Unleashing the Full Climate Potential of Forests and Forest Products

Scaling up investments in forests and unlocking socio economic benefits

A changing landscape connecting forests to urbanisation and capital…

What Was Promised on Forests at COP26?
Countries signing on to the Glasgow Declaration affirmed the importance of all forests in limiting global warming to 1.5 degrees C (2.7 degrees F), adapting to the impacts of climate change, and maintaining healthy ecosystem services. They agreed to collectively "halt and reverse forest loss and land degradation by 2030 while delivering sustainable development and promoting an inclusive rural transformation," without saying exactly what they would do to achieve this goal.

Funding pledges followed the declaration. A total of $19.2 billion ($12 billion from public sources and $7.2 billion in private financing) was pledged to help protect and restore forests globally. This included $1.7 billion to help Indigenous peoples and local communities exercise decision-making and design roles in climate programs and finance instruments.
New ways of doing business were promised. A group of 28 countries pledged to protect forests while promoting development and trade through the Forest, Agriculture and Commodity Trade Roadmap. Twelve companies with a major global market share in commodities such as soy, palm oil, cocoa and cattle, also committed to halt forest loss associated with agricultural commodity production and trade.

And financial institutions rose to the occasion. More than 30 financial institutions managing over $8.7 trillion in assets committed to work on eliminating agricultural commodity-driven deforestation risks in their investment and lending portfolios by 2025.

https://www.wri.org/insights/what-cop26-means-forests-climate

Beyond Sustainability: Designing Regenerative Cultures

Living Systems Design
Pays attention to quality & quantity
Effectiveness- doing the right thing
Informed by a Systems View of Life
Thinking in patterns and principles

The SDGs as a bridge towards regeneration?

Regenerative Development

Depletion fossil energy stocks

Using renewable energy flows

Degenerative Development

Design of Technical Systems
Values only the quantifiable
Efficient - doing things right
Informed by Mechanism & Technology
Siloed & fragmented thinking

Conventional	**Green**	**Sustainable**	**Restorative**	**Regenerative**
(staying within the law)	(a little less negative impact)	(adding no additional harm)	(humans doing things to nature)	(humans doing things as nature)

Degenerative Cultures

Regenerative Cultures

Based on Reed. 2006 & Roland. 2018

One place to reduce emissions and encourage the sustainable use of forest products is by investing in the sustainable construction of the built environment.

23%

Three materials – concrete, steel, and aluminum – are responsible for 23% of total global emissions (most of this used in the built environment). There is incredible opportunity for embodied carbon reduction in these **high-impact** materials through policy, design, material selection, and specification.

40%

of global energy-related GHG emissions are due to the construction sector.

35%

of final energy use is accounted for by buildings and construction.

2.3%

annual increase of global floor area.

Global building floor area is expected to double by 2060.

To accommodate the largest wave of urban growth in human history, we expect to add 2.4 trillion ft^2 (230 billion m^2) of new floor area to the global building stock, **the equivalent of adding an entire New York City to the world, every month, for 40 years.**

Achieving zero emissions from new construction will require energy efficient buildings that use no on-site fossil fuels and are 100% powered by on- and/or off-site renewable energy.

UNEP Global Status Report, (2019), WRI, New Research Shows Zero Carbon Buildings Are Possible Where You Might Least Expect Them, 2019

Zero Carbon construction can help maximize the use and value of forest assets while minimizing the negative impact of the construction sector

230 billion

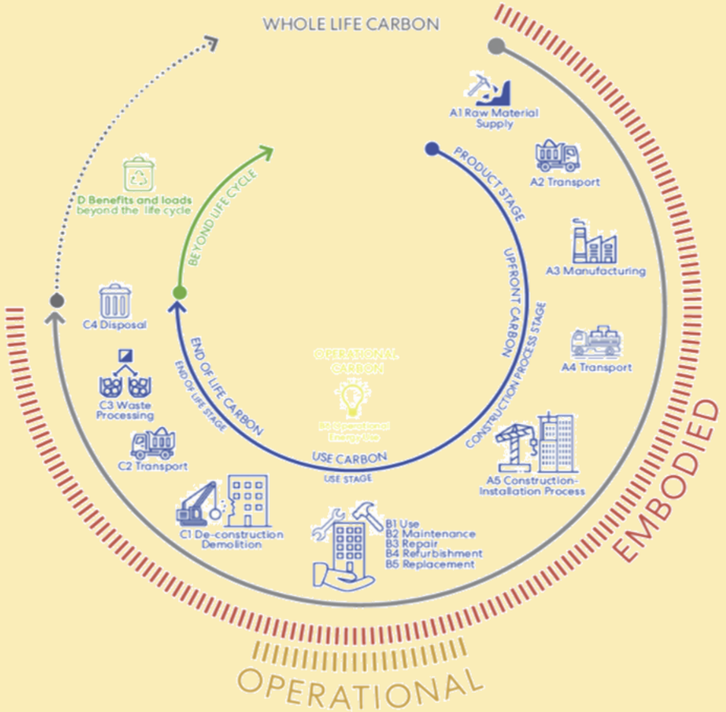
square meters in new construction over next 40 years

1%

of buildings are net carbon zero today

100%

of buildings must be net carbon zero by 2050 to meet Paris Climate Agreement goals



