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## **Global Alliance for Clean Cookstoves**

Indonesia 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.*

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# Indonesia Sector Mapping

- Comprised of over 17,000 islands, Indonesia has a population of 237 million, approximately 80% living on the islands of Java and Sumatra, although growth is high in the Eastern provinces
- 25 million households rely on biomass as their primary cooking fuel, and the majority of users are located in rural areas of Java
- The Government's Kerosene to LPG Conversion Program successfully switched kerosene users to LPG to reduce the high national cost of sustaining kerosene subsidies, but has excluded some segments of the population
- Supply chain models may differ in regions served by Kerosene to LPG programs from the regions that are not
- The majority of cookstove programs are located in Java and most are still in pilot phases
- One cookstove program by Yayasan Dian Desa has successfully established a commercial market for efficient charcoal stoves in the province of Yogyakarta
- Currently fuelwood users collect or purchase their fuelwood
- The removal of the kerosene subsidy and high LPG recurring refill cost may cause people to reverse-switch to fuelwood, particularly those living in rural areas
- Several locally manufactured improved biomass cookstoves and alternate fuel stoves are available but are more expensive and difficult to finance
- Indonesia has a high production capacity, however distribution costs can be significantly high
- Market penetration of Kerosene, LPG, and charcoal stoves demonstrates that Indonesia can create a thriving cookstove sector
- Available solutions are unable to serve all segments, primarily due to a lack of awareness, affordability, and commercial capability

## 2020 Vision

- The long term goal is to create a thriving market for clean cookstoves and fuels characterized by availability of high quality stoves, availability of clean fuels, sustained product demand, and a well established supply chain

## Complement LPG Conversion Program

- The LPG conversion program is ending soon, and some segments have not adopted the cookstoves due to safety concerns or inability to afford the ongoing fuel costs
- The Government's conversion program can be complemented by a commercial approach to build consumer trust, increase accessibility, and ensure its long-term sustainability
- LPG adoption can be increased by building consumer confidence in LPG safety and enabling sustained fuel affordability

## Expand Biomass Solutions

- The current market environment for biomass stoves is characterized by a lack of product awareness, low price points, and a lack of retail partners
- Improved biomass stove programs will need to create product awareness and improve solution affordability in order to reach scale
- Efficient biomass stove adoption can be increased by creating consumer awareness and brand differentiation
- Efficient biomass stoves can tap local stove manufacturers to bring stove prices down to competitive market prices and reduce upfront financial outlay
- Expansion of local efficient biomass cookstove industry can be prompted by improving local stove quality, securing a stable revenue stream and developing a well established distribution chain

## **Increase Biogas Adoption**

- Barriers to biogas growth are consumers' lack of awareness of product benefits, especially related to secondary uses, and difficulty identifying and building local partner capacity
- Expansion of local biogas adoption can be scaled by generating consumer awareness and increasing consumer access to funding
- Consumer knowledge of product benefits can be improved with product demonstration, marketing, and the creation of a national biogas association
- Streamlining the identification and training of local manufacturers can be achieved by the creation of a nationwide training program
- Biogas program reach will be driven by consistent and clear access to funds provided through cooperative initiatives

## **Explore Renewable Energy Solutions**

- Various renewable energy solutions using naturally available fuels, are being explored, however, a lack of demand and difficulty identifying and securing investment from retail partners is slowing market development
- The introduction of a renewable energy solution will be possible by reducing upfront cost to retailers, increasing product accessibility and generating consumer awareness
- Renewable efforts can reach consumers by sharing resources, enabling retailer participation and aligning with the Government's Energy Self-Sufficient Village Program
- Stove programs can be linked with Government initiatives to access increased awareness and funding support

## Provide Enabling Environment

- Currently there are several stove program-initiatives being developed in Indonesia, however, they lack commercialization knowledge and have not yet been aligned with Government initiatives
- A supportive environment can facilitate better coordination and alignment across initiatives and enable scaled commercial approaches
- A national cookstove coordinating body should be reinstated to coordinate and facilitate knowledge sharing
- Alignment with Government programs can be achieved through lobbying Government programs to advocate stove initiatives with enabling policies a support

## Operational Plan

- The next phases of a cookstove initiative in Indonesia will involve alignment with Government programs, creation of a national cookstove coordinating body, launching a product awareness campaign, and enabling business channels to achieve a market for cookstoves in Indonesia

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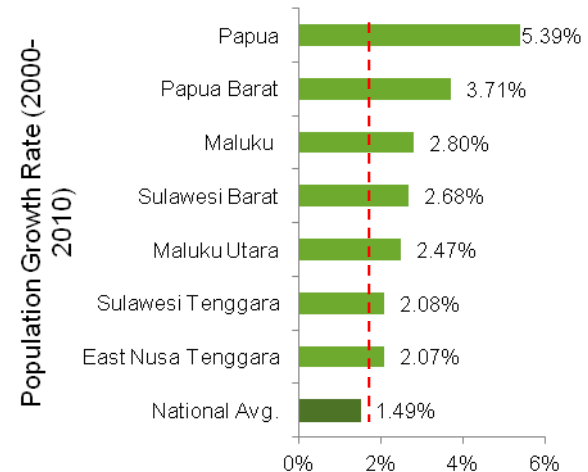
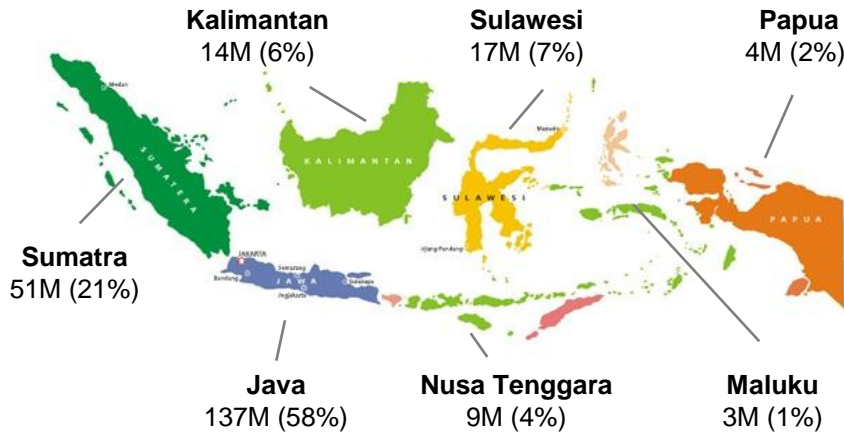


# Population

Indonesia is a diverse and topographically challenging country with ~80% of the population living on the islands of Java and Sumatra

*Indonesia is comprised of more than 17,000 islands, many of which are remote and undeveloped*

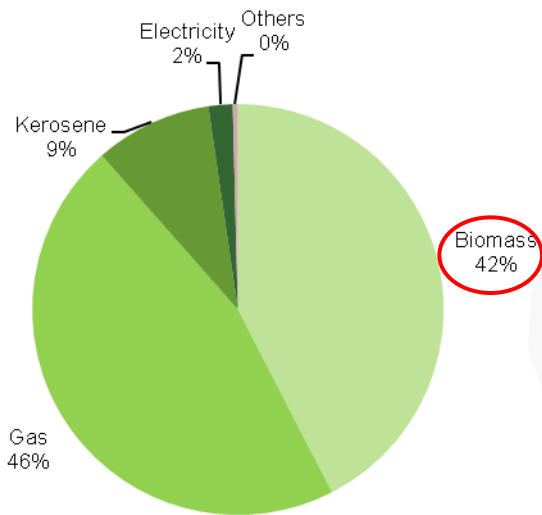
*While majority of the population lives in Java and Sumatra... ...population growth is highest in the Eastern provinces*



