate-smart manner, both in the short and long term. The programme will also produce information in support of the future climate change plan for the land use sector. The net impact set as the target to 2035 for the additional measures is 3 Mt CO2e. The new interdisciplinary research and innovation programme will considerably strengthen the research related to agriculture, forestry and other land use and produce science-based solutions for targeting climate actions.

Reclaimed wood and recycled materials

As an EU Member State Finland was committed to utilising 70% of the building and demolition waste by 2020. However, the present utilisation rate is still less than 60%. About 85% of the building and demolition waste is generated from repair projects and demolition of buildings and about 15% from new buildings. Three **guides on sustainable building** published by the Ministry of the Environment seek to boost the circular economy and climate action in the sector, to improve the quality of demolition projects and increase the utilisation of construction and demolition materials:

1. Demolition work – a guide for operators and contractors[191]
2. Pre-demolition Audit – A Guide for Authors[192]
3. Circular economy in public demolition projects – Procurement guide[193]

Finland's Bioeconomy Strategy[194] of 2022 aims to add value to wood but also encourage resource efficiency, and utilising side streams and circular economy operating models.

[190] https://mmm.fi/en/-/new-research-and-innovation-programme-creates-solutions-to-climate-smart-land-use
[191] https://julkaisut.valtioneuvosto.fi/handle/10024/161884
[192] https://julkaisut.valtioneuvosto.fi/handle/10024/161883
[193] https://julkaisut.valtioneuvosto.fi/handle/10024/161882
[194] https://www.bioeconomy.fi/facts-and-contacts/the-finnish-bioeconomy-strategy/

The **Materiaalitori - Materials Marketplace** is a service and meeting point for the producers and users of waste and sidestreams. The service is free of charge.

In 2020, the Ministry of the Environment and Rakli signed a **Sustainable Demolition Green Deal**, a voluntary agreement to promote material efficiency in demolition. The main goal is to increase the reuse and recycling of demolition materials by encouraging property owners/developers to prepare a demolition survey for entire building demolitions and extensive renovation projects. The Green Deal also encourages more efficient use of online nationwide exchange platforms, such as Materiaalitori, where materials can be found for use in the operations of other operators, and strengthen the knowledge base related to demolition materials and their utilization, develop tools, guidelines and data transfer to increase the reuse and recycling of demolition materials. The system will be connected to the Demolition Mapping, Material Market and Transfer registers.

The new **Construction Act** (751/2023), contains new provisions for mandatory reporting on construction materials and construction waste. The Act is further explored in the Building Code section below.

Green building certification

Public procurement

Finland adopted its **National Targets for Public Wood Building: Wood Building Action Plan 2016–2022** (of 2020)[195] to reduce GHG emissions from the construction and housing sectors. Targets are given for the share of wood in all new public construction and for the building types of the greatest building volumes. The target of wood construction in relation to all new public construction is 31% by 2022 and 45% by 2025. In 2019, the value of new construction by public developers was EUR 2.8 billion, which was 18% of the value of all new construction. For educational buildings, the target is 55% by 2022 and 65 by 2025. Other building types are identified as well such as residential flats.

The Ministry of the Environment published a **procurement guide on wood use in public construction**[196] in November 2022. The guide was drafted after consultations with experts from the wood products industry to designers and from construction companies to municipal decision-makers, to create a package that will serve all those involved in construction.

[195] https://api.hankeikkuna.fi/asiakirjat/c6a6a9dc-0592-494e-82cd-00ec8d20065e/3f544deb-ba53-4dab-a88f-b1718a136c3d/JULKAISU_20210427072629.pdf
[196] https://julkaisut.valtioneuvosto.fi/handle/10024/165313

The **Wood Building Programme**[197] includes an area of focus on promoting the use of wood in public buildings by providing tools for municipal actors, awareness raising on the benefits of wood in construction, including the carbon footprint, and of the health and safety aspects related to the use of wood. The national targets[198] for use of wood in public construction are that by 2025, buildings with a timber frame will have doubled from 2019 levels and will achieve a 45% market share of wood compared to only 15% in 2019.

Wood in Construction policy

The governments of Austria and Finland convene and support the European Wood Policy Platform "**woodPoP**,"[199] a **policy dialogue platform** bringing together all relevant actors to advance the sustainable use of wood. It develops wood-related policy solutions, measures and recommendations to strengthen wood-based circular bioeconomy.

The **Wood Building Programme** (Puurakentamisen ohjelma) (2016–2023) of the Ministry of the Environment set out the national targets for the use of wood in public construction. Targets have been set for the share of wood in all new public construction and for the types of buildings with the greatest construction volumes. The goals are 31% of the market share of wood by 2022 and 45% of the market share of wood by 2045.

Finland's **National Wood Construction Programme 2011-2015** sought to make Finnish wood construction an international brand by combining good architecture and design with environmentally conscious and energy-efficient building with intelligent building. Since 2016, there is an **advocate of wood construction** working in the Ministry of Environment.[200]

Municipalities have promoted wood, including Jyväskylä which contains an award-winning multi-story apartment buildings[201] and Vantaa,[202] and Helsinki. **Helsinki** has a **Wood in Construction Strategy**,[203] which promotes wood in construction and zones certain areas for wood construction. Wood construction will also play a large role in future infill construction in old residential areas. Helsinki has used town planning, land allocation and wood in building projects in the city to advance wood in construction. Wood was made an obligatory building material in Myllypuro, Kuninkaantammi and Honkasuo urban development project areas. In Honkasuo, the rights if the municipality to prefer wood was tested by the concrete industry,

[197] https://ym.fi/en/wood-in-public-construction
[198] https://api.hankeikkuna.fi/asiakirjat/c6a6a9dc-0592-494e-82cd-00ec8d20065e/3f544deb-ba53-4dab-a88f-b1718a136c3d/JULKAISU_20210427072629.pdf
[199] https://woodpop.eu
[200] https://puuinfo.fi/2016/12/05/advocate-of-wood-construction-in-the-ministry-of-the-environment/?lang=en
[201] https://www.designboom.com/architecture/oopeaa-puukuokka-housing-block-jyvaskyla-finland-11-06-2018/
[202] https://www.vantaa.fi/en/topical/news/vantaa-favours-wood-construction-city-was-awarded-pioneer-wood-construction
[203] https://www.hel.fi/en/urban-environment-and-traffic/urban-planning-and-construction/planning-and-building-goals/wood-construction

which filed a lawsuit. The Finnish Supreme Administrative Court confirmed in 2015 that the use of building materials can be regulated in a town plan.[204]

Helsinki has promoted the use of wood through its **housing and land use implementation plan**[205] of 2020, which is a goal identified in its Wood in Construction Plan. Wooden construction is also included in the City's **Re-thinking Urban Housing programme**. In 2020, one of the programme's publications was a report on a project that compared identical blocks of flats with either wooden or concrete structures.

Research papers published in 2022[206] and 2023[207] summarized selected literature on the role of municipalities in promoting wooden multistory residential construction. Finnish municipalities have a strong regulatory role: urban planning is governed by the Land Use and Building Act (1999), they control land zoning in their territories, they assign construction permits, provide site-related infrastructure, and are responsible for final construction inspections. Large cities own land in their jurisdictions (Helsinki owns 65% of its administrative zone, for example), and therefore can dictate what happens on those lands. Thus, their administrative and regulatory functions enable municipalities to act as gatekeepers of urban development and construction. One research paper in 2022[208] found that only 8% of municipal respondents to questionnaires paid attention to the promotion of wood construction, indicating energy efficiency and other topics have higher awareness among municipal staff.

Emission reduction targets for buildings

The Finnish Government is committed to reaching carbon neutrality in 2035 followed by carbon negativity. The **Climate Change Act** entered into force in 2022. The Act set emission reductions targets for 2030, 2040 and 2050 and laid down the target of carbon neutrality in 2035. Finland's obligation under EU law is to halve the effort sharing sector's greenhouse gas emissions (non-ETS) by 2030 (from 2005 levels) and to maintain the net sink of the land use sector. The target for period 2021-2025 is that the land use sector causes no net emissions (emissions are equal to removals).

A new **Energy and Climate Strategy**[209] is expected to be completed in the spring of 2025. The previous strategy, **Carbon Neutral Finland 2035 – national climate and energy strategy**[210] of 2022 focussed to a large degree on energy, but also included sections on wood not related to

[204] https://events.forum-holzbau.com/pdf/20_EBH2017_Kuisma.pdf
[205] https://www.hel.fi/static/kanslia/Julkaisut/Kotikaupunkina-Helsinki/2020/Implementation_Programme_on_Housing_and_Related_Land_Use.pdf
[206] https://www.tandfonline.com/doi/full/10.1080/09654313.2022.2116271#d1e675
[207] https://www.sciencedirect.com/science/article/pii/S1389934123000862#bb0505
[208] https://www.tandfonline.com/doi/full/10.1080/01446193.2022.2037145#d1e801
[209] https://tem.fi/en/energy-and-climate-strategy
[210] https://tem.fi/documents/1410877/2769658/Carbon+neutral+Finland+2035+–+national+climate+and+energy+strategy.pdf/7d9d4a71-81c7-c11f-ec7e-df3eee446e81/Carbon+neutral+Finland+2035+–+national+climate+and+energy+strategy.pdf?t=1715858224013

energy, such as low-carbon construction. Section 2.1 of the strategy covering emissions reductions and carbon sinks in the emissions trading sector affirmed that Finland will continue the implementation of a legislative roadmap for low-carbon construction based on life cycle assessment. The compatibility of the assessment of climate action in different areas of construction (renovation, new buildings and transport infrastructure) will be ensured. The coherence of climate action at the planning and building level will be ensured. Measures to promote wood construction will be continued. Some of the impacts of the policy will also extend to non-ETS sectors.

The **Roadmap to Low Carbon Construction** 2035,[211] published in late 2024, which updates the content of previous reports published in the Low-Carbon Construction Industry 2035 project implemented in 2020, and the current status and scenario calculation of the carbon footprint of the built environment, to reflect the latest available statistical information and the latest EU and Finnish regulations governing low-carbon construction, such as the EU's 55 readiness package.

Building codes

Finland's new **Construction Act**[212] entered into force on 1 January 2025. When it came into force, the section on construction in the Land Use and Building Act was repealed. The Construction Act mandates climate reports for most new constructions to track and limit their carbon footprint, and climate declarations made. It also replaces separate building and action permits with a single construction permit, which is a notable change.

Carbon footprint reporting follows Finland's national method[213] which is based on a whole-life cycle assessment (LCA) approach, using the European standard EN 15978, which considers emissions from material manufacturing, construction, operation, and end-of-life stages, typically calculated over a 50-year service life of the building. This method also includes reporting on both the building's carbon 'footprint' and 'handprint' to account for potential carbon sinks created by the building itself. A carbon hand print describes the wider climate benefits resulting from a building project, thus goes beyond LCA and includes long-term storage of biogenic carbon, using existing European Standard EN 16485.

The **National Building Code**[214] (Suomen rakentamismääräyskokoelma RakMK). sets the parameters for use of wood in building. There is a section on Strength and Stability of Structures:

[211] https://rt.fi/wp-content/uploads/2024/06/Loppuraportti-RT-vahahiilisyys-7.6.2024_FINAL.pdf
[212] https://finlex.fi/fi/laki/alkup/2023/20230751
[213] https://www.nordicsustainableconstruction.com/Media/637985265598595743/NCFC_2022_Limit%20values%20Finland.pdf
[214] https://ym.fi/en/the-national-building-code-of-finland

Timber Structures,[215] which details the requirements pursuant to standard SFS-EN 5978, such as the execution classes and tolerance classes. If the version of a reference has not been specified, the latest edition of the reference (with amendments) is applied, as per:

- SFS-EN 1990 Eurocode. Basis of structural design
- SFS-EN 1995-1-1 Eurocode 5: Design of timber structures. Part 1-1: General rules and rules for buildings
- SFS-EN 1995-1-2 Eurocode 5: Design of timber structures. Part 1-2: General. Structural fire de- sign
- SFS-EN 5978 Execution of timber structures. Rules for load-bearing structural members in buildings

In 1997, the revised fire code allowed for the construction of residential and office buildings with wooden frames and façades up to 4-story high. In 2011, further revisions to the fire code enabled the construction of wooden buildings ranging from 5–8-story in height. According to the size specifications outlined in the current Finnish fire regulations as of January 1, 2018 (Ministry of Environment Decree 848/2017), it is feasible to erect residential, office, hotel, and care center with timber frames and facades, extending up to 8-story. Additionally, buildings exceeding 8-story can be achieved with the implementation of a functional fire safety inspection.[216]

Insurance

Taxation and incentives

The Housing Finance and Development Centre of Finland[217] (ARA) offers grants for wooden constructing rental housing, but it is unclear how much is wood-focussed rather than 'sustainable and affordable.'

Finance and investment

The Aid Scheme for Growth and Development from Wood under the **Wood Building Programme** aims to promote the use of wood in construction by granting support for various kinds of research and development projects. The maximum amount of funding to be granted in total is EUR 5 million. The project portal[218] describes aid scheme support thus far.

[215] https://ym.fi/documents/1410903/35099218/Timber+structures,+instructions,+2016.pdf/39bd9389-8f0b-3ec0-7de2-6d45ea29c850/Timber+structures,+instructions,+2016.pdf?t=1680597108285
[216] https://www.researchgate.net/publication/381009744_Fire_Safety_Solutions_in_Finnish_Multi-story_Timber-Frame_Buildings
[217] https://www.ara.fi/en
[218] https://www.hankeportaali.fi

FRANCE

Sustainable forest management

The **Farming, forest and alimentation Framework Law**[219] No. 2014-1170 sets outs the main targets and policies for the national agriculture and forest policy. This law offers guarantees for agriculture and forestry sustainable management, including compensation for forestry cuts. The Act recognises the carbon sequestration function of forests as well as their contribution to climate change adaptation. It also highlights among the main responsibilities of the State within the Framework of the French Forest Law (which it amends, based on historical forest laws Forestry Ordinance of 1669, the Forest Code of 1827) to support adaptation of the forests to climate change.

The **National Forest and Wood Programme**[220] (PNFB) is enabled under the French Law on the Future of Agriculture, Food and Forestry (LAAAF). It defines priorities for forestry policy on publicly and privately owned woodland on both metropolitan and overseas French territory for a period of ten years. There are four major objectives: a) to increase the harvesting of wood in France while at the same time ensuring woodland renewal; b) take into consideration and balance the various competing needs of from the forests, such as recreation, preservation of biodiversity, jobs, and wood materials for building, heating and energy generation. A communications approach on forestry issues is rolled out through a series of Regional Forestry and Wood Programmes (PRFB); c) address climate change, both mitigation and adaptation, and considering climates impacts on forests and their biodiversity; d) establishing commercial outlets for products from French forests and adjusting forest management to match actual market needs. While France prizes its hardwood forests (oak, poplar, etc.) and is a large producer of sawn hardwood in Europe, the requirements for wood for construction derives more from softwood such as conifer, pine and spruce.

In the **Objectiv Forêt**[221] of 2023, France has set a target to renew at least 10% of French forests and plant a billion trees in 10 years. It responds to the challenges identified in the roadmap for adapting forests to climate change drawn up in 2020. Furthermore, the ambition set out in this document is in line with the current work taking place in parallel: the National Forest Wood Programme (PNFB), the National Biodiversity Strategy (SNB), the National Low Carbon Strategy (SNBC), the National Climate Change Adaptation Plan (PNACC), the Strategic Wood Sector Committee (CSF bois). The intervention programme covers more than a million hectares (excluding afforestation and usual management) and represents an investment of €8 to €10 billion that the owners will not be able to afford alone.

[219] https://climate-laws.org/documents/farming-forest-and-alimentation-framework-law-no-2014-1170_858b?id=farming-forest-and-alimentation-framework-law-no-2014-1170_deba
[220] https://agriculture.gouv.fr/le-programme-national-de-la-foret-et-du-bois-2016-2026
[221] https://www.vie-publique.fr/files/rapport/pdf/290533.pdf

The forest sink function of French forests has been halved since 2010, going from -58 Mt eq CO_2 to -30 Mt eq CO_2 due to the effects of climate change. These changes come from the slowdown in tree growth, increased fires, increases in the failure rate of plantations such as the degradation observed by the National Forest Inventory in 2022 of a 38% failure rate, and other factors. At the same time, France recognizes that wood is expected to contribute more to the transition to a low-carbon economy, through the production of renewable materials, and thus has developed programmes to support this. For the domestic construction timber market alone, the demand for products using industrial wood (panels) and lumber (structure, development products) could increase by 75% by 2050.[222]

Tenure clarity and security for forest owners/users

France has 17 million hectares of forests and a further 6.2 million hectares in the French overseas territories, of which 6 million hectares are located in French Guiana. 75% of the forests are private, 16% are communal and 9% are state forests, with hardwood accounting for 72% and softwood for 28% of forest stocks. Private forests that have management plans account for 18% and private forests without management plans account for 57%.[223] French public forests represent about 31% of the country's total land area, they are state-owned (state forests) or owned by communities (municipalities, departments, regions), and are managed by the ONF.

Timber tracking, legality and production standards

As a member of the EU, France will implement the EU **Construction Products Regulation** (CPR)[224] [225] which entered into force at the end of 2024. The regulation harmonises the EU rules for marketing construction products, facilitates their free movement in the single market, reduces administrative burdens and promotes the circular economy and technological development. Environmental Product Declarations (EPDs) are to be reported as of 2025.

In France, voluntary product certification is applied across the country. One third of metropolitan France's forests (5.8 million ha) are PEFC certified. Two thirds of France's annual wood production comes from PEFC-certified forests. About 90,000 hectares are certified to the Forest Stewardship Council in France.[226] The BOIS DE FRANCE label was launched in 2020 to verify origin and processing. It is viewed as complementary to PEFC and FSC.

[222] https://www.vie-publique.fr/files/rapport/pdf/290533.pdf

[223] https://inventaire-forestier.ign.fr/spip.php?rubrique84#:~:text=The%20majority%20of%20forests%20in,ownership%20categories%20varies%20by%20region.

[224] https://single-market-economy.ec.europa.eu/sectors/construction/construction-products-regulation-cpr/review_en

[225] https://www.europarl.europa.eu/doceo/document/TA-9-2024-0188_EN.html

[226] https://www.francebois2024.com/wp-content/uploads/Plaquette-Tracabilite-Net.pdf

Trade policies, restrictions on wood imports and avoiding leakage

In 2023, the **EU Regulation on Deforestation-free Products** (EUDR) (Regulation (EU) 2023/1115)[227] was passed, which includes wood and wood products, cattle, cocoa, coffee, oil palm, rubber and soy. France, as an EU member country, will assist EUDR implementation at the national level. A joint competent authority shall be designated in France consisting of the Ministry of Ecological Transition and Territorial Cohesion and the Ministry of Agriculture and Food Sovereignty. The organisation scheme and the bodies dedicated to controls will be clarified in the course of 2025.[228] France already had in place the **National Strategy to Combat Imported Deforestation**[229] (SNDI), part of France's Climate Plan of 2017, which aimed to end the import of non-sustainable agricultural or forest products contributing to deforestation by 2030.

The French wood sector does not met domestic demand, and the sector suffers from a chronic trade deficit of about €6 billion. This deficit is mainly driven by furniture (wooden furniture) and paper-cardboard items.[230]

Innovations in wood product manufacturing and training/capacity

In 2017, a collaboration between the French Government and Adivbois launched the competition 'Immeubles a vivre bois', which identified 13 sites on which to build 48 proof of concept timber buildings. In 2022, one of the scheme's first projects, Wod'Art, ZAC de la Cartoucherie, was completed in Toulouse as a mixed-use eco-district was built on a former industrial site with a total of 3,100 m^2 apartments, 6,000 m^2 of commercial space and public facilities for schools, sports and leisure. The completed 'Wood'Art' complex, an eleven-story hotel tower and two residential buildings, was also part of the national competition in France. Timber accounted for 75% of the structure's total building material.[231]

The **France Bois 2024**[232] project was established to showcase the wood industry and carry out with wood construction projects for the Paris 2024 Olympic and Paralympic Games. All buildings under 28 meters in heights were constructed using timber. The athlete's village constructions use a volume of 17.000m3 of wood, including 14.000 m3 of structural wood and 55% of wood from France in total (surpassing the initial target of 30%). 100% is certified wood[233].

[227] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1115&qid=1687867231461
[228] https://www.deforestationimportee.ecologie.gouv.fr/en/the-european-deforestation-free-regulation/article/the-european-deforestation-free-regulation
[229] https://www.deforestationimportee.ecologie.gouv.fr/IMG/pdf/nsid_executive_summary.pdf
[230] https://www.entreprises.gouv.fr/secteurs-dactivite/industrie/les-comites-strategiques-de-filiere/la-filiere-bois
[231] https://www.urbanisme-puca.gouv.fr/IMG/pdf/dp_vivre_bois_12-9.pdf
[232] https://www.francebois2024.com/presentation/
[233] https://internationalforestindustries.com/2020/02/14/french-government-require-50-timber-new-public-buildings-2022

The **Strategic Contract for the Wood Industry 2023 – 2026**[234] is the third industry renewal plan which commits nearly €2 billion in new investments by French wood processing companies to better meet demand and promote wood from French forests, with the support of France 2030. Five ministers responsible for Agriculture, Ecological Transition, Energy Transition, Industry and Housing signed the agreement. The major objectives are: a) equipping the wood industry with all the tools for competitiveness at a time when the use of wood is popular for all uses, due to its renewable, carbon-storing, recyclable and warm nature for the living environment; b) developing attractiveness for new employees (worked specifically with Pôle Emploi) and coaching managers (continuation of the Wood skills accelerator system with BpiFrance); c) adapting the forest to tomorrow's climate; d) based on the understanding of material flows in the sector, comparing the prospects for availability of wood with the different demands, using the strengths of each link in the processing system to optimize the carbon sink (in the forest, in wood products) and the creation of value in the forest-wood sector; e) strengthened intra-sector cooperation to better share analysis and respond to the many challenges and opportunities for economic, ecological and societal transitions affecting the scope of forests and wood. Of note is the high-level government support: the Wood Industry Strategic Committee developed the plan, and it is one of the Strategic Sector Committees set up to promote productive recovery. Strategic Sector Committees report to the National Industry Council, which is a tool of France's industrial strategy, and are chaired by the Prime Minister.

Reclaimed wood and recycled materials

France's **Anti-waste and Circular Economy Law**[235] of 2020 includes measures to address construction waste with an Extended Producer Responsibility (EPR) scheme. France's construction sector generates 42 million tonnes of waste annually and accounted for 26% of the country's CO_2 emissions (or 115 $MtCO_2e$) in 2016. These construction materials are sometimes thrown into illegal dump sites and pollute the environment, costing municipalities and taxpayers millions of Euro's. Thus, to promote construction material reuse, an EPR scheme on building materials was operational from 2022, making manufacturers of construction products responsible for the waste generated. This built on the **Roadmap for the Circular Economy**.[236]

The ReUse Bois[237] seeks to define methods to ensure the technical reliability of wooden structures and parts for reuse because of the absence of standards or regulatory requirements for the reuse of wood. FCBA and FPInnovations completed the report in 2020.

[234] https://fibois-france.fr/app/uploads/2023/10/contrat-strategique-de-filiere-bois.pdf
[235] https://emf.thirdlight.com/file/24/kLSzgopkL.2CJxQkLb3XkLQlS7_/Case%20Studies%20-%20French%20Anti%20Waste%20Law.pdf
[236] https://www.ecologie.gouv.fr/sites/default/files/documents/FREC%20anglais.pdf
[237] https://www.ecologie.gouv.fr/sites/default/files/documents/Rapport%20REUSE%20BOIS-VF.pdf

Green building certification

The Haute Qualité Environnementale,[238] Building Research Establishment Environmental Assessment Method (BREEAM) and Leadership in Energy and Environmental Design (LEED) are commonly used. These are not meeting the requirements of the decree of 4 August 2021 on the energy and environmental performance requirements of building construction in metropolitan France and the calculation method provided for in Article R. 172-6 of the Construction and Housing Code, thus other approaches are being developed (see below).

The state label **Bio-based building**[239] was created in 2012 to enhance the use of bio-based materials in new construction, based on the order from Article D. 171-6 of the Construction and Housing Code, and thus defining the requirements and procedures for awarding the "bio-based building" label. It was updated in July 2024. To achieve the label, entities must demonstrate compliance with a minimum quantity per unit of area of incorporation of bio-based construction products into the building throughout its life, expressed in quantities of biogenic carbon stored per square meter, and mix requirements relating to the function of the bio-based construction products implemented. The label has 3 levels of requirement depending on the amount of biogenic carbon stored, with the 3rd level being the highest, with the implementation of bio-based construction products fulfilling at least three different functions including insulation. The 2024 label measures the biogenic carbon stored in the building based on the RE2020 StockC indicator.

Low carbon buildings labels - **Batiments Bas Carbone (BBCA)**[240] and Low Carbon Buildings Initiative (**LCBI)** [241]were launched respectively in 2016 and 2024. The Low Carbon Building Initiative (LCBI) is established as a voluntary certification to address the lack of a unified European methodology for assessing and comparing the carbon footprints of buildings. Recognising this gap, LCBI developed a comprehensive life-cycle assessment methodology with defined limit values to measure carbon emissions across all phases of a building. By acting as a common language, LCBI simplifies the quantification, comparison, and benchmarking of buildings' carbon footprints, ensuring greater transparency and consistency across the sector. The harmonisation of carbon assessment methods sends a strong market signal, encouraging real estate stakeholders to adopt sustainable practices and unlocking greater private sector investment in low-carbon buildings (Buildings Decarbonization LCA Approach OECD 2024, page 50).

The State **low carbon label,** decret 2018-1048[242], aims to facilitate financing low carbon projects by certifying high quality GHG emission offsets. The **methodology for bio-based buildings** was

[238] https://www.hqegbc.org/qui-sommes-nous-alliance-hqe-gbc/la-certification-hqe/
[239] https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000049880757
[240] https://www.batimentbascarbone.org/label-bbca/
[241] https://www.lowcarbonbuilding.com/la-lcbi-certifie-le-bas-carbone-a-lechelle-europeenne/
[242] https://label-bas-carbone.ecologie.gouv.fr/reglementation

approved in 2023, and concerns new building projects over than 500 m² in France, and integrating bio-based materials. Le building must be BBCA certified or certified under a label approved by the state. Only wood from sustainable managed forest are taking into account. The methodology measures le biogenic carbon stored in the building above the market average based on RE2020 Stock C indicator. A discount of 10% is added.

Public procurement

Public procurement is 10% of French GDP, so the government of France views procurement as a strategic lever for reducing the impact of French imports on forests.[243]

The **Policy on Public Procurement of Timber and Wood Products** of 2004, amended in 2011.[244] Requires a product or chain of custody certificate, FLEGT Licences, evidence of a forest management plan, ecolabels, self declaration of compliance on the part of industry actors, customs documents to qualify legal and/or sustainable products. See above on EUDR which will affect wood import restrictions.

The Lab' 2051[245] is a work collective led by the Ministry of Ecological Transition. It follows the EcoCité Lab and the Sustainable Cities Lab. Several priority work themes have been identified, and the one for wood construction was undertaken and completed. The objective of the Lab2051-Wood group was to identify the needs of project owners (mainly public) in order to grow support for wood construction. This work began in early 2020 and a report[246] was completed in 2022 identifying the main obstacles to the development of wood construction and development of a series of recommendations to accelerate wood construction. Partners in Lab2051-Wood included: Cities of of Strasbourg, Bordeaux Métropole, Clermont Auvergne Métropole, Grenoble-Alpes Métropole, COBAN (Arcachon North Basin Urban Community) represented by BA2E (Arcachon Val de l'Eyre Basin development agency); and the ederations and technical organizations included Fibois Ile-de-France, FCBA (Forêt Cellulose Bois-construction Ameublement), ADIVBois and others.

The use of **bio-based construction materials in public buildings** is encouraged by Article L228-4 of the **Environmental Code**,[247] which states, "Public procurement takes into account in

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[243] https://www.deforestationimportee.ecologie.gouv.fr/en/stackeholder-engagement/article/guide-to-imported-zero-deforestation-public-procurement#:~:text=Public%20procurement%20represents%2010%25%20of,of%20French%20imports%20on%20forests.

[244] https://www.deforestationimportee.ecologie.gouv.fr/produits-concernes/article/bois-et-produits-derives#

[245] https://www.ecologie.gouv.fr/politiques-publiques/lab2051-incubateur-projets-urbains-innovants

[246] https://www.ecologie.gouv.fr/sites/default/files/documents/Lab2051_Bois_Incubation.pdf

[247] https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000043975115#:~:text=Version%20en%20vigueur%20depuis%20le%2012%20mars%202023,-Modifié%20par%20LOI&text=Dans%20le%20domaine%20de%20la,ou%20issus%20des%20ressources%20renouvelables.

particular the environmental performance of products, in particular their bio-based character. In the field of building construction or renovation, it takes into account the requirements of combating greenhouse gas emissions and carbon storage and ensures the use of materials from renewable resources". Also, "As of January 1, 2030, the use of bio-based or low-carbon materials occurs in at least 25% of heavy renovations and public construction." There has been debate over whether wood is included. The practical guide[248] for public buyers to facilitate the consideration of bio-based materials by the Directorate-General for Planning, Housing and Nature (DGALN) excludes timber. The issue of timber (wood in structure, exterior and interior facings, interior and exterior carpentry) in the public contract will be dealt with at a later date.[249]

Article L151-28 of the Urban Planning Code[250] allows for an exceeding of the rules and increase in the buildable volume of up to 30%, for constructions showing energy or environmental exemplarity or which integrate renewable energy production processes. This has been interpreted as including wood and bio-sourced materials in construction as a means to achieve environmental exemplarity.[251]

Wood in Construction policy

The **Wood-Biosourced Pact**,[252] developed by Fibois Île-de-France in a co-construction approach with 59 signatories, aims to accelerate the use of wood in construction in Île-de-France, which includes Paris and surroundings. Fibois Île-de-France is financed by the State (FNADT, DRIAAF, DRIEAT, ADEME Île-de-France), the Île-de-France Region, the Métropole du Grand Paris as well as by the national professional associations of the forest-wood sector France Bois Forêt. Fibois Île-de-France belongs to the Fibois France network, which brings together the twelve regional professional associations of forest and wood.
The signatories commit their production in Île-de-France for 4 years from the signing of the pact. The signatories undertake to make a part of their production in wood and bio-based materials: Gold Level: 40% of Bio-based Wood Floor Surface: Bronze level: 10% of biosouces wood floor area. The signatories will imperatively use wood from sustainably managed forests (100% PEFC, FSC or equivalent) and will prioritize the use of wood produced in France, up to a minimum of 30%. This is also a means to deliver on the use of bio-sourced materials in construction in public procurement, by the Ministry of Ecological Transition.

Bordeaux's city planning and development project for the old town helped lead to Hyperion, the first residential tower made of wood in France. The 17 floor tower is 57 meters high, consisting of 98 housing units circling a central core made of concrete. The concrete core and first three levels is complemented by a wooden structure of beams and poles, with hard-wood

[248] https://www.ecologie.gouv.fr/sites/default/files/documents/Guide_PLUi_et_construction_bois_biosources.pdf
[249] https://www.ecologie.gouv.fr/politiques-publiques/materiaux-construction-biosources-geosources
[250] https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000047303522
[251] https://www.ecologie.gouv.fr/sites/default/files/documents/Guide_PLUi_et_construction_bois_biosources.pdf
[252] http://www.fibois-idf.fr/le-pacte-bois-biosources

floors and partitions made of cross laminated timber. A lower adjacent building has 55 units of social housing and 23 properties.[253]

Emission reduction targets for buildings

France's Nationally Determined Contribution to the Paris Climate Agreement affirmed the EU-wide commitment to a legally binding target of a domestic reduction of net GHG emissions by at least 55% compared to 1990 by 2030.[254] The 2019 Energy and Climate Law further refined the target to a 50% cut by 2030 and to completely eliminate GHG emissions by 2050.[255] In 2020 France's **National Low Carbon Strategy**[256] (Stratégie Nationale Bas-Carbone) provides guidelines for implementing the transition to a low-carbon economy in all sectors. The building sector is expected to achieve GHG emission reduction targets of 49% reduced compared to 2015 levels by 2030, and complete decarbonisation by 2050. Within the construction and buildings sector, energy is the major source of emissions. Emissions from construction are expected to be reduced by around 7 Mt CO_2/year nationwide for detached homes and apartment buildings by 2031. These targets were already enabled by activities implemented under Law No. 2018-1021 of November 23, 2018 on the evolution of housing, development and digital technology[257] (ELAN) included a revision of the regulation on new buildings in 2020.

France's **Environmental Regulation 2020** (Réglementation environnementale RE2020)[258] [259]are energy and environmental regulations for all new construction. The law took effect in 2022, and becomes increasingly stringent in 2025, 2028 and 2031. The regulations covers three main areas: a) continue to improve the energy performance of new buildings; b) reduce the carbon impact of buildings by taking into account all the emissions of the building during its life cycle, from its construction phase to its end of life; c) better climate adaptation of buildings to future conditions (heat waves, periods of extreme cold) for increased living comfort for its occupants. The regulation imposes thresholds on the carbon footprint of buildings and a method for calculating the carbon footprint.[260] LCA calculation result is required at the completion stage of construction works but the project owner must be able to prove compliance with the threshold value before the start of the works. RE2020 includes a simplified dynamic LCA approach to calculate the regulatory impact on climate change indicator, which gives more weight to early emissions compared to late emissions. This allows to take into consideration the benefit of carbon-storing materials, therefore encouraging the use of bio-based products.

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[253] https://archello.com/project/hyperion-the-58-m-high-wooden-living-tower

[254] https://ndcpartnership.org/country/fra

[255] https://www.statistiques.developpement-durable.gouv.fr/edition-numerique/chiffres-cles-du-climat-2023/en/19-french-policies-to-tackle-climate#:~:text=France%20is%20committed%20to%20reducing,of%20carbon%20neutrality%20by%202050.

[256] https://www.ecologie.gouv.fr/politiques-publiques/strategie-nationale-bas-carbone-snbc

[257] https://www.ecologie.gouv.fr/politiques-publiques/loi-portant-evolution-du-logement-lamenagement-du-numerique-elan

[258] https://www.ecologie.gouv.fr/sites/default/files/documents/guide_re2020_version_janvier_2024.pdf

[259] https://www.legifrance.gouv.fr/jorf/id/JORFSCTA000043877231

[260] https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000043936431

Regarding construction-related emissions (scope 3), the threshold drops from 640 kg CO_2/m²/year in 2022 to 530 in 2025, 475 in 2028 and 415 in 2031 for single-family homes. For apartment buildings, the cap drops from 740 kg CO_2/m²/year in 2022 to 650 in 2025, 580 in 2028 and 490 in 2031. This is a 34% reduction compared to current levels.

[The French forest and wood construction industry has proposed its response to RE2020 in the **Wood Construction Ambition Plan 2030**[261] (Plan Ambition Bois Construction 2030) identifying 10 commitments the sector can make in the areas of training, employment, investment, research and development, development of the French wood supply chain, sustainable forest management, material cost reduction and the recycling of timber.]

The **Ecological Planning**[262] has been undertaken to map the transition to reduce France's GHG emissions by more than half, reduce pressures on biodiversity and better manage essential resources. More than fifty levers have been identified and are accompanied by concrete actions in the dimensions of: better housing, better food, better movement, better consumption, better production and better preserve and enhancement of ecosystems. The construction/building sector is a key area, and a major initiative to lower emissions is the the 'MaPrimeRenov' scheme for energy renovations on homes.

Related to France's policy commitment to become Europe's first major decarbonized economy achieving carbon neutrality by 2050, France Relance is a €100 billion recovery plan, rolled out by the government in three areas: ecological transition, competitiveness and cohesion. See below for more investment details.

Building codes

Article R. 171-15[263] of the Construction and Housing Code, covers the environmental performance of buildings, and includes a quantity of bio-based material. The 2020 Environmental Regulations (RE2020) gave preference to bio-based materials, and presumably the construction and housing code was then amended to include this.

The article details the information used for the calculation of the environmental performance of buildings within the meaning of Article L. 171-1, drawing up an environmental declaration that should include the following information (among others such as energy which are not related to materials): A) the values, at each stage of the life cycle as well as for all these stages, of indicators describing environmental impacts, in particular on climate change; the use of resources; the categories of waste, including the nature and quantities of waste produced; outgoing flows. B) Information on materials from incorporated renewable resources, translated into an indicator of carbon storage from the atmosphere and expressed through an

[261] http://www.fibois-idf.fr/sites/default/files/inline-files/PLAN%20AMBITION%20BOIS%20CONSTRUCTION%202030_val.pdf
[262] https://www.info.gouv.fr/upload/media/content/0001/06/5c69b301c13d5d591078031ffbde23156227028c.pdf
[263] https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000044509026

indicator of the amount of carbon from the atmosphere stored in the construction or decoration product. Renewable resources come from plant or animal species with their own reproductive capacity and whose exploitation is such that the extraction exercised by human activity does not exceed their natural capacities of renewal; C) The use of materials from renewable resources incorporated into the product, expressed through an indicator of the amount of carbon from the atmosphere stored in the equipment.

