

Small-scale bioenergy initiatives in ASEAN +3: *impact, barriers and opportunities*

How2Guide for Bioenergy, Bangkok 22nd -23rd July 2014



Mattia Vianello, Energy Consultant



Food & agriculture



Climate change



Energy



Knowledge & communications



Disaster risk reduction



Markets



REGIONS WHERE WE WORK



UK office

Latin America

Western Africa

Eastern Africa

Southern Africa

Asia

South Asia

2008 FAO-PAC

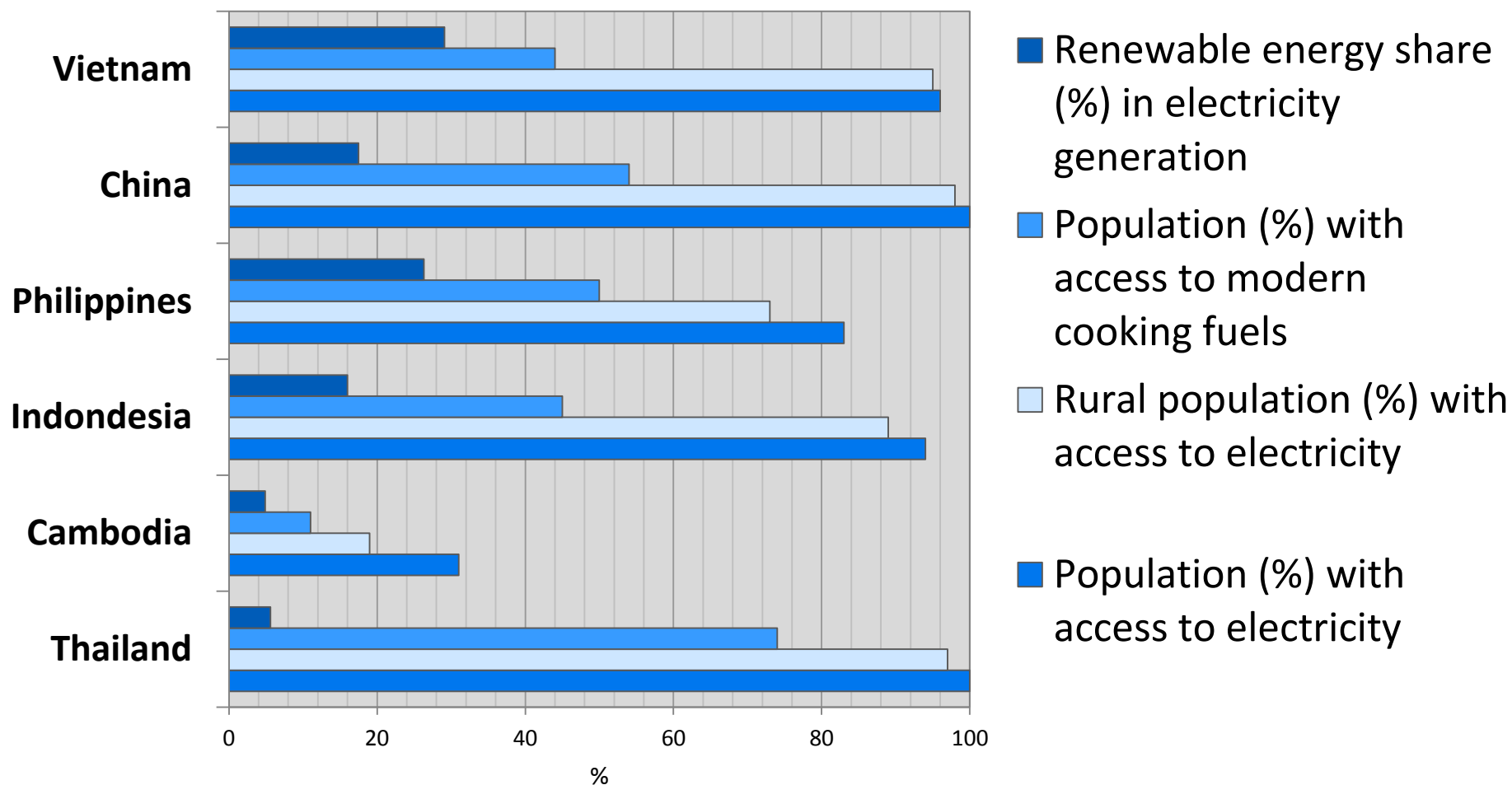
15 Small Scale Bioenergy Initiatives Study



