

BIOENERGY SUSTAINABILITY GOVERNANCE:

A FEW IDEAS

**IEA BIOENERGY SUSTAINABILITY
GOVERNANCE WORKSHOP**

... BUT FIRST, A LITTLE COMMERCIAL



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20 COUNTRIES LAUNCH THE BIOFUTURE PLATFORM AT COP22

Launch event also attended by heads and top-level representatives of FAO, IEA, IRENA, UNIDO, SE4ALL and of private sector organizations such as the WBCSD, UNICA, ABBI.

BIOFUTURE MEMBER COUNTRIES



•Argentina • Brazil • Canada • China • Denmark • Egypt
• Finland • France • India • Indonesia • Italy • Morocco •

Mozambique • Netherlands • Paraguay • Philippines •
Sweden • United Kingdom • United States • Uruguay

BIOFUTURE PLATFORM - MODEL

Country led model

Participation by countries with great potential in the field.

Country-driven, dynamic governance

Leveraging of the work of partner organizations and existing efforts and initiatives (IRENA, IEA, IEA Bioenergy, CEM, Mission Innovation, SCOPE, GBEP, UNEP, others)

BIOFUTURE PLATFORM - MANDATE

Scope of activities:

- **Promotion of policy dialogue and collaboration;**
- **Facilitation of advanced biofuels and bioeconomy-related investments;**
- **Awareness-raising and sharing of studies on different specific solutions;**
- **Promotion of R&D and sharing of analysis and information on R&D needs.**

BIOFUTURE PLATFORM – FIRST ACTIVITIES

- **Preparation of the 1st “Biofuture State of the Low Carbon Bioeconomy Report”**
- **Launch of a Vision Statement to provide strong signal to markets. Proposed title: "Scaling-up the low carbon bioeconomy is urgent and vital for the future“**
- **International policy conferences: Brazil (october 2017), Italy (july 2017), India (2018), US (2018)**

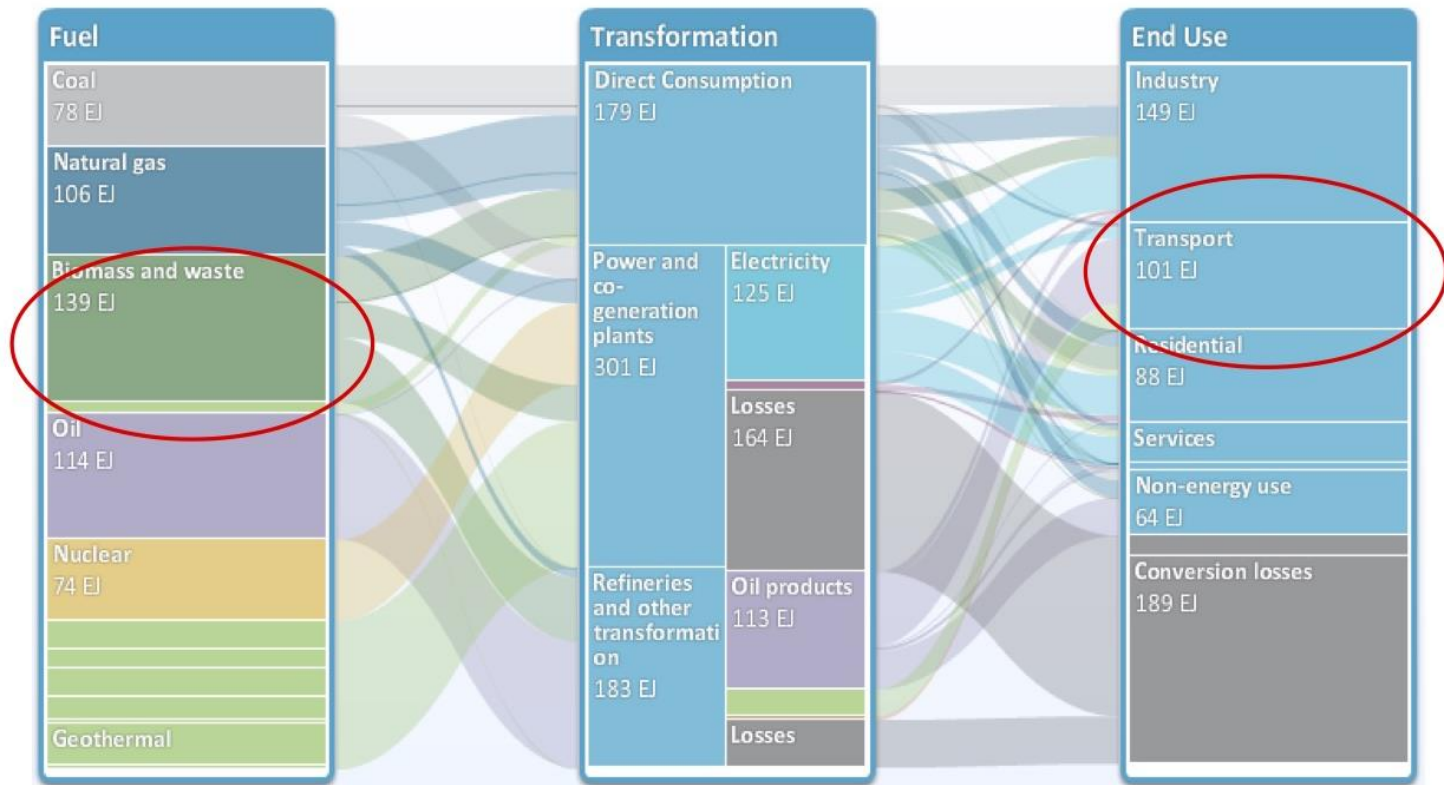
BACK TO SUBJECT...

