

MARKET ENABLING ROADMAP

2015 - 2017

GLOBAL ALLIANCE FOR
CLEAN COOKSTOVES

This Roadmap suggests a path forward for the Alliance and the sector in Phase 2 to achieve a goal of 60m households adopting cleaner and more efficient cooking solutions by 2017.

This is a living document. While this reflects our lessons learned in Phase 1 and the input of partners, we continue to welcome further comments to strengthen our collective approach.

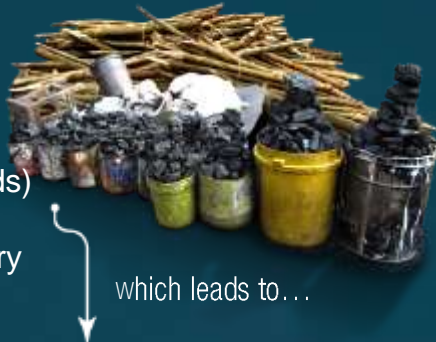
The Alliance envisions that the sector will need approximately \$500m in grant and investment resources to achieve these goals.

Specific implementation plans and timelines will be dependent on resources generated.

The Global Alliance for Clean Cookstoves will create a thriving market for clean cookstoves and fuels.

PROBLEM

Every day,
3 BILLION
PEOPLE
(500 million households)
rely on solid fuels to
power their rudimentary
stoves



which leads to...

- 4,300,000 deaths annually
- Wasted productivity
- Climate, forestry & other environmental degradation
- 21% of global black carbon emissions
- Health & economic burdens that disproportionately impact women & girls



MISSION

- SAVE LIVES
- IMPROVE LIVELIHOODS
- EMPOWER WOMEN
- PROTECT THE ENVIRONMENT



GOAL



100
MILLION
HOUSEHOLDS
ADOPT CLEAN AND
EFFICIENT
COOKSTOVES &
FUELS BY 2020

Our market based approach is built on three core strategies ...

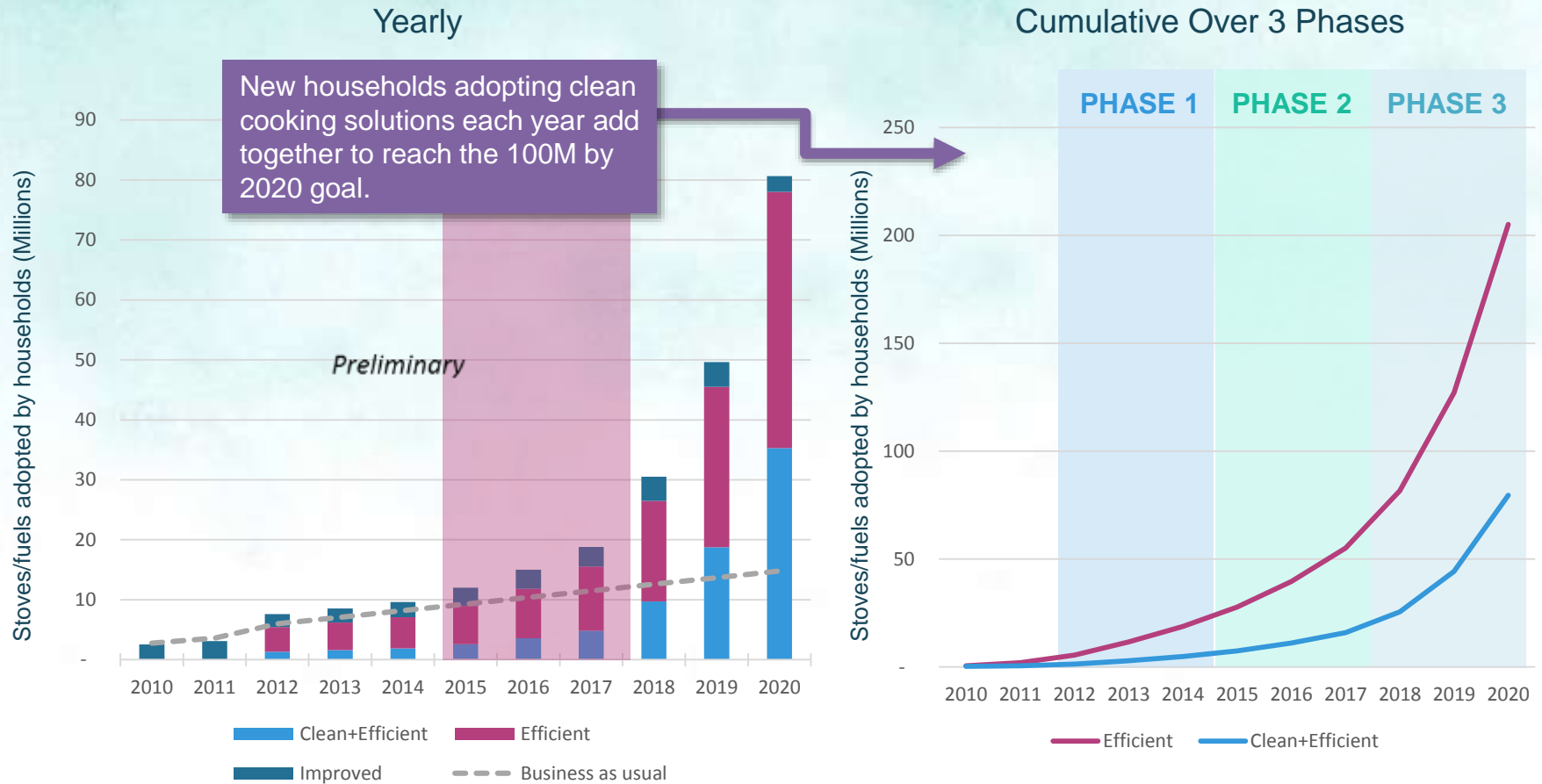


...and is being pursued in three phases.



By the end of 2014, over 20m HH cumulatively will have access to cleaner and more efficient cookstoves and fuels and we will likely reach our goal of 100m HH a year ahead of the 2020 target.

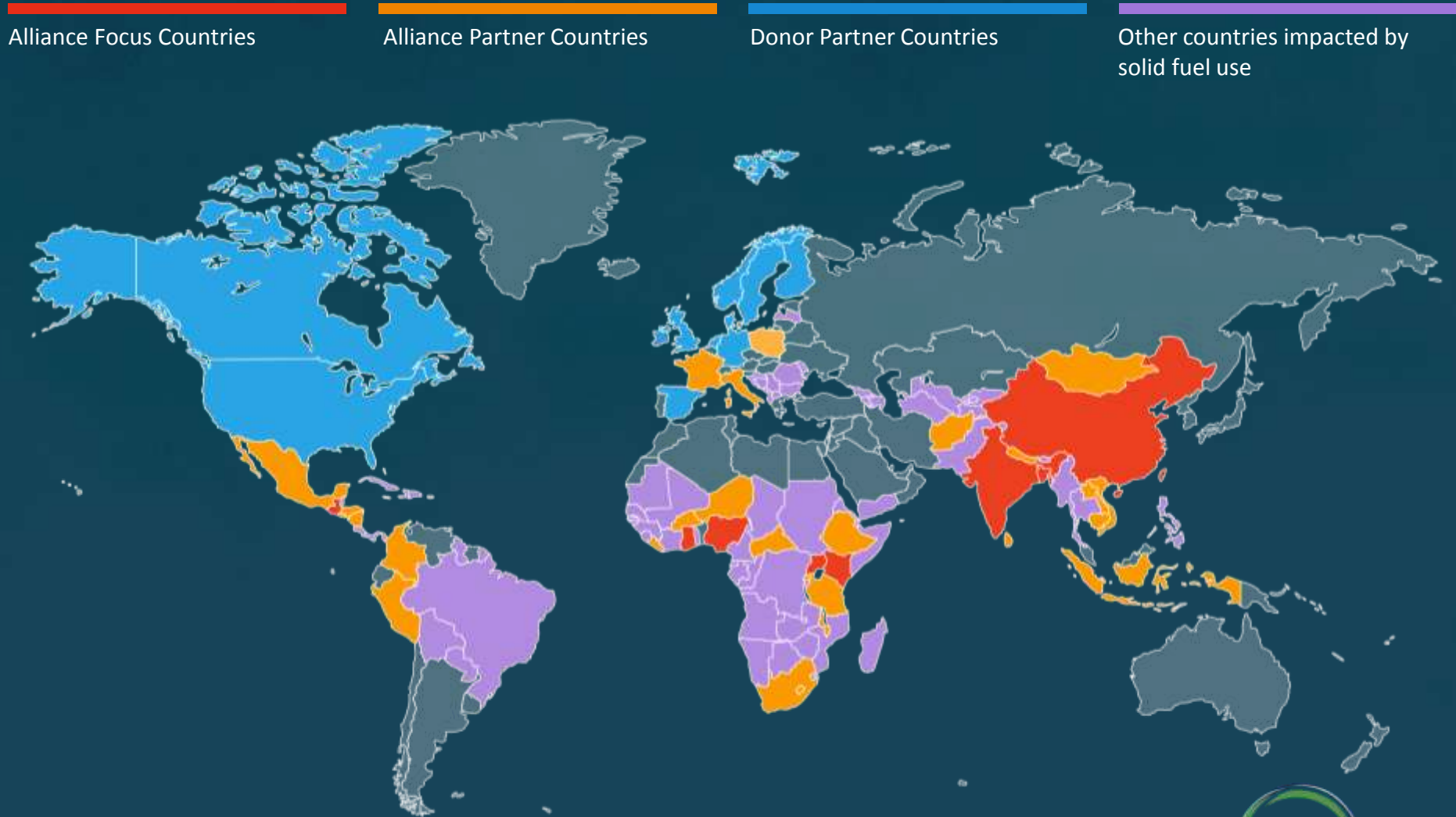
Household Adoption of Stoves/Fuels



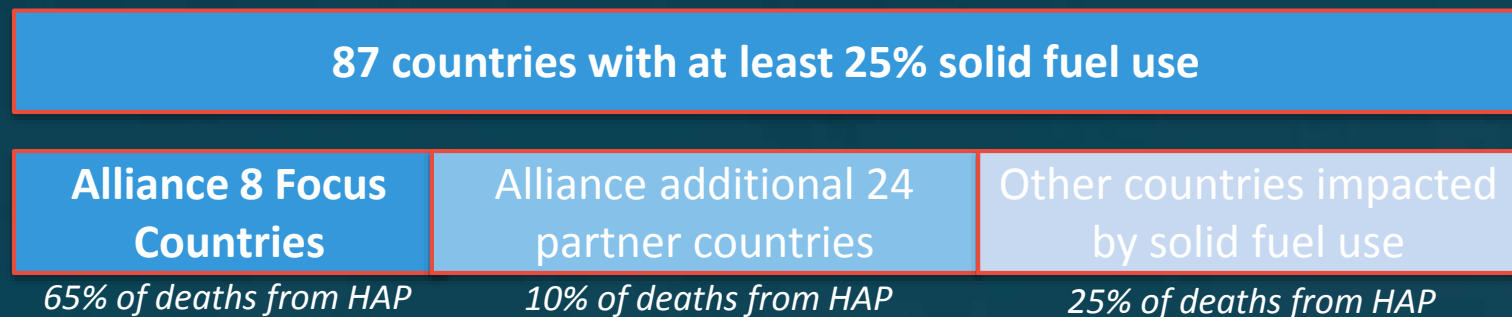
The Alliance now has 1,000 partners actively supporting and growing the sector.

Donor Countries	Canada Denmark Finland	Germany Ireland Malta	Netherlands Norway Spain	Sweden United Kingdom United States			
Private Sector & NGO	 	 	 	 	 	 	
UN & MFI	 	 	 	 	 	 	
National Partners	Afghanistan Bangladesh Burkina Faso Cambodia Central African Rep.	China Colombia Côte d'Ivoire El Salvador Ethiopia	France Ghana Guatemala Honduras Indonesia Italy	Kenya Laos Lesotho Liberia Malawi	Mexico Mongolia Nepal Nicaragua Niger	Nigeria Peru Poland Rwanda South Africa	Sri Lanka Tanzania Uganda Vietnam

We will continue to utilize a focused geographic strategy...



...to achieve rapid and sustainable impact.



Tailored Market Development Efforts



National Communications & Advocacy



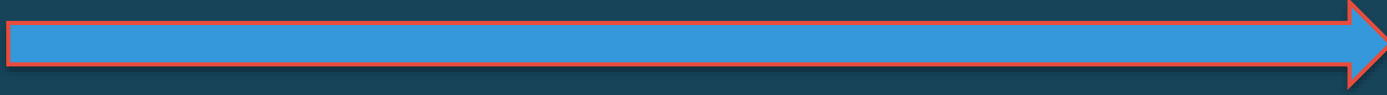
General Enterprise & Programmatic Support



Global Communications & Advocacy



Global Standards



Phase 1 Accomplishments



Fostering an Enabling Environment

- 35 Alliance research studies, leveraging ongoing related efforts to maximize value and ensure rapid delivery of results
- Over 30 countries engaged in the development of ISO standards
- Interim international standards established in four critical areas of technology performance including indoor and total emissions, efficiency, and safety
- WHO Indoor Air Quality Guidelines approved and released
- 13 testing centers around the world enhanced through grants and many more engaged in training and collaborative opportunities
- Global Burden of Disease demonstrates and global community accepts that HAP is 4th highest public health risk, and 2nd highest for women, in the developing world



Strengthening Supply

- Close to \$50m in investment resources supporting the production and distribution of cookstoves
- 3 different capacity building mechanisms developed in support of 100 enterprises
- 5 different financing mechanisms in place to support innovation and growth that have supported 40 enterprises; including a Women's Empowerment Fund
- \$15m to support innovation in the sector
- Attracted over \$170m in carbon finance



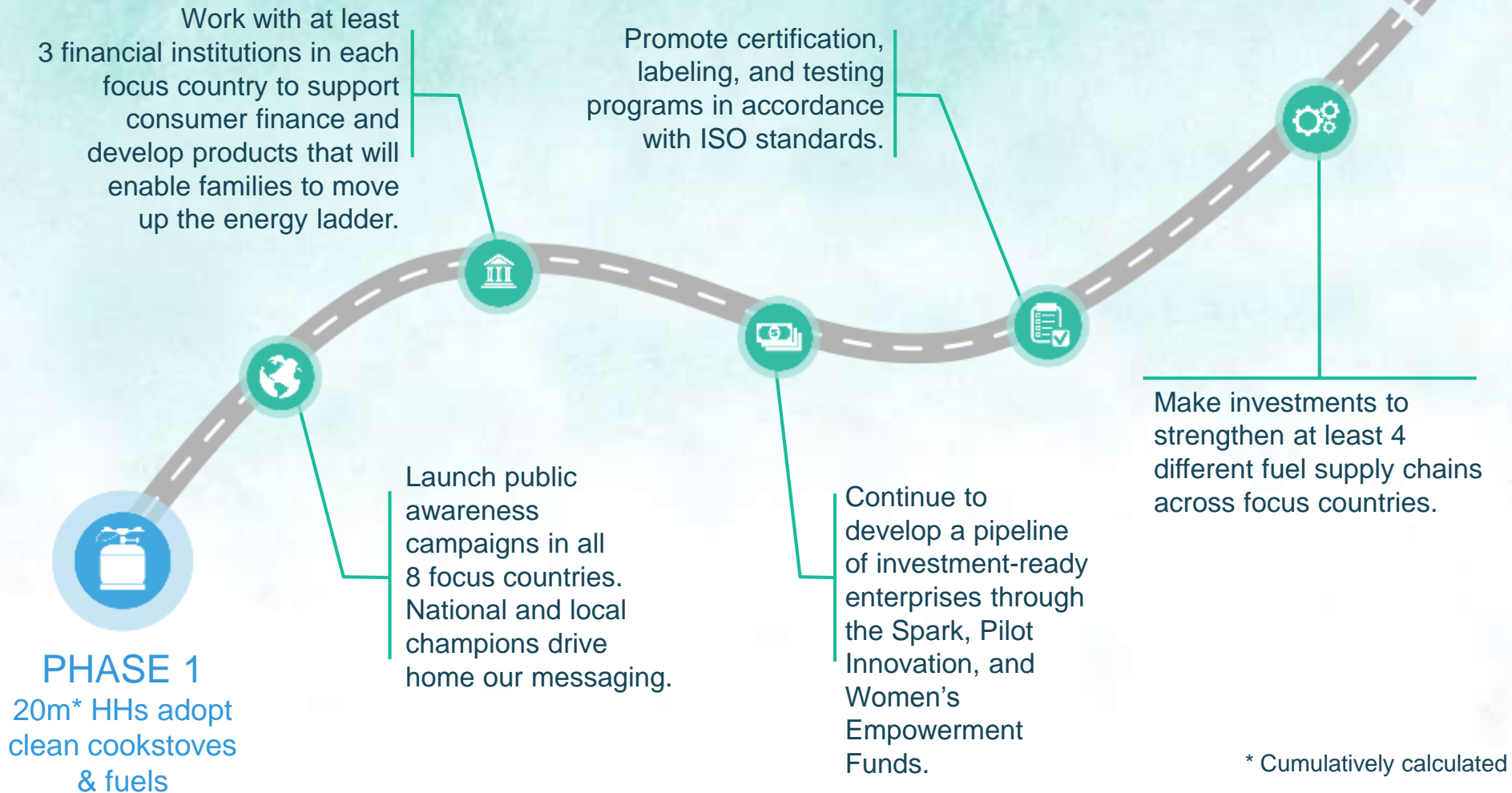
Enhancing Demand

- Customer segmentation studies completed in 3 focus countries
- Customer financing and distribution studies in progress – 2 large national/Pan-African banks finalizing plans for support of consumer finance
- 6 Alliance Ambassadors on board to champion the cause
- Growing in-country media attention

Phase 2 represents a significant shift towards demand creation, while continuing to strengthen supply and the enabling environment.



By the end of Phase 2, the Alliance will strive for 60m* HH adopting clean and efficient cookstoves and fuels.



Pursue meaningful policy and regulatory reforms to optimize the clean cookstoves and fuels market, especially in focus countries.

Help provide access to clean cooking solutions for 5 million people in refugee camps and other humanitarian contexts.

Demonstrate the life-saving impact of clean cooking interventions. Studies on child survival; cardiovascular and lung disease; and burn fatalities will continue to build the evidence base.

PHASE 2
60m* HHs adopt clean & efficient cookstoves & fuels

Use research results to continue to demonstrate the environmental and climate benefits of clean cooking. Affirmation of global energy goals in Post-2015 SDGs, Beijing +20, and SE4All will increase our profile and momentum.

Build a strong global network for evaluation of research.

The global health community fully embraces and acts on the issue of household air pollution.

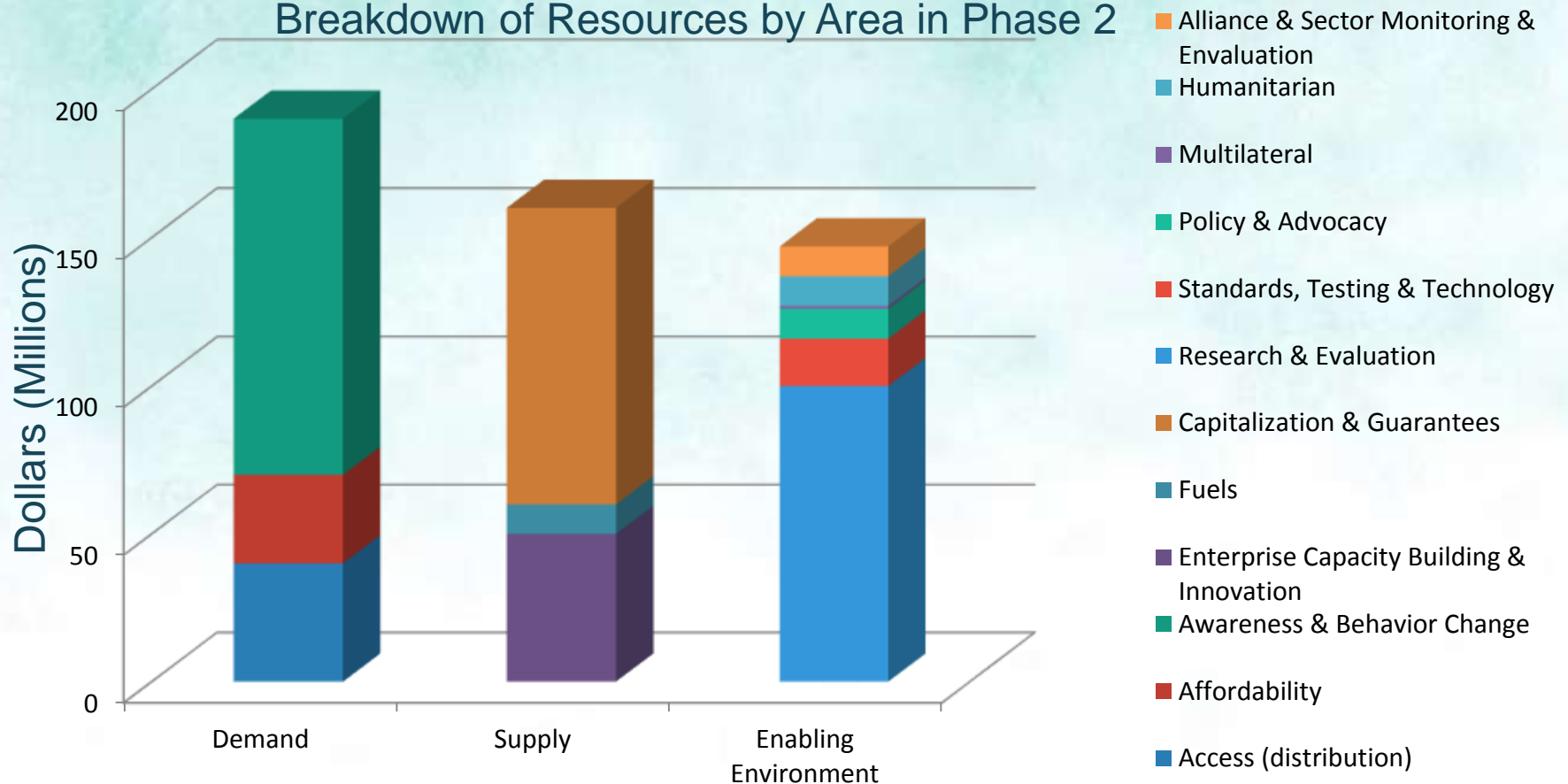
* Cumulatively calculated

The Alliance will need \$500m in resources to accomplish Phase 2 goals.



