



# 13<sup>TH</sup> WABCG CONFERENCE

3-6 JUNE 2019 / RIBEIRÃO PRETO

EDITION BRAZIL

WORLD ASSOCIATION OF  
BEET & CANE GROWERS

DEVELOPMENT

TECHNOLOGY

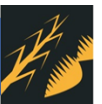
INNOVATION

SUSTAINABILITY



# Sugar and the Sustainable Development Goals

José Orive  
Executive Director  
International Sugar Organization





# The 2030 Agenda for Sustainable Development

- Continue where the Millennium Development Goals left off;
- Identified 17 goals and 169 targets
  - Key recommendation: get **everyone** involved





# Sugar Sector

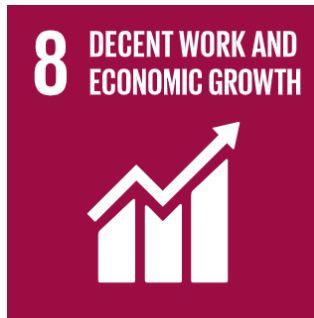
- Can contribute (and has done so) in a number of ways
  - Individual approaches – reflecting own priorities;
  - Industry-led best management practices;
  - Governments – Policies
  - Research & Development







# Responsible Consumption/Production and Decent Work



- Goals 8 and 12 deal with providing decent and safe working environments, ensuring economic growth and promoting consumption and production in a sustainable manner.



- Use of agrochemicals, water use, workers safety and rights, land rights, etc.





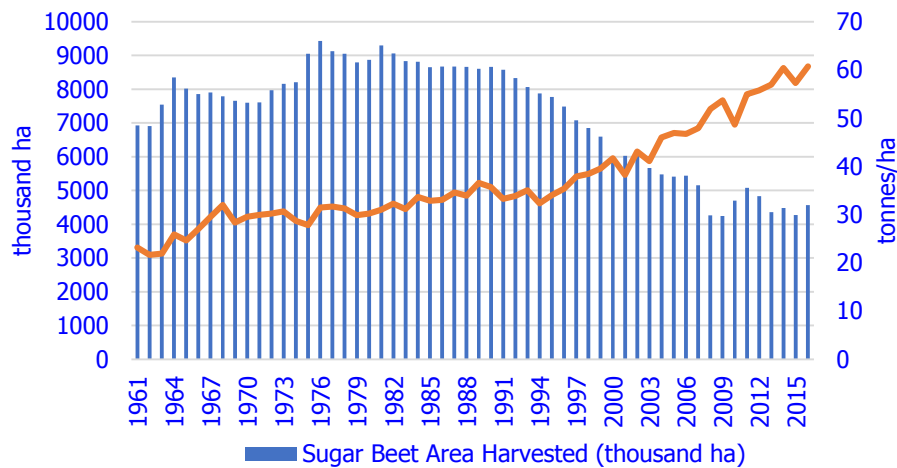
# Sustainable Industrialization and Innovation



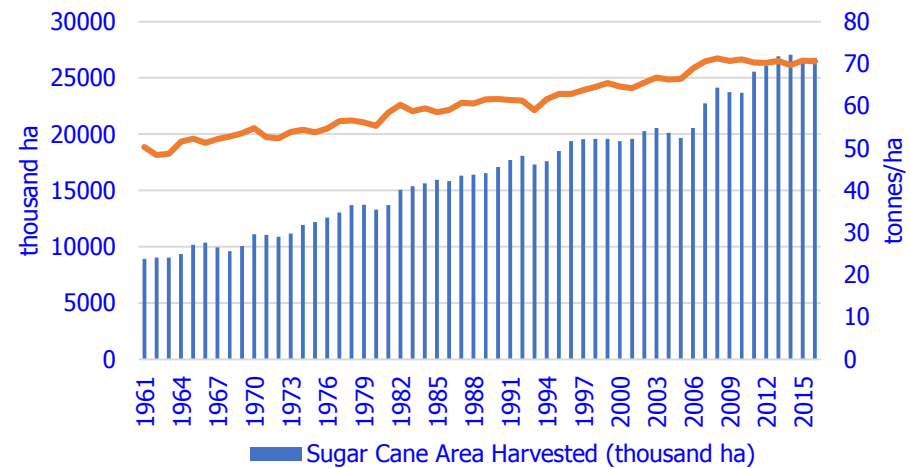
- Goal 9 deals with the promotion of investments in infrastructure, as well as fostering technological progress in order to achieve increased resource and energy efficiency.
- Sugar sector has a long history in fostering innovation and new technologies.
  - Challenge of input costs;
  - Climate change adaptation;
  - Opportunities for adding value through diversification