Small Scale Bioenergy Initiatives in ASEAN+3

- Revisited cases + new ones
- Analytical Framework
- **Impact, barriers and opportunities for scaling up / replicating**





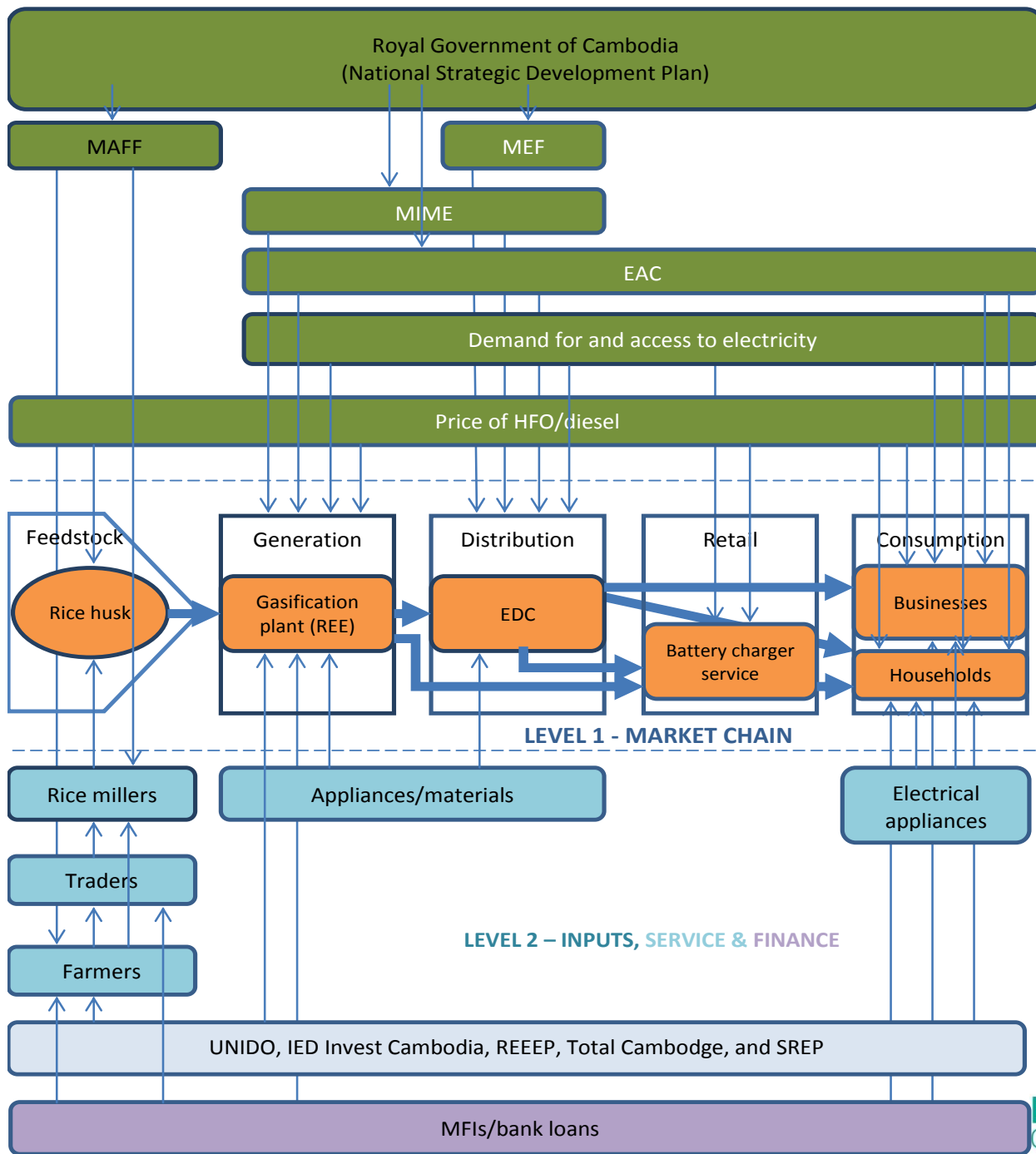
Access to energy in six ASEAN +3 countries. Data taken from *Global Tracking Framework Report* (World Bank, 2013)