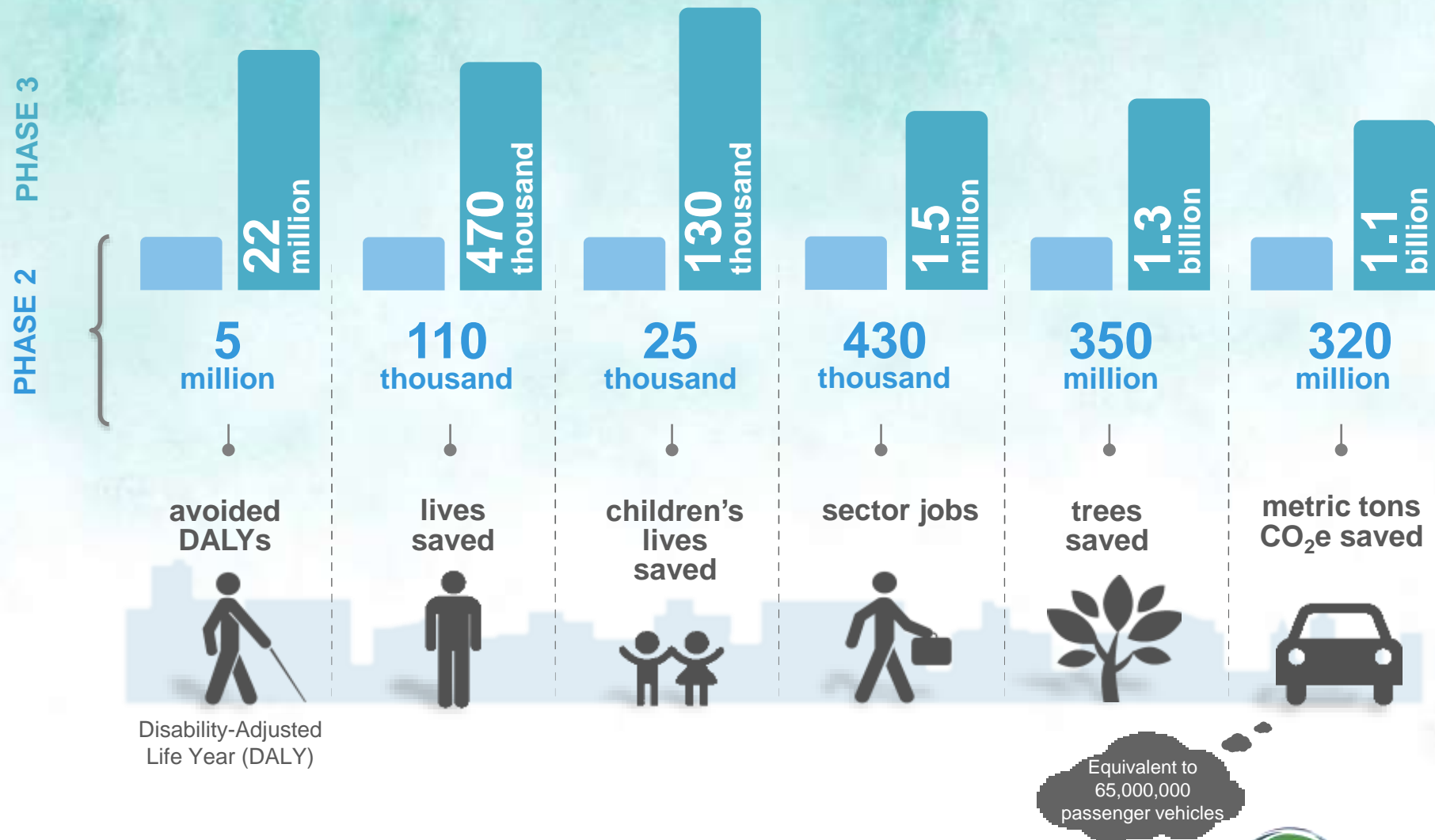
Phase 2 resources will focus on increasing demand while continuing to strengthen supply and enable the market.

Breakdown of Resources by Area in Phase 2



*Alliance women's empowerment and knowledge management efforts have been mainstreamed throughout our programming and this resource allocation

Projected Impacts – Global



Projected Impacts – Per Household

Households PURCHASING fuel



61%

reduction of
spending on fuel



6.2%

household income
saved

Households COLLECTING fuel



102 HOURS

saved per year
collecting firewood

Together we can build on the 'spark' we ignited in Phase 1 to create a dynamic marketplace with sustained impact in Phase 2.



Impact on health



Impact on environment



Women empowered



Economic productivity

Appendix to Executive Summary

- Enhancing Demand
- Driving Investment into the Sector
- Country Goals and Strategies
- Standards, Testing and Technology
- Fuels
- Research and Evaluation
- Health and Adoption
- Environment and Climate
- Women's Empowerment
- Knowledge Management
- Humanitarian Engagement
- Monitoring and Evaluation
- Partner Engagement
- Methodology



Enhancing Demand

All components of demand generation will need to be activated to ensure adoption.

Awareness 

Affordability 

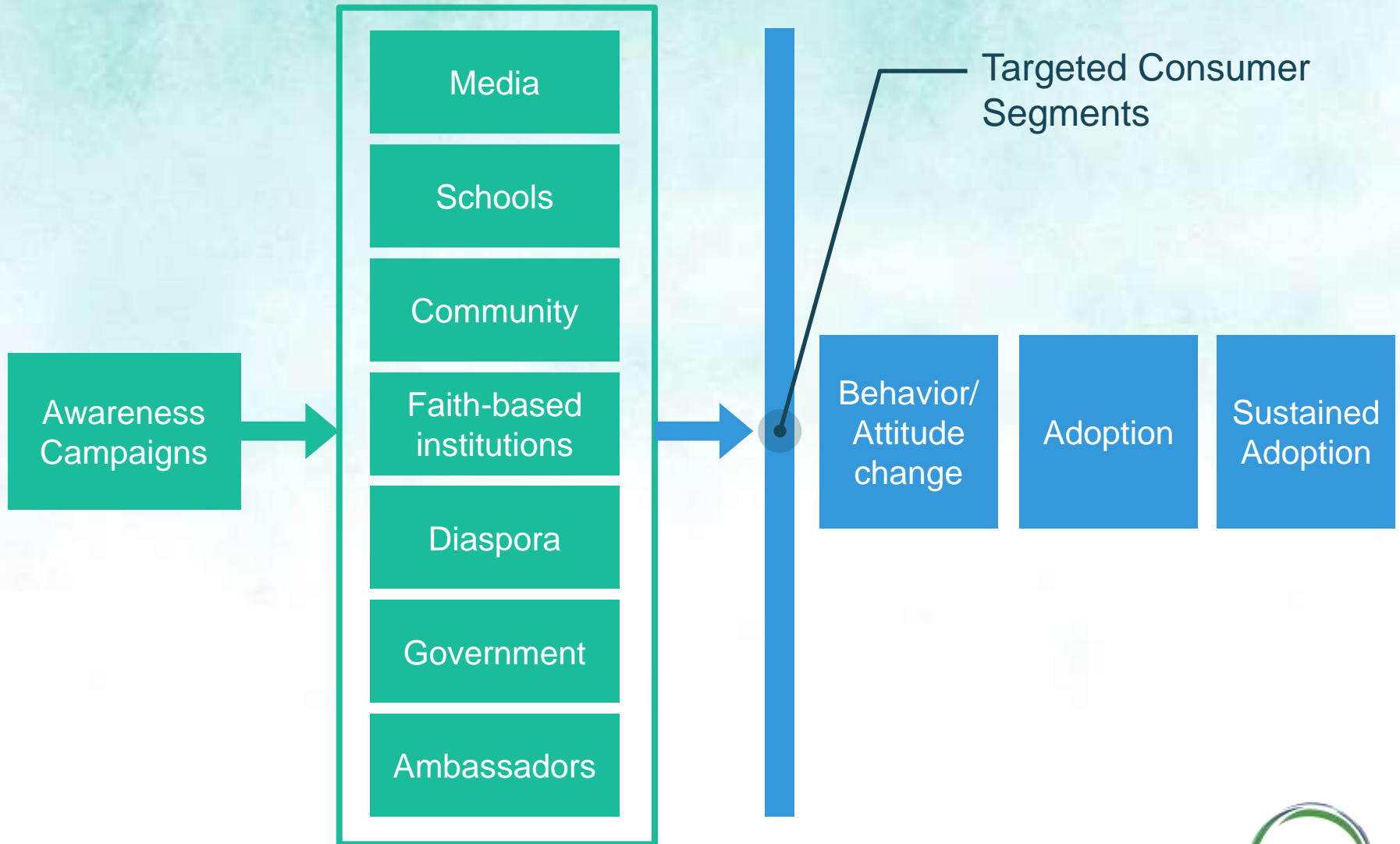
Access 

Consumer/User
Adoption



Monitoring &
Evaluation

Multi channel engagement is essential for awareness generation, behavior change and sustained adoption.



A variety of tools will be put in place to support access including distribution to and engagement at the last mile.



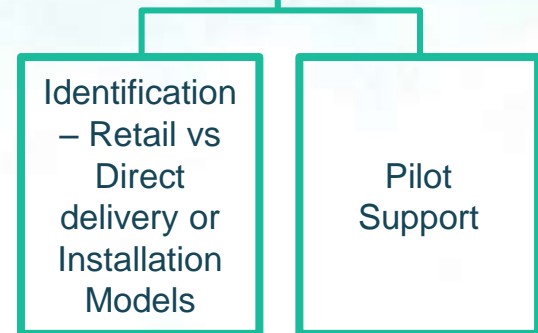
Distribution, Activation and Service



Strengthening Existing Distribution & Activation Channels



Leveraging New Channels



The Alliance will broker partnerships with a range of institutions to ensure appropriate consumer financing products.



Access to Consumer Finance

Targeted Customer Segments in Each Country

Retail/Distributor



- Working Capital
- Impact Funds
- Capacity Building Facility

Banks



- First Loss Guarantee
- Training SME Officers
- New Product Development

Cooperatives & MFIs



- Guarantees
- Training of Members

Group Savings



- Education
- Revolving Loan Fund
- Training of Members



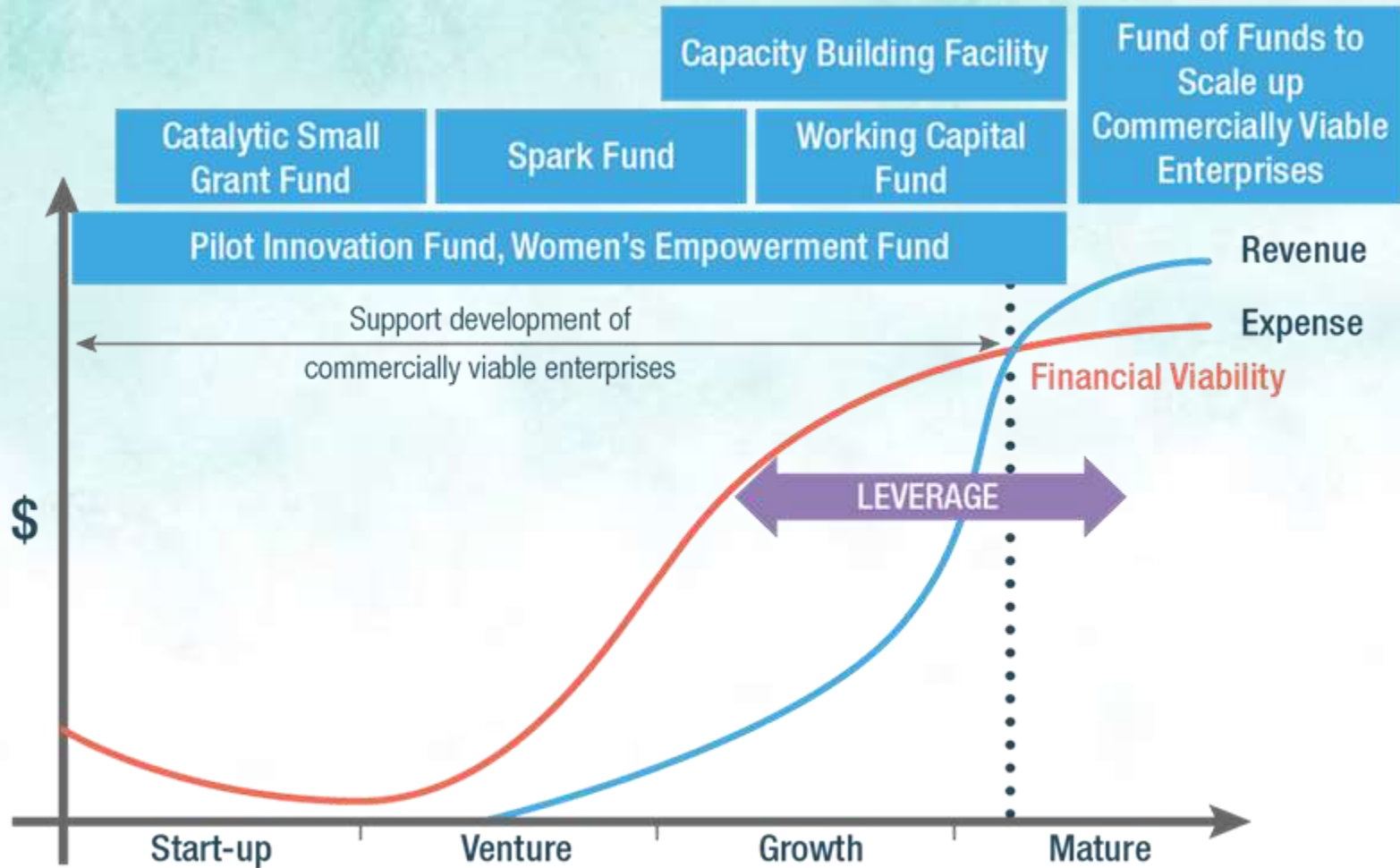
Driving Investment into the Sector

Alliance Strategy to Strengthen Supply

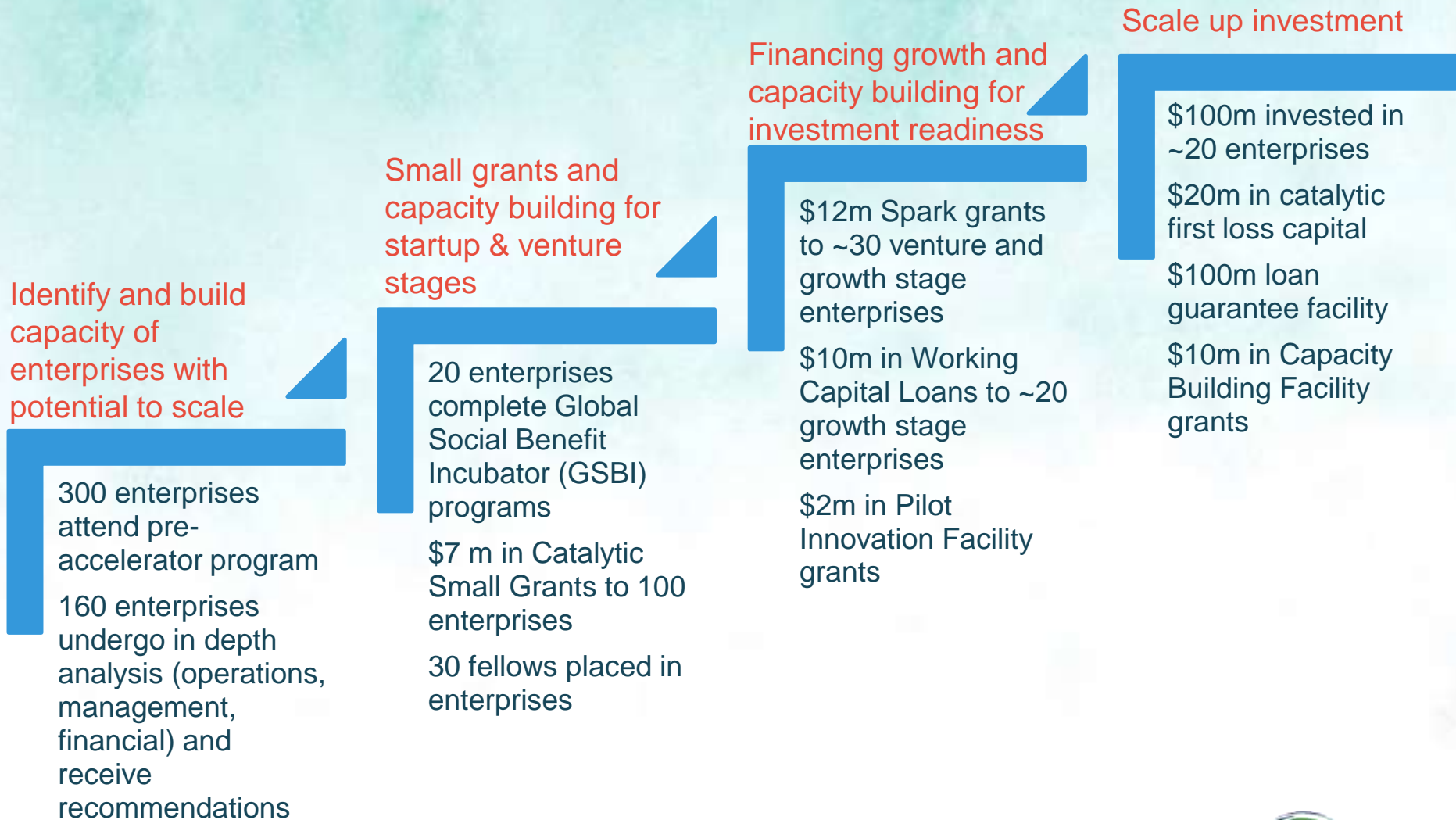


*This includes \$100m that will be raised and invested during Phase 2

The Alliance has a suite of financing mechanisms to develop and grow the clean cooking sector.



Phase 2 will see large scale investment in the clean cooking sector.



We will continue to engage in a graduated approach to enterprise capacity building.

Identification of high potential enterprises

The Alliance will tap its many partners to identify enterprises with high potential to scale.

The Alliance will offer all partners online tools for self assessment, capacity development and access to a roster of experts.

The Alliance will support high potential enterprises via targeted programs:

- Pre-Accelerator
- Due Diligence

Capacity building for startup & venture stages

The Alliance will nurture promising enterprises through several initiatives and partnerships. These include:

- Partnership with Global Social Benefit Incubator (GSBI)
- Catalytic Small Grant Fund
- Fellows Program

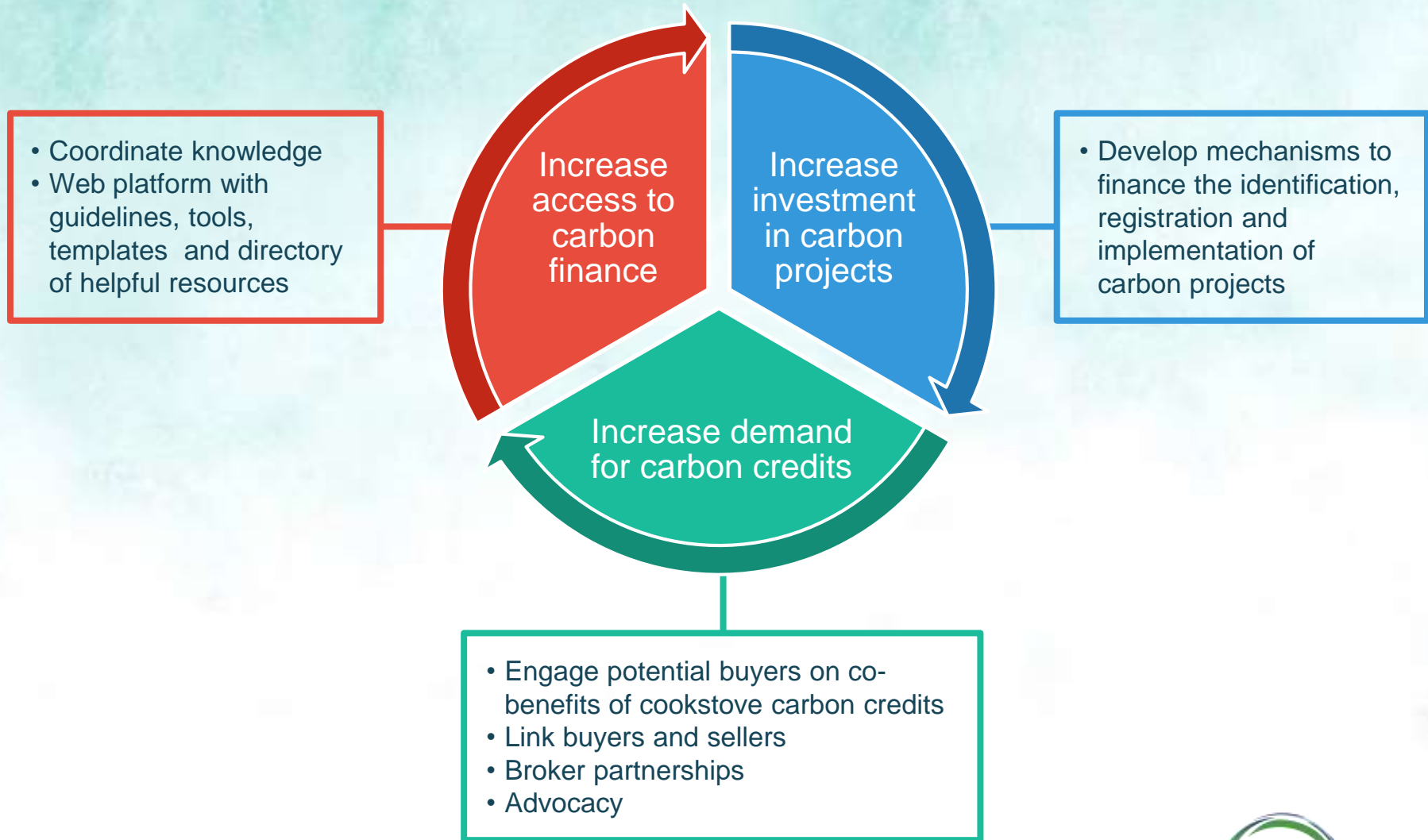
Capacity building to attract & leverage investment

The Alliance will fund capacity building to leverage investment capital.

The Capacity Building Facility (CBF) will pair capacity building with investor capital to scale up enterprises.

CBF will provide grants of 10% of financing commitments.

Carbon finance is an important component to ensuring strong supply and increased adoption.



