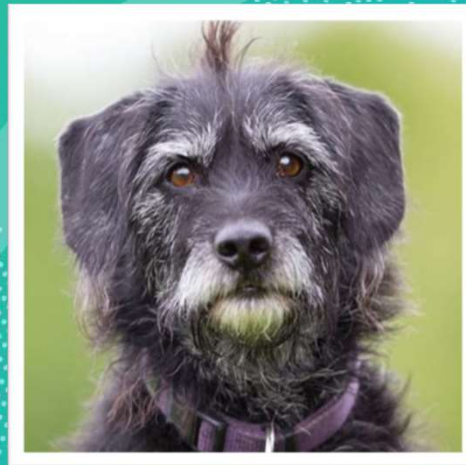




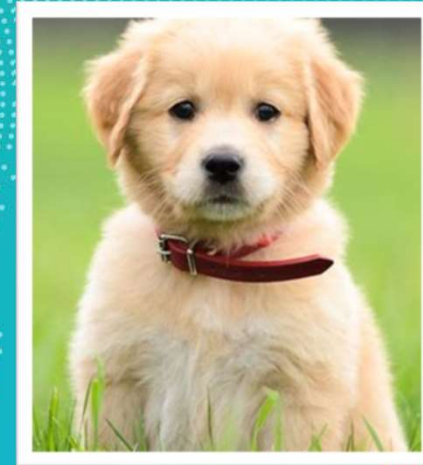
ADVANCED BIOECONOMY AND - ENERGY: STRATEGIES FOR SUSTAINABLE DEVELOPMENT IN ECUADOR & URUGUAY

SPOTLIGHT 2024 – Session 2: Unlocking the Potential of Bioeconomy:
Catalyzing Regional Growth in Colombia, Ecuador, and Uruguay 
Nadine Stöcker – Focus Topic Manager for Science & Innovation / ISC3

