Sustainability for the Global Biofuels Industry
Minimizing Risks and Maximizing Opportunities

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vision
We imagine a healthy prosperous world in which societies are forever committed to caring for and valuing nature for the long-term benefit of people and all life on Earth.

mission
Building upon a strong foundation of science, partnership and field demonstration, CI empowers societies to responsibly and sustainably care for nature for the well-being of humanity.
field presence

- Offices in 35+ countries
- 1000+ partners worldwide
- Strong connections to communities, governments
- Focus on developing solutions that work locally and can be replicated globally

top rated charity

Charity Navigator ★★★★★ (four stars)
Exceptional: Exceeds industry standards and outperforms most charities in its cause
smart science +
solutions in action

• CI has helped protected more than 500 million acres on land and sea, an area large enough to be seen from space.

• CI pioneers innovative funding, giving more than $100 million to conservation partners over the past five years.

• CI has helped to safeguard about one-third of all globally threatened mammals, birds and amphibians around the world.

• CI will work with indigenous people to protect more than 61 million acres of traditional lands by the end of this decade.

• CI will protect 35 new marine areas in the next three years, preserving some of the world’s most pristine coral reefs.
leading the responsible corporate movement
Sustainable Biofuel Crops Project
Objectives of SBFI

Produce fundamental knowledge based upon sound scientific data generation, mapping, and field implementation that ensures the development of a global biofuel industry, and especially feedstock production, is managed consistently with environmental sustainability.
Sustainable Biofuel Crops Project

- Work in 5 countries/regions, plus US and global
- Integrates science, field work, policy and markets
- Three components:
  - Knowledge Generation
  - Field Studies
  - Policy and Market Frameworks
Sustainable Biofuel Crops Project

Knowledge Generation
Spatial analysis: Identify Risk and Opportunity

- Develop potential suitability profiles for 9 feedstocks

- Assess potential **risks**:
  - Traditional food crop suitability
  - Secondary agricultural effects (displacement)
  - Biodiversity priority
  - Ecosystem services

- Assess potential **opportunities**:
  - Underutilized/degraded lands
  - Low traditional food crop suitability
  - Minimal negative impacts on conservation priority areas
Spatial analysis: Potential feedstock suitability

Jatropha

Oil Palm
Potential Risk: feedstock suitability & staple food crop suitability
Potential Risk: biofeedstock suitability & staple food crop suitability
Potential Risk: areas sensitive to secondary effects of agricultural-displacement

- Expansion of feedstock cultivation in agricultural areas
- Expansion of agriculture into forest extent → leakage
- Potential impact on critical natural areas
Potential Risk: Biodiversity

Oil palm suitability, Important Bird Areas, and Alliance for Zero Extinction Sites
### Potential Risk: Biodiversity

<table>
<thead>
<tr>
<th>Crop &amp; Region</th>
<th>Total area suitable for oil palm (ha)</th>
<th>Total area of biodiversity priority (ha) (by priority type)</th>
<th>Area of biodiversity priority within land suitable for biofuel (ha)</th>
<th>% of biodiversity priority land that is suitable for biofuel (%)</th>
<th>% of land suitable for biofuel that is also biodiversity priority land (%)</th>
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Potential Risk: Hydrological importance

Composite index showing the combined influence of population, area of irrigable agriculture and important biodiversity areas
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<tr>
<th>Region</th>
<th>Biofuel crop</th>
<th>Total area of hydrological priority (ha)</th>
<th>Area of hydrological priority within land suitable for biofuel (ha)</th>
<th>Overlap of hydrological priority area with land that is suitable for biofuel crops (%)</th>
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</table>
Potential opportunity: underutilized & degraded lands

Coarse scale identification:
- Areas defined as previously converted
- Areas considered underutilized/degraded

Represent potential opportunities for feedstock cultivation while minimizing potential negative impacts
Potential opportunity: areas of low staple crop* suitability

Oil palm

Jatropha
Potential opportunity: conservation priority areas omitted from oil palm suitability zones
Responsible Cultivation Areas