COUNTRY GOALS & STRATEGIES

- Bangladesh
- China
- Ghana
- Guatemala
- India
- Kenya
- Nigeria
- Uganda



Bangladesh

The Issue in Bangladesh

- 89% of population relies on solid fuels
- 138 million people affected
- 29 million households affected
- 78,000 deaths per year from exposure to cookstove smoke
- 8,600 child deaths per year from exposure to cookstove smoke
- Government vision of making all kitchens free of smoke by 2030



Phase 1 Statistics

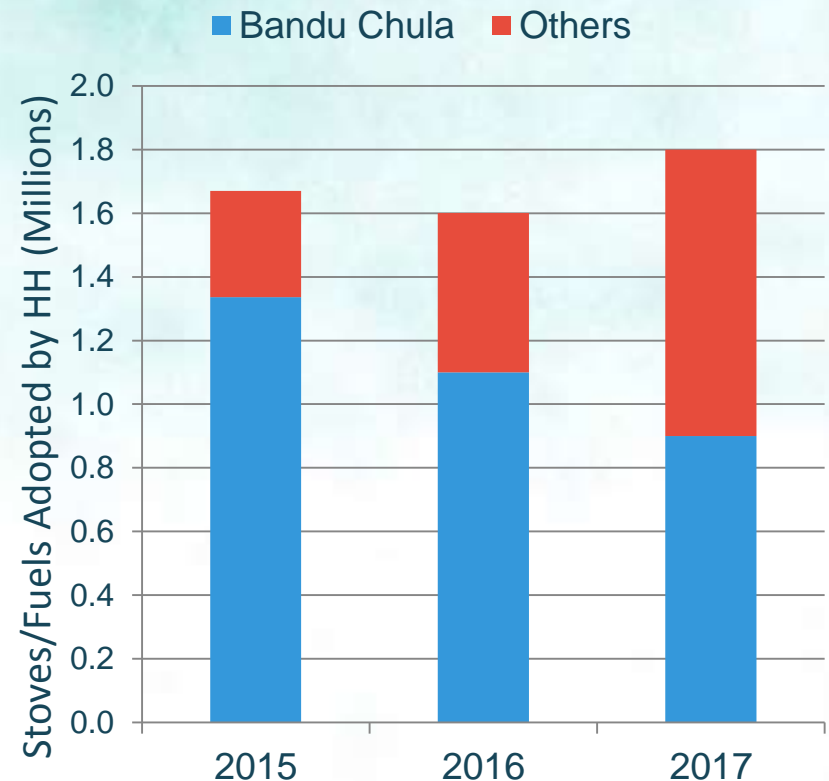
- Country Action Plan launched in November 2013
- Establish Household Energy Platform (HEP) hosted by Power Division
- Advocacy for mainstreaming cookstoves and fuels interventions in other prospective ministries like:
 - Environment
 - Women and Children Affairs
 - Local Government
 - Health
 - Rural Development
 - Social Welfare
- The Bangladesh Standards and Testing Institute (BSTI) has dedicated its Special Appliance Committee for cookstove standards work in order to develop national standards/guidelines on cookstove performance
- National Cookstove Testing Centre initiated by IDCOL



Impacts in Bangladesh by 2017

- 5m additional HH adopting efficient and clean
- 5,900 lives saved
- 900 children's lives saved
- CO₂eq reductions of 41m (mtCO₂eq)
- 47k people employed by the sector
- 2.6% of household income saved

Adoption Goals



Bangladesh: Priorities for Phase 2



Enhancing Demand

- Launch national awareness raising and behavior change campaign targeting 30 districts
- Preferential interest rates for consumer loans with 2 banks and 30 MFIs
- Disseminate information through the Union Information and Service Centers in the 30 targeted districts



Strengthening Supply

- At least 2 non-cookstove distribution models capitalized and in place to expand product outreach
- Access to government funds through at least 2 additional ministries
- At least 4 new SMEs with access to finance to scale up their business
- Build capacity of 10 entrepreneurs to develop more customer focused business plans



Fostering an Enabling Environment

- Establish national cookstove testing and knowledge center and 2 field level testing centers
- Develop and disseminate national M&E plan and ensure implementation by stakeholders
- Facilitate efficient functionality of the Household Energy Platform
- Commission 2 research studies to build the evidence base on the relationship between cookstoves and health, livelihoods, environment and women's empowerment
- Facilitate a conducive environment for importing improved and efficient stoves
- Strong partnership with SE4ALL, GIZ, World Bank, CCAC, and other initiatives in place to reinforce clean cooking

China



The Issue in China

- 45% of population relies on solid fuels
- 608 million people affected
- 203 million households affected
- 1,040,000 deaths per year from exposure to cookstove smoke
- 11,500 child deaths per year from exposure to cookstove smoke
- 608 million people rely on solid fuels and are affected
- Emissions from cooking and heating activities identified as one of the largest sources of toxic smog and China's widespread air quality issues
- 3000 stove manufacturers
- Largest national stove program in any country in the 1980s-1990s



Phase 1 Statistics

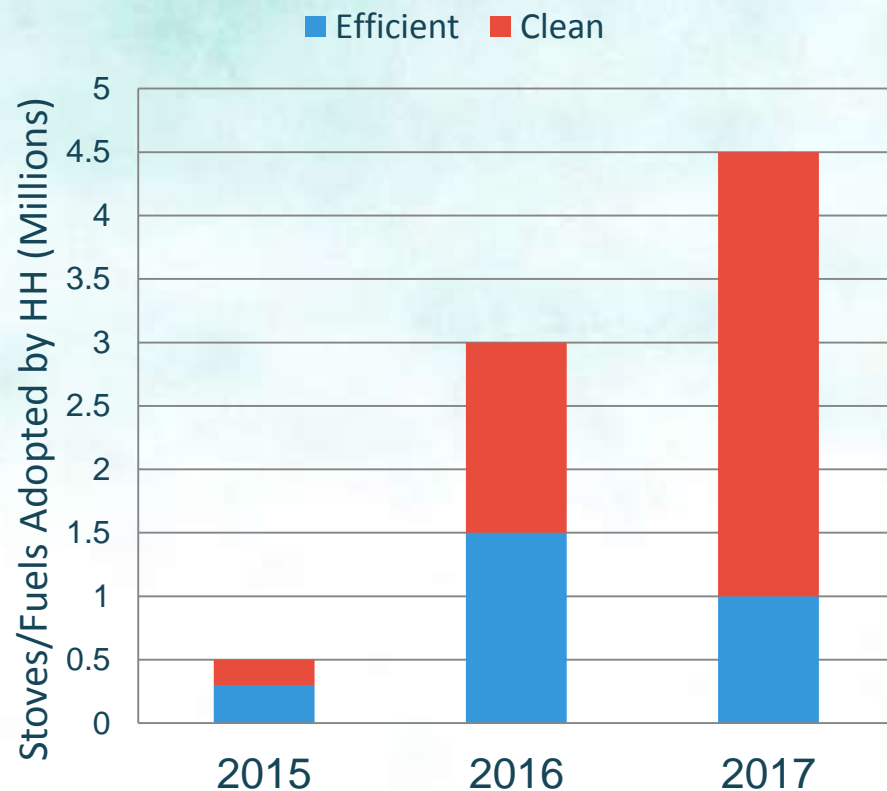
- 100+ Alliance partners active in China
- ~\$300,000 in Alliance support for the Chinese stove sector, including the launch of two testing centers
- MOUs signed with the National Development and Reform Commission and the Ministry of Agriculture
- Mr. Xie Zenhua of NDRC joined Alliance Leadership Council
- Successful advocacy to include clean cookstoves in the 13th five year plan with goal of up to 40m HH adopting clean cookstoves and fuels
- National market assessment completed
- Assessment of six representative provinces completed



Impacts in China by 2017

- 8m households adopting clean and efficient cookstoves and fuels
- 31,000 lives saved
- 1,100 children's lives saved
- 59 mtCO₂eq reductions
(or 29m mt coal saved)
(or 48m acres of forests conserved)
- Fuel collecting and cooking time reduced by 2h/day
- 2.5% household income saved
- 74,000 people employed
- Significant drop in PM_{2.5} in suburban areas

Adoption Goals



China: Priorities for Phase 2



Enhancing Demand

- Improve government subsidy instruments to better finance the purchase of cleaner stoves and fuels
- National and province level awareness raising and behavior change campaign with support of MOA and All-China Women's Federation
- Develop new models in each province for last mile distribution and customer finance



Strengthening Supply

- Adapt technology to ensure supply of products that meet consumer needs
- Tailored support to selected enterprises: grants + capacity building
- Drive a strong pelleting and fuel making industry
- Pilot South-South program co-led by NDRC and broker at least one dozen partnership between Chinese companies/suppliers and enterprises in Africa



Fostering an Enabling Environment

- Continued relationship building with key government stakeholders to ensure provisions for resources in line with 13th five year plan to include cookstoves
- Support MOA to develop a 2nd national stove program as well as a M&E system
- Build evidence base in China context, particularly on environmental degradation and pollution – specific research studies – fuels, CVD, indoor to outdoor AP
- Ensure full participation and certification and labeling of stoves by standards body

A smiling woman with short dark hair, wearing a bright green sleeveless dress with a colorful patterned collar, is cooking in a kitchen. She is holding a long wooden spoon and stirring a large, dark, cylindrical pot. The kitchen has light green walls and blue shelves. The shelves are cluttered with various kitchen items, including several stacked metal pots, a white ceramic pot, a green plastic strainer, a metal colander, and various jars and containers. A blue plastic container is also visible on the shelf. The woman is looking towards the camera with a warm smile. The overall atmosphere is warm and homely.

Ghana

The Issue in Ghana

- 84% of population using solid fuels for cooking
- 21 million people affected
- 4 million households affected
- 13,400 deaths per year from exposure to cookstove smoke
- 3,000 child deaths per year from exposure to cookstove smoke
- Almost 50% of households rely on fuelwood for their household cooking needs, contributing to environmental deforestation and desertification



Phase 1 Statistics

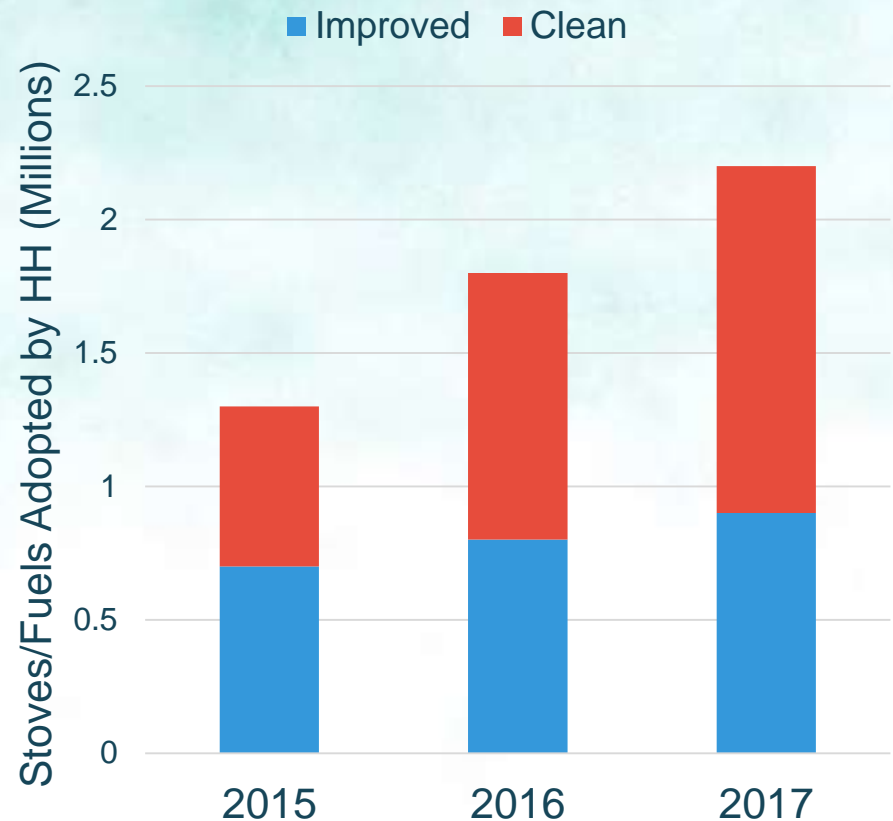
- Country Action Plan adopted in 2012
- Prioritization of clean cooking across government ministries and agencies
- 900,000 improved and clean stoves in circulation
- Government LPG policy in place with the goal of transitioning at least 50% of the population to LPG for cooking by 2020
- Enhancement of testing center at the Council for Scientific and Industrial Research
- Child survival health research in Kintampo
- Ghana standards process initiated for clean cooking and aligned with global ISO TC 285
- Identification and capacity building of promising local enterprises
- Awareness building for investors in potential clean cooking sector
- Development of the Ghana Alliance for Clean Cookstoves (GHACCO)
- Two strong celebrity Ambassadors, Rocky Duwani and Stephen Appiah, and highly influential Minister on Alliance Leadership Council, Hanna Tetteh



Impacts in Ghana by 2017

- 2.4m additional HH adopting efficient and clean cookstoves
- 5,700 lives saved
- 2,500 children's lives saved
- CO₂eq reductions of 43m (mtCO₂eq)
- 49k people employed by the sector
- 2.5% income saved

Adoption Goals



Ghana: Priorities for Phase 2



Enhancing Demand

- Targeted awareness raising campaigns and behavior change in at least five regions – focused efforts at district level
- Preferential interest rates for consumer loans with one major bank, 2 large scale MFIs and savings groups
- At least 3 strong distribution models capitalized and in place to expand product access
- Enhance after sales service, particularly related to the adoption of LPG



Strengthening Supply

- 4 local enterprises and 2 importers ready for investment
 - Business capacity building for a dozen enterprises
 - Technology improvement support for locally produced charcoal and firewood stoves
- Support to scale 3 clean fuel enterprises
- Customer research to support growth of home based institutional stoves market
- Complete LPG Investment study and support brokering of partnerships for execution
- \$500,000 Catalytic Small Grants to >5 enterprises
- \$3m in guarantees, \$1m in Capacity Building Facility grants



Fostering an Enabling Environment

- Develop a national database for all cooking technologies and fuels and practitioners in the country
- GSA adaptation of global standards and strong certification process in place
- Strong partnership with SE4ALL, GEF, World Bank initiatives in place to reinforce clean cooking
- LPG and Biofuels policy in place – derive policy brief to ensure the clean household energy for cooking is prioritized in the policy
- Engage government to relax duties on large quantities of sourced materials



Guatemala

The Issue in Guatemala

- Around 70% of households use firewood for cooking
- 2.5 million households are affected by HAP; 9.6 million people
- 5,200 deaths per year from exposure to cookstove smoke; 1,800 child deaths
- Lower respiratory infections are the primary cause of death in the country
- HAP is the second greatest risk factor for DALYs
- Annual firewood deficit equivalent to nearly 6 million tons
- Households spend up to 2 hours per day collecting wood in rural areas



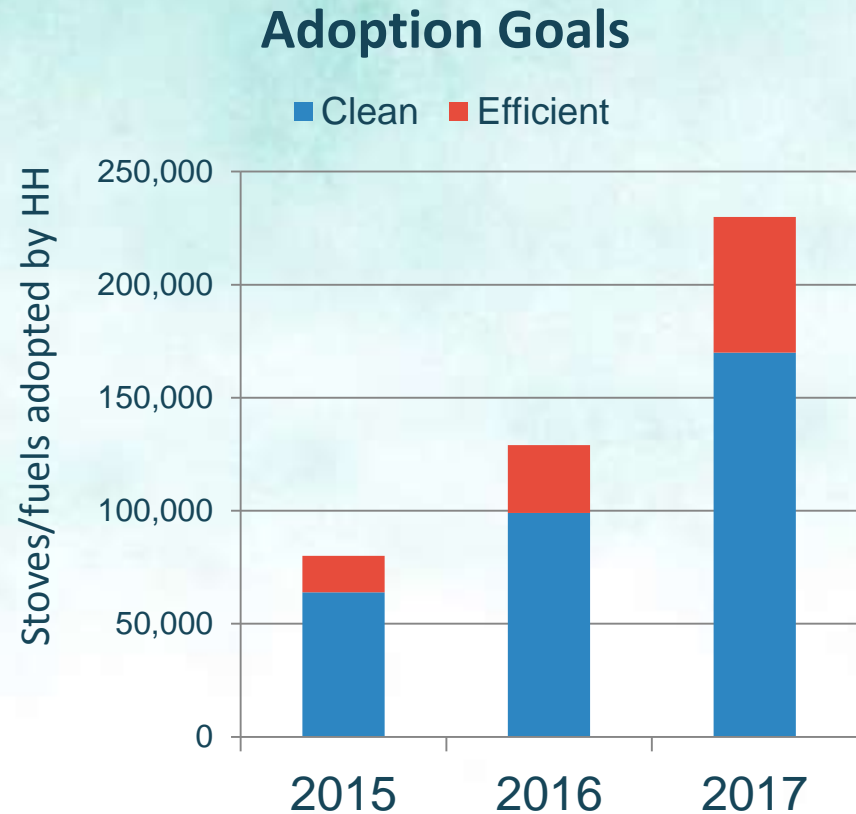
Phase 1 Statistics

- Country Action Plan released in May 2014
- Over \$110,000 in grant support to enterprises through PIF and WEF
- Inter-institutional Wood & Energy Roundtable formed representing 14 government agencies
- Release of National Strategy for Sustainable Use of Wood with goals to disseminate 650,000 cookstoves/10 years
- President's 2013 announcement of Q42 million (US\$5.5 million) in resources for this issue
- Coordination with World Bank Central America Clean Cooking Initiative (CACCI), SE4ALL, USAID/IDB Low Emission Development Strategy (LEDS)
- Ministries of Agriculture, Energy, and Environment to implement cookstoves projects in 2014
- Technician training module on cookstoves in development by National Forestry Institute and Ministry of Energy
- More than 30 manufacturers, implementers and importers of over 25 types of improved cookstoves



Impacts in Guatemala by 2017

- 500,000 HH adopt stoves and fuels
- 1,200 lives saved
- 700 children's lives saved
- CO2 equivalent reductions of 4.6 million mtCO2eq
- 4,700 people employed in the sector
- 6.5% savings in household income



For our adoption goals in Guatemala, we anticipate more clean cookstoves than efficient cookstoves. This is because the majority of Guatemalan cookstoves have a chimney, a feature that results in significant reductions in indoor emissions. However, the plancha (griddle) also common on Guatemalan stoves distributes heat across a wide surface for tortilla making, which serves to decrease the efficiency of the stove for some cooking tasks.

Guatemala: Priorities for Phase 2



Enhancing Demand

- Launch a consumer research study to help the sector define priority segments with the potential for scaled adoption of cleaner cookstoves and fuels and identify suitable strategies for increasing demand and adoption among these segments.
- Support the development and implementation of a national awareness campaign for key segments and geographical regions and identify national champions and leaders. Work with government to strengthen clean cooking messaging within existing government initiatives
- Scale up access to existing consumer finance and improve loan products for cookstoves.



Strengthening Supply

- Launch a catalytic small grants fund to build enterprise capacity across the clean cooking supply chain to ensure a strong local market for clean and efficient stove and fuels
- Provide skills development in key capacity areas such as financial management, marketing, distribution, supply chain management, and investor pitching
- Develop a line of credit or loan guarantee to enable cookstove producers to purchase materials for large orders with payment upon delivery
- Increase accessibility of carbon finance for stakeholders



Fostering an Enabling Environment

- Facilitate the participation of the Guatemalan standards body in international standards discussions
- Support the evaluation of procedures for cookstove testing and certification and, in the interim, enable the testing of Guatemalan cookstoves at subsidized rates
- Adapt the Alliance's monitoring and evaluation methodology for country-level application
- Mobilize regional and international institutions around the Country Action Plan to reinforce their collaboration and define their technical and/or financial support

India



The Issue in India

- 63% of the population rely on solid fuels
- 780 million people affected by household air pollution
- 144 million household affected
- 1,022,000 deaths per year from exposure to cookstove smoke
- 100,000 child deaths per year from exposure to cookstove smoke



Phase 1 Statistics

- Identified priority states (Rajasthan/Odissa, Maharashtra and Kerala)
- Carried out two stakeholder workshops to determine barriers to growth in Indian market and released the India Clean Cookstoves and Fuels Market Assessment
- Supported the Regional Cookstoves Testing and Knowledge Centre in Nepal and IIT Delhi for cookstoves testing, as well as The Energy and Resources Institute for field testing of cookstoves
- Five Indian enterprises have received capacity building support and grants from the Alliance totaling ~\$750k



Phase 1 Statistics Continued

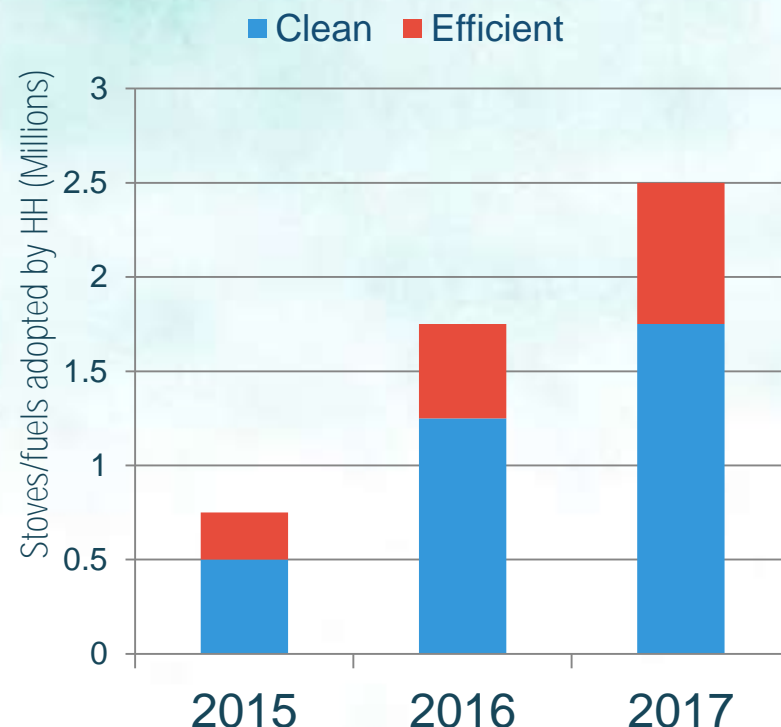
- Supported three research studies in burns surveillance, gender and livelihood impacts, and geospatial mapping of global woodfuel resources
- Partnered with WHO, the Indian Council of Medical Research, and the Center for Advanced Research on Environmental Health to develop the Indoor Air Quality Guidelines
- Supporting the development of burns surveillance tool of kitchen accidents in India at Lok Nayak Hospital, Delhi
- Field studies carried out in Karnataka, Himachal Pradesh and Odisha (India Study) as part of Gender and Livelihood Impacts of Clean Cookstoves in South Asia



Impacts in India by 2017

- 5m HH adopt stoves and fuels
 - 2.25m clean biomass stoves (About 1.75m in priority states and the rest in Pan India)
 - 2.75m clean fuels stoves (About 2m in priority states and rest in Pan India)
- 31,000 lives saved
- 7,000 children's lives saved
- CO₂eq reductions of 42m (mtCO₂eq)
- 47,000 people employed by the sector
- 3.3% of household income saved

