The FAO Approach to Sustainable Bioenergy

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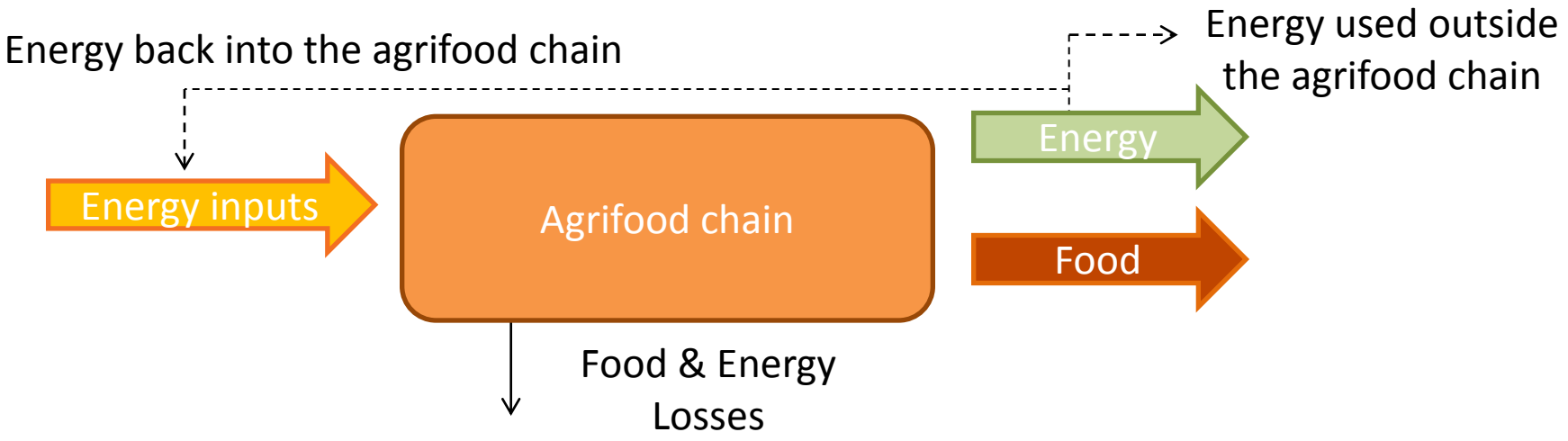
19-22 March 2012

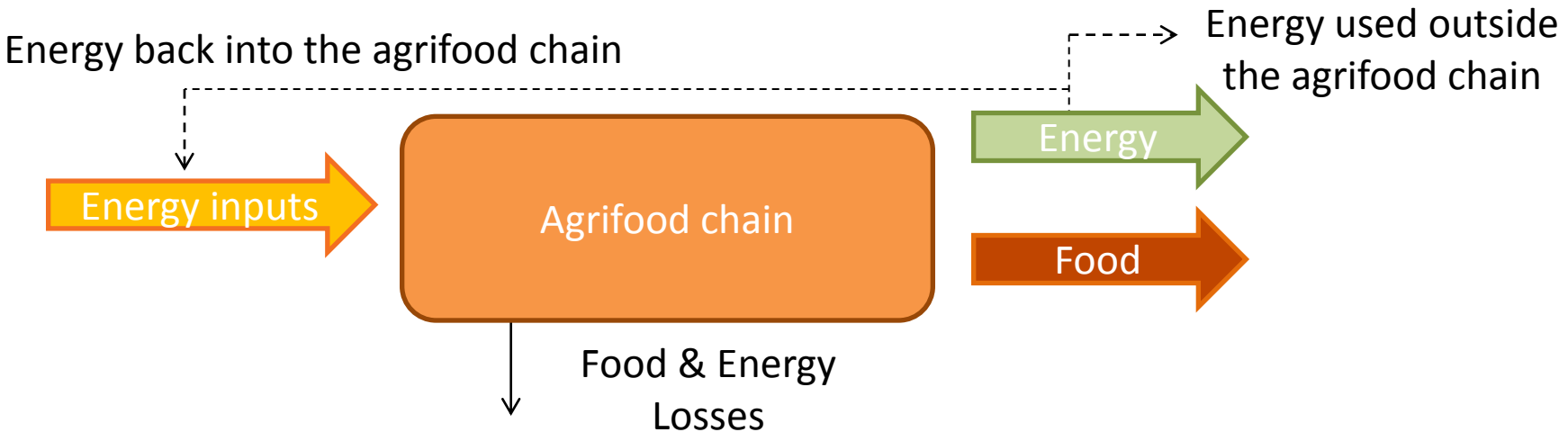
Sustainable Bioenergy part of "Energy-Smart Food for People and Climate"