Source: Perkins&Will, 2020

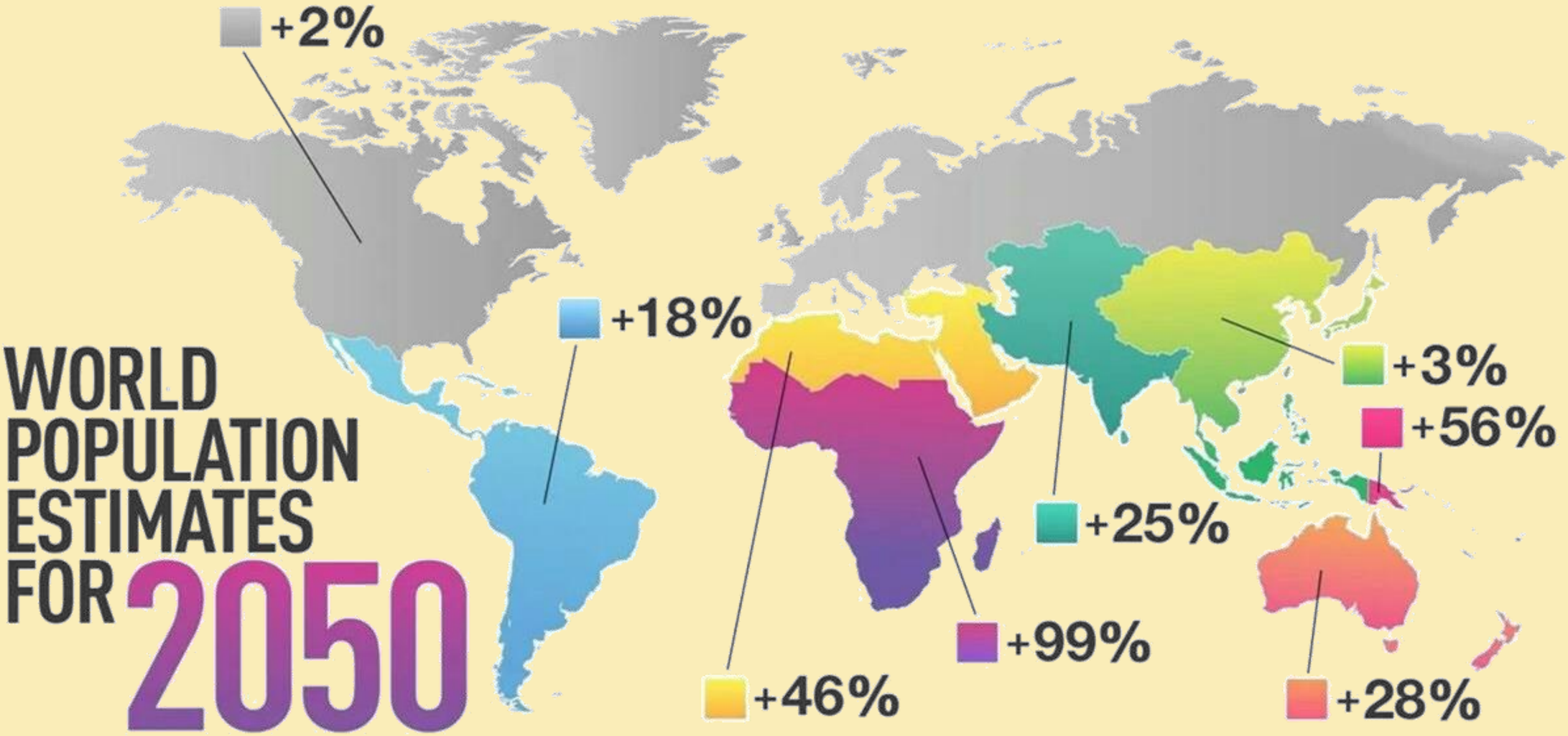
Zero Carbon Buildings:

- Zero Carbon buildings are green and healthy buildings with high energy-efficiency that **eliminate 100% of their embodied and operational emissions** through a combination of energy efficiency and on- and/or off-site renewable energy
  - Net zero carbon- embodied energy: when the amount of carbon emissions associated with a building's product and construction stages up to practical completion is zero or negative
  - Net zero carbon- operational energy: when the amount of carbon emissions associated with the building's operational energy on an annual basis is zero or negative

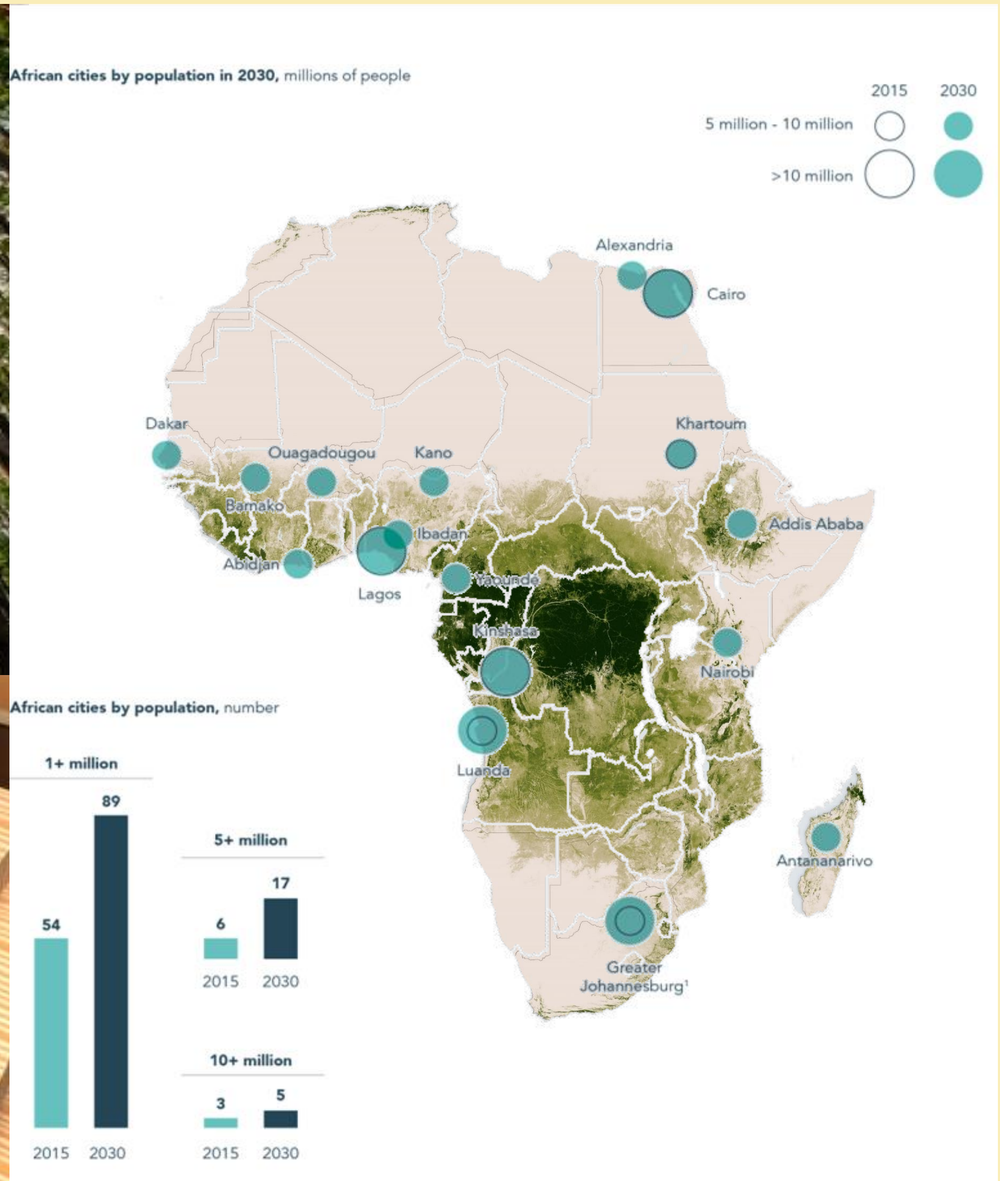
Contribution To SDGs

Sources: Britain Green Building Council, Net zero carbon buildings: a framework definition, 2019, WRI, Accelerating building decarbonization: Eight attainable policy pathways to net zero carbon buildings for all, 2019 WRI, New Research Shows Zero Carbon Buildings Are Possible Where You Might Least Expect Them, 2019 UN, Time running out for construction sector to cut energy use, meet climate goals, 2017