The Analytical Framework

- Stage 1: Market mapping
- Stage 2: Identification of sustainable livelihood outcomes
- Identification of bioenergy market system barriers, drivers and potential opportunities/interventions





		Rice husk gasifier – Cambodia	Jatropha – Cambodia	BIOMA – China	BIRU – Indonesia	Lombok – Indonesia	Mangrove briquetting – Philippines	Rice mill – Philippines	Biogas chicken farm – Thailand	Jatropha – Thailand	VACVINA – Viet Nam
Improved energy access to	HHs										
	Productive uses										
Improved Incomes by	Supplying feedstock										
	Supplying energy										
	Improved agriculture										
	Energy saving										
	New job opportunities										
	Installing/selling devices										
	Improved productivity										

Key:

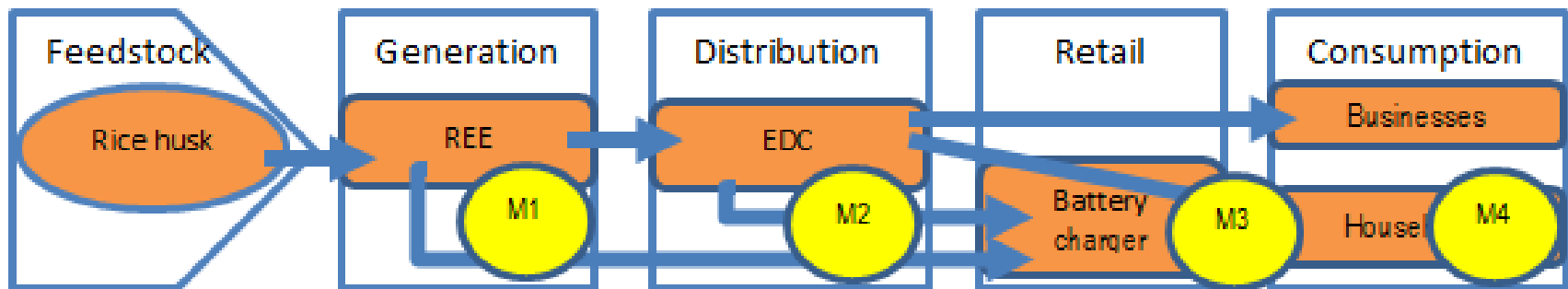


Primary



Secondary

Market Chain



Market Chain

- A range of **business models**, from fully commercial to quasi-commercial and non-commercial management structures.
- **Cost** at different levels of the supply chain
- Development of **appropriate** technologies
- **Capacity** of the market actors to produce distribute and retail their products
- Existence of **suitable demand** for bio-energy