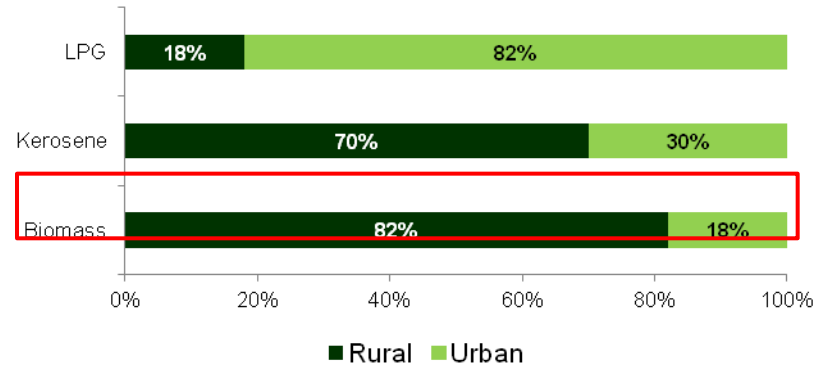
# Household Cooking Fuel Usage

Of the 59 million households in Indonesia, 42% rely on biomass as their primary cooking fuel; usage is higher in rural areas and East Indonesia

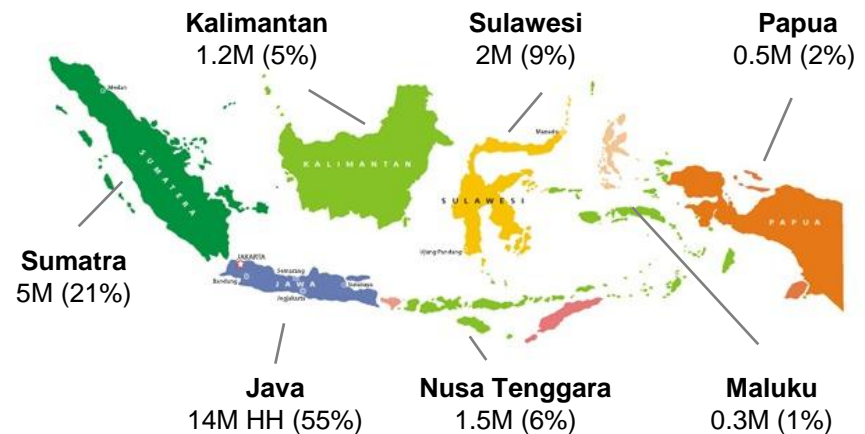
*~25 million households rely on charcoal and wood for cooking*



*Majority of biomass users are rural households...*






*... and mainly located in the island of Java*



# Indoor Air Pollution in Indonesia

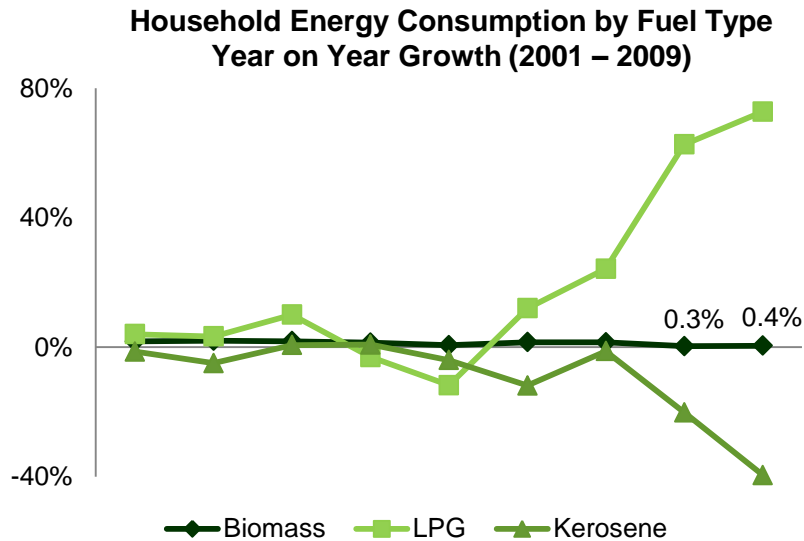
Use of biomass in open fires and rudimentary stoves in Indonesia results in significant IAP-related health damage and environmental impacts across the country

IAP Cause	Scenes	Comments	IAP Impact on the Environment and Health
<b>Cooking Fuel</b>		<ul style="list-style-type: none"> <li>• High proportion of households rely on wood or charcoal as their primary cooking fuel</li> <li>• Wood is primarily collected from nearby forests; in some areas wood is purchased</li> <li>• Protected forest areas and overuse result in people traveling longer distances to collect fuel</li> </ul>	<p><b>Environmental Impact</b></p> <ul style="list-style-type: none"> <li>• Severe overuse and damage of forests in some areas</li> <li>• Air quality and pollution due to smoke from inefficient stoves</li> </ul>
<b>Cooking Device</b>		<ul style="list-style-type: none"> <li>• Biomass dependent households use basic stoves made of mud, brick, clay, and ceramic</li> <li>• Some remote households cook with three stone fires</li> <li>• Kerosene stoves were widely adopted due to a former fuel subsidy</li> <li>• Government distributed 21 M LPG stoves since 2007</li> </ul>	<p><b>Mortality from Solid Fuel Use (2002)</b></p> <ul style="list-style-type: none"> <li>• 15,000 total deaths</li> <li>• 321K disability adjusted life years – among top 20 in the World, on par with Kenya</li> </ul>
<b>Housing Structure</b>		<ul style="list-style-type: none"> <li>• Kitchens generally have windows that provide some ventilation however the small spaces cause smoke to accumulate and linger</li> <li>• Cooking is done both indoors, and outdoors in community outdoor kitchens</li> </ul>	<p><b>National Disease Share (2002)</b></p> <ul style="list-style-type: none"> <li>• 0.7% of national burden of disease attributed to solid fuel usage</li> </ul>

# Kerosene to LPG Program

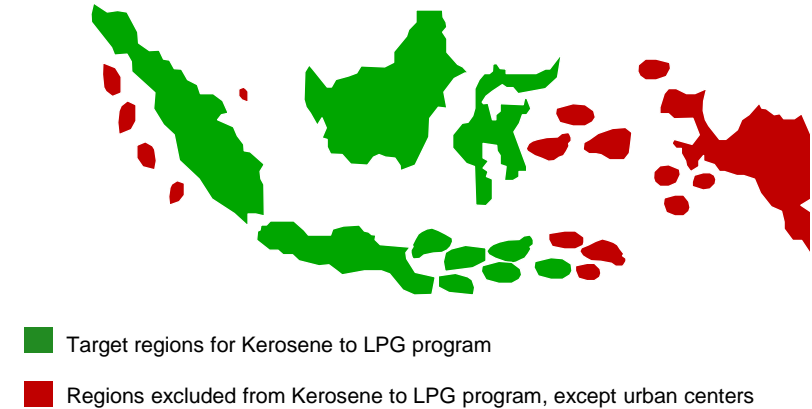
The kerosene to LPG program has greatly succeeded in switching kerosene users to LPG in West Indonesia and urban areas, but has had limited reach in East Indonesia and rural areas

*Transfer of kerosene subsidy to LPG increased LPG consumption but did not affect biomass consumption*



- LPG for 3kg bottle retailed at 50% of cost
- LPG subsidy accompanied by distribution of conversion kits that include 3kg LPG canister, one burner stove, tube, and regulator