Africa, Asia and S. America are projected to have the highest livelihood need



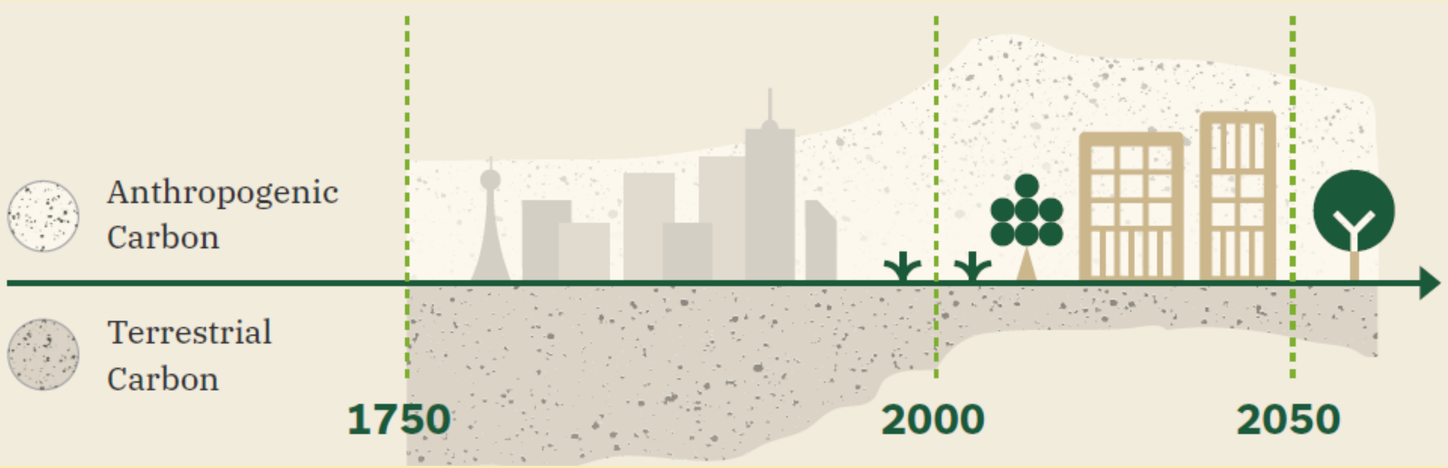
Cities are the future…



What is a **CLIMATE SMART FOREST ECONOMY**?

The Climate Smart Forest Economy refers to the **usage of forest products in circumstances where this provides net climate benefits while meeting social and ecological safeguards.**

Building a Climate Smart Forest Economy can protect, maintain, manage, restore, and regrow forests, while **assigning greater value to forests**, creating further incentives for restoration and reforestation. It offers an opportunity to **decarbonize sectors** that interface with forests through their value chains, such as **construction**. In addition to positive climate outcomes, this can result in **substantial social and economic benefits**.



Climate Smart Forest Economy Program

Approach

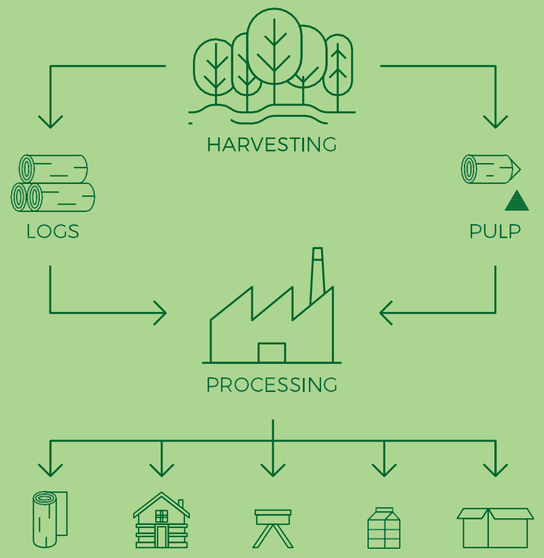
- → Generate and disseminate KNOWLEDGE
- → Create a shared agenda across stakeholders through DIALOGUE
- → Inspire and raise the ambition of critical stakeholders through OUTREACH
- → Catalyze ACTION… by supporting Breakthrough Initiatives that demonstrate how the Sink, carbon Storage, and fossil-carbon Substitution (3S) functions of forests and forest products can be maximized

Objective

- → Boost demand for sustainable forest products
- → Increase the use of climate smart forest products by catalyzing market demand from sectors that need rapid decarbonization, while meeting social and ecological safeguards
- → Boost investment into sustainable forest management and reforestation and create a carbon sink in the urban environment

Expected outcomes

Improved understanding of the benefits and challenges of the use of forests and forest products