World Sugar Beet Area Harvested and Yield



World Sugar Cane Area Harvested and Yield



# Sustainable Industrialization and Innovation

- Innovation fostered through government and private sector;
- For sugar beet, innovation and research policies promoted by the EU have been key to promote R&D. CIBE has played an important role in communicating and disseminating innovation and best practices.
- For sugarcane, the industry has played a central role in promoting, organizing and financing research and development.
  - South-African Sugar Research Institute;
  - CENICAÑA – Colombia;
  - CENGICAÑA - Guatemala;
  - West Indies Central Sugarcane Breeding Station;
  - Centro de Tecnologia Canavieira (Brazil);
- Government also funds sugarcane research – Brazil: IAC, RIDESA. India: Sugarcane Breeding Institute, Coimbatore





# Sustainable Industrialization and Innovation

- Diversification also drives innovation
  - **Ethanol, cogeneration** of energy, and bio-based products such as **biochemicals** and **bioplastics**
    - Helped recently by policies that ban or aim to reduce single-use plastics.
- Global production capacity of bioplastics reached 2.05 mln tonnes in 2017
  - 56% in Asia, 18% Europe, 16% North America, 10% South America

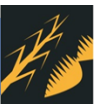




# Affordable and Clean Energy



- Calls for ensuring universal access to modern energy services, improving energy efficiency and increasing the share of renewable energy.
- National priorities and policies paramount to achieving this.



# Affordable and Clean Energy



- How does sugar fit in?
  - Fuel Ethanol
  - Bagasse-based cogeneration of energy
  - Ethanol cooking gels



Bioenergy

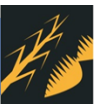




# Affordable and Clean Energy



- Drivers of renewable energy
  - Mitigate emissions;
  - Sustainable economic growth
  - Energy security
- Who is driving this change?
  - National and local governments
  - Private sector
  - Consumer preference





# Affordable and Clean Energy

## • Bagasse Cogeneration

- Capacity increasing significantly over the years
- Diversifies revenue streams
- But how does it compare to other renewables?



	Cogen Capacity (MW)	
	2014	2017
Brazil	9881	11158
India	4014	8414
Thailand	1057	1295
Guatemala	711	1081
Mexico	673	846
Australia	466	466
Philippines	63	360
Mauritius	271	281
Pakistan	217	280
El Salvador	130	264
Colombia	215	263
Indonesia	219	219
Honduras	142	210
USA	200	200
Nicaragua	134	177
Peru	37	137
Ethiopia	38	110
Uganda	64	102
Kenya	49	82
eSwatini	55	70
Argentina	65	65
Ecuador	58	58
Zimbabwe	53	53
Belize	32	50
Dominican R.	14	48
Angola	0	45
Costa Rica	40	40
Zambia	30	35
Tanzania	17	33
Fiji	8	15
<b>Total</b>	<b>18953</b>	<b>26455</b>