*Kerosene to LPG program is not a comprehensive solution...*

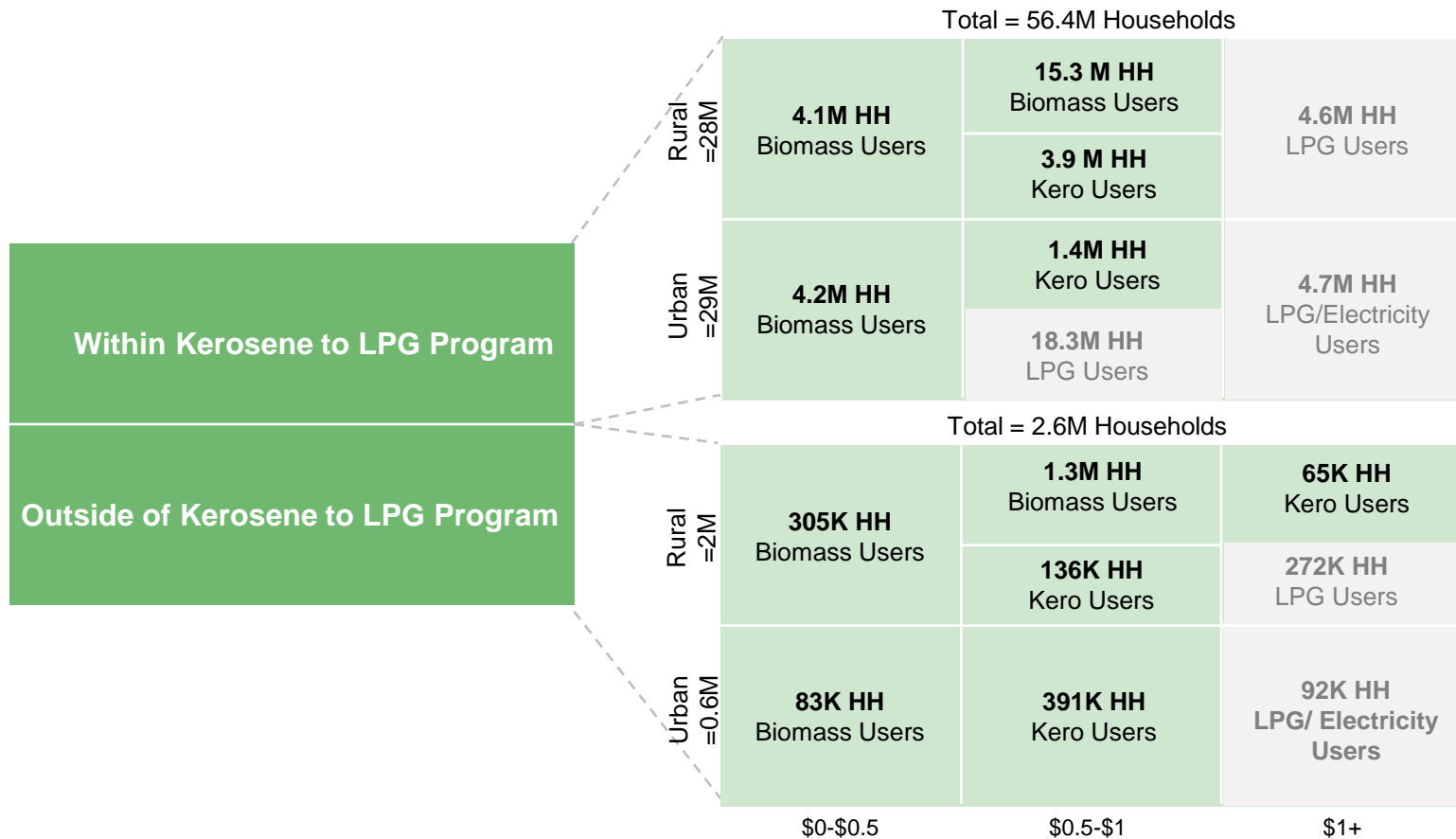


*...as it excludes certain segments*

- Mainly targets kerosene users, achieving minimal penetration among biomass users
- Excludes East Indonesia and other remote areas due to high logistical costs
- Excludes households that cannot afford the higher cost of subsidized LPG over subsidized kerosene, causing switch from kerosene to biomass
- Excludes households concerned about LPG safety

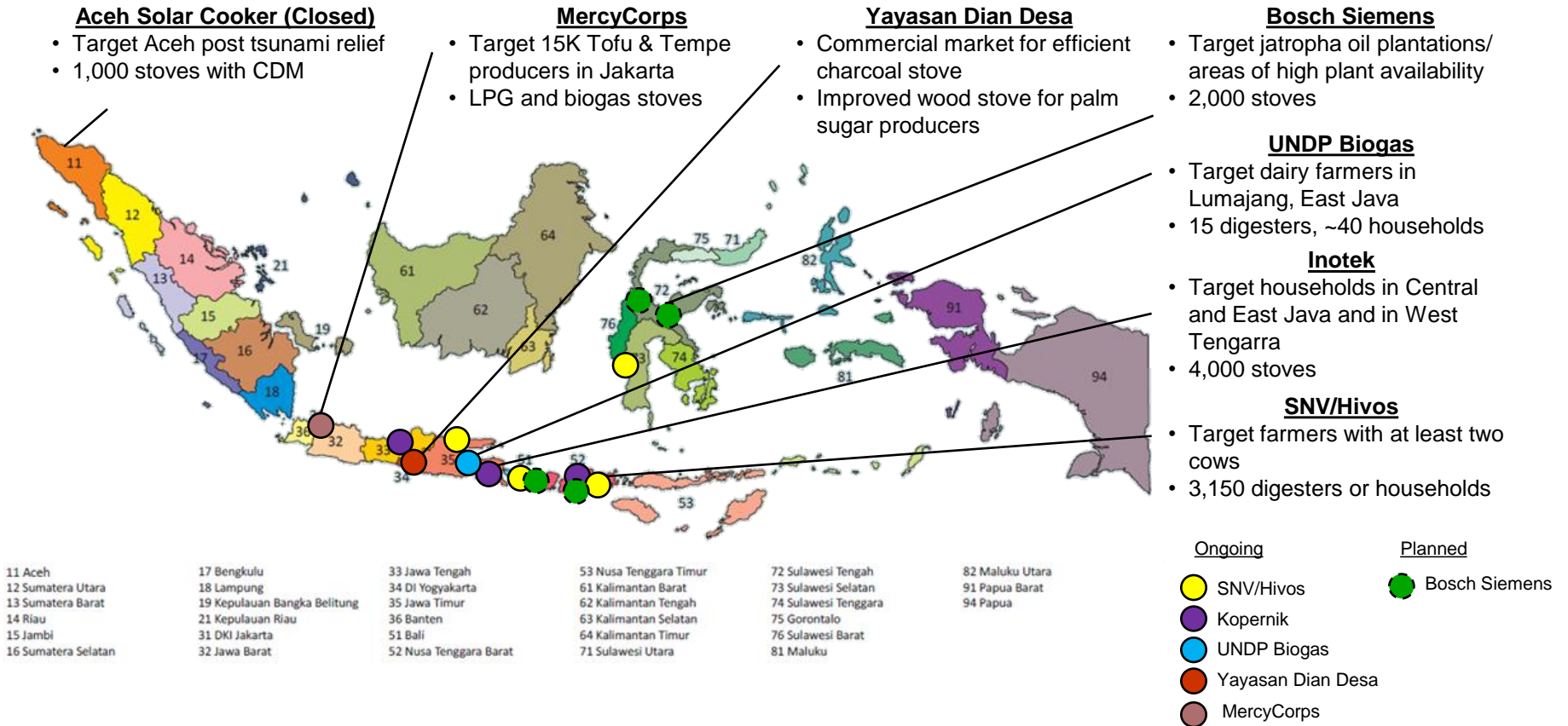
# Clean Cookstove Target Market

The target market exists across the country, but is predominately focused in rural areas; the supply chain model may differ in regions served by the Kerosene to LPG program from the regions that are not included



# Cookstove Program Activity

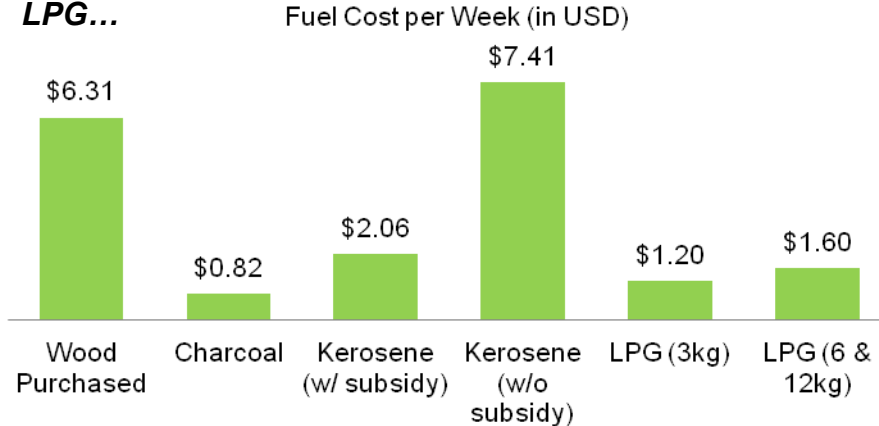
Majority of cookstove programs are located in Java and while most are still in pilot phase, one program has successfully established a commercial market for efficient charcoal stoves