Enabling environment
for sustainable forest products

Impact

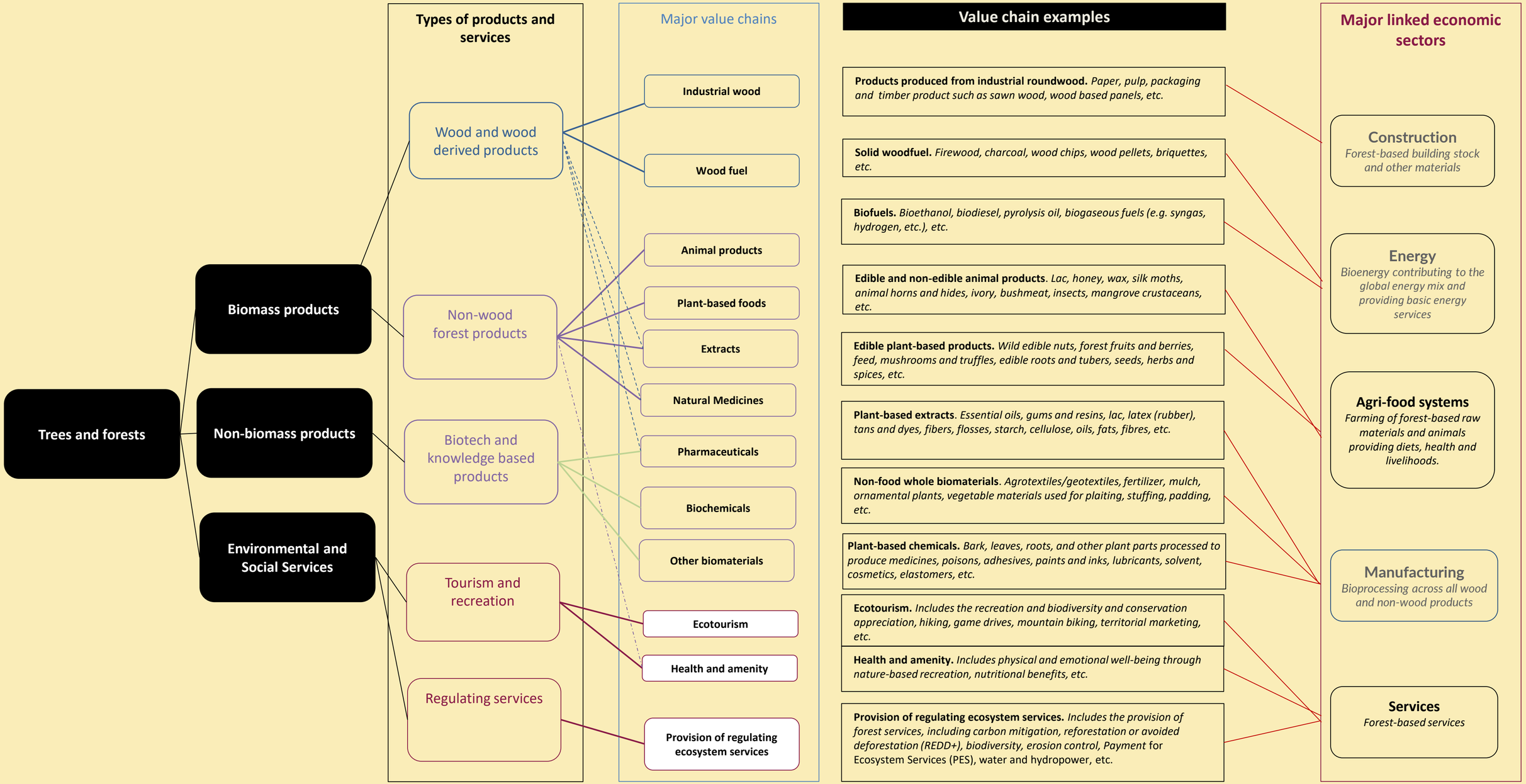
New green jobs are created in underserved markets that will experience significant housing booms, forest communities are protected, investment into sustainably managed forests increases dramatically, emissions are reduced in construction and significantly more carbon is stored across the value chain.