Becoming "Energy-Smart" in the agrifood chain means:

- **Improve energy efficiency**
- Gradually use **more renewable energy**
- **Improve access to modern energy services** through **integrated food and energy production**

Sustainable Bioenergy part of "Energy-Smart Food for People and Climate"



Becoming "Energy-Smart" in the agrifood chain means:

Bioenergy relevance

- Improve energy efficiency
- Gradually use **more renewable energy**
- **Improve access to modern energy services** through **integrated food and energy production**

Sustainable Bioenergy : What is needed

- ***An in-depth understanding*** of the situation and related opportunities and risks as well as synergies and trade-offs;
- ***An enabling policy and institutional environment***, with sound and flexible policies and means to implement them;
- ***Implementation of good practices*** by investors/producers in order to reduce risks and increase opportunities;
- ***Appropriate monitoring and evaluation*** of impacts and performance of good practices and policy responses

The FAO "Sustainable Bioenergy Support Package : Making Bioenergy Work for Climate, Energy and Food Security"

FAO-UNEP Decision Support Tool (DST): A Roadmap to Sustainable Bioenergy
(WHY, WHAT, WHERE, HOW)

WHAT TO DO

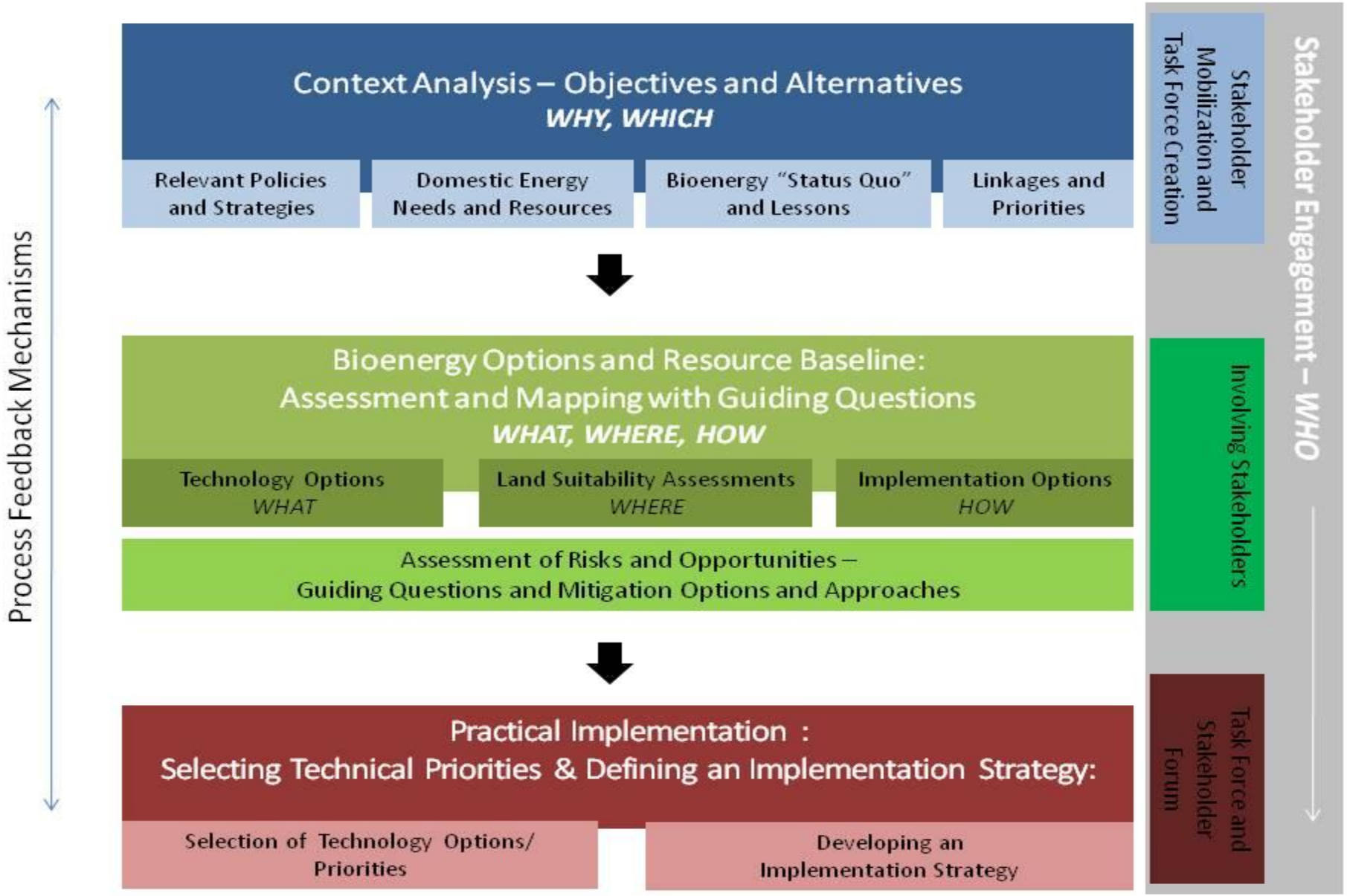
Bioenergy and Food Security Project (BEFS): Getting Facts Right to make the Right Choices