Insurance

Taxation and incentives

France's building stock is large enough to meet the requirements of its population, so new buildings are not necessary, but renovation and renewal is. The government prioritizes the renovation of existing buildings[264] using innovating solutions rather than the construction of new buildings. Property owners pay VAT at 20% for new building work, 10% for renovations, and just 5.5% for energy-efficient renovations.

Finance and investment

The **Objectiv Forêt**[265] of 2023, France has set a target to renew at least 10% of French forests and plant a billion trees in 10 years. The "France Nation Verte" system provides financial assistance to forest owners to renew, enrich, improve their forests and develop the resilience of forest ecosystems, in the context of climate change. There is a subcomponent focussing on urban forests, as 10% of metropolitan forests could be the subject of renewal or enrichment actions in the next ten years. The intervention programme covers more than a million hectares (excluding afforestation and usual management) and represents an investment of €8 to €10 billion that the owners will not be able to afford alone. The government of France is looking into how to raise investment. Other sources of public funding are hoped to be mobilised by local authorities, in particular the regions that manage FEADR credits. Public contributions and all FEADR forestry measures combined, were around €60 million per year for the 2022 programming period and a similar amount for the period 2023-2027. These credits make it possible to finance operations adapted to regional contexts, part of which covers the objectives of adaptation or increased production of timber, but they most often target aid for forestry and DFCI infrastructure and are not sufficient to meet the overall challenges and the level of previous estimates. Private funding can also be mobilised for reconstitution, adaptation or afforestation actions. There is a recommendation that the funding needed to address the

[264] https://commission.europa.eu/document/download/ab4e488b-2ae9-477f-b509-bbc194154a30_en?filename=FRANCE%20–%20FINAL%20UPDATED%20NECP%202021-2030%20%28English%29.pdf#page=122

[265] https://www.vie-publique.fr/files/rapport/pdf/290533.pdf

challenge of adaptation and renewal must also encompass all the links in the supply chain, in a systemic approach.

In early 2024, the European Commission[266] approved a €720 million French scheme to support the forestry sector, and the objectives of the EU's Common Agricultural Policy by strengthening forest environmental protection. This supports the French government's plans to support operators in the forestry sector in the prevention and restoration of damage to forests. The funding cover damage to forests resulting from forest fires, natural disasters, adverse climatic events, plant pests, infestations, catastrophic events and climate change-related events, in the period between 2023 and 2029. It is part of the **forestry renewal plan** of the **France 2030 investment plan**. Direct grants are to be made to companies active in the forestry sector to implement prevention and restoration measures, and the funding covers up to 100% of the eligible costs. It will run until 2029.

In 2020, the French government allocated €500 million to forestry as part of the France 2030 investment plan. Another €200 million were made available by the France Relance reconstruction plan, €150 million of which are earmarked for the reforestation of 45,000 hectares of land (50 million trees) and €50 million for the modernization of the wood processing industry. In July, the wood and pulp industry was granted another €100 million loan.

A call for projects "Efficient Industrialization of Wood Products" (IPPB) was opened for in mainland France and overseas (notably in French Guiana), for a total investment amount of more than €288.1 million, corresponding to €76.1 million in aid granted. This aid will ultimately enable the mobilization of an additional 482,000 m^3 of timber quality wood every year, prioritizing long-life uses and optimizing processing, such as through creation of engineered wood production units. These projects will also improve working conditions and staff qualification levels.

[266] https://ec.europa.eu/commission/presscorner/detail/en/ip_24_847

GERMANY

Sustainable forest management

The National Forest Strategy 2020[267] defines the major principles guiding forest management nationally, based on consultation with a range of stakeholders and interests. The areas of action include climate protection and adaptation; property, work and income (value-addition); raw materials, use and efficiency; biodiversity and forest conservation; silviculture; recreation, health and tourism; and research, education and awareness-raising.

The **German Climate Action Plan 2050**[268] states, "The cascade use of wood should have priority whenever possible and appropriate. It should also be kept in mind that wood is a renewable resource that can be used only within the limits of sustainable forest management, and care should to be taken to ensure that wood imports were produced using forestry practices that are legal and as sustainable as possible."

The fourth **Federal Forest Inventory**[269] of 2022 identifies that although timber stocking of all species is roughly the same as the 2012 inventory, the stocking of spruce has declined considerably, due to calamities, drought and bark beetle. The climate impacts on softwoods is of concern for forest-positive buildings, as more than 85% of wood products used in construction derive from softwood. The severe drought of 2018 – 2021 had significant impacts, indicating that the consequences of climate change must further be understood to assess resilience of forests in order to meet multiple demands.

There are binding laws that describe sustainability measures, protection of areas for conservation, protection of environmental values and best practice in harvesting. These Acts, laws and decrees exist at a national level and at the federal state level. The main Acts are: Bundeswaldgesetz (National Forest Act), Bundesnaturschutzgesetz (Federal Nature Conservation Act) and corresponding forest and nature conservation Acts at federal state level.

The **National Forest Act** and the **Forest Acts of federal states** require forest enterprises, both public and private to undertake forest management planning. Strategic planning occurs every ten years. Based on this, every year a detailed plan for the enterprise is prepared. In this plan, harvesting measures and volumes are calculated based on sustainable utilization. The planning is checked and monitored by the relevant authority (which is different in the federal states due to varying administrative structures). Private forests of a minimum size are required to undertake planning activities as well (the particular size is stipulated by each federal state,

[267] https://www.bmel.de/EN/topics/forests/forests-in-germany/forest-strategy-2020.html
[268] https://www.bmuv.de/fileadmin/Daten_BMU/Pools/Broschueren/klimaschutzplan_2050_en_bf.pdf
[269] https://www.bundeswaldinventur.de/vierte-bundeswaldinventur-2022/zusammenfassung

with the minimum size at about 30 ha). For small private forests, this type of planning is recommended but not mandatory. Based on this planning, forest authorities have measures to control and monitor forest utilization. These authorities vary from federal state to federal state.[270]

The **Charter for Wood 2.0**[271] aims to promote the use of wood from sustainable forestry as a positive contribution to climate protection, resource efficiency and value creation. The Federal Ministry of Food and Agriculture (BMEL), as coordinator, has identified six priority fields of action. Numerous experts from administration, science and industry contribute to the Charter, working within six working groups and a central steering group. "Forest and wood as resources", "the forestry & wood cluster" and "forest and wood in society" are among the central fields of action. Findings of the Charter process feed into research, development and knowledge transfer.

Tenure clarity and security for forest owners/users

The National Forest Strategy 2020 confirms support for **clear land tenure**, though tenure is administered at the state and municipality level. In Germany, the legal owner of an area has the right to manage the area (due to existing laws) or to commit the associated rights. This is regulated in German Constitution (Grundgesetz) and Civil Code (Bürgerliches Gesetzbuch). If the owner is managing the forest, no additional harvesting permits are required. Tenure rights are determined through the German Constitution and Civil Code. Ownership of estates is documented in the Land Book (Grundbuch). The legal owner of an estate also has the management rights to the estate, as long as no other laws are violated. To make management more efficient, some small private forest owners are incorporated in forest enterprises associations (Forstbetriebsgemeinschaften), and all owners have to agree to the management and harvesting plans of the association. About half of Germany's forest is in private hands, 29% belong to the states, 20% are owned by corporations, and 3% belongs to the federal government.

Timber tracking, legality and production standards

Germany is implementing the EU Regulation on Deforestation-free Products (EUDR) (Regulation (EU) 2023/1115) which entered into force in 2023 and ensures that the EU-consumption of wood , cattle, cocoa, coffee, oil palm, rubber and soy and certain products made from them does not contribute to global deforestation and forest degradation. The current application date for the EUDR is December 2025. Germany also implements the EU Forest Law Enforcement, Governance and Trade (FLEGT) action plan of 2003 which seeks to support forest governance in countries that are sources of illegal timber, and support measures aiming to improve sustainability along the supply chain of timber being traded to the EU to ensure legality.

[270] https://www.preferredbynature.org/sites/default/files/library/2017-08/NEPCon-TIMBER-Germany-Risk-Assessment-EN-V1.pdf
[271] https://www.charta-fuer-holz.de

Germany implements the 2011 Law against the trade in illegally logged timber (Timber Trade Security Act - HolzSiG).[272] The HolzSiG translates the EU Timber Regulation and the EU FLEGT Action Plan into national law.

Trade policies, restrictions on wood imports and avoiding leakage

Timber trading within Germany is regulated as described in the Commercial Code (Handelsgesetzbuch (HGB)), which is also binding for forestry companies (HGB §§2, 3), the "Tegernsee customs"[273] and the Framework agreement for the Trade in Raw Timber in Germany (RVR).

Innovations in wood product manufacturing and training/capacity

[Note this section does not include all in existence]

The Federal Ministry of Food and Agriculture (BMEL) supports various funding programmes, such as the **Sustainable Renewable Resources (FPNR)** program[274] for research, development and demonstration projects.

Given that > 85% of wood products used in construction derive from softwood, and the recent climate impacts on softwood timber production, there is a need for more innovative research and development to enable greater use of hardwood in the construction sector. Various public institutes pursue this, for instance the Technikum Laubholz (TLH)[275] is an independent, non-university research institution, newly established in spring 2020 at the initiative of the state of Baden-Württemberg and under the leadership of the Ministry of Food, Rural Affairs, and Consumer Protection. The mission of TLH is to accelerate the development of innovative and high-quality applications for deciduous wood and to establish Baden-Württemberg as an international leader in the use of deciduous wood-based raw materials.

The **Bauhaus Earth**[276] initiative is a key source of scientific expertise and practical solutions for knowledge transfer and communication formats, consulting services and educational offerings. The Bauhaus Earth is to play a moderating role between the departments at the federal and state level, cities, associations and various scientific institutions. Bauhaus Earth is funded by BMUV, and in future also by the BMWSB, among others.

An **online catalog of wood and wood-based materials**, building materials, components and component connections for timber construction is found on dataholz.eu.[277] It has evolved since

[272] https://www.gesetze-im-internet.de/holzsig/HolzSiG.pdf
[273] https://gdholz.de/wp-content/uploads/2024/07/2023-07-04_gebraeuche_im_handel_mit_holz-Version-2023.pdf
[274] https://baustoffe.fnr.de
[275] https://technikumlaubholz.de/en/
[276] https://www.bauhauserde.org
[277] https://www.dataholz.eu/en/index.htm

2000, and now involving cooperation with the Technical University of Munich, among others. Another information platform is the 'Informationsdienst Holz'.[278]

Reclaimed wood and recycled materials

The **German Climate Action Plan 2050** notes as an area of future focus, "Material and business cycles should be closed by optimising the practice of recycling recoverables from production processes or using waste wood from many different applications (product design, used wood collection, "urban mining," and so on). This can be promoted by appropriate incentives and funding for research and development, doing feasibility studies and conducting demonstration projects."

The **Charter for Wood 2.0/Timber Construction Initiative**[279] of 2023 contains an action area on supporting circular and resource-efficient construction with wood. Proposed solutions and topics for further research include: a) further development of technologies, infrastructures and products for improved recycling in timber construction (e.g. urban mining, sorting, decontamination and processing of used wood from building demolition, provided that decontamination is the safer and more resource-efficient alternative to energy recovery); b) expansion of the potential for dismantling and recycling of buildings made of timber and timber hybrid construction; c) collection of data on the volume and availability of used wood in and from the building stock; d) exploitation of potentials for reducing the use of materials in timber construction; and e) modular construction with wood and other renewable raw materials. This is an ongoing process implemented by the federal government with other stakeholders.

Green building certification

The **Charter for Wood 2.0/Timber Construction Initiative** of 2023 proposes that the Federal Government implement flagship projects and further develop the Sustainable Building Assessment System (BNB) and the Sustainable Building Quality Seal (QNG) to develop more detailed evaluation of the building-related share of greenhouse gas potential. In 2023, a funding program began—the "Climate-Friendly New Building" (KFN) of the Federal Ministry for Housing, Building and Urban Development—which included the life cycle of a building and refers to the accounting rules of the Sustainable Building Quality Seal. There are questions[280] regarding the life-cycle assessment accounting rules, so these may be amended in the future.

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[278] https://informationsdienst-holz.de/

[279] https://www.bmwsb.bund.de/SharedDocs/downloads/Webs/BMWSB/DE/veroeffentlichungen/bauen/holzbauinitiative.html

[280] https://www.charta-fuer-holz.de/fileadmin/charta-fuer-holz/dateien/aktivitaeten/2023.07.24_CfH_AG_1_BmH_Empfehlung_Lebenszyklusanalyse.pdf

Public procurement

The **Joint Decree on the Procurement of Wood Products**[281] of 2011 stipulates that wood products procured by the federal administration come from legal and sustainable forest management. The proof must be provided by the bidder by presenting a certificate of FSC, PEFC, or a comparable certificate or by individual proofs. Comparable certificates or individual certificates are recognized if the bidder proves that the FSC or PEFC criteria applicable to the respective country of origin are met. The Decree is accompanied by a Guide[282] that details criteria and procedures for proof of sustainability.

Wood in Construction policy

The **Charter for Wood 2.0** also includes the fields of actions "using wood in urban and rural construction", "new potential for wood in the bioeconomy and "material and energy efficiency". Sustainable building with wood, as well as conflicting goals around wood, the wood-based circular bioeconomy are currently of particular relevance within the Charter process. A regularly published report on key figures provides a comprehensive overview of the forest & wood cluster[283]. The Charter is operationally supported by the Agency for Renewable Resources (FNR) and together with FNR organises events in the context of building with wood, including the Charter for Wood 2.0 in dialogue conference in 2023[284], while also publishing a range of relevant publications[285].

In 2023, Germany adopted a **Timber Construction Initiative**[286] under the Federal Ministry of Housing, Urban Development and Building (BMWSB) and the Federal Ministry of Food and Agriculture (BMEL). This federal government strategy is intended to strengthen the use of the sustainable raw material wood in the construction sector and ensure more climate protection, resource efficiency and faster construction. It contains eight fields of action:

1. The federal government as a role model and pioneer in climate- and resource-efficient construction
2. Strengthening research, innovation, model and demonstration projects
3. Expansion of education, information, advice, knowledge transfer and securing skilled workers

[281] https://www.verwaltungsvorschriften-im-internet.de/bsvwvbund_22122010_NII4421040.htm
[282] https://www.verwaltungsvorschriften-im-internet.de/bsvwvbund_06102017_534625050005.htm
[283] https://www.charta-fuer-holz.de/fileadmin/charta-fuer-holz/dateien/service/mediathek/FNR_Charta-Kennzahlenbericht_2022_23_bf.pdf
[284] https://www.charta-fuer-holz.de/charta-aktivitaeten/charta-im-dialog-2024/rueckblick/rueckblick-detail/charta-fuer-holz-20-im-dialog-zur-holzbauinitiative-der-bundesregierung-klimagerechtes-bauen-im-fokus-1
[285] https://www.charta-fuer-holz.de/charta-service/mediathek
[286] https://www.bmwsb.bund.de/SharedDocs/downloads/Webs/BMWSB/DE/veroeffentlichungen/bauen/holzbauinitiative.html

4. Creating incentives for climate-friendly construction with wood, other renewable raw materials and other sustainable construction methods
5. Supporting circular and resource-efficient construction
6. Ensuring sustainable raw material supplies and value chains
7. Further development of legal frameworks, regulations and decision-making in terms of climate relevance and on the basis of cross-sectoral greenhouse gas accounting
8. Data collection, storage and monitoring in the field of construction and housing, in particular for evaluation of climate-relevant effects

The **Timber Construction Initiative** notes that its intent is to align with: "the implementation of the goals of the Climate Protection Plan 2050, the Climate Protection Program 2030, the German Sustainability Strategy (2021), the German Resource Efficiency Program - Progress III (2020), the National Bioeconomy Strategy (2020), the National Strategy on Biological Diversity and National Biomass Strategy (NABIS) agreed in the coalition agreement, the National Circular Economy Strategy and the Alliance for Affordable Housing. A challenge in their implementation will involve balancing compliance with the goals of biodiversity conservation and natural climate protection with the requirements of sustainable raw material supply and provision."

At the state level, **Baden-Württemberg's timber construction offensive** (Holzbau-Offensive), launched in 2018, is an inter-ministerial project with six overarching objectives of state policy with a comprehensive package of measures: a) Protect the climate; b) promote innovation; c) be a role model; d) create living space; e) strengthen rural areas; f) train tomorrow's experts. Promotion of timber construction is aligned with the integrated energy and climate protection concept (IEKK) of the state, with the programs for the digitization of society and the construction industry, and seeks to nurture an "ecosystem" for climate-friendly timber construction.

Emission reduction targets for buildings

Germany's **Climate Protection Act** and **Climate Protection Program**[287] has set a binding reduction of 65% of greenhouse gas emissions by 2030 compared to 1990 levels with the Climate Action Programme 2030[288] and the Climate Change Act (Amended 2024)(Klimaschutzgesetz)[289]. Until 2040, a reduction of 88% compared to 1990 levels is foreseen. By 2045, Germany is to be carbon neutral. From 2050 onwards, the goal is to achieve negative greenhouse gas emissions. The website states, "we are moving away from coal, want to renovate more buildings to make them energy-efficient and push climate-friendly mobility forward." Significant investment since 2020 has gone into energy-efficient building and renovation. The Climate Protection Programme 2030 states, "There is enormous potential for

[287] https://www.bundesregierung.de/breg-de/aktuelles/klimaschutzgesetz-2197410
[288] https://www.bundesregierung.de/breg-en/issues/climate-action
[289] https://www.bundestag.de/dokumente/textarchiv/2024/kw17-de-klimaschutzgesetz-999794

climate protection in the preservation and sustainable management of forests and the use of wood. It is important that we maintain and secure the forests and their sustainable management in the long term."

The German Climate Action Plan 2050[290] states, "The German government will therefore consider whether and to what extent incentives can be created in the future to: Strengthen the use of sustainable building and insulation materials. Upstream and downstream impacts on the climate – such as emissions that are produced when building materials are manufactured, used, disposed of or recovered – are to be taken into account based on freely available life cycle data. Furthermore, instruments to take the entire life cycle of building materials into account to a greater extent ("cradle to grave" or "cradle to cradle") will be reviewed and integrated more closely into building design practice."

Building codes

Germany's non-binding national building code[291] brings together and harmonizes state building regulations. The nationwide model **Timber Construction Directive of October 2020** specified the fire protection requirements for buildings of class 4 and 5 (i.e. buildings with a height of the top floor of seven to 22 meters above the site) in wooden construction. With this, Germany allowed mass timber construction in buildings up to 22 meters. This came after the resolution passed by the 88th Conference of Environment Ministers in Bad Saarow on the "Promotion of Building with Wood", introduced by Rhineland-Palatinate, which called on the federal government to improve the framework conditions for timber construction. It also came on the heels of concerns over the draft Building Energy Act (GEG) presented by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) which did not include the entire life cycle of buildings into account in the amendment.

The state of **North Rhine-Westphalia** amended its **state building code**[292] (Landesbauordnung (LBO BW)) in 2017 and again in 2021 to promote the use of wood in construction and established the **model timber construction guidelines** (HolzBauRL) in 2024.[293] The amendment allows mass timber constructions for building classes 4 and 5 (up to 22 meters in height) as long as construction complies with the fire safety requirements. The fire safety requirements are detailed in the guidelines. A distinction is made between timber panel construction and solid timber construction. The guidelines provide technical rules for the design of joints between individual elements and connections between components.

[290] https://www.bmuv.de/fileadmin/Daten_BMU/Pools/Broschueren/klimaschutzplan_2050_en_bf.pdf
[291] https://www.feuertrutz.de/media/3964725/master/Musterbauordnung.pdf
[292] https://klimabuendnis-bauen.rlp.de/klimafreundlich-bauen/rechtliche-rahmenbedingungen
[293] https://www.mhkbd.nrw/system/files/media/document/file/2024-10-24-muster-holzbau-richtlinie_beschluss-bmk_erlass.pdf

The **state of Baden-Württemberg** amended the state building regulations[294] to increase the proportion of wood in construction and remove obstacles for the use of wood, by enabling a transitional solution by using classifications of the fire resistance of components from general building inspection certificates (abP), even if the validity period of the abP's has expired, which simplifies the use of wood in buildings of building classes 4 and 5. The **Timber Construction Directive**[295] (HolzBauRL) of 2022 updates requirements for components in timber construction that have a certain degree of prefabrication. The Timber Construction Directive specifies the fire protection requirements for multi-storey buildings in timber construction.

The federal Ministry of the Environment, Nature Conservation, Building and Nuclear Safety published Guidelines for Sustainable Building. They are designed for all stakeholders in the planning and execution phase of buildings and their outdoor facilities, and offers support for the use and operation phase of the building. The Guideline serves as a set of recommendations to public building projects at federal-state, municipal and private sector level. The consideration of the life cycle is emphasized in the 'Suitable Material and Low-Cost' information portal published by Federal Ministry for Housing, Urban Development and Building (BMWSB).[296]

Insurance

Taxation and incentives

The **Timber Construction Initiative** will seek to create incentives for climate-friendly construction with wood, other renewable raw materials and other sustainable construction methods, and proposes the following solutions: a) promoting/rewarding the storage of biogenic carbon in building structures and covers; b) consideration of grey energy and grey emissions (based on life cycle assessment data) in funding and regulatory law; c) promotion of extensions, modernisations and conversions in timber construction (reduction of land use); and d) promotion of recyclable timber construction methods and building products from cascade use or the usable wooden components.

Finance and investment

The federal government currently supports the use of wood in construction through several other projects and funding opportunities, such as by providing funding of 500 million euros (about US$501 million) under Germany's recovery and resilience plan (Deutscher Aufbau und

[294] https://www.landesrecht-bw.de/jportal/docs/anlage/ad/bw/pdf/VerkBl/GABl/bw_gabl_2022S1187B1472a_H12.pdf
[295] https://www.baden-wuerttemberg.de/fileadmin/redaktion/m-mlw/intern/Dateien/03_Bauen-Wohnen/Baurecht/4_Richtlinien_Hinweise_Erlasse/Brandschutz/8_HolzBauRL_BW_2022-12.pdf
[296] https://www.nachhaltigesbauen.de/en/topics/suitable-material-and-low-cost/

Resilienzplan, DARP) for about 20 projects to implement the goal of climate-friendly construction by further developing building with wood.[297]

The funding program **Climate-friendly new construction** (KFN)[298] (Klimafreundlicher Neubau) provides federal funding for efficient buildings. The funding promotes sustainability and climate protection standards (see certification section above), and takes into account the entire life cycle of a building. In 2023, about € 1.6 billion were available from the Climate and Transformation Fund. The KFN new construction subsidy is part of the **Federal Funding for Efficient Buildings (BEG)**, which, in addition to new construction, supports the renovation of buildings with a total of €13.9 billion. From March to December 2023, the KFN program funded around 46,000 apartments and initiated investments of around €17 billion.

At the state level, a range of investment activities are notable: The **state of Baden-Württemberg** supported projects in innovative timber construction since 2014, and more recently increased the funds of the Wood Innovative Program (HIP) as part of the Timber Construction Offensive (Holzbauoffensive)[299] to €10.9 million by 2023. The state has had and continues to support other funding sources for research and innovation.[300]

In 2022, Bavaria launched the funding guideline **BayFHolz – Bavarian Timber Construction Funding Program**[301] to promote timber construction and the amount of carbon stored in municipal buildings, such as administration as well as for social infrastructure such as schools. The addition or construction of new residential buildings is also supported. The minimum area is 300m^2. The Bavarian State Ministry of Housing, Construction and Transport, provides grants a subsidy to local authorities—€500 per ton of carbon bound in the wooden building elements and insulation materials.

The **City of Freiburg's Timber Construction Funding Program**[302] (Förderprogramm Holzbau) allows applicants to seek subsidy support for new buildings in wood construction from a minimum size of four residential units, but also for building extensions and extensions. The amount of the subsidy is €1 per kilogram of renewable carbon-storing building material installed in the long term in the building or €1.20 with regional bonus.

The **City of Hamburg**[303] offers subsidies for the use of wood in building construction for residential buildings. The subsidy is € 1.20 euros per kilogram of wood product (up to 200,000),

[297] https://www.bundesfinanzministerium.de/Content/DE/Downloads/Broschueren_Bestellservice/deutscher-aufbau-und-resilienzplan-darp.pdf?__blob=publicationFile&v=9
[298] https://www.bmwsb.bund.de/SharedDocs/faqs/Webs/BMWSB/DE/bauen/kfn-klimafreundlicher-neubau/kfn-liste.html
[299] https://www.holzbauoffensivebw.de/de/p/massnahmen-landesregierung/fordermittel-1089.html
[300] https://www.holzbauoffensivebw.de/de/p/massnahmen-landesregierung/upscale-holz-1103.html
[301] https://www.stmb.bayern.de/buw/bauthemen/gebaeudeundenergie/foerderprogramme/bayfholz/index.php
[302] https://www.freiburg.de/pb/1974662.html
[303] https://www.hamburg.de/politik-und-verwaltung/behoerden/behoerde-fuer-stadtentwicklung-und-wohnen/themen/wohnen/holzbaufoerderung-190750

as well as technical and expert support for authorized quality-assurance in timber construction. There is also a subsidy for the final calculation of the life cycle assessment. Subsidies are similar for non-residential buildings.[304]

[304] https://www.ifbhh.de/programme/immobilienwirtschaft/nichtwohngebaeude-bauen-und-modernisieren/nichtwohngebaeude-bauen/verwendung-von-holz-beim-neubau-von-nichtwohngebaeuden

GHANA

Sustainable forest management

The **Timber Resource Management Act 1997**[305] (Act 547) (Amended by Act . 617 of 2002) aims to ensure the sustainable management and use of Ghana's timber resources. The Act outlawed the use of chainsaws to produce lumber which accounts for more than 80% of the annual 600,000m3 of lumber traded on the domestic market. It established that Timber companies must have a timber utilization contract (TUC) before logging. These are reviewed by the Timber Rights Evaluation Committee and ratified by Parliament.

The **Forest Plantation Development Fund Act 2000**[306] (Act 583) (Amended in 2002 with Act 623) established the Forest Plantation Development Fund, which provides grants for financial assistance to develop private forest plantations on lands suitable for commercial timber production. Under certain circumstances, these funds may also be used for research and technical advice for those already involved in commercial forestry plantations.

The **Forests Protection Act, 1974**[307] (Act 243) and its amendment in 2002 (Act 624) provides for the duties and powers of Forest Officers and identify offences related to Forest reserves.

The **Ghana Forest and Wildlife Policy**[308] (2012): conservation and sustainable development of forest and wildlife resources for continued environmental stability and socio-economic uses. The policy sought to create a paradigm shift from the past policies, placing emphasis on the non-consumptive values of the forest and create a balance between timber production and marketing, particularly to meet domestic needs, through the following: (i) consolidate good governance through accountability and transparency (ii) enhance active participation of communities and land owners in resource management and addressing issues on tree tenure and benefit sharing, (iii) promote small and medium forest and wildlife enterprises as a means of job creation for the rural and urban poor, (iv) increase biodiversity conservation (v) promote sustainable management of savannah woodland, (vi) promote ecotourism development, (vii) increase government commitment to degraded landscape restoration through massive forest plantation development schemes, (viii) improve research and application of modern and scientific technology in resources management (ix) develop climate change adaptation and mitigation measures, and (x) secure sustainable financing for the forest and wildlife sector.

[305] https://www.fao.org/faolex/results/details/en/c/LEX-FAOC016665/
[306] https://mlnr.gov.gh/wp-content/uploads/2024/07/forest-plantation-development-fund-1.pdf
[307] https://www.fao.org/faolex/results/details/en/c/LEX-FAOC068402/
[308] https://gh.chm-cbd.net/convention/2012-ghana-forest-and-wildlife-policy

The timber industry faces a shortage of materials and demand for wood (both domestic and export) exceeds the supply.[309] Efforts at reforestation are challenged by tree and land tenure insecurity.[310]

Tenure clarity and security for forest owners/users

A lack of land and tree tenure clarity has hampered addressing drivers of deforestation and forest degradation and incentivizing local people to steward their local resources.
By provisions of the 1992 Constitution (Art 257(6), the Republic of Ghana has ownership of all natural resources, including 'naturally occurring' trees, including those on land privately held under customary title. A tree registration system has been attempted to address people's rights to trees and overcome the lack of tree stewardship in Ghana. A 2021 USAID report[311] consolidated ideas in the debate over how to move forward, suggesting the tree registration approach was unsatisfactory, and rather it made sense to move ahead with a reinterpreted understanding of the constitutional language to eliminate the distinction between naturally occurring and planted trees on customary land, with all rights to all trees derived from these family or individual rights to the land. This proposed interpretation of the 1992 Constitution and recognition of farmers' rights to all trees on their land would then incentivize farmers to cultivate more timber and shade trees on their lands as they would be the legal and beneficial owners of these trees.

Timber tracking, legality, and production standards

Ghana has ratified a **Voluntary Partnership Agreement** (VPA) with the European Union (EU), to develop a timber legality mechanism that would meet the requirements of EU imports. The VPA is part of the EU Forest Law Enforcement, Governance, and Trade (FLEGT) Action Plan of 2003. The VPA is a legally binding trade agreement and aims to ensure that Ghana produces and exports only legal timber and timber products to the EU by improving forest governance and law enforcement. Ghana pursued the VPA also to help address illegal logging that supplies the domestic market and expansion of cocoa production into forest areas. The VPA entered into force in 2009.

In 2017 the **Timber Resources Management and Legality Licensing Regulations , 2017 (L I 2254)**[312] was enacted to among others, promote the VPA process, and regulate areas subject to timber rights, small- and large-scale timber rights, forests and forest products, and licensing for legal timber. Small- and large-scale forest activities require a Timber Utilization Contract

[309] https://www.globalwoodmarketsinfo.com/ghanas-timber-industry-at-risk-due-to-shortage-of-raw-materials/
[310] https://cif.org/news/learning-ghanas-landscapes-investing-forests-and-communities
[311] Titled, "Rooted in the Ground: Reforming Ghana's Forest Laws to incentivize Cocoa-Based Agroforestry," and is current offline due to USAID defunding,
[312] https://faolex.fao.org/docs/pdf/gha173919.pdf

(TUC). The regulation provides procedures for obtaining rights to harvest in areas under a TUC which includes holding a harvesting plan.

As part of the VPA, Ghana also developed a rigorous yet practical system for assuring the legality of its timber, to control, verify and license legal timber. This is achieved through the **Ghana Legality Assurance System** (GhLAS).[313] A Ghana-EU body called the Joint Monitoring and Review Mechanism (JMRM) oversees the implementation of the VPA. The VPA includes a framework for overseeing, monitoring, and evaluating the implementation of the VPA and its economic, social, and environmental impacts. Ghana will deliver its first consignment of FLEGT-licensed timber to the EU in June 2025.[314] A new issue has emerged which complicates Ghana's VPA: Ghana did not import timber when VPA negotiations started but does now, with consequences for supply chain control and other aspects of the VPA.[315]

The Ghana Climate Action Roadmap for Buildings and Construction contains an action for the Ministry of Environment, Science, Technology and Innovation and the Ghana Standards Authority (GSA) to develop and implement building materials Environmental Product Declaration (EPD) standards and eco-labelling regime.

Timber is graded according to strength and utility as per the Ghana Standards Grading Rules.

Trade policies, restrictions on wood imports, and avoiding leakage

As mentioned above, the growing wood imports into Ghana, which were not of concern when the VPA was implemented, is an emerging issue a may impact supply chain control in Ghana.

The **Domestic Timber Trade Network** (DoTTNeT) was launched in 2023, to mirror the FLEGT licensing framework for the domestic market. The launch followed the signing of an MOU between the Ghana Forestry Commission's (FC) Timber Industry Development Division (TIDD) and the UN Food and Agriculture Organisation (FAO) in March 2019 to develop the network. DoTTNeT is expected to establish joint supervisory and monitoring structures involving the government and timber associations.

The current tax benefits under the **Free Zone Act**[316] 1995 (Act 504) that encourage timber exports are blamed[317] as a driver of forest degradation and for undercutting the goal of eliminating illegal timber in the domestic market. The Free Zone Act, 1995 (Act 504) offers free zone enterprise the exemption from direct and indirect taxes and duties on imports into free

[313] https://www.itto.int/direct/topics/topics_pdf_download/topics_id=7839&no=5&file_ext=.pdf?v=
[314] https://fcghana.org/ghana-set-to-deliver-flegt-licensed-timber-to-the-eu/
[315] https://vpaunpacked.org/www.vpaunpacked.org/implementation.html#:~:text=Ghana%2C%20for%20instance%2C%20did%20not,may%20also%20create%20new%20challenges.
[316] https://gfza.gov.gh/ghana-free-zones-documents/
[317] https://www.tropenbos.org/resources/publications/supply+of+legal+wood+to+the+domestic+market

zone areas (section 22 of Act 504). In addition, Free Zone timber companies are required to export not less than 70% of their annual production,[318] which is criticized for driving exports while restricting domestic access to timber.

Innovations in wood product manufacturing and training/capacity

Ghana has a long tradition of using timber in local vernacular building design. A 2020 research paper[319] that interviewed built environment professionals in Ghana found that the top three vernacular building materials that are of high importance for green building in Ghana are timber, bamboo, and laterite. Timber received the highest ranking.

The Timber Industry Development Division in the Forestry Commission provides services to promote efficiency in product quality assurance and value-addition in the timber industry. One key activity was the creation of wood clusters (see comprehensive World Bank review of Sokoban[320]).

Reclaimed wood and recycled materials

Green building certification

International Finance Corporation provided US$898,000 in 2019 to promote **EDGE Ghana** certification, promote green building certification, and advise the public sector on green building.[321] EDGE Green Building Certification is operated by SGS certification based in Switzerland.[322] It is unclear how many projects were kick-started, but IFC sees potential.[323]

In 2024, CTCN began technical assistance to Ghana to develop **national green building standards and policy guidelines**. The summary[324] of expected outputs and activities does mention 'enhanced usage of local sustainable building materials.'

Public procurement

Given the public sector's large share of purchase of goods, works, and services, the Public Procurement Authority proposed in 2023, a **Sustainable Public Procurement policy[325]** as a

[318] https://loggingoff.info/wp-content/uploads/2020/05/NDF2020-Bottlenecks-SupplyingLegalWoodDomesticMarket.pdf
[319] https://www.sciencedirect.com/science/article/pii/S2468227620301629
[320] https://documents1.worldbank.org/curated/ru/516021580203316152/Wood-Processing-in-Ghana.docx
[321] https://disclosures.ifc.org/project-detail/AS/602332/edge-ghana
[322] https://www.sgs.com/en/services/edge-green-building-certification
[323] https://edgebuildings.com/wp-content/uploads/2022/04/Ghana-Green-Building-Market-Intelligence-EXPORT.pdf
[324] https://www.ctc-n.org/sites/default/files/2024-08/Day%202_Session%209_Case%20Study%20-%20Ghana.pdf
[325] https://ppa.gov.gh/wp-content/uploads/2023/08/PPAE-Bulletin-Jul-Aug-2023.pdf

means to control purchase of illegal timber to reduce deforestation in Ghana. The policy was intended to integrate environmental and social considerations following the passage by Parliament in 2022 of additional regulations to the Public Procurement Act,2003 (Act 663) as amended with Act 914 in 2016. Workshops and awareness raising were completed and the Public Procurement Authority has collaborated with the Forestry Commission (FC) and Ministry of Lands and Natural Resources (MLNR) on legal timber and timber products.

The **Public Procurement Policy on Timber and Timber Products** (PPP) was proposed[326] to encourage the domestic use of legal timber. As the largest single consumer, the government of Ghana could use its purchasing power through the PPP to prohibit the use of illegal chain-saw timber for all projects funded by the government. However, policymakers are in a policy dilemma and are hesitant to pass the PPP because of concern over rising costs and lack of assurance of the availability of legal timber in the domestic market.