100M
hectares of restored or new forests, storing 20 gigatons of carbon

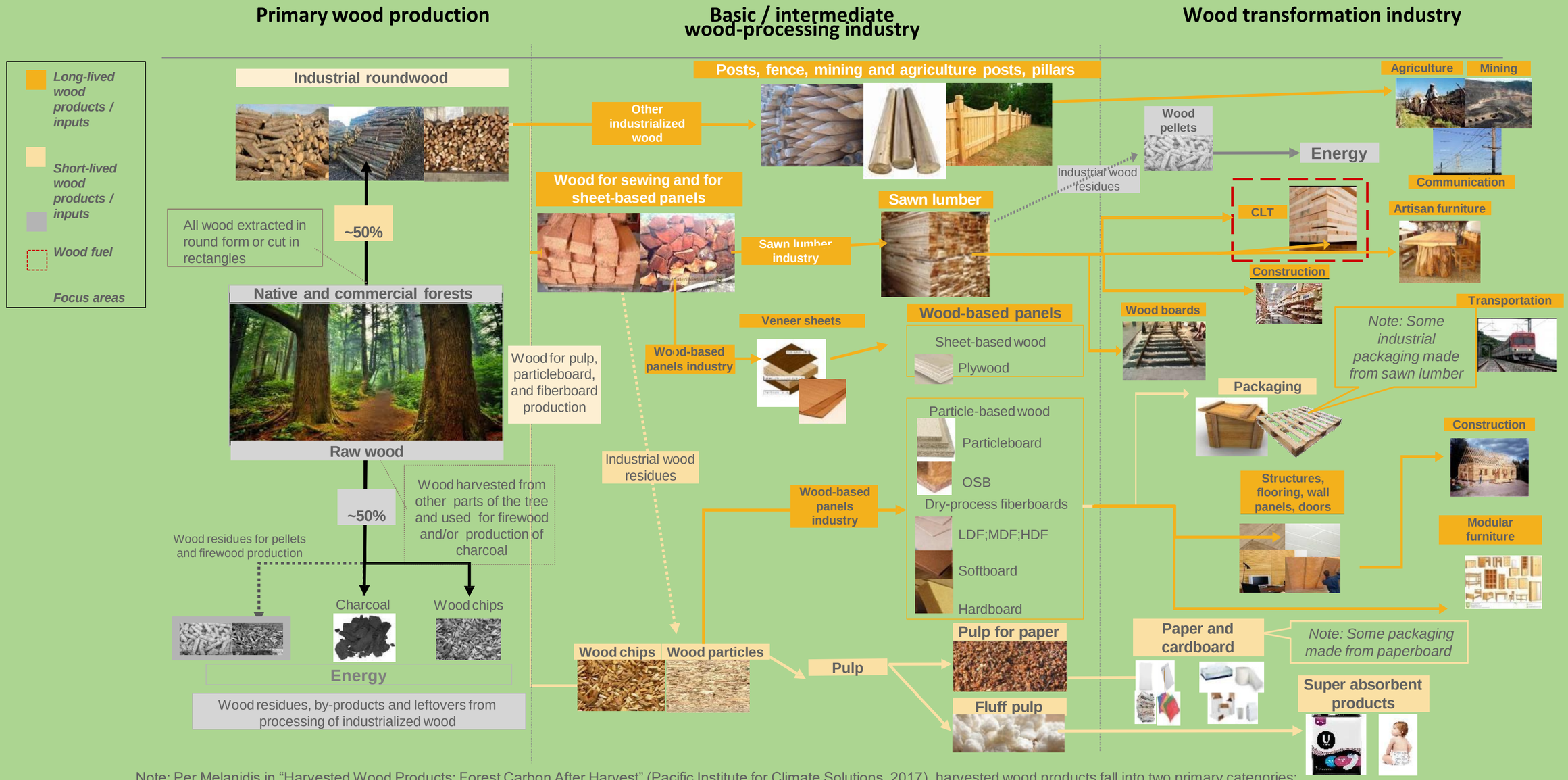
2M
new long & short-term jobs

100B
in commercial financing

2020 → 2024 → 2030


Trees and forests
Biomass products
Non-biomass products
Environmental and Social Services
Types of products and services
Wood and wood derived products
Non-wood forest products
Biotech and knowledge based products
Tourism and recreation
Regulating services
Major value chains
Industrial wood
Wood fuel
Animal products
Plant-based foods
Extracts
Natural Medicines
Pharmaceuticals
Biochemicals
Other biomaterials
Ecotourism
Health and amenity
Provision of regulating ecosystem services
Value chain examples
Products produced from industrial roundwood. Paper, pulp, packaging and timber product such as sawn wood, wood based panels, etc.
Solid woodfuel. Firewood, charcoal, wood chips, wood pellets, briquettes, etc.
Biofuels. Bioethanol, biodiesel, pyrolysis oil, biogaseous fuels (e.g. syngas, hydrogen, etc.), etc.
Edible and non-edible animal products. Lac, honey, wax, silk moths, animal horns and hides, ivory, bushmeat, insects, mangrove crustaceans, etc.
Edible plant-based products. Wild edible nuts, forest fruits and berries, feed, mushrooms and truffles, edible roots and tubers, seeds, herbs and spices, etc.
Plant-based extracts. Essential oils, gums and resins, lac, latex (rubber), tans and dyes, fibers, flosses, starch, cellulose, oils, fats, fibres, etc.
Non-food whole biomaterials. Agrotextiles/geotextiles, fertilizer, mulch, ornamental plants, vegetable materials used for plaiting, stuffing, padding, etc.
Plant-based chemicals. Bark, leaves, roots, and other plant parts processed to produce medicines, poisons, adhesives, paints and inks, lubricants, solvent, cosmetics, elastomers, etc.
Ecotourism. Includes the recreation and biodiversity and conservation appreciation, hiking, game drives, mountain biking, territorial marketing, etc.
Health and amenity. Includes physical and emotional well-being through nature-based recreation, nutritional benefits, etc.
Provision of regulating ecosystem services. Includes the provision of forest services, including carbon mitigation, reforestation or avoided deforestation (REDD+), biodiversity, erosion control, Payment for Ecosystem Services (PES), water and hydropower, etc.
Major linked economic sectors
Construction
Forest-based building stock and other materials
Energy
Bioenergy contributing to the global energy mix and providing basic energy services
Agri-food systems
Farming of forest-based raw materials and animals providing diets, health and livelihoods.
Manufacturing
Bioprocessing across all wood and non-wood products
Services
Forest-based services
Secondary link

A range of short- and long-lived wood products are derived from industrial roundwood along the wood value chain



Note: Per Melanidis in "Harvested Wood Products: Forest Carbon After Harvest" (Pacific Institute for Climate Solutions, 2017), harvested wood products fall into two primary categories: short-lived and long-lived. Short-lived products are often single-use, with fairly short-term carbon storage potential, and these include bioenergy, pellets, and pulp and paper products. Long-lived products – which store carbon for longer periods of time – include construction lumber, plywood, and panels. Source: FAOSTAT Forestry Production and Trade

Sink

Increasing the number of forests and preserving existing forests, so that they can act as carbon sinks. This includes forest restoration, reforestation and afforestation activities

- ✓ Sustainable sourcing of forest products
- ✓ Sustainable management of forests
- ✓ Catalyzing market demand from sectors that need decarbonizing

Storage

While forests can be harvested, using forest products means that carbon is still stored outside of forests in items such as wood fiber for mass timber – until they decompose

Substitution

Substituting forest products for items that have higher carbon footprints. For instance, in the construction sector, mass timber can be substituted for steel and cement, products which contribute to 10% of global emissions

The 3S Framework

Theory of change

A data based market-driven approach promoting use of climate-smart forests products can accelerate investments into sustainable forestry and help to reverse the effects of climate change while boosting the economy

Baseline

- 10-15% of world's emissions come from deforestation & associated land use change
- There is low demand for climate-smart forest products (CSFP)
- The links between increased demand for CSFP and positive climate and socio-economic outcomes are unclear

Inputs

- Science-based knowledge and safeguards support increased demand for CSFPs
- Breakthrough initiatives demonstrate how to maximize the Sink, carbon Storage, and fossil-carbon Substitution (3S) functions of forests and forest products resulting in climate, social and economic benefits
- Policymakers, practitioners, investors, and other stakeholders are engaged in a movement to increase demand for CSFP

Output

- Sectors that need rapid decarbonization boost demand for sustainable forest products that meet social and ecological safeguards

Outcome BY 2030

- 100M ha of restored or new forest, storing 20 gigatons of carbon
- 2M new jobs
- $100B in commercial financing

Impact

- Forest cover restored to pre-industrial levels. Significant contribution towards reversing the effects of climate change, while creating jobs and boosting the economy locally and globally

Climate Smart Forest Economy Program

Forests can play a significant role

Forest can provide positive climate outcomes and address socio-economic challenges