# Available Fuel Choices

Currently fuel wood users collect or purchase their fuel wood; removal of the kerosene subsidy is causing people to switch to LPG or back to firewood

**Subsidized kerosene is more expensive than subsidized LPG...**



**...and requires a higher financial outlay...**

Fuel Cost based on Purchase Unit

Fuel	Purchase Unit	Usage	Cost
Wood	8-10kg	1 day	IDR 7,000 / USD 0.82
Charcoal	Small bag	2 days	IDR 2,000 / USD 0.24
Kerosene	1 liter	1 day	IDR 9,000 / USD 1.06
			IDR 2,500 / USD 0.3
LPG	3 kg	10 days	IDR 12,750 / USD 1.5

**...potentially resulting in increased biomass usage, especially in rural areas**

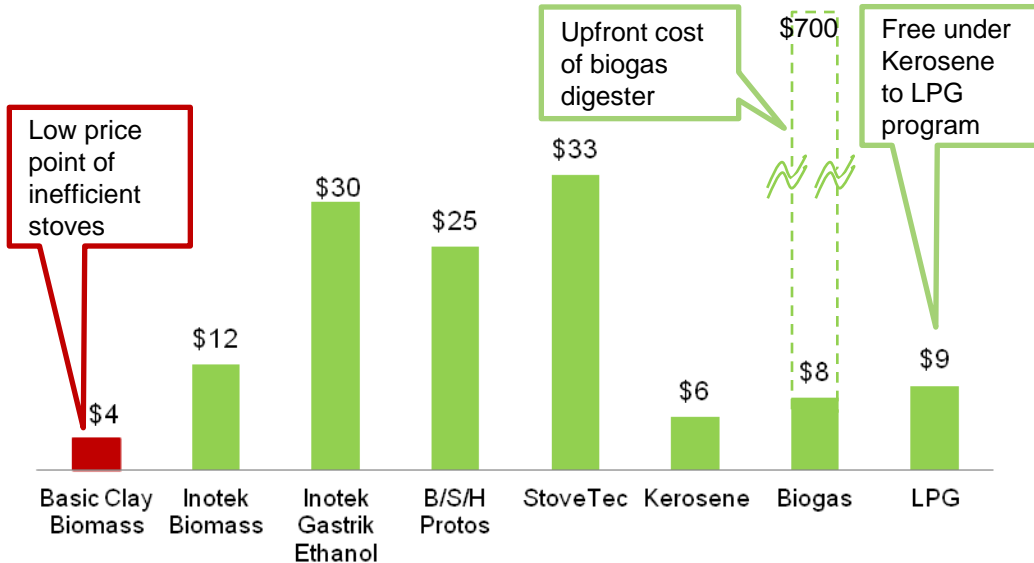
- Kerosene subsidies removed in regions where 3kg subsidized LPG is available, thereby raising cooking fuel costs for households
- 90% fuelwood users collect, making it easy to switch back to fuelwood from kerosene
- Especially true for rural areas where fuelwood is easily available

# Available Cookstove Choices

Several locally manufactured improved biomass cookstoves and alternate fuel stoves are available

*Improved cookstoves are more expensive...*

Upfront Cost of One Burner Cookstove (in USD)



*...and do not have a structured market*

- Manufacturers lack a distribution and retail network
  - Inotek and StoveTec rely on NGO partnerships as retail channel
- Consumers lack product awareness and access
- There are several stove options with varying price points but no standards for consumers to compare them

*... resulting in low uptake*

**Inotek program**

**4,000**  
Biomass Stoves

**Hivos/SNV program**

**3,500**  
Biogas Stoves

*...and difficult to finance*

- Indonesia is not classified as a least developing country, so CDM projects must be approved by 2012
- Carbon financing using voluntary emission reduction credits is applicable beyond 2012

- Other stove programs are experiencing similar results

Note: 1 USD = IDR 8,500

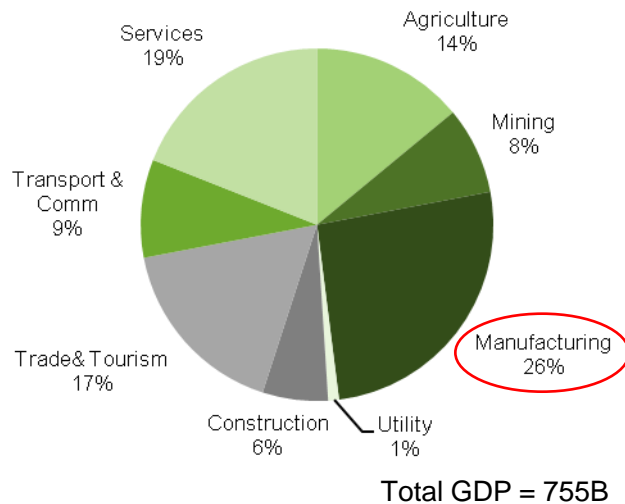


# Industry Infrastructure

Indonesia has a good manufacturing sector, however distribution costs to East Indonesia and remote areas are high

*Production capabilities and capacity are easily available in Java...*

**Indonesian GDP Composition**



- Over 20,000+ medium and large scale industries, 84% located in Java
- Local production for LPG stoves, canisters and improved biomass stoves
- Kerosene stove production in Malang, East Java
  - Idle capacity due to conversion to LPG

*...however transportation cost is significant*

- Shipping is prevalent for inter-island goods distribution
- Road network varies in islands
  - Java with 7% land area has 27% of road network
  - Maluku and Papua with 23% of land area have only 7% of road network
- Many islands have mountainous terrain, increasing land transportation for sparse, remote settlements

## Distribution Cost from Surabaya to Flores

**USD 4**  
Per water filter



# Cookstove Industry

Indonesia has demonstrated that it can create a thriving cookstove and fuel sector in certain regions of the country

## Kerosene Stove



- Locally produced, distributed nationally and easily available for purchase
- Previously sustainable industry, suffering from lower demand after LPG conversion

## LPG Stove



- Locally produced and distributed to certain regions
- Commercially sustainable industry

