Climate Smart Forest Economy Program
Unlocking Forests' Potential

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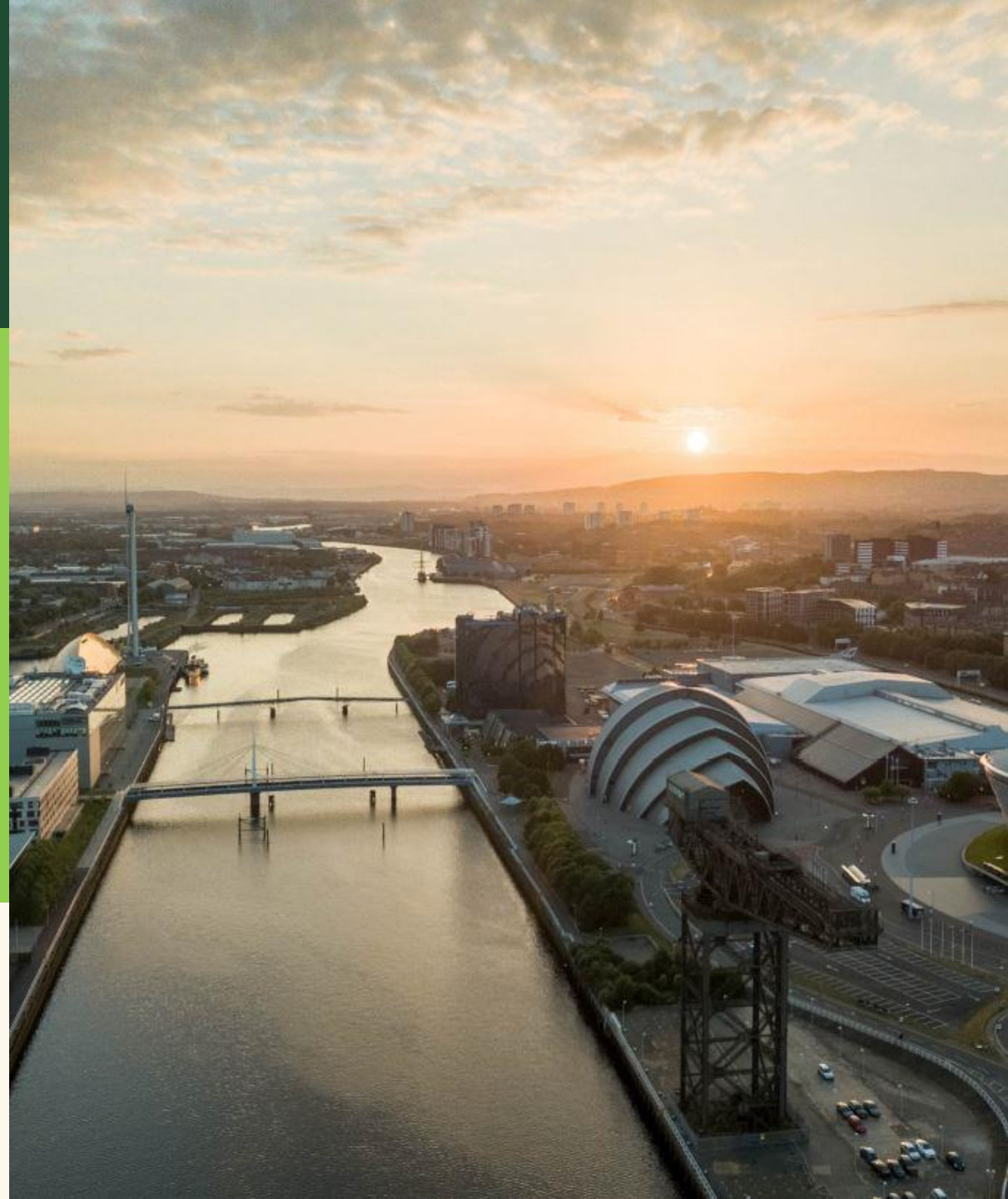
GLASGOW CITY REGION (GCR) CASE STUDY