Adoption Goals



India: Priorities for Phase 2



Enhancing Demand

- Targeted awareness raising and behavior change campaigns in priority states
- Support channels for dissemination of clean cookstoves through the Ministry of New and Renewable Energy's national program, utilizing mobile technology to order cookstoves, and other methods
- Distribution Network – deep dive on distribution mapping, working capital facility for distributors
- Support Innovative Distribution Channels – Replicate successful distribution channels from FMCG; distribution through community level health clinics; through Self Help Groups
- Consumer financing mechanism in place – line of credit to Regional Rural Banks, MFIs to finance distributors and consumers, kiva type financing



Strengthening Supply

- Investment readiness of 4-5 enterprises operating in country - Prepare and encourage at least 4-5 enterprises to apply for Pilot Innovation Funds, Spark Funds and Women's Empowerment funds each year (At least 2-4 enterprises investment ready by end of 2017)
- Support Innovation and Technology Improvement - encourage new stove design (including 2 burner stoves); support R&D and incubation centers; support improvement in induction technology to cook all local foods
- Engage 2-3 large retailers to include clean cookstoves and fuels in their portfolios



Fostering an Enabling Environment

- Create conducive policy environment for dissemination and adoption by partnering with state governments in Kerala, Rajasthan and Maharashtra
- Research studies – deep dives in pilot states to ascertain the current situation (continued usage of biomass stoves, trend of induction stoves usage, verify domestic LPG current numbers and future potential and recommend suitable interventions to test and strengthen 3-4 distribution models)
- Standards and testing of two burner biomass stoves and fixed stoves
- Energy Efficiency Standards and Labeling for induction stoves
- Collaboration and cooperation with multilateral programs
- Leverage CSR funds of Indian corporations

Kenya



The Issue in Kenya

- 70% of the population relies on solid biomass for cooking and heating
- 95% of the rural population depends on solid biomass for heating and cooking
- 14,300 people die annually from household air pollution
- Current forest cover stands at 3%
- Deforestation rate of 12,000 ha/year
- CAP adopted in April 2012



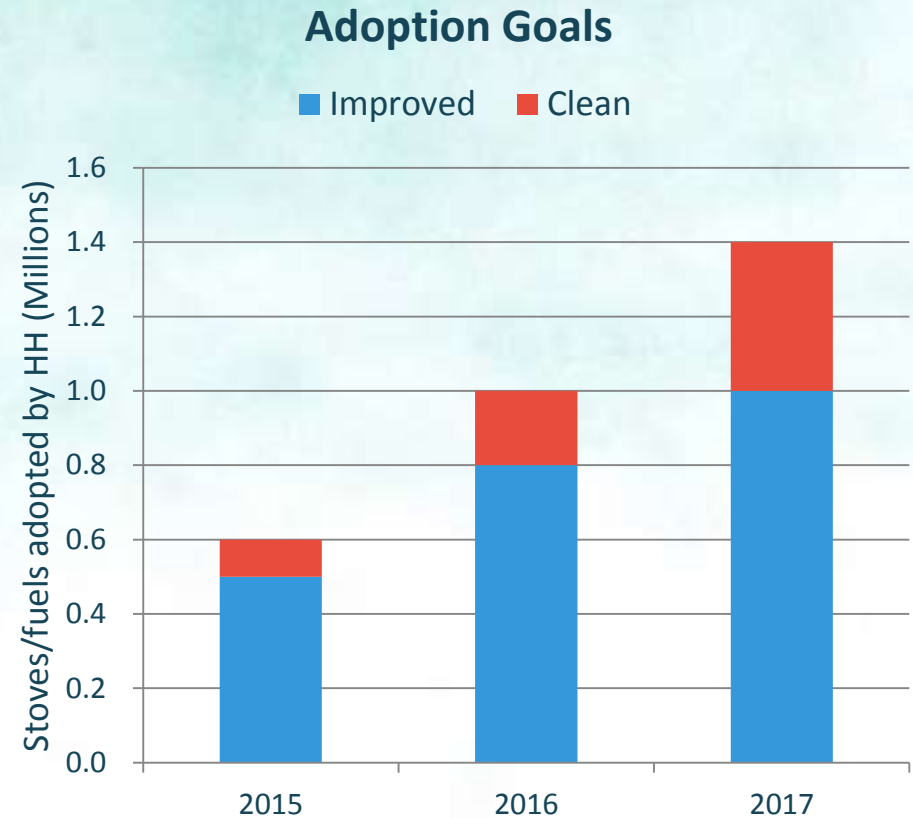
Phase 1 Statistics

- Country prioritized as focus country in 2011
- A total of 854,624 stoves distributed over the period
- 164 Alliance partners in Kenya
- About \$20 million of grant, research, testing and investment support in Phase 1
- Version Two of Country Action Plan released in March 2014
- National Alliance operational with 40 members
- Key government agencies on board: Environment, Health, Energy, Industrialization



Impacts in Kenya by 2017

- 3m cookstoves and fuels adopted
- 3,500 lives saved
- 2,700 children's lives saved
- CO₂eq reductions of 23m (mtCO₂eq)
- 28,000 people employed by the sector
- 5.4% household income saved



Kenya: Priorities for Phase 2



Enhancing Demand

- Targeted awareness raising and behavior campaigns in about 28 of 47 counties
- Preferential interest rates for consumer loans with three banks and half dozen MFIs and SACCOs
- At least 3 strong distribution models strengthened to expand the product access and after sales service



Strengthening Supply

- 12 enterprises investment ready
- Business capacity building for 30 enterprises; focus on marketing and distribution
- Technology improvement support for locally produced charcoal and firewood stoves
- 3 cookstoves projects registered for carbon financing



Fostering an Enabling Environment

- Develop a national database for all cooking technology and fuel practitioners in the country
- Kenya Bureau of Standards adopt global standards with a strong certification process in place
- Cookstoves standards in operation
- Accreditation of KIRDI cookstove testing center
- Strong partnership with SE4ALL, GEF, World Bank, and other initiatives in place to reinforce clean cooking
- Advocacy for clean cooking solutions through policy dialogue platforms



Nigeria

The Issue in Nigeria

- 75% of the population relies on solid fuels
- 127 million people affected; 24 million households affected
- 70,000 deaths per year from exposure to cookstove smoke
- 37,000 child deaths per year from exposure to cookstove smoke



Nigeria: Priorities for Phase 2



Enhancing Demand

- Focus on three priority states in Nigeria and execute pilot programs
- Support public awareness and behavior campaigns in three states
- Bring on board a dozen ‘informal’ but large rural networks to market cookstoves and fuels



Strengthening Supply

- Provide guarantees to two large national banks to support enterprise financing
- Build capacity of half a dozen enterprises so they can scale production (cookstoves and fuels)
- Develop a country catalytic fund to enhance capacity of smaller local enterprises
- Ensure investment readiness of half a dozen enterprises serving the sector

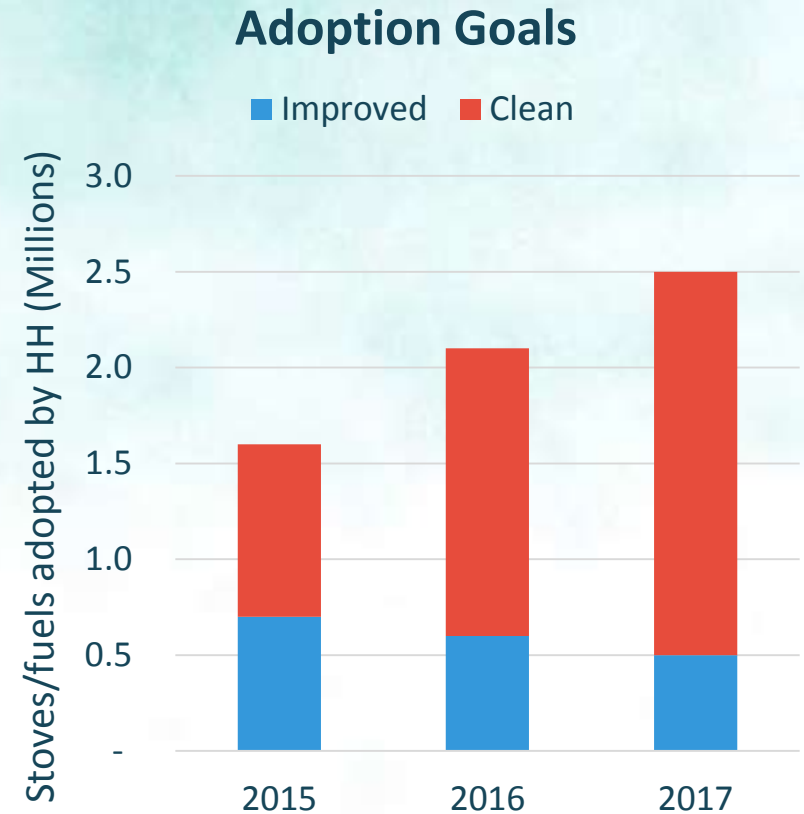


Fostering an Enabling Environment

- Advocate government to reduce import tariffs and duties and reduce time in port
- Consulting study to show revenue generation potential through market growth
- Catalyze industry through green financing schemes (climate funds)
- Enhance engagement and support through the CCAC
- Advocate government to include clean household energy as priorities in GEF VI
- Engage oil and gas industry to provide CSR resources to support energy access for those at the BoP
- Conclude ongoing child survival research and explore opportunities to further evaluate ethanol using households

Impacts in Nigeria by 2017

- 6.2 HH adopt clean/efficient stoves and fuels
- 9,400 lives saved
- 7,000 children's lives saved
- CO₂eq reductions of 48m (mtCO₂eq)
- 58k people employed by the sector
- 10.6% household income saved



Preliminary calculations, pending further review and upcoming elections



Uganda

The Issue in Uganda

- 97% of population relies on solid fuels
- 35 million people affected
- 7 million households affected
- 13,000 deaths per year from exposure to cookstove smoke
- 5,000 child deaths per year from exposure to cookstove smoke



Phase 1 Statistics

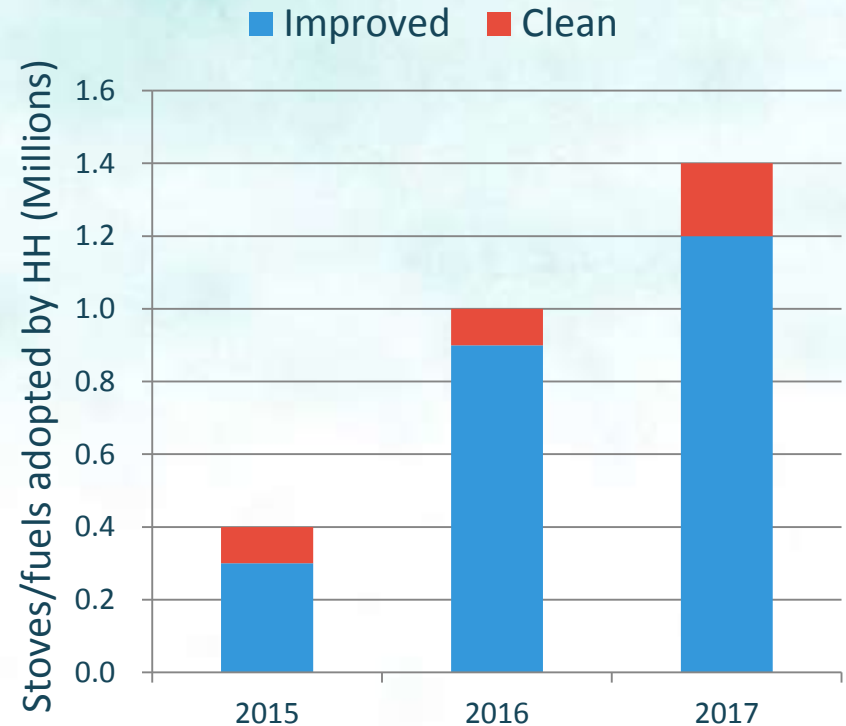
- A total of 1,296,517 stoves distributed
- 133 partners registered with the Alliance in Uganda
- USD \$1m of grant and investment support in Phase 1
- Country Action Plan has not launched, but in November 2012, stakeholders started deep dive
- National Alliance in place with 16 dues paying members
- The Ministry of Energy is working closely with UNACC



Impacts in Uganda by 2017

- 3m HH adopt stoves and fuels
- 2,600 lives saved
- 1,600 children's lives saved
- CO₂eq reductions of 21m (mtCO₂eq)
- 28k people employed in the sector
- 8.3% income saved

Adoption Goals



Uganda: Priorities for Phase 2



Enhancing Demand

- Targeted awareness raising and behavior change campaigns and demand generation targeting 20 districts through local radio stations
- Provide strong after sale service to increase confidence in products
- Develop consumer finance mechanisms with risk guarantee to catalyze product uptake more affordably
- Innovative distribution models in place catalyzing product access and affordability



Strengthening Supply

- Business capacity building for an additional 20 enterprises (with focus on marketing and distribution)
- Investment readiness of 12 enterprises in place
- Develop an enterprise financing for cookstoves and fuels technologies
- Support at least 5 fuel enterprises to scale their production/distribution (briquettes & pellets, LPG, biogas, ethanol etc.)
- 3 carbon projects registered and demonstrating benefits to the users



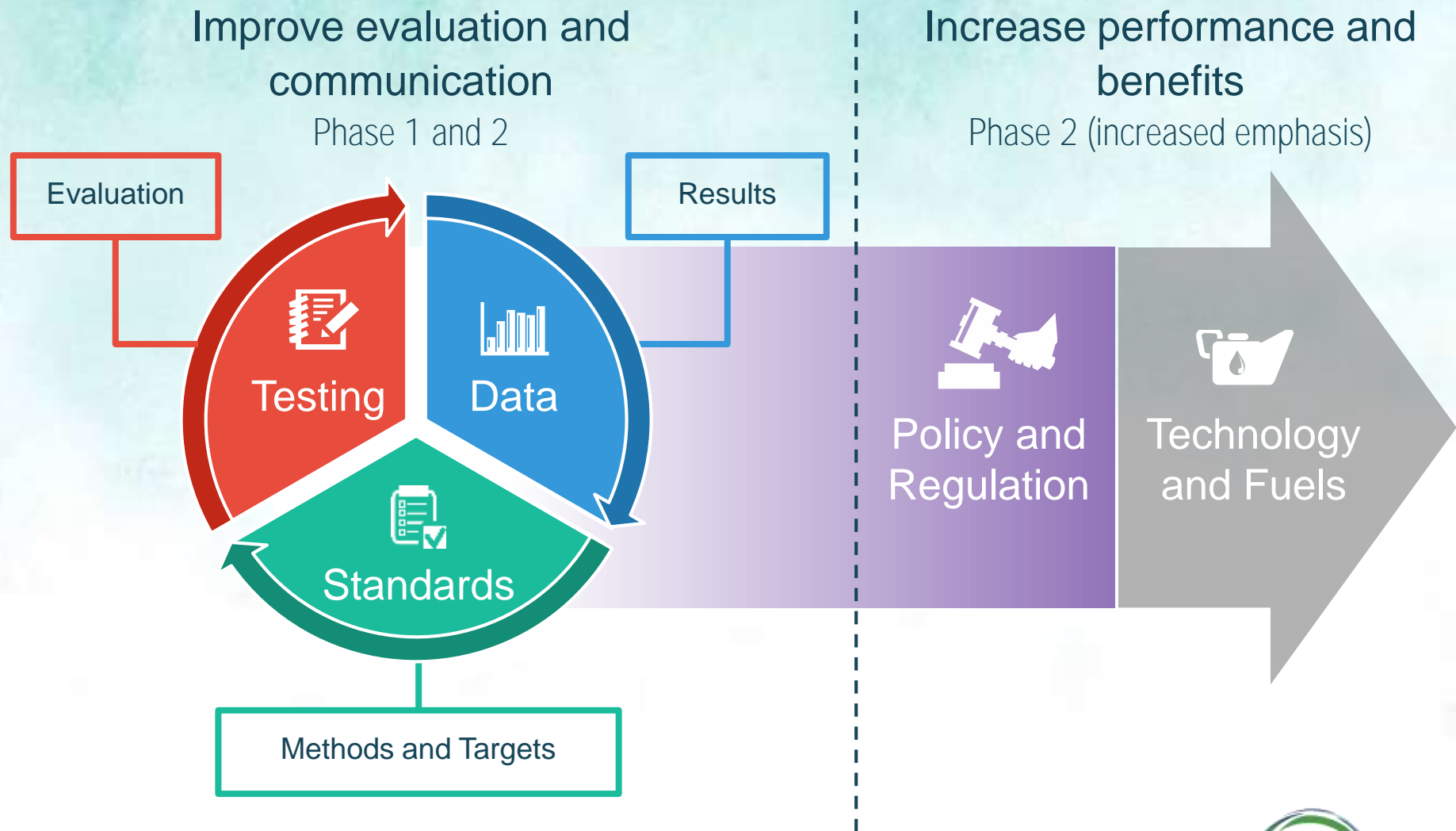
Fostering and Enabling Environment

- Develop a national database for all cooking technologies and fuels and practitioners in the country
- UNBS adaptation of global standards and strong certification process in place
- Strong partnership with SE4ALL, GEF, WB-ACCESS, etc. initiatives in place to reinforce clean cooking interventions
- Create an inter-ministerial committee
- Raise US \$1 million in grants and US \$3 million in investment for the sector
- Build country-specific evidence base, specifically on fuels

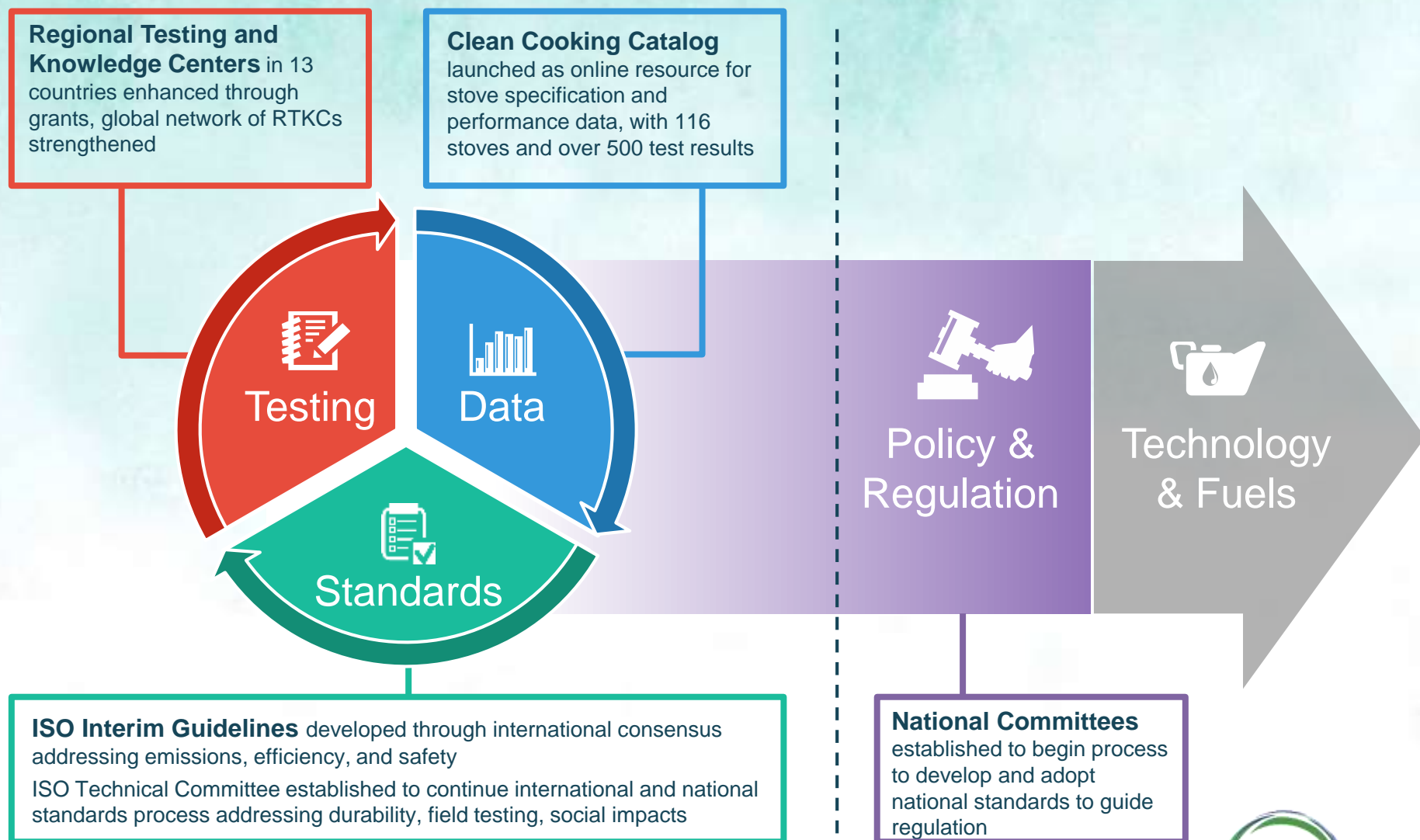
Standards, Testing & Technology



Framework for Standards and Testing, Technology and Fuel Innovation



Phase 1 Accomplishments



Phase 1 Lessons Learned

Phase 1 Lessons

Lack of data transparency decreases clarity in communicating about technologies

Lack of inclusiveness decreases acceptance of standards

Lack of awareness among stoves and fuels clients reduces testing center sustainability

Laboratory testing not always correlated with field testing

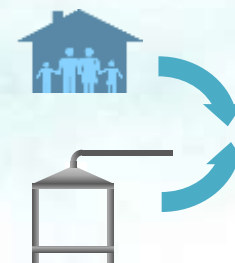
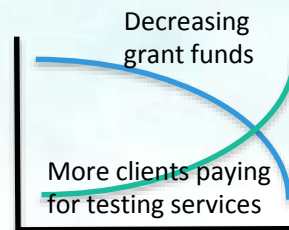
Online public resource for technology



Global and multi-stakeholder standards process



Sustainable Market for Testing Services



Phase 2 Implications

Increase transparency on technologies through increased sharing and access to data

Use ISO principles to establish policies, regulation, adherence, and drive innovation

Testing centers establish sustainable business plans, outreach to potential clients

Framework to align laboratory and field testing methods, and to integrate testing data

Standards, Testing & Technology Phase 2 Goals and Budget - ~16M

Intervention	Phase 1 Focus	Phase 2		
		Focus	Global	Per Country
Testing	Build testing capacity and global collaboration	Maintain capacity and create sustainable market for testing services	\$1.3M	\$100K
Data	Establish framework and tools for sharing test results	Maintain resource, establish expectation for transparency and rigor in communicating about technical issues	\$300K	
Standards	Develop international consensus on guidelines	Expand and formalize guidelines as international standards, with inclusive process to ensure relevance and adoption	\$1.2M	
Policy and Regulation	Countries and stakeholders express interest and commitment to standards and labeling	Pilot countries, donors, and investors adopt standards and implement certification or labeling programs, with additional benefits for all stakeholders		\$420K
Technology	Pilot projects focused on technology and fuels – performance, quality, usability, and affordability	Strategic analysis to evaluate and develop portfolio to ensure pipeline of innovation	\$600K	
		Design and Training Workshops		\$70K
		Pilot Innovation Fund budget is separate	N/A	