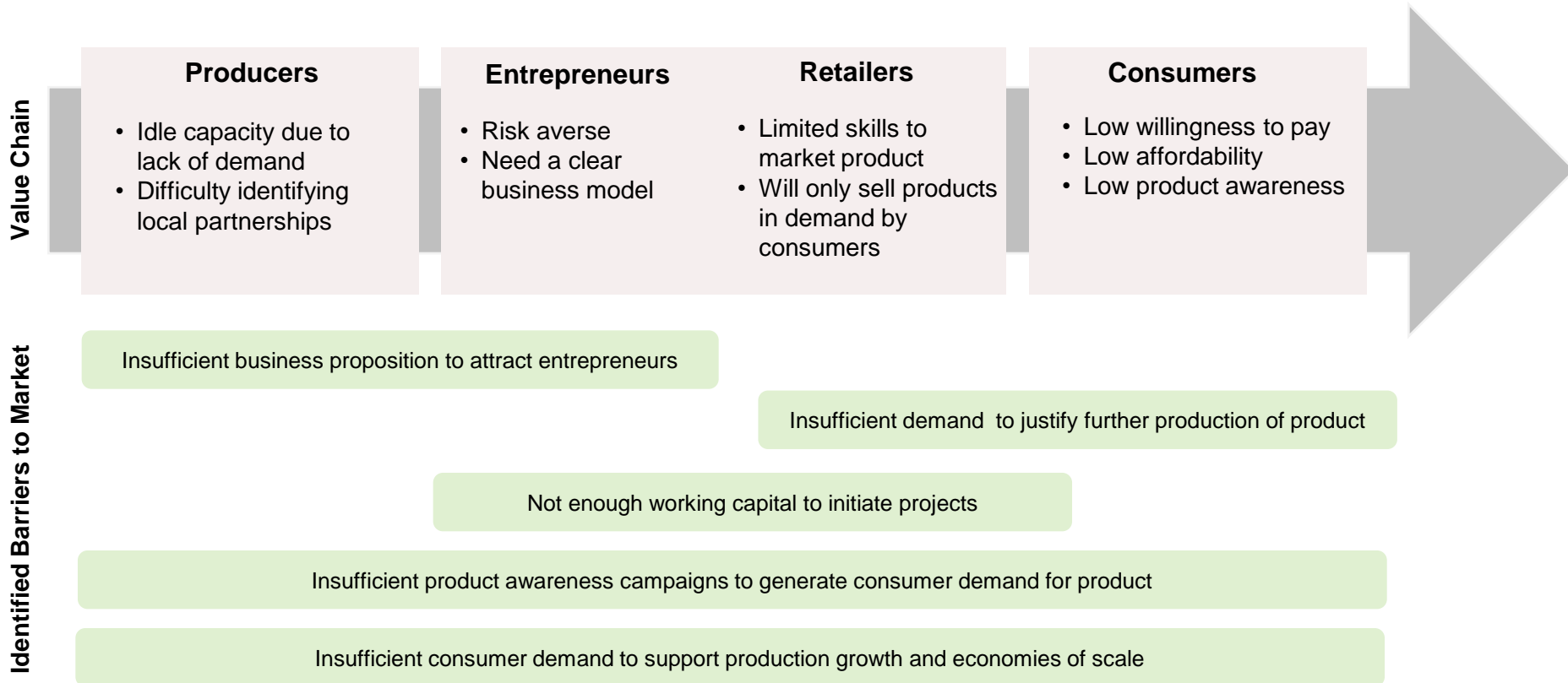
## Charcoal Stove



- Efficient design introduced by a cookstove program
- Produced and retailed in Yogyakarta province
- Now a sustainable industry

# Key Barriers to Success

Although multiple clean stoves are being produced, low consumer demand is limiting the potential for industry growth



# Industry Gaps

## Not all segments will be served by currently available solutions

### AWARENESS

- A lack of awareness leads to insufficient demand for cookstoves, thereby not allowing economies of scale

### AFFORDABILITY

- LPG and improved biomass stoves are not affordable to segments using three-stone fires or basic woodstoves

### AVAILABILITY

- Solutions are not available at an affordable price in rural areas

### CAPABILITY

- A lack of expertise or experience, prevents the development of a structured commercial approach

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# Intervention Options

The long term vision is to create a thriving market for clean cookstoves and fuels that is customer centered and demand led

## Current State

- Low consumer awareness
- Low consumer affordability
- Limited availability of quality product choices in certain regions



## Future State

### Demand for Product

*Consumers are well educated on IAP and available cookstove options, enabling them to make sound purchase decision*

### Quality Selection

*Quality cookstoves are available in the market at different price points*

### Well Established Supply Chain

*The creation of a sustainable cookstove industry with good distribution networks and healthy market competition*

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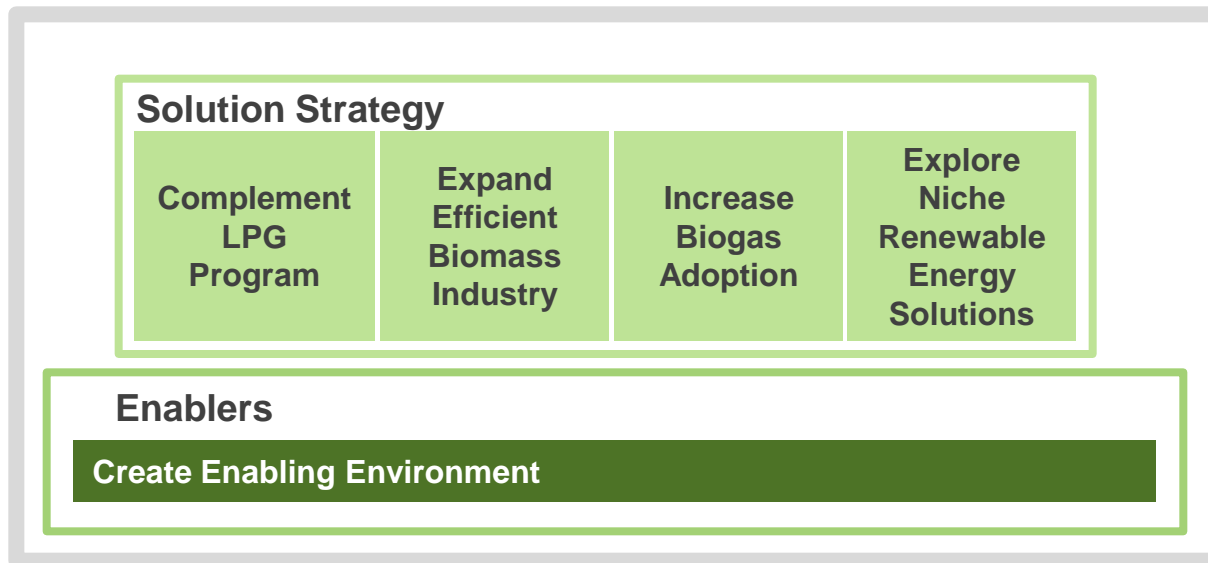
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# Recommended Interventions

The intervention strategies will meet consumer needs by generating demand and activating market channels





# Complement LPG Program



Interventions

The Government's conversion program could be complemented by a commercial approach to build consumer trust, increase accessibility, and ensure its long-term sustainability of the program

## Current Situation

- Some consumers are unable to afford ongoing fuel costs
- LPG canister accidents have created safety concerns
- Free LPG stove distribution will be ending in 2012

## Recommended Interventions

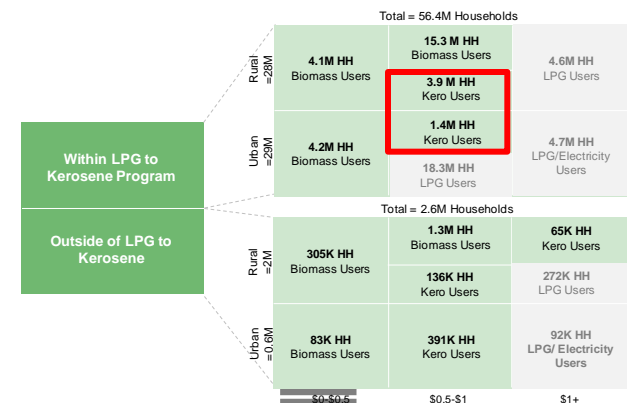
### Build Consumer Trust

- Ensure product quality
- Provide user safety training and education

### Increase Affordability

- Establish LPG community kitchens

## Addressable Market









Potential Market Size:  
**5.3 Million H/H**

# Increasing LPG Penetration

Solution Strategy			
Component	Process	Output	Value
LPG Program	Marketing	Increased LPG Penetration	Increased Revenue

Interventions

The adoption of LPG could be increased by building consumer confidence in LPG safety and by ensuring long-term fuel affordability

