

NS-342 - Costa Rica Musaceae NAMA.

Costa Rica

NAMA Seeking Support for Implementation

A Overview		
A.1 Party	Costa Rica	
A.2 Title of Mitigation Action	Costa Rica Musaceae NAMA.	
A.3 Description of mitigation action	The main objective of Costa Rica Musaceae NAMA is "to achieve a transformational change in the agro-chain of the cultivation, packaging and marketing of defining a strategy that guides the selection, implementation and evaluation of Greenhouse Gas mitigation actions. (GHG), and adaptation to climate varial profitable management with a climate focus." This objective contributes to the vision of transformation stipulated in the 2050 National Decarbonization Plan for the promotion of highly efficient agri-foo generate export goods and low-carbon local consumption, which specifically indicates the ambition that by 2030 the supply chain value of musaceae (among applying emission reduction technologies both at the farm level and at the processing stage level. To achieve a transformation of the sector towards low-carbon production, four key measures with the greatest potential for reducing emissions were selected increase the level of carbon dioxide removal through forest plantations-forests-trees- soil carbon; (ii) reduce carbon dioxide emissions generated by aircra spraying in Sigatoka control programs based on more efficient technologies; (iii) reduce nitrous oxide (N2O) emissions generated by the application of fertilization process and reduce carbon dioxide (CO2) emissions generated by the application of calcium carbonate and dolomite lime in the soil nutrition; consumption of electricity that comes from the electrical network and from the transport of fruit in the port.	
A.4 Sector	☐ Energy supply ☐ Residential and Commercial buildings ☒ Agriculture ☐ Waste management ☐ Other	
A.5 Technology	☐ Bioenergy ☒ Energy Efficiency ☐ Hydropower ☐ Wind energy ☒ Carbon Capture and Storage ☐ Land fill gas collection ☐ Other	
A.6 Type of action	☒ National/ Sectoral goal ☒ Strategy ☒ National/Sectoral policy or program ☐ Other	
A.7 Greenhouse gases covered by the action	☒ CO2 ☒ N2O ☐ PFCs ☐ Other	
B National Implementing Entity		
B.1.0	Name	Ministerio de Agricultura y Ganadería (MAG) / Ministerio de Ambiente y Energía
B.1.1	Contact Person 1	Mauricio Chacón Navarro - MAG
B.1.2	Address	Sabana Sur, San José, Costa Rica
B.1.3	Phone	+506- 8658 3536
B.1.4	Email	mchacon@mag.go.cr
B.1.5	Contact Person 2	Patricia Campos Mesén
B.1.6	Address	Barrio González Lahmann, San José
B.1.7	Phone	+506-2253-4298
B.1.8	Email	pcampos@minae.go.cr
B.1.9	Contact Person 3	
B.1.10	Address	

B.1.11	Phone	
B.1.12	Email	
B.1.13	Comments	

[Add Additional Entity](#)

C Expected timeframe for the implementation of the mitigation action

C.1	Number of years for completion	8
C.2	Expected start year of implementation	2022

D Currency

D.1	Used Currency	USD v
Conversion to USD: 1		

E Cost

E.1.1	Estimated full cost of implementation	21,457,510 Conversion to USD: 21,457,510
E.1.2	Comments on full cost of implementation	In the pilot plan with 15 banana farms, the investment for year 1 is USD 2,409,587. To support the execution of measures in bananas and the strengthening of Creole bananas, USD 567,500 must be invested in bananas and 217,500 in plantains per year. Thus, under the scenarios studied, the investment required during the pilot plan to transform the target farms would be in the range of USD 14,457,510 in the scenario, which represents 6 years of implementation to cover 60% of the farms producing banana from the country with an investment per farm of USD 160,000 (once per farm). To reach a total of USD 21.5 million the support measures for the export banana sector (USD 5.7 million) and for the other musaceae sector (USD 5.7 million) must be added. In addition to this conservative scenario, a second scenario is presented, called optimistic (scenario 2). All cost information is included in the attached report Scenario 1 is mentioned in this application, as it is the one determined to be the most plausible according to industry experts.
E.2.1	Estimated incremental cost of implementation	 Conversion to USD: 0
E.2.2	Comments on estimated incremental cost of implementation	