Note: This does not include technology innovation, scale-up, or consumer awareness resources, as these technology activities are considered to be part of other budgets

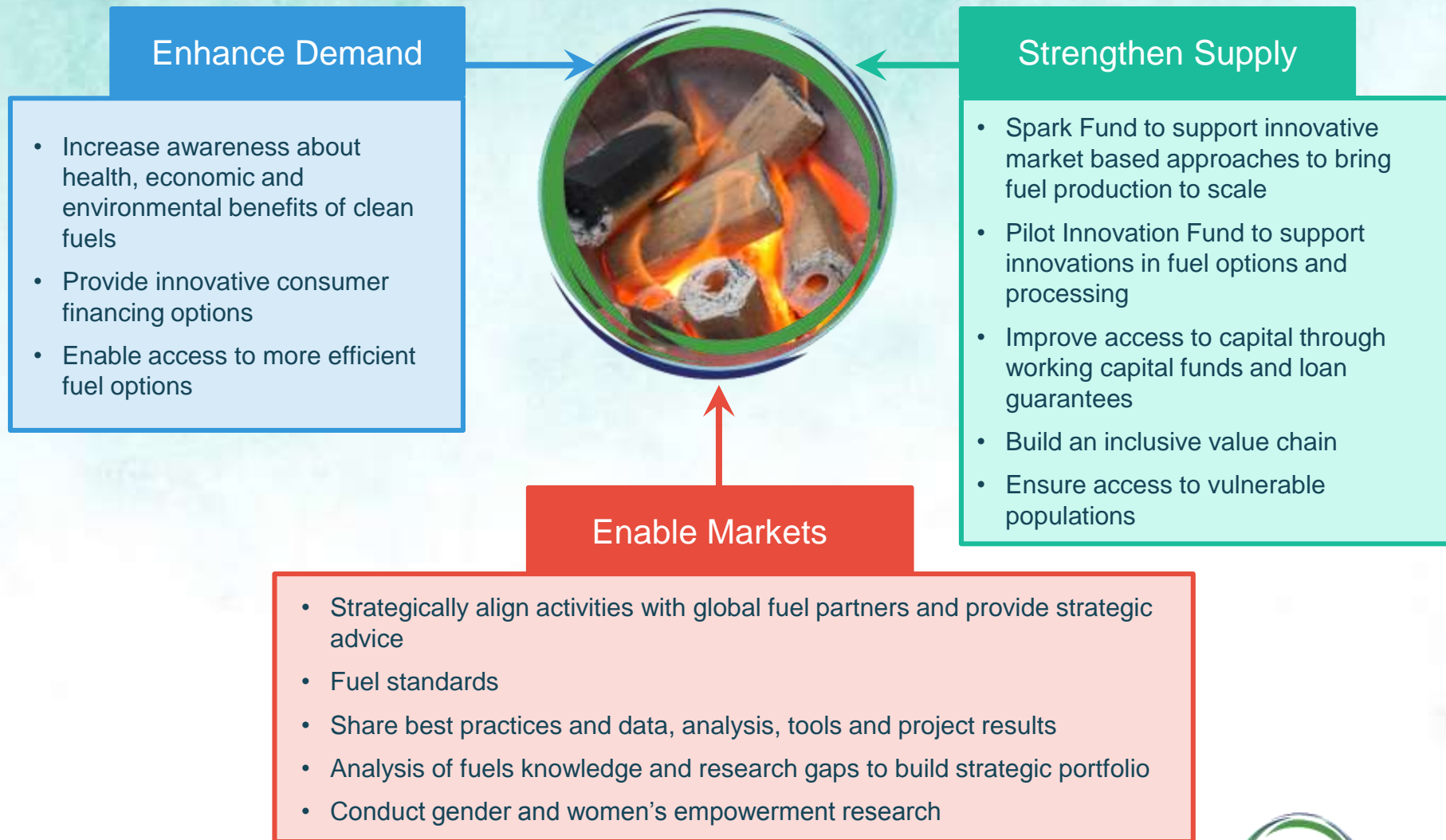
Phase 2 Goals by Country

Intervention	Bangladesh	China	Ghana	Guatemala	India	Kenya	Nigeria	Uganda
Testing Capacity	Enhance	Sustain	Sustain	Enable access	Sustain	Sustain	Sustain	Sustain
Data	Increase data sharing and access							
Standards	International and national standards development							
Policy and Regulation		Standards adoption	Standards adoption		Standards adoption	Standards adoption		Standards adoption

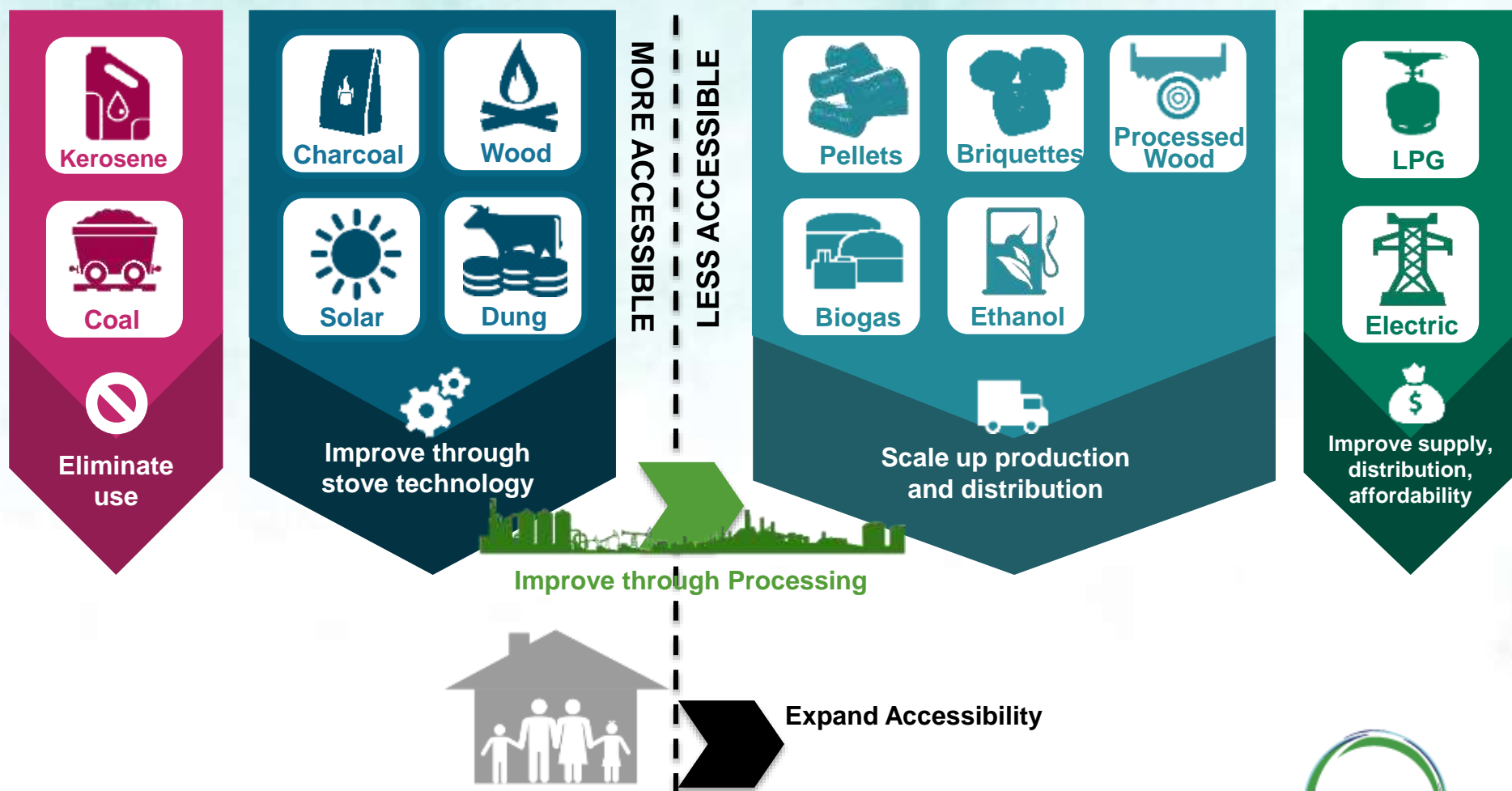


Fuels

Our fuels approach aligns with the Alliance's three core strategies ...



Fuel Options: Improve use of available fuels and increase access to cleaner fuels



Fuel and Related Technology Priorities in Focus Countries

- Working with partners to address diverse fuels and challenges
- Strategy developed through global and country-specific consultation process

	Bangladesh	China	Ghana	Guatemala	India	Kenya	Nigeria	Uganda
Technology	Improve biomass stoves, introduce new technologies	Scale up manufacturing of best stoves	Improve charcoal stoves, introduce new technologies	Introduce new technologies and improve efficiency and total emissions for plancha stoves	Increase access to biomass and induction stoves	Scaling up manufacturing facilities and production of best technologies	Introduce new biomass and charcoal stove technologies	Introduce new technologies and improve biomass and charcoal stoves
Fuels	-	LPG, electric	LPG infrastructure and policy, pilot and scale processed fuels	LPG infrastructure and policy	Increase access to LPG for more lower income households, electric	LPG infrastructure and policy, pilot and scale processed fuels	Ensure sustainability and increased production capacity of ethanol and ethanol gel	Pilot and scale charcoal briquettes

Fuels Phase 2 Budget - ~7.5M

Intervention	Phase 1 Focus			
		Focus	Global	Per Country
Fuels	Pilot projects focused on technology and fuels – performance, quality, usability, and affordability	Strategic Global Distribution/Infrastructure Studies to Drive Investment, Workshops and Implementation	\$3.6M	
		Focus Country Scaling up production capacity, distribution, infrastructure, policy		\$350K
		Pilot Innovation Fund budget is separate	N/A	
		TOTAL	\$7.5M	

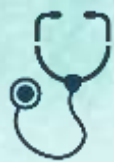
Note: This does not include fuels innovation, scale-up, consumer awareness, or communications resources, as these fuel activities are considered to be part of other budgets



Research & Evaluation



Alliance Research Strategy by Phase



Public
Health



Women
&
Children



Livelihoods



Environment



Phase 1
(2012-14)

Strengthen the
evidence base on
the impacts of
traditional stoves



Phase 2
(2015-17)

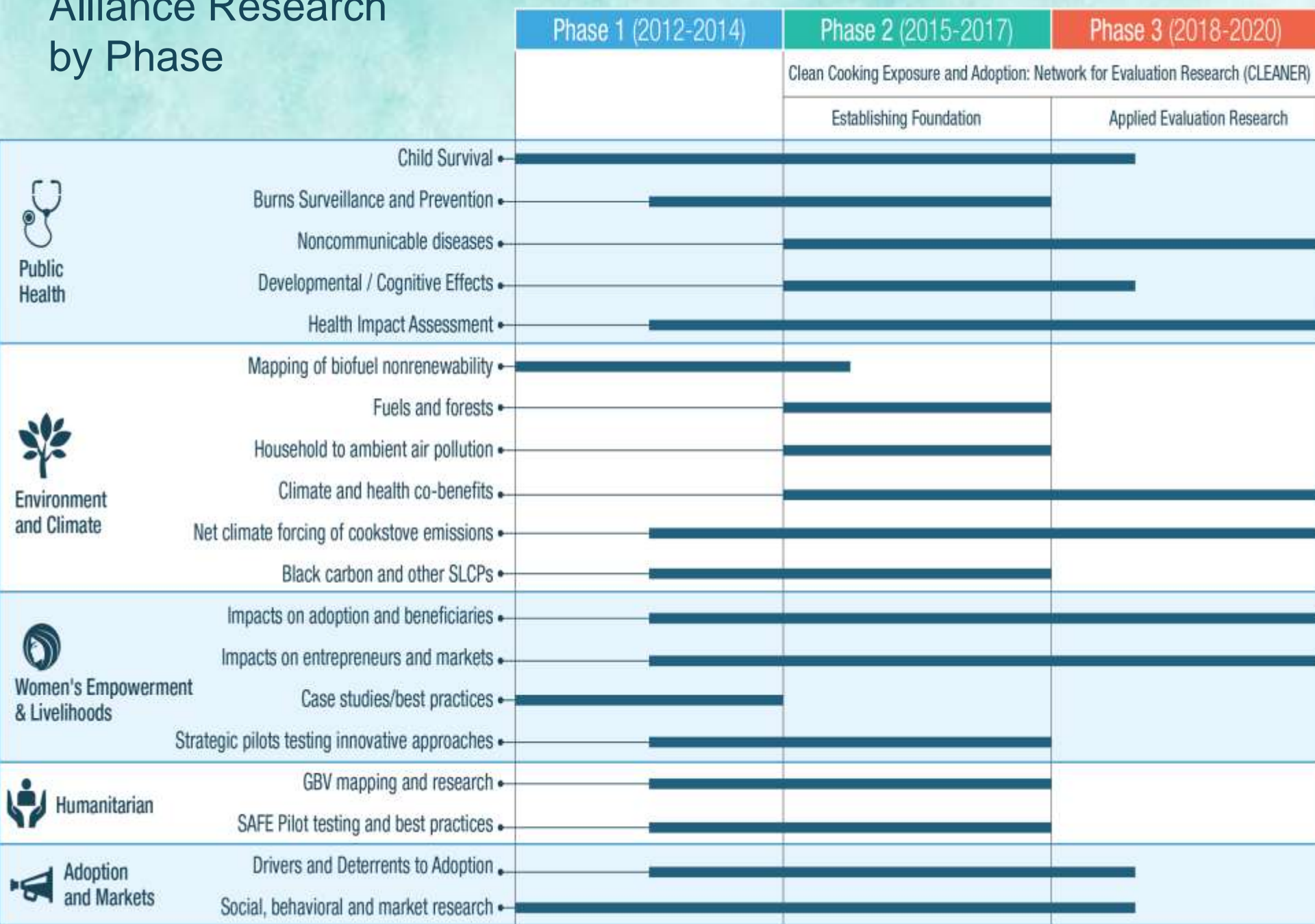
Demonstration and
evaluation of
benefits associated
with sustained
adoption



Phase 3
(2018-20)

Evaluation
research network
and sustainable
funding for
research

Alliance Research by Phase

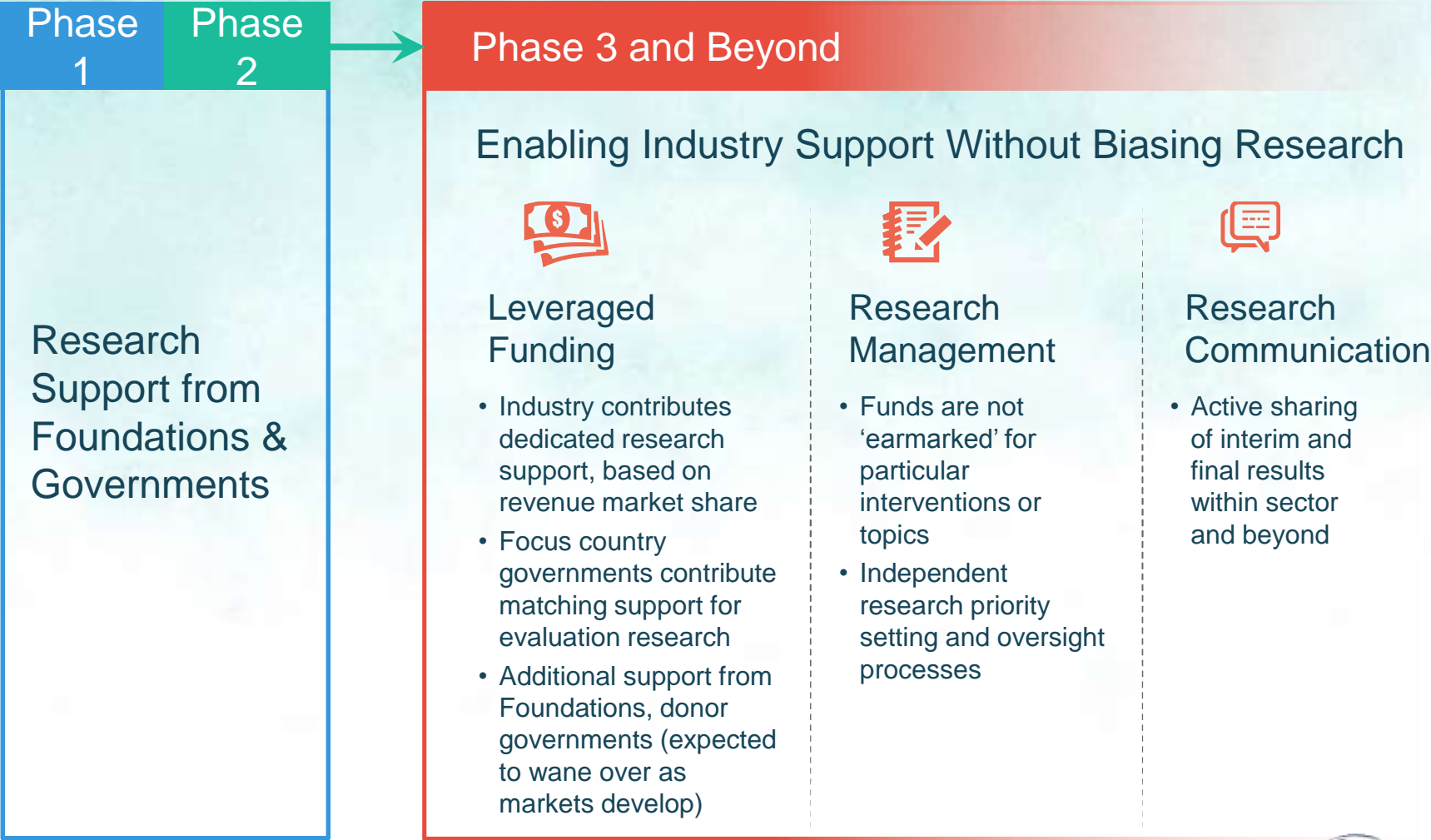


Phase 2: 100M for Applied Research to Measure and Evaluate the Benefits of Adopting Clean Cooking

Breakdown of Research Resources



Planning for Phase 3: Towards Sustainable Funding for Research

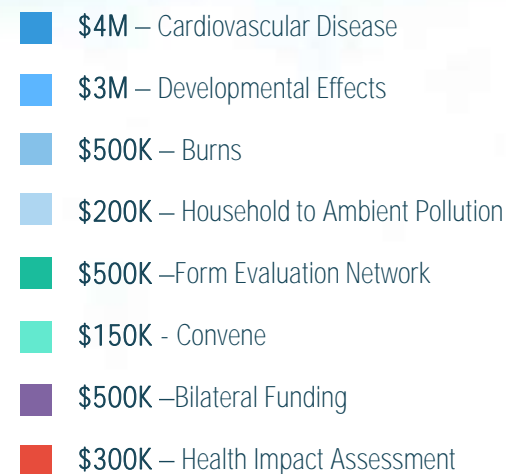
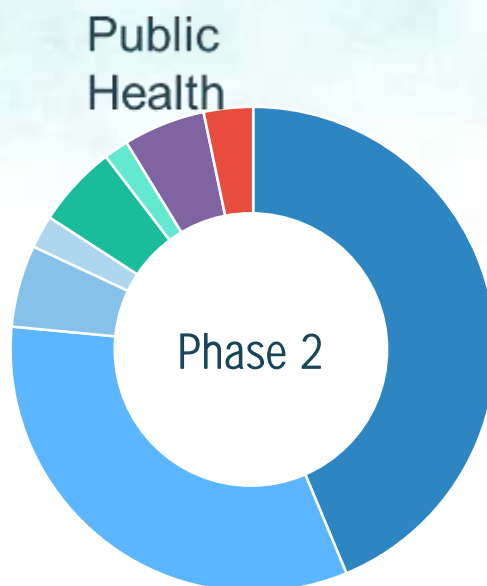
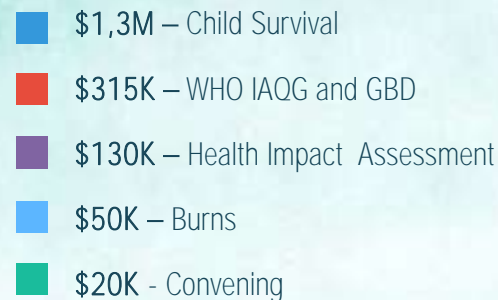
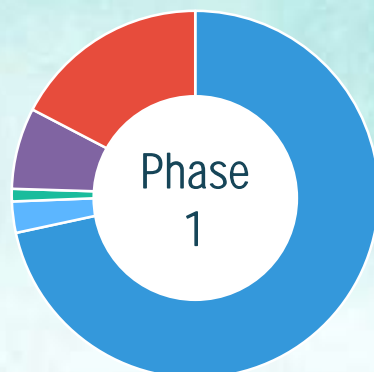




Health & Adoption

Alliance Health Research Activities

Commission	<p>Applied research and evaluation</p> <ul style="list-style-type: none"> • Cardiovascular Disease • Developmental/cognitive effects • Burns • HAP contribution to outdoor air pollution
Convene	<ul style="list-style-type: none"> • Public Health Sector • Technical Experts • Policy Makers
Integrate	<ul style="list-style-type: none"> • WHO Indoor Air Quality Guidelines • Burden of Disease • Health Impact Assessment
Foster Partnerships	<ul style="list-style-type: none"> • Bilateral funding (US, UK MRC, China) • Development of Evaluation Network



Beyond Pollution: Preventing Cooking-Related Burns and Injuries

~ 300,000 deaths from fire-related burns each year

- 95% occur in low-and middle-income countries

Surveillance: what proportion is cooking-related?