Bioenergy and Food Security Criteria & Indicators (BEFSCI): Implementing Good Practice and Policies

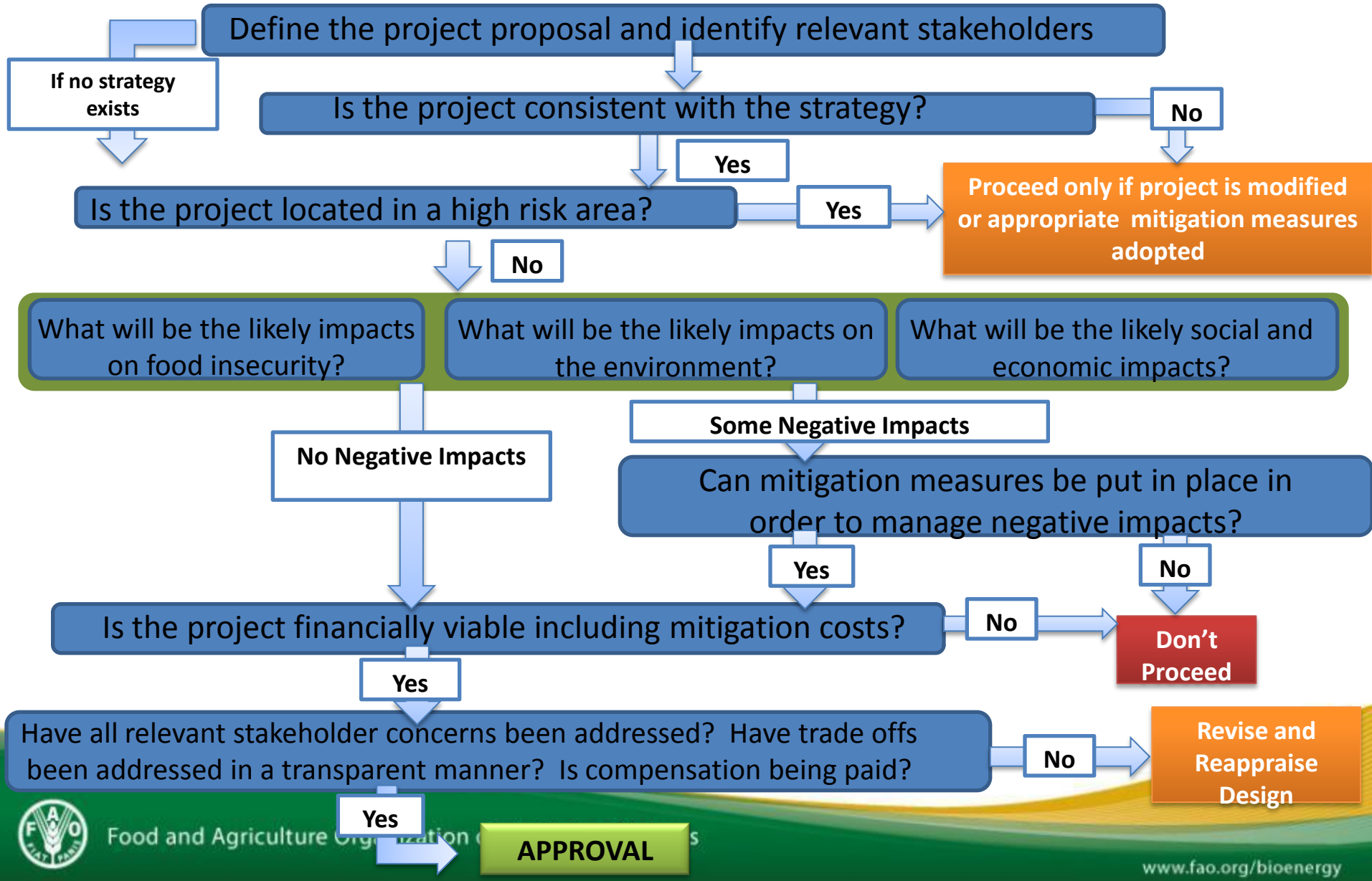
HOW TO DO IT

Impact & Performance Monitoring and Evaluation System + Policy Response: the Global Bioenergy Partnership (GBEP) Sustainability Indicators and BEFSCI

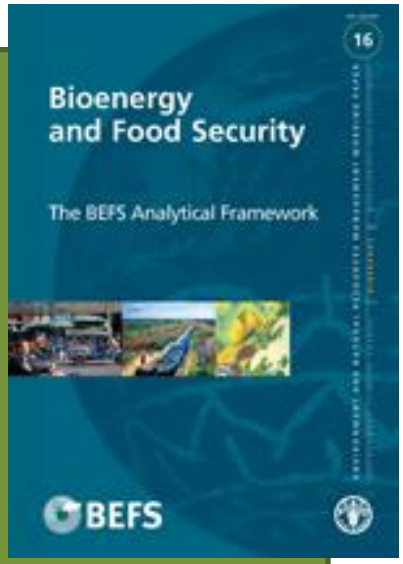
Decision Support Tool for Sustainable Bioenergy – Strategy



DST Investment Level Decision Tree