F Support required for the implementation the mitigation action

F.1.1	Amount of Financial support	 Conversion to USD: 0
F.1.2	Type of required Financial support	☐ Grant ☐ Guarantee ☐ Loan (sovereign) ☐ Equity ☐ Loan (Private) ☐ Carbon finance ☐ Concessional loan ☐ Other
F.1.3	Comments on Financial support	
F.2.1	Amount of Technological support	
F.2.2	Comments on Technological support	
F.3.1	Amount of capacity building support	 Conversion to USD: 0
F.3.2	Type of required capacity building support	☐ Individual level ☐ Institutional level ☐ Systemic level ☐ Other
F.3.3	Comments on Capacity Building support	

G Estimated emission reductions

G.1	Amount	0.2713
G.2	Unit	MtCO2e v
G.3	Additional information (e.g. if available, information on the methodological approach followed)	The value is estimated according to the following parameters: percentage of intervened area, increase or not in percentages of efficiency in energy processes, percentages of replacement of the use of light aircraft and indicator of emissions versus production. This value (F.1) corresponds to the conservative emissions scenario (scenario 1). The parameter values are: - Percentage of intervened area: 60% of the total national area. This value corresponds to the total reached in 2030, starting in 2022 and experiencing an annual increase of 10% until 2027. This value is maintained until 2030.

- **Increase or not in productivity:** No increase in yield is observed with respect to the baseline, but agro-inputs that drive GHG emissions are reduced as follows: the use of lime goes from 100 to 50 kg ha⁻¹, the synthetic and organic fertilizers go from 375 to 300 kg N ha⁻¹ and the organic ones are maintained at 36 kg N ha⁻¹ respectively.
- **Percentages of efficiency in energy processes:** In this scenario, an optimization of electricity consumption in the packaging process of 30% is expected.
- **Percentages of substitution of use of light aircraft:** 15%. It corresponds to the substitution of light aircraft for drones known as "hot zones", which are those areas that need to be reviewed with various applications of fungicides.
- **Indicator of intensity of emissions versus production:** 45.1 kgCO₂-eq per ton produced. It corresponds to a reduction compared to the baseline.

In addition to this conservative scenario, a second scenario is presented, called optimistic (scenario 2). All the information on emission reduction and the parameters are included in the attached report in attachments. Scenario 1 is mentioned in this application, as it is the one determined to be the most plausible by industry experts.

H Other indicators

H.1 Other indicators of implementation

For the export banana sector:

- Number of Executed Projects.
- Number of farms that use drones.
- Number of studies carried out.
- Number of farms that have solar panels.
- Number of farms that have inventories made and available for biometric analysis reporting.
- Number of successful software tests.
- Number of user records (farms) in software/app.
- Number of trainings carried out.
- Number of visits to the website.
- Number of visits to profiles on social networks.
- Number of NAMA farms with stamps delivered.
- Number of Fairs with the participation of NAMA producers.

For other Musaceae (banana)

- Number of forms available.
- Number of reports of visits to banana farms.
- Reports on emissions and removals for the sampled plantain farms.
- Number of curricular proposals for validation by the Technical Committee.
- Number of plantain producers trained.
- Number of proposals for the design and implementation of the plan to strengthen governance and associativity and approval by the technical committee.
- Number of associations of plantain producers that benefit from the strengthening plan.
- Number of producers that have increased their scope and have benefited after one year of implementation of the Strengthening Plan.
- Number of NAMA plantain production and marketing pilot model proposals submitted for validation and approval by the Technical Committee.
- Number of plantain producers that have increased their plantain marketing capacity through the NAMA.

