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Global Alliance for Clean Cookstoves

Timor-Leste Market Assessment

Intervention Options

Introduction

- This Market Assessment was conducted by Accenture Development Partnerships (ADP), the not-for-profit arm of the global management consultancy, Accenture, on behalf of the Global Alliance for Clean Cookstoves (the Alliance).
- It is intended to provide a high level snapshot of the sector that can then be used in conjunction with a number of research papers, consumer surveys and other sources (most published on the Alliance's website) to enhance sector market understanding and help the Alliance decide which countries and regions to prioritize.
- It is one of sixteen such assessments completed by the Alliance to:
 - Enhance sector market intelligence and knowledge.; and
 - Contribute to a process leading to the Alliance deciding which regions/countries it will prioritize.
- Full slate of market assessments include studies in: Bangladesh, Brazil, Colombia, East Timor, Ethiopia, Ghana, Indonesia, Kenya, Mexico, Nigeria, Peru, Rwanda, South Africa, Tanzania, Uganda and Vietnam.
- Each assessment has two parts:
 - Sector Mapping – an objective mapping of the sector.
 - Intervention Options – suggestions for removing the many barriers that currently prevent the creation of a thriving market for clean cooking solutions.
- In each Alliance study a combination of ADP and local consultants spent 4-6 weeks in country conducting a combination of primary (in-depth interviews) and secondary research. They used the same Market Assessment 'Toolkit' for each country so that comparisons can be made. The Toolkit is available free of charge to all organizations wishing to use it in other countries.
- **The Alliance wishes to acknowledge the generous support of the following donors for the market assessments: Barr Foundation, Dow Corning Corporation, Shell Corporation, Shell Foundation, and the governments of Canada, Finland, and Spain.**

This market assessment was produced by Accenture Development Partnerships (ADP) on behalf of the Alliance. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of the Global Alliance for Clean Cookstoves or its partners. The Alliance does not guarantee the accuracy of the data.

Content

Executive Summary

Sector Mapping

Intervention Options

Operational Plan

- In Timor-Leste, indoor air pollution is caused by burning firewood for cooking, lighting, heating, drying, insect repellent, and traditional practices
 - 95% of households use firewood for cooking, 83% households cook over open fire and 95% households cook indoors – either at home or in a separate building

➤ ***Implication: A clean cookstove may not be enough to reduce IAP exposure, the solution design should be holistic to address uses of fire and smoke beyond cooking***

IAP awareness among local people is low – a strong cultural attachment to smoke causes skepticism about the dangers of smoke

➤ ***Implication: A cookstove program should include an awareness program on the dangers of smoke and on the health, economic and ecological benefits from clean cookstoves and fuels***

Timor-Leste Government has included energy efficient cookstoves in Strategic Development Plan (2011-2030) as a means to reduce dependence on biomass; however it does not have a specific plan yet

- Related Government programs in health and energy provide maternal and child healthcare, electrification and renewable energy solutions in urban and rural areas
 - ***Implication: Government may support an initiative that aligns with its targets, integrates with existing programs and does not over extend limited government resources***
- SISCa, the government healthcare program and other NGOs such as the Red Cross (CVTL) and Alola have been successful in creating efficient channels to reach people
 - ***Implication: While not directly focused on clean cooking initiative, several organizations provide critical support to a cookstove program through their awareness and education programs, and outreach network***

- Several local and international NGOs (e.g. Haburas, MercyCorps, WFP, UNICEF) have either launched pilots or starting cookstove programs in 2011; however the path from pilot programs to a scalable and sustainable industry is unclear
- ***Implication: There is momentum in the market, independent projects would benefit from coordination to align goals and strategy to share lessons and avoid duplication of effort***

- Customer needs from cooking device and access to technology vary across income groups and urban vs. rural areas
- ***Implication: Consumer segments need to be understood in depth and solutions should be tailored for each segment needs and access to technology***

- In urban areas, firewood is more expensive than LPG or electricity; high upfront stove cost, limited access to fuel and safety concerns around LPG hinder increased adoption of modern fuels
- ***Implication: A clean cooking program should consider driving penetration of modern fuels in consumer segments where the cost of firewood is high enough to make an economic benefit case***

- Cookstove and fuel industry is immature - cookstove supply chain is practically non-existent except for production of basic clay stoves and import of metal electric and LPG stoves
- ***Implication: Developing a sustainable and scalable clean cooking industry is a long term effort and will require a commitment of 10-15 years***

- Timor-Leste could significantly benefit from Alliance support for the following reasons:
 - Several organizations, including Alliance partners, have clean cooking programs planned or recently launched
 - Opportunity to support cookstove programs through technical expertise and sharing of lessons learned (e.g. stove technology, commercial sustainability & scalability)
 - Timor-Leste Government needs support to help develop and implement its cookstove strategy and policies across Ministries
 - There is demand and momentum in the market created by Government's strategic plan and recent Accenture visit
- Alliance members can play a defining role by offering their expert capabilities in the creation of a locally owned cookstove industry in Timor-Leste

A comprehensive strategy has been created to develop a cookstove industry in Timor-Leste

- **Integration with Government Activities**

- Integrate cookstove program with the Government agenda on energy-efficient cookstoves
- Include cookstove programs in existing government programs in health and energy in order to facilitate shared awareness, marketing, resources, etc.

- **Coordination of Existing NGO and Humanitarian programs**

- Establish a coordinating body for cookstove and related NGO programs in Timor-Leste
- Define governance structure and facilitate knowledge sharing

- **Segmented Consumer Approach**

- Conduct consumer focus groups to understand segment needs and design solution based on needs
- Pilot solution, gather feedback and redesign iteratively to create a right-fit solution

A comprehensive strategy has been created to develop a cookstove industry in Timor-Leste (contd...)

- **Holistic Program and Solution Approach**

- Design an IAP awareness campaign that spans top-down messaging (Government, etc.) as well as bottom-up grassroots messaging (local NGOs, sucos)
- Create a holistic solution that addresses all sources of IAP
- Monitor IAP reduction, evaluate program performance, and redesign solution iteratively

- **Commercial and Private Sector Approach**

- Establish a commercial approach by creating cookstove demand and building private sector capacity to serve the cookstove demand beyond the donor funding cycle of pilot programs
- Create employment opportunities along the cookstove supply chain
- Establish a sustainable pricing or subsidy mechanism

- **Local Ownership Approach**

- Design program to have local ownership for success and sustainability
- Capacity building for local organizations in operational plan

Content

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Social Environment

Timor-Leste is a young country of 1 million people of which 75% lives in rural areas and more than 40% are illiterate



Fastest growth rate in SE Asia

Context

- Smallest country in South East Asia formed in 2002
- Gained independence from Indonesia in 2002 after a violent conflict
- Portuguese colony till 1975
- Australia and Indonesia are strategic partners
- Cuba, China and Korea provide capacity
- Languages spoken are Tetun, Portuguese, Bahasa Indonesia and regional dialects
- 90% population is Roman Catholic

Population Demographics

Measure	Timor-Leste
Total Population (2010)	1,066,582
Population Growth Rate (CAGR)	2.44%
Rural/Urban Split (%)	75% / 25%
Rural Population	800,000
Total Households	184,000
Rural Households	140,625
Average Household Size	5.8
Literacy – Total (%)	58.6%
Literacy – Female (%)	45%

- Implications -

While the country is small in terms of number of households, it is growing fast; early interventions will be more effective

Indoor Air Pollution in Timor-Leste

Appendix

High IAP exposure in Timor-Leste is caused by a wide-spread usage of firewood and rudimentary cooking devices inside closed structures

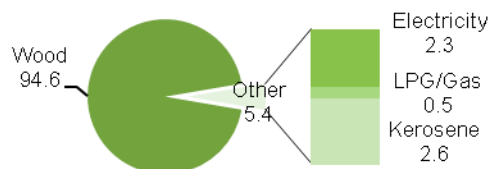
IAP Cause

Scenes

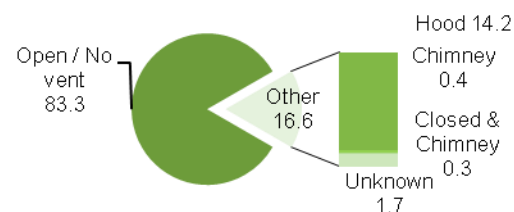
Usage (% HH)

IAP Effects

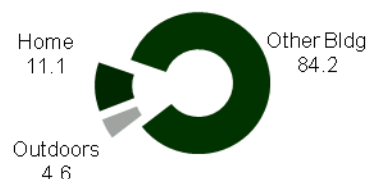
Cooking Fuel



Cooking Device



Housing Structure



Total HH = 184K

- IAP related annual mortality is estimated at 187 ALRI cases (children under 5) and 115 COPD cases (females 30+)*
- IAP related annual morbidity is estimated at 121K ALRI cases (children under 5) and 402 COPD cases (females 30+)*
- The World Bank estimates economic cost of IAP to be \$12.5M for Timor-Leste (1.4% of GNI)

- Implications -

There is an urgent need for clean cooking intervention to reduce IAP exposure as well as reduce the dependence on firewood as fuel

IAP Exposure from Other Habits

Cooking devices are not the only source of IAP, in rural homes a fire is kept burning for alternate use

Additional Use for Fire and Smoke

- Provide light
- Provide warmth
- Repel insects
- Dry and strengthen thatched roof
- Preserve grain stored in attic
- Keep new mothers and babies safe and warm
- Ward off evil



Smoke is used to preserve grain stored in attic above the cooking fire



Scene from the same house in a remote area where two fires are used



Additional fire used to create a smoky environment for health and spiritual reasons

- Implications -

A clean cookstove device may not be enough to reduce IAP exposure, the solution design should be holistic to address uses of fire and smoke beyond cooking

IAP Awareness

In a country faced with significant and widespread health issues ranging from malaria, severe malnutrition, and lack of clean water & sanitation facilities, there is very low awareness of the dangers of IAP

