



**Climate Smart
Forest Economy
Program**
Unlocking Forests' Potential

Understanding our collective impact

OCTOBER 2023

IMPACT REPORT



The case for Climate Smart Forest Economies (CSFEs)

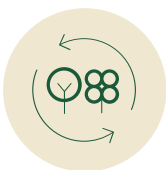
THE PROBLEM



Forests and cities are treated as separate issues and solved in siloes, despite their link.

Forests, particularly efforts to **halt deforestation, restore forests, and enhance forest management**, represent a crucial solution to the climate and biodiversity crises brought about by the ongoing growth of urban construction

THE SOLUTION



CSFE is a holistic approach with great potential to address the converging crises.

CSFEs link forests and cities **to form a single, connected value chain that maximizes the climate and social benefits.**

THE PERSISTENT CHALLENGES



Still, several barriers hinder communities from shifting to this holistic economy.

Actors are faced with challenges such as **limited networks, evidence, or credibility** to act on CSFE concepts, a **nascent bio-based construction industry in the Global South, critical information gaps in value chains, and a lack of tools** to help project owners make their interventions climate-smart.



“We see a big divide. People who deal with forests are not dealing with the economy generated by the wood, and those working in the wood value chains do not see the forest...”

The divide is detrimental because it doesn't help people understand the full impact of both the forests and wood”



Daniel Zimmer

Director Sustainable Land Use -
Climate-KIC and SteerCo
member - CSFEP

CSFEP's objectives and approach

CSFEP'S COMMITMENT

We will continue unlocking CSFEs globally, with a particular focus on the Global South.

Specifically, we will establish regional value chain alliances, iterate and increase the usability of our science-based tools, and continue advocating for supportive policy and financial environments.



CSFEP GOAL AND APPROACH

At CSFEP, we work with **communities to build radically new economies** that balance ecosystem needs and pressing human needs. We're forest-first, so at the core of our model is a commitment to using natural materials at a rate that they can be replenished. We help regions identify how careful use of bio-based products can provide a low-carbon solution for their biggest human challenges--while generating revenue for sustainably managing landscapes, especially forests.

EXPECTED IMPACT

- Significant contribution towards reversing the effects of climate change, while creating jobs and boosting the economy, both locally and globally.
- Restoring and adapting forests, improving biodiversity, and creating thriving landscapes.

CSFEP CURRENT FOCUS AREAS

Development of a body of **science** and a **portfolio of solutions** to improve climate and biodiversity functions

Development and application of **scientific tools** ([3S Framework](#), [Safeguards Checklist](#)) to maximise CSFE's climate and social opportunity

Implementation of **on-the-ground initiatives** globally to test/prove innovations

Strategic **advocacy, partnerships, and connections** to accelerate impact



CSFEP'S VALUE PROPOSITION

SCIENCE-BASED TOOLS AND APPROACHES

COMMUNITY AND CONTEXT-LED APPROACHES

BRIDGE TO REGIONAL AND GLOBAL CSFE ECOSYSTEM

A NEUTRAL PLAYER BACKED BY REPUTABLE ORGANIZATIONS

CSFEP by the numbers, 3 years since inception

OUTPUTS



€2M

FUNDING CHANNELLED
DIRECTLY TO ON-THE-
GROUND INITIATIVES

On-the-ground projects
(Breakthrough Initiatives) across
10 countries and 6 continents,
with 5 above the equator and 5
below

85

Partners connected, collaborated
with, or supported, with **4**
partners in academia and **2**
indigenous communities in New
Zealand and US Pacific Northwest

28

Partners directly influenced

2

Evidence-based free online tools
developed to help organisations
consider the full impact of their
interventions



OUTCOMES

22,339 tCO₂

Average climate positive outcome of each Breakthrough
Initiative², equivalent to annual emissions savings of taking
15,637 cars off the road.

NOTES:

1) The outputs and outcomes provide a snapshot of our impact, but they do not represent the program's exhaustive indicators

2) A [breakthrough initiative](#) (BI) is an ongoing project capable of unlocking the full climate potential of forests and forest products. We estimate that initiatives could further increase their climate outcomes by 24-56% by making different decisions across the value chains. For our larger scale initiatives, the carbon benefit is substantially higher, between 100,000 and 644,000 tCO₂.

CSFEP's impact

PATHWAYS TO IMPACT



By creating a **bridge for scientific knowledge** on the potential and value of holistically managed forest economies to translate into national and regional transformations,...



Through a **'field builder' model as a way to address critical ecosystem needs** and accelerate the impact of climate-smart forest economies,...