How Forests can help Combat Climate Change

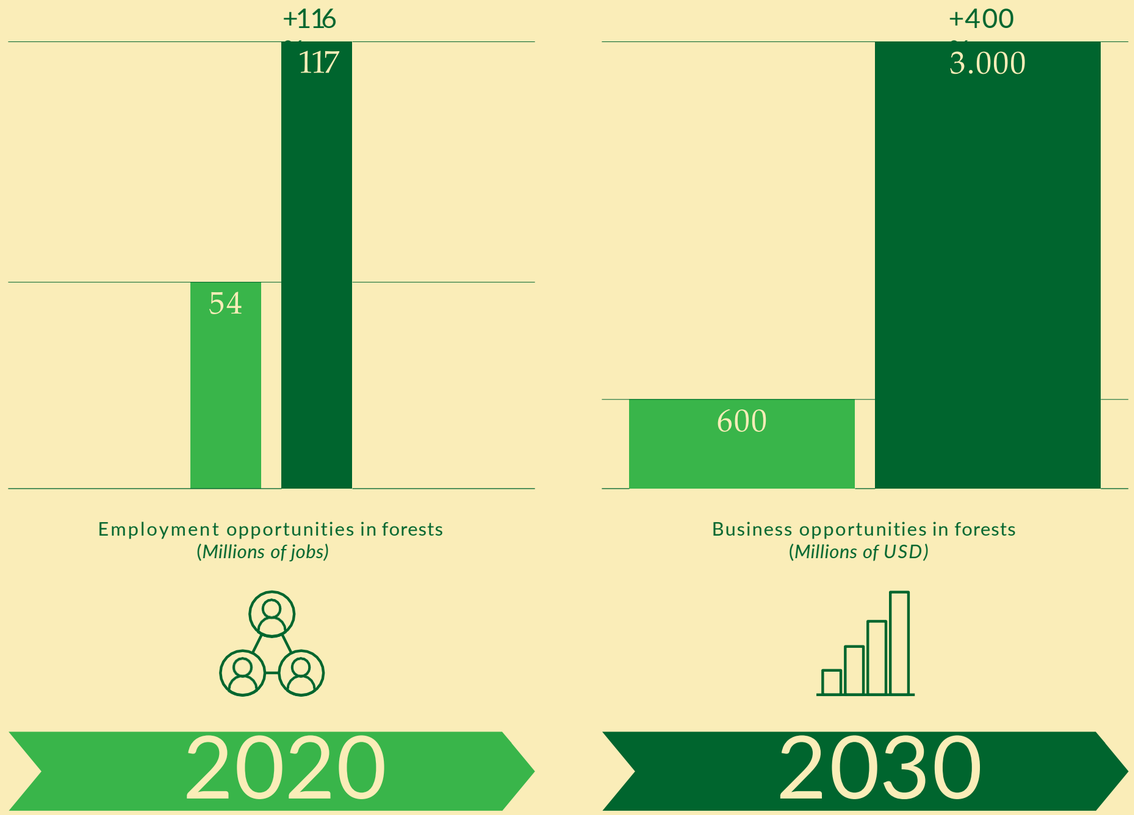
10-15%

of the world's total emissions come from deforestation and associated land use change

27%

of total emission reductions can come from forest-related interventions

Current and Potential Socio-Economic Impact of Forests



A market-driven approach

A market-driven approach promoting the use of climate-smart forest products can accelerate investments in sustainable forestry

Market Forces provide incentives for more Capital Investments in Forest Growth

CURRENT INVESTMENT

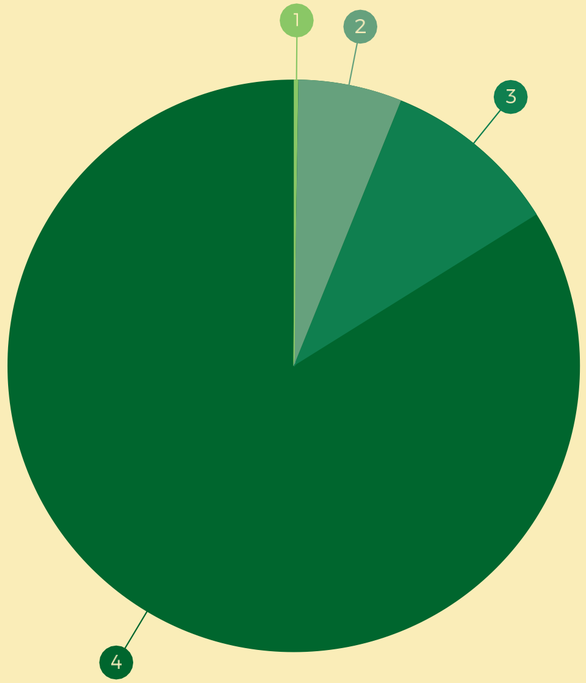
1 VALUE OF CHARITABLE GIVING TO THE CLIMATE SECTOR
$5-9B

2 VALUE OF FOREST CARBON MARKETS
$120B

3 VALUE OF PUBLICLY FUNDED FOREST
$100-200B

MARKET FORCES

4 VALUE OF INDUSTRIAL SHIPMENTS OF WOOD
$1.4-1.7T



A Market-Driven approach promotes Scalability

Market demand shifts focus to renewable and sustainable products

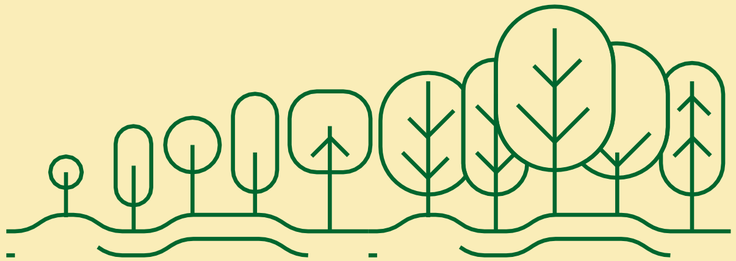
Private sector strives to meet this demand with wood products that are considered carbon neutral

Safeguards and demand for sustainability drive investments in forest health and reforestation

Private sector becomes the central driver for green growth and responsible management of forests

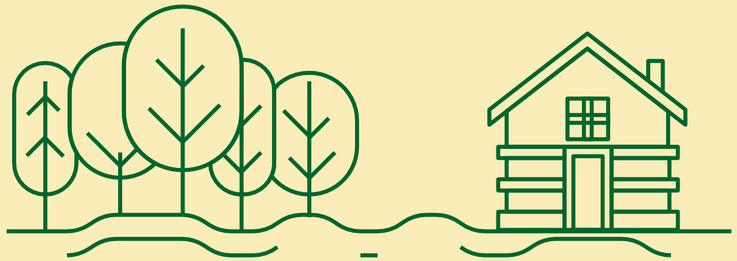
Working with system actors to develop a vision for the forestry sector

Increase Forest Cover



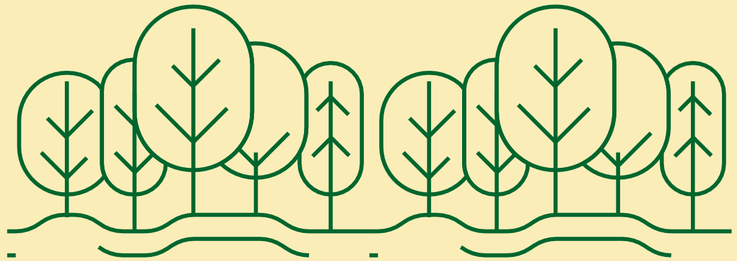
- Provide compelling rationale to protect, maintain, restore, and regrow forests
- Strengthen standards and certification for sustainable supply of wood products to spur improved forest management practices on existing and new forests
- Provide economic incentives for individuals, communities & companies to restore forests by overcoming constraints to supply and long-term management (e.g., financial, technical, regulatory)