The **Ghana Climate Action Roadmap for Buildings and Construction**[327] calls for mandating the use of low-carbon building materials for all public buildings and tasks the Ministry of Works and Housing with moving this forward

Wood in Construction policy

The Ministry of Works and Housing is expected to follow up on recommendations made in the **Ghana Climate Action Roadmap for Buildings and Construction.**

Emission reduction targets for buildings

The **Ghana Climate Action Roadmap for Buildings and Construction,**[328] developed by GlobalABC, seeks to support the country's Nationally Determined Contributions under the Paris Agreement (UNFCCC) to reduce emissions. The embodied carbon component emphasizes the development of a circular building supply chain in Action Area 2 that integrates low-carbon materials into the life-cycle assessments, mapping and developing maintenance policies and inspection guidelines for existing buildings for enforcement before approval for renovation and retrofitting designs and construction. In Action Area 3 the embodied carbon component seeks to promote the adoption and use of low-carbon and local materials in building and construction, but does not mention timber/wood specifically. The Roadmap contains the following targets for embodied carbon by 2030, 2040, and 2050 respectively:

- 30% of new government and public buildings are developed using low-carbon construction materials and techniques

[326] https://www.modernghana.com/news/1013206/timber-procurement-policy-would-save-ghanas-fores.html
[327] https://globalabc.org/sites/default/files/2024-11/Climate%20Action%20Roadmap_GHANA.pdf
[328] https://globalabc.org/sites/default/files/2024-11/Climate%20Action%20Roadmap_GHANA.pdf

- Ensure that at least 50% of construction materials used for public buildings are low-carbon alternatives such as recycled materials, *sustainably sourced timber*, and innovative low-carbon bricks
- Ensure that at least 70% of construction materials used for public buildings are low-carbon alternatives like recycled materials, low- carbon cement, *sustainably sourced timber,* and innovative low-carbon bricks.

The Roadmap is not reflected in Ghana's National Climate Change Policy of 2013 or the National Medium-Term Development Policy Framework 2022-2025.

Building codes

The **Ghana Building Code, 2018**[329] contains a range of provisions related to timber (such as CLT, framing, etc.), but does not limit the heights of buildings made from timber. The code mandates specific design considerations for timber structures, which includes considerations on fireproofing measures and structural calculations to ensure safety.

Insurance

Taxation and incentives

VAT exemptions exist under the VAT Act, 2013[330] (Act 870) law for the granting, assignment or surrender of an interest in land or buildings intended to be used for the purpose of dwelling. This presumably lowers the cost of materials for home building.

Refer to mention of the Free Zone Act 1995 above, which appears to work against promoting legal domestic wood.

Finance and investment

[329] https://gia.com.gh/wp-content/uploads/2022/01/BUILDING-CODE-GS-1207_2018-Complete-Complementary.pdf
[330] https://gra.gov.gh/domestic-tax/tax-types/vat-exemptions/

JAPAN

Sustainable forest management

The purpose of the Forest Law of 1951 was to set out a forest planning system, forest protection system and other basic measures related to forestry, thereby ensuring sustainable forest resource base and increasing productivity of the forest land for protection of the national land and development of the national economy.

Forest and Forestry Basic Act[331] of 1964, last amended in 2003, outlines the basic principles and policies for sustainable forest development, including promoting the multifunctional roles of forests, promoting the settlement of the people in mountain villages, securing the forestry workforce and improving the productivity, and clarifies the responsibilities of both national and local governments in achieving these goals.

The **Basic Plan for Forests and Forestry** of 2021 focusses on "Green growth," particularly how to secure and expand stable demand for wood, especially for lumber, in addition to efforts to reduce the costs of silvicultural practices and log production through initiatives such as "New forestry". The Plan seeks to strengthen the competitiveness of the wood industry. The plan aims to increase the consumption of domestically produced wood to 42 million cubic meters log-equivalent in 2030, a 40% increase over 2019.[332]

The **Plan for Global Warming Countermeasures,**[333] which contains Japan's sectoral targets to meet the long term goal of realizing net-zero by 2050, has just been revised in February 2025 along with Japan's updated NDC[334] for 2040. Enhancement of forest carbon sinks including HWP carbon pool is positioned as one of the national strategies to achieve 73% reduction in emissions in 2040 compared to the 2013 level, with the target of securing 72 million ton-CO2 from forest management activities including deploying cost-efficient silvicultural practices to ensure felled plots are reforested, enforcing protection forest system and other natural conservation measures, as well as promoting the use of wood and woody biomass.

About 40% (10.2 million hectares) of Japan's forests are planted forests, and most of them were created right after WWII or during the period of high economic growth. More than half of these are over 50 years old and generally suitable to be logged, so the Forestry Agency is seeking to harvest and reforest in these areas in appropriate manner.[335]

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[331] https://www.japaneselawtranslation.go.jp/en/laws/view/3795/je#:~:text=September%2010%2C%202021%20*%20Last%20Version:%20Act,2003.%20*%20Translated%20Date:%20June%2029%2C%202021.

[332] https://www.maff.go.jp/e/data/publish/attach/pdf/index-96.pdf

[333] https://www.env.go.jp/content/000291669.pdf (Japanese)

[334] https://www.env.go.jp/content/000291805.pdf

[335] https://www.maff.go.jp/e/policies/forestry/attach/pdf/index-25.pdf

Japan's domestic timber supply has not satisfied its timber demand, although the stock of forest is steadily expanding mainly on planted forests. Japan imports timber and wood products from Vietnam, Europe, United States, Indonesia, Canada, Malaysia, Australia, China.[336] About 80% of low-rise residential buildings in Japan are made of wood, but about half of the wood used is from other countries.[337]

Under the **Action Strategy for Expanding the Export of Agricultural, Forestry and Fishery Products and Foods**, lumber and plywood are selected as priority items for exports. The strategy sets out a policy on marketing and expansion of overseas sales for building materials, targeting mainly China, the United States, South Korea and Taiwan.[338]

Tenure clarity and security for forest owners/users

The forest area is 57% private forest, 12% public forest and 31% national forest. The 2020 Census of Agriculture and Forestry shows that the number of forestry households was 690,000, 88% of which owned less than 10 ha of forest area. Small-scale forest ownership remains dominant. The number of forestry management entities is about 34,000, significantly decreasing from about 200,000 in 2005.[339]

Timber tracking, legality and production standards

Act on Promoting the Distribution and Use of Legally Harvested Wood and Wood Products[340] (Act No. 48 of 2016), known as the '**Clean Wood Act**,' was updated in 2023 and the new version[341] to be implemented in April 2025. The act is not to crack down on distribution of illegally-harvested wood but to promote the use and distribution of Legally-harvested Wood and Wood Products by encouraging the Wood-related Business Entities to check/confirm that trees used as raw materials for the Wood and Wood Products that they handle are harvested in compliance with the laws and regulations of Japan and/or the countries of harvest. The 2025 revisions include requiring upstream wood-related business entities/wood-related importers to confirm legality, and requiring business entities producing and selling logs to provide the entities information such as copies of logging and reforestation notification documents. Additionally, retailers will be added to the category of wood-related business entities to ensure that information on legality reaches consumers.[342] Japan created the **Clean Wood Navi**[343] which provides information on the Clean Wood Act and related programs in other countries.[344]

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[336] https://www.maff.go.jp/e/data/publish/attach/pdf/index-191.pdf
[337] https://www.maff.go.jp/e/policies/forestry/attach/pdf/index-25.pdf
[338] https://www.maff.go.jp/e/data/publish/attach/pdf/index-96.pdf
[339] https://www.maff.go.jp/e/data/publish/attach/pdf/index-96.pdf
[340] https://www.japaneselawtranslation.go.jp/ja/laws/view/4677
[341] https://www.rinya.maff.go.jp/j/riyou/goho/summary/summary.html#kaisei
[342] https://www.maff.go.jp/e/data/publish/attach/pdf/AnnualReportonForestandForestryinJapan_FY2023_web.pdf
[343] https://www.rinya.maff.go.jp/j/riyou/goho/
[344] https://www.goho-wood.jp/world/outline/

See public procurement section below for information on the Green Procurement Act which requires the use of timber and timber products procured by the government that have been certified as legally compliant.

Japan supported FAO to develop an online database named—**TimberLex**[345]—which provides free and easy access to comprehensive country-specific legal information on forest management, timber production and trade in as many as 50 countries in the world. It provides a centralized repository of information, including laws, regulations, and policies related to forestry and timber trade, making it easier for users to understand and comply with relevant legal requirements

The **Plan for Global Warming Countermeasures** identifies the need for international cooperation on the distribution and utilization of legally-harvested wood, etc., including securing international cooperation for the suppression of illegal logging in foreign countries.

In Japan, two forest certification schemes dominate: a) the Forest Stewardship Council (FSC), an international organization, and b) the Sustainable Green Ecosystem Council endorsed by Programme for the Endorsement of Forest Certification schemes (SGEC/PEFC-J), which had been established as the domestic certification scheme in Japan, and was endorsed by the Programme for the Endorsement of Forest Certification (PEFC) in 2016. About 10% of forests in Japan are certified by FSC (about 0.42 million ha) and/or SGEC (about 2.15 million ha).

Trade policies, restrictions on wood imports and avoiding leakage

Innovations in wood product manufacturing and training/capacity

The Research and Development Strategy for Forest, Forestry and Wood Industry (2022)[346] and the Programme for On-Site Deployment of Forestry Innovation (updated in 2022)[347] identify the research and technology development on forest sinks to achieve the Plan: a) development of forest tree breeding and forestry machinery to enhance and reserve forest sinks in the medium- and long-term; b) development of wooden building materials for long-term and mass storage of carbon with wood; c) research and development, and practical application of new wood-derived materials to replace plastics and other materials ; d) development and dissemination of the technologies that contribute to reforestation in deforested and forest degraded areas in developing countries.

[345] https://www.fao.org/faolex/timberlex/
[346] https://www.rinya.maff.go.jp/j/ken_sidou/senryaku/pdf/20220331.pdf (Japanese)
[347] https://www.rinya.maff.go.jp/j/press/ken_sidou/attach/pdf/220715-2.pdf(Japanese)

The Forestry and Forest Products Research Institute [348] has conducts research and development for the advancement of wood use technology and the expansion of demand, as part of its Midterm Plan 2021-2025.

Wood Change Council[349] is a public-private network launched by the Forestry Agency which aims to promote the use of wood in the private sector buildings by creating an environment that wood is more easily used. The Council focuses on identification of issues, direction of solutions, disseminating advanced wood use case studies, and sharing information on wood utilization.

The **Japan Council for Advancement of Timber Utilization** works with local councils in each prefecture and was established as a private initiative in 1984 with the aim of promoting use and increasing the demand for wood.

Reclaimed wood and recycled materials

Japan's **Construction Material Recycling Law**[350] of 2000 obliges C&D contractors to recycle the waste wood they generate.[351] The Ministry of Land, Infrastructure, Transport and Tourism conducted a survey in 2018 and found the recycling rate of construction and demolition wood waste was 91.7%. Another 2018 study by the Ministry of Agriculture, Forestry and Fisheries showed that 1.02 million tonnes of construction and demolition wood waste was used to produce wood chips (i.e., raw materials for paper pulp, laminated wood and biomass fuels), which was 17.9% of the total raw materials for wood chip production. Of concern is whether Persistent Organic Pollutants (POPs) exist in these wood supplies, and consequently, whether the raw materials for wood chip production meets the Basel Convention threshold values for POPs.[352]

The **Basic Act for Establishing a Sound Material-Cycle Society**,[353] outlines the framework for policies and initiatives to encourage the effective implementation of the 3Rs (Reduce, Reuse, Recycle) and sustainable waste management practices, essentially transitioning towards a circular economy model. It mentions materials used in construction in civil engineering and architecture, but does not go into detail.

[348] https://www.ffpri.affrc.go.jp/en/news/static-event/durability/index.html
[349] https://www.maff.go.jp/e/data/publish/attach/pdf/index-96.pdf
[350] https://www.env.go.jp/content/900452889.pdf
[351] https://www.suishinkaigi.jp/en/Our%20works/case01.pdf
[352] https://www-cycle.nies.go.jp/eng/column/page/202303_01.html
[353] https://www.japaneselawtranslation.go.jp/en/laws/view/3799/en

Green building certification

Japan has a nationally adopted and recognized certification process called the Comprehensive Assessment System for Built Environment Efficiency[354] (CASBEE). It is not mandatory, but some local governments require a CASBEE certification or report for the construction of new buildings. The CASBEE was developed in 2001 by a research committee comprised of representatives from academia, industry, and national and local governments. The committee established the Japan Sustainable Building Consortium (JSBC) with the support of the Ministry of Land, Infrastructure, Transport and Tourism. The JSBC is responsible for around 90% of green building certification in Japan.

Other certification systems in Japan include the Building-Housing Energy-Efficiency Labeling System (BELS), which covers energy aspects under the Act on the Improvement of Energy Consumption Performance of Buildings (Building Energy Efficiency Act), and a third-party agency assesses the energy-saving performance of a building based on the criteria established by the Ministry of Land, Infrastructure, Transport and Tourism.

Other energy-oriented certification systems include the Zero Energy Building (ZEB), the Net Zero Energy House (ZEH) and the Green Building certification developed by the Development Bank of Japan (DBJ).

Public procurement

The Green Procurement Act[355] request public purchasers to confirm the legality and the sustainability of the forest where pulpwood producing paper originates from is, and for wood-related entities, to be conducted in accordance with Clean Wood Act and the Forestry Agency's "Guideline for Verification on Legality and Sustainability of Wood and Wood Products 2006)." For other than wood-related entities, to be conducted in accordance with the Forestry Agency's Guidelines.

See the *Wood Use Promotion Act* below.

Wood in Construction policy

The Act for Promotion of Use of Wood in Buildings to Contribute to the Realization of a Decarbonized Society [356] [357](Law No. 36 of 2010), known as the **Act for Promotion of Use of Wood**, seeks the promotion of the use of wood, to reduce CO_2 emissions and other environmental burdens as a substitute for other materials and fossil resources that have higher carbon and

[354] https://www.ibecs.or.jp/CASBEE/english/document/CASBEE_brochure_2024.pdf
[355] https://www.env.go.jp/en/laws/policy/green/h31bp_en.pdf
[356] https://www.rinya.maff.go.jp/j/kikaku/hakusyo/r3hakusyo/attach/pdf/index-2.pdf
[357] https://faolex.fao.org/docs/pdf/jap192789.pdf

environmental footprint. It seeks to foster a circular-economy, fulfill the multiple functions of forests, including land conservation and watershed conservation, while also revitalize the economies of mountainous villages and other regions. The 2021 amendment of the Act for Promotion of Use of Wood **expands its coverage to buildings in general** from public buildings and establishes a system that allows national or local governments and private entities to conclude agreements to promote the use of wood. Additionally, the headquarters for the promotion of wood use has been established, consisting of the Ministers of Agriculture, Forestry and Fisheries, the Minister of Internal Affairs and Communications, the Minister of Education, Culture, Sports, Science and Technology, the Ministry of Economy, Trade and Industry, the Minister of Land, Infrastructure, Transport and Tourism, the Minister of the Environment and others.

Under the Act, the national government shall establish a basic policy for the promotion of wood use in construction, and prefectures may formulate policies for promoting the use of wood within their respective areas, in accordance with the national basic policy. As one example, Kumamoto prefecture revised the **Basic Policy for Promoting the Use of Wood for Buildings in Kumamoto Prefecture**[358] in 2022, with the goals of promoting the use of wood in non-residential buildings and middle- and high-rise buildings, and use the Building Wood Use Promotion Agreement System effectively.

Municipalities may establish policies for promoting the use of wood in constructions within their areas, in accordance with each respective prefectural policy. **The municipal adoption rate is very high, with 95% of** municipalities **having a policy**.

Emission reduction targets for buildings

Japan aims to reduce its greenhouse gas emissions by 46% in fiscal year 2030 from its fiscal year 2013 levels, setting an ambitious target which is aligned with the long-term goal of achieving net-zero by 2050. Furthermore, Japan will continue strenuous efforts in its challenge to meet the lofty goal of cutting its emission by 50%.[359] The building sector has energy-saving targets for all of the newly constructed mid and large scale buildings meeting the ZEB standard while 57% of the building stock, partly renovated, meeting the ZEB standard by 2030, contributing to the CO2 emission reductions of 10.1 million ton-CO2 and 3.55 million ton-CO2 in 2030, respectively.

The Forestry Agency created calculations to be used to estimate carbon stock amounts in the **Guidelines for Displaying Carbon Stock Amounts Related to Wood Used in Buildings**.[360] The guidelines show the standard calculation and display methods for building owners and businesses that build buildings when they display the carbon storage amount related to the wood used in the building at their own initiative and responsibility.

[358] https://www.pref.kumamoto.jp/soshiki/92/143811.html
[359] https://unfccc.int/sites/default/files/NDC/2022-06/JAPAN_FIRST%20NDC%20%28UPDATED%20SUBMISSION%29.pdf
[360] https://www.rinya.maff.go.jp/j/mokusan/mieruka.html

Building codes

The **Building Standards Act**[361] of 1950 (last version 2024) was amended to ease restrictions on wood, and the 2018 amendment changed the height restriction for non-fire-resistant wooden houses from 13 meters (42.65 feet) to 16 meters (52.49 feet). For mid to high-rise buildings, it is possible to use timbers for main structures and expose them as long as certain quasi-fire resistant standards are satisfied. For mid to high-rise wooden buildings, development and use of strong and fire resistant timber must comply with technical criteria established by Cabinet Order. The quality of building material must conform to the Japanese Industrial Standards or the Japanese Agricultural Standards designated for each designated building material.

The Ministry of Land, Infrastructure, Transport and Tourism recently published the **revised 2×4 building code**, becoming effective in April 2025. Relaxations include rafter and joist spacings being broadened, and there will be a reduction in the structural calculation standards for mid-rise wooden buildings. This is intended to increase wood usage in the sector. The regulations will be strengthened by increasing the required amount of shear walls and complicating the methods of structural calculations for residential applications. This is necessitated by the contemporary requirements for housing to accommodate solar panels and thick insulation materials, which add significant weight compared to homes built under the current standards.[362]

Insurance

Taxation and incentives

The Forest Environment Tax and the Forest Environment Transfer Tax were established in FY2019 to secure stable local funding needed for forest management as a mechanism for each citizen who benefits from forests to share the burden and support forests. The Forest Environment Transfer Tax has been allocated to municipalities and prefectures since FY2019, and efforts such as forest management through the Private Forest Management Entrustment System, securing forestry workers, wood use and public awareness are implemented.

In FY2024, the Forest Environment Tax, which is the source of funds for the Forest Environment Transfer Tax, will begin to be levied[363].

[361] https://www.japaneselawtranslation.go.jp/en/laws/view/4024/en
[362] https://canadawood.org/japans-revised-2x4-building-code-effective-april-2025/
[363][363] https://www.rinya.maff.go.jp/j/kikaku/hakusyo/r5hakusyo/attach/pdf/index-1.pdf

Finance and investment

Financial support is available to cover additional costs associated with construction of wood buildings.[364]

[364] https://www.rinya.maff.go.jp/j/riyou/kidukai/attach/pdf/mokuzozigyou-60.pdf

KENYA

Sustainable forest management

The **Constitution of Kenya, 2010**[365] states that pursuant to Article 42, "every person has the right to a clean and healthy environment, which includes the right to have the environment protected for the benefit of present and future generations." Article 66(1) vests upon the state the powers to the regulate the use of any land, or any interest in or right over any land, in the interest of the public. Article 69 provides for obligations to ensure sustainable management of natural resources and the environment by imposing duties and responsibilities against both the State and individual persons in ensuring effective environmental governance. Further, Article 69(1) provides that, the state shall; ensure sustainable exploitation, utilisation, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits; work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya; and utilise the environment and natural resources for the benefit of the people of Kenya. Article 69(2) states that that, every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources.

The **Forest Conservation and Management Act of 2016**[366], consists of 77 sections divide into 11 Parts: a) Preliminary b) Administration, c) Financial Provisions, d) Conservation and Management of Forests, e) Community Participation, f) Incentives, g) Trade in Forest Products, h) Enforcement and Compliance, i) Offences and Penalties, j) Miscellaneous, k) Transitional Provisions. The guiding principles of the Act shall be: a) good governance, b) public participation and community involvement in the management of forests, c) consultation and co-operation between the national and county governments, d) the values and principles of public service in accordance with Article 232 of the Constitution, e) protection of indigenous knowledge and intellectual property rights of forests resources, and f) international best practices in management and conservation of forests. The Act mandates that Kenya Forest Service to conserve, protect and manage all public forests, prepare and implement management plans for all public forests, assist in preparation of management plans for community forests or private forests in consultation with the relevant owners. KFS receives applications for and issues licences and permits; establish and implement benefit sharing arrangements, manage water catchment areas in relation to soil and water conservation, carbon sequestration and other environmental services in collaboration with relevant stakeholders.

[365] https://kenyalaw.org/kl/fileadmin/pdfdownloads/TheConstitutionOfKenya.pdf
[366] http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/2016/No._34_of_2016.pdf

The **National Environment Policy (2013)**[367] is the framework developed to guide the country's efforts in addressing the ever-growing environmental issues and challenges. The goal of this Policy is, better quality of life for present and future generations through sustainable management and use of the environment and natural resources. In order to ensure conservation and sustainable development of forest ecosystems and their associated resources, the policy endeavours to; Formulate strategies to increase tree cover, develop and implement a national strategy for rehabilitation and restoration of degraded forest ecosystems and water catchment areas with active community involvement/participation, support effective implementation of the forest and other related policies and laws, develop and implement national standards, principles and criteria of sustainable forest management, encourage development and implementation of appropriate forestry-based investment programmes and projects and, involve and empower communities in the management of forest ecosystems.

The **National Forest Policy 2023,** formulated to address the emerging issues in the forest sector and seeks to safeguard the ecological integrity of forests and livelihood security of the present and future generations. It also anchors the commercial forestry as central to Kenya's energy needs, the realization of the country's industrialization, growth and development agendas for manufacturing, agriculture and affordable housing in line with vision 2030.

The policy will facilitate legal and regulatory reforms that promote the sustainability of the environment and forestry resources, facilitate transition to green growth and chart ways of mitigating and adapting to climate change. More specifically, the policy will; a) enhance protection, conservation and sustainable management of the forest ecosystem for the benefit of the present and future generations; b) promote long term private sector engagement and investment in the forestry sector's development; c) promote the introduction and adoption of efficient processing technologies to maximize recovery rates of timber and minimize waste of forest products; d) consider new developments and emerging issues in the forestry sector including forest governance, land forest tenure, climate change and green economy policy requirements, institutional alignment and reforms, and devolution and public participation in the forest management; e) increase forest and tree cover to enhance socioeconomic benefits for Kenyan people and healthy environment; f) promote technology adoption to for sustainable utilization of natural resources; g) strengthen the institutional framework for efficient management of forest resources and effective service delivery; h) promote education, research and innovations for enhanced environmental sustainability; i) enhance the role of forestry in managing land degradation.

Kenya's **National Forest Programme 2016-2030**[368] outlines a strategic roadmap for the period 2016-2030, aimed at promoting sustainable forest management. Its overarching objective is to develop, manage, conserve, restore, and utilize forests and related resources to foster socio-economic growth and climate resilience. The strategic objectives are: a) Expanding tree cover

[367] https://faolex.fao.org/docs/pdf/ken147906.pdf
[368] https://faolex.fao.org/docs/pdf/ken190060.pdf

and halting forest degradation through sustainable forest management; b) Maximizing the economic, social, and environmental benefits derived from forests, including improving the livelihoods of forest-dependent communities; c) Strengthening capacity development, research, and technology adoption to enhance the value-added to forest products; d) Establishing an enabling environment to attract resources and investment for forest development; e) Promoting good forest governance by integrating national values and governance principles into forest development.

The National Forest Framework aims to strengthen the productivity and sustainability of forestry. It provides a long-term framework based on the principles of SFM, focusing on enhancing forest value chains (including wood and non-wood forest products value chains), competitiveness, job creation, and market expansion. Key objectives include promoting sustainable forest management and increasing forest cover to a minimum of 10%.

The **National Landscape and Ecosystem Restoration Strategy 2023–2032**[369] strategic goal is to restore and conserve degraded landscapes and ecosystems, which will contribute to; increasing tree cover to 30%, improving biodiversity conservation, environmental sustainability, better livelihoods, socio-economic development, climate resilience, and Kenya's commitments to regional and global Conventions by 2032. The main objective of the strategy is to restore and conserve 10.6 million hectares of degraded landscapes and ecosystems in Kenya by 2032. This will be done through tree growing and sustainable land management practices, thereby enhancing ecological functionality, building climate resilience, improving biodiversity conservation, and supporting sustainable livelihoods and socio-economic development in alignment with Kenya's national and international commitments. The specific objectives are to; a) Increase national tree cover by 17.8% through targeted interventions on public, community and private lands; b) Strengthen policy, regulatory, and institutional frameworks in selected sectors to improve landscape and ecosystem governance; c) Promote sustainable land management practices, nature based enterprises and climate change mitigation and adaptation measures for resilient ecosystems and livelihoods; d) Promote sustainable financing mechanisms and private sector investment for restoration of degraded landscapes and ecosystems; e) Strengthen research, innovation, monitoring, evaluation, reporting, knowledge management and dissemination for landscape and ecosystem restoration.

The strategy will be operationalized through specific activities outlined in the Strategy, across seven key ecosystems: forests, agro-ecosystems, rangelands, wetlands, oceans/marine ecosystems, water towers, and settlement/infrastructure landscapes.

Kenya's **National Climate Change Action Plan** (NCCAP) III - 2023-2027. Towards Low Carbon Climate Resilient Development includes Climate change priority 4 on Forests, Wildlife and Tourism includes adaptation and mitigation goals/targets. The adaptation target is that forests, rangelands, and grasslands managed in a manner that accounts for climate hazards and risks, maintenance of ecosystems and conservation areas for wildlife and linking of

[369] https://www.fao.org/faolex/results/details/en/c/LEX-FAOC223534/

protected areas. The mitigation target is: Forest sector GHG emission reductions of 37.3 MtCO2eq by 2027, against a BAU (based on FRL3 analysis) of 52.3 MtCO2eq, through forest restoration, afforestation and reforestation, and reducing deforestation.

Expected results by June 2028 include: a) Reduce deforestation by rehabilitation and protecting of an additional 100,000 hectares of natural forests (including mangroves) by 2028, through community participation in forest management, limiting access to forests, carbon stock enhancement (tree planting) in existing forests, preventing disturbances through improved enforcement and monitoring, and developing alternative technologies to reduce demand for biomass (e.g., clean cooking, efficient charcoal production, briquetting); b) Restoration of 35,000 ha of degraded public forests; c) Expansion of the existing 300 Kenya Forest Service (KFS) tree nurseries to produce 300 million seedlings annually; establishment of 290 new tree nurseries; d) establishment of 5,000 ha of public forest plantations; e) The agricultural land area under farm trees increased by 200,000 ha; and f) Restoration of up to 1,000,000 hectares of forest on degraded landscapes.

See section on *Emission reduction targets for buildings* to learn more about how the NCCAP III will incentivise tree growing value chain enterprises.

Currently Kenya has a wood supply deficit of 10.3 million m^3 and this is expected to rise to 15 million m^3 per year by 2030.[370] Due to the demand, timber trafficking from the Democratic Republic of the Congo is documented, and presents a challenge.[371] The population of Nairobi is growing at a rate of 4.7%, among the highest growth rates in Africa. The result was a growth of the construction sector by 18% annually for the period 2016 – 2020.[372]

Tenure clarity and security for forest owners/users

The Constitution of Kenya 2010, the Constitution's Bill of Rights, the Community Land Act of 2016, the Forests Conservation and Management Act of 2016 and Land Act 2012 govern tenure clarity and tenure rights. Article 61 of the Constitution classifies land in Kenya as either public, community or private. Enactment of the Land Act, FCMA and the Community Land Act operationalized Article 61 of the Constitution reducing the complexities in customary tenure rights.

Timber tracking, legality and production standards

Currently, Kenya uses the Standard Specification for Grading Softwood Timber for Structural Use, or KS 02-771 under the Kenya Bureau of Standards (KEBS), as the primary standard used for construction materials.[373] The draft Grading and Valuation of Timber and other forest

[370] https://www.undp.org/sites/g/files/zskgke326/files/2024-02/undp_green_construction2902202403_1.pdf
[371] https://pulitzercenter.org/stories/how-congos-trees-are-smuggled-through-east-africa
[372] https://www.oecd.org/en/publications/africa-s-urbanisation-dynamics-2022_3834ed5b-en.html
[373] https://doi.org/10.28932/jts.v20i2.8310

products Regulations 2025, seek to provide grading standards for hard wood, soft wood and other forest products.

Imports are not restricted.[374] However, the importation of any form of plant material (such as seeds, cuttings, bud wood plantlets, fresh fruit, flowers, and timber etc.) into Kenya is subject to strict conditions as outlined in the import permit issued by the Kenya Plant Health Inspectorate Service (KEPHIS).[375]

The Forest Conservation and Management Act of 2016[376] includes, in Section VIII, regulations on licensing and trade in forest products, chain of custody, grading and valuation of timber and other products, export and import procedure, and the prohibition on trade in restricted forest produce.

In partnership with Forest Stewardship Council (FSC), Kenya developed its own Interim National Forest Standards as basis for promoting responsible forest management using the FSC certification system. The standard is applicable to all forest management operations in Kenya seeking certification. It is hoped FSC certification will promote commercial forestry by easing regulatory barriers that have constrained the forest sector.[377]

Trade policies, restrictions on wood imports and avoiding leakage

To fill the existing supply-demand gap, businesses source wood locally in Kenya and import from neighboring countries such as Uganda and the Democratic Republic of Congo. However, most of the wood obtained locally is from unsustainable/ illegal sources and most times of poor quality. illegal wood is causing massive destruction of Kenya's forests, has accelerated the effects of climate change and continues to impose stiff competition to businesses that obtain their wood products from legal sources.[378]

Innovations in wood product manufacturing and training/capacity

The **Kenya Forestry Research Institute**[379] (KEFRI) is a cooperate institution conducting research in forestry and natural resources in four thematic areas: forest productivity and improvement, biodiversity and environmental management, forest products development and socio-economics, and policy and governance. The **Forest Products and Entrepreneurship**

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374 https://www.kra.go.ke/images/publications/Prohibited%20and%20Restricted%20Goods%20Under%20the%20Second%20and%20Third%20Schedule%20of%20the%20Eac%20Customs%20Management%20Act,%202004.pdf

375 https://www.trade.gov/country-commercial-guides/kenya-standards-trade

376 http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/2016/No._34_of_2016.pdf

377 https://www.undp.org/sites/g/files/zskgke326/files/2024-02/undp_green_construction2902202403_1.pdf

378 https://www.undp.org/sites/g/files/zskgke326/files/2024-02/undp_green_construction2902202403_1.pdf

379 https://www.kefri.org/home.html

Development[380] research theme focuses on development and promotion of efficient technologies for wood and non-wood products harvesting, processing and utilization of forest and allied natural resources for improved livelihoods and sustainable forest management.

Though not publicly funded, the **Jenga Green Library**[381] is a directory of Green Building Materials and Services developed by Kenya Green Building Society (KGBS) in partnership with FSD Kenya. It aspires to be a one-stop-shop for displaying the entire supply chain of sustainable building materials and services

Reclaimed wood and recycled materials

Kenya's **Sustainable Waste Management Act**[382] of 2022 seeks to promote circular economy practices for green growth, and includes construction waste. The Act covers: domestic waste, waste electronic equipment, extended producer responsibility, hazardous waste, industrial waste, organic and non-organic waste, payment for environmental service, pollution, private sector entity, producer, public entity, recycle, re-use, recovery, sustainable waste management, waste management facility. The Act identifies the following objectives: sustainable waste management promotion; improving the health of all Kenyans by ensuring a clean and healthy environment; reduction of air, land, fresh water and marine pollution; ensuring the delivery of waste service; creating an enabling environment for employment in the green economy in waste management, recycling and recovery; circular economy practices promotion; mainstreaming resource efficiency principles in sustainable consumption; improving responsible public behaviour on waste and environment. The Act is based on the following principles: precautionary principle; polluter pays principle; payment for ecosystem services; zero waste principle.

Green building certification

Common green building certification schemes have been applied in Kenya, such as Leadership in Energy and Environmental Design (LEED) and Excellence in Design for Greater Efficiencies (EDGE).

The Safari Green Building Index rating tool[383] was developed by the Architectural Association of Kenya, to assess and certify buildings on their environmental performance, reduced carbon footprint, energy use, and resource efficiency. It applies to a range of buildings—new ones or retrofits.

[380] https://www.kefri.org/components/fpd/fpd.html
[381] https://jengagreenlibrary.com
[382] https://faolex.fao.org/docs/pdf/ken212545.pdf
[383] https://safarigreenbuilding.org

Green Star certification system evaluates the environmental impact of buildings and construction projects. It was developed by the Green Building Council of South Africa and has been adapted to the Kenyan context. Green Star promotes sustainable design, energy efficiency, water conservation, and other environmentally conscious practices.

Public procurement

The Public Procurement and Asset Disposal Act[384] (Revised Edition 2022) does include as one of its guiding principles, 'promotion of local industry, sustainable development and protection of the environment,' but does not provide specificity on sustainable or low-carbon materials and there is no mention of specific types of materials such as wood, steel, cement, etc.

Wood in Construction policy

There are no specific policies to promote the use of wood as a construction material in Kenya. With its robust policy and regulatory framework, uses of wood are anchored in different policies developed by different sectors. A supportive policy framework could facilitate increased utilization of sustainably sourced timber as a construction material.

Emission reduction targets for buildings

Kenya, in its **Second Nationally Determined Contribution (2025)**, endeavors to reduce GHG emissions by 35% by 2035 relative to the BAU scenario of 215 MtCO2eq in 2035, leading to the abatement of 75.25 MtCO2eq. Subject to national circumstances, Kenya will mobilize domestic resources to realize 15.05 MtCO2eq (20% of the 75.25 MtCO2eq) of the emission reductions. The remaining 60.20 MtCO2eq (80% of the 75.25 MtCO2eq) of the emission reduction will be achieved through a combination of international support, including finance, investments, technology development and transfer, and capacity building, and participation in carbon markets. Strengthening the enforcement of green building codes by national and county governments is part of Kenya's NDC (2025) priority interventions.

Additionally, under the **Green Economy Strategy and Implementation Plan 2016 – 2030,**[385] thematic area 1 aims to promote sustainable infrastructure, which encompasses the designing, building and operating of infrastructure elements to reduce negative impacts on social, economic and ecological processes. The strategies for achieving this include; ensuring 75% of new and renovated public (national and county) and private large scale buildings are green by 2030; capacity building architects, engineers and contractors and other stakeholders on integrated green technologies in design and construction; and developing and implementing certification standards for green buildings.

[384] https://ppra.go.ke/download/the-public-procurement-and-asset-disposal-act-revised-edition-2022/

[385]https://www.greenpolicyplatform.org/sites/default/files/downloads/policydatabase/KENYA)%20Improving%20Efficiency%20in%20Forestry%20Operations%20and%20Forest%20Product%20Processing%20in%20Keyna_0.pdf

Kenya's **National Climate Change Action Plan** (NCCAP) III - 2023-2027. Towards Low Carbon Climate Resilient Development includes Climate change priority 4 on Forests, Wildlife and Tourism, which has a component: Incentivise tree growing value chain enterprises. See above for sustainable forest management and reforestation targets. Agroforestry and plantations are to be seeded with the 1 billion MT high quality tree seeds and 1 billion seedlings including by the private sector and communities. The Plan prioritizes improvement of processing efficiency of forest materials, including recovery rates from 15% to 30%. The Plan also promotes use of sustainable timber in the furniture and construction industry including the use of mass timber technologies, such as through scale-up the Forest Stewardship Council (FSC) certification on KFS pilot sites to the entire 150k ha of plantation forests and Tree Grower Associations and Outgrower models. The enabling measures Kenya will put in place to help achieve this: a) Develop a framework for forest long-term lease of public industrial plantations for greater productivity, b) At least 20% of public industrial plantations under long-term lease agreements with the private sector, c) Incentives developed and provided for commercial forestry enterprises across the value chain, d) Public Private Partnership (PPP) strategy for commercial forestry, e) link tree growing initiatives to carbon market incentives.

At UNFCCC COP 28, Kenya joined the Buildings Breakthrough initiative, the Cement and Concrete Breakthrough initiative and the Forest & Climate Leaders' Partnership's Greening Construction with Sustainable Wood initiative. Kenya sought international assistance of KSh2 billion over five years for implementation.

Nairobi, as Kenya's largest city, implements **Nairobi's Climate Action Plan (CAP) 2020-2050**[386] is the main strategy driving decarbonisation in the buildings and construction sectors. Nairobi has committed to reducing greenhouse gas emissions by 23% by 2025 and 66% by 2050, from a 2016 baseline (Nairobi City County, 2022b). In 2016, transport accounted for 45% of emissions, waste 33% and stationary energy (including buildings) 22%. The CAP seeks to climate-proof the city's housing stock and revise building codes for enhanced energy efficiency in buildings. Renewable energy, transport, and decarbonisation of the waste sector are the main priorities, as that's where most emissions are.

Building codes

The Kenya National Building Code 2024 has limited focus on low-carbon material aspects. The Code states timber construction is not to exceed two stories, and must conform to KS EN 1995 (Design of timber structures)[387], which is a European standard from 1995.