Developing **scientific tools applicable in diverse contexts** to catalyse a change in mindsets for actors in the forest economy space.



OVERALL IMPACT



1

CSFEP continues to **highlight the need, value and sustainable approaches in CSFEs...**



2

...has **influenced various global actors to think and act in a more climate-positive way** across the full forest economy value-chain...



3

...and is **driving climate and economic development goals** centred on local community needs



1



2

Influencing ecosystem actors to act more climate-positively

Examples of ways in which CSFEP has influenced key actors in the ecosystem

FUNDING AND FINANCING

Good Energies Foundation shared CSFEP work within their donor community, resulting in grants from leading philanthropic partners to innovative new companies

Easy Housing, a Breakthrough Initiative partner, used CSFEP tools to communicate their climate impact and secure funding

POLICY AND REGULATION

CSFEP work was used in policy discussions in the **US, Bhutan, and New Zealand** and informed the Glasgow City (**Scotland**) regional strategy for a forest economy

DATA AND KNOWLEDGE

Dalberg evolved from acting as a PMO for CSFEP to developing whole practices around bio- economies and becoming a leading thought partner for actors in Africa developing CSFEs

CSFEP's WEF community was instrumental in unlocking new levels of collaboration and support, such as a partnership between **Architecture 2030** and **Cities4Forests**, which resulted in a Wood Innovations grant award

INFORMATION AND LOBBYING

WEF, IUCN, Climate KIC, The Forests Dialogue, and World Business Council for Sustainable Development organised a panel on CSFEs at COP26

Construcción AutoSuficiente, S.A (CASSA), a Breakthrough Initiative partner, hosted the International Bamboo Association's 5th World Bamboo Workshop in October 2023 in Guatemala



“The first level of CSFEP’s impact is influence.... funders started testing generating returns in a climate-positive way. CSFEP turned the lights on in the thinking of core partners and actors on the ground through our Breakthrough Initiatives.”



Jamie Lawrence

Co-Founder – Xilva and SteerCo
member – CSFEP



1



2

Initiative spotlight: Guatemala DIY bamboo houses



LESSONS LEARNT:

The carbon assessment revealed unexpectedly higher bamboo carbon storage in Guatemala, highlighting the underestimation of carbon impacts in the Global South due to reliance on Global North data

Deep community engagement led to a scalable solution, as evidenced by the Punta Brava community, which is expected to build more bamboo houses even after CSFEP's active involvement has ended

CONTEXT

Guatemala has abundant under-utilized bamboo with significant landscape restoration and construction potential. Bamboo can sequester [~17 tons of carbon](#) per hectare annually, and engineered bamboo exhibits tensile strength comparable to steel

Many Guatemalans live in substandard housing and could benefit from building with bamboo, including victims of disasters such as Hurricanes Eta and Iota, which destroyed countless homes in 2020

CSFEP'S APPROACH AND ROLE

- In 2021, CSFEP partnered with [CASSA](#) to distribute **DIY bamboo house toolkits** to climate refugees in Punta Brava, provide construction **training**, and **facilitate access to microfinance** for kitchen and bathroom installations
- The toolkit, featuring WhatsApp video instructions and requiring only a hammer, was **promoted through local government and community engagement**

CSFEP'S ROLE

CSFEP **funded the toolkit development**, the building of **3 pilot homes and a high school** as part of the training, and the initiative's **sourcing study, carbon assessment, and communications**

IMPACT

COMMUNITY

- **Four pilot buildings were among the few that survived Tropical**
- **Storm Julia** in 2022, showcasing bamboo as a resilient alternative
- Trained residents used bamboo to **rebuild two homes destroyed by the storm** – the two were not originally bamboo homes
- Trained residents acquired the skills needed to **start businesses, find employment, or maintain their own buildings**
- The town **planted 4 hectares of bamboo, set to provide materials for 40 homes annually within five years, with the potential to sell surplus production**

ECOSYSTEM

- The initiative's success built an **evidence base that can drive further investment** in bamboo
- The **5th World Bamboo Workshop in October 2023 will be held in Punta Brava** due to the initiative's success



Driving climate and economic goals for local communities

CSFEP prioritises interventions that enhance local community livelihoods, centred on community needs and wants, and deliver climate benefits without negative trade-offs

ADVOCACY

- In New Zealand, CSFEP and The Connective collaborated with Māori tribes through Hikurangi Enterprises, conducted workshops to gather the tribes' views and assess their timber processing capabilities
- The tribes' insights influenced the development of a policy framework aiming to enhance their economic well-being

TESTING INNOVATIONS THROUGH ON-THE-GROUND INITIATIVES

- In Guatemala, CSFEP and CASSA empowered the Punta Brava community with the skills to build houses and harvest bamboo to solve their housing crisis and potentially earn income
- In India, AKAH and CSFEP built hybrid homes for Gujarat residents that only used wood for non-structural elements due to the community's perception of wood as a non-aspirational product

Lessons



CSFEs initiatives that are not only climate-smart but also empower communities to address their challenges, such as generating income or offering resilient housing, enhance community adoption and scalability of the initiative.