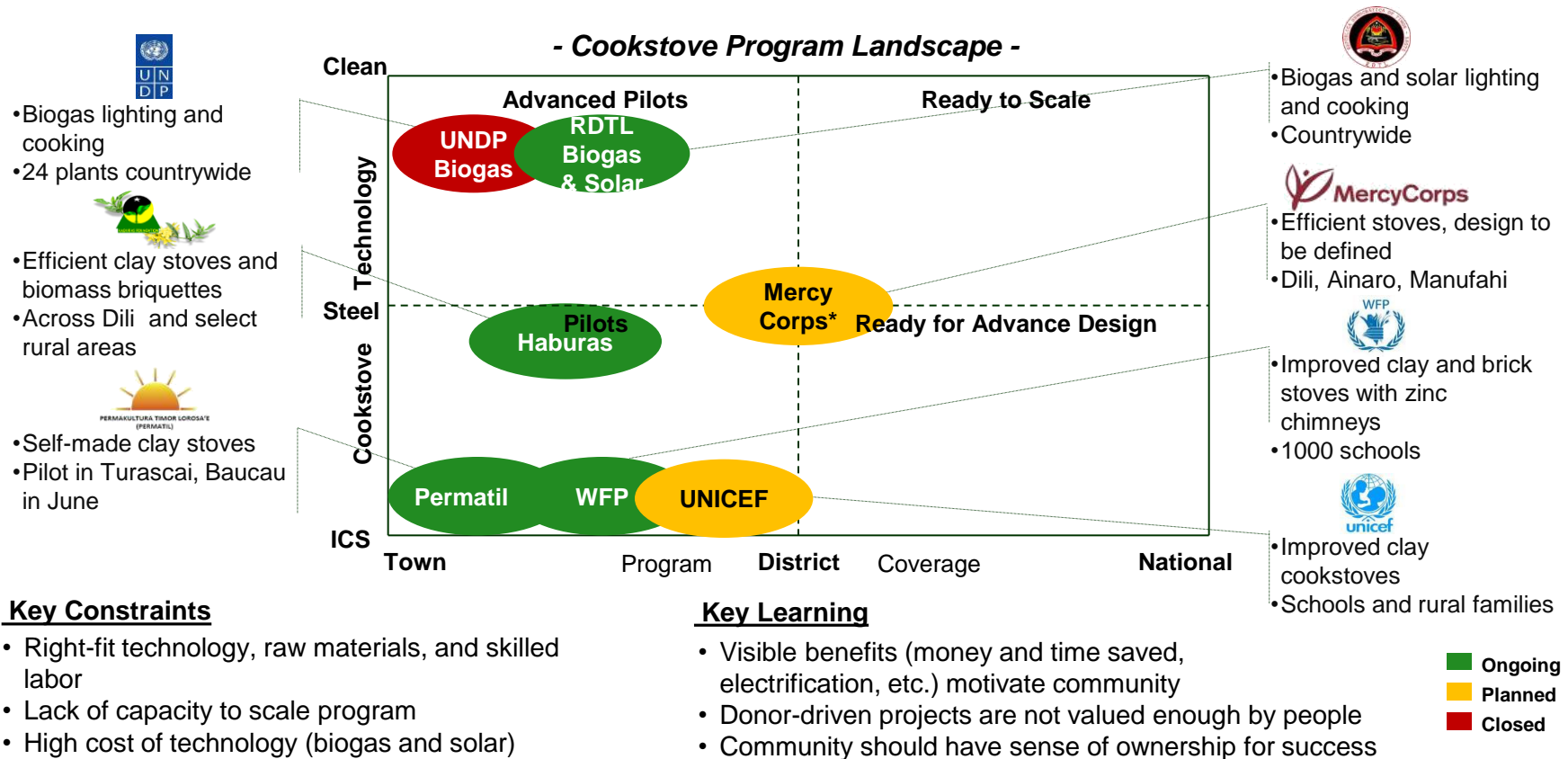
	<u>Awareness Level</u>	<u>Awareness Type</u>	<u>Comments from the Field</u>
Government	Moderate	<ul style="list-style-type: none"> Dept. of Environmental Health is aware of issue but has other priority issues 	<p>"Our health department staff does not consider indoor smoke to be a health problem"</p> <p>- Ivo Cornelio, Dept. Of Environmental Health</p>
NGOs	Moderate-Significant	<ul style="list-style-type: none"> Significant awareness among international NGOs Moderate awareness in local NGOs and Humanitarian organizations 	<p>"My grandmother lived for 100 years in a smoky environment, it is hard to make a case that smoke is bad."</p> <p>- Local NGO worker</p>
Humanitarian Sector	Moderate-Significant	<ul style="list-style-type: none"> Humanitarian organizations are concerned about the issue of IAP and would like to integrate stoves into existing programs 	<p>"We would like to link smokeless stoves to our community programs but need support."</p> <p>- Humanitarian agency, Program Lead</p>
Consumer	Minimal	<ul style="list-style-type: none"> Awareness limited to the urban rich Majority of population believes that smoke is beneficial 	<p>"Smoke is good – it keeps away mosquitoes and provides warmth, I have gotten used to burning eyes and it does not bother me"</p> <p>- Homeowner in remote area</p>

- Implications -

A clean cookstove and fuels program should include an awareness program on the dangers of smoke and around the health, economic, and ecological benefits from clean cooking solutions

Existing Cookstove Programs

Several organizations have started or are about to begin clean cooking fuel and cookstove projects, however the path from pilot programs to a scalable and sustainable industry is unclear



- Implications -

Ad-hoc projects may benefit from coordination to align goals and strategy or at the very least to facilitate learning and avoid duplication of effort

Government Programs

The government has included energy efficient cookstove in its Strategic Development Plan but has launched no specific program yet; however there are related programs in rural energy and, maternal and child health

**RDTL Strategic Development Plan
2011-2030 (DRAFT)
Section on Energy, Oil & Gas, and Mining**

- Target plan is to reduce the average amount of fuel-wood used for cooking in private households by introducing fuel substitution and supporting the use of energy-efficient cookstoves

Energy Programs

- Provide solar and biogas solutions for cooking and lighting in rural areas; program includes technology and training to install, operate and maintain systems
- Increase urban electrification

Rural Health Programs

- Provides health services to communities, with a focus on pre and antenatal care, and environmental health through SISCa program; IAP not identified as a health priority

Constraints

- The government lacks sufficient institutional and personnel capacity to undertake a wide range of tasks
- Projects face challenges during implementation phase

- Implications -

Government may support a cookstove initiative that aligns with its targets, integrates with existing programs and does not over extend limited government resources

Select Outreach Programs

Appendix

SISCa, the government healthcare program and some other NGO programs have been successful in creating efficient channels to reach people

SISCa



Focus

- Health outreach
- Mobile Clinics

- Health
- Safety

Women's empowerment

Coffee growers' cooperative

Partners

- Ministry of Health
- Issue specific partners such as The World Bank (Donor), Australian Government (capacity building)

- Cruz Vermelha de Timor-Leste (local Red Cross National Society)
- Strong relationship with the Church

- Non-profit operated by Prime Minister's wife
- Works closely with Govt. ministries

- Established with the help of USAID
- Transferred to Timorese people

Programs

- Provide health services to communities on a monthly basis
- Address issues such as 1) registration, 2) nutrition, 3) pre and antenatal care, 4) environmental health, 5) general consultations, and 6) monthly health topics

- Explored cookstoves and coffee husks for fuel as part of existing water sanitation program
- Employs network of volunteers
- Work in remote and marginalized areas

- Create economic opportunities for women handicrafts industry
- Improve maternal and child health ,e.g., breastfeeding promotion
- Implement education programs in rural areas
- Advocate for women's rights

- Offer Primary level health services to coffee farmers and their families
- Provide members with training in bookkeeping, management, English language, and computer skills
- Provide consumer goods at wholesale prices to small retail outlets in rural areas





































- Implications -

While not directly tied to a cookstove initiative, several organizations can provide critical support to a cookstove program through their awareness and education programs, and outreach network






Cookstove Consumer Segments

IAP exposure, requirements from cooking devices, barriers to adoption, and access to technology vary across regions and across income level

- Attractiveness for Cookstove Program -

Segment	Size	IAP Exposure	Income	Distribution Access	Cultural Barriers	Alt Uses of Fuelwood
Affluent						
Urban Middle-Class						
Urban Poor						
Rural Middle-Class						
Rural Poor						
Institutional						

Legend:

-  Very unattractive conditions
-  Unattractive conditions
-  Neutral conditions
-  Attractive conditions
-  Ideal conditions

IAP exposure is lower in urban and higher income groups, it is highest in the rural poor

Income and access to finance influences the type of technology that gets adopted

Access to clean fuels also drives adoption, rural regions have poor access to LPG and electricity

Cultural attachment to smoke and preference for smoky flavor is a barrier to adoption of efficient stoves in rural areas

Alternate use for smoke to repel insects and preserve roof and grain are barriers to adopt in rural areas

- Implications -

While not directly tied to a cookstove initiative, several organizations can provide critical support to a cookstove program through their awareness and education programs, and outreach network

Cookstove Industry Value Chain

Sector Mapping

The cookstove industry in Timor-Leste is immature with limited capabilities to import, produce, distribute, and retail cookstoves

	Manage Program				Raise Awareness			Provide & Support Stoves									
Key:	Coordinate Program	Provide Funding	Coordinate Project (Region)	Centralize Act. (Mktg, Ops, Fin)	Educate on IAP	Raise product awareness	Run promotional activities	Import & retail stoves	Design stoves	Train Stove Manufacturers	Supply materials to make stoves	Transport mat. to Manufacturer	Make stoves	Transport stove to customer	Install Stoves	Maintain Stoves	
UNDP, EU (Donor)		Full capability															
Moris Rasik, TRM (Micro Finance Institutions)		Partial capability															
Local Government (Regional Coordinating Org)			Partial capability		Basic capability or potential	Basic capability or potential	Basic capability or potential										
Dept. Of Environmental Health (Government)	Basic capability or potential				Basic capability or potential												
MercyCorps, UNDP (International Organisations)	Full capability		Full capability	Full capability	Basic capability or potential	Basic capability or potential			Partial capability	Partial capability							
Haburas, Permatil (Local NGOs)			Partial capability				Basic capability or potential		Basic capability or potential	Basic capability or potential							
Alola, CCT (Local NGOs)					Full capability	Full capability											
Startec, Solitech (Suppliers)											Basic capability or potential						
Bili Bala (Manufacturers)													Basic capability or potential				
Local Entrepreneurs (Import, Retail & Distribution)		Basic capability or potential						Partial capability				Basic capability or potential		Basic capability or potential			

- Non-existent cookstove supply chain – with small scale production of clay stoves and retail of imported metal stoves
- No end-to-end private sector engagement - limited participation in importing and retailing LPG or kerosene stoves; retail of cooking fuel in big cities

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- Implications -

Developing a sustainable and scalable clean cookstove and fuels industry is a long term effort and will require a commitment of 10-15 years

Value Proposition for the Alliance in Timor Leste

Timor Leste can serve as a pilot country for the Alliance as the country is ready to support a clean cooking initiative and several Alliance members already have programs planned or underway

- Opportunity to Capture Momentum in Market -

- ◆ **Need for energy-efficient cookstoves has been included in Strategic Development Plan by Government**
 - Opportunity to work with the Government and TL organisations for a locally owned solution
- ◆ **Positive momentum created by Accenture and Shell during country visit and stakeholder meetings**
 - Opportunity to maintain continuity and further strengthen stakeholder relationships

- Opportunity to Create a Cookstove Industry -

- ◆ **Non-existent industry and high need for international expertise in stove design and programs**
 - Opportunity to create industry from scratch
 - Opportunity for high impact by demonstrating high social outcome from a low base
- ◆ **Several cookstove programs in country that can benefit from coordination**
 - Opportunity to capture synergies between existing programs and avoid duplication of effort (e.g. solution design and testing)

- Opportunity to Pilot an Alliance Intervention -



















- ◆ **Several Alliance partners have active or are starting clean cooking programs (i.e. WFP, UNICEF)**
 - Opportunity for improved coordination between Alliance partners
- ◆ **Demonstrate the benefit of the Alliance as a facilitating and coordinating body and achieve a quick win**
 - Opportunity for Global Alliance to establish credibility and reputation in Timor-Leste
 - Planned Timor Leste country visit by Secretary Clinton in July 2011

Potential Intervention Actions

Sector Mapping

Taking into account the capabilities of various Alliance members a number of critical interventions can be offered which would greatly support the creation of a clean cooking industry in Timor-Leste

- Illustrative Alliance Service Offering -

Intervention Themes	Illustrative Alliance Members
Coordinate Programme	  
Provide Funding	 
Provide Technical Expertise	  
Train Stove Manufacturers	 
Make Stoves	
Run Awareness Activities	   
Educate on IAP	  

The Case for Action Now

An immediate window of opportunity has been created with a number of impending cookstove programs in need of coordination and expertise

- Current Program Window: The Case for Immediate Coordination -

What's Happening?