Build Consumer Trust		
	Description	Potential Actors
<b>Ensure Product Quality</b>	<ul style="list-style-type: none"> <li>Ensure the safety of LPG equipment by enforcing tight manufacturing specifications</li> <li>Develop safe handling protocols for LPG throughout the supply chain</li> </ul>	 
<b>Provide Safety Training and Education</b>	<ul style="list-style-type: none"> <li>Launch a nationwide safe usage awareness campaign (e.g. TV commercials)</li> <li>Hold training sessions at the local level to teach consumers about safe LPG usage</li> <li>Educate retailers and dealers on the importance of proper LPG cylinder handling</li> </ul>	 
Increase Affordability		
	Description	Potential Actors
<b>Establish LPG Community Kitchen</b>	<ul style="list-style-type: none"> <li>Establish LPG community kitchens to increase the affordability of on-going LPG refill:                             <ul style="list-style-type: none"> <li>At community kitchens consumers pay a small fee, (relative to the larger cost required to refill household stoves) to use the LPG stoves</li> </ul> </li> </ul>	 

# Expand Biomass Solutions



Interventions

To support growth in an efficient biomass stove industry in Indonesia a comprehensive strategy will need to be created, which sets out to promote-product awareness and to improve the affordability of solutions

## Current Situation

- Lack of product awareness and marketing
- Low stove price point and consumer demand
- Lack of retailer incentives due to low consumer demand
- Inability of retailers to market product; low entrepreneurship

## Recommended Interventions

### Build Product Awareness

- Develop a national standard
- Create brand differentiation
- Educate customers

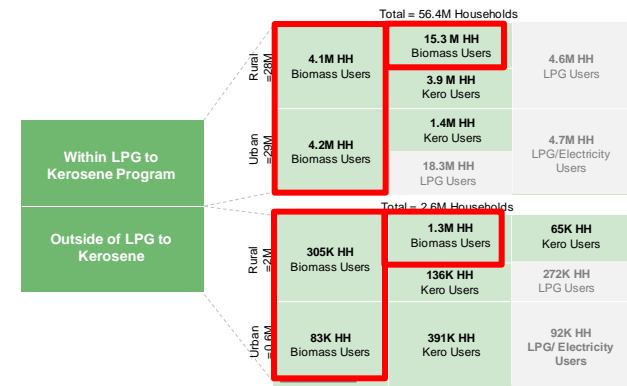
### Improve Solution Affordability

- Reduce initial stove cost
- Link to carbon finance initiatives
- Leverage MFIs

### Encourage Local Production

- Evaluate a potential commercial model
- Enhance local stove quality
- Secure a stable revenue stream
- Set up distribution networks

## Addressable Market



Potential Market Size:  
**25.3 million Households**

Priority Pilot Region: Java

# Creating Strong Product Awareness



Interventions

The adoption of efficient biomass stoves could be increased by creating consumer awareness and brand differentiation







Build Product Awareness		
	Description	Potential Actors
<b>Develop National Standard for Biomass Stoves</b>	<ul style="list-style-type: none"> <li>Partner with the Government to develop a national benchmark for clean cookstoves                             <ul style="list-style-type: none"> <li>Increase the minimum standard for basic cookstoves (e.g. durability, emission efficiency)</li> <li>Enable customers to make quick product comparisons</li> </ul> </li> </ul>	
<b>Create Brand Differentiation</b>	<ul style="list-style-type: none"> <li>Provide a training program in brand creation for local efficient stove manufacturers (e.g. business plan development, marketing strategy)</li> </ul>	<p><b>Local Entrepreneurs</b></p>
<b>Educate Customers</b>	<ul style="list-style-type: none"> <li>Partner with local Governments and NGOs to educate consumers on IAP and its health impact while emphasizing the economic benefits by of using efficient cookstoves (e.g. reduce fuel expenditure cost, reduce time spent collecting wood)</li> <li>Partner with local Governments, NGOs and entrepreneurs to conduct product awareness campaigns, focusing first on regions where local manufacturing facilities are situated (e.g. Yogyakarta, Malang), to create initial consumer awareness and to ensure sufficient product supply to meet customer demand before expanding to more remote regions</li> <li>Educate consumers on making cookstove purchasing decisions (e.g. cookstove selection based on combination of stove price, durability, and efficiency vs. stove price only)</li> <li>Conduct product demonstrations to give customers the opportunity to test the stoves and see their benefits firsthand</li> <li>Create an environmental stewardship program to educate consumers on using biomass stoves from renewable sources</li> </ul>	

# Reducing Upfront Cost of Stoves



Interventions

To make efficient biomass stoves more affordable local stove manufactures could be appealed to bring down prices to competitive market rates and reduce the financial outlay of purchasing their stoves

Improve Solution Affordability		
	Description	Potential Actors
<b>Reduce Stove Cost</b>	<ul style="list-style-type: none"> <li>Assess the potential to provide short term subsidies to bring locally made efficient stoves to competitive market prices during initial introduction phase</li> <li>Evaluate alternative business models, design and materials that can bring down the cost of producing stoves</li> <li>Lobby with Government to reduce import duties for efficient cookstoves</li> </ul>	 
<b>Support Carbon Financing Initiatives</b>	<ul style="list-style-type: none"> <li>Connect biomass stove producers with current carbon financing activities for potential program integration</li> <li>Link efficient biomass stove producers with carbon finance developers interested in starting up Gold Standard carbon credit stove projects in Indonesia</li> </ul>	  
<b>Leverage on MFIs</b>	<ul style="list-style-type: none"> <li>Evaluate the potential to partner with MFIs to provide financial assistance to low income consumers as part of a wider rural development program</li> </ul>	

# Supporting Local Production



Interventions

The local efficient biomass cookstove industry could be expanded by improving local stove quality, securing a stable revenue stream, and developing a well established distribution chain

Encourage Local Production		
	Description	Potential Actors
<b>Evaluate Potential Commercial Model</b>	<ul style="list-style-type: none"> <li>Conduct roundtable discussions to facilitate knowledge sharing:                             <ul style="list-style-type: none"> <li>Leverage on previous and/or existing program lessons learned and experiences to develop viable commercial model for program scale up</li> </ul> </li> </ul>	
<b>Enhance Local Stove Quality</b>	<ul style="list-style-type: none"> <li>Create a training program to improve the skills of local basic stove manufacturers</li> <li>Provide technical support to enhance basic stove efficiency and design</li> </ul>	<p><b>Local Entrepreneurs</b></p>
<b>Secure Stable Revenue Stream</b>	<ul style="list-style-type: none"> <li>Evaluate potential to develop a clean cookstove cooperative body:                             <ul style="list-style-type: none"> <li>Partner with NGOs/Government to purchase stoves from cooperative members as part of their development outreach programs (e.g. disaster response program, festive season food basket) to provide a more stable revenue stream to local manufacturers</li> </ul> </li> </ul>	
<b>Set up a Distribution Network</b>	<ul style="list-style-type: none"> <li>Provide clean cookstove cooperative members access to a cookstove transportation network for regional stove distribution</li> <li>Evaluate potential to partner with local NGOs, women or community groups to distribute cookstoves</li> <li>Partner with local MFIs (e.g. Rabobank) to identify entrepreneurs and potential retailers</li> <li>Develop an incentive scheme to attract kerosene dealers to co-distribute efficient biomass stoves</li> </ul>	

# Increase Biogas Adoption



Interventions

Biogas adoption can be scaled by generating consumer awareness and increasing consumer access to funding

## Current Situation

- There is a lack of consumer awareness of product benefits and secondary uses
- Ongoing quality maintenance of biogas digesters requires extensive training
- Capacity building of local partners is a challenge
- The high upfront cost is a barrier to some consumers

## Recommended Interventions

### Create Consumer Awareness

- Educate consumers on product benefits
- Showcase success stories
- Create a National Biogas Farmers Association

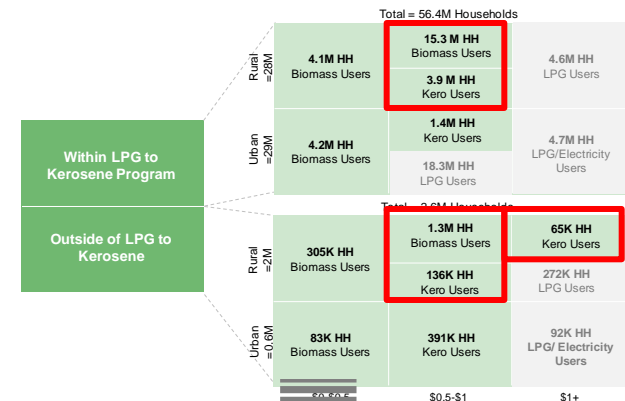
### Local Capacity Building

- Institute a national training program
- Promote livelihood development

### Increase Access to Financing

- Facilitate partnerships between farmers
- Align with Government program
- Secure network of corporate sponsors