GETTING SUSTAINABILITY GOVERNANCE RIGHT

- **The need to accelerate sustainable bioenergy growth**
- **What we have done and what we have got wrong**
- **The basic elements for a successful sustainability governance model**

THE NEED TO ACCELERATE GROWTH

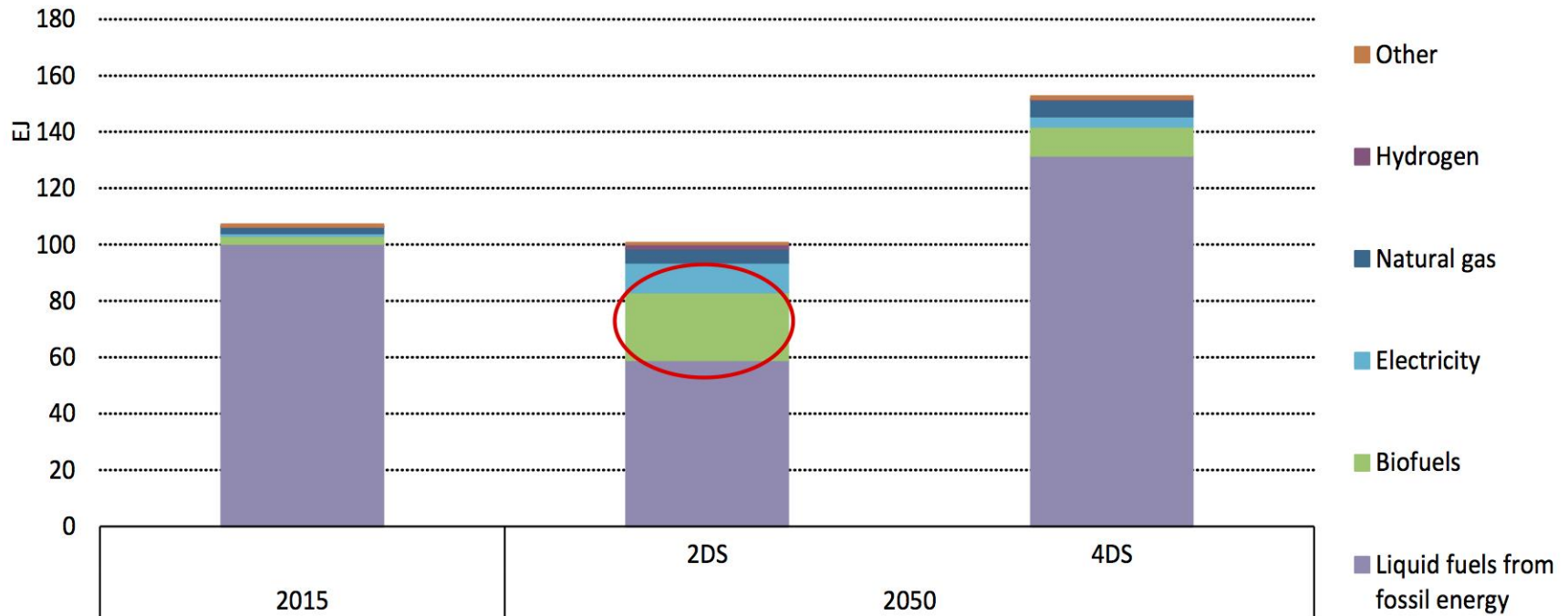
Energy system in 2050 within the IEA's 2 degree scenario (2DS)



