



## Costa Rica - Low Carbon Urban and Housing NAMA

### Acronyms

BANHVI: Bank for Housing (A second floor public bank that allocates State subsidies).

CCC: Construction Chamber.

CFIA: Architects and Engineers Professional Association.

GAM: Great Metropolitan Area (31 Municipalities, 4% of the total territory)

MIVAH: Ministry of Housing and Human Settlements.

MINAE: Ministry of Environment and Energy.

RESET: Requirements for Sustainable Building in the Tropic (voluntary regulation, like LEED).

SPV: Special Purpose Vehicle (In this case a Trust Fund).

### Introduction

The building sector has a huge potential for change by taking advantage of new technologies and new processes in design, construction and deconstruction. This sector has the ability to become more efficient in terms of resource use along being less environmentally intensive, low carbon emitter and more profitable. In Costa Rica, buildings are responsible for 60-75% of total electricity use and 40-60% of the waste volume.

During the last ten years, the historic figure of building amounts to 30.4 million m<sup>2</sup>. This figure is projected to be 38.6 million m<sup>2</sup> in 2012-2021. The housing sector represents almost 70% of the total construction and is characterized by a slow pace of technological improvement. The lack of vertical development and insufficient infrastructure is stressing the sources of fresh water and threats areas of wild life conservation in a Country which custody nearly 5% of the world biodiversity.

The construction sector is highly fragmented, with many, often poorly integrated actors involved in the value chain. One of the key actions that need to be addressed in the sector is to encourage standardization, industrialization, and promotion for pre-fabricated modules. These actions are affected by regulations that MIVAH should encourage and by standards that are boosted through adoption by the private sector. The same is true for promoting sustainable operations through buildings with low water consumption and efficient energy usage.

The impact sought for urban development will be over the long term, but it implies pushing for reforms to the domestic and municipal urban planning standards in relation to the urban regulatory plans. Currently, the GAM urban regulatory plan is being analyzed by the MIVAH. Since it is the ministry that pushes these mitigation measures, conditions will be created that are conducive to the climate change perspective with actions to promote green urban development into the new urban regulations

## **Estimated Greenhouse emissions reductions**

In the construction sector it is been estimated 3.9 millions of tons of CO<sub>2</sub> emissions by 2011, and the outlook for 2012-2021 predicts that the sector will release 40.9 millions of tons of CO<sub>2</sub> accrued in the period, based on the mass balance including wastewater, operation energy and commuting. The total CO<sub>2</sub> mitigation is expected to reach 763,000 metric ton per year in 2021, add up 3.2 million tons during the period 2013-2021.

The benefits of the NAMA in the construction sector embraces key drivers for CO<sub>2</sub> mitigation: reduce consumption and waste; substitution of high emission factor materials for CO<sub>2</sub> by sequestering materials (wood); reduce the emission factor and carbon embodied in material by promoting environmentally preferable materials; reduce energy consumption in building operation by bioclimatic building design, improve wastewater treatment and compact multifunctional cities with urban planning and green infrastructure. The high performance building in the long term will increase the competitiveness of the Country and contributes to attract foreign investment, mainly in eco-tourism, global services, medical supplies and services, computers' software and hardware, biotechnology and new materials development. In general, the CO<sub>2</sub> low emission strategy for the housing sector will benefit the environment at local, regional and global level, as well as, social and economic value creation. No doubt the strategy will foster the economic development and social mobility. Costa Rica Urban Planning aims to have well-designed and compact habitats, as well as interconnected cities holding a wide range of uses in a sustainable environment highly integrated with public transport and public services, design to adaptable to climate change and other natural events.

### **NAMA Description**

The path for sustainable construction comprises a coordinated set of measures that comes from market mechanisms, voluntary adoption of green standards, extensive communications integrated with the academy and mandatory regulations. The Government wants to focus its resources in to create a key mechanism which will leverage actions from the private sector to mobilize all stakeholders: Final Users, Investors, Architects and Engineers, Developers, Distributors, Manufactures, Financial Institutions, Municipalities, as well as, integrating key organizations of the sector (CFIA, CCC, Green Building Council etc) with clear and detailed roles around a Road Map for Low Carbon Urban and Housing Development. Public and Private Sector will be working together under a common vision.