[386] https://nairobi.go.ke/climate-action-plan-2020-2050/

[387] https://www.phd.eng.br/wp-content/uploads/2015/12/en.1995.1.1.2004.pdf

The **proposed Climate Change (Green& Resilient Buildings) Regulations of 2023**[388] were developed to align with the provisions of the Climate Change Act of 2016 and the National Climate Change Action Plan of 2018-2022 to green the built environment. It envisages guidelines for designing and constructing buildings that are resource-efficient, reduce carbon footprints, adapt and mitigate climate change impacts, and encourage adoption of circularity, innovation and sustainable construction practices. There is no mention of wood or timber, but the draft envisages green and resilient building promotion through establishment of a unit that would undertake building certification, which would apply rating systems that evaluate performance of buildings for its entire lifespan, establish eco-product labelling and certification of building materials based on criteria to be determined.

Insurance

Engineered wood products are designed to be fire-resistant, termite-proof, and incredibly strong, hence able to replace steel and cement, in multi-storey buildings. Additionally, the Building Code recognizes wood for multi-storey purposes. Despite these, the financiers and insurers consider wood as a temporary building material and buildings constructed from wood as non-permanent. This leads to classification of the buildings as high-risk, hence hesitance to provide insurance finance for wood based construction projects.

Taxation and incentives

Kenya is in the process of developing the **National Green Fiscal Incentives Policy Framework**[389]. Its goal is to identify and prioritize the implementation of a coherent suite of green fiscal actions that will allow Kenya to accelerate the transition to a low-emissions development pathway while enhancing climate resilience and ensuring environmental sustainability. The policy will provide a framework for fiscal incentives to attract private sector investment into a low carbon emission, climate-resilient and environmentally sustainable economy and provide a framework for generating additional revenue streams for the government. It proposes enhanced green financial intermediation actions through the development of green investment bank and designing carbon tax. The green investment bank will provide a range of funding instruments and associated incentives to support the public and private sector in overcoming barriers to making green investments at scale. The government aims to explore the viability and design of carbon tax, recognizing its ability to both cost efficiently reduce GHG emissions and also to provide a revenue stream that can be used to meet broader government objectives.

[388] https://www.publicworks.go.ke/sites/default/files/Public%20Works%20Regulations/CLIMATE%20CHANGE%20(GREEN%20%26%20RESILIENT%20BUILDINGS)%20REGULATIONS%2C%202023.pdf

[389] https://www.treasury.go.ke/wp-content/uploads/2023/01/Draft-Green-Fiscal-Incentives-Policy-Framework.pdf

Finance and investment

The **National Policy on Climate Finance**[390] seeks to position Kenya to better access climate finance through a variety of mechanisms to help advance the Kenya Vision 2030 agenda by increasing the country's adaptive capacity and resilience to climate change while promoting low carbon sustainable development The policy goal is to further Kenya's national development goals through enhanced mobilization of climate finance that contributes to low-carbon climate resilient development goals.

The **Green Economy Strategy and Implementation Plan 2016 – 2030**[391] is developed around thematic areas which inform future policy direction and are intended to support the continued transition to a Green Economy development pathway. One of the objectives under thematic area 1 is to **mobilize financial resources from capital markets and other financial instruments for green investments**. The strategies include; re-orienting and developing innovative financial instruments, including debt financing (bonds), to direct capital to sustainable infrastructure; and enhancing flow of capital towards sustainable infrastructure through legal and fiscal measures, capacity building, and awareness creation.

[390] https://faolex.fao.org/docs/pdf/ken190011.pdf

[391]https://www.greenpolicyplatform.org/sites/default/files/downloads/policydatabase/KENYA)%20Improving%20Efficiency%20in%20Forestry%20Operations%20and%20Forest%20Product%20Processing%20in%20Keyna_0.pdf

SOUTH KOREA

Sustainable forest management

Korea's Forest Law[392] (last revised in 2001) emphasizes the importance of forest planting, conservation of forests, utilization of forest resources, guidance and control of forest management. The **Forest Protection Act**[393] (last revised in 2022) provides guidance and authority for forest protection activities.

The 6th **National Forest Plan** (2018-2037) contains a vision of: a) Commercial forest that creates jobs, b) Welfare-rich forest enjoyed by all, and c) Ecological forest for people and nature. Based on these three objectives, eight specific strategies were developed: the enhancement of forest resources and mountain management system; forest industry development and job creation; stabilizing income of forest workers and revitalizing mountain villages; establishment of forest welfare system in everyday life; maintaining and promoting forest ecosystem health; realization of national safety through forest disaster prevention and response.

The forested area in Korea covers 6.3 M ha, accounting for 63% of the total land area. According to the KFS, only 17% of wood used in Korea is domestic timber. But this is projected to increase to 30% by 2035, as trees planted about 50 years ago are coming of age for harvesting.[394]

The **2050 Carbon Neutral Strategy of the Republic of Korea**[395] (of 2020) identifies that innovative forest management is key to improving the aging forest structure, promoting the use of wood products/timber and increasing carbon stocks.

The **updated NDC**[396] of 2021 includes a forest sector target of 26.7 million tons of CO2eq (25.5 million tons of CO2eq for the forestry industry) and 33.5 million tons of CO2eq from overseas reductions using sinks. This will be achieved through expanding carbon sinks, strengthening carbon absorption capacity and using wood products. The use of wood products and biomass is expected to reduce a further 5.4m tonnes of emissions.[397] Concerns have been raised about the changing definition of 'old' trees from 50 to 30 years, which includes forests in national parks and protected areas.[398]

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[392] https://faolex.fao.org/docs/pdf/prk82108.pdf
[393] https://elaw.klri.re.kr/eng_mobile/viewer.do?hseq=61819&type=part&key=26
[394] https://www.koreatimes.co.kr/www/nation/2025/02/113_294714.html
[395] https://unfccc.int/sites/default/files/resource/LTS1_RKorea.pdf
[396] https://unfccc.int/NDCREG
[397] https://www.climate-transparency.org/wp-content/uploads/2022/10/CT2022-South-Korea-Web.pdf
[398] https://kfem.or.kr/solidarity/?bmode=view&idx=17914300

Tenure clarity and security for forest owners/users

Of Korea's 6.3M ha of total forest area, 66.1% consists of privately owned forests, while national forests make up 26.2%, and the remaining 7.7% are classified as public forests. Forest tenure in Korea has been relatively clear, with the majority of the forests owned by private owners which receive technical support from the Korea Forest Service.[399]

Timber tracking, legality and production standards

South Korea's **Act on the Sustainable Use of Timbers**[400] of 2020 regulates the legality of imported and domestically produced timber and timber products. The basic philosophy of this Act is, "recognizing that the creation of a pleasant living environment and increase of carbon storage through the use of timber are essential factors in promoting national health, enjoying a cultural lifestyle, and coping with climate change, to enable the realization of the sustainable use of timber and, at the same time, to pass the use of timber on to future generations through the promotion of timber culture and vitalization of timber education." The Korea Forest Service must prepare Comprehensive Plans every 5 years, and among other things, prepare "short- and long-term plans for the supply of and demand for timber and timber products; (and) Mid- and long-term investment plans to nurture the timber market and the timber industry." It establishes a Committee on Sustainable Use of Timber, Timber Culture Indexes, and indication of the amount of carbon storage of the timber products (prescribed by Presidential Decree).

The Detailed Standards of South Korea's Act on the Sustainable Use of Timber recognize the following certificates as proof of legality: Certificates issued by FSC, PEFC, an international certification system that complies with ISO 17065, and a scheme endorsed by PEFC. The Act also allows third-party certification to be used in risk assessments, but it doesn't have the same status as CITES certificates or FLEGT licenses.[401]

Trade policies, restrictions on wood imports and avoiding leakage

In addition to what is mentioned on South Korea's **Act on the Sustainable Use of Timbers** above, the Act contains a section on safety and legality evaluation of timber:

a) Importers are required to submit an import declaration including evidence that the imported timber or timber products are legal. An inspection agency, currently the Korea Forestry Promotion Institute, verifies that the legality documentation submitted by the importers complies with the Detailed Standards for Determining the Legality of

[399] https://www.undp.org/sites/g/files/zskgke326/files/migration/seoul_policy_center/USPC-role-of-effective-institutional-coordination-for-successful-reforestation-cover.pdf

[400] https://faolex.fao.org/docs/pdf/kor136715.pdf

[401] https://efi.int/sites/default/files/files/flegtredd/flegt/A%20comparison%20between%20South%20Korea's%20Act%20on%20the%20Sustainable%20Use%20of%20Timbers%20and%20the%20EUTR.pdf

Imported Timber, and the results of the verification are provided to the Korea Forest Service.

b) The Korea Forest Service carries out checks to verify that the imported products match the legality documentation provided in the declaration. Legality is defined by permit for felling issued pursuant to the statutes of the country of origin.[402] [403]If verified as legal, Korean customs clears the imports.[404]

Innovations in wood product manufacturing and training/capacity

The South Korea Land and Housing Corporation (LH) is investing in **public housing with mass timber**.[405] There are plans for a 12-story, 450-unit complex in Sejong's Smart City pilot area and a 20-story, 381-unit building in Uiwang, Gyeonggi Province, which would be the tallest modular structure in South Korea. One of LH's objectives is to see how to bring down costs, as modular construction is about 30% more expensive than traditional methods.

Reclaimed wood and recycled materials

Green building certification

Public procurement

The South Korea Land and Housing Corporation seeks to use modular and precast concrete methods for about 10% of its annual public housing construction projects.[406] Modular construction can include wood materials, but is noted for building components off-site out of a range of materials, and thus it reduces on-site construction time by approximately 30% compared to traditional reinforced concrete methods.

[402] https://english.forest.go.kr/kfsweb/kfi/kfs/cms/cmsView.do?cmsId=FC_003713&mn=UENG_06_10

[403] https://j-wood.org/en/standard-regulation/korea/

[404] https://efi.int/sites/default/files/files/flegtredd/flegt/A%20comparison%20between%20South%20Korea's%20Act%20on%20the%20Sustainable%20Use%20of%20Timbers%20and%20the%20EUTR.pdf

[405] http://koreabizwire.com/in-south-korea-modular-construction-reshapes-public-housing-landscape/286245

[406] http://koreabizwire.com/in-south-korea-modular-construction-reshapes-public-housing-landscape/286245

Wood in Construction policy

The Seoul Metropolitan Government established the **Seoul Green Building Plan**,[407] of 2022-2026 which encourages more wood use in public and commercial buildings, tourist facilities, municipality buildings and others. An MoU was signed between the Seoul Metropolitan Government, the Korean Forest Service (KFS), the Ministry of Land, Infrastructure and Transport (MoLIT) and the National Agency for Administrative City Construction (NAACC).

Emission reduction targets for buildings

South Korea committed in 2021 to reducing greenhouse gas emissions by 40% compared to 2018 levels by 2030. The GHG emissions of the building sector in 2030 is expected to be 197.2 mtCO2eq. The South Korean government has set its National Carbon Emission Reduction Targets (CERTs): a GHG emission reduction of 32.7% below its business-as-usual level in the building sector until 2030.

The 2050 Carbon Neutral Strategy of the Republic of Korea[408] (of 2020) section on buildings focuses on energy efficiency.

Building codes

The Korean Ministry of Land, Infrastructure, and Transport (MoLIT) announced a change in the building regulations for wooden multi-family residential buildings. In November 2020, Korea implemented building codes changes to remove height and floor area limits on wood buildings. The legislation eliminated the pre-existing requirement for thick concrete floors that serve as sound barriers between units in wood frame apartment buildings. Previously, all multi-family buildings were required to have floors with a minimum thickness of 210 mm of concrete slab. Also previously, wood buildings were restricted to a maximum height of five storeys and a maximum floor area of 3,000m^2.

Insurance

Taxation and incentives

Finance and investment

[407] https://news.seoul.go.kr/citybuild/archives/62062
[408] https://unfccc.int/sites/default/files/resource/LTS1_RKorea.pdf

NETHERLANDS

Sustainable forest management

The Dutch **Forest Strategy**[409] (adopted November 2020) (Bossenstrategie) was part of the agreement the central government and provinces made as part of the Climate Agreement. The Strategy replaced the Forest Policy Plan of 1994. The targets for the agriculture and land use sector in the Strategy is to reach climate neutrality by 2050. Forests, trees and nature are a part of the AFOLU sector and they capture CO_2. Thus, the task is to record at least 0.4 to 0.8 Mton CO_2/years additionally by 2030 at the latest.[410]

The Strategy seeks to: a) prevent deforestation, b) establish 37,400 ha of additional forest in the next 10 years, of which 15,000 ha is within the Netherlands Nature Network (NNN); c) establish more trees outside the forest, such as wood ramparts, shrubs, hedges and loose trees in rural areas and more trees in cities and villages; and d) to enable a slight increase in wood harvest and high-quality application of wood.

For the 15,000 hectares of forest expansion to be realised in the NNN, provinces are investigating on a more detailed level which areas are suitable, and a provincial distribution will be determined. For the ambition of realising forest expansion outside the NNN, financial instruments still need to be found, but site management organisations are already working on planting trees, and the Ministry of Agriculture, Nature and Food Quality has made available a fund for creating forests on government-owned land.[411]

Less than 10% of all the wood used in the Netherlands comes from domestic production.

Of Staatsbosbeheer's forest, 40% is natural forest, prioritized for biodiversity and recreation. The remaining 60% is multifunctional forest. Previously, annual allowable cut was about 300,000 cubic meters, but in the coming years it is anticipated that no more than 200,000 cubic meters will be extracted, partly due to drought and ash branch and spruce mortality. Sustainable forest management dictate that these restrictions on timber extraction are necessary for the health of the forest.[412]

The Seventh Dutch Forest Inventory[413] was completed in 2022. Forest covers 11% of land use in the Netherlands. There is an overall shift from conifer to deciduous forest. Forest regeneration also shows that deciduous trees occur more frequently than conifers. The inventory identifies vitality problems with ash (ash dieback) and Norway spruce (drought and bark beetle), with reduced vitality of ash on 70% of the points observed and 20% for Norway spruce. Due to

[409] https://vbne.nl/vbne-downloads/nationale-bossenstrategie/
[410] https://vbne.nl/bos-natuurbeheer/bossen/bossenstrategie/
[411] https://www.government.nl/documents/reports/2023/09/27/national-circular-economy-programme-2023-2030
[412] https://www.staatsbosbeheer.nl/wat-we-doen/nieuws/2023/01/dilemma-wel-meer-hout-gebruiken-niet-meer-kappen
[413] https://edepot.wur.nl/571720

measurements taking place before the dry summers of 2018-2020, it is expected that the share will increase further for Norway spruce in the coming years. In addition, there was an average higher mortality (from 0.9 to 1.7 m3 ha-1 yr-1) and lower regrowth (from 7.2 to 6.6 m3 ha-1 yr-1), which can be linked to the warm and dry summers in the period 2018-2020. The high score on reduced vitality for willow is also striking, probably caused by natural developments in forests dominated by this species. The living stock of wood has increased from 210 m^3/ha at the time of Sixth Dutch Forest Inventory to 224 m^3/ha in the Seventh Dutch Forest Inventory.

Tenure clarity and security for forest owners/users

Timber tracking, legality and production standards

As an EU member, the Netherlands will implement the **EU Construction Products Regulation** (CPR),[414] [415] which entered into force at the end of 2024. The regulation harmonises the EU rules for marketing construction products, facilitates their free movement in the single market, reduces administrative burdens and promotes the circular economy and technological development. Included in the product families are structural timber products/elements and ancillaries, and wood based panels and elements. The CPR obliges product manufacturers to report the global warming potential of products in the Declaration of Performance and Conformity. Lifecycle assessment calculations, conducted according to EN 15804+A2[416] on Environmental Product Declarations (EPDs), are to be reported as of 2025, and full reporting on EPD indicators is to occur by 2031.

The State Forest Management Agency (Staatsbosbeheer) holds FSC Chain of Custody certification.[417]

Trade policies, restrictions on wood imports and avoiding leakage

As an EU member, the Netherlands is party to the **EU Deforestation Regulation** (EUDR), [418] which marks a turning point in the global fight against deforestation and forest degradation by addressing both legal and illegal deforestation. Covering seven commodities (rubber, wood, cattle, palm oil, soya, coffee and cocoa) produced in the EU or abroad, it creates due diligence and strict traceability obligations for companies to clean their supply chains from products associated with deforestation and forest degradation. _The EU Deforestation Regulation (EUDR) entered into force in June 2023 and will enter into application on 30 December 2025 for medium and large companies, and 30 June 2026 for small and micro enterprises.

[414] https://single-market-economy.ec.europa.eu/sectors/construction/construction-products-regulation-cpr/review_en
[415] https://www.europarl.europa.eu/doceo/document/TA-9-2024-0188_EN.html
[416] https://circularecology.com/en-15804-a2-epd-update.html
[417] https://www.staatsbosbeheer.nl/-/media/14-over-staatsbosbeheer/fsc-certificaat-staatsbosbeheer.pdf
[418] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1115&qid=1687867231461

Innovations in wood product manufacturing and training/capacity

Since the largest sawmill in the Netherlands closed in 2017, most wood that could be used for building goes to larger sawmills in Germany or Belgium, after which it often returns to the Netherlands for use. There are still regional sawmills which mostly supply products for the packaging industry (pallets) and for individual construction projects. There is not a CLT factory in the Netherlands.[419]

Delft University of Technology (TU Delft) and the Forest Stewardship Council (FSC) Netherlands created the **Sustainable Building with Timber** course,[420] as part of the HOME for the Future project. The course consists of six modules and is designed for all stakeholders in the built environment—architects, developers, engineers, consultants, policymakers and students. HOME for the Future is funded under the EU LIFE program. The project's mission is to promote the use of wood from sustainably managed forests in social housing construction. To achieve this, the project focuses on several key areas: advocating for the inclusion of wood as a building material in legislation, enhancing knowledge within the construction industry about building with wood, and contributing to the National Environmental Database by producing life cycle analyses (LCAs) and environmental product declarations (EPDs). Additionally, tools are being developed to better assess the financial and climate-related benefits of building with wood.

Reclaimed wood and recycled materials

The **National Program Circular Economy 2023-2030** (NPCE)[421] seeks to achieve a fully circular construction economy in 2050, such that the socio-economic need for housing and infrastructure will be met without exceeding the carrying capacity of the Earth. This means that effects will not be shifted to later periods or to other countries. The main principle is using materials or products with the lowest possible environmental impact across the entire life cycle of production, application, the usage phase including maintenance, and the waste phase and reuse. The programme mentions prioritization of building with wood and bio-based materials, which historically was common, but currently only occurs on a small scale. Though there is an increase in prefab and industrialised and modular building methods, but the market share of these methods is currently too small to have the desired climate and environmental effect.[422]

About 8% of the materials used in the construction sector were recycled, and most of this was as mineral waste, such as debris, for the construction of roads. Regenerative, bio-based materials such as wood represent only 1% of the sector's material use.[423]

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[419] https://www.staatsbosbeheer.nl/wat-we-doen/nieuws/2024/03/een-betere-houtketen-is-nodig-om-meer-met-hout-te-bouwen
[420] https://www.homeforthefuture.org/free-online-course
[421] https://www.government.nl/documents/reports/2023/09/27/national-circular-economy-programme-2023-2030
[422] https://www.rijksoverheid.nl/onderwerpen/circulaire-economie/nederland-circulair-in-2050
[423] https://www.circularity-gap.world/sectors#download

Wood and wood products in the building materials industry accounted for 103 million kilos in 2022, however despite the policy goal to increase the share of bio-based materials, no significant increase occurred in the use of wood in the building materials industry or the construction industry sector between 2016-2022.[424]

Amsterdam has a Circular Strategy 2021-2025,[425] seeking to halve the use of primary raw materials by 2030 and becoming 100% circular by 2050.

Green building certification

BREEAM-NL[426] has been a certification method in use across the Netherlands since 2009. The Dutch Green Building Council made the method suitable for the Netherlands. BREEAM-NL has four quality marks: a) For new construction and renovation projects there is BREEAM-NL New Construction (and Renovation); b) existing buildings are assessed with In-Use; c) demolition projects with Demolition and Disassembly; and d) complete areas with BREEAM-NL Area. BREEAM 2020 is the most recent version, and BREAM-NL is the most widely used green building certification standard used in the Netherlands.

Public procurement

The National Plan on Sustainable Public Procurement (SPP) for 2021-2025[427] responds to the European Green Deal, which calls on government agencies to lead by example in their procurement. The EU has further announced mandatory procurement objectives and criteria based on the European Circular Action Plan. It includes actions to promote preventing climate change, promoting a circular economy, reducing environmental pollution, and other goals. The SPP policy as a whole has no legally enforceable basis. It is largely based on administrative agreements and widely supported social goals. Certain parts of the SPP policy do have a legal basis: the Dutch Public Procurement Act is an important framework, as are the Dutch Environment and Planning Act and the Dutch Participation Act. European Directives are also relevant for public procurement, such as the EU Green Deal. One relevant example of how the SPP had impact on preference for wood and bio-based materials is through establishment of buyer groups in 2020. Thirteen buyer groups were set up, largely financed through the Climate Budget, and connected leading buyers and clients in specific sectors, including : new construction of schools, renovation of social housing, building materials, wood construction/wood renovation, new-build homes, and zero-emission construction materials.

[424] https://www.cbs.nl/nl-nl/maatwerk/2024/50/materiaalmonitor-2022
[425] https://www.amsterdam.nl/en/policy/sustainability/circular-economy/
[426] https://www.breeam.nl
[427] https://www.government.nl/documents/publications/2021/01/29/commissioning-with-ambition-procuring-with-impact

Wood in Construction policy

The **National Approach to Bio-based Construction (NABB)**[428] seeks to contribute to national climate and nature objectives – and legal obligations – by stimulating the transition from the current (abiotic) construction practice to a sustainable (biobased) construction practice. It focusses on the cultivation, processing and application of fibre crops such as flax, fibre hemp and elephant grass. There is no explicit focus on the production side of timber construction chains, because timber production is largely located abroad and the growth period of most trees is approximately 30 years and this does not offer Dutch farmers any prospects in the short term. However, a number of fast-growing tree species (such as pauwlonia, willow and poplar) will be included as woody crops in agroforestry cultivation systems. The fibre crops will be ideally grown by Dutch farmers in a nature-inclusive way and, after processing, are applied in the construction and renovation of homes, in the non-residential construction and in the infrastructure sector. Farmers thus gain a new, sustainable revenue model as producers of building materials, while builders have sufficient raw materials available. In addition to the cultivation of fibre crops, the use of wood in construction will be actively stimulated by creating the right market conditions for biobased construction, such as proposals for changes in legislation and regulations to promote biobased construction.

The ambition is to realize at least 30 percent of new homes with at least 30 % biobased materials by 2030. The same percentage applies as an objective for insulation measures for sustainability and for the materials used for utility construction. Also, a substantial part of the materials for infrastructural structures and objects, such as asphalt, street furniture and bicycle bridges, must be biobased. For this, there must be at least 25 production chains of farmers, industrial processors and builders by 2030. The goal is for the cultivation of fiber crops for building materials to grow from approximately 2,000 to 50,000 hectares and the processing capacity to at least 400,000 tons of fiber per year.[429]

Scaling up a market for biobased construction materials requires changes in multiple sectors (agriculture, industry and construction) at the same time. Euro 25 million was allocated to set up the market from 2023-2025 (phase 1) and €175 million has been reserved to expand the market from 2025-2030 (phase 2).

Amsterdam's **Green Deal Timber Construction**[430] mandates that all new buildings constructed after 2025 consist of at least 20% wood or other biobased material (starting from 2022). The Metropolitan Region of Amsterdam includes 32 municipalities, the provinces of North Holland and Flevoland, and the Transport Authority Amsterdam. To support large-scale production of timber-framed houses (MRA's estimated annual housing shortage amounts to 80,000 units). Actions to achieve the goals include supporting municipalities to have close agreements with builders and others, development of production and assembly capacity in at least two MRA

[428] https://open.overheid.nl/documenten/36800f92-e4bc-4d76-b152-073736609290/file
[429] https://www.rijksoverheid.nl/actueel/nieuws/2023/11/08/200-miljoen-voor-grootschalige-aanpak-biobased-bouwen
[430] https://amsterdameconomicboard.com/app/uploads/2020/12/Green-Deal-Houtbouw.pdf

municipalities to use locally harvested timber and locally produced timber components, and investment in mass timber pilot projects.

A research article[431] assessing the impact of the policy found the policy lacked strong economic incentives to promote its use, and policy actions mainly emphasize recycling and reuse in mass timber construction. A key finding of the research highlights the complementary role of recycled concrete in supporting mass timber construction, highlighting the need for integrated policies targeting both mass timber and secondary materials. Improving industry knowledge and expertise is identified as a transformative approach to reducing costs and overcoming barriers to adoption.

Emission reduction targets for buildings

The **Netherlands Climate Act** (2019 version, revised in 2023) (Klimaatwet) [432] affirms that, in accordance with Article 2, paragraph 1, of the European Climate Act, the Netherlands commits to reduce net greenhouse gas emissions to zero by 2050 at the latest, and strives for negative greenhouse gas emissions after 2050. To reach the target by 2050, ministries are aiming for a reduction in greenhouse gas emissions of 55% compared to 1990 in 2030 and a full CO2-neutral electricity production by 2050. Ministries must also take appropriate measures to ensure that the Netherlands complies with the reduction obligations under Article 4, paragraph 1, of the European Climate Act and the binding EU legal acts established to develop it.

Additional measures to close the gap and reach the 2030 climate targets was committed to in 2023. Estimated emissions for the built environment sector are 14.6 Mton (in 2030 based on the current policy from IBO Climate), and additional measures would reduce that by 1.4 Mton, for residual emissions of 13.2 Mton.[433]

To reach the additional measure on the built environment that was committed to in 2023, cabinet agreed to ensure, "Sustainable buildings and offices: by 2050 all buildings will be emission and natural gas free. This is elaborated in a standard. To achieve this goal, the government will allocate extra money in the coming years to make homes more sustainable in vulnerable neighborhoods where energy poverty occurs and the government wants to encourage with subsidies that more solar panels will be installed on rental housing. The government is encouraging more biobased construction via the The National Approach to Bio-based Construction (NABB) (mentioned above). For business parks and SMEs, the government is developing a targeted unburdening approach."[434]

[431] https://www.sciencedirect.com/science/article/pii/S030147972500492X

[432] https://wetten.overheid.nl/BWBR0042394/2023-07-22

[433] https://www.rijksoverheid.nl/onderwerpen/klimaatverandering/nieuws/2023/04/26/extra-pakket-maatregelen-dicht-gat-tot-klimaatdoel-2030

[434] https://www.rijksoverheid.nl/onderwerpen/klimaatverandering/nieuws/2023/04/26/extra-pakket-maatregelen-dicht-gat-tot-klimaatdoel-2030

Building codes

The **Decree on Buildings Living Environment** (BBL)[435] is the most important legislation that regulates the construction and renovation of buildings, and replaces the previous Building Decree (Bouwbesluit). The BBL contains rules and regulations relating to building safety, protecting health, and sustainability and usability. For wood and timber construction, this is where requirements for fire safety and thermal insulation are found.

The **Environmental Performance Buildings (MPG)** is mandatory with every application for an environmental permit for new office buildings and new homes. The MPG indicates the environmental impact of the materials used in a building. In 2024 the government announced it will tighten the environmental performance regulations for homes/offices and will apply the rules to other building types as well. This proposal is currently under review in Parliament and should be implemented in 2026.

To determine the environmental impact of a single material, a Life Cycle Analysis (LCA) must be performed, based on 19 indicators. The characteristics of materials from LCAs are collected in the National Environmental Database, managed by the NMD Foundation, and producers or suppliers of products must ensure that a product is included in the NMD. The Environmental Cost Indicator (MKI) is used to express the relative environmental impact of all materials used in a building. The calculation rules are defined in the Determination Method Environmental Performance Buildings.[436] Based on evidence so far, the building parts contributing most to the MPG are foundation, facades, floors and installations, which often range between 60% to 80% of the MPG.

The Netherlands, as an EU member country, will develop its whole life carbon emission reduction roadmap, which will help support biobased construction.

Eurocode 5: Design of Timber Structures[437] is the European building code that set the standard member countries must follow. Eurocode 5 applies to the design of buildings and other civil engineering works in timber (solid timber, sawn, planed or in pole form, glued laminated timber or wood-based structural products) or wood-based panels jointed together with adhesives or mechanical fasteners. The standard provides an extensive set of rules and guidelines for the calculation and sizing of wooden elements. Eurocode 5 covers various aspects such as load, strength and stability of wooden structures. The goal is to provide a uniform basis for the safety and performance of wooden buildings throughout Europe.

In the Netherlands, Eurocode 5 is supplemented by national annexes and specific standards such as the **NEN standards,**[438] which specify local application rules and additions needed for the implementation of Eurocode 5 in the Netherlands, such as guidelines for the quality assessment of wood and the design of wooden building components.

[435] https://www.bblonline.nl/docs/wet/bbl/hfd4
[436] https://milieudatabase.nl/nl/milieuprestatie/bepalingsmethode/
[437] https://eurocodes.jrc.ec.europa.eu/EN-Eurocodes/eurocode-5-design-timber-structures
[438] https://www.nen.nl

Insurance

The Dutch Trade Association of Insurers created a **Brochure on Timber Construction**[439] based on input from its Working Group Wood Construction. The brochure is intended to provide knowledge and insight into timber construction and developments. Insurers can use this knowledge in-house for their (underwriting) policy and to promote the insurability of timber construction. The brochure has been written for policy makers, risk experts, underwriters and loss experts working for insurers.

Construction All Risk (CAR) insurance, which insure construction companies against calamities and unexpected events that may occur on the construction site, does appear to be more expensive for builders in the Netherlands.[440]

Taxation and incentives

Companies can receive a tax levy if they invest in environment-friendly business assets or technology through the MIA-regulation (Milieu-Investeringsaftrek),[441] and there is a list of eligible activities which includes raw material reduction and use of biobased building materials.[442]

The Sustainable Energy and Energy Saving Investment Subsidy (ISDE) has been in existence for a few years, as a subsidy to support insulating measures or a (hybrid) heat pump. In 2024 the budget was increased by €40 million to €600 million, and the scheme expanded to allow support for the insulation of monumental housing and the use of biobased environmentally friendly insulation materials (e.g. flax, hemp, wood fibre). To encourage the use of biobased environmentally friendly insulation material, an additional amount per square meter of subsidy is awarded.[443]

Finance and investment

The Ministry of Agriculture, Food and Nature and the National Green Fund launched the **Pilot Promotion of Fiber Crops**,[444] in which the ministry and the fund buy carbon certificates (carbon credits) from the farmers who grow bio-based materials such as elephant grass, straw, flax or

[439] https://www.verzekeraars.nl/media/jzeewdrf/brochure-houtbouw-definitief.pdf
[440] https://www.hethoutblad.nl/houtbouwnieuws/verzekeren-car-voor-hoge-houtbouw-wordt-steeds-lastiger/85289/
[441] https://www.belastingdienst.nl/wps/wcm/connect/bldcontentnl/belastingdienst/zakelijk/winst/inkomstenbelasting/veranderingen-inkomstenbelasting-2025/investeringsaftrek-2025/milieu-investeringsaftrek-2025
[442] https://www.rvo.nl/milieu-en-energielijst-2025/apparatuur-voor-het-afvangen-van-co2-voor-nuttige-toepassing
[443] https://circulairebouweconomie.nl/nieuws/subsidieregeling-voor-verduurzaming-woningen-en-gebouwen-opnieuw-open-met-verhoogd-budget-2024/
[444] https://www.nationaalgroenfonds.nl/nieuws/tweede-opening-aanbesteding-pilot-stimulering-vezelteelten/

hemp. During the first opening in 2024, sixteen companies and partnerships signed up to provide these Dutch Construction Stored Carbon Credits, and cost €79 per ton of CO_2.

The **National Approach to Bio-based Construction (NABB)**[445] mentioned above was allocated €200 million. Ministries made available €25 million until 2025 (phase 1) to set up a market for the bio-based construction materials. The remaining €175 million is a reservation to expand the market in the following years (2025-2030, phase 2). The approach has been drawn up in collaboration with other government parties, market parties and knowledge institutions.[446]

[445] https://open.overheid.nl/documenten/36800f92-e4bc-4d76-b152-073736609290/file

[446] https://www.rijksoverheid.nl/actueel/nieuws/2023/11/08/200-miljoen-voor-grootschalige-aanpak-biobased-bouwen

NEW ZEALAND

Sustainable forest management

The **Resource Management Act of 1991**[447] (RMA)(last amended 13 March 2025) replaced or amended more than 50 existing laws relating to town planning and resource management to enable a comprehensive approach to environmental management. The RMA reform objectives seek to enable primary sector growth and development, including aquaculture, forestry, pastoral, horticulture, and mining, while also safeguarding the environment and human health, adapting to the effects of climate change and reducing the risks from natural hazards, improving regulatory quality in the system, and upholding Treaty of Waitangi settlements and other related arrangements. The second of two RMA Amendment Bills (the first largely targeted freshwater activities and was enacted in October), the Resource Management (Consenting and Other System Changes) Amendment Bill is with the Environment Select Committee at the time of writing. Proposals include the establishment of a one-year consent processing timeframe for wood processing activities.

The Resource Management (**National Environmental Standards for Commercial Forestry**) Regulations 2017 (Version of 3 April 2024)[448] were adopted because of the variation in rules being applied in district and regional council plans, sometimes resulting in less effective environmental outcomes. They were developed as a way to bring standardized rules for managing the environmental effects of eight planted forestry activities.[449] The objectives are to: a) maintain or improve the environmental outcomes associated with commercial forestry activities; and b) increase the efficiency and certainty of managing commercial forestry activities. The objectives are achieved through a single set of regulations under the RMA that apply to commercial foresters throughout New Zealand.

The harvesting, milling and exporting of indigenous/native timber is managed under the **Forests Act 1949**[450] (Version 30 June 2024). Under the Act, native timber can only be taken from forests in a way that maintains forest cover and ecological balance, and there are export controls. Most native forests in NZ are owned by the government and are protected as a part of the conservation estate under the Conservation Act 1987, National Parks Act 1980, and the Reserves Act 1977. Native forest harvesting is restricted to very small areas under strict controls. To ensure sustainability, the Forests Act does not allow the milling of indigenous (native) timber unless it meets set conditions, has written approval from MPI, and is milled at a sawmill registered with MPI for indigenous (native) timber milling.

[447] https://www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html
[448] https://www.legislation.govt.nz/regulation/public/2017/0174/latest/whole.html
[449] https://www.mpi.govt.nz/dmsdocument/19007-A-National-Environmental-Standard-for-Plantation-Forestry-RIS
[450] https://www.legislation.govt.nz/act/public/1949/0019/latest/DLM255626.html?src=qs

The Government is proposing to replace the RMA with two new laws: a) a Natural Environment Act – focused on managing the natural environment; and b) a Planning Act – focused on planning to enable development and infrastructure. The Natural Environment Act will focus on the use, protection, and enhancement of the natural environment. This includes our land, air, freshwater, coastal and marine water, and other natural resources. The Planning Act will focus on land-use planning and regulation, for urban and infrastructure development and to align with the Government's Going for Housing Growth plan and the 30-year National Infrastructure Plan.

In December 2023, Phase 1 of national direction proposals under the RMA was completed with the repeal of the Natural and Built Environment Act and Spatial Planning Act. On 24 March 2025, Cabinet reconfirmed the scope of Phase 2 national direction proposals under the RMA. Phase 2 is currently underway. The proposed changes to national direction instruments will be progressed in 2025. These proposals are intended to have immediate effect on the resource management system, while the new resource management system is developed and implemented. Subject to further Cabinet decisions, the Government will consult on targeted changes to national direction in mid-2025 that will include a national environmental standard proposal on commercial forestry.[451] Phase 3 will involve introducing legislation to replace the Resource Management Act.

New Zealand has 10.1 million hectares of forests, covering 38% of the land. Of that, 8 million hectares are native forest and 2.1 million hectares are exotic forest. Of that, 1.7 million hectares is planted forest and the remainder is in reserves and unplanted areas near bodies of water, and infrastructure. About 90% of planted forests are radiata pine (*Pinus radiata*). The remainder are Douglas fir (*Pseudotsuga menziesii*) (6% of planted area), eucalyptus, and other softwood and hardwood species.[452]

New Zealand initiated the One Billion Trees[453] programme from 2018 to 2028. The programme is intended to help move to a carbon-neutral economy, obtain an alternative energy source, and make sustainable use of resources. It also seeks to provide opportunities for Māori to get the most out of their land and resources, and support tourism and infrastructure development by improving and protecting landscapes. Almost 700,000,000 trees were planted by the end of 2024, with the Government directly funding 40,068,000 trees.

Tenure clarity and security for forest owners/users

In New Zealand, 96% of planted forests are privately owned and used for commercial timber production. The New Zealand Government maintains a small number of commercial forestry

[451] https://environment.govt.nz/assets/publications/5.-National-direction.pdf
[452] https://www.mpi.govt.nz/forestry/new-zealand-forests-forest-industry/about-new-zealands-forests/
[453] https://www.mpi.govt.nz/forestry/funding-tree-planting-research/one-billion-trees-programme/about-the-one-billion-trees-programme/

assets, managed by Crown Forestry[454]. New Zealand has a well-established legal framework for the identification and protection of property rights, particularly through the Property Law Act 1952[455] and Crimes Act 1961[456].