Source: IEA Energy Technology Perspectives (ETP) 2016.

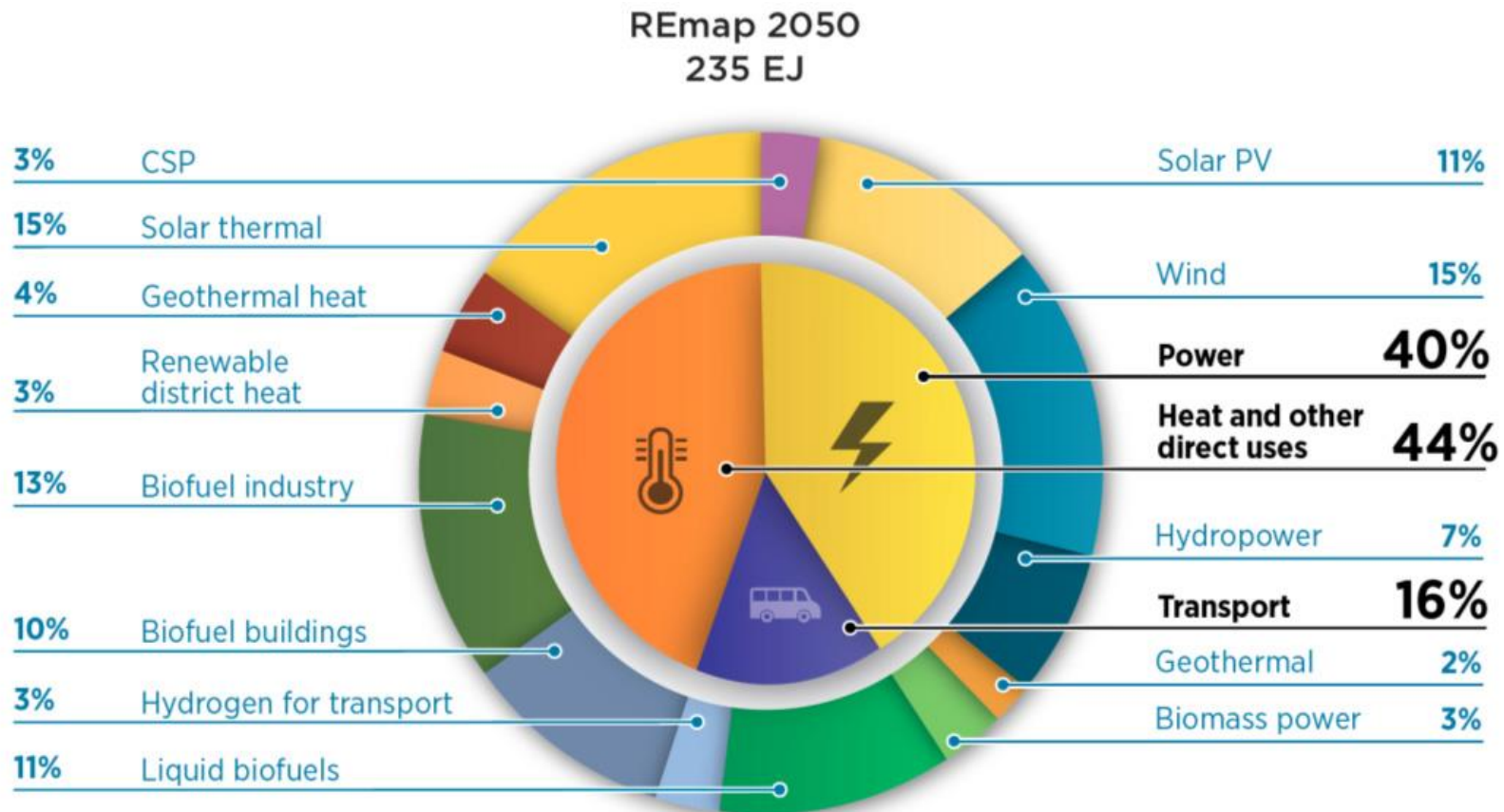
THE NEED TO ACCELERATE GROWTH

Transport fuel demand comparison 2015 with 2DS and 4Ds in 2050



A significantly increased biofuels share is essential to move towards a 2DS in the transport sector.