## Addressable Market



Potential Market Size (Niche Rural Households):

**900K Households**

Priority Regions: Bali, NTT, Sulawesi

# Enhancing Consumer Awareness



Interventions

**Biogas demand can be increased by enhancing consumer’s knowledge of the benefits of the product through demonstration, marketing, and the creation of a national biogas association will increase biogas demand**

Create Consumer Awareness		
	Description	Potential Actors
<b>Educate Consumers on Product Benefits</b>	<ul style="list-style-type: none"> <li>Conduct product demonstrations to educate consumers on economic, health, time, and secondary benefits, and allow them to sample the product</li> <li>Educate consumers on secondary usages (e.g. secondary usage of bioslurry as fertilizer for a secondary income)</li> </ul>	
<b>Showcase Success Stories</b>	<ul style="list-style-type: none"> <li>Partner with regional Governments and NGOs to showcase successful biogas programs                             <ul style="list-style-type: none"> <li>Demonstrate added economic benefits in marketing materials and community campaigns</li> </ul> </li> </ul>	
<b>Create a National Biogas Farmers Association</b>	<ul style="list-style-type: none"> <li>Facilitate the formation of farmer cooperatives by creating a National Biogas Farmers Association</li> <li>Identify existing regional biogas farmers to champion membership growth</li> <li>Use the association as a forum to disseminate program information and new opportunities</li> </ul>	



# Building Local Capacity



Interventions

**Growth in the Biogas market could be achieved by streamlining the identification and capacity building process of local manufacturers through a nationwide training and livelihood development program**











Local Capacity Building		
	Description	Potential Actors
<b>Institute a National Training Program</b>	<ul style="list-style-type: none"> <li>Identify women's group and vocational training centers to serve as regional training hubs</li> <li>Establish a nationally recognizable training program that can be regularly provided through regional centers</li> <li>Create an installer certification program that includes ongoing maintenance updates to retain accreditation</li> </ul>	
<b>Promote Livelihood Development</b>	<ul style="list-style-type: none"> <li>Enable users to realize additional income from bioslurry by providing supplementary business planning education</li> <li>Link farmers with potential fertilizer retailers</li> <li>Partner with the Ministry of Agriculture and the World Bank Market Oriented Agricultural Services program for institutional capacity building</li> </ul>	

# Increasing Access to Financing



Interventions

Biogas program reach will be driven by consistent and clear access to financing, provided through cooperative initiatives

Increase Access to Financing		
	Description	Potential Actors
<b>Facilitate Partnerships between Farmers</b>	<ul style="list-style-type: none"> <li>Develop incentive programs for farmers to form and apply for loans as cooperatives</li> </ul>	
<b>Align with Government Programs</b>	<ul style="list-style-type: none"> <li>Develop a business case for Governments to participate in a commercial model</li> <li>Institute a communication program to coordinate activities between Government and non-Government programs</li> <li>Involve designated local and central Government figures in project planning and reporting</li> <li>Ensure alignment of interest across Government levels, and increase transparency of funding channels and responsibilities</li> </ul>	  
<b>Secure Network of Corporate Partners</b>	<ul style="list-style-type: none"> <li>Create a network of interested corporate partners</li> <li>Showcase successful programs (e.g. Nestle) and appeal to corporate programs to form partnerships</li> <li>Link corporate partners to farmer cooperatives</li> </ul>	     

# Explore Niche Renewable Energy Solutions

Solution Strategy		Carbon Market Renewable Energy Database
Energy	Renewable	Database
Energy	Renewable	Database
Energy	Renewable	Database
Energy	Renewable	Database

Interventions

The introduction of a renewable energy solution could be achieved by reducing upfront costs to retailers, increasing product accessibility, and generating consumer awareness

## Current Situation

- Full manufacturing capacity is not utilized due to lack of demand
- Difficulty in identifying suitable retailer/distribution partners
- Limited ability of local partners to finance upfront purchase cost
- Need to attract potential carbon credit buyers

## Recommended Interventions

### Secure Sustainable Fuel Source

- Evaluate potential fuel sources
- Partner with Energy Self-Efficient Village Program
- Identify suitable region to pilot

### Secure Financial Support

- Tie to Government renewable energy initiatives
- Leverage microfinance to reduce cost to retailer
- Identify carbon finance investors

## Addressable Market

Potential Market Size:  
**Niche Market**





*Potential Regions: Kalimantan,  
Sulawesi, Nusa Tenggara Barat,  
Papua*

# Secure Sustainable Fuel Source

Solution Strategy		Explore
Market	Business Model	Renewable Energy Solutions
Technology	Business Model	Renewable Energy Solutions
Policy	Business Model	Renewable Energy Solutions

Interventions

**Renewable energy stove products could be delivered to consumers by joining resources, enabling retailer participation, and aligning with the Government's Energy Self-Sufficient Village Program**







Increase Product Accessibility		
	Description	Potential Actors
<b>Evaluate Potential Sources of Fuel</b>	<ul style="list-style-type: none"> <li>Identify the areas and communities with the highest potential for adopting renewable energy interventions (e.g. partner with palm oil producers in Kalimantan and Sumatra to produce briquette for domestic market or jatropha plantation developers in Nusa Tenggara Barat, Kalimantan, Sulawesi and Papua)</li> </ul>	  B/S/H/
<b>Partner with Energy Self-Sufficient Village Program (ESSV)</b>	<ul style="list-style-type: none"> <li>Align with Ministry of Environment and Mineral Resources biofuel development strategy</li> <li>Partner the Government's biofuel development strategy with the Energy Self-Sufficient Village Program to embed stoves into the rollout, in order to provide renewable energy solutions to villages across Indonesia</li> </ul>	 

# Secure Financial Support

Solution Strategy		Explore
Market	Business Model	Renewable Energy Solutions
Value	Revenue	
Cost	Expenses	
Risk	Uncertainty	
Impact	Stakeholder	

Interventions

The upfront cost of implementing renewable energy solutions could be reduced by connecting stove programs with Government initiatives and by leveraging a range of financing sources

Reduce Upfront Cost		
	Description	Potential Actors
<b>Tie to Government Renewable Energy Initiatives</b>	<ul style="list-style-type: none"> <li>Link developing SMEs with the Ministry of Environment's DNS Program for funds</li> <li>Link initiatives to biofuel cookstove for Energy Self-Sufficient Village (ESSV) Program to share program costs</li> </ul>	 
<b>Leverage Microfinance to Reduce Cost to Retailer</b>	<ul style="list-style-type: none"> <li>Tie stove initiatives with microfinance institutions working in rural communities</li> <li>Leverage microfinance to reduce upfront purchasing costs to retailers</li> </ul>	 
<b>Identify Carbon Finance Investors</b>	<ul style="list-style-type: none"> <li>Identify bilateral investors interested in investing in Protos Plant Oil Cookstove carbon financing</li> <li>Link renewable cookstove programs to carbon financing bodies looking to invest in Indonesia</li> </ul>	 

# Providing Enabling Environment

Category	Sub-category	Intervention	Impact
Enabling Environment	Policy	Reinstate National Coordinating Body	Improved coordination and alignment
	Regulation	Align with Government programs	Reduced duplication and inefficiency
	Market	Develop a nationwide map of fuel sources	Improved access to fuel sources
	Consumer	Reinstate National Coordinating Body	Improved consumer protection

Interventions

**A supportive environment can facilitate better coordination and alignment across initiatives, and enable scaled commercial approaches**

## Current Situation

- Separate stove initiatives lack market knowledge
- Small scale efforts lack bargaining power with distributors and consumers
- Lack of alignment with Government programs