Several IAP & cookstove programs are receiving funding or launching in Q2/Q3 2011

So What?

Need to act fast to participate in current momentum

Why Now?

Inaction can result in redundant studies and no coordination

- ◆ Duplication of efforts
- ◆ Risk of not benefiting from global learning
- ◆ Alliance reputation

Current Siloed Program Plans

MercyCorps – Launching May 2011, Independent Study Conducted, Beginning Independent Design Studies

World Food Program – Funding Received, Pilots Underway

World Vision – Funding Received, Beginning Independent Design Studies

Trócaire – Funding Received, Beginning Independent Design Studies with Haburas

UNICEF – Funding Pending, Concept Developed, RFP for implementation imminent

Ministry of Energy – Electrification Campaign and Pilot of Various Rural Energy Solutions

Content

Executive Summary

Sector Mapping

Intervention Options

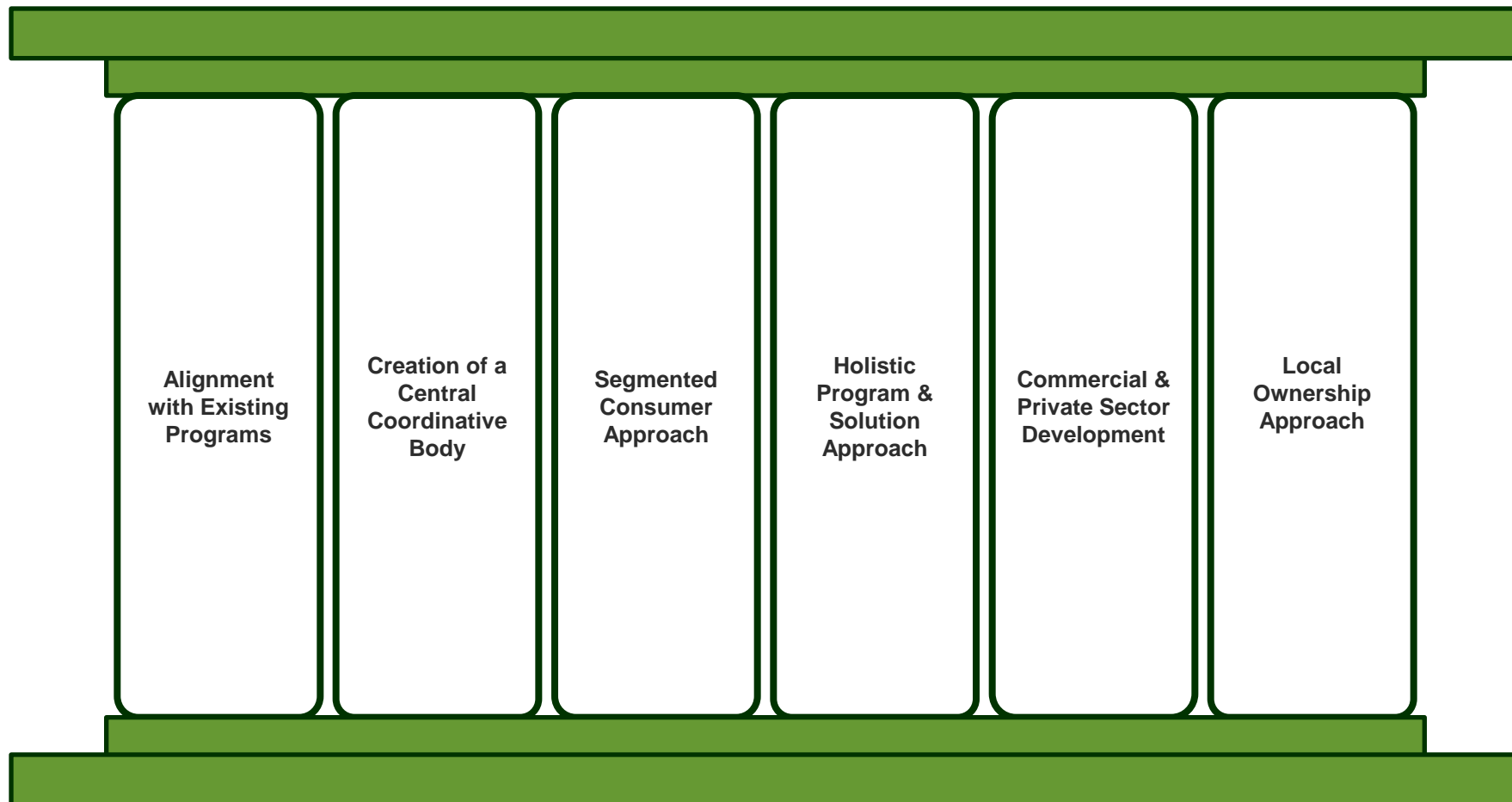
Operational Plan

Intervention Options

– The 6 Foundational Pillars

Intervention Options

Careful consideration of the sector mapping outcomes have led to a comprehensive set of foundational strategy recommendations

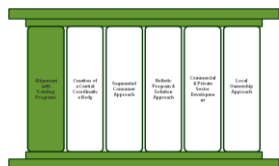


I. Alignment with Existing Programs

Intervention Options

Careful consideration of the sector mapping outcomes has led to a comprehensive set of strategy recommendations

- The Case for Action -



Alignment with Existing Programs

- Energy efficient cookstove adoption is explicitly included in Strategic Development Plan (2011-2030)
- The cookstove program should be inclusive of and integrated with government activities to obtain maximum support while placing minimal strain on government resources
- Awareness and marketing activities should be paired with government and NGO programs in related areas such as health, deforestation and energy

- Recommended Actions -

Establish relationship with and continue to engage key government and NGO stakeholders.
Suggested Government Departments: Dept. of Environmental Health in the Ministry of Health,
Dept. of Rural Energy Policy in Ministry of Energy

Conduct cross-Ministry & NGO workshop on how to integrate IAP and cookstove program with related programs and initiatives

- Potential Alliance Players -

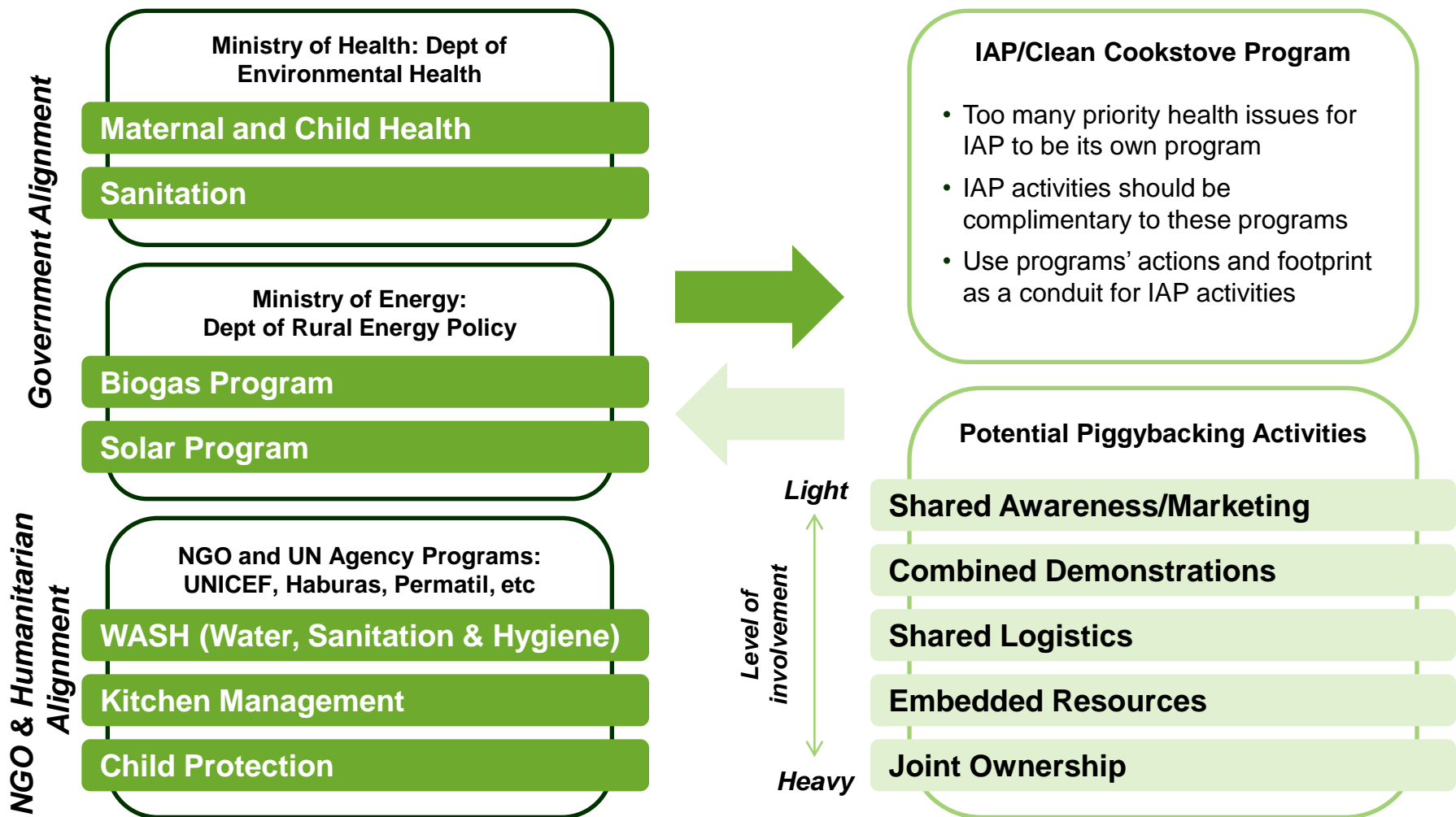


- Potential Field Partners -

Ministry of Health, Dept. of Environmental Health
Ministry of Energy, Dept. of Rural Energy Policy
CVTL, Alola

I. Alignment with Existing Programs

Efforts should be made to leverage existing programs and campaigns rather than create an isolated clean cookstove cause, facilitating shared resourcing and a holistic approach

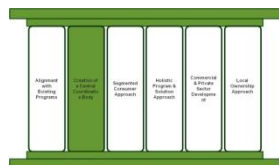


II. Creation of a Central Coordinative Body

Intervention Options

With a number of Government and NGO cookstove programs being funded and beginning pilot stages, the environment is ripe for a coordinating body to help support and centralize efforts and resources

- The Case for Action -



**Creation of a
Central
Coordinative Body**

- A number of NGOs have received funding and begun or completed studies on clean cookstove solutions with pending program pilots
- These programs are operating independently, lack coordination, are not sharing lessons
- These programs could benefit from past global learning on building effective and successful cookstove programs
- Not acting risks redundant studies being run in parallel with no coordination – timing will be key to avoid wasted funding and duplication of efforts

- Recommended Actions -

Bring together existing program participants into a forum to share cookstove program plans, progress, and timelines

Agree on governance and operating structure for cross-program coordination (e.g. Loose forum, working group, central command entity)

Set up central operating body and knowledge sharing system to coordinate programs and share lessons

- Potential Alliance Players -



- Potential Field Partners -

MercyCorps, UNICEF, Trócaire, Haburas, Permatil, Hasatil, Fongtil

II. Current Programs and Needed Interventions

Intervention Options

These cookstove programs are in need of coordination, technical expertise, deeper understanding of consumer needs, and integration with parallel efforts in both government and other NGOs

- Current Program Progress and Needs -

MercyCorps – Funding received for 3 yr pilot; study completed; Pilot launching Q2 2011