THE NEED TO ACCELERATE GROWTH



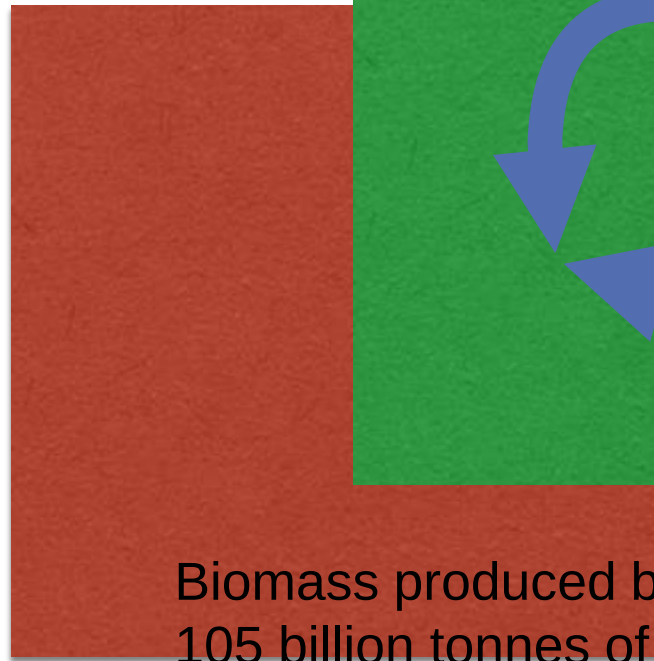
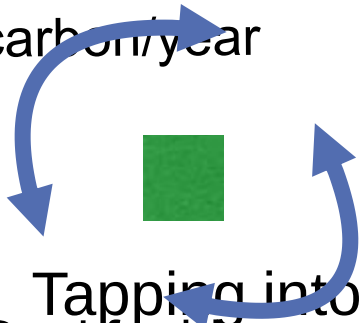
THE NEED TO ACCELERATE GROWTH

The key message: sustainable bioenergy acceleration NEEDS to happen. And we NEED to make it happen, fast.