Collaborating with communities should include listening to community perspectives and realities, as well as active engagement with community members in the work. Through co-creation, we can ensure that projects incorporate scientific best practices and address community needs.



Initiative spotlight: New Zealand policy frameworks



LESSONS LEARNT:

Successful CSFEs consider community perceptions and important levers for local community engagement and impact.

- In New Zealand, the Māori, as the second-largest landowners with extensive knowledge of productive forest use, were involved end-to-end in the BI
- The Māori consider both plant and animal species when assessing the impact of climate actions. Instead of stating “7 million people affected,” they prefer to say, “30 million species affected.”

CSFEs can boost local communities' confidence in their approach and gain buy-in by connecting them with similar communities they have previously worked with.

- For example, this BI linked the Māori with indigenous people from the US Pacific Northwest, where CSFEP had an ongoing BI

CONTEXT

- New Zealand's Māori population faces poor living conditions and unemployment despite owning 30% of the country's hectares of plantation forestry
- International organisations presently manage the forests under long-term concessions, but with upcoming lease expirations, there was an opportunity to explore how the Māori can use the forests for their economic well-being and to promote forest regeneration and health

CSFEP'S APPROACH AND ROLE

- CSFEP partnered with The Connective to develop two policy frameworks: one (co-developed with Hikurangi Enterprises) focused on the future routes of the Māori managing forests for economic development, and another industry-wide framework looking at potential commercial use of the forests by the government
- This first framework was shared in ground-level workshops with the Māori tribes to gather their input, shaping the final framework design

CSFEP'S ROLE

- CSFEP funded the policy framework development and The Connective's on-ground engagement
- CSFEP connected the Māori community with a project team in the US Pacific Northwest that was working with indigenous peoples to exchange learnings

IMPACT

- With the help of the project, the community **crowdsourced money to set up small processing facilities**, e.g., sawmills, and gather the people to work in the facilities
- Beyond this project, the community could potentially **earn income by selling timber**

Facilitating science transfer for national transformations

CONTEXT

- Much of the work on CSFEs globally has been theoretical, making it hard to address challenges facing cities and forests
- Moreover, the concept of CSFEs is still in its early stages, so merely advocating for CSFEs is insufficient

CSFEP'S ROLE

- CSFEP is **prioritising on-ground lessons** over purely relying on theoretical research reports - i.e., providing **examples of what success could look like**, showcasing how different initiatives impact aspects such as supply chains, job creation, industry growth, and forest conservation
- CSFEP is doing this primarily through its Breakthrough Initiatives, ultimately **providing a template for replicating similar climate-smart programs** worldwide
- CSFEP is concentrating its efforts in **areas with the greatest potential for impact**, primarily in the **Global South**, despite the increased challenges

Lessons



Interest in CSFEs exists, but **awareness of the practical efforts required is often lacking** among those responsible for forest policies in various countries

Policymakers are often surprised to find out that CSFEP exists and addresses the significant forestry challenges that they are facing, indicating that **CSFEP has a really important role that no one else is playing**

Initiative spotlight: Bhutan national CSFE



LESSONS LEARNT:

Avoiding assumptions in the market assessment ensures that climate-smart actors concentrate on the right efforts.

- For instance, unlike most CSFEP markets, Bhutan has a history of building with timber. Consequently, the emphasis was not on raising awareness of building with timber but on **understanding the proper use of forests and the consequences of improper use.**

Engaging an on-the-ground partner, preferably a conservation NGO, will help balance the conversation to ensure the timber industry and its interests do not overly skew it

CONTEXT

- **Bhutan has one of the highest rates of forest cover in the world, at [71%](#)**
- **22,000 houses must be built by 2050 to fulfil the demand for affordable, low-carbon urban housing**
- **Timber-based construction has been part of Bhutan's ecosystem historically; there is an opportunity to return to these methods sustainably**