**STARTING POINT:
HOW MUCH DO YOU KNOW ABOUT BIOECONOMY (IN YOUR
COUNTRY)?**



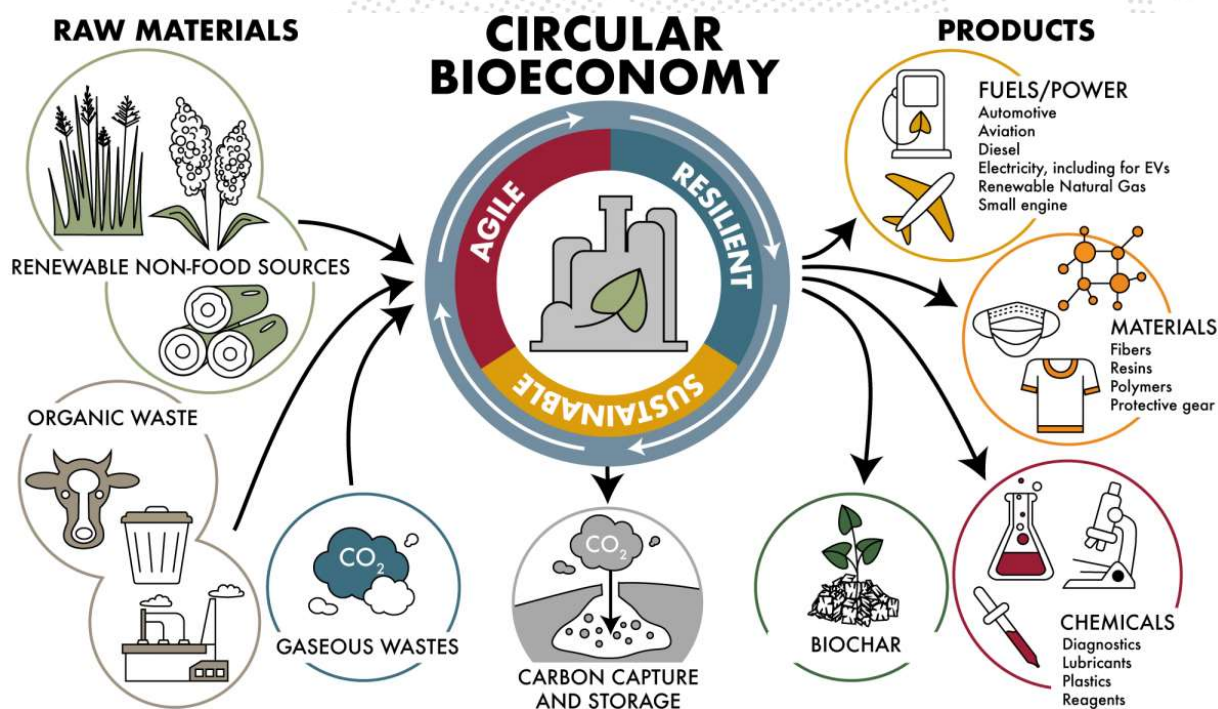
**A WISE DOG
“PERRO
VIEJO”**



**A PUPPY
“CACHORO”**

**I CAN
IDENTIFY
MYSELF**

Background

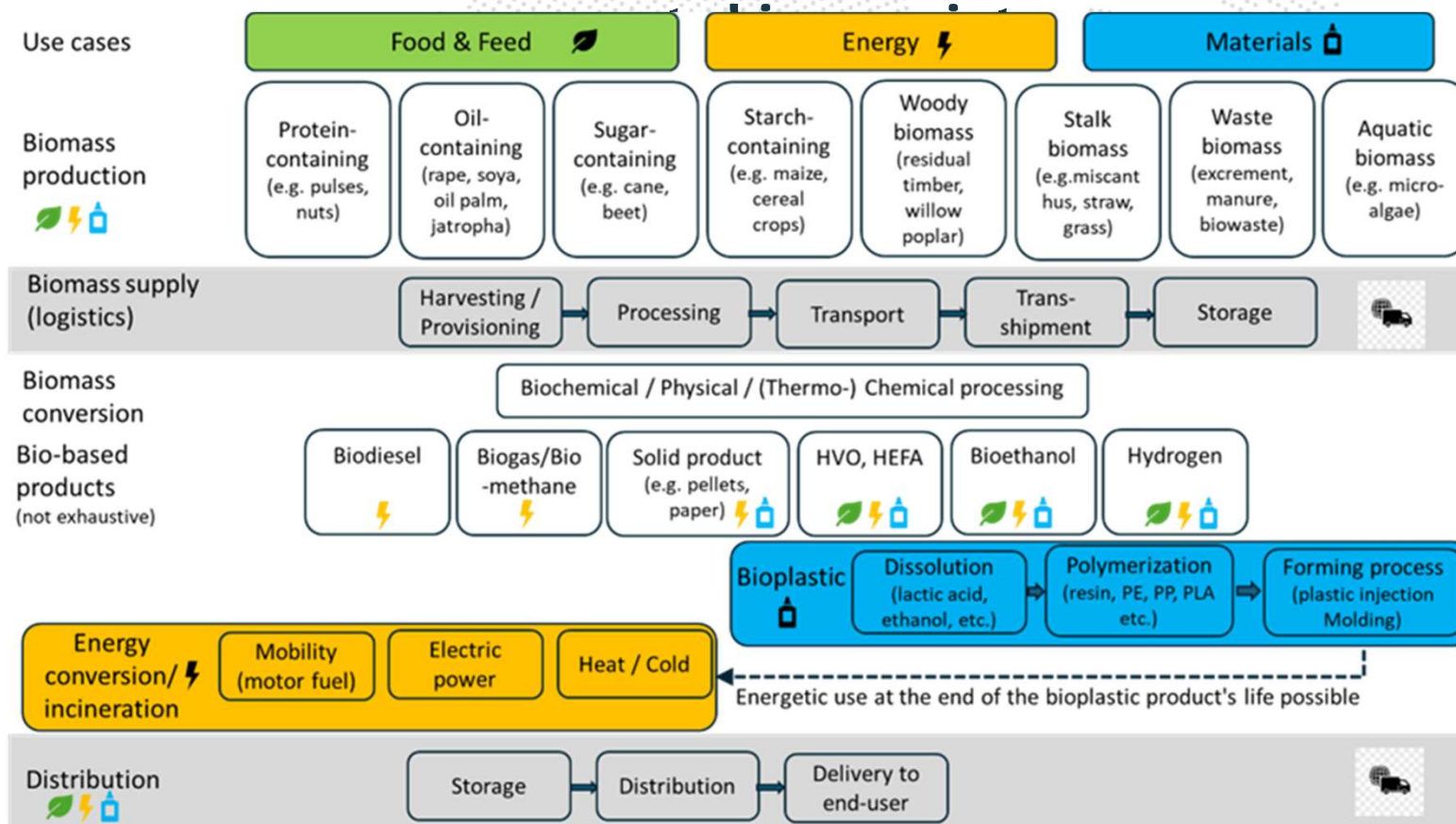


Benefits of (the) Bioeconomy

- Sustainable management of natural resources
- Reduce reliance on fossil fuels and promote renewable sources
- Decrease waste to landfill
- ➔ Minimised environmental impact
- Develop new markets
- Create green jobs
- Contribute to economic growth
- Foster social well-being