Supporting Services

Level 2: Inputs, services, finances and outputs

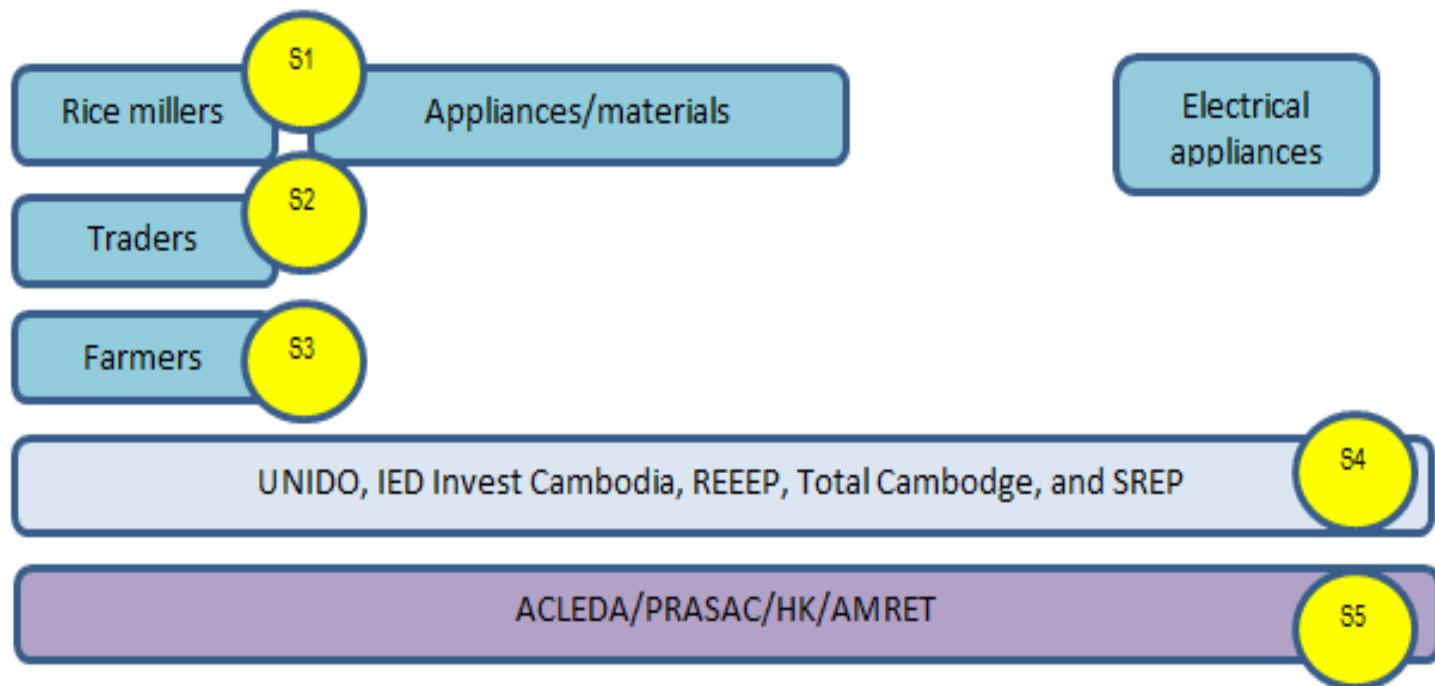


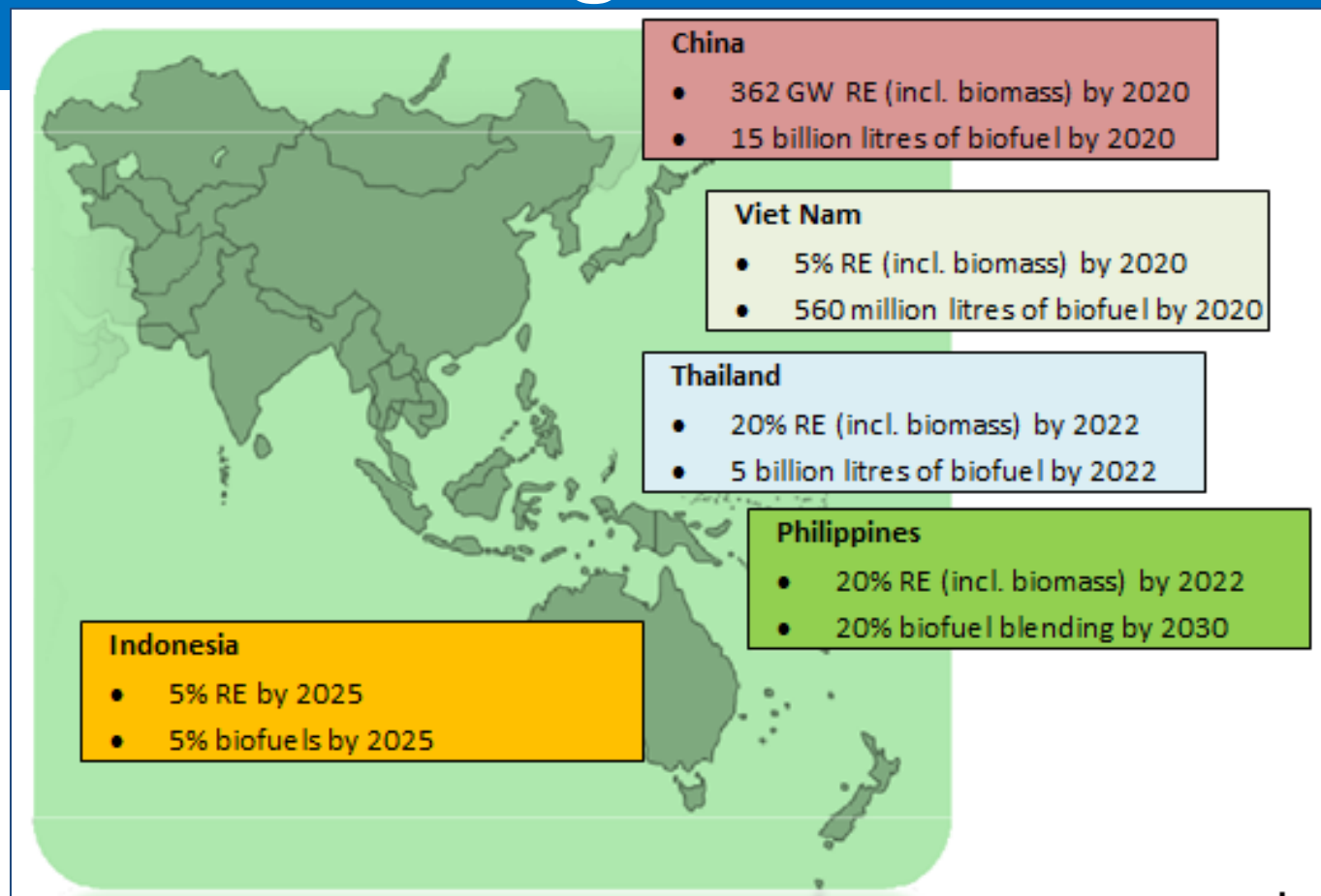
Figure 2 Barriers, driver and interventions: inputs, services, finances and outputs

Supporting Services

- Access to **technical assistance**
- Access to appropriate **financial services**
- Access to **after-sale services** (including access to adequate spare parts)
- **R&D** to develop locally appropriate technologies
- Access to a sustainable and suitable supply of bioenergy resource **inputs**



Enabling Environment



Government-supported bioenergy targets of ASEAN +3 countries
(Adapted from: Bioenergy and Food Security in ASEAN, FAO 2013 and
Philippine Biofuels Situation and Outlook, USDA 2013)