August 2022



GCR – AN AMBITIOUS LOCAL AUTHORITY LEVERAGING FORESTS TO TURN BUILDINGS INTO LONG-TERM CARBON STORES (1/2)

1,362,000 tCO_2

1,362,000 CO2 SAVINGS COULD BE GENERATED, by 2032 as a result of the planned 18.5% to 21% woodland expansion – or the equivalent of the annual CO2 emissions of more than 296,000 passenger vehicles*

Notes: *A typical passenger vehicle emits about 4.6 metric tons of carbon dioxide per year, this assumes the average gasoline vehicle on the road today has fuel economy of about 22.00 miles per gallon and drives around 11,500 miles per year, where every gallon of gasoline burned creates 8,887 grams of CO_2
Source(s): United States Environmental Protection Agency, Greenhouse Gas Emissions from a Typical Passenger Vehicle, 2022

GCR – AN AMBITIOUS LOCAL AUTHORITY LEVERAGING FORESTS TO TURN BUILDINGS INTO LONG-TERM CARBON STORES (2/2)

DRIVEN BY

NATIONAL POLICY MOMENTUM

The Climate Change Plan for Scotland (2018-2032) sets ambitious targets for forest and woodland creation and industry decarbonization, and the National Strategy for Economic Transformation (2022) aims to deliver a just transition to a net zero, nature-positive economy.

FINDING CATALYTIC SOLUTIONS

10 intervention points along the forest and wood value chain were identified as actions that could contribute towards building a local climate-smart forest economy.

BUILDING PUBLIC-PRIVATE VALUE COALITIONS

Organizations along the value chain will work together to implement 6 actions that support the vision of a local climate-smart forest economy.

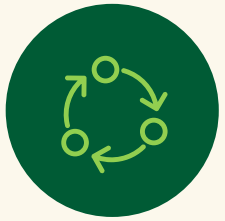
THE GLASGOW CITY REGION (GCR) STORY

NATIONAL AND REGIONAL POLICY MOMENTUM, the Climate Change Plan for Scotland (2018-2032) sets ambitious targets for forest and woodland creation and industry decarbonization, whilst the National Strategy for Economic Transformation (2022) aims to deliver a just transition to a net zero, nature-positive economy. This is mirrored by enhanced regional and local plans, including the Regional Adaptation Strategy and Forestry and Woodland Strategy.

A LOCAL GREEN NEW DEAL, a nine-year mission which will fundamentally reshape the city's economy, designed to bridge the gap between aspirations and action around the climate and ecological emergencies and deliver equitable, net zero carbon, climate resilient living by 2030.

CLYDE CLIMATE FOREST, 18 million trees will be planted over the next decade, increasing woodland cover in the region from 17% to 20%.

QUANTIFYING THE CARBON AND ECONOMIC IMPACT ACROSS THE 3S, CSFEP analyzed the carbon impact across the sequestration, storage and substitution functions of the projected forest increase in the city region, in addition to the potential positive and negative economic impacts of a local climate-smart forest economy.



IDENTIFYING A PORTFOLIO OF ACTIONS, 10 intervention points along the forest and wood value chain were identified as actions that could contribute towards building a local climate-smart forest economy (including, addressing perceptions of wood quality and safety, rethinking public procurement to create market demand, and scaling innovation in modern methods of construction).

BUILDING PUBLIC-PRIVATE VALUE CHAIN COALITIONS, organizations along the value chain will work together to implement 6 actions that support the vision of a local climate-smart forest economy.