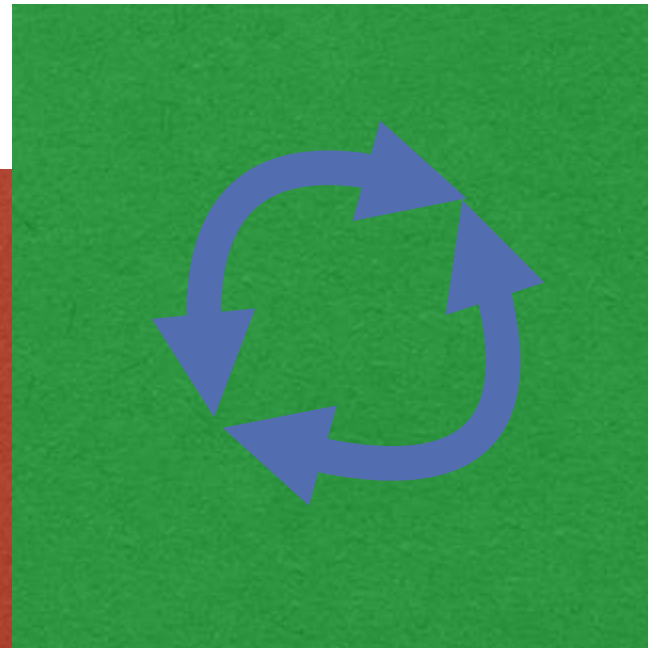
...But can we?



Emissions from
transportation:
about 1,99 billion t
carbon/year



Biomass produced by nature:
105 billion tonnes of carbon/year



Tapping into a tiny portion of the biomass recycled every year
Goal for biomass use
(IRENA REMap Accelerated Uptake 2030:
3,6 billion t C/ year
can have a huge impact on reducing emissions
Peak emissions: 97 billion tonnes of carbon/year

SCOPE-FAPESP

Reporting a global assessment of
Bioenergy & Sustainability

137 experts from 24 countries

Bioenergy now

Bioenergy expansion

Energy security

Food security

**Environmental and climate
security**

**Sustainable development
and Innovation**

The much needed science

Developed and developing regions

Numbers, cases, issues, solutions

779-page Ebook

Download at <http://bioenfapesp.org>



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SCOPE • FAPESP • BIOEN • BIOTA • FAPESP CLIMATE CHANGE

Bioenergy & Sustainability: bridging the gaps

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SCOPE REPORT: CONCLUSIONS FOR POLICY MAKERS (I)

- **Many approaches to land use for bioenergy expansion do not lead to competition for food.**
- **Bioenergy cropping systems can bring multiple benefits and offset environmental problems associated with fossil fuels, poorly managed intensive food production, and urbanization.**
- **Potential negative impacts caused by land-use change and agriculture intensification can be mitigated by agro-ecological zoning, improved crop yields, use of best management practices, the use of eco-hydrology and biodiversity-friendly concepts at field, watershed and landscape scales.**
- **Done well bioenergy as well as afforestation can help mitigation of climate change and contribute to the UNFCCC 2016 Intended Nationally Determined Contributions (INDCs).**

SCOPE REPORT: CONCLUSIONS FOR POLICY MAKERS (II)

Key elements for developing bioenergy in sustainable ways:

- **Integration of food and energy production both spatially and temporally**
- **Enhanced productivity of food and energy crops**
- **Harmonizing of policies in agriculture, energy, forestry environment and transport**
- **Improved governance**
- **New financing models and improvement of investment schemes**
- **Policy development to encourage sustainable feedstock-to-bioenergy chains that achieve multiple social and environmental benefits and minimize negative impacts**

BIOENERGY & SUSTAINABILITY: APRIORISTIC MYTHS TO DEBUNK

- **There is not enough land to produce food and fuel**
- **Biofuels are causing famine in the world**
- **Bioenergy does not reduce GHG emissions**
- **Bioenergy will result in negative impacts of land use change (dLUC)**
- **Indirect land use (iLUC) impacts will negate the GHG benefits of bioenergy**
- **Biofuels are only viable in “niches” (such as Brazil)**
- **Biofuels are leading to deforestation**
- **Advanced biofuel technologies are problematic**
- **Second generation biofuels are better than first generation**

SCOPE REPORT: CONCLUSIONS FOR POLICY MAKERS (III)

**Can we accelerate sustainable
bioenergy growth?**

Yes, we can.