Enabling Environment

Level 3: Enabling environment

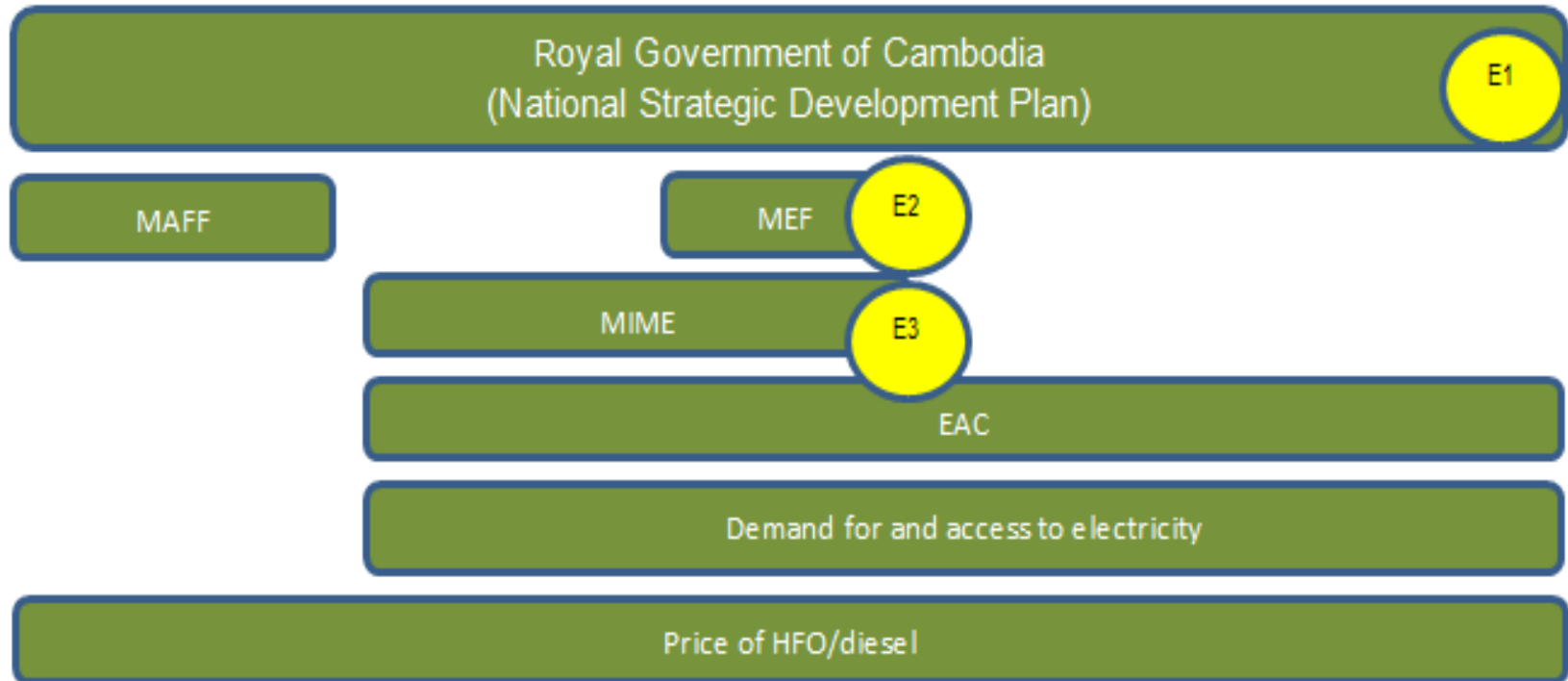


Figure 3 Barriers, drivers and interventions: inputs, services, finance and output

Enabling environment

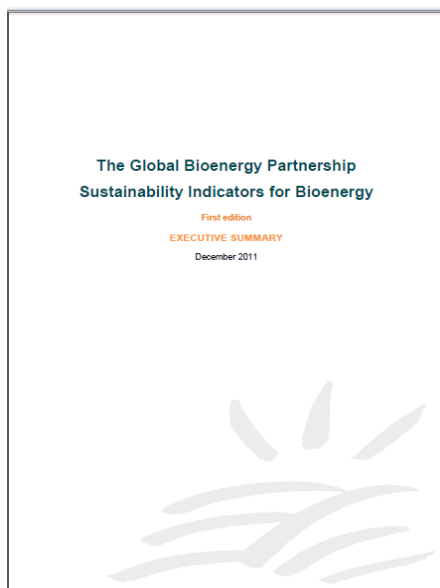
- **Infrastructure** for distribution of feedstock, appliances and spare parts
- **Cultural barrier**
- **Regulations** and standards (right equilibrium)
- **Rural development** strategies
- **Agriculture and energy sector synergies**
- Bottom-up & top-down



Sustainable Livelihoods

GBEP indicators + BEFS operator tool

Economic, social and environmental impact and sustainability

The image is a screenshot of the 'BEFS OPERATOR LEVEL FOOD SECURITY ASSESSMENT TOOL – VERSION TWO'. The interface includes a header with the BEFS logo and a brief description of the tool's purpose. Below this, there is a section for 'Operation overview' with input fields for Name, Size of operation (hectares), Bioenergy feedstock(s), and Country. There is also a section for 'Operation Coordinates' with input fields for Latitude and Longitude, and a map of the world for location selection. A link to a two-page overview of the tool is also visible.

LAND USE

Land Use: not yet, but in the future if scaling up without proper regulations?

LAND RIGHTS

Land tenure rights: inadequate legal framework around land occupancy and ownership. Risk of scaling up!