Background

Advanced Bioeconomy



➤ Biomass is converted into high-value products

➤ Innovative technologies are integrated

➤ Efficiency of resources is optimized

Methodological Approach

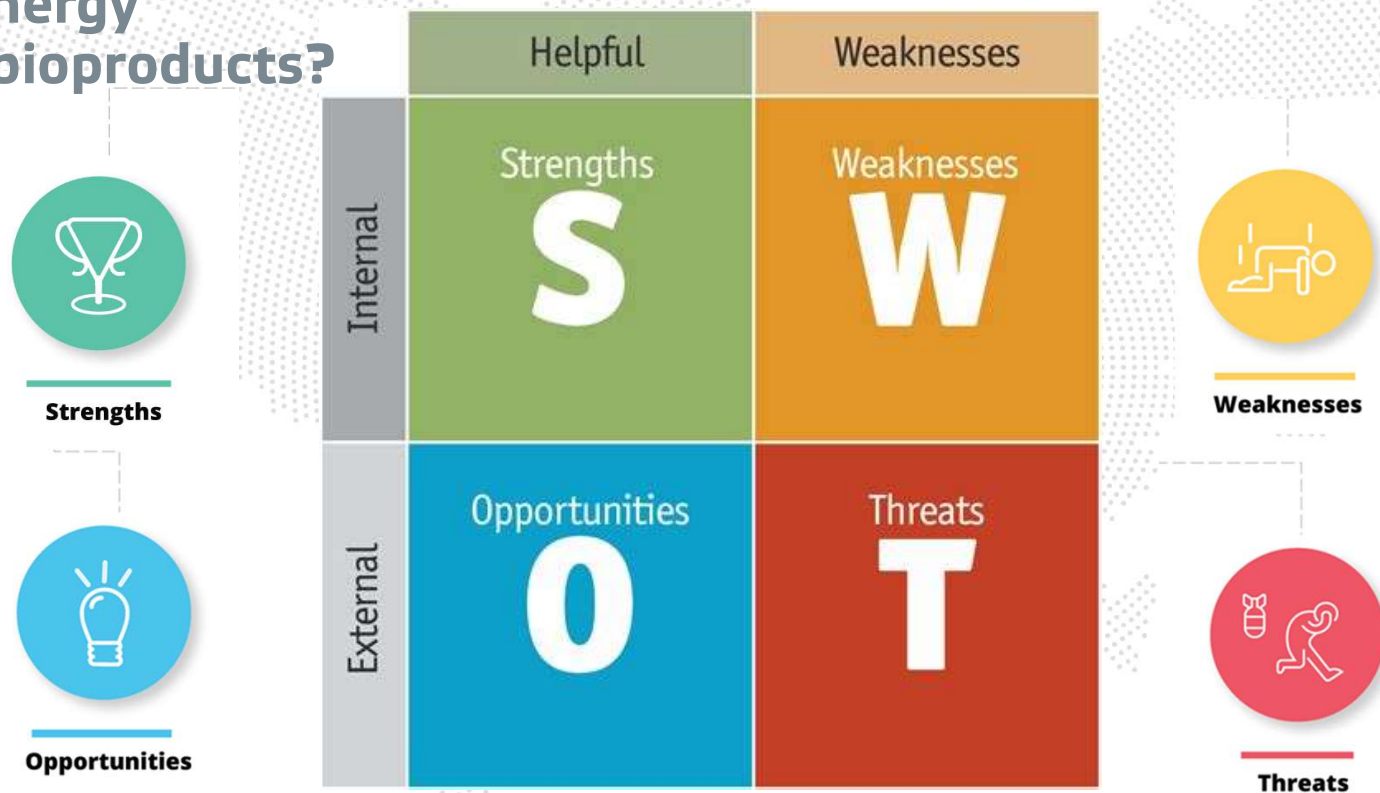


- **Between March and July 2024** two **virtual stakeholder workshops were organized** focusing on strategies for sustainable bioeconomy and implementation
- **Multidisciplinary experts from Uruguay, Ecuador, and Germany provided insights on international advancements in sustainable use and reuse processes in bioeconomy.**
- **ISC3 facilitated presentations, organized panel discussions and fostered peer-to-peer-exchanges with specialists from Latin America to deliberate on current practices and future actions that can be taken to strengthen bioeconomy in the region.**
- **SWOT analyses were conducted to establish an overview of the current status in Uruguay and Ecuador providing a better understanding of enabling framework conditions for an advanced bioeconomy.**

Recap: SWOT Analysis



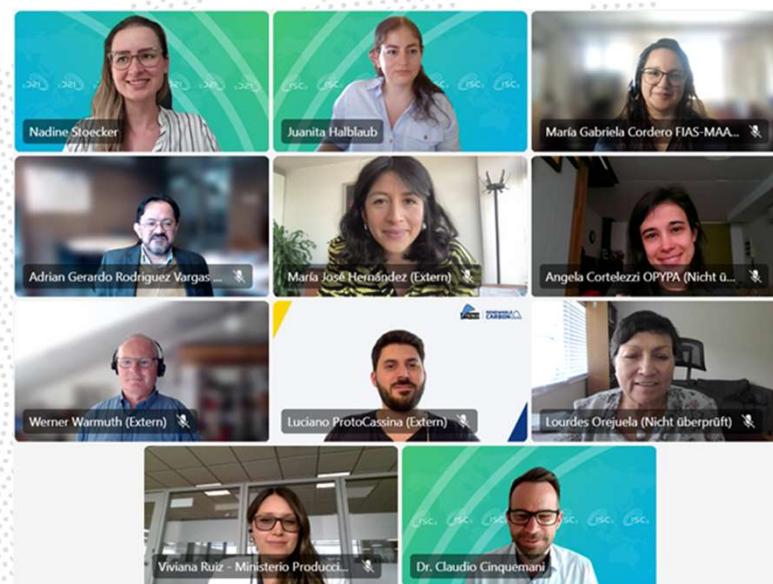
How can added value be created from biomass, through the use of bioenergy and bioproducts?



Methodological Approach



**First workshop in March 2024
July 2024**



**Second workshop in
July 2024**



SWOT Analysis for Ecuador



Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> • Payments for results in sustainability in the agricultural sector • Mechanisms to channel funding (Bioeconomy Fund) • Funding derived from international cooperation • Ecuador is a country with strong agricultural production and rich biodiversity • Political interest in residual biomass (from the Minister of Environment) • Academia committed to development and innovation of bioeconomy • Critical mass of human talent in Ecuador • Launch of the bioeconomy white paper • Strong political will of the executive for the application of bioeconomy • Launch of