CSFEP'S APPROACH AND ROLE

- CSFEP was brought on board alongside [Bauhaus Earth](#) and [Arup](#) to sustainably transform Bhutan's urban construction sector and ultimately **support the Government of Bhutan to create a national climate-smart forest economy**
- The partners began with a scoping mission and then focused on three main activities: developing **Thimphu's 20-year structural plan**, creating a **business case for manufacturing sector** investment, and establishing a timber-based construction research and development unit
- Alongside partners such as Good Energies Foundation and WRI, **CSFEP supported the development of a business case to attract investors** into Bhutan's timber manufacturing sector
- CSFEP serves as the **forestry partner**, advising project partners to ensure that all plans are climate-smart

IMPACT

COMMUNITY

- Establishment of **Bhutan's regenerative value-chain alliance** which brings together stakeholders to improve forest management
- Construction of a **climate-smart pilot building** as a prototype for ecosystem actors
- Development of a business case for securing investment in timber manufacturing, which is expected to result in a **climate-smart manufacturing sector that can supply materials for the built environment in a way that supports the forests**

II

Creating regional CSFEs using the ‘field builder’ approach

- Lessons from the **Global North suggest that biobased construction markets are structured in a manner that benefits a few** organisations, often excluding others
- Moreover, in the Global South, market participants need to address **barriers such as the lack of market information**
- Therefore, CSFEP is shifting its approach to tackle both issues by moving from individual initiatives to **connecting and amplifying the entire ecosystem (forest-to-frame) and forming regional value chain alliances (VCAs)**
- **Regional VCAs unite all actors in the value chain** to advance the CSFE agenda by systematically removing the blockers
- **We have connected 3 Breakthrough Initiatives in East Africa** and adopted regional approaches in Germany and Scotland
- Additionally, CSFEP will engage large companies but **prioritize making CSFEs work for small local businesses, as their success boosts local employment, local systems, and research and development**



The big thing we have seen missing [in regions] is market information – [for example], what is the market size, what is the business case, is the right number of forests available, do we have agreements with those forests, and what tree species are we using?



Robyn van den Heuvel

Program Director – CSFEP

Lessons

Working with **local actors embedded into** the region reduces the time and capacity required to set up VCAs

Recognizing regional differences allows CSFEs to **adapt their approach** to the local context vs imposing global solutions, leading to real impact

Collaborating closely with ecosystem players enhances **understanding of ecosystem challenges and opportunities**

Developing successful VCAs from the ground up requires the **development of related value chains**, e.g., timber and furniture manufacturing

Getting all **value chain actors together can yield momentum** around a cause to influence **aspects such as regulation**

Initiative spotlight: East Africa value chain

CONTEXT

Construction currently accounts for 39% of all carbon emissions, a figure set to increase as the global population grows

East Africa's expected housing demand of >200,000 units per year makes it an ideal setting for the growth of a biobased construction industry

Opting for a regional approach rather than a national one allows us to leverage the forest partners in Tanzania and Uganda, alongside Kenya's timber manufacturing sector and ready market. These elements support the formation of a regional value chain alliance.

IMPACT

- The market assessment demonstrated the **potential and viability** of establishing a **biobased construction industry in East Africa** and outlined the implementation strategy
- **A task force of 15-20 actors** in the ecosystem has been created to actualise the East Africa value chain alliance (VCA)
- Although still in the early stages, **lessons learnt** from this VCA will inform the soon-to-be-launched **Central America and India regional VCAs**
- The task force will work towards the initial milestones of the VCA, with one of the key outcomes being the **establishment of a manufacturing sector** while ensuring safeguards are in place to serve local demand

Steps to set up value chain alliances:

Ideating a regional value chain

BuildX and CSFEP originated the idea of a biobased construction industry in the region



Assessing the market

CSFEP funds assessments to demonstrate the potential for an East African value chain



Creating a roadmap for success

Outcomes and outputs are identified with clear timelines, resourcing needs are understood, and quick wins are prioritised for action



Convening value chain working groups

Relevant ecosystem players from the public, social, and private sectors come together to collaborate on the prioritised wins



Collaborating to achieve victory

MATERIALS ARE COLLECTIVELY CREATED TO MEET THE OUTCOMES IDENTIFIED, WITH A CLEAR ACTION AGENDA WITHIN EACH WORKING GROUP

Developing versatile scientific tools for the forest economy

CSFEP developed two tools in collaboration with universities and scientists

- The 3S Framework is a carbon accounting and decision-making tool to help implementors enhance the carbon benefits of their value chain
- The Safeguards Checklist helps project owners assess the potential impacts of initiatives and avoid or mitigate unintended negative consequences on the environment and communities
- Applying both tools allows for holistic consideration of environmental and social aspects across a value chain, a capability that no other tools currently possess
- They are versatile and cater to diverse users and project sizes globally, from skyscraper architects in Europe to single-use housing projects in India
- The main goal is to improve decision-making and reshape project owners' thinking around elements such as sourcing

Lessons

Understanding the sensitive carbon footprint parameters is crucial because it provides project owners with insights into where to focus and prioritise their actions

Computational tools are essential, but what is more important is ensuring project stakeholders have the information they need to take action. For example, "What are the innovative solutions that exist/can be implemented?"