Policy information basis: The BEFS Analytical Framework
Country level assessments



Four areas of analysis:

Diagnostic
current needs and challenges

Natural resources
land, water and residues

Techno-economic and environmental
technologies, production costs, greenhouse gas emissions, etc.

Socioeconomic
economy wide, household

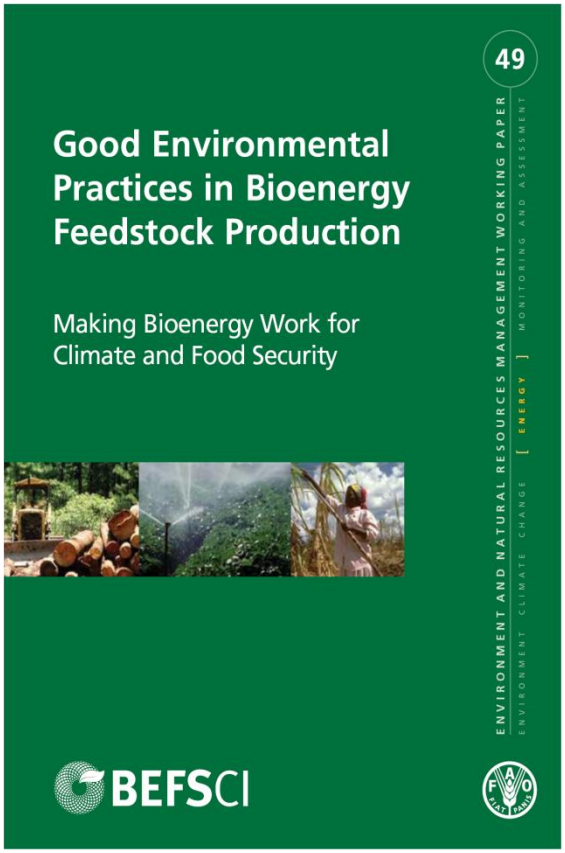
Supporting governments in national biofuel policy development