HOW WE HAVE LOOKED AT SUSTAINABILITY GOVERNANCE

Quote from this seminar's concept note:

“The debate about the sustainability of bioenergy continues. Some political decision makers and the public they represent lack confidence that bioenergy can really make a contribution to global carbon emissions without having unintended negative sustainability impacts. They find it difficult to distinguish between “good” and “bad” biomass options. This contributes to policy uncertainty which in turn undermines the prospects for investment and deployment.”

HOW WE HAVE LOOKED AT SUSTAINABILITY GOVERNANCE

- **Examples: certification schemes (RSB), voluntary indicators (GBEP), legal requirements (Brazil, EU, others), incentives (US, EU);**
- **Mistakes to avoid: apriorism and consultancy-heavy micro-managing at the individual project level;**
- **What most of them lack: simplicity, predictability, acceptance, and most of all: motivation.**

SUSTAINABILITY GOVERNANCE: HOW TO GET IT RIGHT?

PROPOSED PRINCIPLES FOR A SUCCESSFUL SUSTAINABILITY GOVERNANCE FRAMEWORK:

SIMPLICITY, **A**CCCEPTANCE,
MMOTIVATION, **P**PREDICTABILITY

ELEMENTS FOR A SUSTAINABILITY GOVERNANCE (II): **SIMPLICITY**

- **Clarity and objectivity of sustainability criteria: no unsupported assumptions or ideology.**
- **Focus on very few key sustainability indicators: life-cycle analysis and land-use intensity, incorporating residue use.**
- **Apply sound legal frameworks and incentives for best practices**
- **Limit project-level certification needs, rely on broader supply-chain and national market analysis and oversight.**

ELEMENTS FOR A SUSTAINABILITY GOVERNANCE (I): PREDICTABILITY

- **Set clear, medium and long term national targets for bioenergy, especially transport biofuels;**
- **Set sustainability criteria for at least the medium term;**
- **Develop a contract market for bioenergy – mirroring the renewables market in the power sector;**
- **Develop a competitive global market to compensate for local inefficiencies;**

ELEMENTS FOR A SUSTAINABILITY GOVERNANCE (III): **MOTIVATION**

- Always marry sustainability verification/certification with predictable access to markets
- Recognize positive externalities in specific mechanisms and incentives (mandates and targets, fuel-specific carbon markets, premiums for performance).
- Provide for temporary incentives to overcome “valley of death” and get to scale (follow wind and PV’s lead)

ELEMENTS FOR A SUSTAINABILITY GOVERNANCE (IV): ACCEPTANCE

- **Build global standards and fuel specifications for transport modalities**
- **Harmonize key sustainability criteria and mechanisms across main markets (again, focus on carbon LCA and land/water use intensity)**
- **Work and coordinate across international initiatives to attain national processes: IEA, IRENA, GBEP, G20, Biofuture Platform.**

