Sustainability content in Brazilian Ethanol Planning

Carla Grigoletto Duarte
Luis E. Sánchez

Escola Politécnica
Universidade de São Paulo

IAIA'15 – 35th Annual Conference of the International Association for Impact Assessment

Florence, Italy – 20-23 April 2015

Contents

1. Context

- **Sugarcane is growing in more than 100 countries – for sugar and ethanol production**

http://sugarcane.org/internal/images/map-of-sugarcane-growing-countries/image_view_fullscreen

1. Context

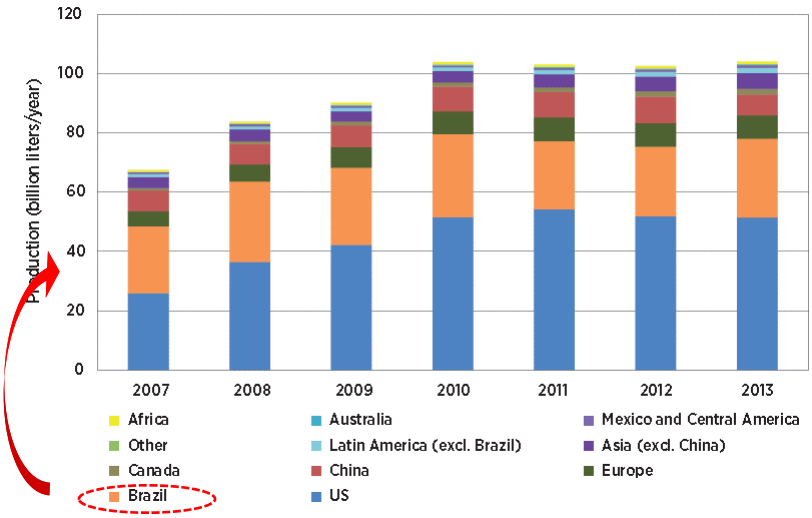
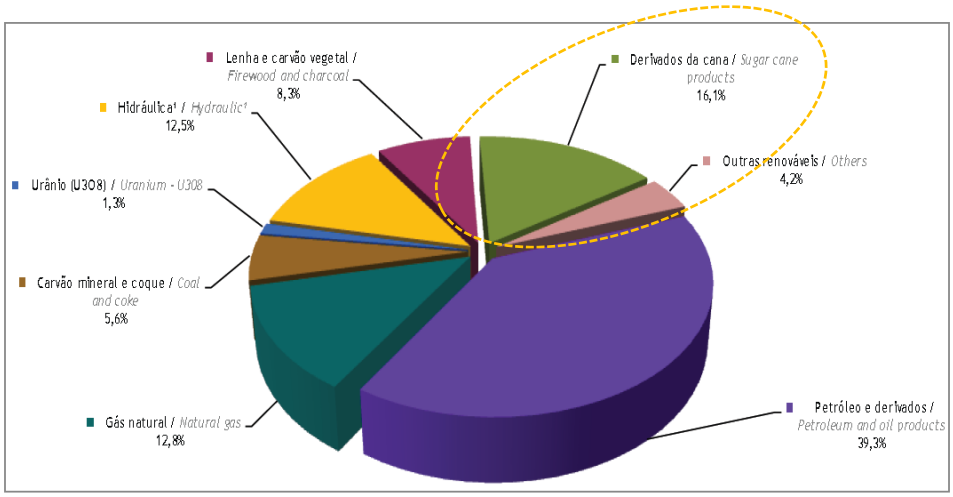


Fig. 1. Global ethanol production by country and region, 2007-2013, IRENA (2014)

http://irena.org/remap/IRENA_REmap_2030_Biomass_paper_2014.pdf

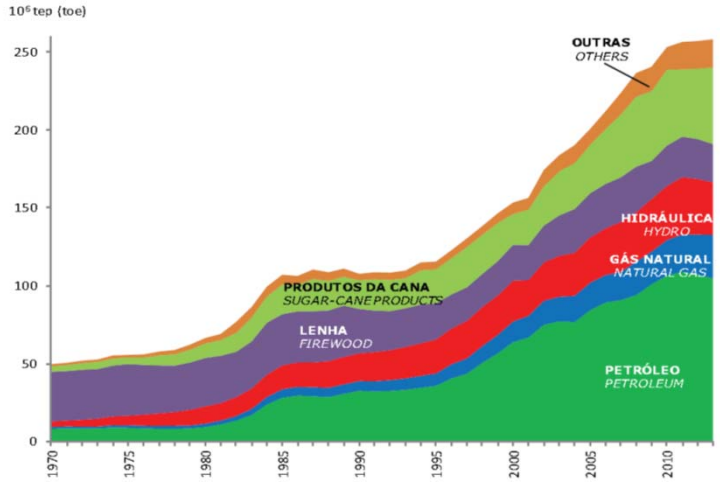
1. Context

Chart 1.3.b – Domestic Energy Supply



EPE, 2014. *Brazilian Energy Balance 2014*, Rio de Janeiro: EPE. Available at: https://ben.epe.gov.br/downloads/Relatorio_Final_BEN_2014.pdf