Māori own approximately 48% of the land under commercially planted forests in New Zealand. Māori ownership of land, and the forests atop, will increase as Treaty of Waitangi settlements conclude.[457] Māori freehold land comprises around 6% of the total land in New Zealand. Māori are also involved in other forestry projects by way of leases, forestry rights and joint ventures of Māori land administered by Māori trusts and incorporations.

It is common for the land and trees to be owned by different parties. Usually in these circumstances, there is a lease, Crown forestry licence, forestry right or some other form of written legal arrangement in place. It is also possible to obtain a separate certificate of title for trees in the same way as it is possible to obtain one for minerals such as coal.[458]

Timber tracking, legality and production standards

The New Zealand government amended the Forests Act of 1949 to set up a timber legality assurance system, which was enacted in May 2023 through the **Forests (Legal Harvest Assurance) Amendment Act 2023**.[459] The legal harvest assurance focuses on the conduct of people trading in regulated timber and specified timber products (forest owners, log traders, primary processors, and timber importers and exporters), This ensures there is a person accountable for undertaking due diligence to minimise the risk of illegally harvested timber entering the supply chain. It does not provide assurance that any specific timber item, or consignment, has been legally harvested. The new system is intended to be in force by 1 August 2027.

There is a ban on the export of indigenous timber in log or wood chip form. The export of indigenous timber is permitted in limited circumstances. Sawn timber of beech and rimu of specified dimensions sourced from a Sustainable Forest Management Plan or Permit, and sawn timber from stump and root material (usually kauri) sourced from non-indigenous forest land may be exported. Exporters of unfinished indigenous forest timber are required to submit a notice of Intention to Export (ITE) form. The form requires exporters to identify the source of the timber, which is checked by the Ministry for Primary Industries. Prior to export, consignments must be presented to a Forestry Officer for inspection and approval.

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[454] https://www.mpi.govt.nz/forestry/crown-forestry/
[455] http://www.legislation.govt.nz/act/public/2007/0091/latest/DLM968962.html
[456] http://legislation.govt.nz/act/public/1961/0043/latest/DLM327382.html
[457] https://www.scionresearch.com/work-with-us/partnering-with-maori
[458] https://www.nzffa.org.nz/farm-forestry-model/resource-centre/information-leaflets/farm-forestry-association-leaflet-series/no-13-land-tenure/
[459] https://legislation.govt.nz/act/public/2023/0020/latest/LMS421373.html

A non-transferable single-use permit number is provided by the Ministry for Primary Industries on the completed approved Intention to export (ITE) form. The clearance (permit) number is required to clear the goods through the New Zealand Customs system.[460] There are no restrictions on the export of finished or manufactured indigenous timber products or personal effects, and no inspection or approval is required.

Voluntary forest certification has been practiced in New Zealand for many years, with FSC and PEFC being the main standards adopted. As of 2021, 1,124,342 ha were FSC certified, and 547,526 ha were PEFC certified.

Trade policies, restrictions on wood imports and avoiding leakage

New Zealand and Australia coordinate (and update their programme of work annually) to combat illegal logging through an arrangement between the two governments.[461]

Government agencies must apply the New Zealand Timber and wood products procurement policy (TWPP)[462], issued by MPI. The policy ensures public agencies only buy legally sourced timber and timber products.

Innovations in wood product manufacturing and training/capacity

In 2021, the Ministry of Primary Industries commissioned NZ Institute of Economic Research[463] to provide a report on the current composition of the forestry and wood processing sector, broken down by key roles and skill levels, to help inform current and future actions around attracting, upskilling, and retaining people.

The Building Better Homes, Towns and Cities National Science Challenge[464] aims to improve the quality and supply of housing and create smart and attractive urban environments. Launched in 2016, this provides funding up to $47.9 million over 10 years. The research outcomes are to improve the quality and supply of housing and create smart and attractive environments through: improving housing stock, meeting future demand for affordable housing, taking up innovation and productivity improvement opportunities, improving current and future urban environments and resident's well-being, and better systems for improved land-use decisions.

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[460] https://www.mpi.govt.nz/forestry/native-indigenous-forests/

[461] https://www.mpi.govt.nz/dmsdocument/13840-Arrangement-between-Australia-and-New-Zealand-on-combating-illegal-logging

[462] https://www.mpi.govt.nz/dmsdocument/52639-New-Zealand-timber-and-wood-products-procurement-policy

[463] https://www.mpi.govt.nz/dmsdocument/48667-2021-Forestry-and-wood-processing-labour-force-survey

[464] https://www.mbie.govt.nz/science-and-technology/science-and-innovation/funding-information-and-opportunities/investment-funds/national-science-challenges/the-11-challenges/building-better-homes-towns-and-cities

In 2022, the **Timber Design Centre,** now **Timber Unlimited**[465], was created as an industry advisory service for building designers will promote and facilitate greater use of timber in non-residential buildings. Timber Unlimited was created as an initiative between the New Zealand Forest Service and a consortium comprising Scion (Crown Research Institute), the Wood Processors and Manufacturers Association, New Zealand Timber Design Society and BRANZ. Funding for the Centre in part came from the Government's Fit for a Better World roadmap. Timber Unlimited is currently managed by the Timber Design Society.

The Mid-Rise Wood Construction[466] programme ran from 2018 to 2023, and aimed to encourage the use of New Zealand grown timber, mainly in the form of engineered timber products particularly cross laminated timber (CLT) panels, in the construction of mid-rise buildings using pre-fabrication. It invested 6.75 million. The aim of the programme was to accelerate uptake, promote knowledge, and grow expertise for wood use in commercial scale construction.

The Science and Innovation Strategy 2020–2035,[467] produced by the Forest Growers Levy Trust, NZ Farm Forestry Association and Forest Owners Association is intended for inform research priorities. It identifies three core themes with the target level of investment: a) The sustainable profitability of the core planted forest resource (50-60%); b) Other trees species, contingency species, and other forest systems (10-20%); c) Protecting and future-proofing the industry and growing community support (25-35%). The strategy states that the industry needs to be more agile and future-focused, striving for continued changes in forest ownership and the potential for non-traditional investment, changing markets in response to pressure for circular bio-economies, and promoting more climate resilience for forests.

See taxation and incentives section below for description of the Forest Growers Levy Trust (FGLT) which provides research funding derived from the harvested wood material commodity levy.

Reclaimed wood and recycled materials

The City of Auckland allows for wood to be recycled,[468] but the wood goes into a range of secondary products including animal bedding, mulch, building materials, and biofuel. Private companies recycle native timber for flooring and other uses. Level[469] is a website that provides information on how to recycle wood products.

[465] https://timberunlimited.co.nz

[466] https://www.midrisewood.co.nz and https://www.mpi.govt.nz/funding-rural-support/primary-growth-partnerships-pgps/current-pgp-programmes/mid-rise-wood-construction/

[467] https://fgr.nz/wp-content/uploads/2024/09/Science-and-Innovation-Strategy-2020_2035.pdf

[468] https://www.aucklandcouncil.govt.nz/rubbish-recycling/Pages/recycle-item.aspx?ListItemId=432

[469] https://www.level.org.nz/material-use/minimising-waste/reuse-and-recycling/

Green building certification

Tauranga City Council now occupies New Zealand's largest mass timber commercial building—90 Devonport—via a long-term lease arrangement.[470] By replacing most traditional concrete and steel elements with engineered timber, the building's all-of-life carbon emissions are found to be around 60% less than that of a typical commercial building. It achieved a **NZGBC 6 Green Star Design rating** and features rainwater harvesting, and electric vehicle charging.

Public procurement

The New Zealand Timber and Wood Products Procurement Policy (TWPP),[471] established in 2008, aims to use the purchasing power of government agencies to send a market signal in favour of legally and sustainably-produced timber and wood products. The policy requires Government departments to seek legally sourced timber and wood products and encourages Government departments to buy timber and timber products from sustainably managed sources.

Wood in Construction policy

At the District level, the **Rotorua Lakes District Council's Wood First Policy**,[472] adopted in 2015, seeks to: a) facilitate and encourage the use of wood as a preferred, sustainable, building material for all projects in the district; b) require that wood is used in council projects; and c) actively support and advocate for wood and the wood industry, locally, regionally and at a national level, recognises the economic, environmental, cultural and social significance of wood within the community. Rotorua is the centre of the New Zealand forest and wood industry, with approximately 40% of New Zealand's wood is harvested within a 100 km radius of Rotorua, is the largest direct employer in Rotorua, and contributes about 9% of Rotorua's GDP.

Emission reduction targets

New Zealand has several greenhouse gas emissions reduction targets. They include both domestic and international targets up to the year 2050.

New Zealand's legislated 2050 emissions reduction targets are net zero greenhouse gas emissions (except biogenic methane) and a 24–47% reduction in biogenic methane. New Zealand uses a system of emissions budgets to meet the 2050 target. The Government published the first three emissions budgets in May 2022. The first emissions reduction plan

[470] https://www.tauranga.govt.nz/our-future/its-on-in-our-city-centre/artmid/21241/articleid/13439

[471] https://www.procurement.govt.nz/principles-charter-and-rules/government-procurement-rules/other-rules-you-need-to-know/timber-and-wood-products/

[472] https://r3nk7o.digitalcityplatform.online/RedPublishPROD/api/docs/20472174?f=inline

(ERP1) sets out the policies and strategies for meeting the first emissions budgets was published in May 2022. The second emissions reduction plan (ERP2[473]) was released in December 2024 and will come into effect at the end of 2025. It covers the second emissions budget period, 2026–30.

Building codes

NZS 3604 Timber-framed buildings, is published by Standards New Zealand. It is referenced, with some modifications, as an Acceptable Solution for Building Code clause B1 Structure. It provides prescribed methods for the design and construction for timber-framed, low-rise buildings to meet the requirements of the Building Code without the need for specific engineering design. NZS 3604 is used to design most homes and other low-rise timber-framed buildings in New Zealand. It is aligned with AS/NZS 1170 Structural design actions, and is referenced in Acceptable Solution for Building Code clause E2 External Moisture, E2/AS1. It was issued in 2022 as a Joint Standard for Australia and New Zealand (NZS AS 1720.1:2022) was released, which sets out general requirements for the verification of timber structures and elements, including many engineered wood products.

Insurance

Taxation and incentives

The Forest Growers Levy Trust (FGLT),[474] started in 2013, is the largest industry funder of research and development for the New Zealand forest-growing sector. These funds come from the harvested wood material commodity levy (33 cents) which is paid on each tonne of harvested timber. The Commodity Levies Act (1996) requires the Forest Growers Levy Trust (FGLT) to conduct a referendum every six years to determine if there is continued grower support for the levy.

Finance and investment

The Wood Processing Growth Fund (WPGF)[475] aims to expand New Zealand's wood processing sector. The fund focuses on high value, long-lived wood products like sawn structural timber and engineered wood, for domestic and export markets. It supports wood processors by co-investing in their projects. The 2 funds are: a) Catalyst – grants to support pre-investment

[473] https://environment.govt.nz/assets/publications/climate-change/ERP2/New-Zealands-second-emissions-reduction-plan-202630.pdf
[474] https://fgr.nz/investing-in-research-and-development/#fglt
[475] https://www.mpi.govt.nz/funding-rural-support/wood-processing-growth-fund/

activities for wood processing projects; b) Accelerator – debt or equity investment in capital projects to expand wood processing.

The Sustainable Food and Fibre Futures[476] programme supports problem-solving and innovation in New Zealand's food and fibre sectors by co-investing in initiatives that make a positive and lasting difference. The programme funds a range of projects – from smaller projects that cost less than $100,000 to multi-million-dollar, multi-year programmes.

The New Zealand Government assists landowners and others to undertake afforestation and conservation projects through the One Billion Trees Fund and Erosion Control Funding Programme (both of which are now closed to new funding), and Crown Forestry joint ventures and the Hill Country Erosion Programme.

[476] https://www.mpi.govt.nz/funding-rural-support/sustainable-food-fibre-futures/

NORWAY

Sustainable forest management

The **Forestry Act** of 2005 Norway's key legislation for managing forest areas that do not have statutory protection. The Act places a large responsibility on the forest owners, who shall ensure that all activities in the forests are carried out in compliance with statutes and regulations. A forest management plan is required, and it should include forest inventories, listing forest and environmental resources and values on the property, along with a plan for management of these. The inventories of environmental values shall also be publicly available. The Government considers that any intensification of forestry involving an increase in timber harvesting should be combined with stronger environmental measures in forestry.

Norway's **bioeconomy strategy**[477] of 2015 identifies the need to follow up the forest related measures in the Climate Agreement, in order to increase carbon storage and access to environmentally friendly raw materials and building materials

The EEA Joint Committee adopted LULUCF Regulation (Decision No. 269/2019), which extends the climate cooperation between the European Union, Iceland, and Norway regarding the Land Use, Land Use Change, and Forestry (LULUCF) sector, allowing the countries to work together on managing greenhouse gas emissions related to land use changes and forestry activities.[478] A similar collaboration exists on the effort sharing regulation (ESR) which covers emissions not covered by the EU ETS, such as emissions from transport, agriculture, buildings and waste. Norway is considering whether the updated EU legislation on ESR and LULUCF should also be made applicable in Norway, and if so on what conditions. The updated legislation will not apply to Norway until the Storting has given its consent.[479]

Norway's national biodiversity action plan[480] of 2022 includes a section on forests, which shares most recent trends and projections on forest health and biodiversity into the future. The Norwegian Environment Agency and the Norwegian Agriculture Agency compiled a set of indicators for government's development of a menu of measures for forests, with the aim of improving the ecological condition of forests by 2050. The Government will pursue a comprehensive policy that balances the conservation of nature with other societal interests, and through this contribute to improving the development of endangered and near-

[477] https://faolex.fao.org/docs/pdf/nor209229eng.pdf

[478] https://www.regjeringen.no/en/dokumenter/norways-national-plan-related-to-the-decision-of-the-eea-joint-commitee-no-269-2019-of-26-october-2019/id2684252/

[479] https://www.regjeringen.no/contentassets/1da5b7f1cd264740a9fb0a90f311a686/en-gb/pdfs/norways-first-biennial-transparency-report-under-t.pdf

[480] https://www.regjeringen.no/contentassets/c8122f7641734da2b892738b796d4725/no/pdfs/stm202320240035000dddpdfs.pdf

endangered species and habitats. Through comprehensive and coordinated land management, all affected sectors will contribute to sustainable forest management and to achieving the Government's set goals for forests.

Forests are a primary source of carbon sequestration. However, there has been a decline in sequestration since 2010 has been driven by drought in 2018 with delayed recovery, increased logging, a rise in the proportion of mature forests with slower growth rates, and reduced forest planting and silvicultural activities in recent decades.[481]

Tenure clarity and security for forest owners/users

About 88 % of the forest area in Norway is privately owned. Most of the forest holdings are farm and family forests, spread over 120,000 properties.

Timber tracking, legality and production standards

About 70% of Norway's forest land is certified under the Norwegian Programme for the Endorsement of Forest Certification (PEFC),[482] and about 10% are under Forest Stewardship Council (FSC).[483]

Nordic countries follow a harmonized set of timber grading rules as per the **Commercial Grading of Timber**.[484] The grading rules reflect the qualities that are sustainably produced by the forestry sector, and that sawmills can thus continuously deliver to the market. The rules provides a picture of a sawmills capacity to customise and deliver timber products that meet end-customer demands and needs.

The Norwegian Institute of Wood Technology[485] is the notified body for attestation of conformity with the Construction Products Regulation (CPR), which applies to structural timber products and wood based panels. The institute can perform testing and certification as basis for CE marking of building products.

Trade policies, restrictions on wood imports and avoiding leakage

The **EU Regulation on Deforestation-free Products** (EUDR) (Regulation (EU) 2023/1115) regulation has not yet been implemented in Norwegian law, and Norway will have third country

[481] https://www.regjeringen.no/contentassets/1da5b7f1cd264740a9fb0a90f311a686/en-gb/pdfs/norways-first-biennial-transparency-report-under-t.pdf
[482] https://www.pefc.org/discover-pefc/our-pefc-members/national-members/pefc-norway
[483] https://fsc.org/en/newscentre/general-news/fsc-forest-stewardship-standard-for-norway-is-published
[484] https://www.swedishwood.com/publications/list_of_swedish_woods_publications/commercial-grading-of-timber/
[485] https://www.treteknisk.no/tjenester

status until further notice.[486] The EUDR was passed in 2023 (delayed one year), which includes wood and wood products, cattle, cocoa, coffee, oil palm, rubber and soy. It is predicted that the EUDR will affect Norwegian commodity and products covered under the EUDR if they wish to continue exporting to the EU market.

Norway is exempt from the Carbon Border Adjustment Mechanism (CBAM). While Norway is not directly subject to CBAM, Norwegian companies exporting goods to the EU would likely need to comply with these rules.

The requirements for phytosanitary certificate and notification[487] to the Norwegian Food Safety Authority apply mostly for timber and certain products manufactured from coniferous wood with origin in a non-European country.

Innovations in wood product manufacturing and training/capacity

The **National Strategy for Forestry and Industry Training** (SKOG22) [488] points out the challenges and opportunities facing the forest and wood industry and what is proposed to grow and create more value in the industry. SKOG22 has set a long-term goal of quadrupling value creation from the Norwegian forestry and wood industry by 2045. Priorities to advance wood in construction are: a) Increase the competitiveness of wood as a building material to strengthen the wood industry, reduce greenhouse gas emissions and contribute to CO2 storage in buildings; b) Improve competence and increase innovation, especially with high-rise wood buildings; c) Establish requirements for life cycle analyses in Technical Regulations (TEK); d) Contribute to a sustainable construction industry by developing solid and unified environmental documentation from the production of materials to the reuse of buildings; e) Develop sustainable building solutions for all sectors of society by strengthening collaboration between the wood industry and R&D environments on research, innovation and competence development. The Strategy identifies that "98% of production in the wood processing industry is exported, exposing the industry to carbon leakage such that production in countries with less ambitious climate policies gain a competitive advantage." And further, "Export dependence on raw materials poses a risk for the Norwegian forest and timber industry. As a marginal supplier of timber to the international market, the industry misses out on important value creation and is highly vulnerable to fluctuations in international demand." The SKOG22 report was completed by collaboration within the forest and wood industry, Innovation Norway and the Research Council of Norway.

ForestValue2[489] was a transnational joint call for proposals in 2023 for research development and innovation in the forest-based sector. Theme 2 focussed on sustainable timber building

[486] https://www.miljodirektoratet.no/ansvarsomrader/internasjonalt/eu-regelverk/eu-regelverkliste/eu-regelverk/?id=32023R1115
[487] https://www.toll.no/en/goods/timber-lumber-and-wood-packaging
[488] https://www.regjeringen.no/no/dokumenter/skog-22--nasjonal-strategi-for-skog--og-trenaringen/id2363770/
[489] https://forestvalue.org/joint-call-2023-jc-2023/

systems. The aim was to produce knowledge to support the best possible use of forests and forest resources balancing the multiple benefits for society, climate, environment and the economy. The Research Council of Norway participated.

Reclaimed wood and recycled materials

Norway's **Climate Action Plan for 2021–2030** identifies, "A common set of environmental aims for the central government administration in its roles as developer, manager and tenant of property The central government will seek to make full use of existing buildings and ensure re-use of empty properties; and will re-use construction products and enable other parties to re-use construction products from public buildings."

The **Action plan to increase the proportion of green public procurements and green innovation** encourages reuse and circular economy in public procurement decisions, before a purchase or build is pursued. "Increased reuse, repairs, refurbishing and sharing or renting instead of owning, may extend product life and prevent waste. However, if new purchases are necessary, it is important to request product qualities that promote circularity at an early stage of the procurement process."

The **SirkTRE Green Platform**[490] project establishes value circles to advance the reuse and recycling of high-quality construction timber and wood chips. SirkTRE is the main project, and another project CircWOOD is a research project within SirkTRE. Three standards have been developed and funded by SirkTRE. Partners engage in the establishment and follow-up of standards, from defining the circular construction industry, wooden structures, environmental product declaration (EPD) frameworks, calculating climate benefits from reuse, and more.

The **municipality of Trondheim** seeks the use of renewable materials with low emissions to be considered in all municipal construction projects.

Green building certification

In 2019, the Council on Tall Buildings and Urban Habitat (CTBUH) verified the completion of Mjøstårnet, a mixed-use building in Brumunddal, Norway that now holds the unique title of the "World's Tallest Timber Building." At 85.4 meters, it is also the third-tallest building in Norway and the country's tallest with mixed functions. This followed the amendment of the CTBUH Height Criteria – the official guidelines upon which tall buildings are measured – to include timber as a recognized structural material.[491] Though not a green building certifier, CTBUH is the arbiter of tall building height and the global authority that bestows titles such as "The World's Tallest Building.," and convenes all actors to explore how increased urban density and vertical growth can support more sustainable and healthy cities.

[490] https://www.sirktre.no/en

[491] https://www.ctbuh.org/news/ctbuh-ratifies-worlds-tallest-timber-building-following-height-criteria-update

Public procurement

The **Action plan to increase the proportion of green public procurements and green innovation**[492] of 2021: Public contracting authorities shall, through their public procurement, seek to promote solutions for zero or low emissions and a circular economy." In addition this section of the Action Plan advises public authorities to, "exercise due diligence towards international supply chains to reduce the risk of procurement contributing to deforestation. …The EU Timber Regulation, to which Norway is a party, prohibits the import of timber or timber products derived from such timber unless it can be documented that the timber has been legally produced and logged in the country of origin before being placed on the European market. Norway and eight other European parties to the Amsterdam Declaration on Deforestation have put forward an ambition to eliminate deforestation associated with raw materials from agriculture."

The Bioeconomy strategy identifies that the public sector shall be a role model and motivator for environmentally friendly building solutions.

The municipality of Trondheim[493] is applying public procurement rules to increase sustainability by setting requirements for the use of renewable materials with a low climate footprint. Building materials constitute an important part of the climate footprint of buildings. For larger construction projects, environmental declarations (EPDs) will be required for the most important building materials and figures from the EPDs will be used in the greenhouse gas accounts for the completed building. Trondheim's focus on wood started with Wooden City of Trondheim project (to 2020?) which completed a number of projects including kindergartens, schools and housing. The Wooden City of Trondheim more recently has aimed to shift the focus from model buildings to more general practice.

Wood in Construction policy

The **city plan** for Elverum municipality (to 2030) and its **Tree Strategy**[494] calls for the use of wood in structures and external surfaces to be considered in all building projects.

Emission reduction targets for buildings

The Norwegian Climate Change Act commits to reduce emissions in 2030 by at least 55% compared to 1990 and will become a low-emission society by 2050. In October 2024 the Government issued a proposal for a new climate target for 2035 to be included in the

[492] https://www.sustainability.gov/pdfs/ggi-norway.pdf

[493] https://www.trondheim.kommune.no/globalassets/10-bilder-og-filer/10-byutvikling/miljoenheten/klima-og-energi/miljostrategi-for-bygg-2018-22.pdf

[494] https://www.elverum.kommune.no/_f/p1/i7c247fa6-9fcb-4355-a729-d83c8a73fcef/trestrategi-for-elverum-digital.pdf

Norwegian Climate Change Act for public consultation until 1 January 2025. After the consultation the Government will send a concrete proposal to the Parliament for approval and adoption. After the Parliamentary approval Norway will submit its target as its new NDC under the Paris Agreement.

At the municipal level, **FutureBuilt**[495] includes Oslo, Bærum, Asker, Drammen, Nordre Follo, Lillestrøm, Bergen, Trondheim, Stavanger and Kristiansand in a municipal alliance to complete 100 pilot projects that cut carbon emissions by at least 50% compared to current regulations and common practice. This is measured by a greenhouse gas accounting tool, and the reductions must be within the fields of transport, energy and materials. FutureBuilt collaborates closely with The Ministry of Local Government and Modernisation, the Norwegian State Housing Bank, Enova (Norwegian energy national fund), the National Office of Building Technology and Administration, the Green Building Alliance, the National Association of Norwegian Architects and DOGA - Design and Architecture in Norway.

Building codes

Norway's **Building Technical Regulations** (TEK17)[496] § 17-1 on greenhouse gas accounts from materials regulates that when constructing and major renovation of apartment blocks and buildings, a greenhouse gas account shall be prepared based on the method in Norwegian standard **NS 3720:2018 Method for greenhouse gas calculations for buildings.**[497] The greenhouse gas account shall as a minimum include into modules A1–A4, B2 and B4 for the building elements specified in the building parts table. The GHG calculations do not include full life-cycle stages, but waste from the construction site is included in the greenhouse gas account. Climate declarations are not mandatory.

Insurance

Taxation and incentives

Finance and investment

[495] https://www.futurebuilt.no/English
[496] https://www.dibk.no/regelverk/byggteknisk-forskrift-tek17/17/17-1
[497] https://online.standard.no/nb/ns-3720-2018

PAKISTAN

Sustainable forest management

Under the Constitution of the Islamic Republic of Pakistan, forestry is mostly in the jurisdiction of provincial governments. The Federal Government carries out national planning and economic coordination, inter-provincial matters and coordination, regulating imports and exports of wood and forest products, inter-provincial trade and commerce, trade and commerce with foreign countries, and international conventions and agreements related to forests.

The 2015 **National Forest Policy**[498] identifies that only 5% of land area under forests and tree cover, the existing forest resources of Pakistan are inadequate for meeting domestic demands of wood for the increasing population of the country. Actual demand for wood is much higher than the annual increment of forests or potential sustainable supply. The links between deforestation and flooding risks which are increasing due to climate change are noted. Pakistan is ranked as the 5th most vulnerable country to climate change according to the Global Climate Risk Index.[499] The policy recommends a range of policy objectives, including how the federal government can work with Provinces to achieve the goals of the National Forest Policy.

Timber is 29% and fuelwood is 71% of total wood supply in Pakistan. About 98% of the timber is supplied by plantations on private lands and 2% is contributed by the public forests. The total wood demand in the country has been estimated at 69 million m^3. Out of this, total timber demand is 19 million m^3. About 65% of the timber is used by major wood-based industries and 35% is consumed by small wood-based industries. Per capita consumption of timber is estimated at 0.084 m^3 per year. Currently, there is a gap of 17 million m^3 which is met from import and un-recorded supply. The average annual out-turn of timber from the government-managed forests has been estimated at 0.289 million m^3 for the period 2017-2021. About 84% of the total out-turn of the timber is contributed by the forests of KP, AJK, and GB with respective shares of 43%, 28%, and 13%. The rest of the gap is met by imports. Pakistan is a net importer country of wood and its products. Over the last 15 years, the exports are almost stagnant, whereas imports have a rising trend. For the year 2020/21, the exports stood at USD 36 million, whereas imports were USD 161 million. The major imports are from USA and Germany. More than 50% of Pakistan's wood-based imports come from four countries, including $34 million from the USA, $20 million from Germany, $18.5 million from China, and $18.2 million from Malaysia. Moreover, Pakistan

[498] https://pbit.punjab.gov.pk/system/files/National%20Forest%20Policy%202016.pdf
[499] https://unhabitat.org/sites/default/files/2023/06/4._pakistan_country_report_2023_b5_final_compressed.pdf

also imports $13.8 million and $10.4 million from Canada and Austria, respectively. The estimates reveal that demand will remain high than the supply till 2030[500]; however, with the establishment of major plantation projects in the country such as Billion Tree Afforestation Project in Khyber Pakhtunkhwa and Ten Billion Trees Afforestation Project in the country it is predicted that the gap will narrow in the future and the country will become self-sufficient by 2035. [501] 70% of land in Pakistan is classified as arid and therefore vulnerable to desertification.

The **National REDD+ Strategy**[502] identifies that timber extraction, in particular for the construction industry, remains an important driver of deforestation. The demand for timber is not restricted to the rich urban areas but continues to be a major factor in forested areas where the local population depends on timber for mainly housing needs. Fueled by increasing population pressure, and subsequently, the rising demand for timber products, there has been a rising impact of unsustainable timber extraction on forest land use. The weak governance, and departmental priorities for revenue also contribute to this end. This is also a barrier that prevents forests to preserve and enhance their carbon content and also remove the incentive to implement sustainable forest management actions. The Strategy also identifies that, "The only countrywide assessment of forest resources was made by FSMP in 1992, now outdated. With the absence of this data, it is difficult to make concrete assessments on the unsustainable wood extraction in Pakistan's forests."

The Agriculture, Forestry & Land Use sector is the largest source of GHG emissions in Pakistan, accounting for nearly 46%, most of which is from agriculture and livestock.

Tenure clarity and security for forest owners/users

More than 50% of the total area of Pakistan is characterized as open access resources, either unmanaged by users or under weak communal control. Tenure and land use rights over these lands vary greatly. These open access resource areas include state lands, vast areas of land of undefined tenure, village shamlats (communal lands), and proprietary lands. The predominant land use in these areas is grazing and fuel wood collection. [503] The National REDD+ Strategy identifies that significant underlying driver of deforestation is disputes over land tenure, which result from unclear legislation, regulations and procedures. There are a large number of pending cases in the court of law.[504]

500 Ministry of Climate Change/PIDE 2022. Economic contribution of Forestry Sector- National Level Assessment of Demand and Supply of Forestry Products & Services in Pakistan.

[501] https://file.pide.org.pk/pdfpideresearch/kb-wood-demand-and-supply-in-pakistan.pdf

[502] https://redd.unfccc.int/media/pakistan_redd__strategy_final-oct_2_2021.pdf

[503] https://www.cbd.int/doc/world/pk/pk-nbsap-v2-en.pdf

[504] https://redd.unfccc.int/media/pakistan_redd__strategy_final-oct_2_2021.pdf

Timber tracking, legality and production standards

Pakistan's National Climate Change Policy of 2021[505] identifies a policy need to a) strictly prohibit illegal forest cutting and conversion of forest land to non- forest uses; and b) enact and enforce laws and regulations required for addressing illegal trade in timber and deforestation.

Trade policies, restrictions on wood imports and avoiding leakage

Pakistan's share of wood imports is 2% of total imports. The trade policy of Pakistan imposes varying tariff duties on wood products' imports from different countries. The tariff is highest on wood imports from Japan accounting to be 31.49%, followed by a 20 to 25% tariff on countries like Thailand, Turkey, Australia, UAE, Korea, etc. The lowest tariff is usually on wood imports from Asia and the Pacific, European Union, and North American regions. In 2020, the tariff issue resurfaced in the policy discourse when the Ministry of Climate Change recommended that the Federal Board of Revenue (FBR) should abolish the customs duty to reduce the pressure on national forests. The All Pakistan Timber Traders Association (APPTA) showed similar concerns on Additional Custom Duty (ACD) of 2 per cent on the already 32-34 percent customs duty, sales tax and withholding tax, and up to 42pc on the import of wood and timber; particularly raw material wood (HS Code 44.03) and timber (HS Code 44.07). The imposition of ACD has led to a drastic reduction in wood imports (as can be observed in PBS 2020 Report on wood and cork for June 2020) and increased the pressure on the national forest through illegal timber cutting and trade[506].

There was a suspension of import conditions contained in Import Policy Order 2022 with regard to Import of Timber/Wood.[507] [508]

Innovations in wood product manufacturing and training/capacity

Pakistan imports timber, paper pulp, paper, and certain other wood products to meet the gap in supply and demand. This must continue to meet the gap in supply and demand of forestry products. Pakistan identifies there is also a dire need to revisit tariff policy on wood-related products.

Pakistan imports $100 million worth of wood - sawn or chipped lengthwise, sliced or peeled. Fibre-board and other ligneous materials cost Pakistan $25 million. The country also imports

[505] https://mocc.gov.pk/SiteImage/Policy/NCCP%20Report.pdf

[506] 506 Ministry of Climate Change/PIDE 2022. Economic contribution of Forestry Sector- National Level Assessment of Demand and Supply of Forestry Products & Services in Pakistan.

[507] https://tnc.com.pk/media/upload/amendments/downloads/2023-07-03/2023_Office_Memorandum---I_E---_dated_03-07-2023.pdf

[508]

rough wood equivalent to $13 million. Builders' joinery and carpentry of wood, including cellular wood panels, assembled parquet panels, shingles and shakes also contribute a lot to the import pie, valuing more than $5 million import bill.

Reclaimed wood and recycled materials

Pakistan's National Action Plan on SDG 12 Sustainable Consumption and Production[509] contains recommendations on sustainable buildings and cities, noting that Pakistan will be predominantly urbanized by 2030. There are a range of recommendations, none of which include mention of local materials, wood or recycling/reuse. But one long-term action is: "Promote green building design by incorporating provisions of insulation and thermally efficient windows, and renewable energy technologies in the building by- laws to reduce heating costs and effects of GHG emissions." Such an action could be complemented with language on lower carbon materials and reuse of older materials (which mention of 'protection and maintenance of heritage sites and historical buildings' in the narrative above the actions list also can help direct actors to salvage and reuse buildings, especially those of historical significance).

The **Green Building Code** 2023 states in Chapter 9 on materials, and in the sub-section on construction and demolition waste management that, "A minimum of 25% of nonhazardous construction, demolition, or deconstruction waste material shall be diverted from disposal in landfills and incinerators through reuse, recycling, repurposing, and/or composting. Excavated soil and land-clearing debris shall not be included in the calculation." The section on reduced impact materials calls for, "The sum of the recycled content and the salvaged material content shall constitute a minimum of 10%, based on cost, of the total materials in the building project."

The **Model Green Building Code Provisions for the Five Million Housing Programme in Pakistan** states in Section 5.6.1 that, "recycled materials shall be utilized in green housing projects to promote circular economy and divert material from landfills. The recycled material needs to be a specified percentage of the total material, preferably by cost."

Green building certification

LEED is the leading certification used in Pakistan. The LEED rating system has seven areas of concentration: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, Innovation in Design Process and Regional Priority. Use of regional materials can contribute 1-2 points, but their carbon content is not of consideration.

[509] https://www.switch-asia.eu/resource/regional-policy-advocacy-component-fact-sheet/#:~:text=The%20National%20Action%20Plan%20on,achieve%20sustainable%20development%20in%20Pakistan

Public procurement

Wood in Construction policy

According to National Forest and Rangeland Resource Assessment Study, the trend of using large quantity of timber for constructional purpose has declined drastically. In most of the area better substitute material is used for construction. The data showed that only 2.5% respondents were using constructional timber obtained from forest, while other 97.5% were using other constructional materials[510].

The National Forest Policy 2010 recommends promotion of composite wood, non-wood and synthetic wood products in construction of government buildings in order to reduce pressure on natural forests and discourage use of solid timber of precious tree species like deodar and shisham for construction and furniture. The policy proposes wood substitution and import liberalization by the Government.

The Government of Pakistan has issued Green Building Guideline for Prime Minister Five Million Naya Pakistan Housing Program as a the first-step towards achieving the goal of greening the housing sector. The guidelines aim to drive a change in the housing through eco-friendly practices of building's design, construction & operation stages; besides, ensuring the sustainable utilization of construction materials to save energy, conserve water, improve indoor environmental quality and lower GHG emissions. The structure of the Guideline follows "Life Cycle approach, incorporating elements pertaining to the construction and performance of buildings. The Guidelines also suggest measures for water conservation and management to achieve water efficiency through rain water harvesting, efficient water conservation practices and fixtures as well as recycling of gray water to reduce excessive burden and dependence on the public water supply system. The green housing's planning system also emphasizes on transition to a low carbon future in a changing climate to shape living places in ways that contribute to radical reductions in greenhouse gas emissions, minimize vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and a more sustainable built environment[511].

510 Pakistan Forest Institute Peshawar, 2004. National Forest and Rangeland Resource Assessment Study.
511 https://unhabitat.org.pk/wp-content/uploads/2021/08/Green-Building-Guidelines-for-Prime-Minister%E2%80%98s-Five-Million-Naya-Pakistan-Housing-Programme.pdf

Emission reduction targets for buildings

Pakistan's **National Climate Change Policy**[512] and **updated NDC**[513] of 2021, sets a cumulative conditional target of a 50% reduction of its projected emissions by 2030, with 15% from the country's resources and 35% subject to the provision of international grants. To reach the target, Pakistan aims to shift to 60% renewable energy and 30% electric vehicles by 2030 and ban imported coal. These actions are based on assessment of the large role of energy in future emissions. Pakistan seeks to expand Nature Based Solution (NBS) by implementing the Ten Billion Trees Tsunami Project (TBTTP), Recharge Pakistan, and Protected Area Initiative. Pakistan's emissions as of 2018 are 489.87 MtCO2e; the Billion Trees Afforestation Project (BTAP) and TBTTP will sequester around 500 Mt CO2e by 2040 if implemented fully.[514] Thus, afforestation is instrumental in sequestration activities. The Policy identifies an action to promote farm forestry practices by planting multipurpose fast- growing species to meet the needs for timber, fuel wood and fodder for livestock. Industrial processes are the third largest emitting sector, thus mitigation actions are identified to adopt clean production technologies, implement eco-standards, incentivize carbon trading between industries, and develop plans for emissions reductions form major sectors particularly cement and textiles.