**THANK YOU, AND LET'S MAKE
IT HAPPEN**

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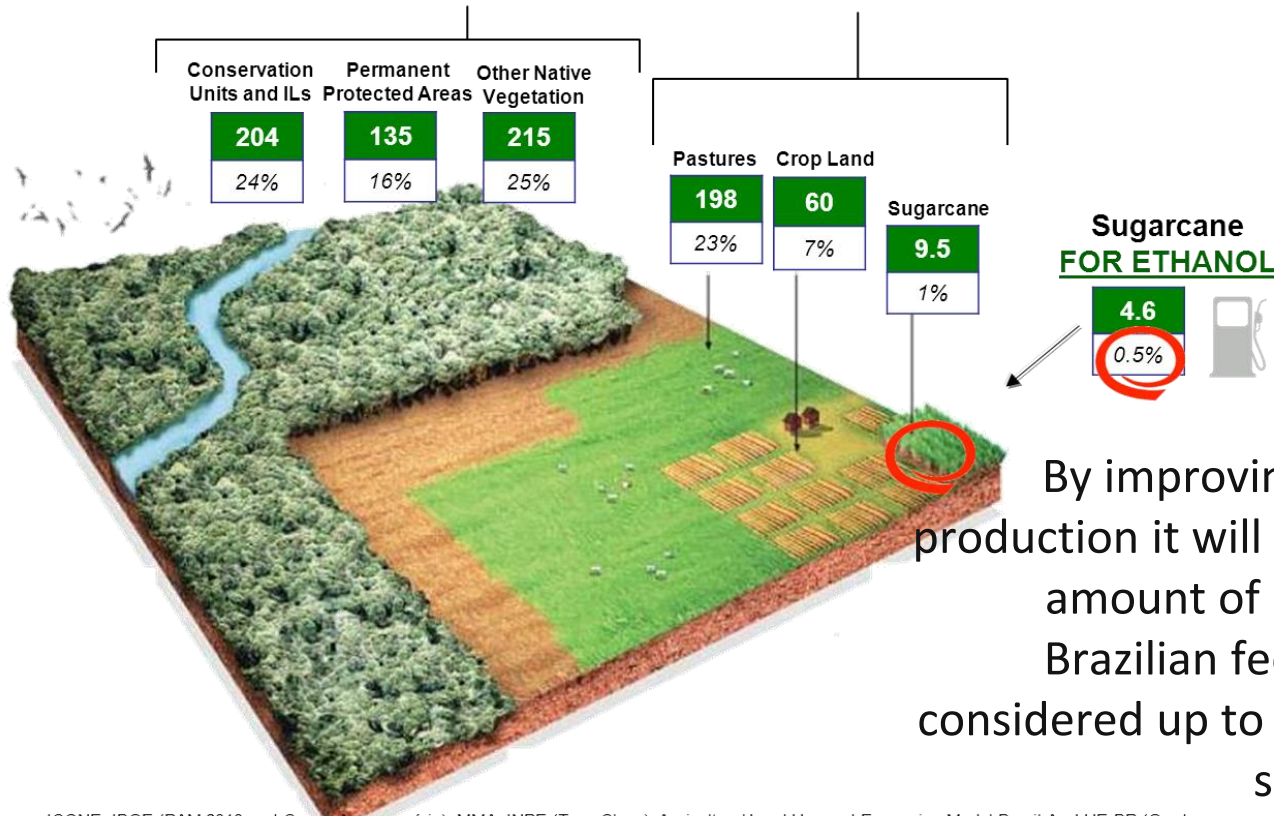
SUSTAINABILITY IN BRAZIL: THE MAIN PILLARS

- **Legal frameworks, including:**
 - Agroecological zoning;
 - Labor conditions regulations
 - National public-private pacts and regulations (mechanization)
 - General environmental regulation and protection
- **Incentives and financing for best practices**
- **RenovaBio: encourage better environmental performance**

AGROECOLOGICAL ZONING

Million Hectares

Total Area	Native Vegetation	Land in Actual Use	Other Uses
851	554	258	38
100%	65%	30%	5%



By improving the low yield of cattle production it will be possible to free large amount of land for other purposes.

Brazilian federal agricultural zoning considered up to 64 Mha able to produce sugarcane w/o irrigation.