LEVERAGING KEY PARTNERSHIPS, GCR HAS SUPPORTED THE DEVELOPMENT OF A CSFE ACORSS THE 3S FRAMEWORK COMPONENTS

3S POTENTIAL*	PARTNERSHIPS**
 **SINK** Assuming a 50:50 ratio broadleaved to conifer, 988,682 tCO2 will be additionally sequestered by 2045 as a result of woodland expansion in Glasgow City Region.	The Clyde Climate Forest (managed by Glasgow and Clyde Valley Green Network Partnership) is the highest ambition local forest and woodland creation program.
 **STORAGE** More than 32,000 m3 of timber will be available to market once the trees reach harvestable age which could lead to the manufacturing of more than 19,000 m3 of Cross Laminated Timber (CLT), thereby potentially storing 1,362,000 tCO2 in the construction value chain for 60+ years#.	Built Environment – Smarter Transformation (BE-ST), brings together academia, government bodies, skills bodies and providers, and industry to accelerate the built environment's transition to zero carbon emissions. **Offsite Solutions Scotland** is the co-operative of leading Scottish offsite manufacturing companies.
 **SUBSTITUTION** An additional 32,031 m3 of timber will be entering the supply chain, from which a total of 19,219 m3 CLT can be manufactured. This could be used in the construction industry to build up to 413 residential houses, or up to 21 residential blocks.	**Glasgow** and the wider region (formally 8 local authorities) can work towards demonstrating demand and market shaping by exploring various measures (for example, Timber First Policies, offsite manufacturing targets, or deconstruction plans).

Notes: * CSFEP worked with BeZero Carbon to model the (1) carbon sequestration impact of existing and projected forest cover, dividing between broadleaf and conifer; (2) the carbon footprint of construction materials to provide an estimate of the potential for production; and (3) the carbon balance (i.e., savings) that could be generated through product substitution in the construction sector; **These partnerships are being explored as part of the value-chain coalition, confirmed partners include BE-ST, Glasgow City Council and Offsite Solutions Scotland; #The Building Research Establishment in the UK has certified CLT products for a lifespan of 60 years, with occupied timber buildings in Europe that are over 700 years old.

VALUE CHAIN ACTIONS TO BE TAKEN FORWARD WITHIN GCR

FOREST CREATION & MANAGEMENT

1. Further developing the forest-to-frame value narrative & economic case

RAW MATERIALS

2. Delivering a Just Transition mechanism (including re/up-skilling activities) for the sector

PROCESSING & MANUFACTURE

3. Defining a common business/ investment case for offsite manufacturing facilities within the City Region

SPECIFICATION & STANDARDS

4. Gap analysis & amendment of building specifications and standards

DESIGN

5. Public sector demand & market shaping measures (Timber First Policy)

CONSTRUCTION

2. Delivering a Just Transition mechanism (including re/up-skilling activities) for the sector

THE BUILT ENVIRONMENT

6. A demonstration cluster of timber developments

Key: The six actions

Source: Ghazoul, J., Toteva, G., 2021. Systems approach to the challenges and opportunities for a wood-based construction sector: A Scotland case study. Manuscript submitted for publication

HOW CAN WE LEARN FROM GCR TO REALIZE CLIMATE-SMART FOREST ECONOMIES LOCALLY?

Other factors that have contributed to GCR's success include:

	FACTOR	IMPACTS TOWARDS THE SUCCESS OF GCR
1	Timber framed homes as a construction norm	Timber-framed homes have remained a consistent practice in Scotland, with 85% of all new homes in Scotland built with wood, signaling a well-established timber market.
2	Cross-party support from the Scottish Government	The commitment to building timber houses has been driven by cross-party support from the Scottish Government, which in 2021 pledged to plant 33 million trees by 2025.
3	Ambitious local authority and economic development team	Glasgow's Green New Deal is designed to bridge the gap between aspirations and action and deliver equitable, net zero carbon, climate resilient living by 2030.
4	Active offsite timber players	Across Scotland there is an active network of modular and timber frame manufacturers, sustainability-conscious architects and universities aiming to use offsite solutions to transform the built environment.
5	Aligned regional and value chain vision	Different value chain actors could be inspired and motivated by the intent of a local climate-smart forest economy, in particular the common narrative of grow local, fell, process, build, re-use, and grow again.
6	Focusing on carbon and economic impacts of net zero	Net zero strategies focus on carbon benefits, rather than labour market / economic impacts. Trying to manage and engage with that complexity is a necessity if we want to manage a transition and ultimately ensure it is just and equitable.

The central focus, and greatest success factor, of the Glasgow City Region case study has been securing buy-in from organizations along the wood value chain and in doing so, have developed a public-private coalition willing to act in the form of defined projects to realise a local climate smart forest economy.