Building codes

Pakistan's 2021 **Amended Building Code**[515] contains a chapter on the use of wood in construction (chapter 23). It contains minimum standards for wood products such as structural glue-laminated timber and structural cross-laminated timber. Three story buildings are allowed in seismic design category A and B.

In May.2023, the Pakistan Engineering Council released the **Green Building Code of Pakistan**[516] 2023 based on the 2021 edition of the International Green Construction Code® (IgCC), which incorporates ANSI/ASHRAE/ICC/USGBC/IES. Its intent is to reduce emissions from buildings and building systems, promote sustainable and regenerative materials cycles, among other priorities. Chapter 9 deals with materials and resources. There is mention of wood, in that: "a) Wood products in the project, other than recovered or reused wood, shall not contain wood from endangered wood species unless the trade of such wood conforms with the requirements of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)."; and b) A minimum of 2% of building materials used, based on cost, shall be biobased products (including solid wood, engineered wood, bamboo, wool, cotton, cork, agricultural fibers) and wood building components (such as structural framing, sheathing, flooring, subflooring, wood window sash and frames, doors, etc.), shall contain not less than 50%

[512] https://mocc.gov.pk/SiteImage/Policy/NCCP%20Report.pdf
[513] https://unfccc.int/sites/default/files/NDC/2022-06/Pakistan%20Updated%20NDC%202021.pdf
[514] https://www.undp.org/pakistan/publications/ndc-investment-plan-pakistan#:~:text=November%2019%2C%202024,a%20resilient%20and%20sustainable%20future.
[515] https://codes.iccsafe.org/content/PKBC2021P1/chapter-23-wood
[516] https://www.pahp.gop.pk/assets/pdfs/3.%20Green%20Building%20Codes%20Draft%20PGBC-2023.pdf

certified wood content tracked through a chain of custody process, either by physical separation or percentage-based approaches, or wood that qualifies as a salvaged material. Certified wood content documentation shall be provided by sources certified through a forest certification system with principles, criteria, and standards developed using ISO/IEC Guide 59 or the WTO Technical Barriers to Trade. The Building Code calls for Life-cycle assessments to be in accordance with ASTM E2921 and ISO Standard 14044.

In 2022, the **Model Green Building Code Provisions for the Five Million Housing Programme in Pakistan**[517] were coordinated by SWITCH-Asia-EU. The introduction identifies that in the last twenty years the shortage of housing units accumulated a deficit of 12 million housing units. To address the situation, the then Prime Minister of Pakistan envisioned and initiated Naya Pakistan Housing Programme (NPHP) "to deliver five million housing units with allied amenities to all citizens, especially focusing on the financially underserved and middle-income communities, as a measure of comprehensive socio-economic uplift." The GBC Provisions are an integration of all the building codes developed so far to reduce the impact of buildings on climate change by using modernized green products and efficient technologies in Pakistan. The principal aim is sustainable production and consumption of resources. Section 5.4 on bioproducts states, "5% of the building materials used, based on cost, shall be biobased products (IgCC 2018). Biobased products shall: a.) Comply with the minimum biobased contents of threshold(s) as determined by the Environment Protection Authority or the AHJ; and b.) Be composed of solid wood, engineered wood, bamboo, wool, cotton, cork, agricultural fibers, or other biobased materials with at least 50% biobased content." Then, Section 5.5 on wood building components states that these, "include but not limited to structural framing, sheathing, flooring, subflooring, wood window sash and frames, doors and architectural millwork in residential buildings and houses, used to comply with this requirement shall contain not less than 60% certified wood content tracked through a chain of custody process, either by physical separation or percentage-based approaches, or wood that qualifies as a salvaged material."

Insurance

The Insurance Ordinance 2000 is the primary insurance law in Pakistan, regulating all insurance activities. Forty-two insurers are active in the market, comprising 28 non-life insurers, 2 general takaful operators, 8 life insurers, 3 family takaful operators and 1 reinsurer[518]. These private insurance companies cover property insurance to provide financial security to houses and its belongings as a means to recovery from unexpected events, accidental damage caused by fire, accidents, or natural disasters.

[517] https://www.switch-asia.eu/resource/model-green-building-code-provisions-for-the-five-million-housing-programme-in-pakistan/
[518] UNDP 2024. Inclusive insurance and risk financing in Pakistan-Snapshot and way forward.

Taxation and incentives

The taxes on immoveable property are determined by the Federal Board of Revenue as per the taxation laws of Pakistan, with varying rates depending upon the nature of the residents registered with tax authorities as the filer or non-filer of the annual tax returns.

Finance and investment

Keeping in view need to improve availability of adequate housing in the country and important role of construction sector in boosting economic activities in other countries, Government of Pakistan envisions to increase the number of housing units manifold in coming years and has taken several measures in this regard. In October 2020, the Government of Pakistan introduced Mera Pakistan Mera Ghar (MPMG) markup subsidy Scheme. Available in both conventional and Islamic mode, this scheme enables banks to provide financing for the construction and purchase of houses at very low financing rates for low to middle income segments of the population[519]. Several private banks also provide financing for purchase of house and construction. Several housing schemes are launched by private sector for purchase of plots and construction of houses on instalments.

[519] https://www.sbp.org.pk/MPMG/index.html

REPUBLIC OF THE CONGO

Sustainable forest management

The **Forest Policy of the Republic of Congo (2014-2025)**[520] is based on the principles of a green economy, participatory management, and forest development centered on public-private partnerships. The overall objective is to sustainably manage forest ecosystems to promote a green economy, reduce poverty, and maintain other ecosystem functions. Several components will advance the objectives: a) land use planning and the establishment of a permanent forest estate; b) promoting sustainable forest management and development and forest certification; c) conserving biodiversity, promoting and certifying wildlife and protected areas; d) promoting community forestry; e) promotion of private and local community forests and protected areas; f) afforestation and reforestation; g) development of non-timber forest products; h) diversified and more advanced wood development and processing; i) promotion of forestry, timber, and wildlife industries; j) FLEGT Voluntary Partnership Agreements (VPAs); k) governance in forest and wildlife resource management; l) promotion of REDD+ and implementation of payment mechanisms for environmental services; m) sustainable financing of forests, wildlife, and protected areas; n) development of forestry and wildlife research; o) promotion of cooperation in forestry and wildlife; p) promotion of wood energy and the local timber market. The policy provides for the consideration of all sectoral policies affecting forests (agricultural, land, land use, mining and energy, justice, law enforcement, infrastructure), based on the establishment of synergies or ongoing consultations at both national and subregional levels (COMIFAC Convergence Plan) that have or are likely to have an impact on forests.

Commission of the Forests of Central Africa (COMIFAC) Convergence Plan (2015-2025),[521] which is the framework to implement the commitments that the Central African Heads of State set out in the Yaoundé Declaration on Forests in March 1999, and further elaborate mechanisms to coordinate commitments and support actions in each COMIFAC country. The Plan is divided into six priority areas of intervention and three cross-cutting areas. The priority areas of intervention are: (i) Harmonization of forest and environmental policies; (ii) management and sustainable development of forest resources; (iii) conservation and sustainable use of biological diversity; (iv) combating the effects of climate change and desertification; (v) socioeconomic development and multi-stakeholder participation; and (vi) sustainable financing. The cross-cutting areas are: (i) training and capacity building; (ii) research and development; and (iii) communication, awareness-raising, information, and education. The Plan seeks to reduce the rate of deforestation and forest degradation within each COMIFAC

[520] https://faolex.fao.org/docs/pdf/con143403.pdf
[521] https://comifac.org/wp-content/uploads/2017/09/Plan%20de%20convrgence%202_2015-2025_Fr.pdf

country, the integrity of protected areas and transboundary protected areas is maintained, and the living conditions of populations are improved.

The **Forest Code (Law No. 33-2020)**[522] updated the previous Code with newer provisions to recognize improvement forest governance and transparency, addressing deforestation and climate impacts, a better consideration of local communities, local processing of wood, and better use of and an increase in volume of forest resources through the introduction a production sharing regime, while aiming to optimize forest revenues.

The involvement of indigenous people and local communities (IPLC) and other non-state actors was mainstreamed as the Forest Code adopted Free, Prior and Informed Consent (FPIC) to ensure IPLC involvement in forest governance processes, allows for granting forest management rights to forest-dependent communities through community forestry, allows civil society organisations take part in the commission in charge of adjudicating forest-concessions, and allows for special benefit-sharing specifications to be negotiated directly by affected communities within the forest-concession contracts. A mandate of civil society's forest independent monitoring was legally recognised for the first time in the Code, though it does not appear to be operationalized.[523]

The Code distinguishes five types of logging titles that can be granted to private companies for timber operations in state-owned forests: a) *Agreement for management and processing*: allows forest operators with an approved management plan the right to an annual harvest quota from a Forest Management Unit (FMU), to encourage the local processing of logs; b) *Plantation timber valuation agreement*: allows for granting of rights to harvest a specific volume of wood on a plantation in a state-owned forest estate, and there are regeneration commitments; c) *Domestic logging permit*: Allows for rights to harvest timber outside FMUs, "exclusively intended for the regular and sustainable supply to the national market of quality wood products, semi-industrially processed and not authorized for export." d) *Permits for plantation timber-cutting*: Allows for permits for limited exploitation in State forest plantations; e) *Special permits*: only granted to Congolese individuals, NGOs, and associations incorporated under Congolese law, for commercial exploitation of non-timber forest products, and in certain situations may also be used for wood products.

The Code establishes offenses in the forestry sector, such as illegal harvesting of timber and other forest products, that are subject to various penalties. The penalties can include fines, seizure of assets or permits, termination of forestry agreements, imprisonment, and/or receiving a ban from carrying out forestry activities.

There are not yet implementing regulations for the Forest Code.

The Law on Territorial Planning and Development **(Law No. 43-2014)**[524] provides guidelines for land use planning and development concerning forests, coastline, river corridors, rivers, lakes, flooded areas, solid and liquid mining areas, mountainous areas, protected areas, and special

[522] https://faolex.fao.org/docs/pdf/con197361.pdf
[523] https://fgi.efi.int/wp-content/uploads/2024/04/FGI-RoC-2022-Report-EN.pdf
[524] https://faolex.fao.org/docs/pdf/con143310.pdf

economic zones. Regarding the exploitation of natural resources, land-use planning operations take into account the essential preservation of the environment, so as to meet the needs of present and future generations. The State implements a land-use policy that ensures the concurrent development of various sectors of activity and respects different forms of land ownership. In addition, the State and local authorities establish land reserves for the construction of public and private projects.

The Republic of Congo's forests span over 22.5 million hectares, 65% of the total area of the territory, and the NDC identifies that forest loss is approximately 17,000 hectares per year. Production forests comprise just under 14 million ha, thus about 65% of the natural forest area is allocated as forest concessions.

Tenure clarity and security for forest owners/users

As of mid-2024, in the Republic of Congo, ongoing land-use conflicts are affecting large forest areas with significant mitigation potential, including around 13% of forest concessions and 20% of protected areas, or more than 5 million hectares in total. As a result, by 2030, activities related to land use, land-use change, and forestry are estimated to become the second largest source of greenhouse gas emissions in the country.[525] UNDP identifies that a significant reason for this challenge is the incompatibility and overlap of permits for various types of land use. Because there is little coordination across government sectoral ministries on land planning and use, land-use conflicts arise between different stakeholders and sectors such as forestry, agriculture and mining. As lands become increasingly attractive for mining or production purposes, these land-use conflicts highlight the need for better management of land and natural resources.[526]

Law No. 5–2011 on the promotion and protection of the rights of indigenous peoples and Decree No. 2019-201 establishing procedures for consultation and participation of indigenous peoples. But it was the 2020 Forest Code that codified in law the principle of free, prior and informed consent (FPIC) for indigenous peoples in decision making related to forest and forest land allocation. The effective engagement of organisations representing the interests of indigenous peoples remain a challenge, mostly due to organisational conflicts, despite the legal recognition of the FPIC.

Timber tracking, legality and production standards

Republic of Congo-EU Voluntary Partnership Agreement (VPA) was signed in May 2010 and came into force on March 1st, 2013. The VPA aims to ensure timber exported to the European Union has been produced according to the Republic of Congo's laws and regulations. To meet

[525] https://climatepromise.undp.org/news-and-stories/3-ways-improve-land-use-and-forest-conservation-republic-congo
[526] *Ibid*

the requirements of the Timber Legality Assurance System, the Ministry of the Forest Economy has developed the Computerized Legality Verification System (SIVL)[527] software, which has been implemented since 2020.

A **Timber Legality Risk Assessment for the Republic of Congo**[528] was completed in 2021 and found substantive risks for legal rights to harvest, for taxes and fees, for timber harvesting activities, risks to third party rights, trade and transport risks and for wood processing activities.

Forest Stewardship Council is the leading voluntary production certification standard in ROC. Over 2.9 million hectares are FSC certified. ROC announced the publication of its revised FSC national forest stewardship standard (NFSS), which was approved in 2021.[529]

Since 2014, ROC established Pan-African Forest Certification (PAFC) Congo, aligned with the Panafrican Forest Certification (PAFC).[530] The PAFC-Congo was endorsed by the Forest Certification Standards Recognition Program (PEFC) in 2017, allows PAFC to have international recognition. About 1.1 million ha are PAFC certified.

The Forest Code (Law 33-2020) imposes the certification of legality or sustainable management in Article 72.

Timber legality verifications include the Bureau Veritas' Origine et Légalité des Bois (OLB) certification, Preferred by Nature certification helps meet legal requirements such as the EU Deforestation Regulation and Timber Legality Verification through Control Union.

Trade policies, restrictions on wood imports and avoiding leakage

The **Forest Code of 2020**[531] requires all timber and forest products intended for transport and export to comply with the forestry administration's Computerized Legality Verification System (SIVL), which includes proof of legal origin and obtaining an export authorization. The code also mandates that forest products from natural forests and plantations must be processed domestically. Only finished or semi-finished wood products and logs of high-density wood species that require specific technology to be processed can be exported. Forest Trends finds the legal uncertainty stemming from the 2020 Forest Code poses a risk that unprocessed logs continue to be illegally exported to international markets, particularly China and Vietnam. NGOs continue to document sector-wide illegalities and corruption in the forest sector.[532]

[527] https://flegtvpafacility.org/wp-content/uploads/2022/05/Brochure-SIVL-APV-FLEGT-Congo.pdf
[528] https://s3.eu-west-2.amazonaws.com/shdatabasefiles/SH%20Countries-Commodities/Congo-Timber/Republic%20of%20Congo%20TIMBER%20Legality%20Risk%20Assessment-EN-V2.0-Dec21..pdf
[529] https://connect.fsc.org/document-centre/documents/resource/466
[530] https://pafc-certification.org/pafc-congo/
[531] https://faolex.fao.org/docs/pdf/con197361.pdf
[532] https://www.forest-trends.org/wp-content/uploads/2022/01/Republic-of-the-Congo-Timber-Legality-Dashboard-IDAT-Risk.pdf

According to the MEF, total forest production in 2018 was 1.8 million m^3 of which 44% (0.8 m^3) was exported in the form of logs. The ROC wood industry therefore remains largely oriented towards the export of logs, despite the legal obligation since Law 16-2000 to transform domestically at least 85% of the production by each forestry company operating in the country, and as reflected in the Forest Code of 2020 updates.[533]

About 81% of ROC's timber was exported as logs and 17% exported as sawn timber in 2019 (based on volume), and China is the main recipient. China's demand for sawn wood from ROC tripled between 2010-2014, and demand keeps increasing.[534] About 16% goes to Europe and less than 1% to Africa. Veneer exports from ROC increased between 14% between 2016 and 2019, but only accounted for 1% of ROC's timber exports in 2019.[535] There is a large discrepancy between ROC reported exports and global imports from ROC, although the gap between 2015-2019 is narrowing a bit. For instance, in 2019 the trade value reported by ROC of logs was just under $200 million and trade value of sawnwood was about $135 million. However, global import data shows logs from ROC being just under $300 million (a roughly $100 million difference) and value of sawnwood imports from ROC was about $175 million (a roughly $40 million difference).[536]

Though a ban on log exports is envisioned in the Forest Code of 2020, and made a commitment to do so in 2022, a 2023 appeal by logging companies postponed the ban.[537]

Innovations in wood product manufacturing and training/capacity

A 2024 report[538] by l'Agence Française de Développement, CIRAD and TEREA identifies that the artisanal logging and domestic sawn timber market is largely overlooked, in favour of more industrial processes. Yet, given domestic demand, it is this small-scale supply chain that is serving the needs for housing materials and other uses. The report identifies that national sawn timber consumption likely exceeded 200,000m^3 in 2024, which is an almost doubling of volumes over 15 years. The volume of industrial sawn timber has tripled since 2024, whether it is scrap or secondary sawmill products, but most people buy from informal sources of supply. The economic weight of the forestry sector is significant, with forests contributing 5.6% to GDP. It represents 10% of the country's foreign trade, with nearly 11,000 direct jobs and around 5,000 induced jobs, with a turnover of around 135 billion CFA francs generated per year and a contribution of 20 billion CFA francs to the State's tax revenue, according to the National Development Plan 2018-2022. The report identifies that even using the underestimated

[533] https://www.timbertradeportal.com/fr/republique-du-congo/152/contexte-forestier

[534] https://www.researchgate.net/publication/315932427_Timber_trade_flows_and_investments_between_China_and_six_Voluntary_Partnership_Agreement_signatory_countries#pf1b

[535] https://comtradeplus.un.org

[536] https://www.forest-trends.org/wp-content/uploads/2022/01/Republic-of-the-Congo-Timber-Legality-Dashboard-IDAT-Risk.pdf

[537][537] https://economie-forestiere.gouv.cg/actualite/article/interdiction-dexportation-des-bois-sous-forme-de-grumes-les-exploitants-forestiers/

[538] https://agritrop.cirad.fr/611286/1/Rapport%20final%20MIB%20Congo%20031224%20FINAL.pdf

estimate of a total volume of artisanal sawn timber of 75,898 m^3produced per year in Congo, the minimum contribution of artisanal timber exploitation to rural economies reaches 4.66 billion CFA francs on a national scale, and this without taking into account the self-consumption of sawn timber by rural households. The report proposes policy steps to be taken to promote the domestic market also supplied by finally legalized artisanal sawn timber.

Reclaimed wood and recycled materials

Green building certification

Public procurement

Wood in Construction policy

Emission reduction targets for buildings

While the country boasts one of the lowest deforestation rates in the Congo basin (see this graph on estimates of annual surfaces of deforestation and degradation), greenhouse gas emissions from deforestation and degradation represent the largest source of emissions, due to land use changes towards agriculture, mining or other activities and energy consumption patterns.

The Republic of Congo's updated NDC[539] to the Paris Climate Agreement of 2021 covers mitigation actions in energy, industrial processes and product use, waste and land use, land-use change, and forestry sectors. The NDC aims to cut emissions from the LULUCF sector by 21% by 2030 (unconditional scenario), compared to a 2017 baseline, and 32% by 2030 in the conditional scenario. For the 2017 reference year, total emissions excluding the land use sector are 10,960.3 ktCO2e/year. These emissions include the following sectors:
Energy = 10,224.9 ktCO2e/year, Waste = 467.7 ktCO2e/year; Industrial Processes and Product Use (IPPU) = 154.3 ktCO2e/year; Agriculture = 113.5 ktCO2e/year. The forestry sector emits 2947 ktCO2e/year.

[539] https://unfccc.int/sites/default/files/NDC/2022-06/CDN_Congo.pdf

Building codes

The Loi nº 6-2019 du 5 mars 2019 portant code de l'urbanisme et de la construction[540] defines a) general rules of urban planning and construction; b) provisions relating to urban planning documents; c) provisions relating to land acquisitions for development and land reserves; d) urban planning operations; e) control of the act of building or demolition; f) matters relating to the management of urban planning; g) control, offences and sanctions; and h) final and transitional provisions. There are no provisions specifically on timber buildings or engineered wood.

Insurance

Taxation and incentives

Finance and investment

[540] http://www.sgg.cg/codes/congo-code-2019-urbanisme-construction.pdf

SWEDEN

Sustainable forest management

The **Forestry Act**[541] dictates the principles and obligations that forest owners must follow in forest management. The Act describes the forest values which are to be balanced, such as forest production and sustained yield, biodiversity and nature conservation, cultural heritage, reindeer husbandry, reforestation and other aspects. In addition to the Forestry Act the Swedish Forest Agency is also the authority responsible the enforcement for parts of the Environmental Act. A summary of the historical, present and future forest management in Sweden is summarized in a 2020 report.[542] While Sweden has doubled its standing volume of forests over the last century, forest environment and biodiversity values show a negative trend, while measures to promote biodiversity conservation and restoration have been significantly improved over the last three decades. Climate impacts complicate the understanding of the resiliency of Sweden's forests. There are various competing interests and trade-off's affecting Sweden's forests which need to be considered.[543]

Sweden's **Forest Policy** is undergoing review,[544] with an assessment report expected in August 2025. The report will consider including policy developments within the EU, and consider measures for long-term sustainable and competitive forestry.

Tenure clarity and security for forest owners/users

Sweden contains about 23 million hectares of forest. In 2023, 55.6% of the forest land was owned by private individuals, 25% was owned by private sector companies/corporations, 13% was owned by state-owned companies, and 7.3% was owned by the state.[545] In northern Sweden, the traditional lands of the Sámi Indigenous Peopleincludes forest and grassland areas.[546] The reindeer herding is organized in communities (sameby), and there is a Sámi Council and various Sámi organizations. The reindeer herding communities does not own the land where they exercise rights to use land and water in accordance with the Reindeer Husbandry Act (1971:437). This can lead to tradeoffs in relation to forest management. In accordance with the Sámi Consultation Act (2022:66), the Government and its administrative authorities are required to consult the Sámi Parliament and at times also the reindeer herding communities and Sámi organizations before making decisions on matters that can

[541] https://www.skogsstyrelsen.se/en/laws-and-regulations/skogsvardslagen/
[542] https://www.skogsstyrelsen.se/globalassets/om-oss/rapporter/rapporter-20222021202020192018/rapport-2020-4-forest-management-in-sweden.pdf
[543] https://www.ksla.se/wp-content/uploads/2024/06/Forests-and-Forestry-in-Sweden-2024.pdf
[544] https://www.regeringen.se/rattsliga-dokument/kommittedirektiv/2024/02/dir.-202416
[545] https://www.skogsstyrelsen.se/en/statistics/subject-areas/property-and-ownership-structure/
[546] https://cases.open.ubc.ca/the-rights-to-the-forests-land-conflicts-and-negotiation-processes-between-sami-reindeer-herders-and-the-forestry-sector-in-northern-sweden/

significantly affect the Sámi people. There are also provisions in the Forestry Act (1979:429) that requires consideration to reindeer herding specifically in relation to forest management.

Timber tracking, legality and production standards

Of the wood products made in Sweden, only about 20% is used domestically, and the rest is exported, mainly to other European countries but also to most other parts of the world.

The measurement of wood, such as timber, pulpwood, and wood chips, as a basis for payment must be conducted according to the **Swedish Wood Measurement Act**[547] of 2014 and associated regulations. Wood from the whole tree is included such as stem, stump, branches and chips. The law does not apply to industrially processed wood, such as boards and pulp, application occurs terminal or industry gate.

Nordic countries follow a harmonized set of timber grading rules as per the **Commercial Grading of Timber**.[548] The grading rules reflect the qualities that are sustainably produced by the forestry sector, and that sawmills can thus continuously deliver to the market. The rules provides a picture of a sawmills capacity to customise and deliver timber products that meet end-customer demands and needs.

Sweden's area of productive forest land that is outside formally protected forest land that is certified is about 68%, to FSC, PEFC, or to both systems simultaneously.

Trade policies, restrictions on wood imports and avoiding leakage

Sweden abides by the **EU Regulation on Deforestation-free Products** (EUDR) (Regulation (EU) 2023/1115) passed in 2023 (delayed one year), which includes wood and wood products, cattle, cocoa, coffee, oil palm, rubber and soy. While awaiting the EUDR, Sweden applies the **EU Timber Regulation** (EUTR) to wood imports, which prohibits the trade of illegally harvested timber and timber products within the EU. The Swedish Forest Agency is responsible for applying the EUTR in Sweden. Sweden is also a partner country in the **EU Forest Law Enforcement, Governance and Trade (FLEGT) programme** which seeks to support forest governance in countries that are sources of illegal timber, and support measures to aims to improve the supply chain of timber into the EU to ensure legality. The Swedish Board of Agriculture ensures that FLEGT licensing for imported timber complies with EU regulations.

Sweden will also abide by the recently revised EU **Construction Products Regulation**[549] which requires environmental product declarations.

[547] https://www.skogsstyrelsen.se/en/laws-and-regulations/swedish-wood-measurement-act/
[548] https://www.swedishwood.com/publications/list_of_swedish_woods_publications/commercial-grading-of-timber/
[549] https://single-market-economy.ec.europa.eu/sectors/construction/construction-products-regulation-cpr_en

Innovations in wood product manufacturing and training/capacity

RISE[550] has a major thematic area, 'Wood technology more common as we transition to a fossil-free society." RISE an independent, State-owned research institute, which offers unique expertise and over 130 testbeds and demonstration environments for future-proof technologies, products and services. RISE has well-equipped laboratories and is accredited for a variety of tests and inspections. RISE also performs customised tests and analyses, and as a 'notified body,' performs tests and certifies for CE marking.

Reclaimed wood and recycled materials

Though not a government programme, **Timber of Top**[551] is a private sector-led effort to increase knowledge about upward and outward extensions on existing buildings using bio-based, prefabricated building systems, and at developing circular business models that include reuse and development of existing buildings. The collaborative project brings together actors from all parts of the value chain: urban planners, property managers, developers, consultants, architects, building system suppliers and construction contractors, with support from academia and technical institutes. Research associated with Timber on Top is conducted by Linköping University, Luleå University of Technology and RISE, Research Institutes of Sweden. The Swedish Wood Building Council and Trästad take the lead on project management and knowledge dissemination

Green building certification

Public procurement

Sweden follows the EU Energy Performance of Buildings Directive and EU Ecodesign for Sustainable Products Regulation, which sets green public procurement criteria and requirements.[552] However, green public procurement is non-mandatory and for embodied carbon and circularity, no threshold values are set on the national level.

Wood in Construction policy

In 2005, the Swedish government introduced the National Wood Building Strategy aimed to support the development of industrial wood construction. It contained a goal of a 30 % increase in the number of apartment buildings built in wood within a five-year period. The initiative

[550] https://www.ri.se/en/what-we-do/wood-technology-more-common-as-we-transition-to-a-fossil-free-society
[551] https://www.swedishwood.com/siteassets/5-publikationer/pdfer/tenpointsfortimberontop-en.pdf
[552] https://green-business.ec.europa.eu/green-public-procurement/gpp-criteria-and-requirements_en

ended in 2008, and there was Parliamentary debate over the fairness of promoting one building type over others. [553] However it led to the launch of other initiatives.

In 2005. Växjö municipality adopted the first sub-national wood strategy, called **More Wood in Construction strategy,** aiming for 25% of the construction directly controlled by the municipality to be wood-based. The 2013 update to the strategy calls for 50% of new builds will be wood-based by 2020.[554] The strategy established a **Wood Construction Council** which has a range of responsibilities including networking and collaboration beyond the municipality.

The County Administrative Board of **Västerbotten** received a government assignment in 2013, in collaboration with other interested municipalities, to develop cost-effective and innovative wood construction methods, to increase knowledge about wood as a building material and to get more municipalities to use wood in buildings. Since then, Västerbotten has convened a working group called **Trästad**[555] to assist other municipalities to develop their own timber building strategies and promote increased construction in timber. The Trästad Sverige association has a board of 13 members, chaired by the County Governor of Västerbotten.

The municipality of **Mönsterås**[556] promotes wood as a prioritized building material. It is part of an initiative led by regional associations and county administrative boards in three Småland counties, with support from Träcentrum, Möbelriket, Virserums Konsthall, Linnaeus University and Jönköping University. TMF, the Swedish Trade Union Federation and the Swedish Public Employment Service, as well as a large number of companies, are also actively supporting the initiative. Småland contains a sizeable portion of Sweden's wood-related industry.

Emission reduction targets for buildings

Sweden's updated National Energy and Climate Plan 2021-2030 (NECP)[557] of June 2024 identifies 'increased construction in wood and bio-based materials,' as a key area of action in the Government's Climate Action Plan.[558]

In 2017, the Riksdag voted for Sweden to have no net emissions of greenhouse gases by 2045 at the latest, and a climate law came into force in 2018.

The Nordic Council of Ministers declaration of September 2023, **Nordic commitment to low carbon construction and circular principles in the construction sector – common effort and**

[553] https://www.riksdagen.se/sv/dokument-och-lagar/dokument/motion/avskaffande-av-den-nationella-trabyggnadsstrategin_gw02c417/
[554] https://www.vaxjo.se/download/18.313cf36515d1bde9ee3205fb/1499862527332/Träbygnadsstrategi_ENG_webb.pdf
[555] https://www.trastad.se/om-trastad/
[556] https://www.trastad.se/wp-content/uploads/2019/05/strategi_monsteras.pdf
[557] https://commission.europa.eu/document/download/26d2c93e-641d-489f-a160-a7052fde58bb_en?filename=SE_FINAL%20UPDATED%20NECP%202021-2030%20%28English%29.pdf
[558] https://www.regeringen.se/contentassets/990c26a040184c46acc66f89af34437f/232405900webb.pdf

common gain,[559] commits to principles for the Nordic construction sector, including working towards reducing greenhouse gas emissions from building materials, establishing a common framework for calculating greenhouse gas emissions from the building sector, and commitment to continued Nordic collaboration on developing a framework for facilitating the circular economy in the building sector. **Nordic Sustainable Construction**[560] is the result of the Nordic Ministerial commitments, and convenes work packages on sustainable construction, including: a) Nordic harmonisation of Life Cycle Assessment; b) Circular business models and procurement; c) Sustainable construction materials and architecture; d) Emission-free construction sites; e) Competences for reuse in construction. There are mandatory climate declarations new buildings.

The Swedish Board of Housing, Building and Planning (Boverket) has been tasked by the government in 2022–2023 to submit a legislative proposal on when requirements for limiting the values of the climate impact of buildings can be introduced before 2027. In May 2023, Boverket submitted a final report to the government in the report *Limit value for the climate impact of buildings and an expanded climate declaration*.[561] Boverket proposed that limit values may be introduced on 1 July 2025 at the earliest, in the regulations on climate declarations. A climate declaration covering the entire life cycle of the building is proposed from 1 January 2027.[562]

Sweden will abide by the EU revised rules of 2024 **mandating global warming potential (GWP) reporting for buildings**[563] which is part of changes brought about by the revised EU Energy Performance of Buildings Directive (EPBD). It mandates that practitioners need to disclose the global warming potential (GWP) of new buildings by 2030. This must be stated on their energy performance certificates and calculated using a measure drawn from Level(s), the EU framework for sustainable and circular buildings.

Building codes

The Swedish National Board of Housing, Building and Planning (Boverket) follows Eurocodes, and builds on those to define Sweden's **Building Regulations** (BBR). When Sweden joined the EU in 1994, and harmonized its rules and regulations with that of the EU by adopting the first BBR, the long-standing ban on multi-storey wood construction in Sweden. After the BBR was adopted, the first three-story wood house built in accordance with the new building regulation was built in Växjö municipality, called Varendshus. In 1996, Sweden's first modern five-story wood-frame building was built at Välludden, Växjö, as a demonstration-building for the

[559] https://www.norden.org/sv/node/83010
[560] https://www.nordicsustainableconstruction.com/work-packages
[561] https://www.boverket.se/globalassets/engelska/limit-values-for-climate-impact-from-buildings-and-an-expanded-climate-declaration.pdf
[562] https://www.boverket.se/sv/byggande/hallbart-byggande-och-forvaltning/miljoindikatorer---aktuell-status/
[563] https://circulareconomy.europa.eu/platform/en/news-and-events/all-news/council-eu-adopts-revised-rules-mandating-global-warming-potential-reporting-buildings

purpose of developing wood construction technology following changes to the regulations.[564] New BBR buildings codes come into effect in July 2025.[565]

The Swedish government commissioned a review[566] of Swedish planning regulations to determine if they present obstacles to the increased use of sustainable and innovative construction solutions, such as industrial timber construction. The Swedish National Board of Housing, Building and Planning conducted the review and found that there are no unjustified obstacles. The primary finding if the review is that, "the main obstacle is the culture and traditions and norms that exist within the construction sector, which results in an inertia that characterizes the entire industry. **The level of knowledge about, and trust in, sustainable and innovative construction solutions is limited** among many construction operators, planners and designers. There is a lack of sufficient incentives to build sustainably and to apply solutions other than industry standards. There are innovative solutions but few actors are willing to act as a bridge between theory and practice." Since the intention of the stricter regulations is that the regulations should be material-neutral and that buildings with frames made of combustible materials should be as safe as all other buildings, this does not constitute an unjustified obstacle to wooden structures.

Insurance

Property protection insurance appears not to be a legal requirement in Sweden, but does increase the price of insurance charged by insurance companies.[567] The Swedish Timber Construction Agency has a knowledge exchange between the wooden construction industry and insurance companies, with a dialogue starting in 2023. The Robust Property Protection Project[568] seeks to address the fire safety challenges that exist in wood buildings and increase property protection from fire.

Taxation and incentives

Finance and investment

[564] https://www.diva-portal.org/smash/get/diva2:1442073/FULLTEXT01.pdf
[565] https://www.boverket.se/sv/byggande/regler-for-byggande/om-boverkets-nya-byggregler/
[566] https://www.boverket.se/globalassets/publikationer/dokument/2024/analys-av-hinder-for-hallbara-och-innovativa-konstruktionslosningar.pdf
[567] https://www.forumbetong.se/2024/09/24/fullvardigt-brandskydd-kostar-mer-for-byggherren/#:~:text=När%20elden%20väl%20tagit%20sig,lagkrav%20finns%20för%20detta%20idag.
[568] https://www.sverigesallmannytta.se/professorn-hus-i-tra-ar-lika-sakra-som-andra-hus/

TANZANIA

Sustainable forest management

The **National Forest Policy of 1998**[569] was introduced to replace those developed by colonial governments, and to define policy direction. The main objectives of the Forest Policy include sustainable supply of forest products and services by maintaining sufficient forest area under effective management; increased employment and foreign exchange earnings, ecosystem sustainability through forest conservation; and enhanced national capacity to manage forest sector. This led to a legal framework when the Forest Act was enacted in 2002, [570] which was then operationalised by the Forest Regulations Government Notice 153 of 2004.

The **Forest Act of 2002** provides the legal basis for sustainable forest products production and grants communities legal control over all forests on village land. The Forest Act also grants villages the exclusive right to charge royalties for produce from village land forest reserves. See tenure section below with further describes the Community Based Forest Management (CBFM).

The **Environmental Management Act of 2004**,[571] is a comprehensive framework law that directs the management of various sectors, including forests. The Act emphasizes environmental planning, environmental quality standards, and creating protection areas based on the ecological and socioeconomic characteristics of specific regions to ensure sustainable environmental practices and resource utilization.

The **National Forest Implementation Strategy (2021 – 2031**)[572] serves as a 10-year framework to implement the National Forest Policy (1998). The strategy aligns with national priorities (e.g., Tanzania Development Vision 2025, Third National Five-Year Development Plan 2021/22–2025/26) and global commitments (e.g., SDGs, UNFCCC, AFR100). It aims to enhance the forest sector's contribution to sustainable development, conservation, and management of natural resources for current and future generations. The overall goal is to enhance the forest sector's role in sustainable development and conservation. Specific Objectives include: a) ensure sustainable supply of forest products and services; b) increase employment opportunities and foreign exchange earnings; c) enhance ecosystem stability; d) strengthen national capacity to manage and develop the forest sector.

The Implementation Strategy includes four policy areas and three cross-cutting issues: 1) Forest Land Management to promote sustainable management of central, local, village, and private forests via management plans, strengthen PFM through JFM and CBFM, with clear benefit-sharing mechanisms, support private/community forestry with extension services and

[569] http://www.tzonline.org/pdf/nationalforestpolicy.pdf
[570] https://trade.tanzania.go.tz/media/Forest_Act_2002.pdf
[571] http://www.parliament.go.tz/polis/uploads/bills/acts/1454069944-ActNo-20-2004.pdf
[572] https://maliasili.go.tz/assets/pdfs/ForestPolicyImplementationStrategy(2021_2031)

incentives, and establish new reserves and improve tenure security ; 2) Forest-Based Industries and Products, to promote sustainable harvesting and value-added processing (e.g., timber, non-wood products), expand commercial plantations and improve seed supply, and enhance certification for environmentally sound practices; 3) Ecosystem Conservation and Management, to protect biodiversity and ecosystem services (e.g., water, soil stability), implement REDD+ to reduce emissions, supported by MRV systems, and align with international commitments (e.g., CBD, UNFCCC, Paris Agreement); 4) institutions and human resources, to build capacity of TFS, TAFORI, and other agencies through training and funding, foster public-private partnerships (PPPs) and stakeholder coordination, and enhanced research and extension services; 5) HIV/AIDS, to integrate health programs to support forest sector workforce and communities; 6) Gender to promote women's participation in PFM and decision-making; 7) Governance, for improved transparency, accountability, and anti-corruption measures, and to align forest decentralization with local government structures.