- ◆ Need technical expertise – considering Aprovecho
- ◆ Would like support coordinating with other programs

World Food Program – Funding Received, Pilots Underway

- ◆ Lack internal resource capacity, technical expertise, internal coordinative body

World Vision – Grant Received, Technical Expert Identified, Developing Detailed Plan

- ◆ Need coordination with other cookstove programs
- ◆ Would benefit from lessons learned in previous programs

Trócaire – Funding Received, Beginning Independent Design Studies

- ◆ Need additional technical expertise – working with Haburas currently

UNICEF – Funding Pending, Concept Developed, RFP for Implementation Imminent

- ◆ Need technical expertise to design clean cookstove
- ◆ Need coordination with awareness programs

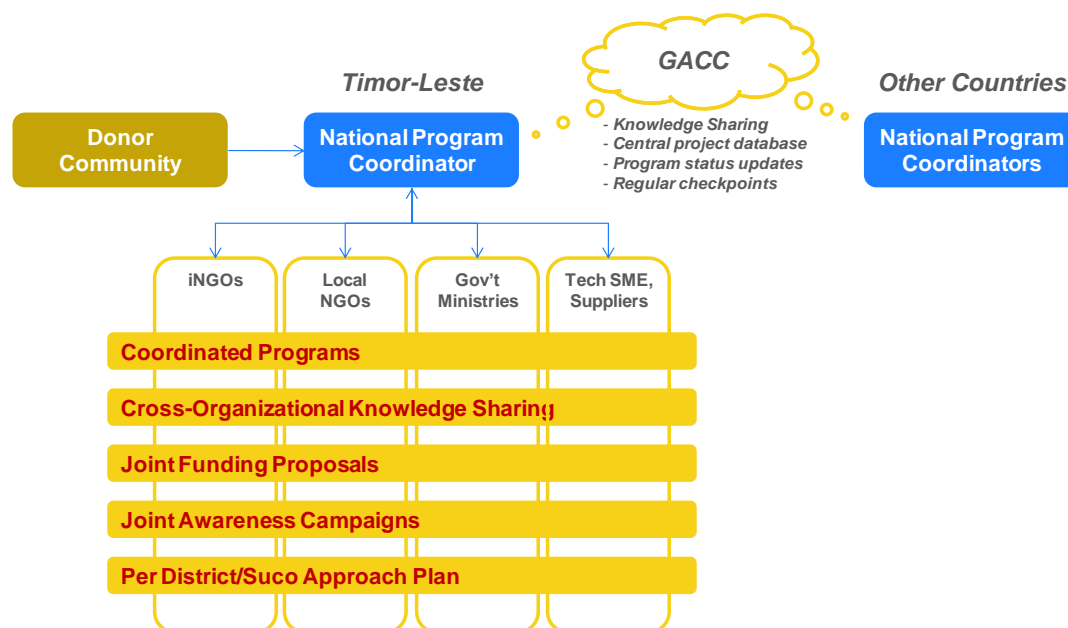
Ministry of Energy – Electrification Campaign and Pilot of Various Rural Energy Solutions

- ◆ Lack capacity, resources and funding continuity
- ◆ Need means to lower cost of technology and achieve economies of scale

II. Program Governance and GACC Support

Intervention Options

While any level of increased collaboration would be beneficial, a Timorese national program coordinator supported by the Alliance would provide the maximum level of benefit and impact



The national program coordinator would maximize funding, resources, and experience by pooling funds, aligning with existing programs, and eliminating redundant effort while the GACC could potentially support program coordinators globally by serving as a cross-program forum for cookstove activities

Advantages

- Global pooling of information
- Centralised program coordination
- Geographic approach plan
- Joint awareness campaigns
- Joint funding proposals

Potential Disadvantages

- Loss of control for individual agencies
- Consensus required for action
- Reduced agility

III. Segmented Consumer Approach

Intervention Options

The design of appropriate solutions should be accomplished by segmenting consumers by logical and relevant dimensions, followed by deep understanding of each segment's needs through focus groups

- The Case for Action -

- Current efforts to design cookstove solutions have stalled as insufficient emphasis has been placed on fully understanding the differences between consumers and their respective needs
- Solutions have been piloted on a trial-and-error basis with little capture of iterative learning and limited understanding of underlying consumer segment needs
- Limited effort has been put into understanding specific requirements by the primary user (i.e. women) and relevant segment cooking habits

- Recommended Actions -

Conduct consumer focus groups to gain deep understanding of appropriate segmentation pattern and solution requirements

Translate observations and results into detailed requirements to be translated into design of solutions

Practice continuous improvement – piloting projects, capturing feedback, and readjusting to both refine the solutions and adapt to changing needs

- Potential Alliance Players -



- Potential Field Partners -

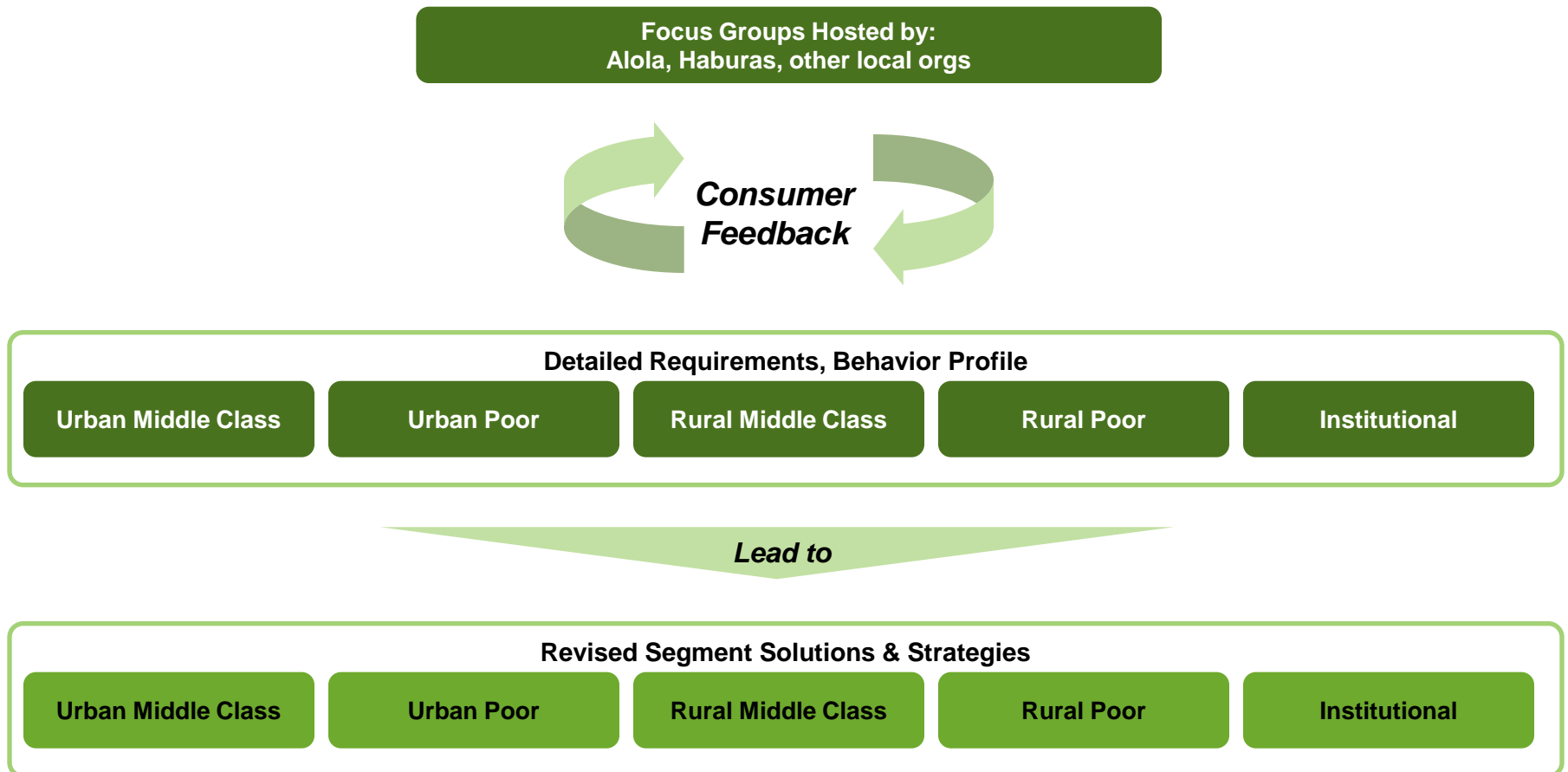
Alola, Haburas, Women's Network, UNWomen, CVTL, Ministry of Equality



III. Consumer Focus Groups

Intervention Options

Focus groups should be held for each target segment in the strategy, capturing consumer feedback which then could be fed into product redesign and continuously re-tested



III. Consumer Segment Strategies

Intervention Options

From early observations, a number of initial hypotheses have been created regarding potential solutions & interventions for each segment

Initial Segment Strategies

Urban Middle Class

Urban Poor

Rural Middle Class

Rural Poor

Institutional

- Segment Strategies: Initial Hypotheses -

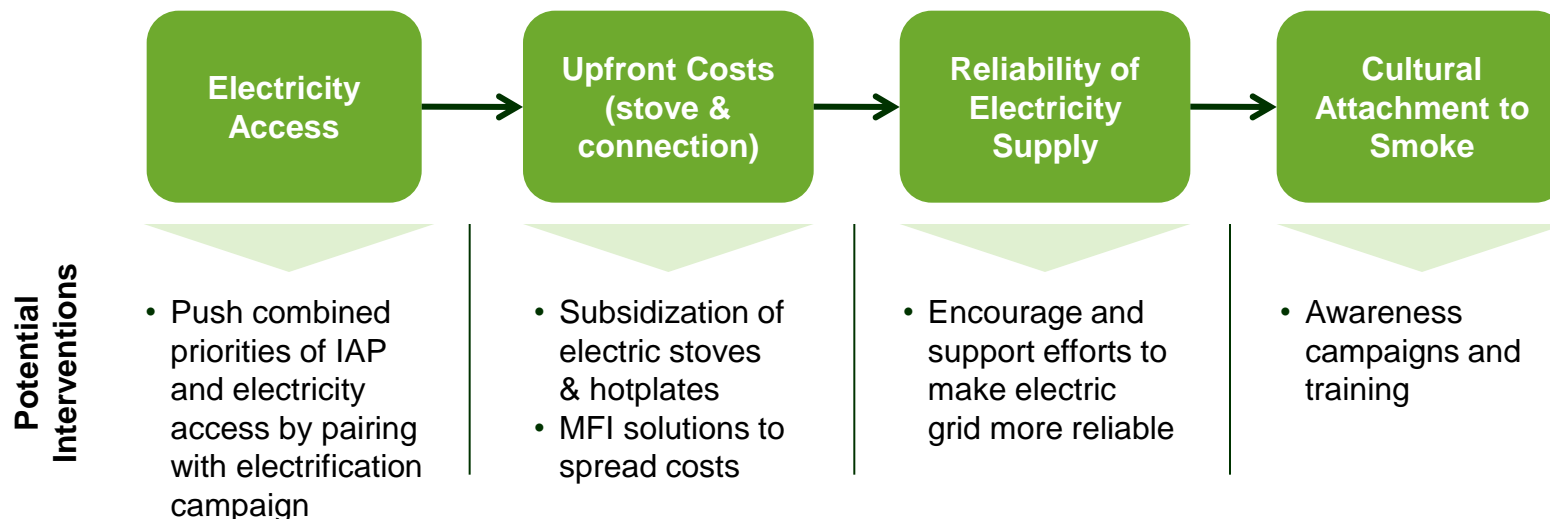
Segment	Initial Recommendations
Affluent	No intervention recommended
Urban Middle Class	Attempt to move higher-income consumers to LPG and electric solutions, target lower-income or peri-urban non-electrified with high-tech ICS solutions
Urban Poor	Pair electric stoves with electrification campaign targeting urban populations and introduce low-tech ICS solutions for lowest income levels or those more attached to wood smoke
Rural Middle Class	Target segment with high-tech ICS solutions which do not require LPG access or electrification. Target electrified homes with electric stoves (subject to regional power reliability)
Rural Poor	Pilot low-tech ICS solutions in areas with significant deforestation or reduced access to fuelwood
Institutional	Mandate high-visibility usage of LPG, electric, and high-tech ICS solutions in institutions with paired awareness and demonstration campaigns to promote solutions and health awareness