I Other relevant information

I.1 Other relevant information

including co-benefits for local sustainable development

The implementation of actions to reduce GHG emissions and increase their removals generate a series of co-benefits for the Musaceae sector, beyond the direct benefit of contributing to the country and planet goals for the issue of Climate Change. Some of these added benefits:

a. Technology transfer from one sector to another. The Musaceae NAMA has two sectors with significant differences in technological and economic development. On the one hand, there is the export banana sector (including dates) that has production technologies that allow it to reach high levels of productivity and compete in the international market, with high and profitable production systems, and on the other, the plantain and Creole banana, which have not achieved production

that make their systems profitable, and we find a large part of the producers with subsistence production systems at levels of poverty. So, the situation in which the Musaceae sector must work together to address the issue of Climate Change as the high risk that the advance of Fusarium generates for the Musaceae sector worldwide, means that the opportunity through the NAMA allows greater technology transfer from one sector to another, specifically given the technology that already has and that CORBANA could generate in terms of NAMA practices, which could be adapted and transferred to Creole banana production systems.

b. Environmental-Social Improvements. The use of drones, in the first instance for applications in areas adjoining rice protection zone centers, and in the second instance as a generalized practice for the control of Black Sigatoka, would all impact of the control of Black Sigatoka in systems such as drainage channels, streams, rivers and protection zones (for reducing the probability of water contamination and damage to different types of species. Various studies, such as Espinoza and Tinoco (2015), have managed to show that the reduction in the risk of contamination by aerial spraying of pesticides and roads generates a strong positive impact on the health of the inhabitants of the banana communities. The practices of the use of fertilizers would also have a positive impact on the basins of the banana areas, avoiding damage to the flora and the streams, rivers, canals, lagoons and the ocean (Blanco, 2017).

c. Product differentiation. By implementing the musaceae sector NAMA practices for the entire industry, it will be possible to visualize the way in which the sector is changing and reducing its carbon footprint and its impact on the environment, allowing differentiation in markets with consumers that include these issues in their decision making of value, giving the sector greater access to markets, being able to keep competing in the markets, and in some cases obtain higher prices.

d. Landscape. The practices to increase the wooded areas and in general the presence of trees in the banana/plantain sector allow an improvement in the landscape of the towns, generating an improvement in the life of the communities and opportunities for other types of businesses related to the rural-community tourism.

These co-benefits are given thanks to the actions implemented by the Musaceae NAMA such as: economic support to producers, strengthening the local community throughout the national territory; government mechanisms to promote access to the banana, Creole banana and date sectors, improving links in the national network of farmers; strengthening of forest management plans, guaranteeing their maintenance and protection, as an environmental resource; promotion of forest plantation in industrial areas, as well as on roads or rivers, achieving, in addition to carbon removal, added landscape value; use of solar power for power generation, providing greater independence to farmers against fluctuations in energy market prices.

J Relevant National Policies strategies, plans and programmes and/or other mitigation action

J.1 Relevant

National Policies

Costa Rica has an important history of ambition and climate action, and it is a nation that has several international treaties related to environmental challenges of interest to both the community and the country. Costa Rica has been part of the Paris Agreement since 2016 and presented its first NDC in 2015, updating it in 2020.

In coordination with international commitments, the country has adopted a series of policy designs linked to the promotion of productive activities (including rice) that are sustainable and environment and, especially, that reduce GHG emissions, thereby allowing it to get closer to its climate ambitions.