- Alliance, CDC, and WHO burns working group to increase data on the causes and risk factors of severe burn injuries
 - Burns registry launched in India in 2013, plans to expand to Sub-Saharan Africa

International Standards (ISO) for Cookstoves and Fuels

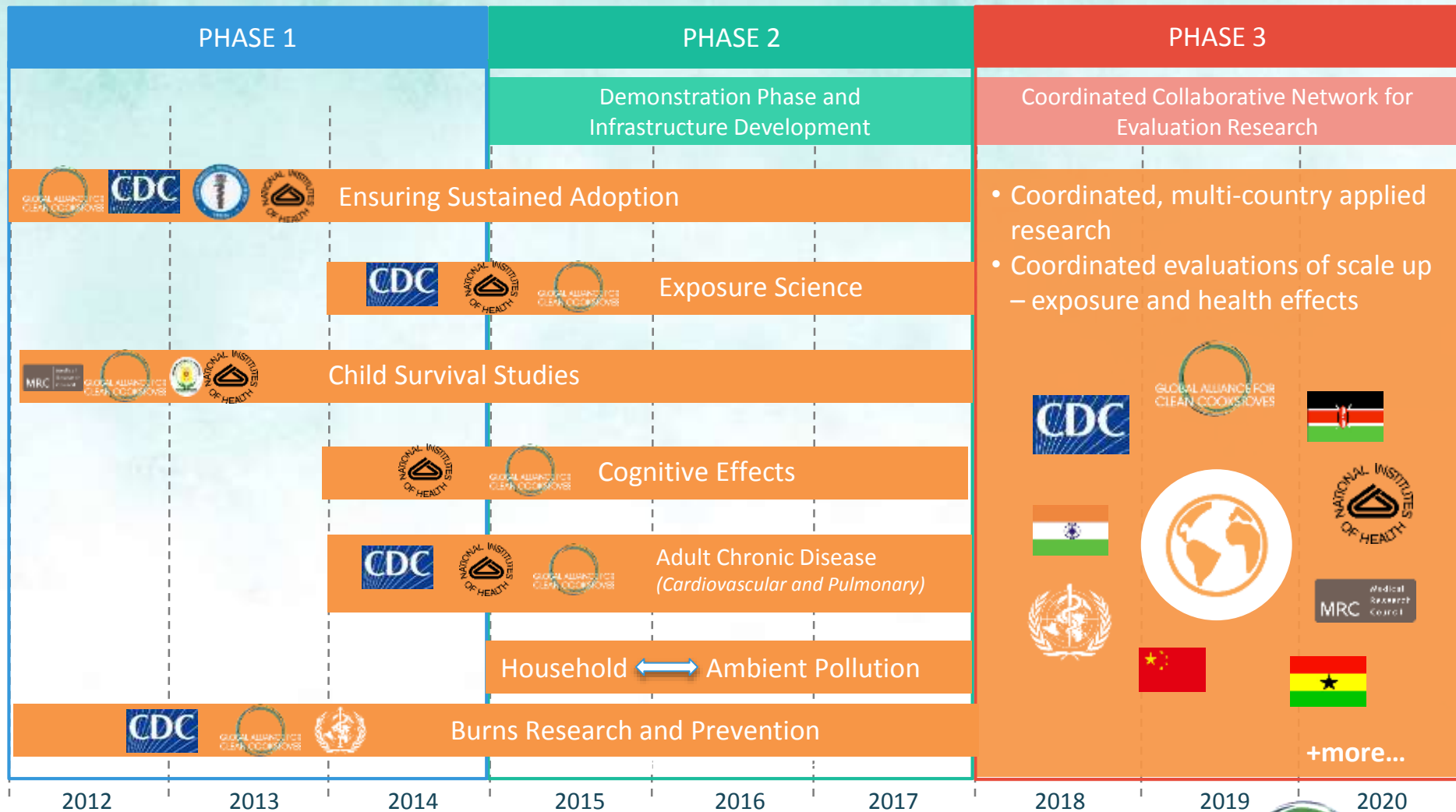
- Development and dissemination of safety standards to prevent burns and severe injuries

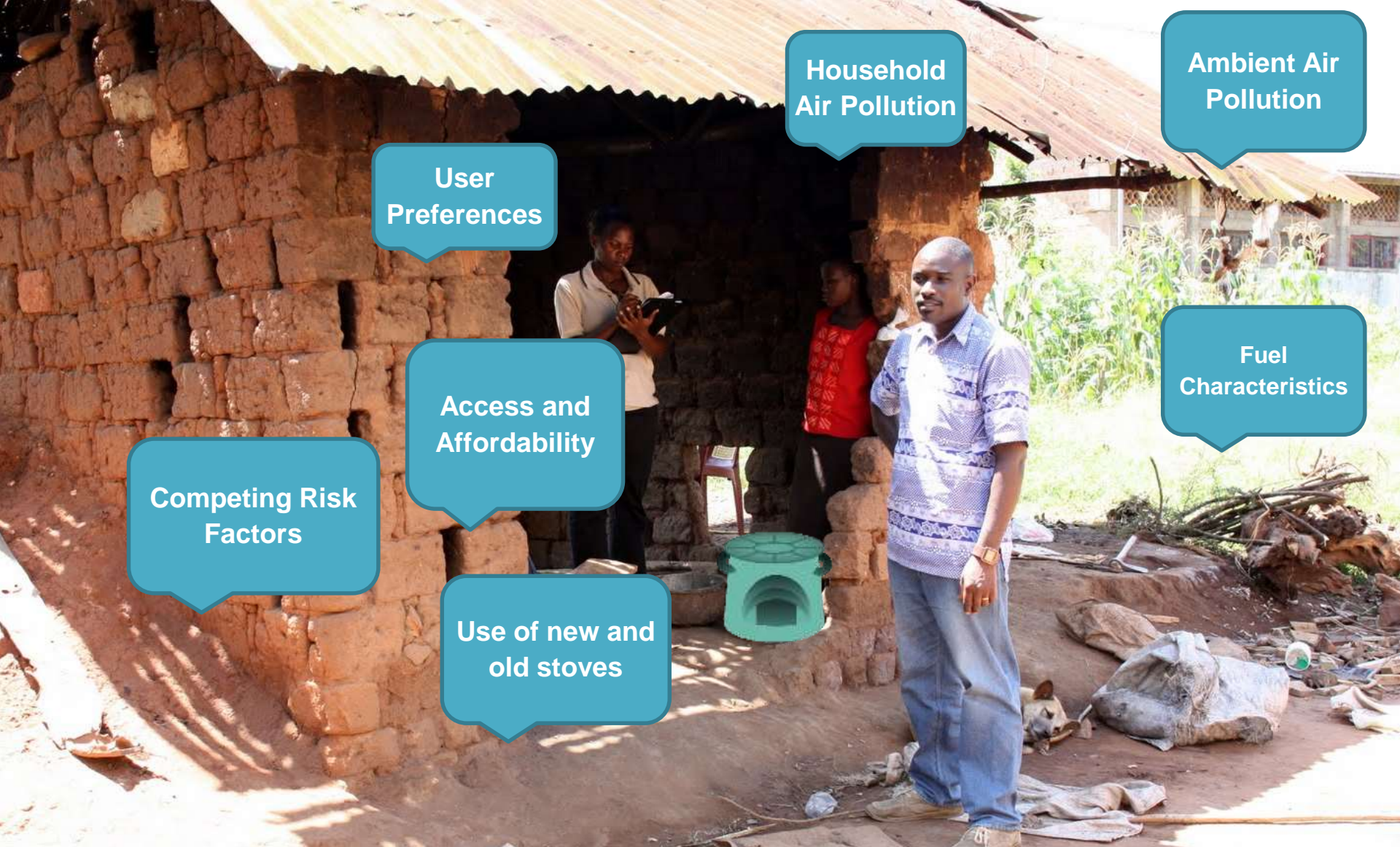
Awareness Raising

- Pilot burns prevention programs
- Preventive strategies include: raised stoves, stable pots, enclosed fires, increased public awareness, barriers to keep children away from fire, regulated stoves and fuels



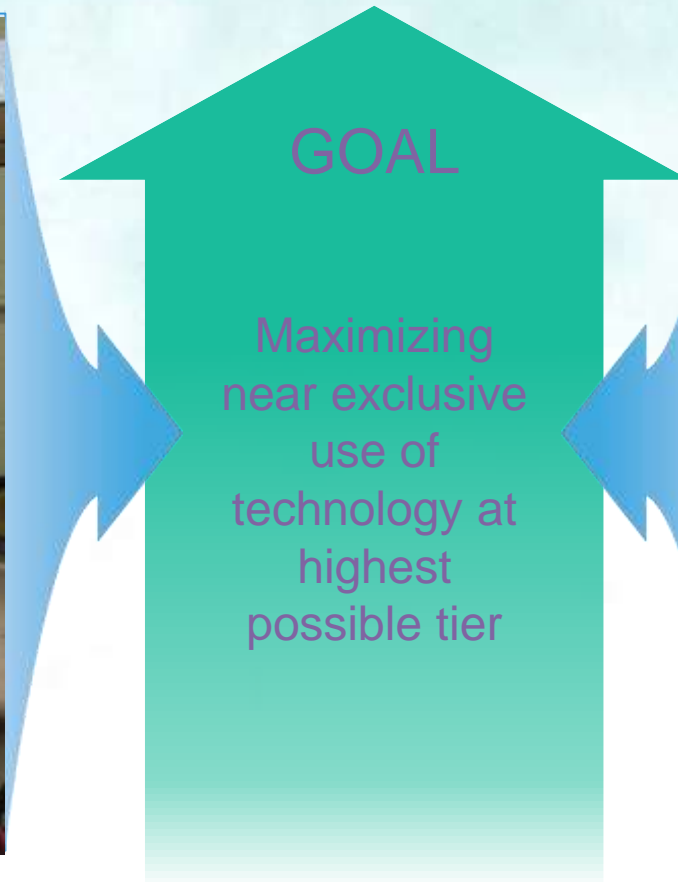
Clean Cooking Exposure and Adoption: Network for Evaluation Research (CLEANER)





Key Challenge: demonstrating that adoption of clean cooking technology can save lives

Increasing Intensity of Adoption to Shrink the Gap between Lab and Field Performance



Applied Research on Adoption

- Emphasis: cleaner performing technologies with potential to provide health benefits
- Drivers and deterrents to adoption
 - Household, community, and policy levers
- Measuring Intensity of adoption
 - Frequency of stove use
 - “Stove downstacking” i.e. continued use of lower tier technologies
- Influence of other sources of pollution
 - Kerosene lighting
 - Generators
 - Community air pollution
 - Smoking



Applied Research & Evaluation of Gender and Livelihoods Impacts

- Commission research on most effective approaches for women's empowerment & adoption
- Research and evaluation of approaches to understand gender and socio-economic impacts
- Develop M&E methodologies and tools to measure socio-economic impacts
- Quantify the benefits for businesses who increase women's engagement and identifying incentives for potential investors
- Understand how increased women's engagement in the clean cooking sector enhances sustained adoption of clean cooking technologies
- Special focus: understanding gender and livelihood impacts and drivers in humanitarian settings



Applied Research & Evaluation in Humanitarian Settings

- Conduct literature review on gender-based violence impacts related to cooking fuel needs and the impact of cookstove and fuel projects on gender-based violence
- Support development of a universal M&E Framework on Safe Access to Fuel and Energy (SAFE) in humanitarian settings
- Assist the UN Refugee Agency in designing and conducting baseline energy assessments in 9 countries during 2014-2016
- Implement one comprehensive SAFE program with integrated M&E to build evidence base on impact of SAFE programs
- Maintain and update SAFE website [resource library](#) and [project mapping](#) with new content to enable researchers and implementers to easily access the latest research and literature

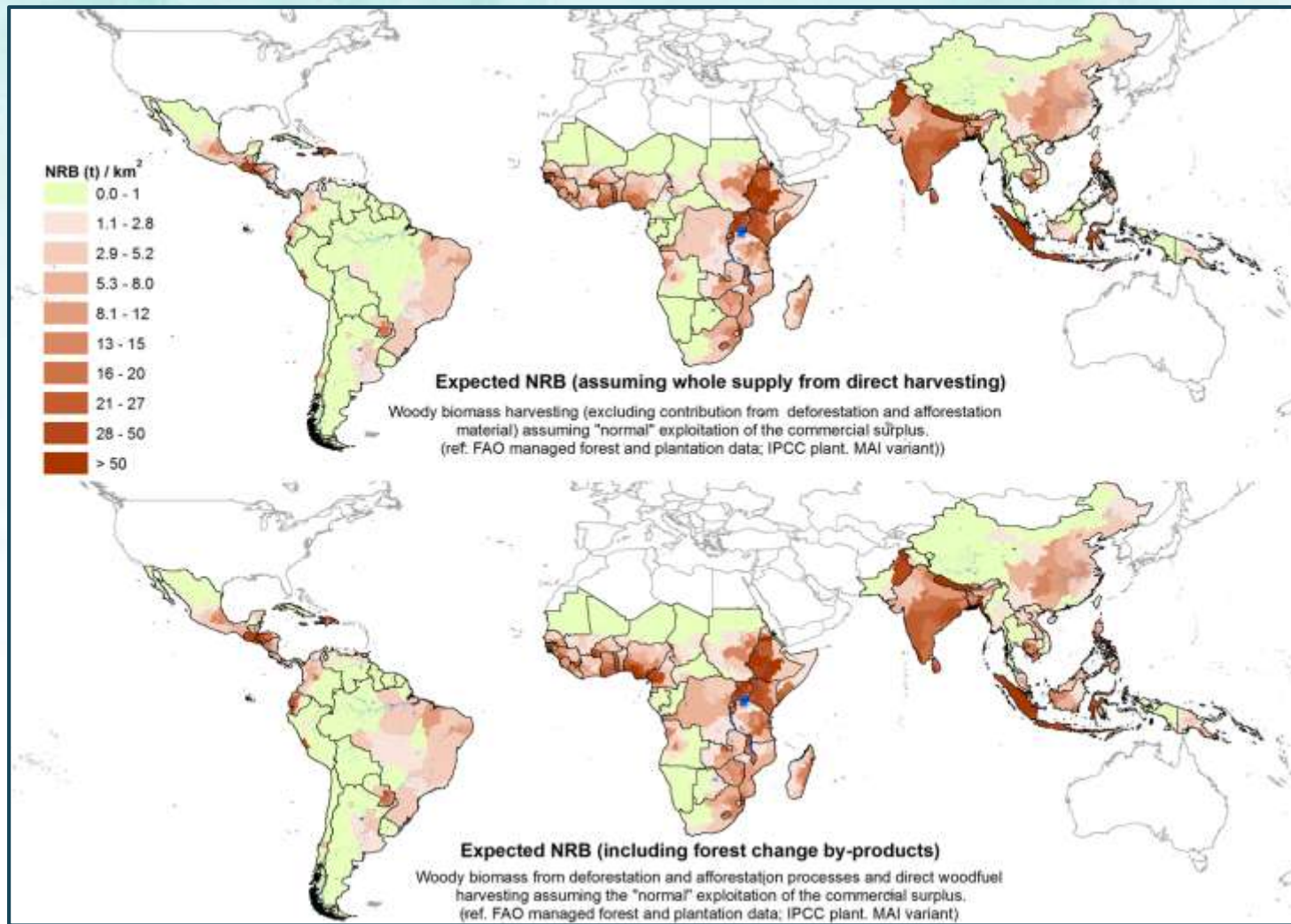


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Environment & Climate

Phase 1 Climate Research Emphasis: Strengthening the evidence base on nonrenewability of biomass

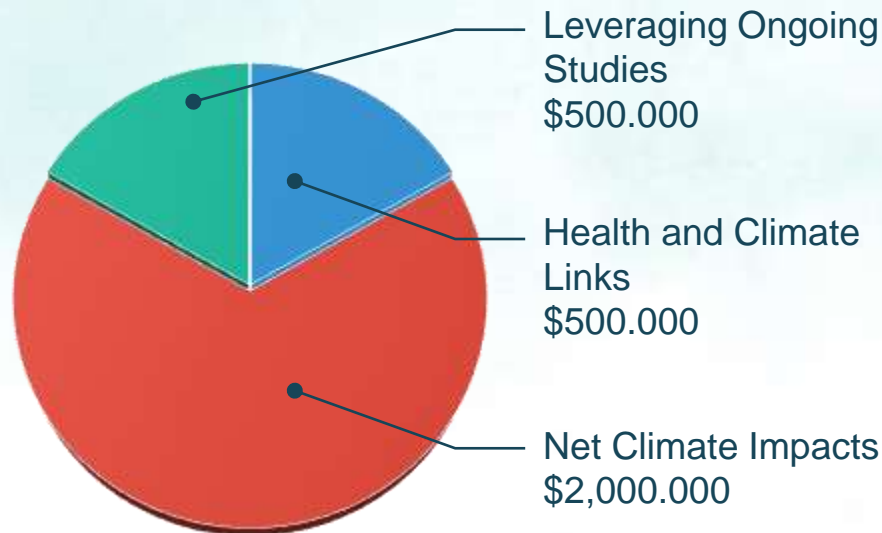


276 million rural people experience scarcity of subsistence energy!

Widespread interest already expressed in applying these estimates within and beyond the sector!

Alliance Environment/Climate Research Activities in Phase 2: Ensuring the environmental benefits of adoption

\$3 million to measure the impact of clean cooking technologies on environmental degradation and climate



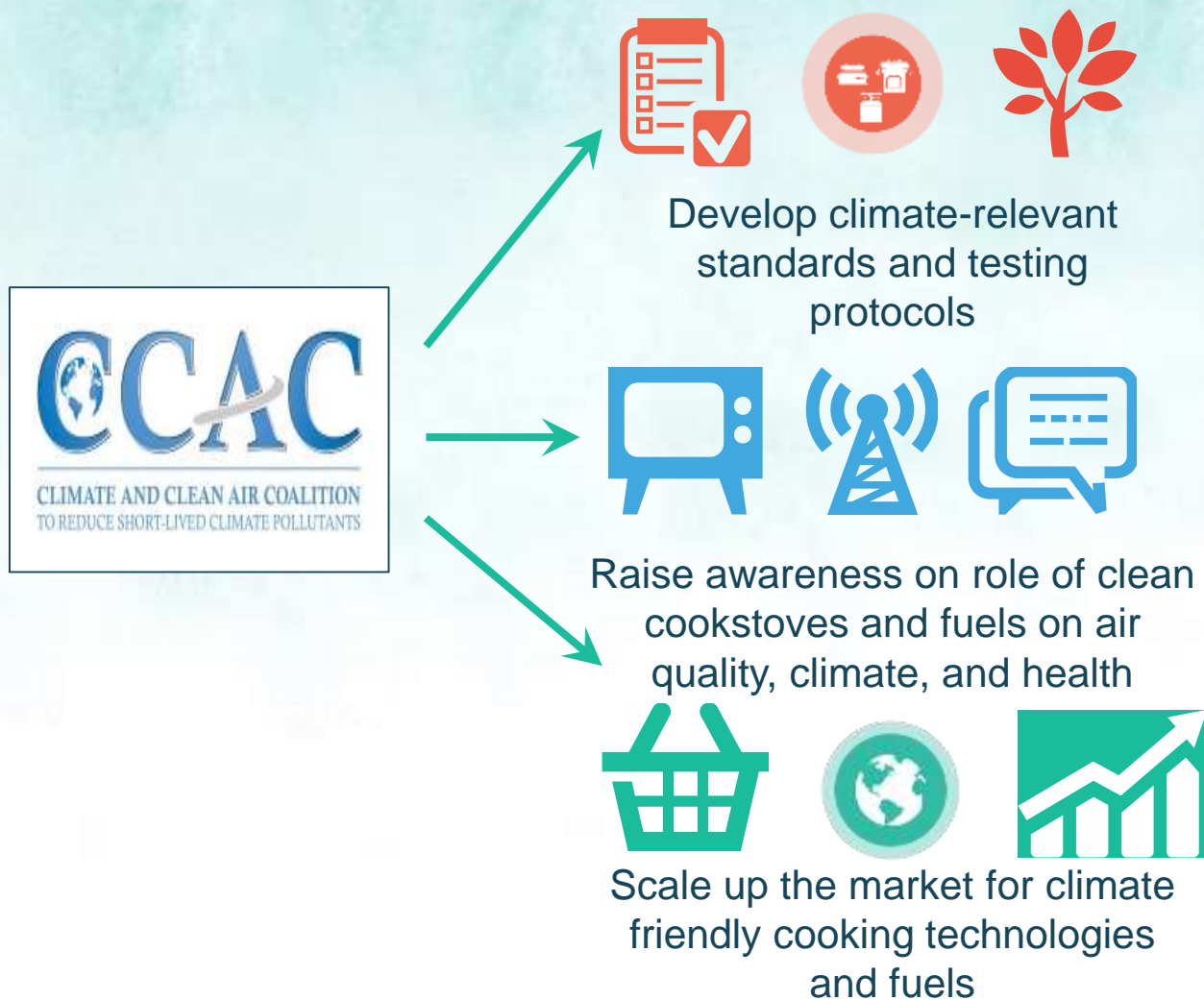
- Better understand the relationship among health and climate-damaging pollutants, with a focus on fine particulates and PM
 - Includes household to ambient air pollution links
- Characterize the net climate impacts of clean cooking, including but not limited to the impacts of short lived climate forcers (black carbon)
- Leveraging ongoing climate studies to ensure focus on clean cooking for vulnerable populations

Alliance Environment/Climate Research Activities in Phase 2: Minimizing Environmental Degradation

- Scaling up clean cooking in areas most vulnerable to environmental degradation
 - Wide communication of results from Phase 1 nonrenewable biomass mapping study
 - In progress: exploring the potential role of the international mechanism to reduce emissions from deforestation and forest degradation (REDD+) in scaling up financing for clean cooking
- Continued support for SPARK grantees focused on reducing carbon emissions, reducing wood fuel harvesting, increasing efficiency
 - Scaling up processed biofuels: char-briquettes (agriculture residue), ethanol gel (sawdust), biogas
 - Evaluating lifecycle impacts, including SLCP emissions reductions
- Evaluating fuel options for environmental impacts across the fuel production and distribution value chain



Research will Inform the Climate and Clean Air Coalition's Efforts to Reduce SLCPs from Cooking and Heating





Phase 1 Strategic Pillars, Core Activities, and Outputs



Build the evidence to make the case

- 3 studies examining gender impact of adoption and impacts of women entrepreneurs



Build capacity of enterprises to integrate gender and empower women

- Online knowledge hub with case studies, best practices and tools
- Trainings on gender and empowerment
- Gender due diligence and capacity building for Spark grantees
- Gender mainstreaming support for WEF and PIF grantees



Identify best practices and test innovative approaches

- Resource Guide with best practices for integrating women at every stage of the value chain
- Women's Empowerment Fund



Set and influence policies through awareness raising and advocacy

- Gender integrated throughout Country Action Plans
- Gender mainstreamed throughout all Alliance activities
- Recruitment of gender expert organizations
- Engagement in global gender events

Phase 1 activities revealed key lessons and areas to focus in on in Phase 2.

Phase 1 Strategic Pillars



Make the Case



Build capacity



Best Practices



Influence Policies

Learnings from Phase 1



Capitalize on momentum and focus in the sector on gender.



High interest but low capacity among enterprises to implement gender approaches.



Access to finance is critical for all entrepreneurs, including women.



Continue to solidify evidence base on cooking energy and women's empowerment to effectively advocate among gender experts.

