



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

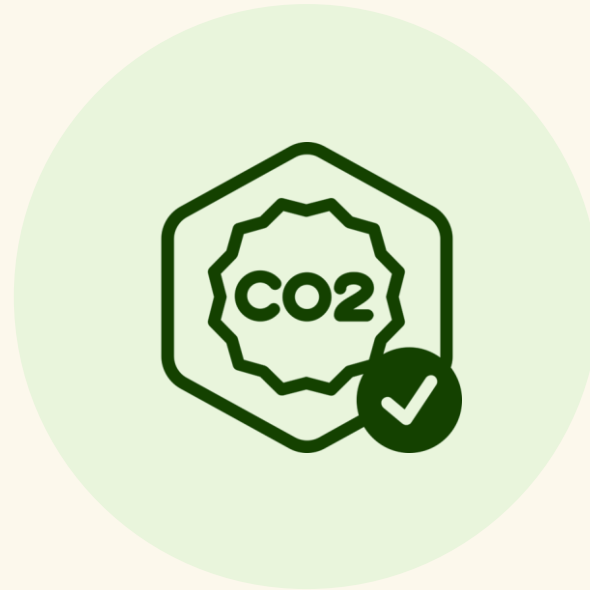
Climate Smart Forest Economy Program

CASSA - DIY, SUSTAINABLE BAMBOO HOUSING FOR
CLIMATE REFUGEES CASE STUDY

AUGUST 2022



CASSA - LEVERAGING THE POWER OF COMMUNITIES TO UNLOCK BAMBOO'S CLIMATE IMPACT (1/2)



2,770 tCO₂



THROUGH ITS MORE THAN 90 PROJECTS, CASSA has sequestered / avoided 2,770 tCO₂ – the equivalent of the annual CO₂ emissions of more than 600 passenger vehicles* – being released into the atmosphere, reaching over 2,100 direct beneficiaries through its direct construction projects. Through the development of its DIY bamboo house toolkit, CASSA can scale its impact even further

CASSA - LEVERAGING THE POWER OF COMMUNITIES TO UNLOCK BAMBOO'S CLIMATE IMPACT (2/2)



*COMMUNITY
INVOLVEMENT*

CASSA has succeeded in generating community buy-in by involving the community in every stage of project implementation, ensuring the long-term viability of the project



*SUPPORTIVE
POLICY &
LEGISLATION*

In Guatemala, the government is supportive of the work being done to improve bamboo cultivation, handicrafts, and construction leading to acceptability due to the large potential supply (large areas of unutilized bamboo plantations) and need



*INCREASED
AWARENESS*

Through the distribution of the DIY toolkit and training materials, CASSA have an opportunity to learn “how to increase utilization capacity amongst the general public with low skills and training on the use of bamboo for housing”

DRIVEN BY

CASSA HAS FOCUSED ON CO-DEVELOPMENT OF AN INCLUSIVE VALUE CHAIN WITH LOCAL COMMUNITIES



INCORPORATING COMMUNITY INPUTS, enabled CASSA to quickly adjust its approach, resulting lower cost, and increased applicability and attractiveness of the houses to local communities



CREATING SUSTAINABLE LIVELIHOODS, through the management of bamboo plantations alongside local communities and the development of industrial scale bamboo plantations creating further value for these communities



ADDRESSING GENDER INEQUALITY, by actively fostering gender equity and involving women in the value chain at all stages of production especially given the struggles that women have historically faced in Guatemala



SECURING LAND TENURE, CASSA is working closely with local government authorities to identify pathways to land ownership for households in need. This ensures that families receive additional benefits of land ownership through engaging with CASSA



DEVELOPING MINIMALIST DESIGNS, CASSA focuses on utilizing locally available resources (both materials and labour), with the aim of outcompeting alternatives on cost alone