Tenure clarity and security for forest owners/users

70% percent of the forested land in Tanzania also includes villages, some of which host Village Land Forest Reserves (VLFRs). Yet, these villages are not provided with secure land tenure, since it can at any time be declared general land. [573] The Land Act vests all management of general land in the state. In Tanzania PFM is categorized into different forms: Joint Forest Management (JFM) and Community Based Forest Management (CBFM). JFM takes place on reserved land owned and managed by either the government (central or local) or private sector. In this approach, forest adjacent communities enter into joint management agreements to share responsibilities, costs and benefits with the owner. It is estimated that about 5.4 million ha of forests (mostly montane and mangrove forests) are under JFM arrangements. CBFM covers about 2.3 million ha mainly on forests in village lands. In this arrangement the local communities have full mandates to own and manage forests.[574] Community financial benefits from JFM and CBFM value chains are low.

Timber tracking, legality and production standards

Tanzania's **Forest Act of 2002**[575] contains a section on trade in forest produce. It defines rules as follows: a) Prohibition of export of forest produce without export certificate; b) Restrictions on exports; c) Authorisation of graders and inspectors; d) Inspection of forest produce before export; e) Prohibition of marking by unauthorised person; and f) Power to control movement of timber and other forest produce. Restrictions on imports of timber and other forest produce.

[573] https://research-api.cbs.dk/ws/portalfiles/portal/58899391/NEPSUS_WP2019_1.pdf
[574] https://faolex.fao.org/docs/pdf/tan191067.pdf
[575] https://trade.tanzania.go.tz/media/Forest_Act_2002.pdf

The **Framework for Assessing Legality of Forestry Operations, Timber Processing and Trade - Principles, Criteria and Indicators for Tanzania**[576] defines a set of indicators and the guiding provisions, legal evidence and legal references to support them. It seeks to consolidate. It is part of the Forestry and Value Chains Development (FORVAC) 6-year programme (July 2018 – July 2024) funded by the Ministry for Foreign Affairs of Finland (MFA Finland) and implemented under the Ministry of Natural Resources and Tourism of Tanzania. In 2018, FORVAC completed an assessment[577] of steps that could be implemented in Tanzania with the aim of reducing illegal logging, strengthening law enforcement and contributing to good forest governance, based on the EU Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan. Though Tanzania was not a priority country to enter into a Voluntary Partnership Agreements (VPA) under the EU FLEGT Action Plan, due to limited timber exports to the EU, elements of the FLEGT process were identified as holding strong potential to address challenges in Tanzania's timber supply chains. It produced the report due to the inadequacy of the existing legal frameworks to ensure sustainable forest management and protection. It built off a previous study, "*Study on the Feasibility of Implementing Measures Contemplated under the Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan in Tanzania*" (2017), financed by the Embassy of Finland, which concludes that a range of measures exists that could be implemented in Tanzania that would have a positive contribution to the forest sector and forest governance. A series of recommendations were provided on the development of a Timber Legality Assurance System (TLAS) within Tanzania.

The lack of guidelines and policies on how to manage transboundary forest resources leads to increased degradation of those resources with knock-on effects on community livelihoods. This is an added challenge to a range of others that are prioritized for policy and practical change to deliver on local livelihood needs related to Tanzania's forests.[578]

In 2018, the **Forest Stewardship Council** (FSC) approved the FSC National Forest Stewardship Standard (NFSS)[579] of Tanzania Mainland. The NFSS is applicable to all forest operations seeking FSC certification for forest management in Tanzania. As of 2021, Tanzania had 227,688 hectares of certified forest and four forest management/chain of custody certificates.[580] The Tanzania national forest stewardship standard has been approved by FSC and is now included within the Tanzania Bureau of Standards (TBS).[581]

FSC certification has been piloted with the Mpingo Conservation Development Initiative (MCDI) and Kilombero Valley Teak Company (KVTC) in a community-based forest management

[576] https://forvac.or.tz/wp-content/uploads/2022/06/Framework-for-Assessing-Legality-of-Forestry-Operations-Timber-Processing-and-Trade-HANDBOOK.pdf
[577] https://forvac.or.tz/wp-content/uploads/2021/01/Overview-of-Tanzanian-Readiness-for-the-Implementation-of-the-EU-FLEGT-Action-Plan.pdf
[578] https://www.uongozi.go.tz/newsite/wp-content/uploads/2025/03/Forest-governance-2025_Web.pdf
[579] https://connect.fsc.org/document-centre/documents/resource/289?search=&page=%2C0%2C13%2C0%2C0
[580] https://africa.fsc.org/sites/default/files/assets/FSC_newsentry_1625752668_file.pdf
[581] https://forvac.or.tz/wp-content/uploads/2023/12/FORVAC-Amended-Programme-Document.pdf

model[582] to sustainably manage southern Tanzania's miombo woodland. MCDI, a conservation NGO, has been a pioneer in setting up and supporting Village Land Forest Reserves (VLFRs) legislated by the Tanzanian government to incentivise forest protection by giving communities authority to manage forests around their village. Since they don't pay government royalties, VLFRs have a market advantage, being able to sell at a lower price than royalty-paying commercial companies. The VLFR model is premised on a mutually beneficial transfer of skills, knowledge, networks and market access. The team supported 90 villages across Tanzania to secure legal ownership of their local forests and sustainably manage them. Seventeen of those villages with more than 200,000 hectares of natural forests are certified under the FSC standard. A JICA-funded assessment[583] of FSC-certified *Dalbergia melanoxylon* wood for purchase from FSC certified community forests by the Yamaha Corporation was completed which has insights related to the supply chain.

Trade policies, restrictions on wood imports and avoiding leakage

See above section on **Framework for Assessing Legality of Forestry Operations, Timber Processing and Trade - Principles, Criteria and Indicators for Tanzania.**

The Kenya Forestry Research Institute (KEFRI) estimates[584] that Kenya-Tanzania illegal trade resulted in the loss of 70,000 hectares of forests and $10 million in foregone taxes. Deforestation deprives Tanzania of revenue. It is estimated to cost the country's economy up to US$ 3.5 billion by 2033.[585] Tanzania and Kenya signed a Memorandum of Understanding[586] in March, 2015 to increase border patrols, create one-stop border points and harmonize bureaucratic processes like taxes and customs. It has been partially implemented.

Innovations in wood product manufacturing and training/capacity

The **National Engineered Wood Sector Development Framework 2021-2030** (full report[587] and policy brief[588]) provides an overview of the state of sector, and potential of Tanzania's engineered wood sector to support Tanzania Vision 2025 and the national industrialization agenda. It covers the challenges and opportunities that need to be addressed and the specific interventions proposed to grow the sector. The Development Framework were developed by the Tanzania National Business Council (TNBC) Forest Working Group, with the involvement of the engineered wood products (EWP) policy, economics, and business experts. The Ministry of

[582] https://storymaps.arcgis.com/stories/175adf431d484facb51d9ee9b704a981
[583] https://openjicareport.jica.go.jp/pdf/1000042012.pdf
[584] https://www.theeastafrican.co.ke/tea/sustainability/africa-timber-trade-still-stuck-in-the-woods-4326324
[585] https://africa.fsc.org/sites/default/files/assets/FSC_newsentry_1625752668_file.pdf
[586] https://news.mongabay.com/2017/01/despite-delays-kenya-and-tanzania-continue-to-push-against-illegal-logging/
[587] https://www.cfwt.sua.ac.tz/ecosystems/news/action-plan-for-the-national-engineered-wood-sector-development-framework
[588] https://www.fsdkenya.org/wp-content/uploads/2022/03/Tanzania-National-Engineered-Wood-Sector-Development-Framework-2021.pdf

Natural Resources and Tourism will oversee the strategy's implementation. The total estimated budget is TZS 58.32 bn over ten years.

The Development Framework emphasizes: a) addressing the challenge of decreasing raw material supply through improved efficient utilization of raw material and waste; b) address the challenge of reduced availability of large-sized logs as raw material, by increasing efficiency in use of small dimension and short rotation trees that are prevalent in private plantations and woodlots; c) promote engineered wood products as part of a 'green economy' future for more sustainable, environmentally-sound industrial development; d) work towards a vision of higher value engineered wood products for both domestic and export markets, particularly as Tanzania wood prices remain stagnant; e) help processors to minimize cost of production and maximize processing returns, while also aligning with government policies to further develop domestic wood-based industries and creating alternative markets to those that exist for conventional timber products.

The **Improved forest value chains contributing to sustainable forestry and forest-based livelihoods** project[589] was a 6-year programme (July 2018 – July 2024) funded by the Ministry for Foreign Affairs of Finland and implemented under the Ministry of Natural Resources and Tourism of Tanzania, under Forestry and Value Chains Development (FORVAC).[590] It aimed to increase economic, social and environmental benefits from forests and woodlands, and shift emphasis from community-based forest management to sustainable utilisation and forest value chain. The programme concentrated more on strengthening institutional frameworks and creating an enabling environment for the private sector stakeholders to manage and utilise natural forest sustainably. Adoption of business and market-driven value chain approach is at the core of the Programme as is linking up with business development providers and private sector, based in an approach to work with clusters of districts, building on the critical mass of successful value chains based in VLFRs and thus generating positive economic and social impacts in the surrounding communities and districts. The Extension Phase was from 2022-2024.

The residential housing market is dominated by individual homebuilders who account for over 70% of the total supply. Housing demand is increasing by about 200,000 units annually, with the current housing deficit estimated at about 3 million units, according to Tanzania Ministry of Lands, Housing and Human Settlements Development.[591]

A Tanzanian Wood Product Market Study[592] was commissioned by the Forestry Development Trust, and a key finding is that timber demand (not including wood energy) is expected to more than double in round wood equivalent of between 2013 (national consumption of 2.3 million m^3) and 2035 (5.2 million m^3), driven primarily by the construction sector and paper consumption. This supply deficit is of concern. The report identifies pathways forward,

[589] https://forvac.or.tz/wp-content/uploads/2023/12/FORVAC-Amended-Programme-Document.pdf
[590] https://forvac.or.tz
[591] https://www.trade.gov/country-commercial-guides/tanzania-construction
[592] https://forestry-trust.org/wp-content/uploads/2018/01/2017_UNIQUE-Tanzania-Wood-Market-Study-FINAL.pdf

recognizing that the commercial forestry sector in Tanzania is in a period of transition as the supply base moves away from the large private and government plantations towards small and medium scale tree growers. The processing landscape is not set up to efficiently serve small growers and the quality and productivity of their woodlots are low, meaning the sector is performing well below its potential. With small and medium tree growers set to remain key players in the sector, there is therefore a vital need to ensure continued focus on driving higher productivity and quality in their woodlots. From a market perspective, there is the requirement to look to catalyze investment in better processing technology, but only where a minimum set of conditions are met. The report identifies a need for an aligned vision for the evolution of the sector, better linkages between different actors in the value chain should be sought, standards for raw material and wood products should be promoted and there could be the opportunity to try to drive pro-wood procurement policy from public sector sectors to help drive demand for wood products.

A Wood Cluster[593] research initiative was funded by the German government, linking researchers across the countries under the initiative "Partnerships for Sustainable Solutions with Sub-Saharan-Africa: Measures for Research and Integrated Postgraduate Training and Continuing Training.[594] It is unclear what the project outcomes were.

Capacity gaps exist in the skilled workforce needed to build the value chain. Just on the supply side, the estimated need for foresters is 4,249 people, and the deficit is 2,317 foresters. Thus, the sector is operating at 45.47% of the required minimum capacity. Under ideal conditions, a professional forester should manage up to 5,000 ha of natural forest. However, the sector currently has on the average over 20,000 ha per forester. With the current forest estate of 48.1 million ha, the sector will require over 9,000 professionals in the future.[595]

The Government strengthens forest research through TAFORI.[596] To coordinate, guide and implement demand-driven research, TAFORI coordinated the consultative formulation of the National Forestry Research Master Plan (2011– 2020).

Reclaimed wood and recycled materials

Reclaimed wood and recycled materials are critical for forest-positive buildings, as they reduce the demand for virgin timber, minimize waste, and promote circular economies. In Tanzania, the use of reclaimed wood and recycled materials in construction is emerging but not yet mainstream, driven mostly by sustainability initiatives and cost considerations. With regard to current practices, Tanzania has seen limited but growing interest in reclaimed wood,

[593] https://tu-dresden.de/bu/umwelt/forst/inter/tropen/ressourcen/dateien/forschung/project-summary?lang=en
[594] https://www.daad.de/en/information-services-for-higher-education-institutions/further-information-on-daad-programmes/partnerships-with-sub-saharan-africa/
[595] https://faolex.fao.org/docs/pdf/tan191067.pdf
[596] https://tafori.or.tz

particularly in urban areas like Dar es Salaam, where construction waste is a concern. Projects like the affordable green residential complex highlighted by Ulyankulu[597] (Jeju Architects)[598] emphasize sustainable materials, though specific mentions of reclaimed wood are scarce. Recycled materials, such as concrete and metal, are more common in small-scale projects, but a lack of formal recycling infrastructure hinders wood reclamation. Tanzania's National Environmental Policy (1997, updated 2021) encourages sustainable resource use, but it does not explicitly address reclaimed wood. The Forest Policy of Tanzania (1998) promotes sustainable forest management but lacks provisions for wood recycling or reclamation. The absence of specific regulations for reclaimed wood in construction limits its adoption. Additional barriers include limited awareness, lack of certification for reclaimed wood (e.g., Forest Stewardship Council standards), and inadequate waste management systems. The informal nature of Tanzania's timber market also complicates tracking and verifying reclaimed wood sources. Tanzania could develop a national strategy for reclaimed wood, aligning with FCLP goals, by incentivizing recycling programs and integrating reclaimed wood into building codes**.**

Green building certification

Green Mark, LEED, and Green Star are the green building certification standards implemented in Tanzania. There are no clear government policies and regulations mandating the application of green building certification or practices in building development in Tanzania. The Professional Registration Acts, such as the Architects and Quantity Surveyors Registration Act No.4 of 2010, the Engineers Registration Acts No 15 of 1997, and the Contractor Registration Acts of 1997, do not offer adequate guidelines for green building certification or standards.[599]

Public procurement

There are not existing public procurement policies in place that favours or promotes timber (or other values and products). A 2021 study[600] assessed the potential for procurement policies that favours local wood and as a means to improve forest management.

Wood in Construction policy

Policies promoting wood in construction are pivotal for forest-positive buildings, as sustainably sourced wood can store carbon and replace high-emission materials like cement. Tanzania's construction sector is growing rapidly, but policies specific to wood use are underdeveloped. *Policy Landscape*: Tanzania's National Construction Policy (2003) focuses on improving construction standards but does not prioritize sustainable materials like wood. The Forest Policy

[597] https://archidiaries.com/projects/wayair-foundation-school-jeju-studio/
[598] https://jeju.studio/portfolio/ulyankulu-school/
[599] https://www.mdpi.com/2071-1050/16/7/2963
[600] https://www.zbw.eu/econis-archiv/bitstream/11159/7120/1/1789534909_0.pdf

(1998) encourages sustainable timber production but does not explicitly link to construction. The Tanzania Bureau of Standards (TBS) sets building material standards, but these are oriented toward concrete and steel, with minimal guidance on timber. *Current Use*: Wood is used in Tanzania for low-cost housing and rural construction, often sourced formally and informally. Urban construction favors concrete due to durability perceptions and regulatory familiarity. The lack of technical standards for engineered wood (e.g., cross-laminated timber) limits its use in modern buildings. *Barriers*: Weak forest governance, inadequate certification systems, and limited technical expertise hinder sustainable wood use. The affordable green residential complex in Tanzania (FuturArc, 2022) may incorporate sustainable wood, though specific policies are not cited. Community-based forest management (CBFM) in Tanzania can provide sustainably sourced timber for local construction, but this is not yet integrated into urban building policies. Hence, Tanzania could adopt building codes that incentivize certified sustainable wood, and invest in training for engineered wood technologies.

Emission reduction targets for buildings

The United Republic of Tanzania commits to reduce greenhouse gas emissions economy-wide between 30-35% relative to the Business-As-Usual (BAU) scenario by 2030, as per its 2021 NDC2 to the Paris Climate Agreement.[601] Though it does not contain an emission reduction target specifically for the building and construction sector, the NDCs priority mitigation sectors are energy, transport, forestry, and waste management. The forestry mitigation priorities are: a) enhance and upscale implementation of participatory forest management programmes; b) facilitate effective and co-ordinated implementation of actions that will enhance the contribution from the entire forest sector; and c) promote nationwide forest landscape restoration programmes and initiatives. The NDC emphasizes climate adaptation (climate impact costs are predicted to be US$1 billion per year by 2030), and with regard to land use and human settlement development, seeks to promote resilient land use planning and management, and human settlements development. The NDC bases its targets on the National Climate Change Response Strategy (2021) and the Zanzibar Climate Change Strategy (2014) comprehensively elaborate adaptation measures and mitigation actions.

Building codes

Tanzania does not have a national building code. Building codes were developed by the Architects Association of Tanzania (AAT) in 2003, but were never fully adopted by the government.[602] However, Tanzania has **Urban Planning (Building) Regulations of 2018**,[603] which contains significant guidance on processes, materials, standards and minimum measures, and exemptions. The Tanzanian Wood Product Market Study[604] identifies that the

[601] https://unfccc.int/sites/default/files/NDC/2022-06/TANZANIA_NDC_SUBMISSION_30%20JULY%202021.pdf
[602] https://www.iccsafe.org/products-and-services/global-services/countries/tanzania/
[603] https://www.lands.go.tz/uploads/documents/sw-1732795157-GN.%2080%20URBAN%20PLANNING%20%20BUILDING.pdf
[604] https://forestry-trust.org/wp-content/uploads/2018/01/2017_UNIQUE-Tanzania-Wood-Market-Study-FINAL.pdf

building regulations currently in use are frequently outdated and their enforcement is weak. While the formulation of building regulations is done at ministry level, their enforcement is the responsibility of the local government authorities. Lack of appropriate building regulations and standards, and enforcement thereof, contributes to poor quality of buildings and weak demand for high quality construction materials.

The Tanzania Bureau of Standards (TBS) publishes standards of direct relevance to those in the construction industry using wood materials.[605] However, for many years formulation of standards has been slow mainly due to lack of sufficient human and financial resources on the part of TBS and lack of direct commitment by the industry in standardization of works.

Insurance

Tanzania's insurance market is regulated by the Tanzania Insurance Regulatory Authority (TIRA), but policies specific to green or wooden buildings are absent. Standard property insurance covers conventional materials like concrete, but wood-based structures may face higher premiums due to perceived risks, despite evidence that sustainably designed wooden buildings can be as safe as others. There is limited awareness of green building benefits among insurers, a lack of data on wooden building performance in Tanzania, and there are no specific examples of insurance for forest-positive buildings.

Taxation and incentives

Tanzania has made strides in green incentives but lacks targeted measures for forest-positive construction. Existing Incentives do not specify preference/promotion of wood: The Tanzania Investment Centre (TIC) offers incentives for sustainable investments, including tax exemptions for renewable energy and environmental projects, but these do not explicitly cover forest-positive buildings. The Finance Act (2023) provides VAT exemptions for some green technologies, but sustainable wood or reclaimed materials are not included.

Tanzania's tax regime, regulated by the Tanzania Revenue Authority (TRA), imposes standard VAT (18%) and import duties on construction materials, including timber. No specific tax breaks exist for sustainably sourced or reclaimed wood, which discourages their use.

South Africa has tax incentives for green building energy use, and there is more that could be explored with regards to materials on the continent and in Tanzania. Tanzania's green policies are often specific to energy and water savings, not materials like wood. Examples include the TIC's incentives for foreign investors including tax holidays for projects with environmental benefits, but no documented cases target forest-positive buildings.

[605] https://www.tbs.go.tz/uploads/publications/en-1616654900-Building_and_Construction_List_of_draft_Tanzania_Standards_for_commenting.pdf

Community based forest management projects have received carbon payments from the FCPF REDD+ results-based payment programme, but these are not linked to using proceeds to support livelihoods and homes through sustainable wood construction.

Finance and investment

The Tanzania Forest Services Agency identifies a few areas for future investment,[606] including; a) areas in degraded forest reserve that government assessed could be converted into plantations, with five sites having been identified including Pagale, North Ruvu forest plantations, Mafleta (Morogoro), Muhuwesi and Sao Hill; b) bamboo covering an area of about 1,025,033 ha in Mainland Tanzania which in most cases is degraded land, can be processed and fabricated into different products as a substitute for wood products such as furniture, boats, kitchen utensils, incense sticks, charcoal and footwear, and if used as a substitute for concrete, it reduces GHG emissions; c) engineered wood products processing; d) potential forests for carbon offsets/trading, especially in mangrove, montane and lowland forest, and closed woodlands; and d) resin production and extraction in Tanzania pine forests.

[606] https://www.tfs.go.tz/forests/investment/category/forests

UNITED KINGDOM

Sustainable forest management

The **UK Forestry Standard** (UKFS)[607] is the technical standard for sustainable forest management across the UK, and applies to all woodland, regardless of who owns or manages it. The current version applies from October 2024 for all woodland creation and management activity in the UK, regardless of ownership type. It is intended to be applied by professional foresters, forest owners, managers and practitioners, regulators and advisers. The UKFS outlines the context for forestry in the UK. It defines the requirements and provides a basis for regulation and monitoring, including national and international reporting. Mapped against internationally agreed criteria and indicators for sustainable forestry, the UKFS provides requirements and guidelines for sustainable forest management in the areas of biodiversity, climate change, historic environment, landscape, people, soil and water. The UKFS underpins the implementation of devolved forestry policies, strategies, grant schemes and regulatory frameworks across the UK, it does not include detailed country-specific information, which are rather elaborated by England, Scotland, Ireland and Whales.

In England, the UKFS builds on the primary forestry legislation contained within the 1967 forestry act which gives the Forestry Commissioners (via the forestry commission) a "duty of promoting the interests of Forestry, with the development of afforestation and the production and supply of timber and other forest products in Great Britain (sect. 1). In pursuance of their duties they shall maintain a balance between economic interests and conservation of flora, fauna and the landscape." This duty is enacted through a range of regulatory process and incentives; the primary regulatory instrument being felling control via felling licences.

The **Environment Act 2021** includes a statutory target to increase tree canopy and woodland cover in England to 16.5% by 2050, that stimulates tree planting of both hardwoods and softwoods.

The **Environmental Improvement Plan 2023**, which sets out how the Environment Act goals will be delivered, is currently under review, with a new EIP (EIP25) to be published later this year. This will include setting new interim goals for tree coverage to support delivery of the statutory target. The Environmental Improvement Plan Annual Progress Report 2023-2024[608] identifies that for the apex goal of 'thriving plants and wildlife' there are significant pressures, including habitat loss and fragmentation, climate change, pollution, and invasive species which have

[607] https://assets.publishing.service.gov.uk/media/651670336a423b0014f4c5c0/Revised_UK_Forestry_Standard_-_effective_October_2024.pdf

[608] https://www.gov.uk/government/publications/environmental-improvement-plan-annual-progress-report-2023-to-2024/environmental-improvement-plan-annual-progress-report-2023-to-2024

created declines. There is a legally binding target to halt the decline in species abundance by 2030, and the 2024 progress report identifies potential progress towards this target.

Following on the 2019 UK net zero GHG emissions target for 2050, the Committee for Climate Change released **Land Use: Policies for a Net Zero UK**[609] in 2020. The report identified that in 2017, the total emissions from agriculture, land use and peatlands across the UK was 58 million tonnes of CO_2e, but with ambitious steps, these emissions could be reduced by 64% to 21 Mt CO_2 e by 2050. The report notes, "Increasing UK forestry cover from 13% to at least 17% by 2050 by planting around 30,000 hectares or more of broadleaf and conifer woodland each year (7,000 hectares to be planted in England, 18,000 in Scotland, 2,000 in Wales and 3,000 in Northern Ireland). Together with improved woodland management this would deliver annual emissions sequestration by 2050 of 14 $MtCO_2e$ in forests with an additional 14 $MtCO_2e$ from harvested materials. Planting trees on agricultural land, while maintaining their primary use (agroforestry), could deliver a further 6 $MtCO_2e$ savings by 2050." To assist in reforestation efforts, the UK government created the Woodland Carbon Code's carbon calculator to provide estimates of CO^2 capture for four woodland types on the same area of land.[610]

Since February 2024, developers in England are required to deliver 10% Biodiversity Net Gain (BNG)[611] for new developments, to ensure that better quality natural habitat is taken into consideration in building. BNG is mandatory under Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021).

Scotland's Forestry Strategy 2019–2029[612] contains the following objectives: a) increase the contribution of forests and woodlands to Scotland's sustainable and inclusive economic growth; b) improve the resilience of Scotland's forests and woodlands and increase their contribution to a healthy and high quality environment; c) and increase the use of Scotland's forest and woodland resources to enable more people to improve their health, well-being and life chances. Priorities are: a) ensuring forests and woodlands are sustainably managed; b) expanding the area of forests and woodlands, recognising wider land-use objectives; c) improving efficiency and productivity, and developing markets; d) increasing the adaptability and resilience of forests and woodlands; e) enhancing the environmental benefits provided by forests and woodlands; f) engaging more people, communities and businesses in the creation, management and use of forests and woodlands.

The **Welsh government's** woodland's estate and policy supporting sustainable forest management contains a number of policies and guidelines.[613] Wales produces around 850,000

[609] https://www.theccc.org.uk/publication/land-use-policies-for-a-net-zero-uk/
[610] https://www.woodlandcarboncode.org.uk/standard-and-guidance/3-carbon-sequestration/3-3-project-carbon-sequestration
[611] https://www.gov.uk/guidance/understanding-biodiversity-net-gain
[612] https://www.gov.scot/publications/scotlands-forestry-strategy-20192029/
[613] https://naturalresources.wales/about-us/what-we-do/our-roles-and-responsibilities/forestry/?lang=en

tonnes of timber each year. The Welsh government is currently consulting on a **Timber Industrial Strategy**,[614] which will be published later in 2025.

In **Northern Ireland**,[615] research[616] has evaluated the role that trees, woods and forests play in providing a range of forest ecosystem goods and benefits, their contribution to net zero goals, tackling the biodiversity crisis, and economic development,

Tenure clarity and security for forest owners/users

The majority of forests in the UK are owned by the private sector. Forestry England, Forest and Land Scotland, Natural Resources Wales, and the Northern Ireland Forest Service collectively own or manage 26% of woodland area in the UK. However, in 2023 public sector forests produced 43% of total softwood harvested and 11% of total hardwood harvested.

Timber tracking, legality and production standards

The UK imports 81% of the timber and wood-based products it consumes and is the second largest importer of timber in the world, after China. The vast majority of these products are softwood-based.

To address the illegal harvesting of timber, there are currently two sets of regulations in place. The **Timber and Timber Products Placing on the Market Regulations 2013** (UKTR) which prohibits placing illegally harvested timber on the market, replaces the previously applicable EU Timber Regulation (EUTR), with the same requirements. The UKTR requires businesses trading in timber and timber products to take steps to ensure that they originate from legal sources. The **Forest Law Enforcement Governance and Trade (FLEGT) Regulations** aim to improve the supply of legal timber and timber products. Timber imported from countries that have implemented voluntary partnership agreements (VPAs) with the UK – currently only Indonesia – must be accompanied by a FLEGT licence. Guidance[617] is provided for businesses trading in timber and timber-related products. Through the UKTR and FLEGT Regulations, timber supply chains are regulated to ensure harvesting practices are legal, encourage sustainable harvesting practices and support global forest governance.

For domestically produced timber, the UK Forestry Standard is the key reference document on forestry practice for the independent UK Woodland Assurance Standard (UKWAS), which is a certification standard adopted by both the FSC and PEFC to certify responsible forest management in the UK. It can be used for assessing compliance as part of an environmental management system such as ISO 14001. The UKFS also underpins the Woodland Carbon Code,

[614] https://www.gov.wales/timber-industrial-strategy
[615] https://www.daera-ni.gov.uk/topics/forestry
[616] https://cdn.forestresearch.gov.uk/2022/07/FRRN042.pdf
[617] https://www.gov.uk/guidance/regulations-timber-and-flegt-licences

a government-backed quality assurance standard for woodland creation projects in the UK. Projects under the Code are UKFC compliant.

UK government's **Timber Procurement Policy** is elaborated in the public procurement section below. Of note, the Timber in Construction Roadmap (2023) identifies that government will review the government's *Timber Procurement Policy* in 2024, including assessing the *Grown in Britain Certification Scheme* against the criteria to be considered Category A evidence of legality and sustainability. This review is underway and, if successful, British Timber certifications will be included in the list of approved sustainability standards for the first time.

Trade policies, restrictions on wood imports and avoiding leakage

The **Timber in Construction Roadmap** seeks to address leakage concerns by ensuring that any increases in the use of timber are sustainable and do not contribute to greater rates of global forest degradation or deforestation. This is identified as a core principle at the beginning of the roadmap, which includes a commitment to assess options for monitoring impact of policies promoting timber, to ensure they are in line with wider goals for tackling global deforestation and degradation.

The UK Carbon Border Adjustment Mechanism is a policy ensuring that imported goods bear the same cost of carbon emissions as those manufactured in the UK, but it does not include wood in the list of industrial goods and materials.[618] The UKTR is the relevant regulation aimed at addressing leakage concerns.

Innovations in wood product manufacturing and training/capacity

UK Fires published **The Construction Sector under Absolute Zero** (2022)[619]. The report highlights research findings and future research questions on the full range of constructions materials and throughout the supply chain. It offers a high-level overview. UK Fires is a collaboration between the universities of Cambridge, Oxford, Nottingham, Bath and Imperial College London, funded by the UK Engineering and Physical Sciences Research Council. UK Fires focusses on investments in research and postgraduate training.

The **Land Use: Policies for a Net Zero UK**[620] report suggests 'supporting the scaling-up of capacity of the domestic forestry supply chain, from nurseries to sawmills and wood processors." The UK forestry and wood processing sector also published the **National Wood Strategy for England** in 2023, setting out how England's forest and wood-based industries - in collaboration with government, non-governmental organisations and professions membership organisations - can increase the growing, harvesting and production of timber in

[618] https://committees.parliament.uk/writtenevidence/133120/pdf/
[619] https://www.repository.cam.ac.uk/items/f0e8faca-773a-4c69-8d23-13470d21b3b5
[620] https://www.theccc.org.uk/publication/land-use-policies-for-a-net-zero-uk/

England. The **Environmental Improvement Plan 2023** also contains information that the UK government will grow and maintain a sustainable, long-term UK timber supply.

Though it is a private sector supply chain body to promote timber in the UK, various government reports mention the Timber Development UK and NMITE report, **Timber in Construction Skills Action Plan**,[621] which provides an industry-agreed competency framework outlining essential skills and knowledge for practitioners. It would presumably be a key source of information to guide government support to address occupational skills gaps and address the growing demand for skilled labour and competent professionals.

The **Timber in Construction Roadmap** identifies that government will conduct research to quantify additional workforce requirements for a range of scenarios of increased use of timber in construction by December 2024. Increasing skills, capacity and competency across the supply chain is a priority theme in the roadmap. Defra is investing in the forestry sector workforce as there are currently not enough people with the right skills to support current and anticipated needs in the forestry sector. To change this, Defra is creating a sector skills plan – a ten-year vision with agreed key issues and actions. The plan will be a joint government – sector document. It will set out the actions each is taking to increase the capacity of and upskill the forestry sector.

Scotland provides a number of resources to promote sustainable construction timber, including 'Wood for Good' which has comprehensive information on building with carbon and lifecycle data for timber products, and the Library of Sustainable Building Materials in Glasgow, which showcases sustainable, traditional and emerging low carbon building products to promote and encourage innovative construction in Scotland using local resources.[622]

Reclaimed wood and recycled materials

Government has set out its aims to reduce construction waste and increase the reuse of construction materials at their highest value in the 2023 Waste Prevention Programme for England: Maximising Resources, Minimising Waste. Already fewer than 1% of UK timber and wood products go to landfill, which is a significant achievement.

The **Routemap to Zero Avoidable Waste in Construction**[623] was published in 2021, by the Green Construction Board Taskforce. This sets out actions for pre-construction design, use of materials in construction and demolition practices. It is comprehensive, covering all materials and processes.

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[621] https://timberdevelopment.uk/resources/skills-action-plan/

[622] https://www.forestry.gov.scot/forests-environment/climate-change?view=article&id=542:sustainable-construction&catid=45

[623] https://www.constructionleadershipcouncil.co.uk/wp-content/uploads/2021/07/08705-ZEW-Routemap-PRINT-v13.pdf

The **National Model Design Code** (2021)[624] [625] provides tools and guidance for planning authorities to embed circular economy principles and reduce embodied carbon, as well as reduce and reuse materials in construction. Public sector construction projects have to comply with Building Information Modelling Level Two.

Zero Waste Scotland[626] is circular economy public body, bringing together government, business, and communities for zero waste solutions. Building Information Modelling, whole-life costing and other tools and guidance are offered through this platform.

The **Timber in Construction Roadmap** identifies opportunities for encouraging greater circularity in timber supply chains.

Green building certification

To fulfill the UK government commitment to the Net Zero Model, public procurement and building must adhere to either the BREEAM or NABERS UK standards. These are standards that help developers and designers make decisions to lower the carbon budget of buildings and supports disclosures and reporting requirements. Both standards provide methodologies for assessing embodied carbon, and NABERS UK specifically has focussed on energy performance. Both standards do not prioritize wood or mass timber over other materials. That said, innovation in applying BREEAM to promote locally sourced wood as advanced in partnership with the Forestry Commission in the Adapt Enterprise Centre, which used locally-sourced timber for its construction and achieved BREEAM rating of Outstanding.[627] The NABERS UK Design for Performance scheme, launched in 2021, was utilized by the Times Square project and achieved a 5-star rating.[628] The Times Square hybrid steel and Cross Laminated Timber (CLT) structure resulted in an embodied carbon intensity about half that of a typical London office building.

The **UK Net Zero Carbon Buildings Standard**,[629] sets out a maximum level of embodied carbon that must not be exceeded in order to assess what constitutes a net-zero building. Various technical standards and methodologies have also been developed to measure a building's embodied carbon footprint, such as the RICS Whole Life Carbon Assessment for the Built

[624] https://www.gov.uk/government/publications/national-model-design-code
[625] https://assets.publishing.service.gov.uk/media/611105f98fa8f506c58e786f/National_Model_Design_Code_-_Part_2_Guidance_Notes_web.pdf
[626] https://www.zerowastescotland.org.uk/resources/reducing-construction-waste
[627] https://breeam.com/web/bre-group/case-studies/sustainable-timber-adapt-enterprise-centre?p_l_back_url=%2Fbreeam_search%3Fq%3Dmass%2Btimber
[628] https://www.betterbuildingspartnership.co.uk/nabers-uk-names-landsec's-timber-square-first-certified-design-performance-project
[629] https://www.nzcbuildings.co.uk/

Environment[630] and the RIBA Guidance on Embodied and Whole Life Carbon Assessment for Architects,[631] which does mention timber in the biogenic carbon section.

Public procurement

Sustainability and Net Zero Annex of the Workplace Design Guide[632] (October 2024) sets out the standards that new build and refurbished buildings must meet to achieve the UK Government's net zero commitment.

The **Government Buying Standard (GBS)** set out minimum and best practice requirements for UK government procurement of a range of goods and services. They are under review to ensure they are aligned with the Workplace Design Guide and latest government policy, including on timber.

Timber must be purchased in accordance with the **UK** Government's **Timber Procurement Policy**. Only timber and timber products originating either from independently verified legal and sustainable sources (which can be proved through either Category A or Category B evidence) or from a licensed Forest Law Enforcement Governance and Trade (FLEGT) partner can be purchased. Recycled timber is also accepted.

The **Timber Procurement Advice Note[633]** (June 2013) informs central government departments in England, the wider public sector and also suppliers about the requirements of the UK government's Timber Procurement Policy. The Note sets out what the TPP means for each stage of the public procurement process when purchasing timber and wood-derived products, explains the types of evidence which demonstrate compliance with the 'UK Government Timber Procurement Policy, Definition of Legal and Sustainable for Timber Procurement' (2013). Devolved administrations in Scotland, Wales and Northern Ireland have issued their own policies and guidance.