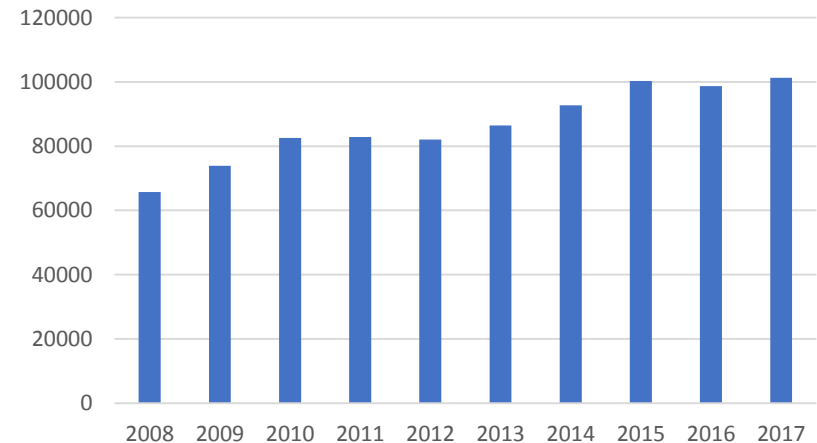




## • Fuel Ethanol

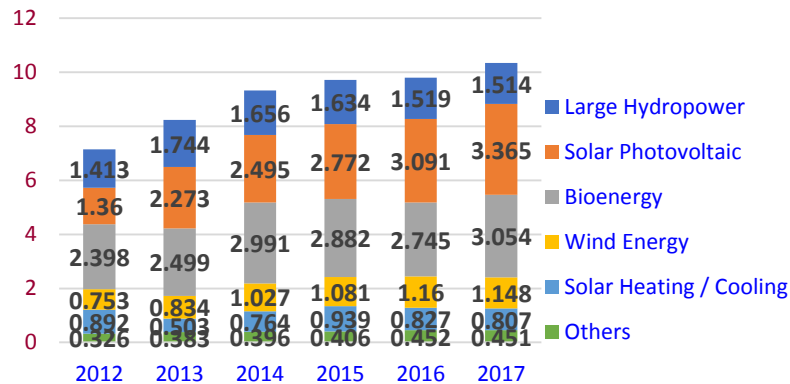
- Blend-policy driven
- Production has increased over the years
- Concentrated in US and Brazil - #1 and #2 producers (together respond for around 85% of global production)
- US – Corn, Brazil - Cane

World Fuel Ethanol Production (mln litres)

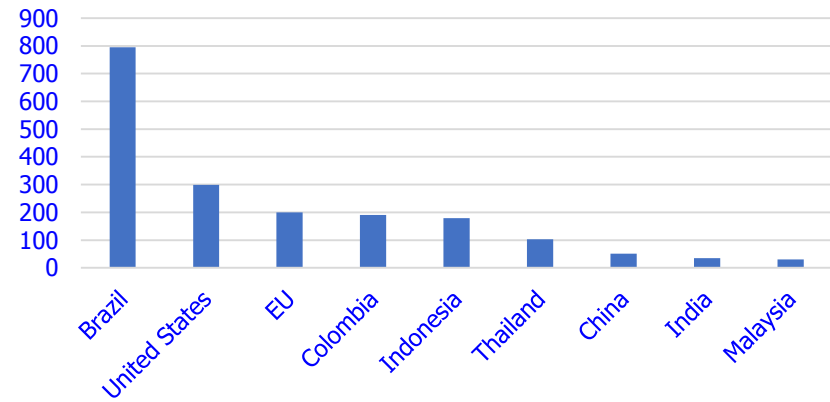


# Affordable and Clean Energy

World Renewable Energy Employment by  
Technology (mln jobs)



Top liquid biofuels employers (thousand jobs)



# Affordable and Clean Energy

- Fuel ethanol, biomass investment falling
- Policy-driven

Global Renewable Energy Investment (in bln USD)								
	Wind	Solar	Liquid Biofuel	Biomass & Waste-to-energy	Small Hydropower	Geothermal	Marine	Total
2007	60.9	38.7	27.4	22.9	6.5	1.7	0.8	158.9
2008	74.8	61.5	18.2	17.5	7.6	1.7	0.2	181.5
2009	79.5	64	10.2	15.1	6.2	2.8	0.3	178.1
2010	101.5	103.3	10.6	16.9	8.2	2.9	0.2	243.6
2011	87.2	158.1	10.6	20.2	7.6	3.9	0.2	287.8
2012	83.6	140.5	7.2	15.8	6.5	1.6	0.3	255.5
2013	86.4	119.9	5.2	14	5.8	2.8	0.2	234.3
2014	110.7	145.3	5.2	12.7	7	2.9	0.3	284.1
2015	124.7	179.3	3.5	9.4	3.6	2.5	0.2	323.2
2016	121.6	136.5	2.1	7.3	3.9	2.5	0.2	274.1
2017	107.2	160.8	2	4.7	2	1.6	0.2	278.5



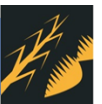




# Climate Action



- Calls for urgent action to combat climate change and its impacts.
- Paris Agreement – COP 21.
  - Aim to keep temperatures below 2 deg C and limit the increase even further to 1.5 deg C
  - Nationally Determined Contributions – NDCs
    - Mitigation + adaptation
    - 145 countries mention renewable energy in their NDCs
    - 87 countries specifically mention bioenergy



- IPCC Report:
  - Current NDCs on mitigation and adaptation **insufficient** to stay below Paris Agreement temperature limits;
  - Only through use of several different forms of renewable energy at once, starting now, can we achieve 1.5C temperature goal



- IPCC Report:
  - Modelling scenarios suggest that biofuel use will have to more than double by 2030 and go even further in 2050 to contain global warming below 1.5C.
  - Biofuels are **essential** and **complementary** solutions to decarbonize transportation.





# Challenges and Opportunities

- Promoting a bio-based economy in a world with relatively low oil prices
- Promoting the use of bioenergy – through blending mandates for ethanol, feed-in tariffs or auctions that promote grid-connected bagasse cogen energy projects.
  - Adds value, new revenue streams, generates clean energy, promotes energy resilience and security, provides employment;
  - Electrification and increased use of biofuels go hand-in-hand to combat climate change;





# ¡Gracias!

