

**MAKING SUSTAINABLE
ALTERNATIVE FUELS
VIABLE IN BRAZIL**

Implementation of Brazilian NDC, RenovaBio and CORSIA



Marcelo Moreira

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About Agroicone (Biofuels Public Policies)



| ICAO

Socioeconomic Impacts (Sugarcane SIP)

Current

Variable	QAV B-01				QAV-1
	Initial subsidy	Investment	Operational	Total	
GDP (10 ⁹ R\$)	(213)	62	274	123	26
New jobs	(4.671)	1.211	6.339	2.880	384
GHGs (t CO ₂ eq.)				3.877	38.774

The substitution of 1% of QAV-1 by SIP (current tec I) adds:

- R\$ 97 million GDP (additional);
- 2.496 new jobs;
- -35 thousand t CO₂e/year;
- **State tax would be 20% or less.**

Optim.1

Variable	QAV B-05				QAV-1
	Initial subsidy	Investment	Operational	Total	
GDP (10 ⁹ R\$)	(633)	173	766	307	96
New jobs	(13.910)	3.391	17.749	7.230	1.436
GHGs (t CO ₂ eq.)				19.387	193.870

The substitution of 5% of QAV-1 by SIP (current tec I) adds:

- R\$ 211 million GDP (additional);
- 5.794 new jobs;
- -174 thousand t CO₂e/year;
- **State tax would be 22% or less.**

LUC in International Policies



RFS1 starts in 2005; **RFS2** 2007. **Modeling** combines direct and indirect effects. Amortized emissions over 30 years. iLUC was incorporated into RFS2 in 2010.

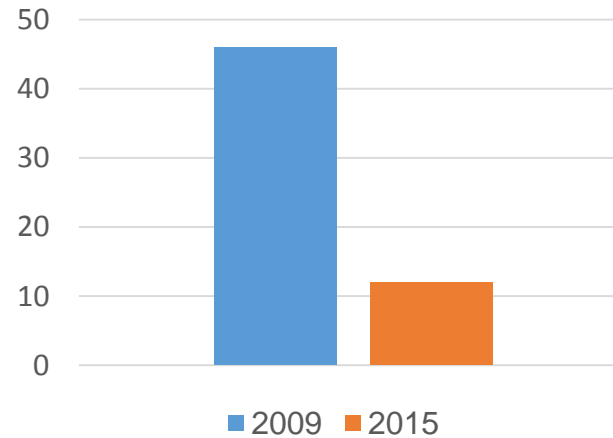
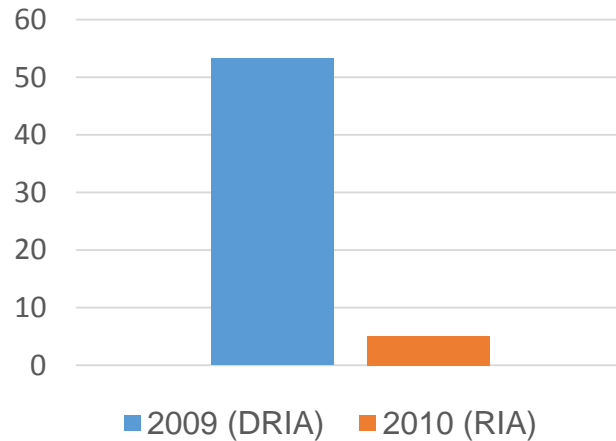


Modeling combines direct and indirect effects. Amortized emissions over 30 years. Periodic revisions. iLUC emissions were disregarded in the first phase.



Only **direct effects** are considered on the property. There are no “default” values assigned to dLUC. Amortized emissions over 20 years. January 2008 as the cut-off date for calculation (formula published in 2010).

Legislation evolution for iLUC (Sugarcane Ethanol)