Partnership between CI, Ecofys, and WWF (coordinated by Ecofys)

Identify, and (eventually) certify feedstock production with a low risk of indirect effects

- Use land without provisioning services ("degraded")
- Increasing land productivity through integration with non-bioenergy feedstock systems
- Increasing land productivity of existing bioenergy feedstock systems

Methodology is universally applicable (different crops, regions) and uses existing tools
RCA Values

Establishment of energy crop plantations:

- Maintains or increases High Conservation Values
- Does not lead to significant reductions in carbon stocks
- Respects the legal land status and customary land rights
- Does not cause displacement of existing (and future) production

...and

- Intensification does not cause adverse environmental or social effects
RCA Pará: Process

Phase 1: Desktop assessment based on existing information

Phase 2: Selection of areas for field study based on finer-scale information

Phase 3: Field work to fill in information gaps and groundtruth data
RCA Pilot Pará

• Focus on oil palm, degraded pasture

• Areas were bought by an oil palm company focused on “degraded lands” (suitability confirmed)

• Minimal biodiversity, water value outside reserves; low carbon values

• No land conflicts, little value to communities

• Oil palm company confirmed methodology was appropriate to companies

• Successful pilot
RCA Pilot: São Paulo

- Focus on sugarcane/ cattle Integration: Increase productivity of existing agricultural lands
- Integration or coordination is possible, and exists
- Three possible systems:
  - Sugarcane mill/ cattle confinement
  - Other sugarcane producer/ cattle confinement
  - Other sugarcane producer/ extensive cattle
- Comprehensive promotion approach needed
- Success will depend in part on external factors: cost of Amazon beef, mill ownership, labor
Integrated Biodiversity Assessment Tool (IBAT)

- Provides users **site-specific biodiversity, wetland, and protected areas** data
- Informs project screening, **ESIA** and environmental management plans
- Can assist in incorporating biodiversity into **risk analysis**, decision-making and planning processes

[www.ibatforbusiness.org](http://www.ibatforbusiness.org)  
[www.ibat-alliance.org/ibat-conservation](http://www.ibat-alliance.org/ibat-conservation)
Relevance: Knowledge and Tools

• Process is key
  • Improve consistency of comprehensive assessments
  • Facilitate replication in other areas by other groups
  • Facilitate access to information by all decision-makers
  • Ensure timely decision-making
  • Highlight information gaps for strategic on-the-ground assessment

• Consider environmental & social values
  • Holistic approach to risk assessment
  • Avoid risks & identify opportunities for more sustainable production
Sustainable Biofuel Feedstocks Initiative

Field Projects
Atlantic Forest, Brazil: Conservation & restoration in productive landscapes

Developed **Forest Restoration and Environmental Compliance** course for sugarcane actors

Conducted **biodiversity & fragmentation studies** in sugarcane landscapes

Held workshops on the **management of private reserves**, and on biodiversity monitoring for NE mills

Assessing local **tree nursery capacity** to support reforestation efforts by mills

Engaging producers unions on **forest restoration, climate change, forests for energy**
Relevance: Conservation & restoration in productive landscapes

• Model for improving practices in existing agricultural landscapes
• Concentration on biodiversity, carbon, water
• Focus on building local capacity
• Use of awareness building to generate demand for services, improved practices
• Sustainability does not reduce profitability
Aceh, Indonesia: Planning for oil palm development

Contributing to provincial-level **spatial planning** and **green development** plans

Conducted first **biodiversity surveys** of Singkil Swamp area

Completed **carbon assessments** in areas of oil palm expansion

Presented workshop on **best practices** for the oil palm industry to stakeholders in two districts

Assisting two districts with spatial plans in high-biodiversity oil palm expansion zone
Relevance: Planning for oil palm development

• Model for how land use planning might be approached in areas of feedstock expansion
• Focus on incorporating full range of scientific information, as well as social and economic criteria, into decision-making
• Recognition of multiple demands, needs
• Opportunity to “do right” from the beginning
Sustainable Biofuel Feedstocks Initiative
Policy & Market Engagement
US/ EU Policy Engagement