Notes: The [3S Framework](#) provides a comprehensive and integrated way of considering and balancing the various aspects of the carbon cycle: sink (the drawdown and retention of carbon dioxide in the forest), storage (the carbon dioxide embedded in materials), and substitution (the avoidance of emissions by replacing carbon-intensive materials)



We had research papers, and some of them were saying what was good and what was bad, and that continues today. But what the 3S Framework does is to say you can actually create a method around this - you can standardise this and measure it.



Jamie Lawrence

Co-Founder - Xilva and
SteerCo Member - CSFEP

3S Framework

Initiative spotlight: India hybrid timber houses



LESSONS LEARNT:

- In a nascent industry like biobased construction in India, careful consideration of its progression is essential. In India, the majority of timber is imported at a high cost. Hastily embracing the use of timber would limit accessibility to only high-end consumers.
- CSFEP can be a catalyst for change by working with organizations to influence their existing portfolios to be more climate- smart
- Influencing perceptions needs teams on the ground who understand the local context and have the community's trust

CONTEXT

- In July 2020, India lifted a 25-year ban on using timber for constructing public buildings
- As India begins to explore timber-based construction, there is a **significant opportunity to start scalable initiatives** that take advantage of the country's size and potential for scale

CSFEP'S APPROACH AND ROLE

- CSFEP supported the Aga Khan Agency for Habitat ([AKAH](#)) to **build hybrid houses in Gujarat**, where AKAH was already working with a climate-vulnerable community
- **AKAH led the construction of 4 demonstration homes and outreach** to change consumer views on timber-based housing

CSFEP'S ROLE

- **As a technical partner**, CSFEP conducted research, sourcing studies, safeguards assessments using the [Safeguards Checklist](#), carbon assessments using the [3S Framework](#), and influenced the final house design
- CSFEP **co-funded the demonstration homes and community outreach strategy**
- CSFEP also **connected AKAH to leading partners** in the country to help guide the project's implementation

IMPACT

- AKAH built more houses and is **scaling beyond the project**. The initiative's success also **prompted AKAH to consider timber-based construction in their programs in other regions**
- The 3S Framework **influenced AKAH's timber sourcing choices** for their upcoming housing project by revealing variations in carbon outcomes among different local forests
- CSFEP contributed to the **R&D of timber use among low-income consumers**, a segment overlooked in favour of the ecotourism and luxury construction markets, by helping to answer questions about what catering to the segment can look like
- The initiative constructed **homes residents wanted to live in by addressing consumer perceptions** of wood as non-aspirational. Additionally, it gradually began **shifting consumer perceptions** toward a more positive view of wood

CSFEP's plans for Phase II Beginning 2024



EXPANDING

Expanding and deepening reach in the ecosystem

- Expand into new regions, especially in the Global South
- Forge strategic partnerships with stakeholders in target regions, including technical, finance, and policy experts
- Identify and scale successful models for broader and more sustainable impact
- Broaden scope beyond forests -i.e., consider whole landscapes



DEEPENING

Deepening engagement with existing actors

- Deepen partnerships by involving relevant stakeholders in initiative and strategy development
- Provide regular updates on program activities, impact, and new developments, and set up feedback mechanisms



STRENGTHENING

Strengthening regional field-builder approach

- Facilitate knowledge exchange between regional value chains (East Africa, Pacific NW, USA, Brazil) as well as the wider community
- Assist actors to identify and experiment with system leverage points
- Track, measure and share the full benefits of interventions, including experiences from regional value chain alliances



DRIVING

Driving impact for CSFEP through strategic communications

- Regularly publish detailed reports on CSFEP's approach and impact
- Work with experts in partner organisations to produce insights on the potential of the holistic approach
- Advocate and raise awareness about the benefits of holistic forest management at regional levels



**Climate Smart
Forest Economy
Program**

Unlocking Forests' Potential

We can build a climate smart future where forests and forest products deliver their maximum benefits to climate, biodiversity, and prosperity.

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