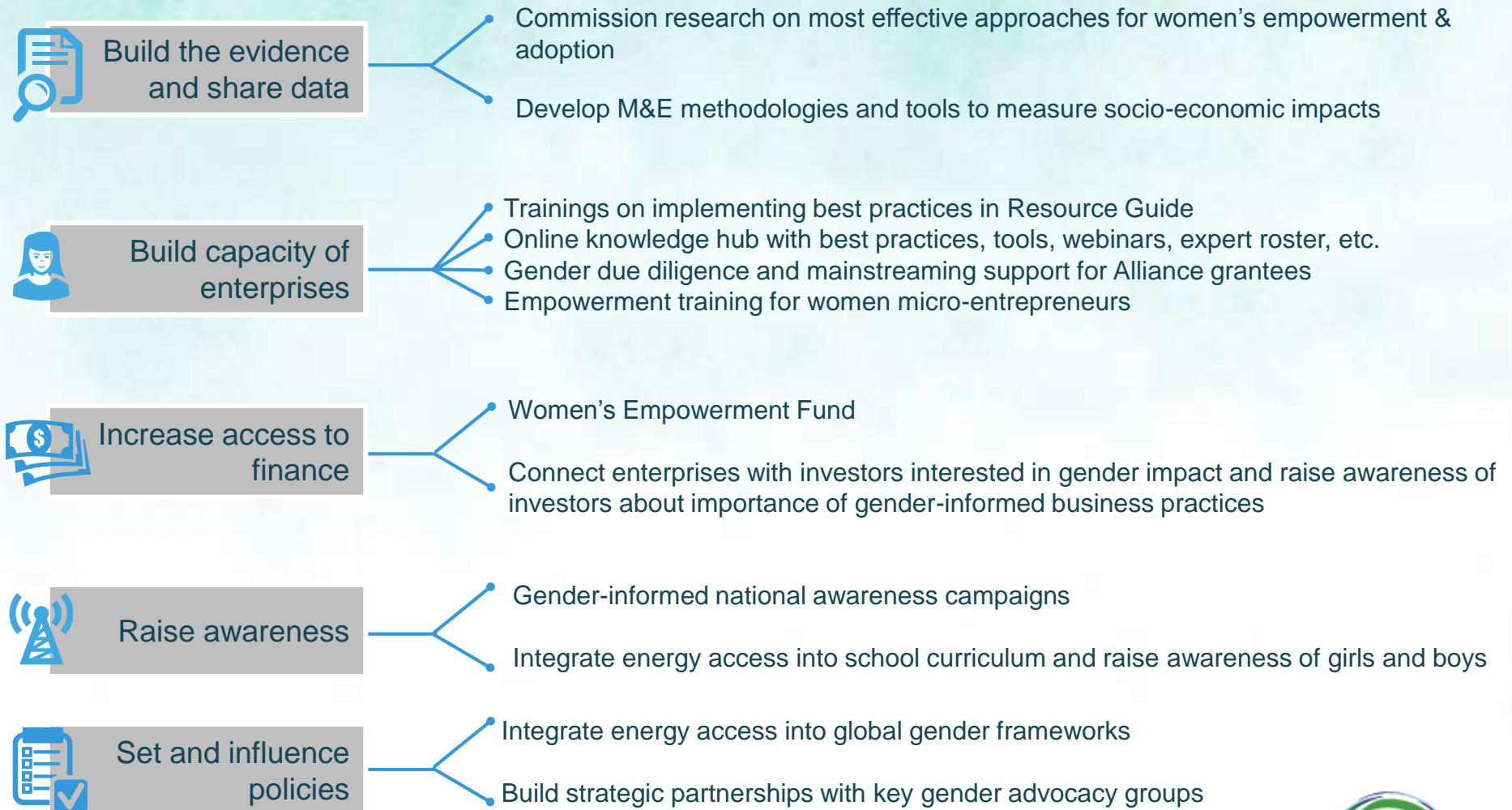


Raise awareness among women consumers/users, as well as girls and boys

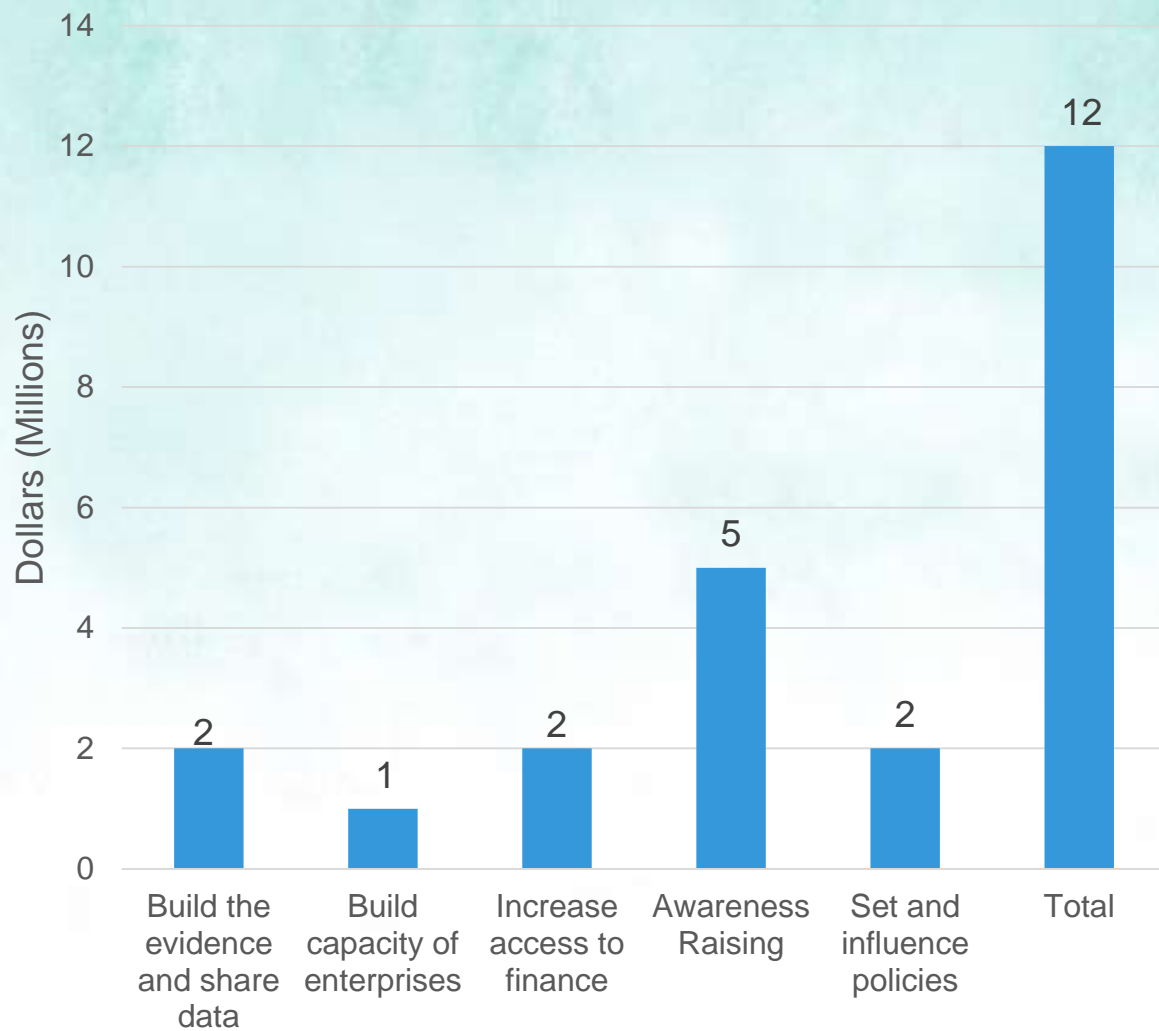


Gender needs to be an integral part of national and international policies.

Phase 2 activities build off of the lessons from Phase 1 and are focused on scaling effective approaches and increasing gender impacts.



Resource Breakdown for Gender Related Activities



*This budget items have been incorporated into the other programmatic budgets





Knowledge Management

Alliance as Knowledge Hub for the sector

The Alliance works to coordinate and catalyze and share sector knowledge, especially from focus countries to other countries to maximize global impact.



Phase 1 Accomplishments

Compile

Up to date, easy to use website with latest data and statistics on clean cooking, online library of relevant reports and research, focus country hubs with the latest news, resources and activities

Create

27 Alliance research studies, over 20 market assessments and consumer based studies, more than a dozen resources created for the sector, including best practice guides, thematic online hubs and toolkits

Disseminate

Dozens of webinars, in country trainings on resource guides and toolkits, research results presented at various events, monthly newsletter

Connect

Online communities of practice, biennial sector forum and numerous country level meetings, initial piloting of south-south meetings between Africa and China

Phase 1 Lessons Learned

Lessons from Phase 1

Our continually growing partner base has varying needs

And varying preferences on how they connect with the Alliance

Our partners have vast and diverse experiences and they want to learn from each other

The Alliance has proven it can produce high quality resources for the sector, but needs to continue to establish itself as the true knowledge leader for the sector

Learnings from focus countries

Implications for Phase 2

We need to tailor knowledge products to our various partner segments

Find ways to reach beyond the web – more in country trainings and knowledge sharing events

We need to create more opportunities for our partners to directly share knowledge and connect with other, including more South-South and North-South partnerships

Establish regular knowledge sharing products, drive traffic to its web portals and resources, increase uptake of knowledge products by non-focus countries

Implement in all partner countries to help achieve 100m goal

Phase 2 Goals

Knowledge Management Strategy	Phase 1 Focus	Phase 2 Key targets
Compile	Build online knowledge hub, including thematic portals	30% YOY increase in traffic to knowledge sections of the website; cooking question added to 2 global surveys; national level cooking data collected in household surveys in focus countries (where applicable)
Create	Commission research and assessments and develop tools and resources for partners	Enhanced clean cooking catalog, additional versions of gender guide and partner country toolkit, fuel resource, including woodfuel mapping, PIF and Spark and annual sector results reports
Disseminate	Share research via webinars and events	Bi-monthly webinars; 2 knowledge sharing events per year in each focus country (16 total)
Connect	Host sector wide forum, country level meetings, pilot South-South cooperation	2 South-South events/exchange trips per year, at least 3 new North-South partnerships brokered per year
Transfer of knowledge from focus to other partner countries	Create toolkits, best practice resources	Regional workshops to provide detailed training on core topic areas (2 per year); Additional 2 events per year in non-focus partner countries; mentorships pairing leaders of national alliances in focus countries with those in other partner countries

Knowledge Management Resource Allocation for Phase 2



**This budget items have been incorporated into the other programmatic budgets*

**This budget is only for Alliance focus countries*

**Directly catalyzing markets in other countries with the knowledge obtained from focus countries is estimated to be about \$100m -- about \$75m in other partner countries and \$25m for other countries in general.*



Humanitarian Engagement

The Alliance works within Safe Access to Fuel and Energy (SAFE) to achieve scale.

- Ensuring access for vulnerable populations has been a component of the Alliance strategy since its launch. These individuals often can't afford to purchase clean cookstoves and fuel, yet they suffer the most from the consequences of lack of access.
- The Alliance's expert Humanitarian Working Group recommended that the **Alliance's strategy fit within SAFE and build on the foundation of the UN SAFE Task Force.**
- **Working within SAFE increases the effectiveness of the Alliance's humanitarian approach by:**
 - *Building on existing foundation and expertise*
 - *Streamlining resources by reducing duplication*
 - *Ensuring collaboration among key implementing partners*
 - *Strengthening and scaling implementation on the ground*
 - *Ensuring negative impacts are reduced by meeting energy needs more broadly*

There are 6 strategic areas where the Alliance can engage in the SAFE sector to ensure crisis-affected populations have access to cooking solutions.

Pillar 1: Coordinate the sector and share information

Pillar 2: Commission research and build evidence

Pillar 3: Provide technical support, tools, and guidance for implementation

Pillar 4: Build human resource capacity

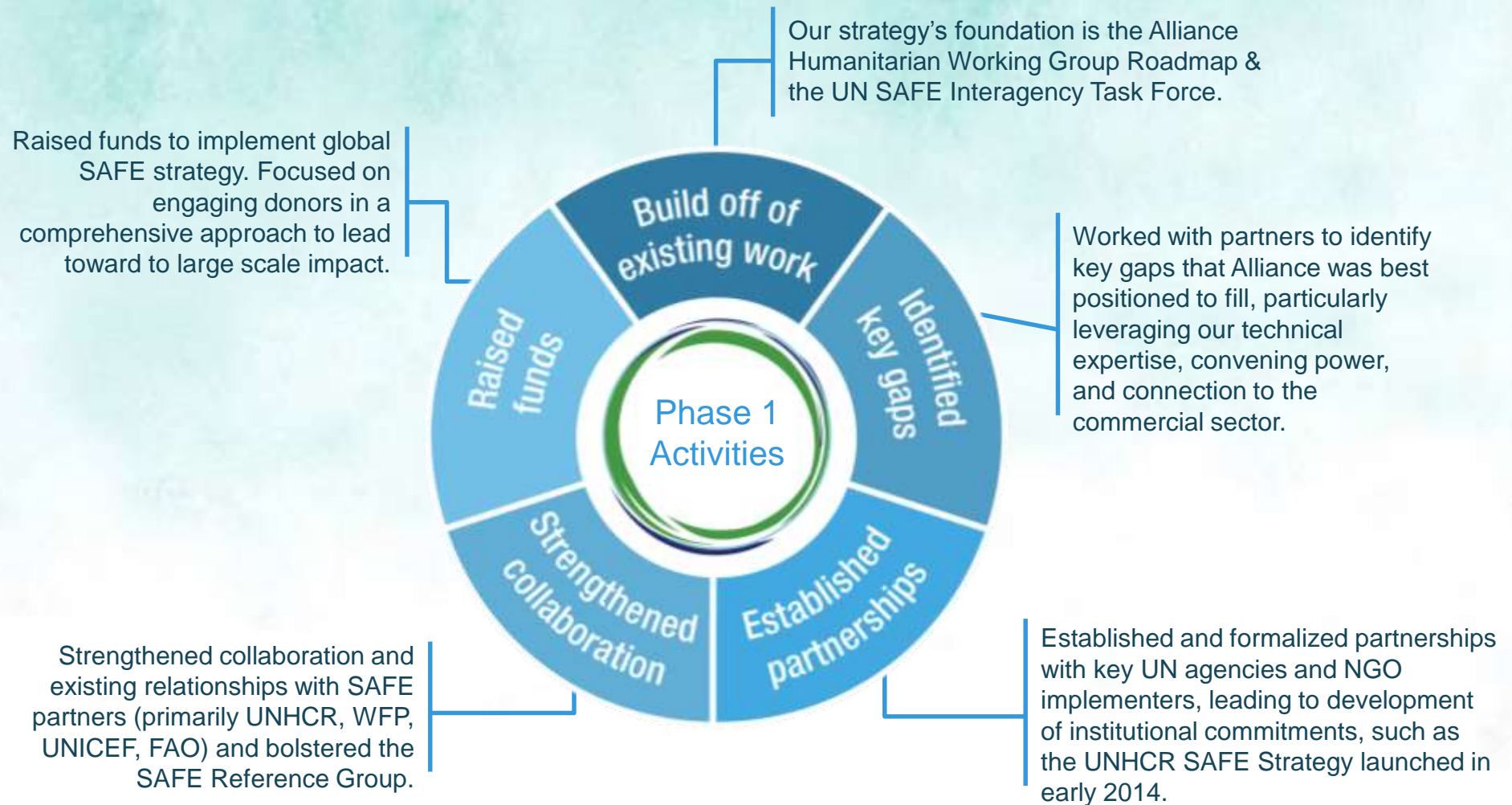
Pillar 5: Advocate for the sector

Pillar 6: Mobilize resources

A global entity like the Alliance is needed to push the SAFE agenda forward because implementers are focused on projects

All implementing agencies benefit from Alliance's engagement, and SAFE becomes more integrated into humanitarian response

Focused in Phase 1 on building strategic partners, raising funding, and developing a global strategy.

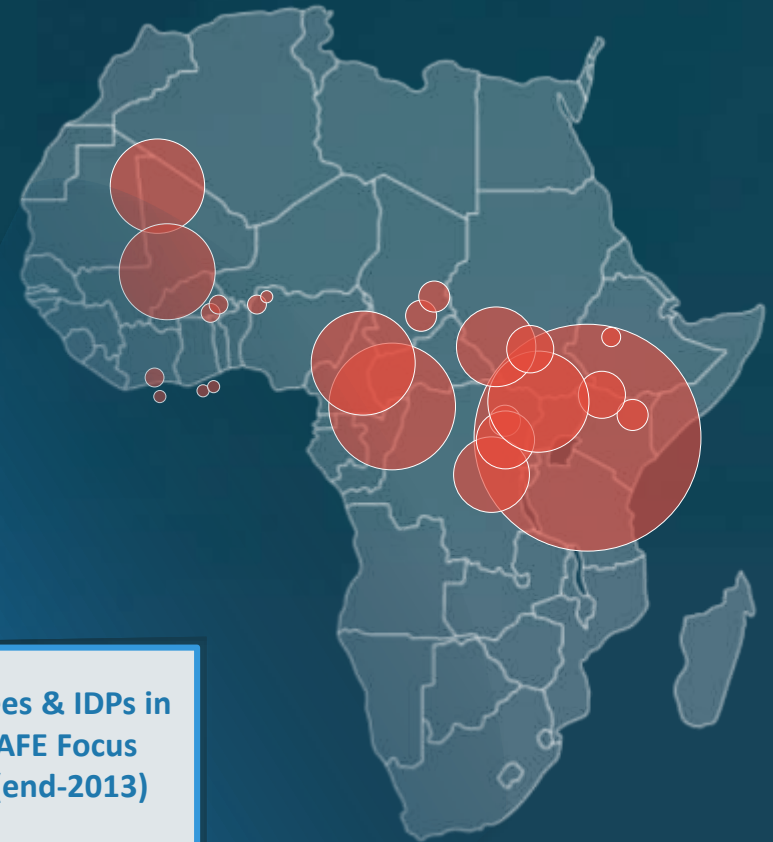


Summary of Key Activities in Phase 2

Coordination	Research	Technical Support	Capacity Building	Advocacy & Partnerships	Fundraising
<ul style="list-style-type: none"> • Serve as the lead coordinator • Maintain SAFE website and disseminate information through multiple platforms 	<ul style="list-style-type: none"> • Support implementation of SAFE project(s) that cover an entire refugee camp • Integrate M&E from the start to establish baselines and determine impact on GBV, burns, and livelihoods 	<ul style="list-style-type: none"> • Update existing tools and create new ones • Create technology R&D and commercialization fund • Conduct technical assessments and develop stockpiling guidelines 	<ul style="list-style-type: none"> • Develop standardized SAFE expert curriculum • Create fund to deploy experts from roster to support projects • Host SAFE trainings 	<ul style="list-style-type: none"> • Implement SAFE advocacy strategy and work plan • MOUs with SAFE partners that clearly outline path forward for achieving 2020 targets • Bring in new partners to increase number of households 	<ul style="list-style-type: none"> • Develop and implement fundraising strategy • Utilize Alliance funding to create innovative funding mechanisms

Phase 2 Focus - Scaling and Strengthening SAFE projects to reach 1m HH by 2020

- **51.2m** forcibly displaced people in the world
 - *3.7m of these are refugees and IDPs in 3 Alliance focus countries*
 - *6.3m more are in 14 other SAFE partner countries*
- Interim target of **1m HH** (5m people) in humanitarian contexts with access to cooking solutions by 2020
- Alliance SAFE focus countries are Kenya, Rwanda and DRC



3.7m Refugees & IDPs in Alliance SAFE Focus Countries (end-2013)

- DRC: 3,077,161
- Kenya: 534,938
- Rwanda: 73,349

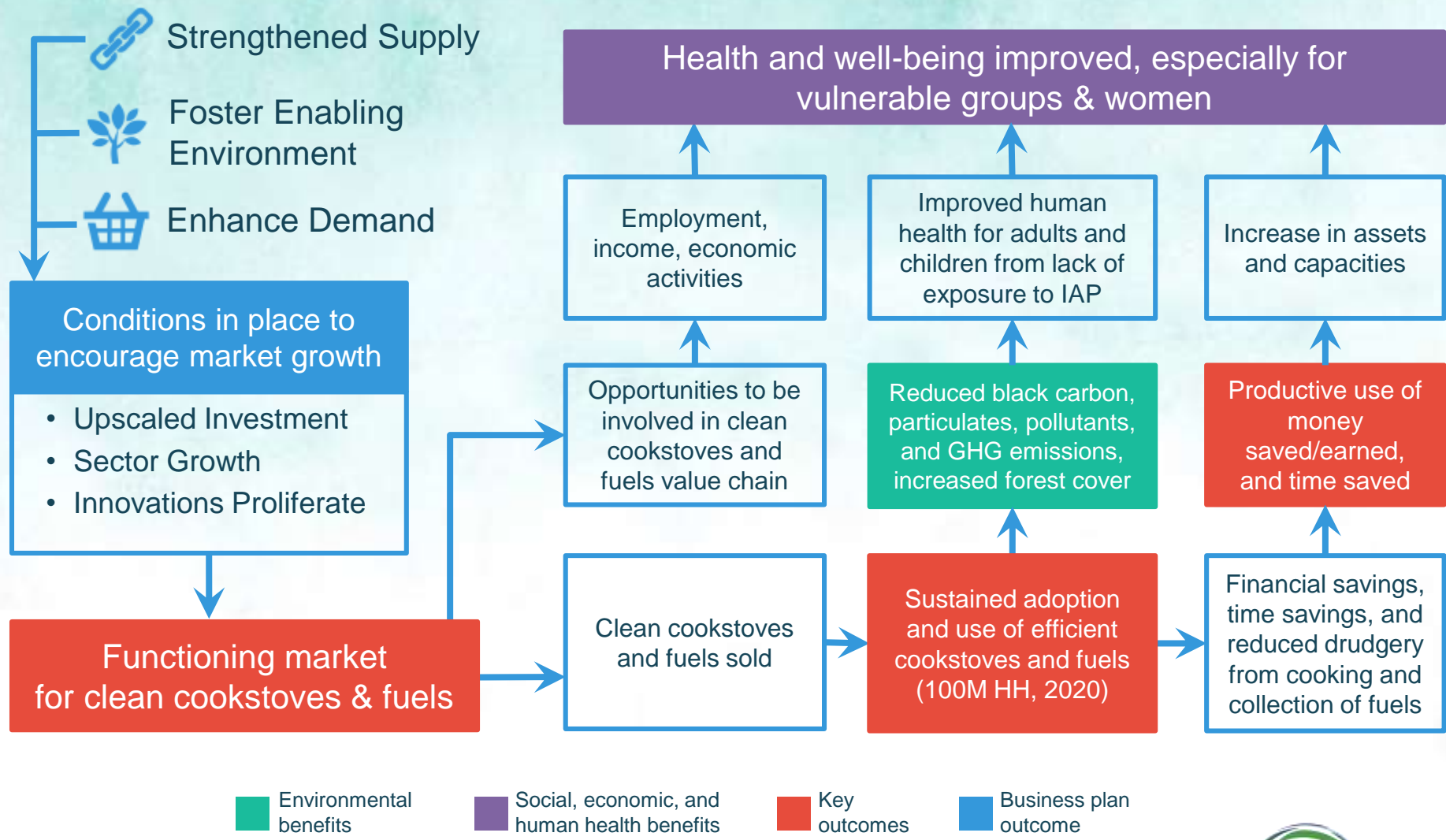
Resource Allocation for Phase 2 (2015-2017)