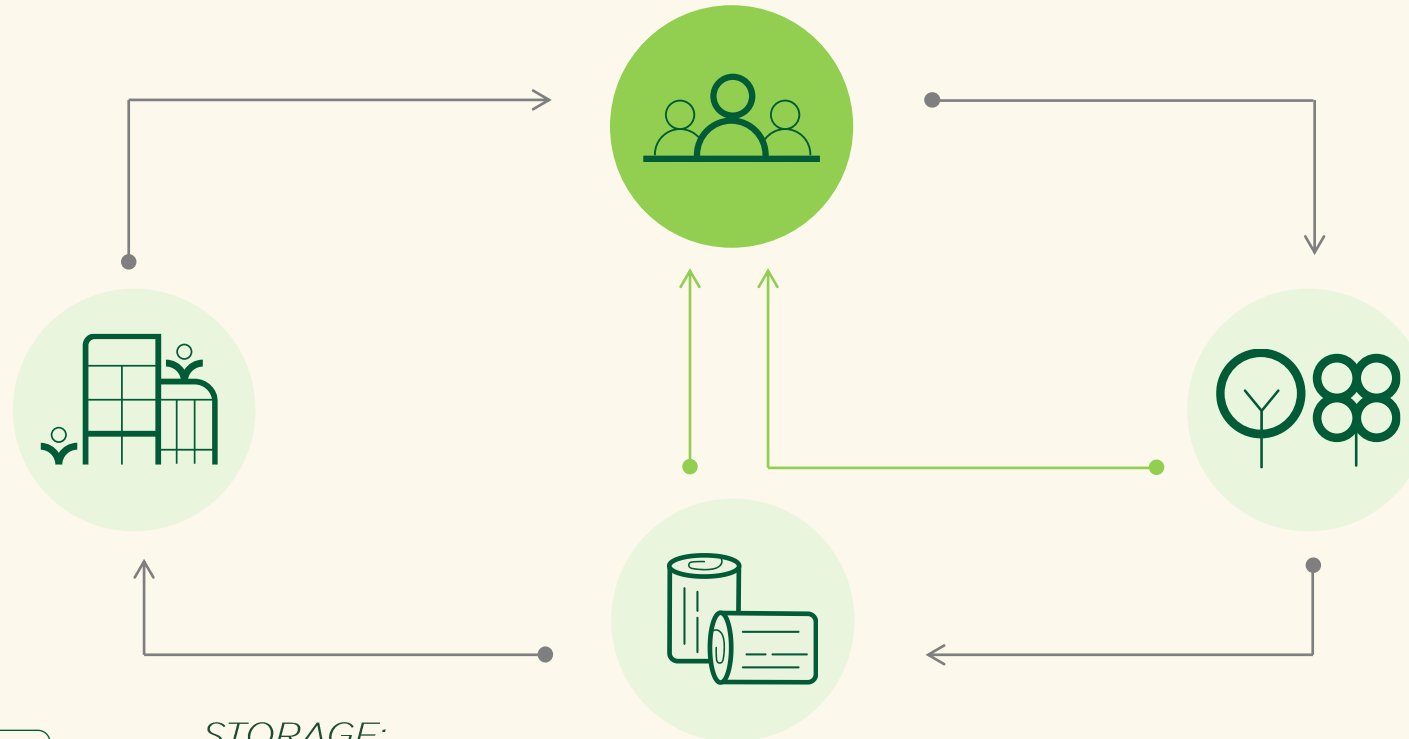
BUILDING SELF-SUSTAINING COMMUNITIES, by supporting knowledge transfer and building the capacity of communities CASSA ensures the sustainability of bamboo for construction

THE CASSA STORY

CASSA is linking the previously disconnected bamboo and construction value chains to create a CSFE

Working with local communities, CASSA has engaged in a range of activities to unlock the climate potential of bamboo and bamboo products

SUBSTITUTION:
By developing open-source DIY designs that minimize resource use (both material and labor) and focusing on utilizing locally available materials, CASSA will substitute carbon-intensive alternatives across the region