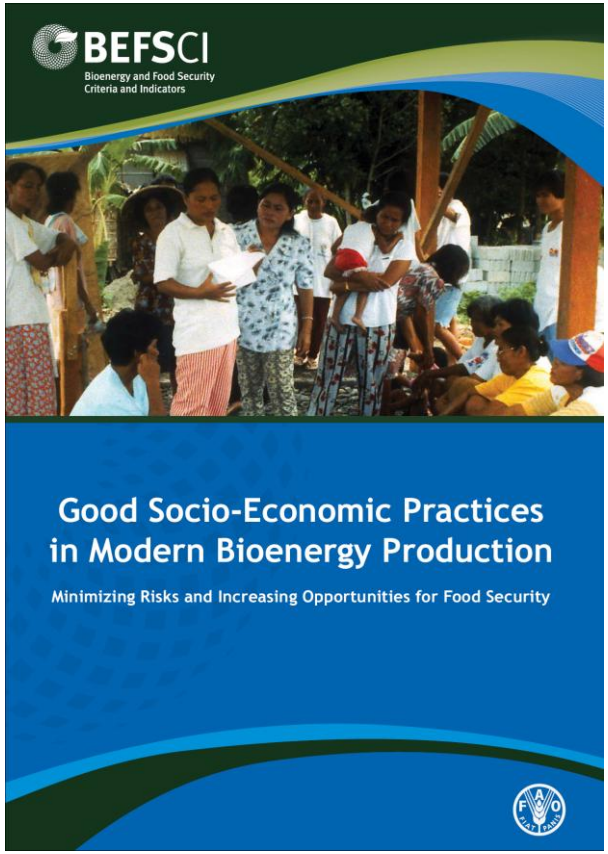
How to do it? Good Practices, risk mitigation and policy incentives – BEFSCI

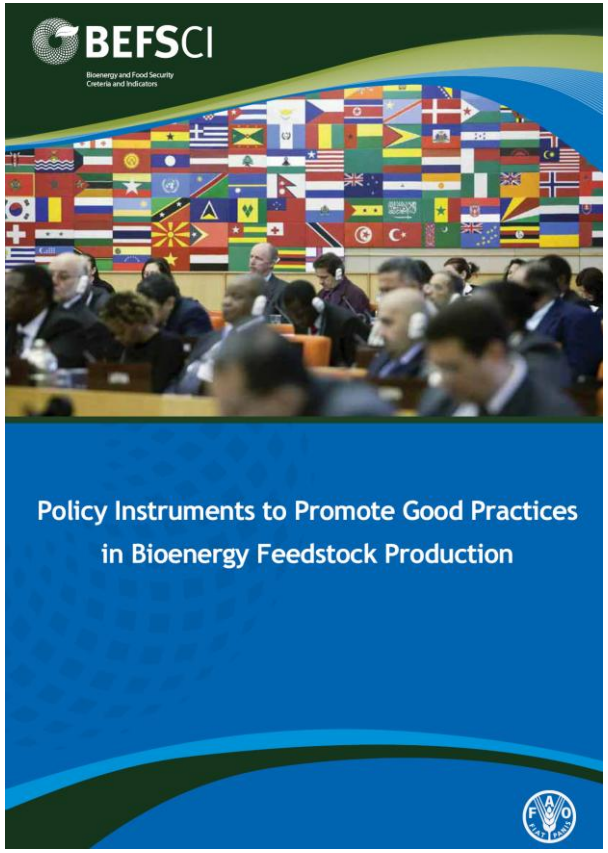
Good environmental and socio-economic practices that feedstock producers can implement to mitigate risks and increase opportunities from bioenergy developments