The NAMA is described through three key strategies:

#### **I. Market readiness.**

1. Market instruments (CO<sub>2</sub> trade, MVR, Urban flexibility etc)
2. Voluntary agreements and regulations (RESET and EPD, industry subsector agreements)
3. Mandatory regulations (Government directives and legal frame modifications)
4. Information and knowledge transfer (Universities, web based knowledge, etc)

## **II. Financial mechanisms.**

1. Create financials mechanism -Special Purpose Vehicle- to foster green urban development with green buildings. (Trust Fund for short term credit, with BANHVI support)
2. Develop a strategy with commercial banks to improve credit conditions for final users, provided fulfill green code specifications. (Promote competence among commercial banks)

## **III. Practice and Results**

1. Identify and prioritized specific urban sites for new project developments according to polifunctional cities aimed to reduce commuting. (Five key areas in the GAM)
2. Develop a pilot project of 1000 affordable houses (\$50,000 to \$80,000) to show a practical application of sustainability concepts. (First step for leading project)

The Government pursues to mainstreaming best practices and innovation movement around a set or strategic axis:

- Promotion of long term planning for dynamic improvement.
- Promotion & adoption of best practices, including potential for the use of voluntary agreements.
- Creating the Enabling Environment for sustainable-housing through Strategic Partnerships.
- Creating a Viable Market for Green Materials, Green Buildings and Green Cities.
- Create condition for financial viability and sustainability of nonprofit organization (private-public) that has sustainable construction as core business.

Reviewing the legal framework, on first sight, it is revealed requirements for:

- Modify MIVAH Directive 27, technical specifications for social housing
- Modify Decree 36550 for MVR system.
- To create a High Performance Building Code for voluntary adoption (could be issue a Government Decree for its application in public buildings).
- Enhance Act 7447 for Rational Use of Energy.
- Engineers and Architects College regulatory frame.
- Decree 28099 Material and equipment tax exoneration
- Create a Model for Local Governments to foster sustainable construction through the regulatory urban frame.

The SPV, in the form of a green housing trust fund will create a new platform for the receipt and allocation of state subsidies for medium income households, GHG donor mitigation funds, the long term development banks financing and private funding intended to expand affordable green housing opportunities in Costa Rica, which reduce CO2 footprint below a baseline. The intention is that the trust fund will not require exclusively Government money to become operational but will instead seek funding sources outside with sustainability purposes according to a National Policy of CO2 mitigation issued by the MIVAH and MINAE.

## Support Requested

Nowadays, Costa Rica is President *pro tempore*, of the organism that coordinates efforts at inter-Governmental level for Central America Region regarding housing and human settlement issues. So, its leadership and experience can be replicated with much wider impact in a vulnerable region.

Low carbon Housing and Cities NAMA	Local counterpart	International cooperation	PROGRAM OF INTERNATIONAL FUNDS				
			Year 1	Year 2	Year 3	Year 4	Year 5
<b>Capacity development</b>							
MVR system	\$ 60,000	\$ 250,000	\$ 150,000	\$ 100,000			
Certification & Accreditation	\$ 130,000	\$ 375,000	\$ 175,000	\$ 200,000			
Professional training	\$ 250,000	\$ 300,000	\$ 100,000	\$ 100,000	\$ 100,000		
High Performance Code	\$ 20,000	\$ 100,000	\$ 50,000	\$ 50,000			
Legal framework strengthen	\$ 100,000	\$ 75,000	\$ 30,000	\$ 45,000			
Technical training	\$ 500,000	\$ 100,000	\$ 40,000	\$ 30,000	\$ 30,000		
	<b>\$ 1,060,000</b>	<b>\$ 1,200,000</b>	<b>\$ 545,000</b>	<b>\$ 525,000</b>	<b>\$ 130,000</b>		
<b>Special Purpose Vehicle (Trust Fund)</b>							
Legal creation	\$ 35,000	\$ 250,000	\$ 250,000				
Stock Market trade off	\$ 50,000	\$ 175,000		\$ 175,000			
Administrative constitution	\$ 15,000	\$ 125,000	\$ 125,000				
	<b>\$ 100,000</b>	<b>\$ 550,000</b>	<b>\$ 375,000</b>	<b>\$ 175,000</b>	<b>\$ -</b>		
<b>Multifunctional cities</b>							
Prioritization assessment	\$ 150,000	\$ 1,000,000	\$1,000,000				
Five polifunction urban analysys	\$ 45,000	\$ 5,000,000	\$2,000,000	\$2,000,000	\$ 1,000,000		
Pilot project 1000 green houses	\$ 6,500,000	\$ 65,000,000	\$1,500,000	\$4,500,000	\$18,000,000	\$25,000,000	\$16,000,000
	<b>\$ 6,695,000</b>	<b>\$ 71,000,000</b>	<b>\$4,500,000</b>	<b>\$6,500,000</b>	<b>\$19,000,000</b>	<b>\$25,000,000</b>	<b>\$16,000,000</b>
<b>TOTAL LOW CARBON PROGRAM</b>	<b>\$ 7,855,000</b>	<b>\$ 72,750,000</b>	<b>\$5,420,000</b>	<b>\$7,200,000</b>	<b>\$19,130,000</b>	<b>\$25,000,000</b>	<b>\$16,000,000</b>

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