III. Understanding Barriers for LPG & Electricity

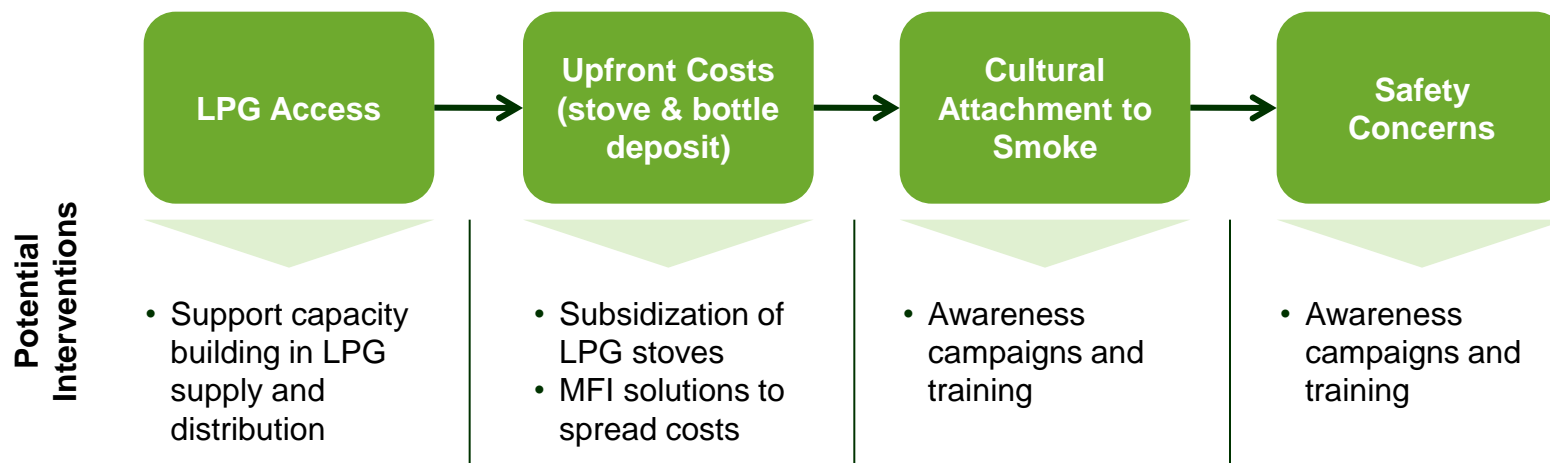
Intervention Options

Given the compelling economic argument for urban households that purchase firewood to switch to LPG or electric solutions, further study must be done to understand what is preventing uptake

- Potential Barriers for Electricity -



- Potential Barriers for LPG -

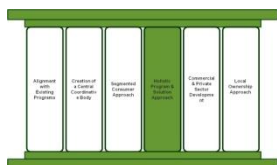


IV. Holistic Program & Solution Approach

Intervention Options

Solutions and awareness campaigns should be designed with the objective of IAP reduction and take into account complicating factors such as alternative uses of smoke and cultural barriers

- The Case for Action -



Holistic Program & Solution Approach

- A multitude of alternative uses for wood fires and smoke complicate efforts to solve IAP through cookstoves alone
- Efforts should be made to provide holistic IAP solutions which address these issues comprehensively – otherwise stoves may not achieve IAP reduction benefits
- Additionally, awareness efforts should not be limited to one facet of the value proposition (e.g. health) but instead span all benefits (e.g. health, financial, environmental, etc)

- Recommended Actions -

In design workshops, focus segment solutions on addressing all necessary IAP factors such as interest in alternative uses of smoke

Create a rigorous solution monitoring plan which evaluates actual IAP reductions against anticipated benefits and develop on design/solution accordingly

- Potential Alliance Players -



- Potential Field Partners -

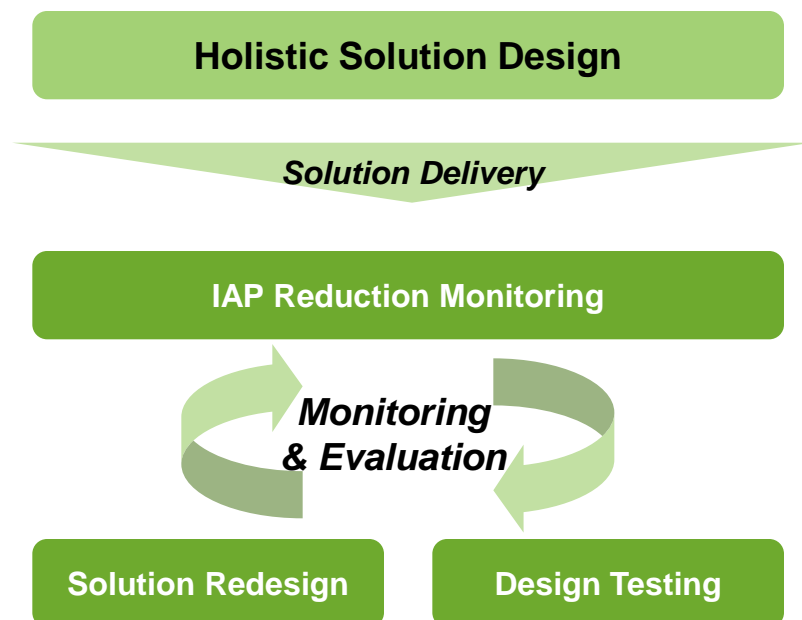
Haburas, Alola, Permatil, CVTL, Ministries of Health, Energy, Equality, Environment, Energy

IV. Solution Iteration and Holistic Awareness

Intervention Options

By creating solutions which holistically address the sources of IAP and iterating via a rigorous monitoring plan, the program can course-correct as required and achieve lasting IAP benefits

- Iterative Solution Design Process -



- Holistic Awareness Approach -

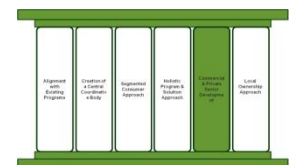


V. Commercial and Private Sector Approach

Intervention Options

Solutions should seek to establish a commercial approach as early as possible by growing demand, establishing a sustainable pricing/subsidization strategy, and building private sector capacity to support the ongoing supply and maintenance of cookstoves following the initial pilots

- The Case for Action -



Commercial Approach & Private Sector Development

- Past programs which have not leveraged a commercial approach often failed following program completion as beneficiaries revert to traditional cooking methods once their pilot stove breaks and replacement stoves or maintenance services are unavailable
- A commercial approach creates employment opportunities, encourages entrepreneurship, builds private sector capacity, and encourages local ownership and long-term sustainability
- Cookstoves should be a complimentary additional product to ensure sustainability

- Recommended Actions -

Create business cases to inform selection of clean solutions and sourcing models

Create social benefits case for government, investors, and private sector partners

Engage private sector players through local private sector partners and investors (e.g. Peace Dividend Trust, local investors, local manufacturers, etc)