Technical input on planned biofuel-related policy, eg US RFS2 and EU RED

- Focus on land use related issues, indirect land use change
- Draw on science, field experience

Provide information on US, EU policy to field programs, partners

- Develop understanding on legislation, regulations and policy that could affect feedstock development/land use
- Provide information to policy makers, private sector leaders and other relevant stakeholders
Mesoamerica: Policy Engagement

Biofuel sustainability criteria incorporated in the Central American **Regional Strategies for Agriculture and Health**, and **Climate Change**

Sustainability criteria included in proposed **Guatemalan climate change policy**

**Community level workshops** on biofuels, climate change, and agriculture held in Guatemala and Mexico

Convention on **climate change and biofuels** incorporated into the **Indigenous Peoples Climate Change Roundtable** in Guatemala
South America: Policy Engagement

Analysis of biofuel-related policy framework in Ecuador

Outreach and interviews with Ecuadorian stakeholders

Database of regulations, projects, programs, and stakeholders in Ecuador

First national roundtable on biofuels in Suriname

Study on environmental, social, & economic implications of proposed feedstock expansion in Suriname
Industry & Market engagement

Roundtable on Sustainable Palm Oil (RSPO) – Board, GHG Working Group

Roundtable on Sustainable Biofuels (RSB) – Indirect Impacts Experts Group, Chamber 6

Round Table on Responsible Soy (RTRS) – National interpretations and mappings, members

Engagement with individual industry leaders on policies, guidelines, investments
Industry & Market engagement

Mill + plantation + smallholder production models
  • Schemed vs. independent smallholders
Smallholder engagement / needs
  • Extension, land tenure, credit, infrastructure
  • Environmental issues, diversification, risk management
Climate finance (adaptation & mitigation)
  • Land-use sector within LEDS, REDD+LEDS,
  • Low interest loans & risk insurance (Africa)
Regulatory framework
  • Tax incentives, concessionaire frameworks
  • Land-use planning initiatives
<table>
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<tr>
<th>HCV1</th>
<th>Globally, regionally or nationally significant concentrations of biodiversity (endemism, endangered <em>species</em>, and refugia).</th>
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<td>HCV2</td>
<td>Globally, regionally or nationally significant large <em>landscapes</em> where viable populations of native species exist in natural patterns of distribution and abundance.</td>
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<td>HCV3</td>
<td>Contain rare, threatened or endangered <em>ecosystems</em>.</td>
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<td>HCV4</td>
<td>Provide basic <em>ecosystem services</em> in critical situations (watershed protection, erosion control).</td>
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<td>HCV5</td>
<td>Provide <em>basic needs of local communities</em> (subsistence hunting, health).</td>
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<td>HCV6</td>
<td>Are critical to <em>traditional cultural identity</em> (cultural, economic or religious significance identified in cooperation with local communities).</td>
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</table>
Relevance: Policy & Markets

Potential to transform global markets
• Demand for “sustainability” is driving market change
• Value chain where value = sustainability
• Recognize that biofuel feedstocks are global commodities imbedded in food and fiber markets

Link climate finance to poverty reduction
• Provide developing countries (& emerging markets) with a sustainable rural development paradigm
• Take REDD+ to scale via the private sector
• Certification = MRV
Sustainable Biofuel Feedstocks Initiative

Future Priorities
Looking Forward: Priority Actions

Applied Geographic Research and Economic Analysis of Biofuel Feedstocks at the Regional Scale

- *Feedstock production and land use in each region*
- *Biofuel production and human livelihoods, food security*
- *Impact of biofuels production on ecosystem services and biodiversity*
- *Scenarios modeling to evaluate policy options*
Looking Forward: Priority Actions

Field Extension and Practical Action at the Landscape Scale

**Applied Field Studies**
- Amazon/Cerrado
- Atlantic Forest
- Ecuador
- Indonesia -Aceh
- Liberia
- Mexico-Chiapas
- Peru
- Suriname

**Policy**
- California
- US
- EU
Thank you!

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