- The National Development and Public Investment Plan (PNDIP) 2019 – 2022: The National Plan includes actions regarding the reduction of GHG emissions in the agricultural sector development of "sustainable production models in livestock and agricultural farms." ([1072_0.pdf \(unesco.org\)](#))
- The National Policy for Adaptation to Climate Change: The National Policy for Adaptation to Climate Change proposes that "agricultural production systems (...) adopt resilient and efficient production practices, designs and construction systems in the face of climate change." ([final-politica-adaptacion-24-abril.pdf \(cambioclimatico.go.cr\)](#))
- National Plan for Decarbonization by 2050: The Plan specifically seeks to guide the "modern, green and emission-free economy in order to have net zero emissions by the year 2050." ([NACIONAL-DESCARBONIZACION.pdf \(cambioclimatico.go.cr\)](#))
- National Adaptation Plan 2018-2030 (in design process)
 - Sectoral Plan 2019 – 2022 of the Agricultural, Fishing and Rural Sector: Plan with strategic interventions, among which one linked to promoting climate actions that contribute to the comprehensive decarbonization of the agricultural sector through the design and implementation of NAMAS in rice, musaceae and cane of sugar, which would be added to the existing livestock and coffee. ([2019-010-Plan_Sectorial_2019-2022.pdf \(sepsa.go.cr\)](#))
- State Policy for the Costa Rican Agrifood Sector and Rural Development (2018): Action document for the technical modernization of the country's agricultural sector, including the rice sector ([sector-agro-2010-2021.pdf \(inder.go.cr\)](#))
 - Paris Agreement: The Paris Agreement corresponds to a supranational exercise which is materialized in the country through the Nationally Determined Contribution (NDC), in which contribution 7.2, it is desired that the productive chains migrate to a low in greenhouse gas emissions. ([parisagreement_publication.pdf \(unfccc.int\)](#))
 - Agro-environmental Agenda: Intersectoral effort of great importance for the productive activity of rice. Among its work axes are elements related to climate-smart agriculture. ([agendaagroambiental-final-aprobada.pdf \(mag.go.cr\)](#))
 - National Bioeconomy Strategy 2020-2030: Axis focused on bioeconomy for rural development through better environmental management of the agricultural sector ([policiespañol \(inder.go.cr\)](#))
- National REDD+ Strategy ([4863_1_fon_estrategia_red_cr_lr.pdf \(unfccc.int\)](#))
- National Climate Change Strategy ([Estrategia_Nacional_de_CC.pdf \(cac.int\)](#))
 - National Policy for Sustainable Production and Consumption ([Política Nacional de Producción y Consumo Sostenibles \(digeca.go.cr\)](#))
- AgroAmbiente Agenda MAG – MINAE (2021). ([Agenda AgroAmbiente](#)).
- Law No. 8285, 2002: Creation of the National Rice Corporation, CONARROZ is responsible for making known the minimum amount of the grain price that agro-industrial companies can produce. ([Ley8285.pdf](#))
- Law No. 7472, 1995: setting prices and marketing margins for rice. ([Ley7472](#))

- MAG-MINAE Agreement, 2018. Agreement between the Ministry of Environment and Energy and the Ministry of Agriculture and Livestock for the reduction of emissions in the agric
([Acuerdo-sectorial-reduccion-emisiones-sector-agropecuario.pdf \(mag.go.cr\)](#))

J.2 Link to other NAMAs

(none)

K Attachments

K	Attachments	<table><tr><th>Title</th><th>Description</th></tr><tr><td><u>Informe final NAMA MUSÁCEAS versión ajustada 2022 04 11.pdf</u></td><td></td></tr></table>	Title	Description	<u>Informe final NAMA MUSÁCEAS versión ajustada 2022 04 11.pdf</u>	
Title	Description					
<u>Informe final NAMA MUSÁCEAS versión ajustada 2022 04 11.pdf</u>						
K.1	Attachment description					
K.2	File	Choose File No file chosen				

L Support received

L.1	Outside the Registry											
L.2	Within the Registry	<table><tr><th>Support provided</th><th>SupportType</th><th>Amount</th><th>Comment</th><th>Date</th></tr><tr><td colspan="5">No records to display.</td></tr></table>	Support provided	SupportType	Amount	Comment	Date	No records to display.				
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