Create Demand for Sustainable Forest Products



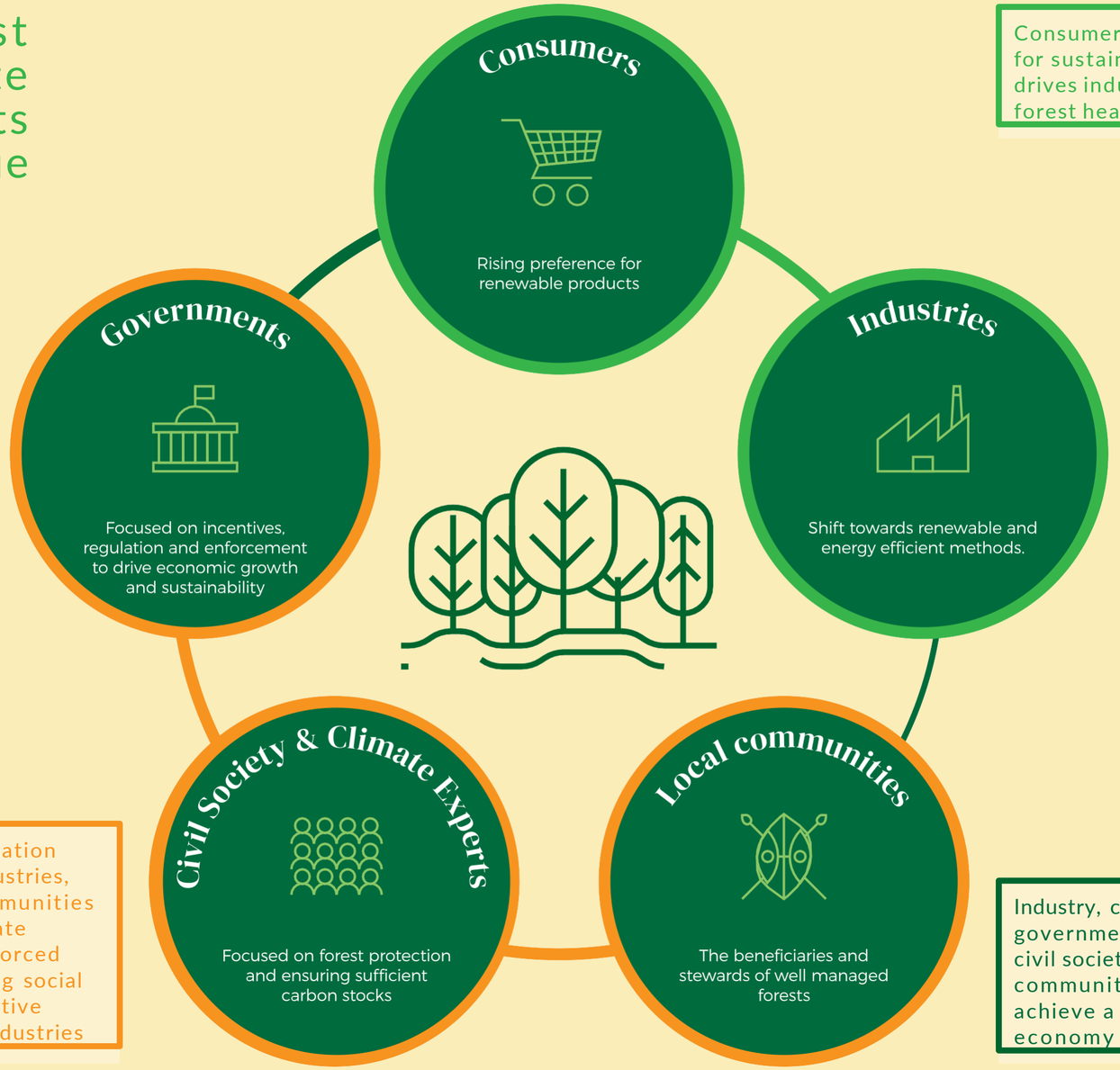
- Assign greater value to sustainable forests that create further incentives to restore and regrow forests
- Build economic value for environmental benefits of forests (e.g., carbon, watersheds, erosion) and create market access
- Spur demand for sustainably sourced forest products and construct social and environmental safeguards to ensure demand does not drive perverse outcomes

Galvanise a Movement



- Shift how key actors see the role of the Climate Smart Forest Economy in conservation
- Start a storytelling campaign to shift perceptions and behaviour around the forest economy and provide clear examples of success to show the theory in action
- Involve communities, policy makers, industries, and conservationists in conversations to break down the current siloes between the different groups and catalyse a movement resulting in systems shifts

Collaboration amongst actors unlocks climate and economic benefits along the forestry value chain



Consumers' increased demand for sustainable forest products drives industry investments into forest health and reforestation

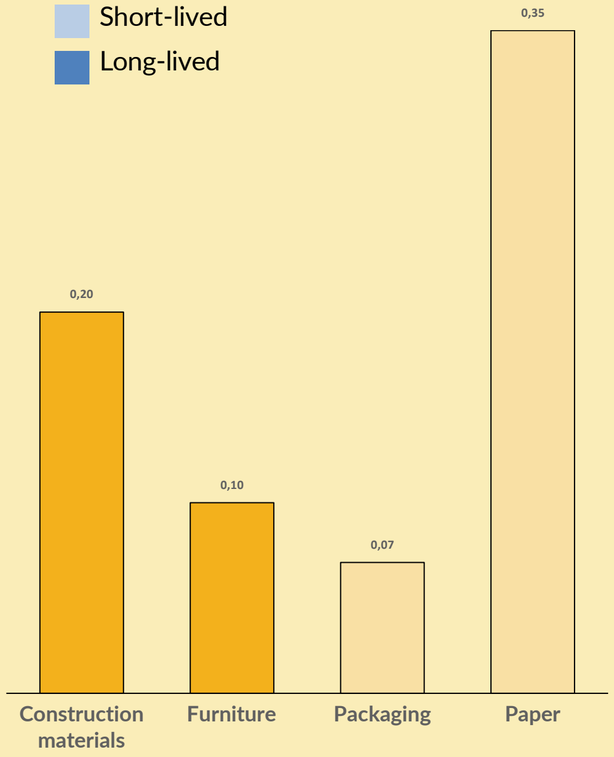
Civil society in collaboration with governments, industries, local & indigenous communities and consumers formulate safeguards that are enforced by government, building social license for climate-positive market expansion by industries