Wood in Construction policy

The **Timber in Construction Roadmap**[634] was revised in 2025 (previous version was from 2023), to increase use of timber in the construction of homes and buildings to reduce greenhouse gas emissions from the built environment. The roadmap derived from recommendations

[630] https://www.rics.org/globalassets/rics-website/media/news/whole-life-carbon-assessment-for-the--built-environment-november-2017.pdf
[631] https://www.architecture.com/knowledge-and-resources/resources-landing-page/whole-life-carbon-assessment-for-architects?srsltid=AfmBOooMKqYS0YJ2G5hBES15-FvUQfZ4jY3P-RSGO2ytY6bH78xT-3bF
[632] https://www.gov.uk/government/publications/the-government-workplace-design-guide/sustainability-and-net-zero-annex#overview
[633] https://assets.publishing.service.gov.uk/media/5a7df92940f0b62302688570/2013_05_08_-_CPET_TPAN_5th_ed_-_Final.pdf
[634] https://www.gov.uk/government/publications/timber-in-construction-roadmap-2025/timber-in-construction-roadmap-2025

made by the Climate Change Committee that government develop new policies to increase the use of wood in construction. Government subsequently committed in the England Trees Action Plan, Net Zero Strategy and Environmental Improvement Plan to create a document for increasing the safe use of timber in construction in England.

The Roadmap outlines opportunities and challenges to increasing the use of timber in construction in England, centred around seven priority themes: 1) improving data on timber and whole life carbon; 2) promoting the safe, sustainable use of timber as a construction material; 3) increasing skills, capacity, and competency across the supply chain; 4) increasing the sustainable supply of timber; 5) addressing fire safety and durability concerns to safely expand the use of engineered mass timber; 6) increasing collaboration with insurers, lenders, and warranty providers; 7) promoting innovation and high performing timber construction systems.

Modern Methods of Construction (MMC) is a collective term for off-site construction methods in the UK that are more efficient than the traditional 'brick and block' method of construction. The use of MMC, which includes timber frame, can reduce embodied carbon, reduce construction waste, and create energy efficient homes. In July 2024, the Government announced that it will publish a new Long-Term Housing Strategy (LTHS) that will set out a vision for the housing market, and its approach to delivering 1.5m homes this Parliament. The LTHS will include the Government's approach for driving MMC adoption, including increasing the use of timber in housebuilding, where there is significant potential to build on the sector's adoption to date (in 2019, only 9% of England's new build homes were timber framed, in contrast to 92% in Scotland).

In Wales, **Powys County Council** adopted a **Wood Encouragement Policy**[635] in 2023 that defines eight priorities to advance wood in public and general construction. The first activity is to ensure that all briefs for new Council housing projects (subject to any grant constraints) incorporate the requirement to use wood as the preferred material for both construction and fit out purposes, where wood is deemed a suitable and cost- effective material for the proposed application.[636]

Emission reduction targets for buildings

The UK Government adopt a **net zero greenhouse gas (GHG) emissions target for 2050**[637] and in June 2019, the UK Parliament amended the **Climate Change Act** (2008) to include a commitment to net zero emissions by 2050. The heat and buildings section focuses on decarbonizing heat in homes and buildings and energy efficiency, and does not include low emission materials in buildings.

[635] https://en.powys.gov.uk/article/2645/Housing-Policies
[636] https://www.designingbuildings.co.uk/wiki/Wood_and_housebuilding_in_Wales
[637] https://www.gov.uk/government/publications/net-zero-strategy

In the **Net Zero Strategy (2021)**,[638] UK governments committed to develop a policy roadmap to increase the use of timber in construction in England, and create a cross-government and industry working group tasked with identifying key actions to safely increase timber use and reduce embodied carbon (Section 42). The **Environmental Audit Committee's**[639] 2022 inquiry into the sustainability of the built environment recommendations included that, "following the introduction of whole-life carbon assessments, the Government should develop progressively ratcheted carbon targets for the built environment, to match the pathway to net zero set out in periodic carbon budgets. These ratcheting targets should be reported on annually, and progress reports towards achieving these targets should be published annually as part of the Net Zero Strategy indicators." A report[640] to Parliament indicates government has not yet taken action on these recommendations. **Built Environment Carbon Database (BECD)**[641] is referenced in the Timber in Construction Roadmap as a key tool at assist stakeholders in carbon estimating and benchmarking to support Net Zero related activities.

Construction 2025 (2013)[642] created the Construction Leadership Council,[643] which was tasked with driving carbon out of the built environment and transforming the construction industry.

Building codes

Changes to Part B of the Building Regulations[644] banned the use of structural timber in the external walls of residential buildings over 18m tall. This has limited confidence the use of engineered timber in multistorey residential projects. The UK Green Building Council published the New Model Building in 2023 to provide a detailed methodology for designing multistorey mass timber buildings in the UK.[645]

In June 2022, the UK government updated the Building Regulations[646] so that all new residential buildings and non-residential buildings are now required to deliver emissions savings of 31% and 27% respectively. Such changes were implemented in advance of the Future Homes and Future Building Standard[647] (consultation has ended, but enactment is unclear) which is aimed at reducing the operational carbon emissions produced by new homes by 75-80 percent, compared to current standards.

[638] https://assets.publishing.service.gov.uk/media/6194dfa4d3bf7f0555071b1b/net-zero-strategy-beis.pdf
[639] https://committees.parliament.uk/publications/30124/documents/174271/default/
[640] https://committees.parliament.uk/writtenevidence/133120/pdf/
[641] The https://www.becd.co.uk
[642] https://assets.publishing.service.gov.uk/media/5a7b7ea140f0b62826a03f2c/bis-13-955-construction-2025-industrial-strategy.pdf
[643] https://www.constructionleadershipcouncil.co.uk
[644] https://www.nhbc.co.uk/builders/products-and-services/techzone/building-regs-england
[645] https://ukgbc.org/resources/methodology-for-designing-mass-timber-buildings/
[646] https://www.gov.uk/guidance/approved-document-b-2022-update
[647] https://www.gov.uk/government/consultations/the-future-buildings-standard

In **Scotland**, building standards[648] do not yet easily enable multi-story timber buildings. The elevated risk associated with the use of timber has been recognised since the 2019 changes to the Scottish Building Standards Technical Handbooks, which provide guidance for complying with the Scottish Building Regulations of 2004.[649] Both the building codes of **Wales**[650] and **Northern Ireland**[651] appear to not yet include terms specific to multi-story timber buildings.

Insurance

The Timber in Construction Roadmap references the **Mass Timber Insurance Playbook** (2024)[652] , published by the Alliance for Sustainable Building Products, as a key instigator of future government and industry collaboration. The Roadmap identifies that government and industry/insurers/lenders will a) explore the feasibility of creating a risk register of anonymised data relating to mass timber buildings, including international data by 2028; and b) work together to facilitate greater dialogue between the insurance sector and developers to foster collaboration during and post construction by 2028. The Mass Timber Insurance Playbook provides guidance for profiling and mitigating risk in mass timber buildings in order to 'facilitate and streamline the process of obtaining insurance for both construction and ongoing occupations of mass timber buildings' within the parameters of current building regulations.

Taxation and incentives

The *Land Use: Policies for a Net Zero UK* report identified that the tax treatment of woodlands should be reviewed and, if necessary, amended to ensure there is no disadvantage to farmers from changing their use of land to forestry. The Government announced changes to inheritance tax (IHT) relevant to forestry in the Autumn Budget 2024. Following this, agriculture and land under environmental management (including forestry) are now treated equally in terms of IHT. Woodland larger than 5 hectares can receive funding for its design through the Woodland Creation Planning Grant (WCPG). This grant provides funding to prepare a Woodland Creation Design Plan that complies with the UK Forestry Standard which can subsequently be used to support further woodland creation grant applications.

The England Woodland Creation Offer (EWCO) is a flagship grant scheme for farmers and land managers to encourage investment in woodland creation. These woodlands will help to mitigate climate change, deliver nature recovery and provide wider environmental and social benefits. The fund will also stimulate planting of softwood and hardwood. In addition, EWCO covers the standard capital costs of tree planting (up to a cap of £10,200 per hectare) and

[648] https://www.gov.scot/policies/building-standards/
[649] https://www.istructe.org/resources/blog/making-mass-timber-mainstream-—-overcoming-the-cha/
[650] https://www.gov.wales/building-regulations-approved-documents
[651] https://www.finance-ni.gov.uk/articles/building-regulations-northern-ireland
[652] https://asbp.org.uk/wp-content/uploads/2024/12/MTIP_A4_document_2024_final.pdf

annual maintenance payments of £400 per hectare for 15 years. Up to £12,700 per hectare is also available as stackable payments when delivering wider benefits to society.

The Woodland Carbon Code (WCC) is the UK's voluntary carbon standard for woodland creation projects. At UK-level, a total of 2,037 projects were registered under the Woodland Carbon Code by the end of December 2023, covering more than 79 thousand hectares of land and projected to sequester 26 million tonnes of carbon dioxide over their lifetime [653]. If landowners can demonstrate that they meet this standard, they can sell the carbon sequestered in their woodland in the form of Woodland Carbon Units (WCUs). They will need to register their woodland with the WCC before they start planting, so that the potential opportunities for future revenues from the developing UK carbon market are not missed.

The Woodland Carbon Guarantee (WCaG) is a £50 million scheme which will provide long-term (up to 35 years) payments for carbon sequestration to landowners in England who plant new woodlands. The WCaG offers successful participants the option to sell woodland carbon units to government, in the future, at a guaranteed price set by auction, which may be above current market rates. The guarantee holder will also have the option to sell the WCUs on the open market. Eight auctions have been run to date.

The Urban Tree Challenge Fund (UTCF) provided capital funding to plant and establish large 'standard' trees in urban and peri-urban areas. The fund was intended to level up access to nature across the country, planting trees in socially deprived urban areas with low canopy cover, in proximity to healthcare and educational facilities. By requiring match funding from communities and local authorities (20%), the UTCF drove value for money while also engaging local communities in efforts to fund-raise for, plant and maintain trees. The UTCF supported the planting of large ‘standard’ trees including street trees, offering up to 80% of published standard costs – making an immediate impact to communities and ensuring other organisations who provided planting for smaller trees continued to do so.

Forestry England run the Forestry England Woodland Partnership. This is a leasehold scheme for land over 50ha, for at least 60 years, where the owner receives a rental payment for every year of the lease and Forestry England secures approval for the project, prepares the site, plants the trees, protects and manages the woodland for the duration of the lease. Each lease is negotiated individually to reflect Forestry England’s and the landowner’s objectives and can include the landowner retaining all Woodland Carbon Units associated with the growing woodland.

Woodland management is also incentivised under the Countryside Stewardship grant scheme which supports landowners in delivering UKFS compliant management plans. The management plans themselves are also funded through the woodland management planning grant.

[653] https://www.woodlandcarboncode.org.uk/about/wcc-statistics-2024

Finance and investment

The UK government's Nature for Climate Fund (NCF) has put in place over £675 million to kickstart England's efforts to achieve at least 16.5% tree and woodland cover by 2050. Last year 5,529 hectares of new woodlands and trees outside of woodland were planted in England. This represents the highest planting rate for over twenty years and a 53% increase on the previous year.

The **Timber in Construction (TiC) Innovation Fund**[654] is now closed. The TiC Innovation Fund, part of the UK government's Woods into Management Forestry Innovation Funds supports innovative projects designed to increase and facilitate the use of home-grown English wood and wood fibre in construction. Through the TiC Innovation Fund, £2.3million has been awarded to support 14 projects.[655]

The UK government has pledged up to £400 million for tree planting and peatland restoration over the current [2024/25] and next [2025/26] financial year. The UK has launched a Tree Planting Taskforce to support plans to plant millions more tress across the UK. This will work to resolve barriers to help enable tree planting, boost biodiversity and grow the UK's forestry sector.

The Welsh Government's £90m Innovative Housing Programme[656] recognised using timber combined with new and emerging forms of construction helps to deliver much-needed homes faster.

[654] https://www.gov.uk/guidance/timber-in-construction-innovation-fund#:~:text=and%20land%20managers-,Overview,with%20a%20long%20service%20life.
[655] https://www.gov.uk/government/publications/woods-into-management-forestry-innovation-funds-successful-projects-2022/woods-into-management-forestry-innovation-funds-successful-projects-2022
[656] https://www.gov.wales/sites/default/files/publications/2019-02/technical-specification.pdf

UNITED STATES

Sustainable forest management

State and privately owned forests make up 2/3rds of US forest land. The 2008 Farm Bill Congress tasked the states and territories with assessing the condition of trees and forests within their boundaries, regardless of ownership, and developing strategies to: conserve working forest landscapes, protect forests from harm, and enhance public benefits from trees and forests. The resulting **state Forest Action Plans**[657]—completed in 2010, updated in 2015, and revised in 2020 by all 59 states and territories—provide roadmaps for investing federal, state, local, and private resources where they can be most effective in achieving national conservation goals. These action plans are attuned the legislative framework in each state.

The Forest Service manages 193 million acres of public National Forests and Grasslands. The Forest Service's most recent Strategic Plan 2015-2020[658] outlines goals and objectives in management. Key laws that guide the Forest Service's management include: Organic Administration Act of 1897; Clarke-McNary Act of 1924; Multiple-Use Sustained-Yield Act of 1960; The Wilderness Act of 1964; National Environmental Policy Act of 1969, as Amended; Endangered Species Act of 1973; Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974, as amended; National Forest Management Act (NFMA) of 1976; Forest and Rangeland Renewable Resources Research Act of 1978, as amended; Cooperative Forestry Assistance Act of 1978; International Forestry Cooperation Act of 1990; and the Healthy Forests Restoration Act of 2003.

Tenure clarity and security for forest owners/users

Forest tenure is very clear and secure, with public and private property rights being defined over decades. The US Forest Service identifies, "Of all land in the United States, private interests own approximately 65 percent, the Federal Government owns 28 percent, and State and local governments own 7 percent. Of the 766 million acres of forest land in the United States, the public sector holds 321 million ac (42%), including forest land held by the U.S. Department of Agriculture, Forest Service (19% of total forest land); the Bureau of Land Management (5%); and other Federal owners (7%). States own 9% of U.S. forest land and county and municipal governments own an additional 2%. Of the 445 million acres of private forest land (58%), private noncorporate owners hold 298 million acres (39% of total forest area), and private corporate owners hold 147 million acres (19%)."[659]

[657] https://www.stateforesters.org/forest-action-plans/
[658] https://www.fs.usda.gov/sites/default/files/strategic-plan[2]-6_17_15_revised.pdf
[659] https://data.fs.usda.gov/research/pubs/iitf/misc_iitf_2018_cubbage001.pdf

Timber tracking, legality and production standards

For timber imports, the Lacey Act (16 U.S.C. 3371 et seq.)[660] is the defining statute. The Lacey Act was first enacted in 1900 to ban trafficking in fish, wildlife, or plants that are illegally taken, possessed, transported, or sold. Prior to 2008, the Act only applied only to a narrow list of US endemic plants for CITES Appendix-listed species. The 2008 Lacey Act Amendments stretched beyond that to include the prohibition of trade in plants and plant products, such as timber and paper, harvested in violation of foreign laws. This was the world's first ban on trade in illegally-sourced wood products. In 2024, Lacey Act provisions were updated with Phase VII requirements of declarations for all remaining plant product Harmonized Tariff Schedule (HTS) codes that are not 100% composite materials, such as furniture.

The **American Softwood Lumber Standard** (voluntary product standard PS 2020)[661] adopted in 2021 establishes standard sizes and requirements for development and coordination of the lumber grades of the various species, the assignment of design values when called for, and the preparation of grading rules applicable to each species. It provides for implementation of the Standard through an accreditation and certification program to assure uniform industry-wide marking and inspection. It establishes principal trade classifications and lumber sizes for yard, structural, factory and shop use and provides for the classification, measurement, grade marking of rough and dressed sizes of lumber items.

The **Standard for Performance-Rated Cross-Laminated Timber** into the American National Standard, regarding the fabrication of cross-laminated timber, has helped to further drive interest in mass timber construction.[662] The standard provides requirements and test methods for qualification and quality assurance for performance-rated CLT, which is manufactured from solid-sawn lumber or structural composite-lumber for use in construction.

Certification standards have been used to certify sustainability in production, and some apply third-party audits to verify performance. The Sustainable Forestry Initiative (SFI), American Tree Farm System (ATFS), Forest Stewardship Council (FSC), and Programme for the Endorsement of Forest Certification (PEFC) standards are commonly used.

Trade policies, restrictions on wood imports and avoiding leakage

A report by the Congressional Research Service notes that, "U.S. trade policy has focused in the past on liberalizing markets by reducing trade barriers through trade agreements and negotiations and relieving companies and workers facing unfair competition from imports. It is currently unclear whether competition from foreign mass timber producers would be considered injurious, and so it is unclear how historically "typical" levers of U.S. trade policy

[660] https://www.federalregister.gov/documents/2021/07/02/2021-14155/implementation-of-revised-lacey-act-provisions
[661] https://www.nist.gov/system/files/documents/2021/10/26/PS%2020-20%20Revsion%201%20October%202021.pdf
[662] https://www.apawood.org/Data/Sites/1/documents/standards/prg320/prg-320-2018.pdf

might support the growing U.S. mass timber industry. However, some policymakers have questioned the rationale behind historical U.S. trade policy and have called for suspending (or reversing) efforts to liberalize trade and increasing trade barriers to protect domestic industries."[663]

Innovations in wood product manufacturing and training/capacity

The **Wood Innovations Grants Program** is in the Forest Service's State and Private Forestry mission area and the Forest Product Laboratory in the Research and Development mission area. Congress authorized the program in the 2018 farm bill by formalizing in law an existing request for proposals for grants under another authority. Although the 2018 farm bill referred to the RFP in codifying the Wood Innovation Grant Program in law, certain program criteria and goals are defined in statute rather than in the RFP. The 2018 farm bill defined eligible entities and specified a 50% cost share for the funding. The Wood Innovation Grant Program offers financial assistance and has no authorization level.[664]

Community Wood Energy and Wood Innovations (Community Wood) offers financial assistance of up to $25 million annually, through FY2023. Congress authorized the Community Wood program in the 2018 farm bill which expanded the purposes and uses of an existing grant program focused on community wood energy that had never received appropriations. Although most of the program's funding has been used to support community wood energy systems, the program can support mass timber-related projects.

Forest Service Research and Development Programs includes the Forest Products Laboratory and the Rural Revitalization Technologies program. The **Forest Products Laboratory** priorities specified in the 2018 Farm Bill included: a) improved commercialization of innovative wood products; b) safety and life-cycle analyses of tall wood building materials, manufacturing, and construction; and c) impacts of innovative wood products on wildlife. The Rural Revitalization Technologies provides financial assistance, technical assistance, and extension, authorized at $5 million annually. The program authorizes the Forest Service, acting through the Forest Products Laboratory, to carry out a program to accelerate adoption of technologies and establish small business enterprises that use biomass and small-diameter wood materials. It also authorizes the Forest Service to create community-based wood-related enterprises through marketing activities and demonstration projects.

The Research and Development Program for Wood Building Construction provides research, technical assistance, and extension and has no authorized funding level.

The **Infrastructure Investment and Jobs Act** (P.L. 117-58) established a grant program to open or improve wood product manufacturing facilities in close proximity to federal or Indian lands.

[663] https://crsreports.congress.gov/product/pdf/R/R47752/2

[664] Congressional Research Service, 2023. https://crsreports.congress.gov/product/pdf/R/R47752/2

Such facilities must be located near federal or Indian forestland in need of restoration, particularly areas at high risk of wildfire or insect and disease infestations, as determined by the Secretaries of Agriculture and the Interior. Facilities are eligible for funding if they purchase and process woody materials (e.g., small-diameter materials) from projects on these lands. The first awards were made under this program in April 2023. FS specified that "more than two thirds" of the funded facilities would use byproducts from forest restoration on landscapes identified in the Forest Service's Wildfire Crisis Strategy, the agency's 10-year strategy to reduce hazardous fuels.[665] Further, there was a focus on socio-economic development, as the Forest Service specified that two-thirds of all funded facilities were in ;disadvantaged communities,' as identified by the Climate and Economic Justice Screening Tool.[666]

U.S. Tall Wood Building Prize Competition in the led by the U.S. Forest Service in 2014, which helped spark policy innovation in the US and Canada.

Cities are taking the lead in advancing mass timber.

Though not focussed on wood in buildings, Boston's carbon neutral goals and Climate Action Plan 2019 Update[667] called for a range of policy and practice actions for reducing building related carbon emissions. One such policy, the Zero Net Carbon Building Zoning Initiative, is proposed to "strengthen green building zoning requirements to a zero net carbon standard." In response to that, the City of Boston and the Boston Planning & Development Agency (BPDA) has explored the expansion of mass timber construction practices as a step to meet these goals. With support and funding from the USDA Forest Service, the Climate Works Foundation, and the Softwood Lumber Board, and technical assistance from Woodworks, **Boston's mass timber accelerator** was launched in September of 2021. Ten projects selected over two rounds were awarded financial and technical assistance to explore mass timber practices for their building projects. Individual project teams investigated a range of approaches and challenges to utilizing mass timber for their projects and assessed costs, benefits, and feasibility. A 2024 Mass Timber Accelerator report[668] identified challenges remain, including a limited supply of the material and the 2024 IBC improvements to the Tall Wood Structure Construction Typologies may not be available for use until the next State Building Code adoption cycle.

Late last year, **New York City** made its bid to become a national leader in mass timber construction by launching a **mass timber studio**.[669] The New York City Economic Development Corporation launched the studio as a technical assistance program to support active mass timber development projects in the early phases of project planning and design. The selected

[665] https://www.fs.usda.gov/science-technology/energy-forest-products/wood-innovation/wood-products-infrastructure-assistance-grants
[666] https://www.usda.gov/media/press-releases/2023/04/06/biden-harris-administration-invests-nearly-34m-strengthen-wood
[667] https://www.boston.gov/sites/default/files/imce-uploads/2019-10/city_of_boston_2019_climate_action_plan_update_2.pdf
[668] https://www.bostonplans.org/getattachment/32d87fce-1912-4e7a-8558-9f52b9f4524a
[669] https://edc.nyc/program/nyc-mass-timber-studio

teams will work on projects including a public library branch, mixed-use multifamily buildings and a recreation center.

The **Atlanta mass timber accelerator**[670] selects development teams to fully quantify the benefits of mass timber building materials and practices. Private development teams will be selected to receive $25,000.00 in grant funding in addition to technical assistance from staff experts from WoodWorks, a non-profit committed to the advancement of sustainable materials and construction efficiency. WoodWorks will also engage selected projects in a high-level carbon accounting analysis using their Carbon Calculator tool, and a select number of projects will participate in a full building Life Cycle Analysis (LCA). Application cycles for Round I and Round II have been completed, and a third application cycle will open in January 2025.

Reclaimed wood and recycled materials

The 2018 farm bill revisions to the Wood Innovation Grant Program specified that the Secretary of Agriculture shall give priority to proposals that include retrofitting or use of existing sawmill facilities located in counties in which the average annual unemployment rate exceeded the national average unemployment rate by more than 1% in the previous calendar year.

The California Green Building Standards Code (CALGreen) mandates maintaining a certain percentage of the existing building structure to conserves resources and reduces waste and emissions associated with new construction materials.

Green building certification

Though not certification, the US has federal laws and executive orders with provisions relating to green building. Among these are the energy policy acts (EPACTs) of 1992 and 2005 (P.L. 102-486 and P.L. 109-58), the Energy Independence and Security Act of 2007 (EISA, P.L. 110-140), the Energy Act of 2020 (Division Z of the Consolidated Appropriations Act, 2021, P.L. 116-260), Executive Order (E.O.) 13834, E.O. 13990, and E.O. 14008. EISA and other policy instruments require all federal agencies to implement green building practices.[671]

Though a voluntary private sector activity, and not a focus of public policy directly, green building standards have been a leading tool for developers to reduce GHG emissions and environmental impact in building. Green building rating initiatives have predominantly focussed on reducing energy consumption, and while there was always a focus on the environmental impact of building materials, wood was not prioritized. More recently, green building certification systems have moved towards performance-based assessment using LCA, such as in the latest version of LEED, Green Globes and other rating systems. The use of wood products can contribute up to 12 points to a building's Leadership in Energy and

[670] https://www.seedlingstosolutions.org/the-accelerator/
[671] https://crsreports.congress.gov/product/pdf/R/R46719/2

Environmental Design (LEED) v4 score, which is more than 10% of the total credits. However, advocates[672] for wood and mass timber hope that continued integration of wood and the benefits it can provide in embodied carbon will be recognized in LEED v5. The International Green Construction Code (IgCC)[673] requires that wood building components contain at least 60% certified wood content. This can be achieved through physical separation, percentage-based approaches, and using wood that qualifies as a salvaged material. The California Green Building Standards Code (CALGreen)[674] is California's building code that sets forth requirements intended to reduce greenhouse gas emissions. CALGreen awards voluntary credits for the use of bio-based materials.

Public procurement

The **115th Congress authorized** the Forest Service and Bureau of Land Management to give a procurement preference under the stewardship contracting authority to contractors that would promote an **innovative use of harvested forest products, including CLT**. The stewardship contracting authority is generally viewed as a tool for streamlining and incentivizing restoration of federal forests through several mechanisms, such as by allowing contracts that combine multiple forest management activities at once and offsetting the costs of restoration activities with revenues from timber harvesting, applying materials preferences to federally owned or funded building and infrastructure projects.[675]

Although still in Committee, the **Revegetation and Carbon Sequestration Act** of 2024 (S.2991) seeks to direct the Secretaries of Agriculture and the Interior to procure specified structures made using domestic mass timber, subject to certain requirements. [676]

Executive Order 14057[677] and the **Federal Sustainability Plan**[678] launched the federal **Buy Clean Initiative**[679] is a designed to prioritize the use of low-carbon construction materials made in the United States for federal procurement and for federally funded projects. However, it does not include wood. The Federal Government may be the largest purchaser in the world, with annual purchasing power of over $630 billion. The **Buy Clean Task Force** is charged with developing recommendations on policies and procedures to expand consideration of embodied emissions in Federal procurement and federally funded projects. In 2023, the US government launched the Federal-State Buy Clean Partnership with 12 states—California,

[672] https://dovetailinc.org/upload/tmp/1694447540.pdf
[673] https://codes.iccsafe.org/content/IGCC2021P1/chapter-9-materials-and-resources#:~:text=Wood%20building%20components%2C%20including%20but,total%20annual%20wood%20products%20purchased.
[674] https://www.dgs.ca.gov/BSC/CALGreen
[675] Congressional Research Service, 2023.
[676] https://www.congress.gov/bill/118th-congress/senate-bill/2991
[677] https://www.whitehouse.gov/briefing-room/presidential-actions/2021/12/08/executive-order-on-catalyzing-clean-energy-industries-and-jobs-through-federal-sustainability/
[678] https://www.sustainability.gov/federalsustainabilityplan/targets-actions.html
[679] https://www.sustainability.gov/buyclean

Colorado, Hawaii, Illinois, Maine, Maryland, Massachusetts, Michigan, Minnesota (joined later), New Jersey, New York, Oregon, and Washington—all of which committed to prioritize efforts to support the procurement of lower-carbon infrastructure materials in state-funded projects, and to collaborate with the Federal government and one another to send a harmonized demand signal to the marketplace.

In 2023, the U.S. General Services Administration announced Inflation Reduction Act Low Embodied Carbon material requirements that will be applied to 150 Federal Inflation Reduction Act projects involving $2B in low-carbon materials (concrete/cement, asphalt, steel, and glass, but not wood).

California passed the **Buy Clean California Act**[680] in 2017, and since 2019, suppliers have been required to submit environmental product declarations for certain construction materials, such as structural steel, flat glass, and insulation products, used in public infrastructure projects. However, it did not include wood.

The William M. Thornberry National Defense Authorization Act for FY 2021 (Public Law 116-283), directed the Secretary of Defense to provide a report, "at a minimum, a description of potential uses for innovative wood technologies, such as mass timber and cellulose nanomaterials, in new military construction; the sustainment and renovation of existing facilities; and an analysis of any barriers to incorporating these innovative wood product technologies into these areas."[681] In 2023, the US Army Corps of Engineers issues a directive and policy[682] to "[require] Project Delivery Teams (PDTs) to consider mass timber solutions when designing Army MILCON and Civil Works vertical construction projects. It also highlights US Army Corps of Engineers (USACE) and industry mass timber design resources. The ECB applies to all Army MILCON and Civil Works vertical construction projects starting in the FY27 program year and beyond. It is highly recommended for all other MILCON projects and work for others within the Directorate of Military Programs." The directive notes, "Like heavy timber, mass timber products have inherent fire resistance that allows them to be left exposed and still achieve fire resistance rating. Other benefits of mass timber construction include pleasing aesthetics, and ease and speed of construction while becoming increasingly available nationwide. Presentations have been facilitated documenting the successes and lessons learned from the Candlewood Suites hotels at Redstone Arsenal, AL to a cross section of groups and disciplines within USACE. USACE also published technical notes for both CLT in January 2016 and NLT in April 2019 to promulgate knowledge of these technologies, and the most advantageous building types and geographic regions for their utilization." Further, "As both an equitable and practical means of comparing

[680] https://www.dgs.ca.gov/pd/resources/page-content/procurement-division-resources-list-folder/buy-clean-california-act

[681] https://www.denix.osd.mil/sustainability/denix-files/sites/20/2021/09/Report-to-Congress-Cross-laminated-Timber-25-Aug-21_508.pdf#:~:text=There%20are%20no%20DoD%20policies%20or%20standards%20that,updating%20the%20top-level%20wood%20specification%20to%20include%20CLT.

[682] US Army Corps of Engineers, 2023. Mandatory Consideration of Mass Timber in Army Military Construction (MILCON) and Civil Works Vertical Construction Projects. https://www.wbdg.org/FFC/ARMYCOE/COEECB/ecb_2023_14.pdf

and selecting structural systems, all options considered during design must be documented via a Life Cycle Cost Analysis (LCCA). A description of all structural system options analyzed, results of the LCCA, and justifications detailing why a mass timber structural system was or was not selected for the project must be included in the project Design Analysis."

New York City's mayor signed an executive order **Clean Construction Executive Order 23**,[683] requiring the city's capital project agencies to lower embodied carbon from municipal construction projects. Of most relevance to wood, the Order directs Capital project agency construction managers to submit environmental product declarations (EPDs) to the Building Transparency database; Capital project agencies shall complete a Life Cycle Assessment for applicable projects to quantify the environmental impact of the whole project and reduce the impact where possible; and capital project agencies shall develop and submit action plans aimed at reducing embodied carbon in capital projects to the Office by October 1, 2023.

Wood in Construction policy

Emission reduction targets for buildings

The **Inflation Reduction Act** provided $2.15 billion in funding for the General Services Administration to build or alter federally owned buildings using materials with reduced embodied carbon emissions and authorized the Federal Emergency Management Agency to provide certain forms of financial assistance to promote low-carbon or net-zero energy projects (P.L. 117-169 §60503 and §70003).

In 2022, California passed **Assembly Bill 2446 on Embodied carbon emissions: construction materials**[684] which requires the California Air Resources Board to develop a framework for measuring and reducing the embodied carbon of building construction materials, primarily at the materials production stage, with a target of a 40% net reduction in GHG emissions no later than the end of 2035. **Assembly Bill 43 on Greenhouse gas emissions: building materials: embodied carbon trading system**, signed in October 2023, builds upon the foundation of AB2446 and provides CARB the option to utilize an embodied carbon trading system as a potential path to implement AB 2446.

Building codes

In 2015, the International Building Code (IBC) recognized cross-laminated timber (CLT). In the 2018 IBC, the heavy timber provisions were reorganized. In the 2021 IBC, major changes were adopted, including permitting tall wood buildings up to 18 storeys, and 17 new code provisions

[683] https://www.nyc.gov/office-of-the-mayor/news/023-002/executive-order-23
[684] https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB2446

for tall wood buildings. The International Fire Code was also amended in 2021 for tall mass timber construction. These changes in material technologies and their expanded use followed proposals by the ICC Ad Hoc Committee on Tall Wood Buildings. Three new types of construction (Types IV-A, IV-B and IV-C) defined and included in the 2021 codes allow the use of mass timber for buildings of taller heights, more stories above grade, and greater allowable areas compared to existing provisions for heavy timber buildings.[685] The 2024 IBC contained further changes, allowing Type IV-B permits up to 12 stories of timber and an overall building height of 180 feet, as well as 100% exposed timber ceilings.[686]

Once federal level code changes occur, it is up to states to adopt the new provisions and update their codes. By 2024, only 20 states, and 17 cities or counties have adopted the revised IBC provisions in their codes. [687] California, Oregon, and Washington were early to adopt revisions to their building codes to incorporate the IBC 2021 tall timber provisions, and this helped spur an increase in timber projects. This demonstrates that progressive code changes can act as a type of incentive to spur growth and uptake.

New York City's 2022 building code updates allow mass timber buildings up to 85 feet tall (6-8 stories).

Federal law requires all federal agencies to implement green building practices, including reducing the environmental impacts of materials used in building construction, enhancing the quality of the indoor environment, and meeting many other criteria, which does not specify mass timber, but it would quality.

Insurance

No policy interventions of note. The Mass Timber Insurance Playbook – U.S. Edition notes, "Certain provisions of design and construction are mandated by law, building codes, and Occupational Safety and Health Administration (OSHA) regulations. Project participants are also obligated under civil law to act as a reasonably prudent designer, manufacturer, or builder, subject to the applicable statute of repose. The quality of materials and workmanship is typically warranted for a period of one year after the building is completed." Zurich Insurance North America launched two policies in 2021—one provides coverage for the construction risks of one-off mass timber buildings, and the other for multiple mass timber buildings via a Master Builders Risk program. The insurance policies provide up to $50 million in insurance capacity, for qualifying risks. There is no public sector role or support, which may reflect that the insurance industry is able to step in on its own.

Taxation and incentives

[685] https://codes.iccsafe.org/content/MTBIBC2021P2
[686] https://codes.iccsafe.org/content/IBC2024P1/chapter-6-types-of-construction
[687] https://up.codes/code/international-building-code-ibc-2021

The Inflation Reduction Act promoted clean energy industries with strategic investments and targeted manufacturing tax credits, but it did not include wood.

FY22 National Defense Authorization Act (NDAA) Section 2861 on pilot project support, is intended to support pilot projects in the Army, Navy and Air Force. Pilot projects utilizing mass timber technologies include the Navy FY24 Child Development Centre at Little Creek, Army FY25 Unaccompanied Enlisted Personnel Housing (UEPH) at Joint Base Lewis McChord (JBLM), and the Air Force FY26 Dormitory at Barksdale Air Force Base.

Finance and investment

Based on the Inflation Reduction Act, in 2023 the US **Federal Emergency Management Agency**, which manages disaster response, announced that it would offer additional funding[688] to states for **low-carbon rebuilding after disasters**. The IRA authorized FEMA to provide financial assistance for costs associated with use of low-carbon materials and to incentivize low-carbon and net-zero energy projects within FEMA's Hazard Mitigation Grant Program (HMGP), HMGP Post-Fire, Building Resilient Infrastructure and Communities (BRIC), Pre-Disaster Mitigation (PDM) and Public Assistance (PA) Programs. Funding for these costs supports FEMA's 2022-2026 Strategic Plan goal of leading "whole of community in climate resilience" and encourages State, Local, Tribal and Territorial partners to make strategic investments to build climate-resilient communities.

The **US Inflation Reduction Act** allowed for $2 billion to be granted to the Federal Highway Administration to reimburse it for the **extra costs of low embodied carbon materials** (it is tied to Buy Clean, so does not include wood) and products used in construction projects or to offer incentives to eligible applicants.

Several US states have provided economic incentives for promoting mass timber production (and more generally the forestry products industry). The incentive programs are often supported, in part, by federal funding. The Maine Mass Timber Commercialization Center was founded with support from US Economic Development Administration grant.[689]

The Congressional Research Service notes, "federal support for business development in broad sectors (i.e., for businesses in rural areas, small businesses, and businesses owned by certain demographic groups) is a central role of agencies and programs such as the Small Business Administration, the USDA's Rural Development mission area, and the Department of Commerce. However, **business development and support programs specific to individual industries are comparatively rare** and generally have been authorized in response to critical economic, political, national security, and other concerns. [For example, in the 117th Congress,

[688] https://www.fema.gov/sites/default/files/documents/fema_low-carbon-net-zero-energy-overview.pdf
[689] https://composites.umaine.edu/wood-composites/mass-timber/

the CHIPS Act of 2022 (Division A of P.L. 117-167) included provisions to support domestic semiconductor manufacturing, a critical "enabling technology" for a wide array of U.S. industries, due to concerns related to international competitiveness and national security.] In addition, some aspects of federal business development policy have been incorporated in existing assistance programs, such as the eligibility of businesses for Forest Service SPF grant programs.

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