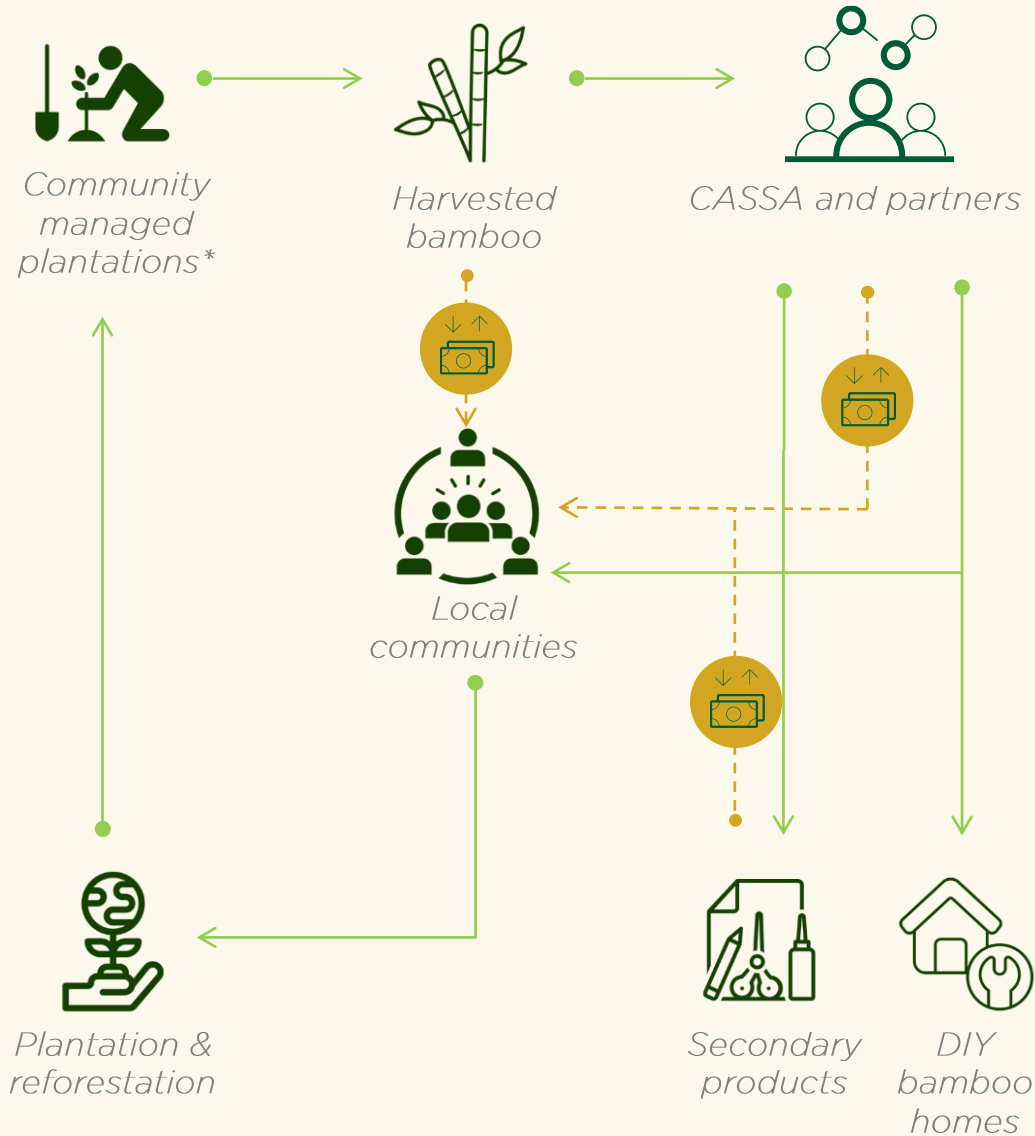
SINK:
Sustainably managing abandoned bamboo plantations, as well as preventing land degradation and enabling restoration by using bamboo as a pioneer species ensures that the carbon sink function is maximized.

STORAGE:
Once bamboo is harvested, CASSA develops opportunities for individual and community processing of bamboo into construction and other products (i.e., furniture, packaging, paper) that act as a long-term store of carbon

For example, CASSA has prepared a manual for the artisanal processing of bamboo into material that is useable for construction

KEY	
→	Product flows
→	Financial / benefit flows

CASSA'S COMMUNITY CENTRED APPROACH ENSURES THAT ALL BENEFITS CREATED THROUGH THIS PROJECT ACCRUE TO LOCAL COMMUNITIES



CASSA is creating a market for affordable DIY bamboo housing which will facilitate investment in sustainably managed plantations and address the need for climate-resilient housing across Central America