- Potential Alliance Players -



SHELL
FOUNDATION



World Bank

giz

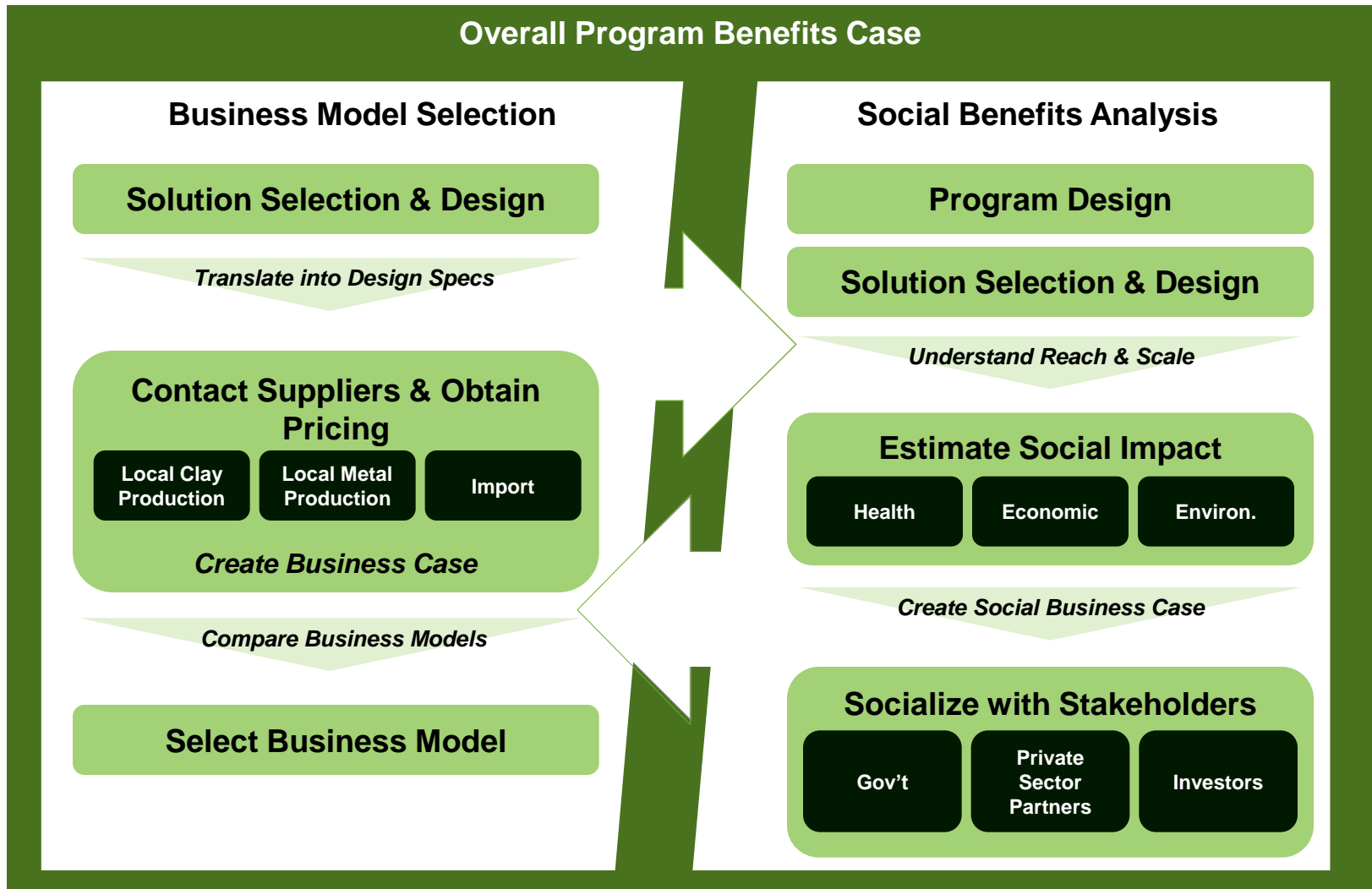
- Potential Field Partners -

**Peace Dividend Trust, Haburas, Bili Bala, BCD
Baucau, Local investors**

V. Private Sector Next Steps

Intervention Options

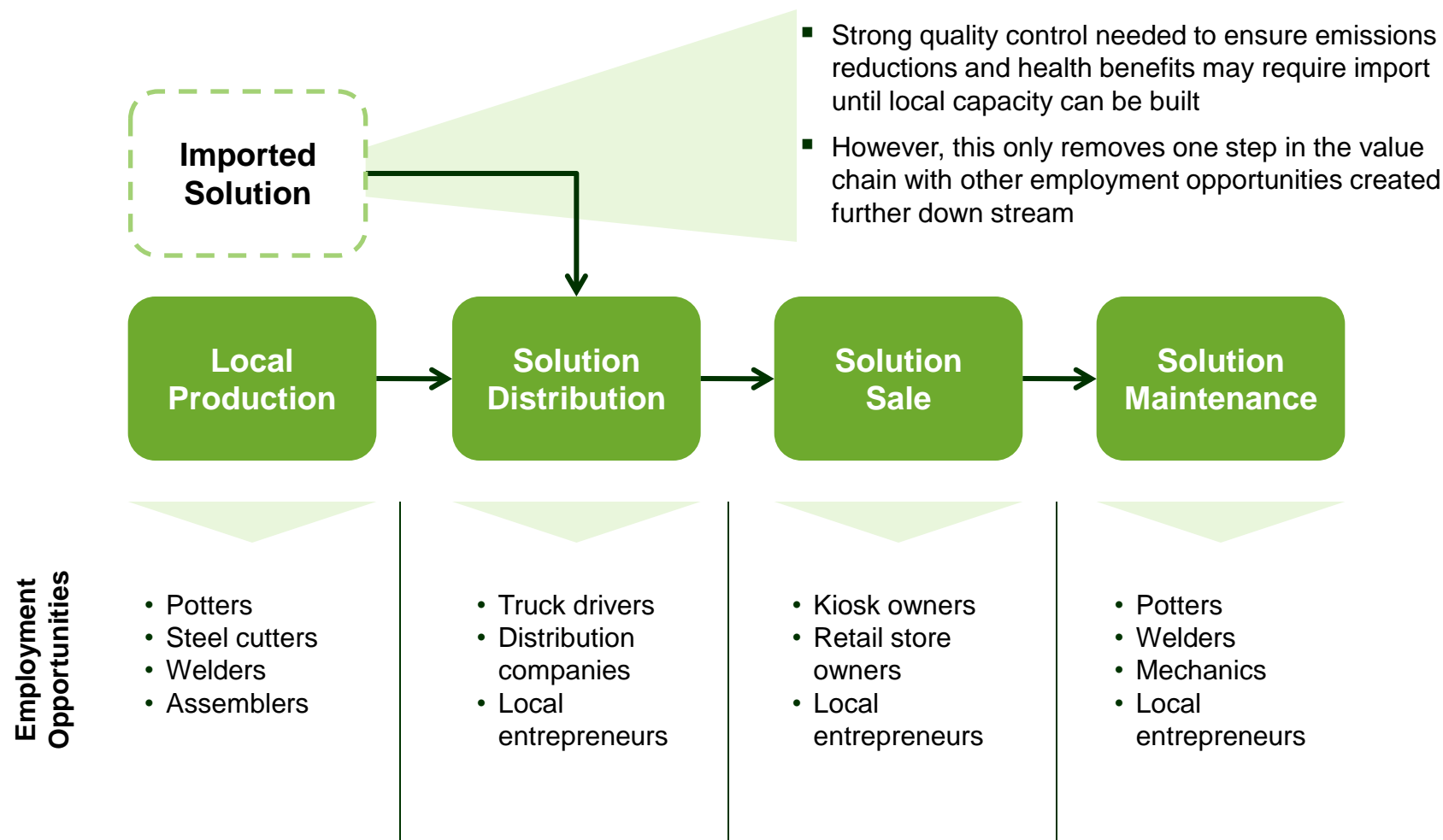
While the solution business cases will be used to select the appropriate build/buy business model, the social benefits case will be key to obtaining buy-in from local government, investors, and partners



V. Employment Creation Opportunities

Intervention Options

Whether the solution is manufactured in-country or imported, there will be significant employment creation along each step of the value chain – a point that should be emphasized with stakeholders

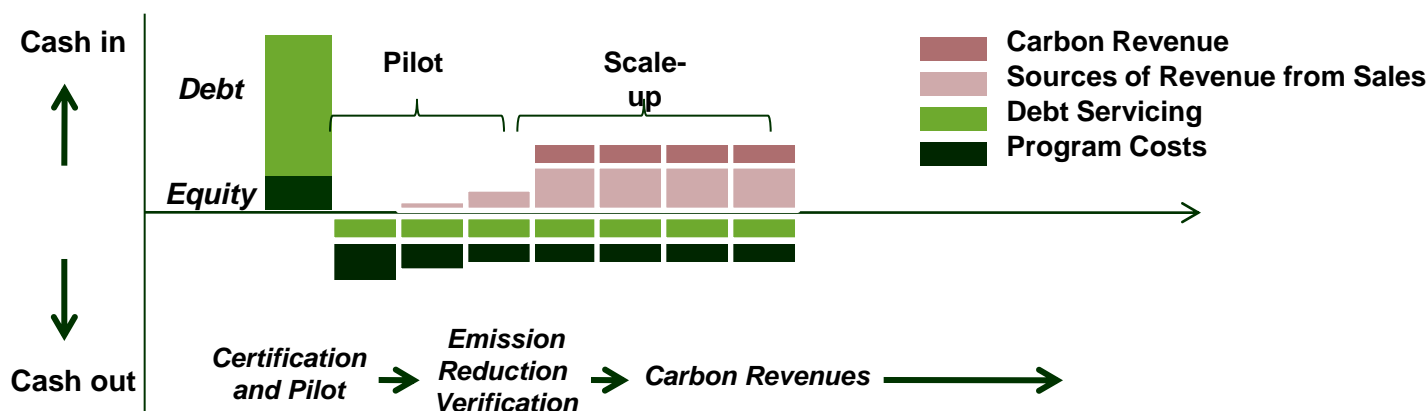


V. Carbon Finance in Support of Commercialization

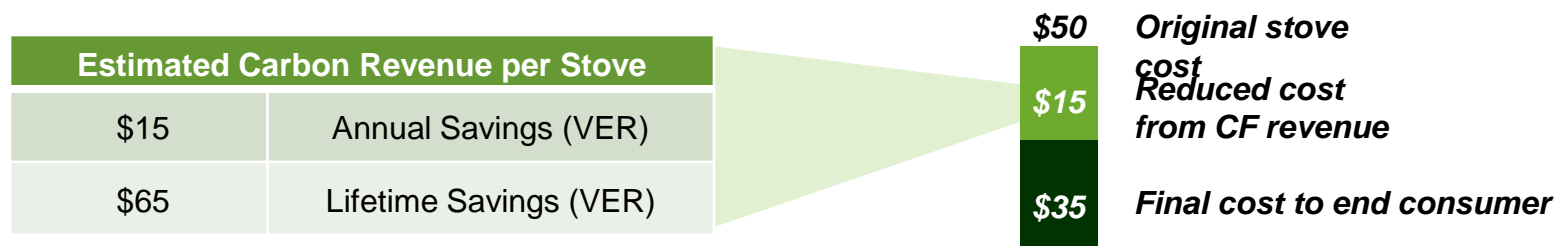
Intervention Options

To support the commercial sustainability of the program, carbon financing can be leveraged to both reduce the upfront expense to consumers and help cover ongoing program costs

- Carbon Finance in Support of Ongoing Program Costs -



- Carbon Finance in Support of Commercially Sustainable Pricing Strategy -

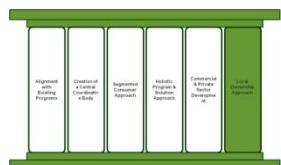


VI. Local Ownership Approach

Intervention Options

Timorese ownership is critical for success and cookstove and fuels programs should include local capacity building for Timorese leadership in critical activities

- The Case for Action -



**Phased Ownership
& Handover Plan**

- Timorese officials are aware of the issue and eager to act for the benefit of the population, but lack the know-how and capacity to implement
- A strong sense of nationalism in Timorese people influences their acceptance of any program or solution
- Any program which does not have a clear ownership plan for Timor-Leste will receive limited support by both government and local organizations

- Recommended Actions -

Work with local stakeholder to assess their abilities and capacities, and together draft program that will have local leadership

Create clear plan to provide the targeted capacity-building support required to help local stakeholders achieve their goals

- Potential Alliance Players -

All



- Potential Field Partners -

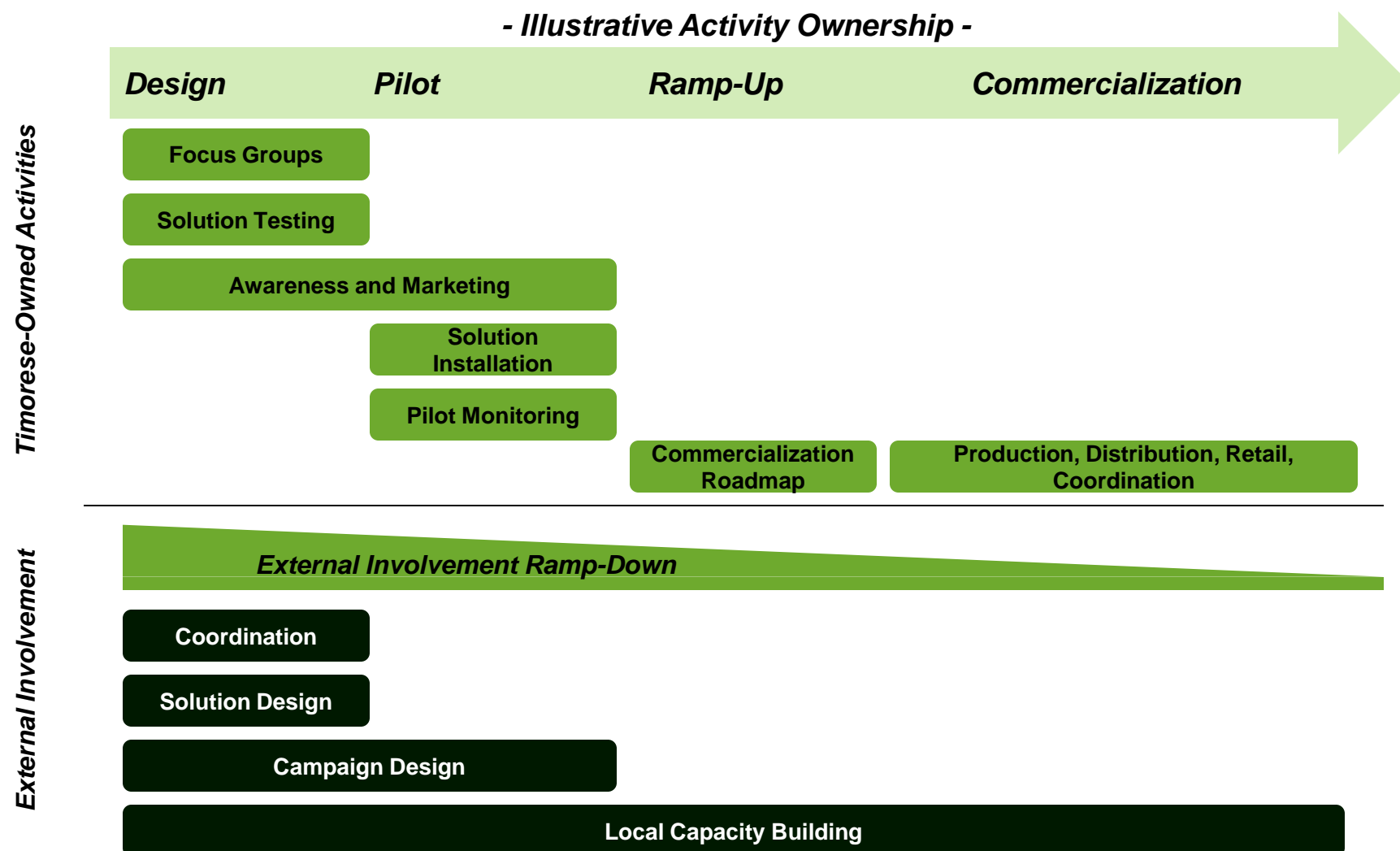
All



VI. Activity Ownership

Intervention Options

While implementation will be done by the local NGOs, the coordinating body will provide support and expertise as required