1. Context



Primary Energy Production in Brazil, EPE (2014)

https://ben.epe.gov.br/downloads/Relatorio_Final_BEN_2014.pdf

1. Context

- **Energy planning - developed by public agencies to be implemented by private companies – *indicative planning***
- **Since 2004, new energy planning unit – six medium term plans**
- **SEA is not mandatory**

2. Research question and objective

To what extent Brazilian national energy plans embrace sustainability thinking when framing ethanol strategies?

The objective is to analyze the content and role of the social and environmental analysis included in Decennial Energy Plans

2. Research methods

- **Content Analysis and using the software QSR NVIVO®**
  - **Krippendorff (2013)**

- **In the book's chapter:**
  - **the goals and alternatives considered;**
  - **the content and role of the socio-environmental analysis;**
  - **participation and responsibility for actions**

Contents

3. Results

Table 1 – Issues addressed in the decennial plans, from 2007-16 to 2013-22

Decennial Plan	1. Food Security	2. Family farming	3. Biodiversity	4. GHG emissions	5. Burning (part of air quality)	6. Employment	7. Work safety	8. Agrochemicals	9. Water consumption	10. Water quality	11. Wastes
2007-2016											
2008-2017		M			M		M		M		M
2010-2019	A	M	M	A		A	M		A		M
2011-2020	A	M	M	A		A			A		
2012-2021	A	M		A	M	A		M	M		M
2013-2022	A			A	M	A	M	M	M		M

3. Results

- **Clear objectives and thresholds to GHG emission**
  - **The plans are part of the national climate change strategy**

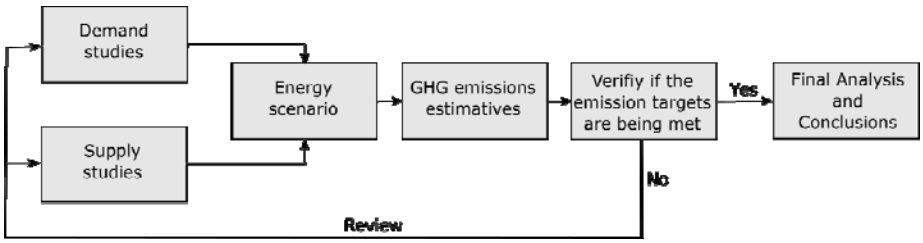


Figure 1 – Influence of GHG emissions in decennial plans, adapted from EPE (2013)

Contents

4. Discussion

- **GHG emission is influencing the alternatives studies – good practice**
- **Analyses on other issues are not reaching a level where is possible to affirm what is relevant or not**
  - **Also, there is no follow up**

4. Discussion - towards sustainability assessment

- **A sustainability assessment would consider**

  1. **multiple objectives for ethanol planning**
  2. **an array of alternatives for meeting them in order to enable multiple gains (trade-offs)**
  3. **Opinions of stakeholders**
  4. **Taking advantage of continuous planning - organizational learning processes**

GIBSON, R. B. *et al.* Sustainability Assessment: Criteria, Processes and Applications. London: Earthscan, 2005.

MORRISON-SAUNDERS, A.; POPE, J. Conceptualising and managing trade-offs in sustainability assessment. Environmental Impact Assessment Review, v. 38, p. 54–63, jan. 2013.

5. Conclusions

- **Scope is variable in the six plans; impact analysis is featured in little detail and not always explicit potential benefits or threats.**
  - **Food security must be connected with other planning initiatives**
    - **Land use change is too complex to be analyzed inside energy planning**
  - **Biodiversity issues needs more atention**

5. Conclusions

- **Expanding sugarcane ethanol, and still considering a sustainability agenda, will require more efforts in modernizing planning practices.**
  - **Governance**
- **Sustainability assessment can provide the conceptual framework and the tools to support the development of a strategy able to organize actions towards a more sustainable energy future.**

6. Acknowledgements

- **To the energy planning unit (EPE) staff**
- **To CNPq – the Brazilian National Council for Scientific and Technological Development**

Thank you!

Carla Duarte
carlagd@gmail.com

Luis E. Sánchez
lsanchez@usp.br