dLUC + Risk Management and Monitoring

RenovaBio: LUC mitigation approach

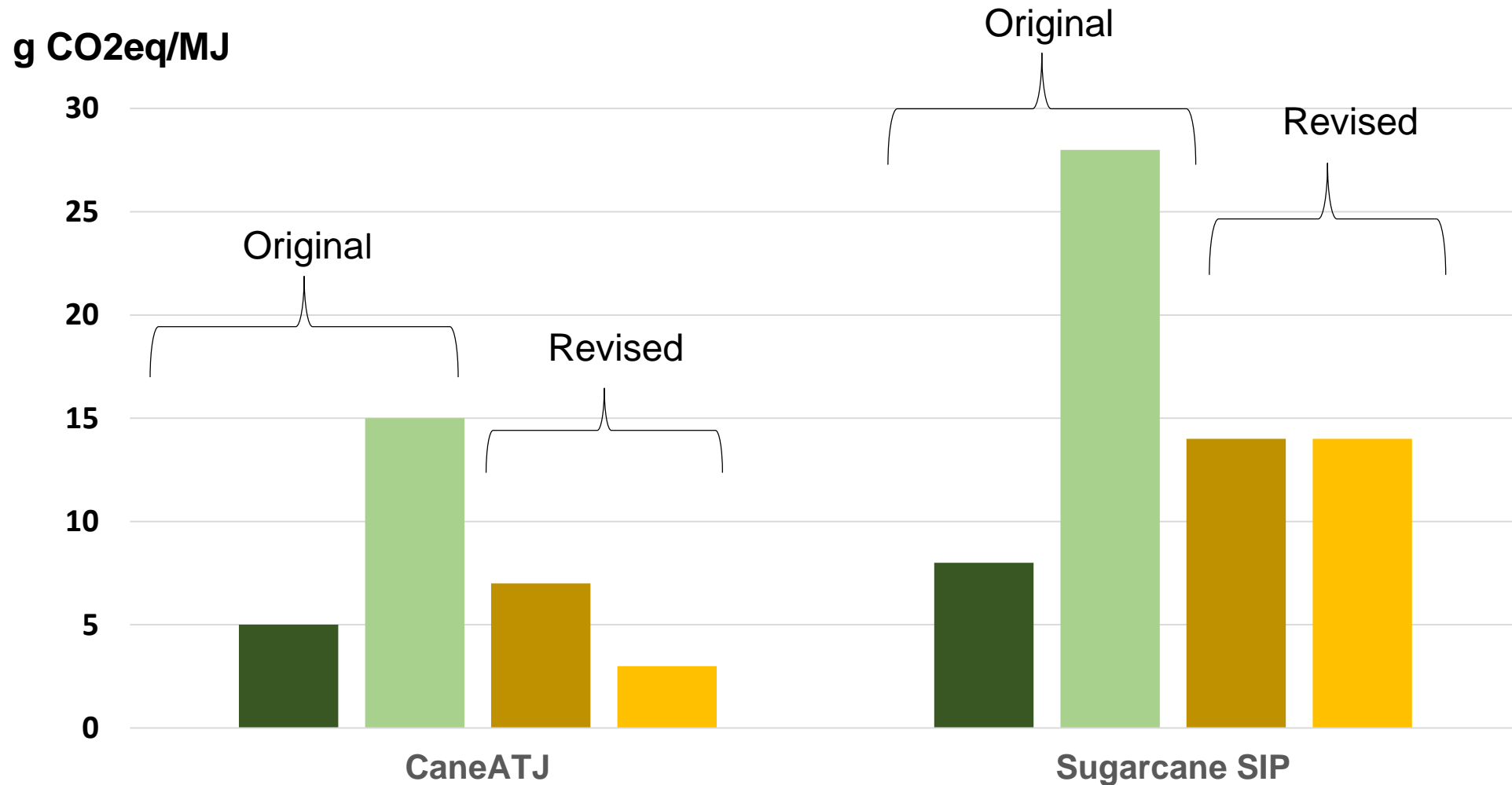
Guidance

- ✓ Effectiveness of GHG mitigation associated with LUC;
- ✓ Complexity level for the first phase of the program;
- ✓ Potential costs of proving and certification;
- ✓ Technical and scientific background;
- ✓ Synergy with policies and programs in Brazil and internationally;
- ✓ Compliance and assimilation capacity by the productive sector.

Advantages

- ✓ Focuses on the most relevant LUC = native vegetation;
- ✓ Expansion control over sensitive areas;
- ✓ Compatible with international standards;
- ✓ Simplifies and decrease costs certification;
- ✓ Does not restrict producers that are attentive to environmental issues;
- ✓ Fewer methodological uncertainties;
- ✓ Transparent and easy communication.

Estimation Progress



Still a lot to be done and improvements

Way Forward

- ❖ Technological platforms collide;
- ❖ Biofuels is the unique solution for GHGs reduction within sector in the foreseeable future;
- ❖ Way foreword won't be easy;
- ❖ iLUC: hard modeling, soft science and huge commercial implications.



Marcelo Moreira
Partner – Senior Researcher
+55 11 3025-0506
marcelo@agroicone.com.br

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Thank you!

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Realization



União Brasileira do Biodiesel
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