Content

Executive Summary

Sector Mapping

Intervention Options

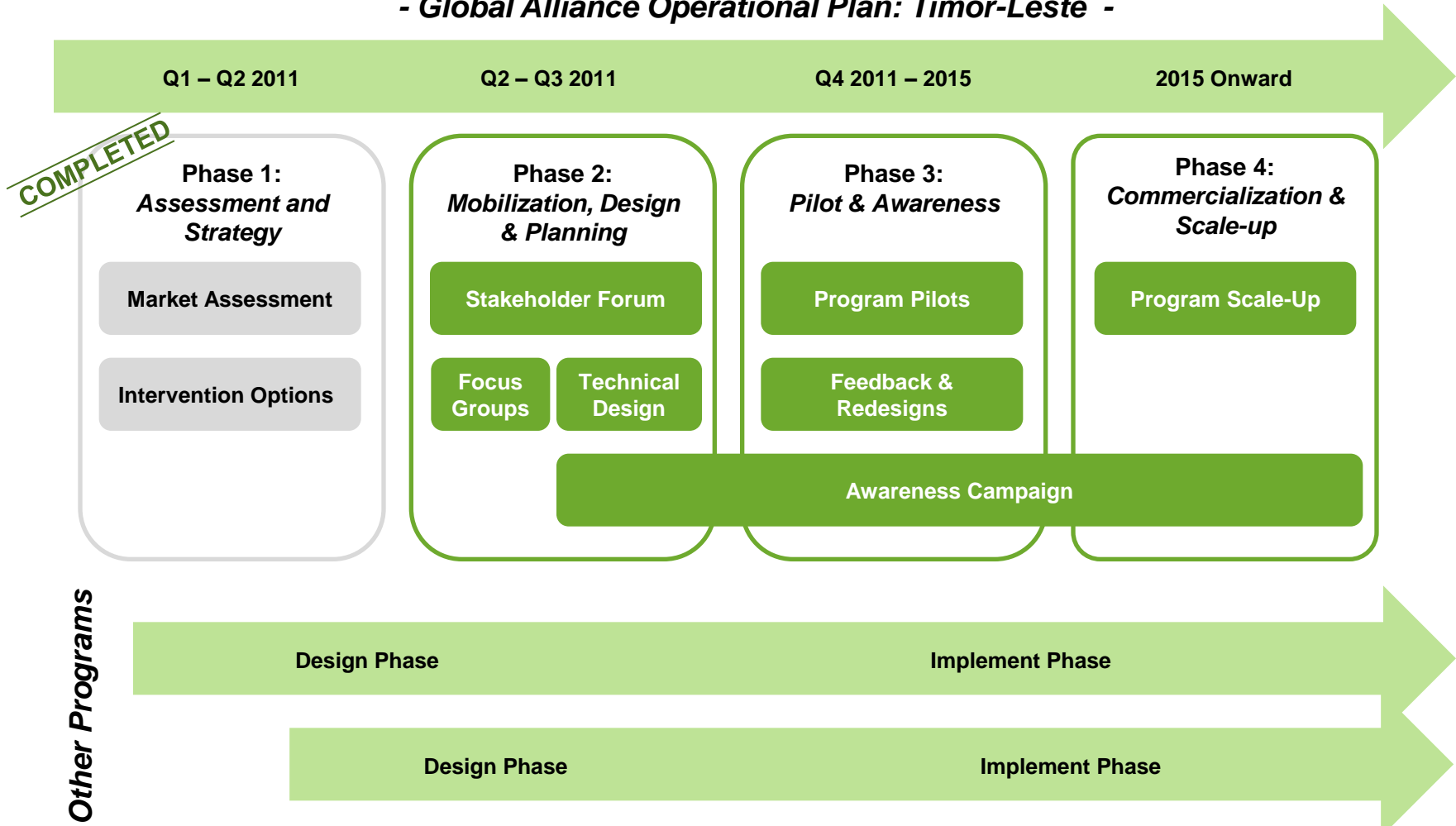
Operational Plan

Operational Plan- Overview

Operational Plan

The high level milestones of the overall initiative should ideally match with existing program design and implement phases, the details of which should be coordinated in Phase 1

- Global Alliance Operational Plan: Timor-Leste -

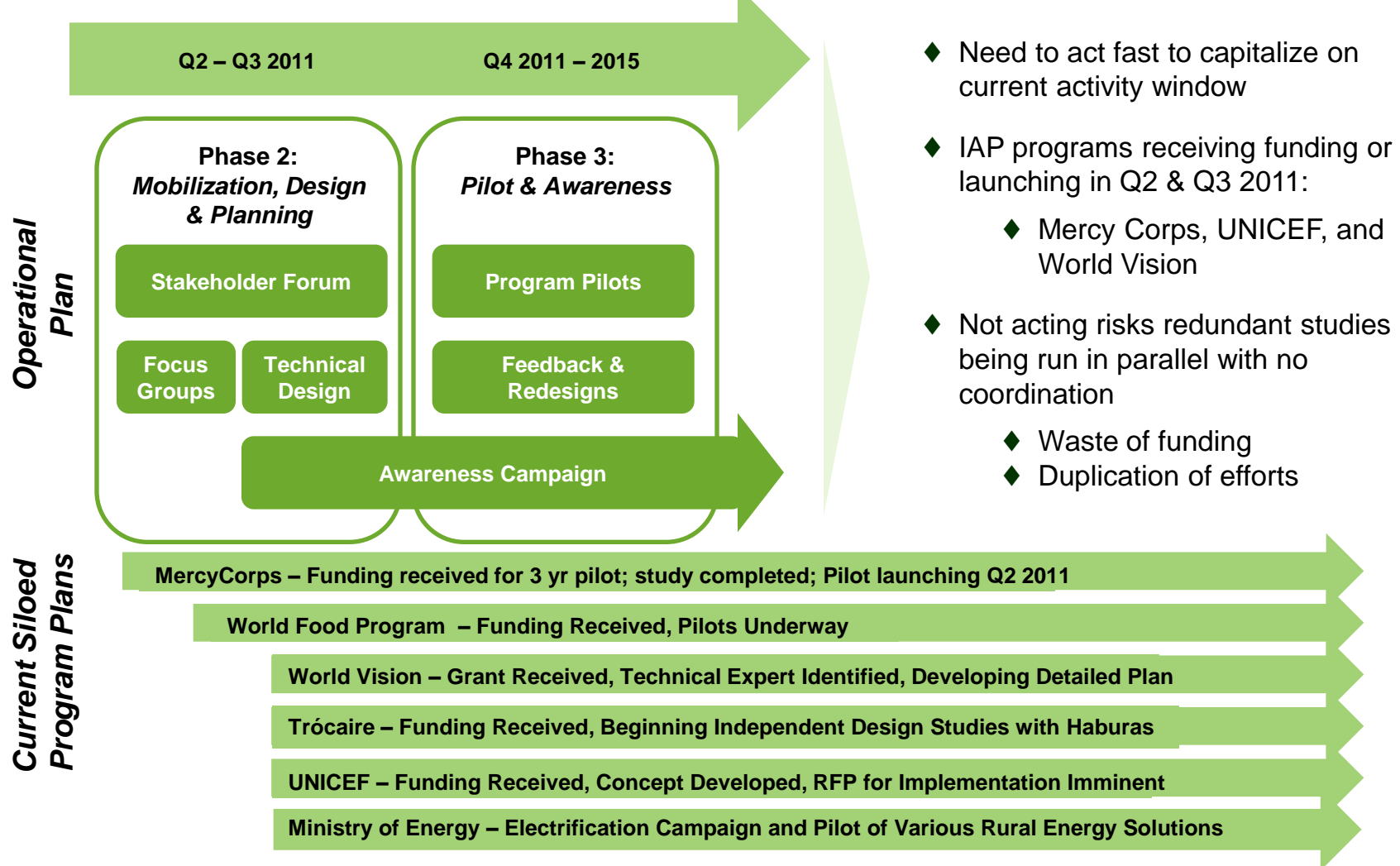


Operational Plan – Next Steps

Operational Plan

There is immediate need to align activities with local programs in order to avoid wasted effort and funding

