Costa Rica ForestValue

Valorising small scale forestry for a bio-based economy

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Content

- Costa Rica in the context of the Central American Region
- Bioeconomy Strategy: A Current Status
- An Integrated Vision for Agriculture and Forestry
- Dynamics of the Forest Sector
- Challenges and problems to solve
- Forest Sector Bioeconomy Models: some examples
- Needs
- Conclusions

CULTURAL AND NATURAL RICHNESS

- Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panamá and the Dominican Republic
- More than 48 million inhabitants
- Eco-touristic destination
- Highest biodiversity
- Agricultural and forestry development







MAIN CHALLENGES

- Highly dependent on fossil fuel energy
- High unemployment and poverty
- Environmental problems
- Natural disasters and climate change
- Increasingly violence and drug trafficking problems



We also need to unite the Central American countries



Where's our chance?

biomass + knowledge

new bioproducts new markets new businesses

CURRENT STATUS OF THE NATIONAL BIOECONOMY STRATEGY

- The country is developing a national strategy comprising agriculture, forestry and the sustainable use of biodiversity in the rural areas.
- Costa Rica has all the conditions to be a leader in a replicable bioeconomy model for the region with global projection.
- The Costa Rica's bioeconomy is articulated with the national decarbonization strategy.

A REAL PROPERTY AND A COMPANY A COMPANY

The German Bioeconomy Council supports Costa Rica's bioeconomy strategy

BIOECONOMY AND ITS OPPORTUNITIES NEEDS OF INTEGRATION MAIN AGROFORESTRY RESIDUES



Pineapple



Banana



Coffee



Sugarcane



Rice husk



Forestry



Palm oil

Others

Citrus Cattle manure Porcine farming Sewage sludge Domestic waste Aquatic resources

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Forestry in Costa Rica

Balance between Conservation and Use -Agroforestry as Strategy-

- plantation harvest
- harvesting trees outside the forest
- harvesting of trees within the forest
- protected areas with forest

- Small country
- Forest cover comprises 52 percent of the nation's territory
- Low percentage of native forest harvesting
- High percentage of use of forest plantations and trees outside the forest

Challenges and problems Approach from Bioeconomy

Strengthen the organization of small producers to change their perception of the use of wood products. The growing worldwide timber demand and the increasing substitution of fossil raw materials by biobased agricultural and forest resources

The increasing risk of climate related calamities and the required management to adapt forests to climate change





Coffee pulp or "broza"



Waste water from coffee activity



Sugarcane

"Bagazo"



"Molasses"



Pineapple stalk



"Rastrojo"



"Mussa sp. fiber"



"Pineapple fiber"

FARNESENE: CHEMICAL BUILDING BLOCK



(E)-β-farnesene (EBF)

BROMELAIN: CLINICAL APPLICATION

FITOSTEROL: CLINICAL APPLICATION





FIBER PINEAPPLE









Use of natural fibers in combination with wood





COSTA RICA: LEVERAGING BIODIVERSITY FOR NEW MATERIALS

Costa Rica is the #1 global producer of golden pineapple

We seek to make the most of it: pineapple leather

Entrepreneurial efforts taking place in the North of Costa Rica for material production

Costa Rican designers using these materials for their creations Costa Rica the #1 supplier of Orange Juice to Coca-Cola Minutemaid.

Over 16 products including oils & essences made from orange byproduct.

Opportunity for high-value applications



- both need wood residues for energy -







The use of woody biomass as a potential feedstock for biogas production is a recent concept

Transforming woody biomass into energy







Pellets

Residuos Agro-Forestales



Combustible C-neutral



Proceso Industrial



Sustitución fósiles









Transforming Biomass into Biofertilizer







Presentaciones MAGIC GREEN



Magic Green

Botella 1 litro



Magic Green • Envase 5 litros

BIOFERTILIZERS





Main goals

1. More detailed studies on the potential of biomass in Central America and the Dominican Republic.

To make companies and institutions work together to develop projects in the
 priority lines.

3. To Provide European companies with new business models based on biomass.

4. Production and use of biofuels.

5. To reduce the impact produced by chemicals fertilizers.

6. To transfer new technologies and processes to the Central America countries to give added value to biomass waste.

Needs

- To ensure the-availability of required biomass in all seasons.
- To Map the available wastes and their features and current uses/prices: Extensive fieldwork is needed to map the waste, the potential processing by type of waste, the existing technologies (in the region and beyond) and the current and potential markets.
- It is necessary that the countries work in consortium. A call for tenders to be jointly funded by the participating countries will be necessary to select the most competent contractor (or consortium). Any specific project will be scale-determined.
- The extent to which actual waste (namely agricultural/ forest residues and/or agro-industrial residues, as well as domestic and industry waste) and most importantly its growth over a 5 year period (estimated reasonable amortization horizon for investments) will determine the extent to which the business community will be willing to engage in new investments.

- To define sustainable value chains and propose suitable business models for waste processing.
- Availability of skills (researchers, technicians, production capabilities).
- Technology and equipment.
- Current cost of waste disposal (for each waste type per unit disposed of).
- Market of products bio-based economy
- Policies

Final conclusions:

- Biomass offers a high potential for transformation into high value products.
- It is necessary to develop lines of research towards market opportunities (Biomass + research).
- Forest biomass opens new paths to incorporate other types of biomass.
- Marketing is a fundamental aspect.

Thanks for your patience!



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