Source: ICONE, IBGE (PAM 2010 and Censo Agropecuário), MMA, INPE (TerraClass), Agricultural Land Use and Expansion Model Brazil Ag-LUE-BR (Gerd Sparovek, ESALQ/USP). Elaboration: UNICA and Cosan. Note: ILs = Indigenous Lands. Other Native Vegetation include Legal Reserves (RLs)

BRAZIL: AGROECOLOGICAL ZONING

Potential areas in Brazil by level of aptitude and land use (ha)				
Potential	Potential by land use (ha)			Total
	Ap	Ag	Ac	
High (H)	10.251.027	585.989	7.191.388	18.028.403
Medium (M)	22.818.770	2.015.247	16.340.890	41.174.906
Low (L)	3.062.029	490.027	733.152	4.285.208
H+M	33.069.796	2.601.235	23.532.277	59.203.309
Total	36.131.825	3.091.263	24.265.429	63.488.517

Ap = areas with pastures; Ag = areas with agriculture; Ac = areas with agriculture and livestock.

Only 7.5% of Brazil were named as areas suitable for expansion of sugarcane and only 10% of this potential area is supposed to be occupied in the next 10 years .

GOALS OF THE AGRO-ECOLOGICAL ZONING FOR SUGAR CANE :

- **Identify areas with climate and soil potential for sugar cane production with mechanical harvesting;**
- **Identify areas with potential for sugar cane production currently being used for livestock production;**
- **Identify areas with potential for sugar cane production that have no environmental restrictions;**

AGRO-ECOLOGICAL ZONING : MAIN ENVIRONMENTAL RESTRICTIONS

- **Exclusion of the Amazon and the Pantanal and Upper Paraguay River Basin;**
- **Exclusion of the priority areas for environmental preservation;**
- **prohibition of deforestation for planting sugar cane;**
- **New projects must provide for mechanical harvesting and discharge of irrigation in sugarcane cultivation.**
- **Ending the use of fires by 2017.**

SUSTAINABILITY IN BRAZIL: LEGAL FRAMEWORKS

Decreto 24-11-2010* - working conditions in the sugar cane industry

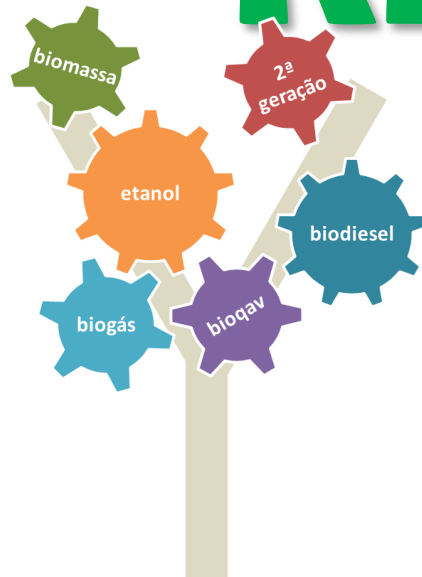
- **Decreto 4 339 - National Biodiversity Policy**
- **Decreto No.7172* - agro-ecological zoning for palm oil cultivation**
- **Decreto No.7390 - adds to National Policy on Climate Change regarding control of deforestation and sectoral greenhouse gas (GHG) mitigation plans and targets**
- **Decreto No.6961* - agro-ecological zoning for sugar cane cultivation**
- **Lei 12.187 - institutes National Policy on Climate Change**
- **Lei 12 651 - protection of native vegetation**
- **Lei 6 938 - National Environmental Policy**
- **Lei 9 985 - National System of Nature Conservation Units (SNUC)**
- **Lei estadual No.11 241* – Sao Paulo state only - elimination of the burning of sugar cane straw**
- **Resolution 237 of 19 Dec 1997 - environmental licensing**
- **Resolution No 1 of 23 Jan 1986 – Environmental Impact Assessment (EIA)**



Fotos: UNICA, ABIOVE e GRANBIO



RENOVABIO



To guarantee biofuels production expansion in Brazil,
based on predictability, social, economic and environmental
sustainability, and in pace with market growth.