- The Case for Coordination -

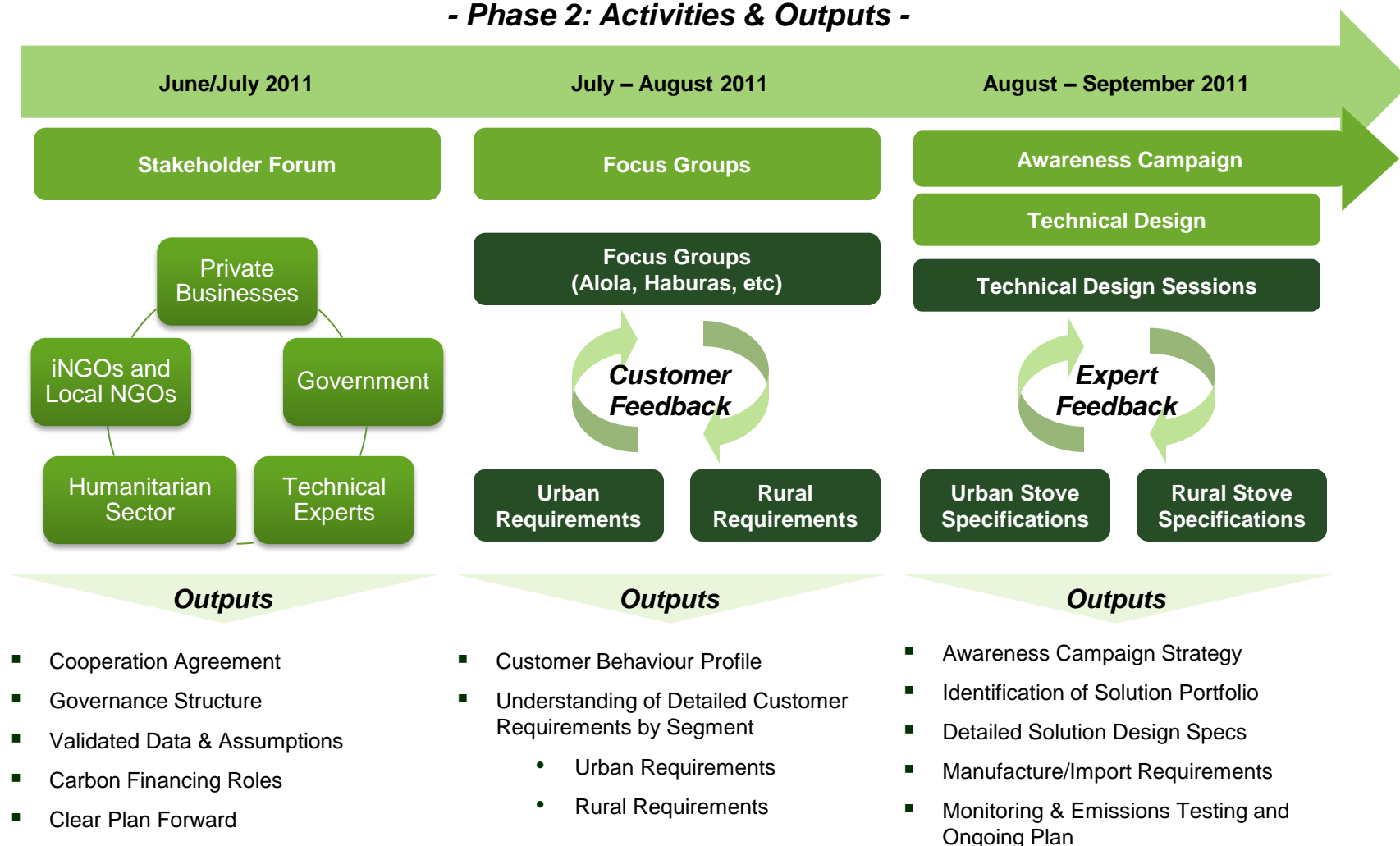


Operational Plan – Phase 2

Operational Plan

The objective of Phase 2 is to obtain key stakeholder agreement on roles and a high-level plan forward, to understand customer requirements, and to design the appropriate suite of solutions

- Phase 2: Activities & Outputs -

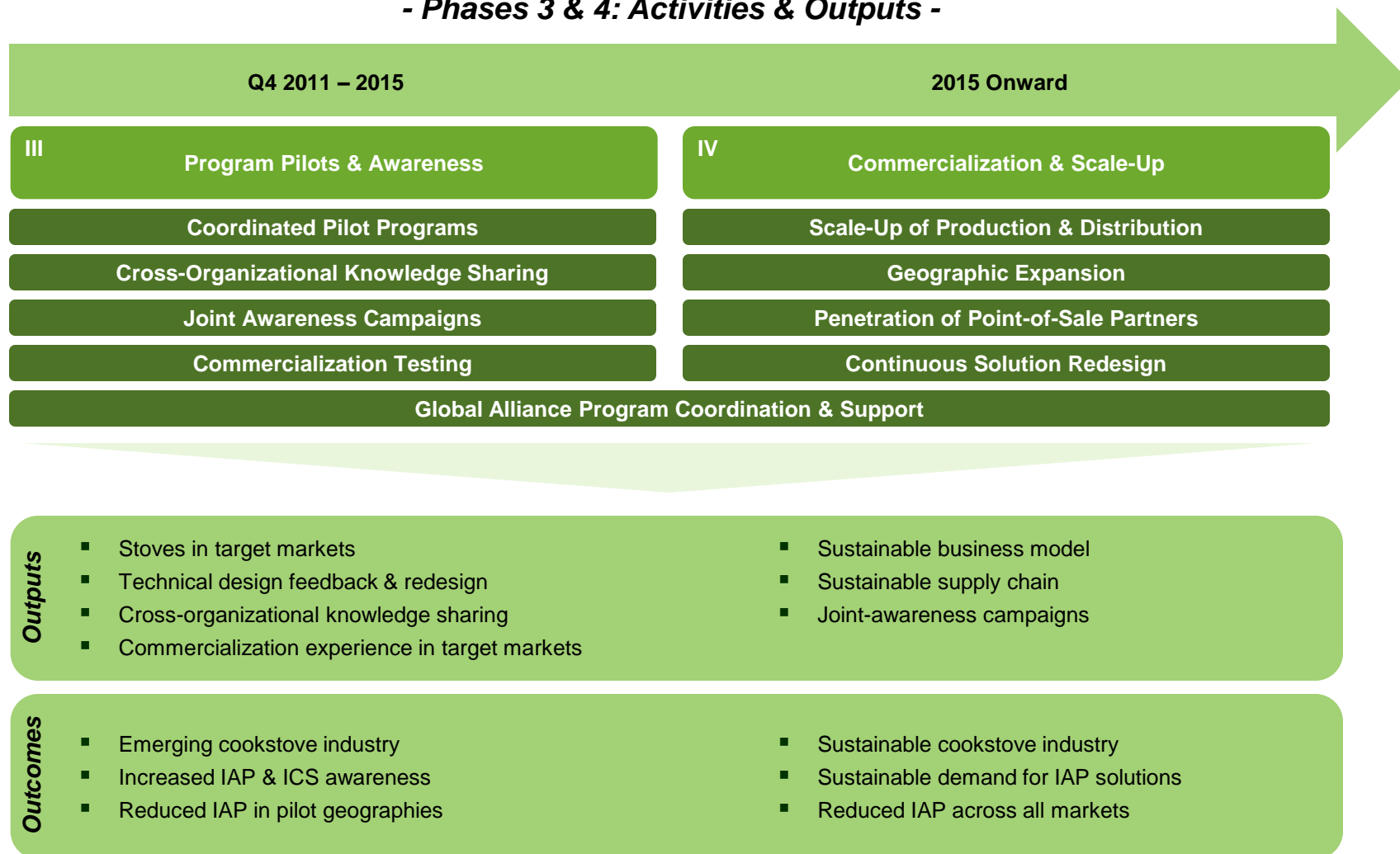


Operational Phase – Phases 3 & 4

Operational Plan

In phases 3 & 4, pilot programs are conducted and commercial models are tested. Solutions undergo continuous redesign and production, distribution capacity, and geographic reach is expanded

- Phases 3 & 4: Activities & Outputs -

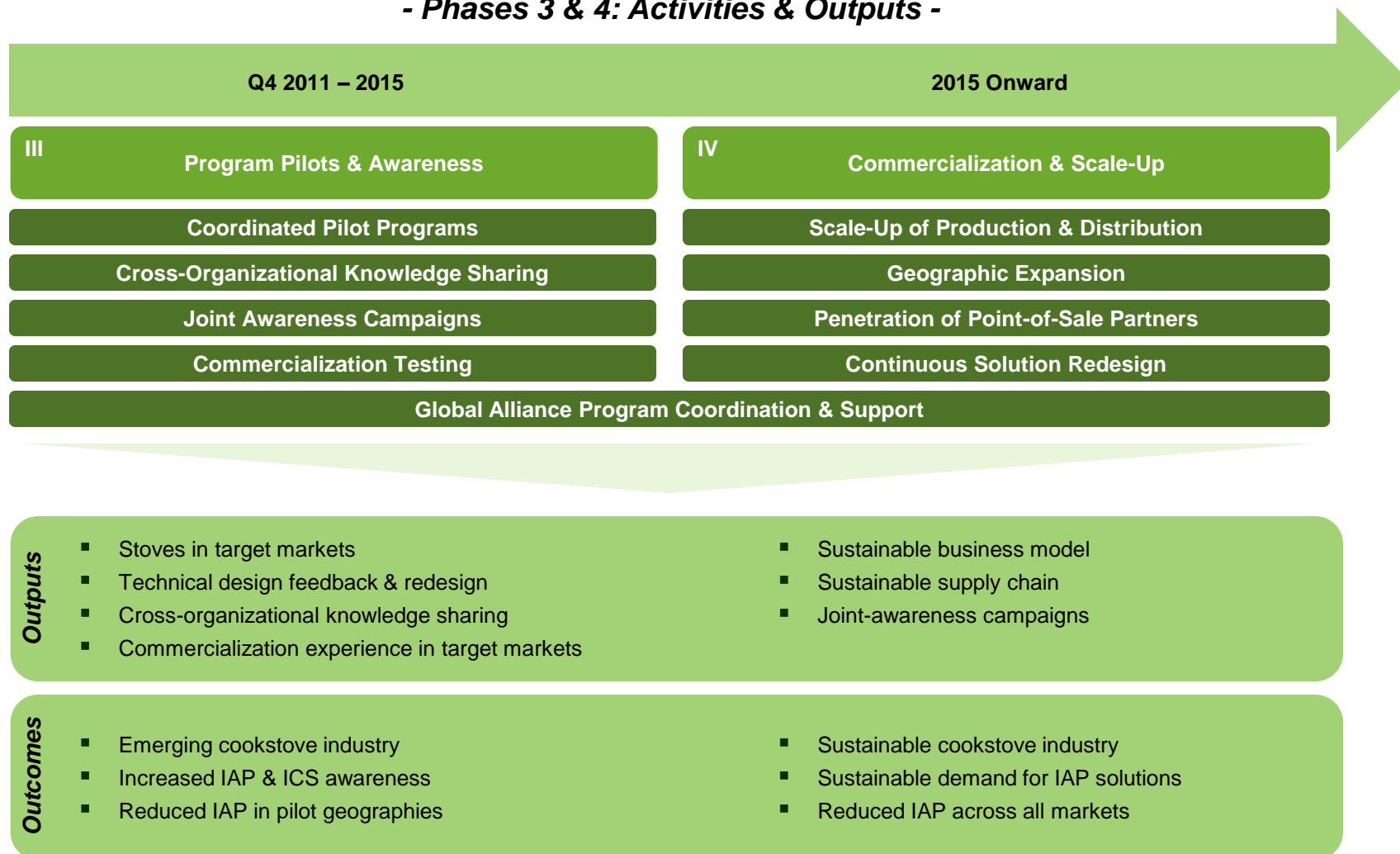


Operational Phase – Phases 3 & 4

Operational Plan

In phases 3 & 4, pilot programs are conducted and commercial models are tested. Solutions undergo continuous redesign and production, distribution capacity, and geographic reach is expanded

- Phases 3 & 4: Activities & Outputs -



Glossary of Terms

Below is a list of commonly used acronyms used throughout the report and presentation:

ALRI – Acute Lower Respiratory Infection

CDM – Kyoto Clean Development Mechanism

CF – Carbon Finance

DNA – Designated National Authority

EU – European Union

GACC – Global Alliance for Clean Cookstoves

GJ – Gigajoule

GIZ – Gesellschaft für Internationale Zusammenarbeit

HH – Household(s)

IAP – Indoor Air Pollution

ICS – Improved Cookstove

CVTL – Cruz Vermelha de Timor-Leste(local Red Cross National Society)

iNGO – International Non-Governmental Organization

LPG – Liquid Petroleum Gas

MFI – Microfinance Institution

NGO – Non-Governmental Organization

COPD – Chronic Obstructive Pulmonary Disease

Q# – Quarter

RDTL – Democratic Republic of East Timor

RFP – Request for Proposal

SISCa – Servisu Inegradu Sude Comunita (Integrated Community Health Services)

TL – Timor-Leste

UN – United Nations

UNDP – United Nations Development Program

UNICEF – The United Nations Children's Fund

USAID – United States Agency for International Development

USD – US Dollars

WB – The World Bank

WFP – World Food Program