Ecuador's Bioeconomy Strategy (highly participatory) • Political and institutional framework 	<ul style="list-style-type: none"> • Research is expensive in a regional comparison • Investment & technical assistance needed for product improvement at the producer level • Bioeconomy managed as waste treatment / valorisation • Sustainability policies derived mainly from the produce and agricultural sector • Application of sustainability policies is scattered • Lack of awareness of resources in society (consumers) • Technical knowledge at the agricultural level is not uniform • Lack of government push for the development of biorefineries • Focus on sustainability policies, but the question is how to approach them • Need to foster collaboration between academic and productive sectors to advance research and investment in bioeconomy, ensuring sustained innovation and growth 	<ul style="list-style-type: none"> - Channelling of incentives and promotion of production to reduce costs - Potential for higher quality agricultural production from the use of bio inputs - International demand for certified products - International demand for bioproducts - Residual biomass from Ecuadorian exporters can be valorised - Potential to valorise waste from the food export sector - Decreasing use of fossil resources provides opportunities to develop alternative fuels - Development of bioproducts - Increasing international cooperation brings more importance to the development of the bioeconomy - Territorial development - Ministry of Environment's approach to waste biomass (2nd gen. biorefineries) 	<ul style="list-style-type: none"> • Need to encourage the productive sector to invest in the bioeconomy • Much work ahead in the legal and political framework • Need to encourage the academic sector to continue with research related to the bioeconomy • Need to encourage the productive sector to invest in the bioeconomy