## Recommended Interventions

### National Fuel Assessment

- Develop a nationwide map of fuel sources

### Better Coordination and Alignment


- Reinstate National Coordinating Body
- Align with Government programs

# Assessing Stove Fuel Resources

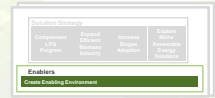
Program	Country	Region	Year
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Program	Country	Region	Year
Program	Country	Region	Year

Interventions

A national fuel assessment will provide cookstove programs with data and information to coordinate targeted initiatives

National Fuel Assessment		
	Description	Potential Actors
<b>Nationwide Map of Fuel Sources</b>	<ul style="list-style-type: none"> <li>Develop a national map of fuel sources and alternative energy sources cross Indonesia</li> <li>Partner with Ministry of Agriculture and Indonesia Government to conduct national assessment</li> </ul>	

# Creating a Supportive Environment



Interventions

**A market enabling environment could be created by reinstating a national cookstove coordinating body and aligning efforts with Government programs**

Better Coordination and Alignment		
	Description	Potential Actors
<b>Reinstate National Cookstove Coordinating Body</b>	<ul style="list-style-type: none"> <li>The main roles of the National Cookstove Coordinating Body will include:                             <ul style="list-style-type: none"> <li>Coordinate cookstove programs across regions to facilitate better forecasting of demand and advanced market commitments</li> <li>Facilitate knowledge sharing among members</li> <li>Link manufacturer to potential distributors, cooperatives, or corporate sponsors</li> <li>Lobby with the Government to ensure that Government initiatives address IAP and cookstove issues</li> <li>Create a stove marketplace and help center for qualified SMEs</li> </ul> </li> </ul>	 
<b>Align with Government Programs</b>	<ul style="list-style-type: none"> <li>Ensure Government programs align with cookstove programs</li> <li>Lobby Government to support cookstove initiatives by providing funding support and ease transportation costs and associated duties rather than giving free handouts to end consumers</li> </ul>	 



**Executive Summary**

**Situation**

**Strategy**

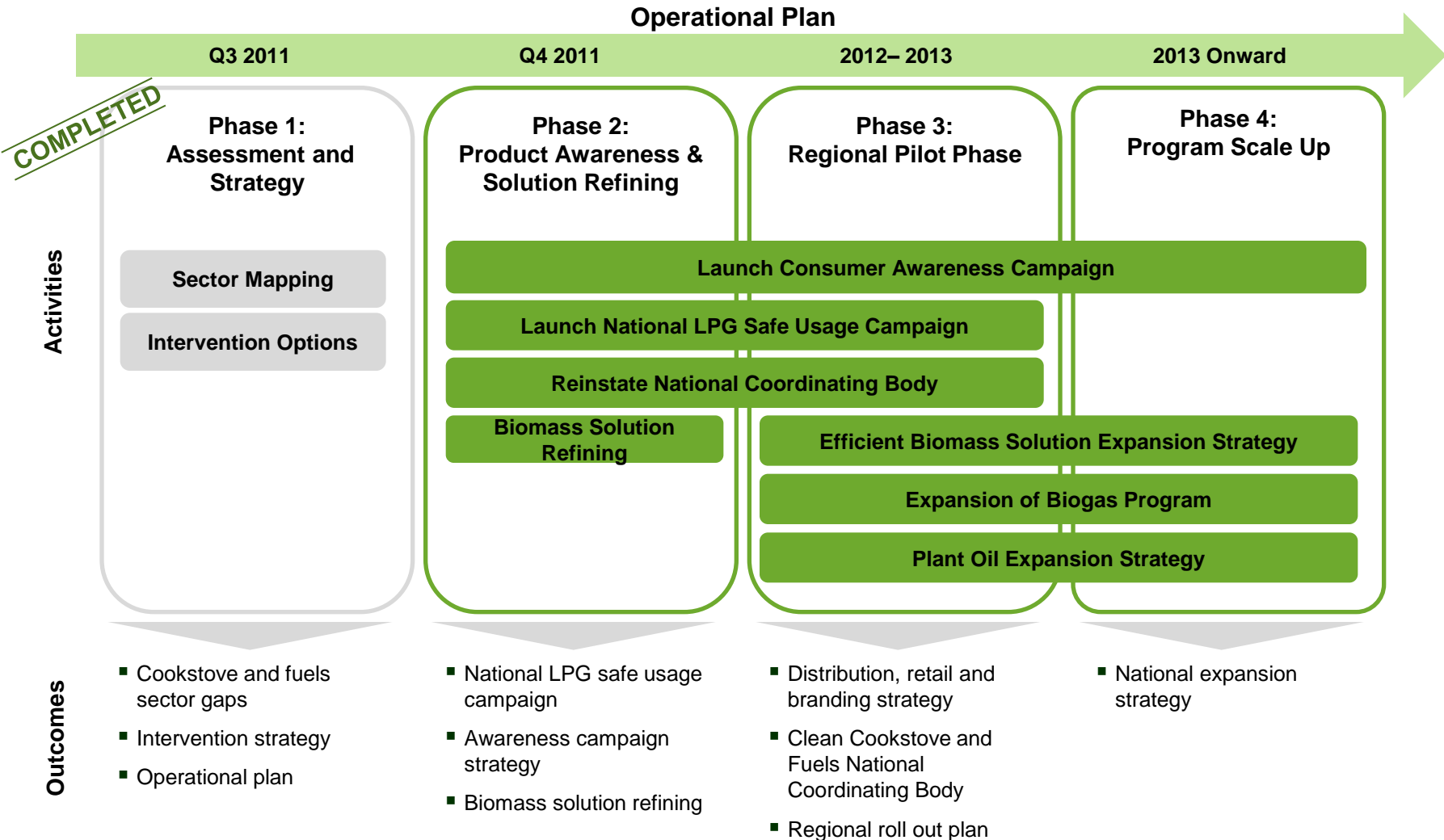
**Interventions**

**Operational Plan**

**Appendix**

# Operational Plan

The next phases of a clean cooking initiative in Indonesia involve solution refining, product awareness campaigns, and better program coordination and alignment to achieve its long term goal



**Executive Summary**

**Situation**

**Strategy**

**Interventions**

**Operational Plan**

**Appendix**

# Carbon Financing for Cookstoves

## Indonesia has a CDM Programme of Activities for cookstoves in progress

*Conditions for carbon financing of cookstoves are favorable...*

### CDM Eligibility

- DNA Secretariat based in National Council on Climate Change (NCCC)
- Indonesia not classified as a least developing country, so CDM projects must be approved by 2012

### CDM-Accredited Cookstove Programs

- Aceh Solar Cooker Program has been completed
- Kupang and East Indonesia programs dissolved due to insufficient credits

### Voluntary Emission Reduction Credits

- Carbon financing using voluntary emission reduction credits applicable beyond 2012

*...resulting in high carbon financed program activity*

### Cookstove PoA

- Global BDA and Atmosfair
- Save80 stove model prefabricated in Germany to be locally assembled
- Pending validation, expected registration by Q2 2012

### Gold Standard Cookstove Project

- Bosch Siemens Home Appliances
- Protos Plant Oil Cookstove is approved for gold standard carbon credits

### Organizations looking to Indonesia



# Glossary of Terms

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

- CDM – Clean Development Mechanism
- DNA – Designated National Authority
- GACC – Global Alliance for Clean Cookstoves
- HH – Household(s)
- IAP – Indoor Air Pollution
- ICS – Improved Cookstove
- LPG – Liquid Petroleum Gas
- MFI – Microfinance Institution
- NGO – Non-Governmental Organization
- PoA – Program of Activities
- SFU – Solid Fuel Use
- UNFCCC – United Nations Framework Convention on Climate Change
- USAID – United States Agency for International Development
- USD – US Dollars
- VER – Verified Emission Reduction (voluntary market)
- WHO – World Health Organization
- SNV – Netherlands Development Corporation
- SME – Small and Medium Enterprise