CHANGES IN INCOME

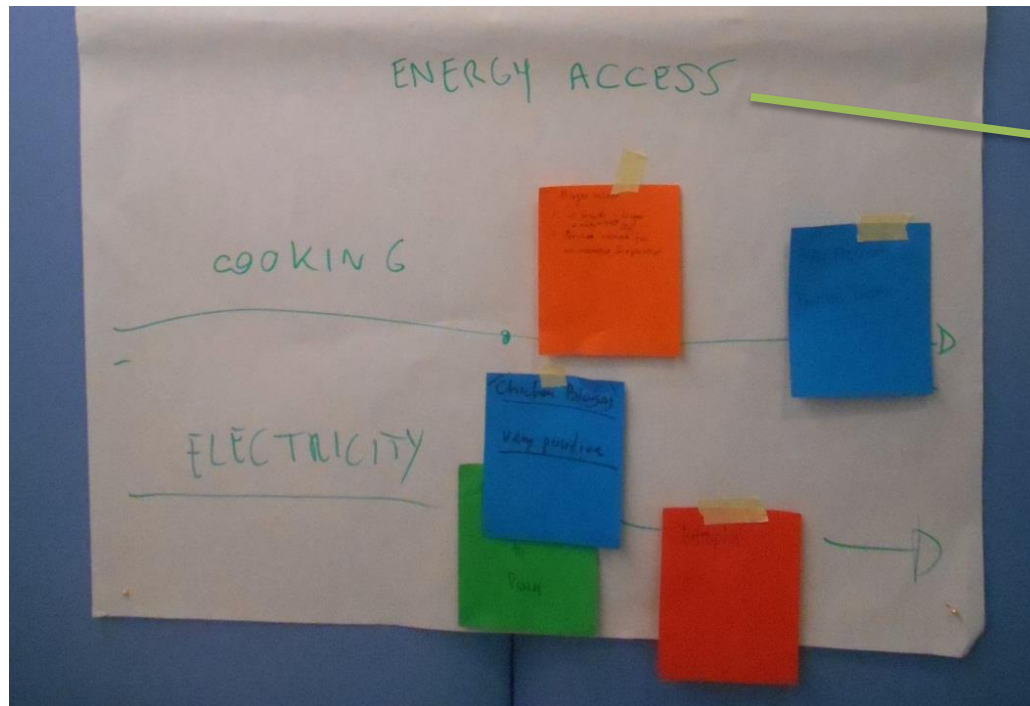


Changes in income: improved incomes and fuel cost savings + new income sources.

JOB5 & LABOUR



Jobs and labour: Direct and indirect employment, + labour conditions

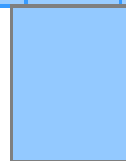


Energy access: + convenience, reliability, affordability and quality energy for end users (HHs and businesses)

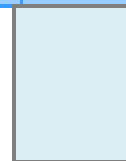
Food Security

	Cambodia - rice hull	Cambodia - Jatropha	Indonesia- biogas	Indonesia Lombok	Phil - mangrove	Phil - rice husk	Thai - biogas	China- biogas	Viet - biogas	Thai - Jatropha
Availability										
Access										

Key:



Positive
impact



No impact

How to identify the tipping point when small-scale initiatives replicate and scale-up to become unsustainable?



Impact of small-scale bioenergy initiatives

- Natural resource efficiency
- Benefits along the market chains
- Value of waste products
- New businesses
- Energy services have their own impact on socioeconomic development
- Increased affordability of food products



Lessons for scaling up

- Systemic approach
- Collaboration
- Long-term planning and business model development
- Contextual differences for sustainability
- Financial support + Economic viability
- Awareness-raising + demand-creating
- Synergies energy/agriculture
- Knowledge exchange
- Link to global initiatives



Recommendations for further work

- Country-level needs assessments
- Country-level bioenergy market system assessments
- Detailed economic analysis of initiatives
- National policy and regulation assessments
- Development of appropriate finance schemes
- National awareness-raising programmes
- Technical assistance and R&D support
- Regional policy-makers knowledge exchange





Thank you!

Mattia.vianello@practicalaction.org.uk

<http://practicalaction.org/consulting-uk>