Policy incentives to require or promote the implementation of good practices by bioenergy feedstock producers

BEFSCI work on good practices







Example of good practice: Integrated Food Energy Systems – Two types

Type 1:

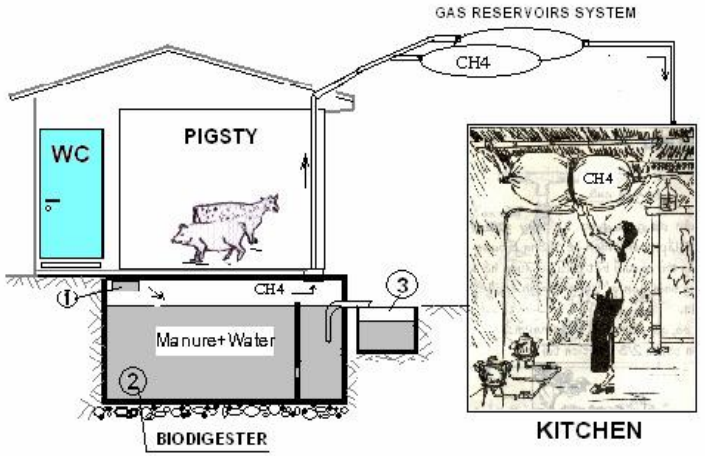
Optimising land use efficiency **of food and energy production same land or *landscape***

Jatropha-livestock, Vietnam

Type 2:

Biomass use optimisation through recycling of all by-products

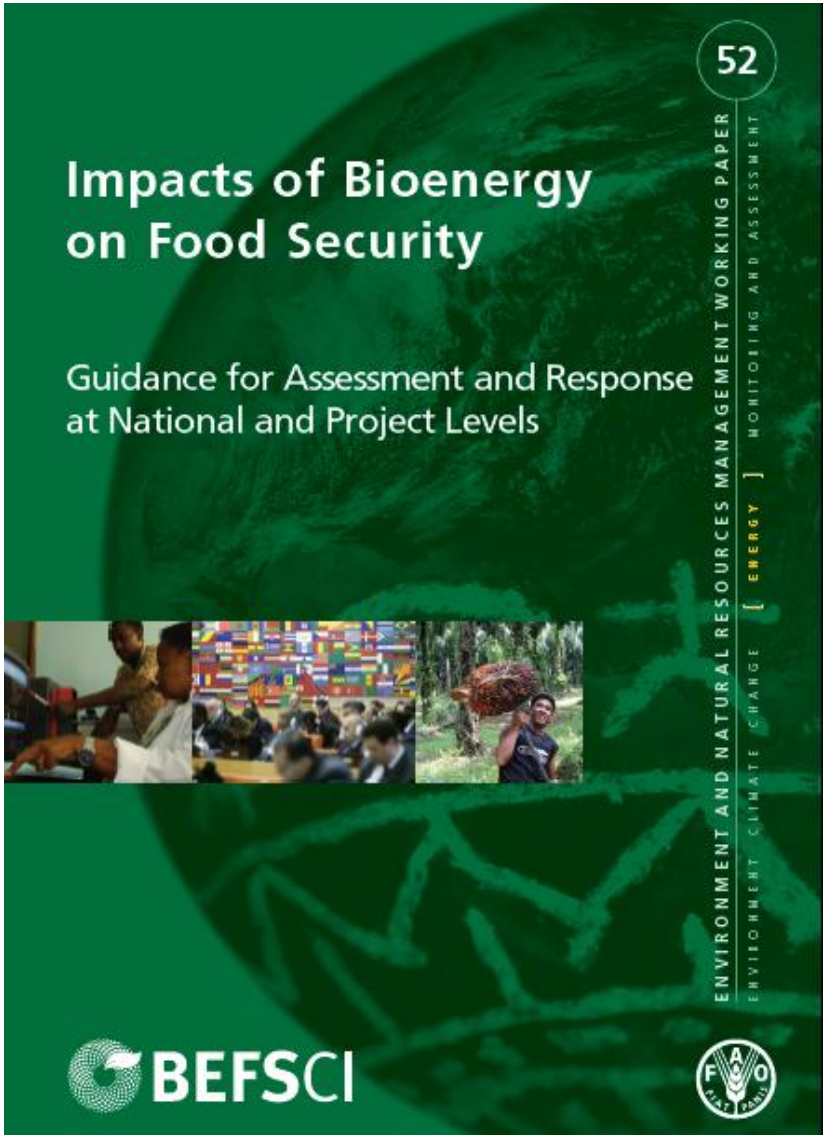
Pig-biogas system - Vietnam



How to do it? Monitoring – BEFSCI/GBEP

Science-based **criteria**, **indicators** and **tools** to assess the impacts of bioenergy development on food security

Policy responses to mitigate the negative impacts of bioenergy production and/or to safeguard the areas and groups most negatively affected by these impacts.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Impacts of Bioenergy on Food Security
Guidance for Assessment and Response at National and Project Levels
ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT WORKING PAPER
ENVIRONMENT CLIMATE CHANGE [ENERGY] MONITORING AND ASSESSMENT
BEFSCI

Monitoring the impacts of bioenergy on food security at national and project levels

- GBEP indicator on the Price and Supply of a National Food Basket (with inputs from FAO/BEFSCI)

- The BEFSCI **Operator Level Food Security Assessment Tool** can be used to assess how an existing or planned agricultural operation with a bioenergy component may affect food security

BEFSCI Operator Level Food Security Assessment Tool

The tool consists of three parts:

1. Change in the supply of food (crops and livestock) to the domestic market

2. Resource availability and efficiency of use (land, water and fertilizers)

3. Physical displacement, change in access to resources, compensation and income generation

BEFSCI Operator Level Tool: Indicators and scoring system

- Each part includes indicators addressing key environmental and socio-economic aspects relevant for food security
- For each indicator, specific thresholds and a scoring system are provided:
  - Potential Benefit for Food Security
  - No Significant Influence on Food Security
  - Potential Risk to Food Security

http://www.fao.org/bioenergy/foodsecurity/befsci/operator-tool/en/

BEFSCI – Some Operational Advantages

- ***Precautionary principle: Takes impacts as likely***. So no need to measure them ex-ante and can focus on good practice implementation

- Comprehensive ***synopsis of good practices***

- First sustainability tool that looks at ***policy measures***, and combines these with good practices

- Allows for the use of ***performance indicators*** (concerning good practice implementation), in addition to impact indicators

How to do it? Monitoring – GBEP Indicators

PILLARS		
Environmental	**Social**	**Economic**
INDICATORS		
1. Life-cycle GHG emissions	9. Allocation and tenure of land for new bioenergy production	17. Productivity
2. Soil quality	10. Price and supply of a national food basket	18. Net energy balance
3. Harvest levels of wood resources	11. Change in income	19. Gross value added
4. Emissions of non-GHG air pollutants, including air toxics	12. Jobs in the bioenergy sector	20. Change in consumption of fossil fuels and traditional use of biomass
5. Water use and efficiency	13. Change in unpaid time spent by women and children collecting biomass	21. Training and re-qualification of the workforce
6. Water quality	14. Bioenergy used to expand access to modern energy services	22. Energy diversity
7. Biological diversity in the landscape	15. Change in mortality and burden of disease attributable to indoor smoke	23. Infrastructure and logistics for distribution of bioenergy
8. Land use and land-use change related to bioenergy feedstock production	16. Incidence of occupational injury, illness and fatalities	24. Capacity and flexibility of use of bioenergy

Key messages from FAO's sustainable bioenergy support package

- Modern bioenergy developments can create both opportunities and risks

- In order to ensure that modern bioenergy development is sustainable and that it fosters rural development and food security, it is essential to:

  → prevent and manage risks before the sector develops

  → monitor and respond to impacts (at both national and operator's level) once the sector is in place

Key message on biofuels from FAO's work on bioenergy

***Per se* biofuels are neither good nor bad...**

....what matters is the way they are managed

Don’t Forget Small-Scale Bioenergy to Promote Local Access to Modern Energy Services

Thank you!

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