- CASSA is developing a business model centered on self-constructed (DIY) homes for climate refugees based on the widely available and under-utilized bamboo plantations
- These homes will meet the demand for climate-resilient homes that can withstand the growing impacts of climate change in the vulnerable region where most people lack access to affordable and safe housing options
- The bamboo plantations and use of local communities in its management will also support improved livelihoods while maintaining positive climate impacts. CASSA will supplement the plantation course offered to local communities with a forestry management course to maximize climate impacts from natural resources
- Additionally, the house designs incorporate the use of wood (i.e. window panels, doors, and foundation/ stilts) from sustainably managed forests which will increase forest investments
- Separately, CASSA is also addressing the lack of access to land and tenure issues in Guatemala by ensuring that their initial buildings are built in community lands to ensure beneficiaries maintain access to them

Notes: *While CASSA focuses on bamboo as the primary material for construction of DIY climate resilient homes, some elements of the houses like the window panels will use timber from sustainably managed plantations, supporting increased forest investments

KEY ACTIVITIES

PARTNERSHIPS



SINK

CASSA has secured commitments of 8Ha* of bamboo plantations across individual and community lands to support the demand, and could potentially secure significantly more with access to over 47,000Ha[†] of protected land



CASSA has partnered with the local government (COCODE Punta Brava) to secure land for bamboo plantation in Guatemala, as well as an alliance with an NGO (Esperanzas Unidas) in Honduras



STORAGE

CASSA leverages local bamboo species for processing into products suitable construction and other bamboo products (i.e., furniture, etc.) that act as a long-term carbon store[#]



CASSA has developed an alliance with the local community to support plantation management, harvesting, and processing of bamboo into products, earning an income for local communities



SUBSTITUTION

Sale of bamboo for use in construction in place of steel and concrete, as well as the sale of timber products for some aspects of the house (i.e., window frames and doors)



The DIY houses will be low-cost and scalable with partnerships with Esperanzas Unidas supporting adoption outside Guatemala. In addition, Redcamif will support further adoption through microfinancing

Having thoroughly assessed CASSA, independent assessors have recommended several safeguards to be implemented by CASSA

1

HABITAT PROTECTION - Before establishing a new bamboo plantation, climate and soil conditions at the potential site for planting site must be taken into consideration, to select the species that best suits the local conditions and have the guarantee that the material to be harvested will serve the purpose according to the projected uses and the technical specifications of the same.

2

AVOIDING LAND USE AND COVER TYPE CONVERSION - It is imperative to a CSFE model to define mechanisms to confirm that bamboo plantations developed by CASSA are not established on lands where the substitution of forests or other natural ecosystems are likely to occur. This will reduce the risks associated with the conversion or replacement of productive forests and/or natural ecosystems and assist in protecting areas of conservation considered as high value

3

MINIMIZING RISKS AND ACCIDENTS - Although CASSA mentioned that they have not had reports of any fire in the built projects, and that bamboo may be less susceptible to catching fire than some species of wood, it is always important to emphasize about preventive measures: do not make large stoves inside the houses, and preferably use improved stoves that require little wood and that have a fireplace in good condition, to prevent adverse effects to the health of the inhabitants of the home

4

IMPACTS TO LAND TENURE SECURITY - To the extent that land use rights are not clear and legitimate, the risks to the sustainability of the programme can be significant. For this reason, it is advisable to confirm the rights of ownership and use over the lands where the plantations are established in order to prevent potential social conflicts

HOW CASSA ENABLES THE DEVELOPMENT OF LOCAL CLIMATE SMART FOREST ECONOMIES

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

	FACTOR	INFLUENCE ON CASSA'S SUCCESS
1	Supportive policy and legislation	The Maya Biosphere Reserve, with an area of more than 2,000,000Ha, is the largest protected area in Guatemala, featuring a Multiple Use Zone (MUZ) where its main use is sustainable forest management granted through community and industrial concessions
2	Increased awareness	Through the distribution of the DIY toolkit and training materials, CASSA have an opportunity to learn "how to increase utilization capacity amongst the general public with low skills and training on the use of bamboo for housing"
3	Affordability	By developing designs that minimize resource use and focuses on utilizing locally available materials, CASSA makes the use of bamboo for the construction of homes affordable
4	Accessibility	The existence of large underutilized bamboo plantations in Guatemala and the planned expansion of bamboo plantations make homes constructed from bamboo more accessible for local communities
5	Community involvement	CASSA has succeeded in generating community buy-in by involving the community in every stage of project implementation, ensuring the long-term viability of the project

The key success factor for CASSA has been gaining community buy-in at every stage of the project and empowering communities to drive the construction of homes by transferring knowledge through the development of DIY toolkits