Industry, consumers, governments, conservationists, civil society, local & indigenous communities work together to achieve a climate smart forest economy

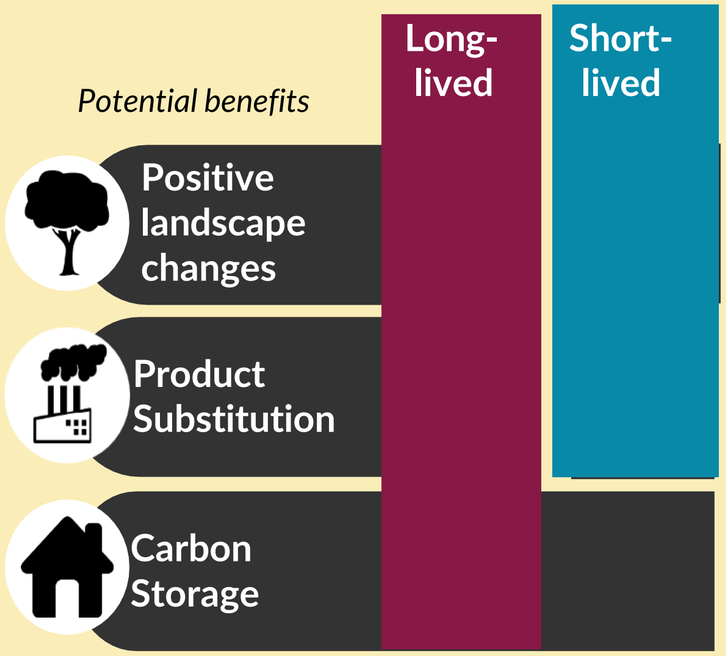
Both long-lived and short-lived wood products have potential in a wood product demand strategy

Non-fuel wood market is roughly half short-lived and half long-lived

Size of primary end-markets for non-fuel wood products, 2019*, Global $T

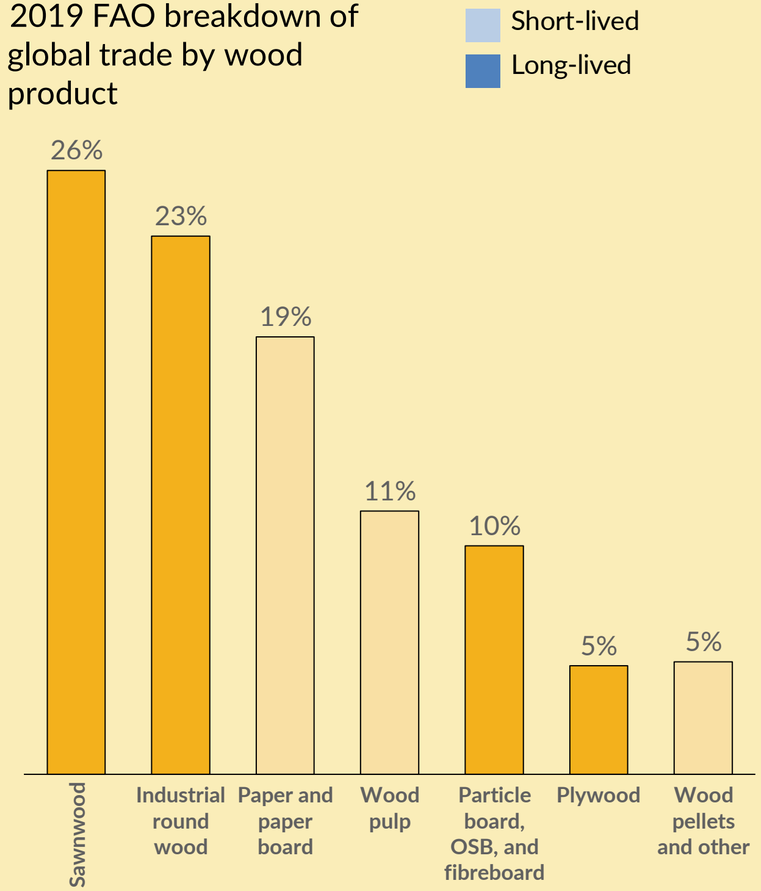


Potential for reforestation, substitution, and storage environmental benefits



Long-lived wood products make up the majority of global trade

2019 FAO breakdown of global trade by wood product



Note: *Wood chips short-lived as fuel/pulp but can also be long-lived when in particleboard
Source: Euromonitor International; Technavio; The Business Research Company; Fortune Business Insights; FAO; Dalberg analysis, 2021

The East Africa BI is generating demand and building manufacturing capacity to develop a climate smart forest economy across Kenya, Tanzania, and Uganda

Developing an East African climate smart forest economy requires generating demand for building with mass timber and forest products, developing the capacity to manufacture timber products, and creating an enabling ecosystem to support scaling

Investment could:

- → Establish supporting industries, including regional logistics and warehouses to transport timber from Uganda across the region
- → Provide financing and insurance services for real estate developers
- → Grow export businesses to supply CLT to regional markets
- → Finance and source an operator for a CLT processing facility in Kenya to supply to local and regional developers, architects, and builders

The Government of Gabon is demonstrating how climate smart management of forests can transform cities

The Gabon Sovereign Wealth Tower, backed by the Government of Gabon, will be a flagship mass timber building, demonstrating the potential in using local forests and producers

Investment could:

- → Attract additional partners to contribute to the development of a Gabonese climate smart forest economy
- → Support research on using tropical hardwoods for mass timber
- → Incubate climate smart enterprises to support the development of the value chain
- → Support the establishment of a Spatial Infrastructure and Transformation Unit to increase the Gabonese government's execution capacity
- → Increase processing capacity and address skills gaps
- → Support and scale the government's commitment to forest restoration

Breakthrough initiatives offer opportunities to invest in developing and scaling climate smart forest economies in underserved locations

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His passions lie in the intersection between **design and Regenerative development**, **just ecology** and **inclusive economies** and the role that infrastructure and human centered design strategy plays in that. Climate Smart Forest Economies and art are core passions.