Color code:

- Economic
- Environmental
- Social
- Governance



SWOT Analysis for Uruguay



Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> • Overproduction of renewable energy attracts investments • High availability of biomass • Existing certifications for forests and biomass • Capabilities in biomass production • Highly skilled human resources due to high-quality education • Many studies conducted and good research capabilities (HR) • Claims from younger generations for inclusion in the policy agenda • Many public institutions in the agricultural sector • Previous experience (e.g. from the project BioValor): add value to biomass • Good macroeconomic conditions and political stability • Strong commitment from government on biomass • Good level of public administration 	<ul style="list-style-type: none"> • Low investment in private and public sector • Dependency on foreign investments due to lack of national prioritization • No guarantee for profitability of innovative processes • Missing experience of management and monitoring: Does production and use of biomass contribute to sustainability? What is the impact on natural resources? • No systematic, holistic view in environmental policies • Effectiveness in educating the public to value more sustainable approach • Lack in education and dissemination in the sustainable use of biomass • Knowledge on transformation of biomass, but no practical experience • Resistance to change the behaviour, but awareness for recycling • Difficult implementation and scaling up – from ideation to business „Valley of Death“ • Inconsistency in time – support started but no continuity • No available tools to translate innovation into practice • Inconsistency of politics (initiatives start and stop; BioValor: political support decreases) 	<ul style="list-style-type: none"> - Trade agreements (e.g. Mercosur) - Possibilities for export and investments (e.g. green hydrogen) - Attract investments in bioeconomy - Lots of material, but sometimes no information with deeper understanding / studies on application and better use - Importance of environmental issues for politicians - Uruguay has the opportunity to educate and change behaviour - Young people are aware of climate change - First phase of the project BioValor served as a pilot and may attract investors during the implementation of its second phase 	<ul style="list-style-type: none"> • High-income country; not eligible for international financial support • Competition from abroad • Few national investments. • Subsidized fossil feedstock • EU and Mercosur doesn't address environmental issues; negotiations are lengthy • Social resistance to change • No potential support. Inconsistent policy • External regulatory issues

Color code:

- **Economic**
- **Environmental**
- **Social**
- **Governance**

Derived Strategies for Ecuador and Uruguay



- **Promote industrial symbiosis in agriculture-related sectors by enhancing policy frameworks, e. g. establishing legal regulations, providing economic incentives, engaging local governments in implementation.**
- **Expand bioeconomy knowledge to attract investments by raising awareness beyond academia, identifying key actors, building a supportive ecosystem and encouraging participation from large companies, SMEs and suppliers.**
- **Strengthen collaboration between universities, the private sector and the public sector.**



- **Need for regional measures tailored to respective territorial agendas and value networks**
- **Enhance the value and export potential of biomass products, through research on waste utilization, adaptation of technology to national needs, coordination of funds from agencies, set-up an inter-ministerial group for coordination**
- **Train individuals in entrepreneurship and sustainable consumption beyond recycling, raising awareness of sustainability on a holistic and systemic level.**



Conclusion and Outlook



- ❖ Bioeconomy addresses major global challenges, e. g. food security, climate change, resource scarcity, and environmental pressure, thus, expectations are high. Countries successfully implementing bio-based business practices not only rely on technological progress, but requires investment, skills and knowledge complimented by an enabling political environment.
- ❖ Takeaway from the workshops: exchange of knowledge and experience is important in the journey towards bioeconomy.
- ❖ ISC3 offers a knowledge and dialogue platform focusing on Sustainable Chemistry, connecting multidisciplinary expert groups from different countries. Become part of the ISC3 community to gain access to trainings and tools, participate in events and benefit from our network.
- ❖ **White Paper on *Advanced Bioeconomy and - energy: Strategies for Sustainable Development in Ecuador & Uruguay* will soon be available on the [ISC3 website](#)**



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