Pillar	Activity	Budget
Pillar 1 – Coordinate: \$250,000	Coordinate SAFE Reference Group	\$150,000
	Maintain SAFE website and disseminate SAFE research and information	\$100,000
Pillar 2 – Research: \$4,00,000	Implement comprehensive SAFE project(s) to cover an entire refugee camp; include funding to integrate M&E from start	\$3,500,000
Pillar 3 – Technical support: \$400,000	Update existing tools and create new ones	\$50,000
	Incentivize technology R&D	\$300,000
	Conduct technical assessments and develop stockpiling guidelines	\$50,000
Pillar 4 – Build capacity: \$650,000	Develop standardized SAFE expert curriculum	\$100,000
	Deploy experts from roster to support projects	\$300,000
	Host SAFE trainings	\$200,000
Pillar 5 – Advocate: \$200,000	Implement SAFE advocacy strategy and work plans	\$100,000
	Develop work plans and MOUs with existing SAFE partners	\$50,000
	Broker partnerships	\$50,000
Pillar 6 – Mobilize resources: \$4,500,000	Create and capitalize innovative financing to strengthen and scale implementation of SAFE projects	\$5,000,000
Total		\$10,000,000

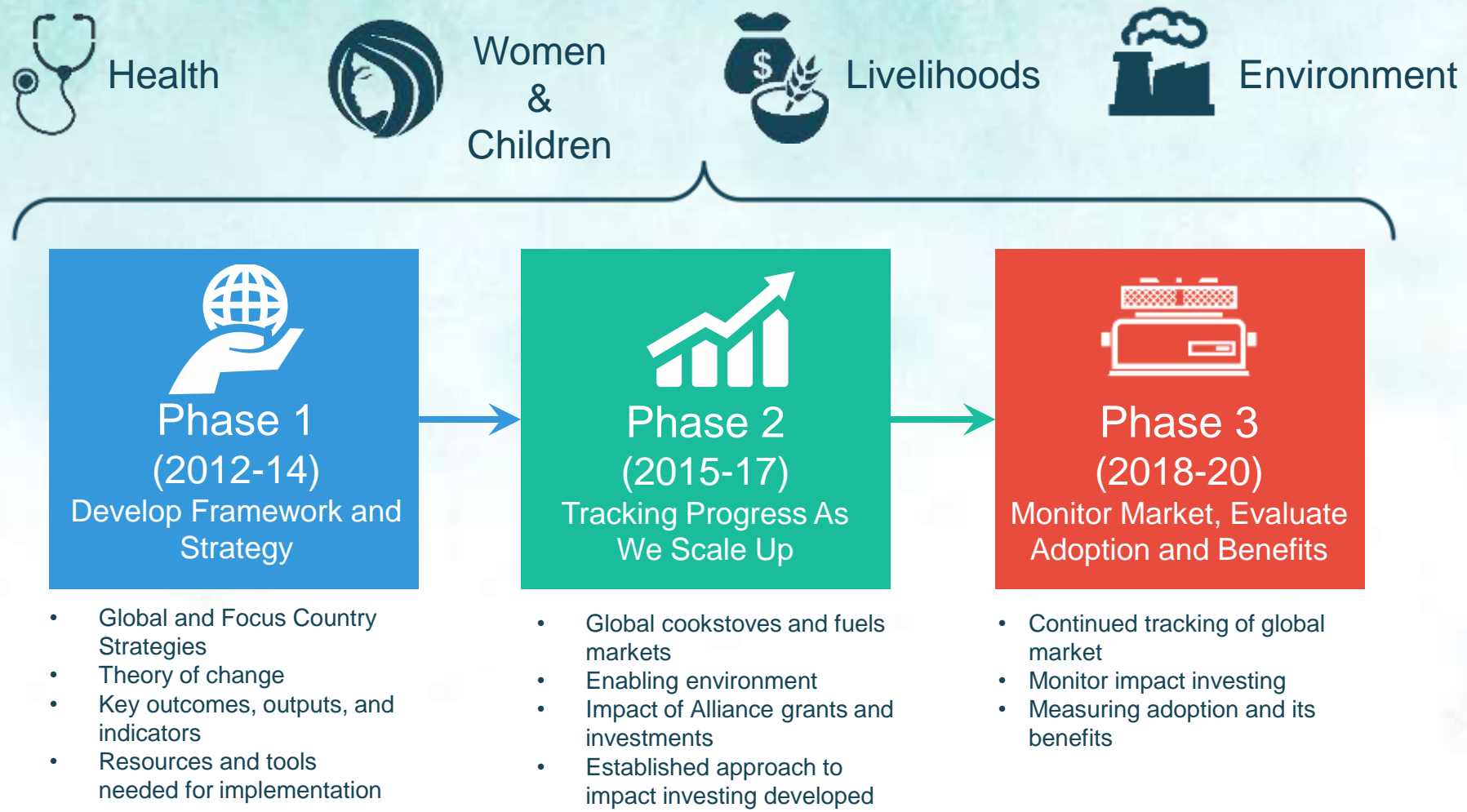


Monitoring & Evaluation






Simplified Theory of Change for the Alliance's Global Activities



Alliance M&E Strategy by Phase



Phase 1 Accomplishments

				
Global	Focus Country	Partners and Grantees	Household Members	Clean Cooking Technologies
<ul style="list-style-type: none">• Harmonize global tracking indicators (census, DHS, etc.)• Align with Sustainable Energy for All (SEFA)	<ul style="list-style-type: none">• National M&E strategy template,• Detailed strategies for Kenya and Ghana	<ul style="list-style-type: none">• Annual partner results reporting• Impact of Alliance funds	<ul style="list-style-type: none">• Define objectives for field evaluation of adoption and its benefits	<ul style="list-style-type: none">• Track innovation and growth of clean cooking market

Phase 2 M&E Emphasis: Tracking Progress on Scale (10m)

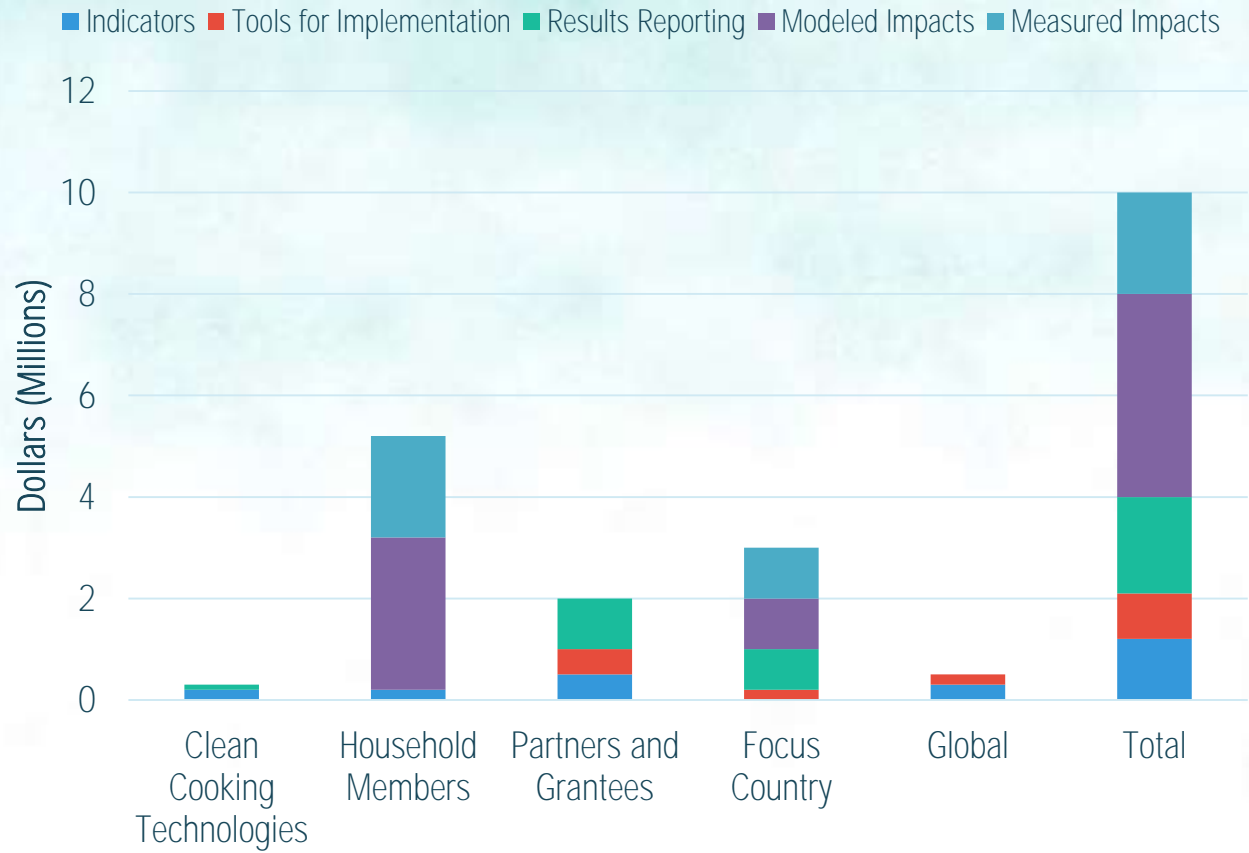
GOAL

Monitor our focused efforts

Market growth

Impacts

Phase 2 M&E Resource Allocation





Partner Engagement

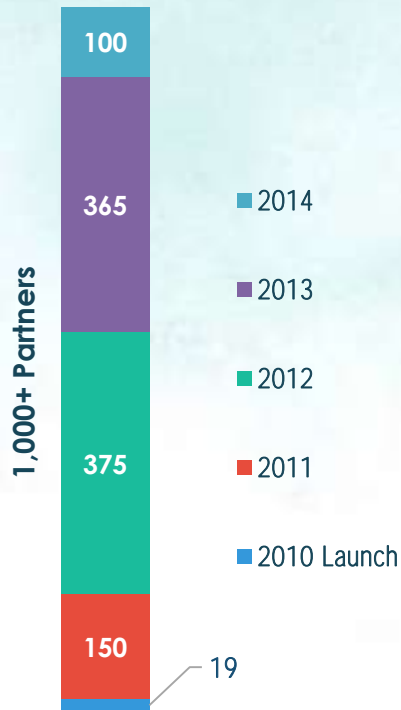
Partner Engagement in Phase 1



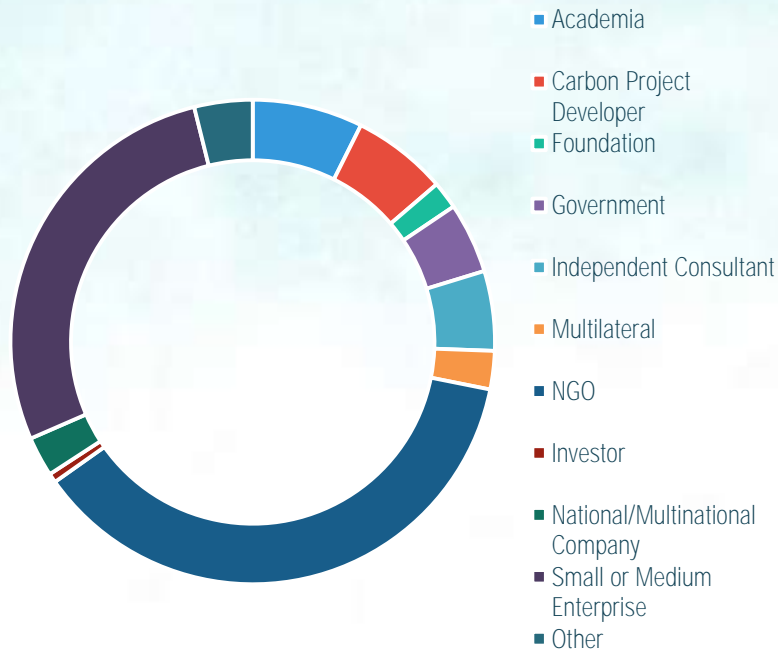
Characteristics of Phase 1 Partners and Learnings for Phase 2

- Rapid partner growth in Phase 1 as sector stakeholders learn of the Alliance and opportunities
- Partners largely represent NGOs and SMEs
- Many partners with a history of involvement in the sector; growing number of new entrants

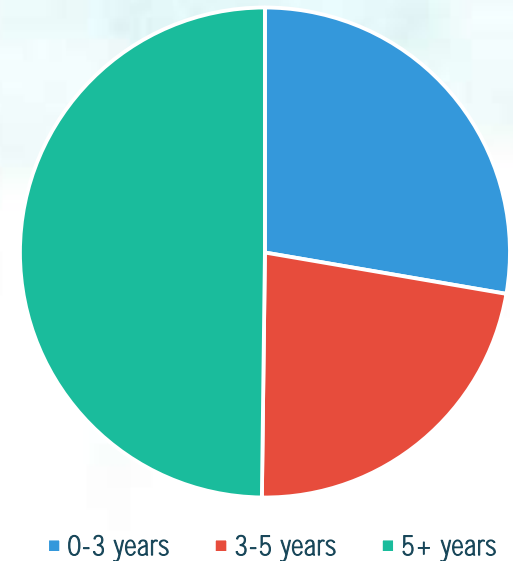
Partner growth*



Organization type*



Length of involvement in clean cooking sector**



*Based on 1,000 partners as of September 2014

**Based on responses to a December 2013 partner survey with 38% of partners reporting

Partner Engagement Goals for Phase 2



Ensure an accessible online partner networking community and resource library for a projected **1,500 geographically diverse partners** to access basic support services



Strengthen engagement in implementing countries through **10 additional national partners**



Strengthen national and regional alliances to provide partners with access to in-person and country- or region-specific networks, support, and resources in **12 countries**



Convene partners regionally and globally through annual **rotating regional meetings** and **biennial Clean Cooking Fora**



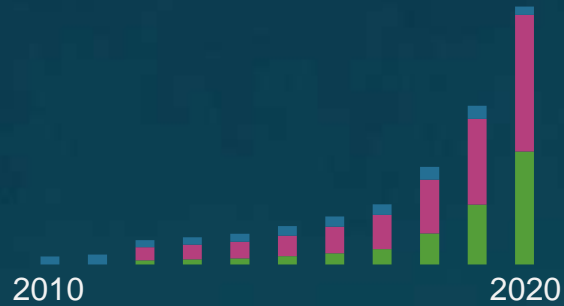
Support tailored training and capacity building activities for partners to reach scale and mobilize the sector towards the 100 million goal



Continue to **mobilize \$100 million in grant resources** for partners, while increasing focus on fostering investment and engaging investors in the sector



Foster new **strategic partnerships with 10 organizations** in related sectors including water and sanitation, biodiversity, food security, agriculture, maternal health, etc.

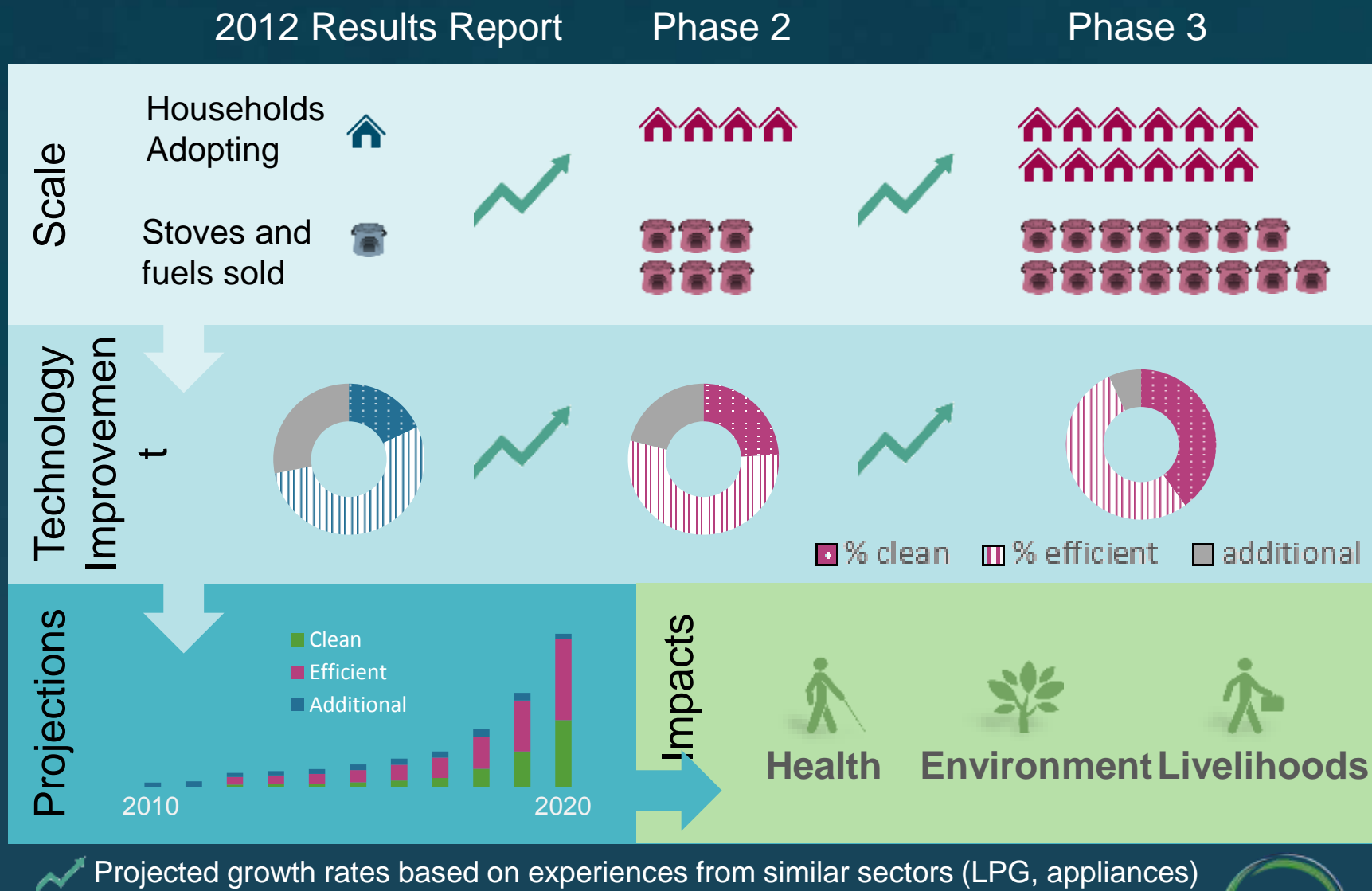


Methodology

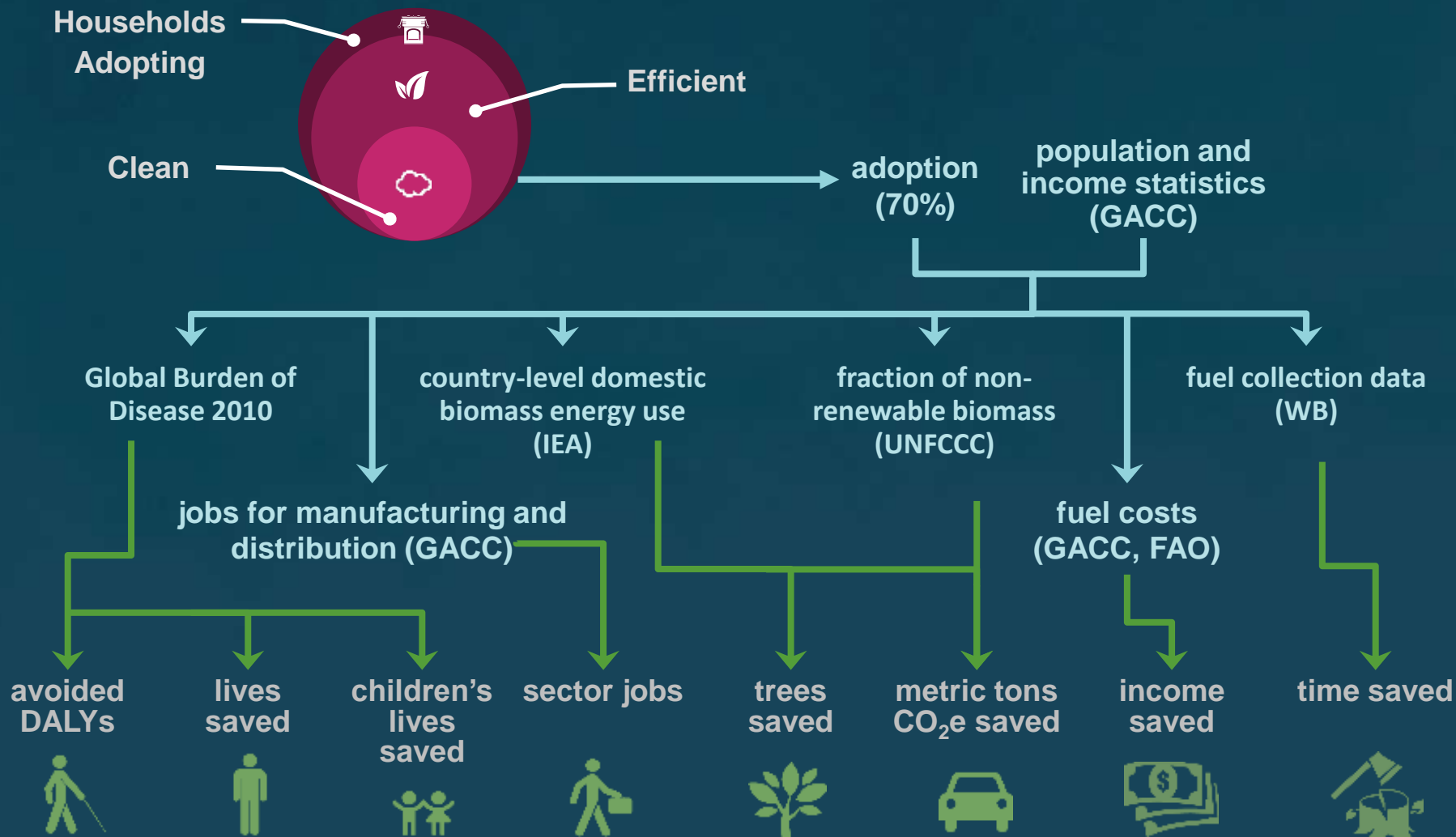
Phase 2 and 3 Impact Projections



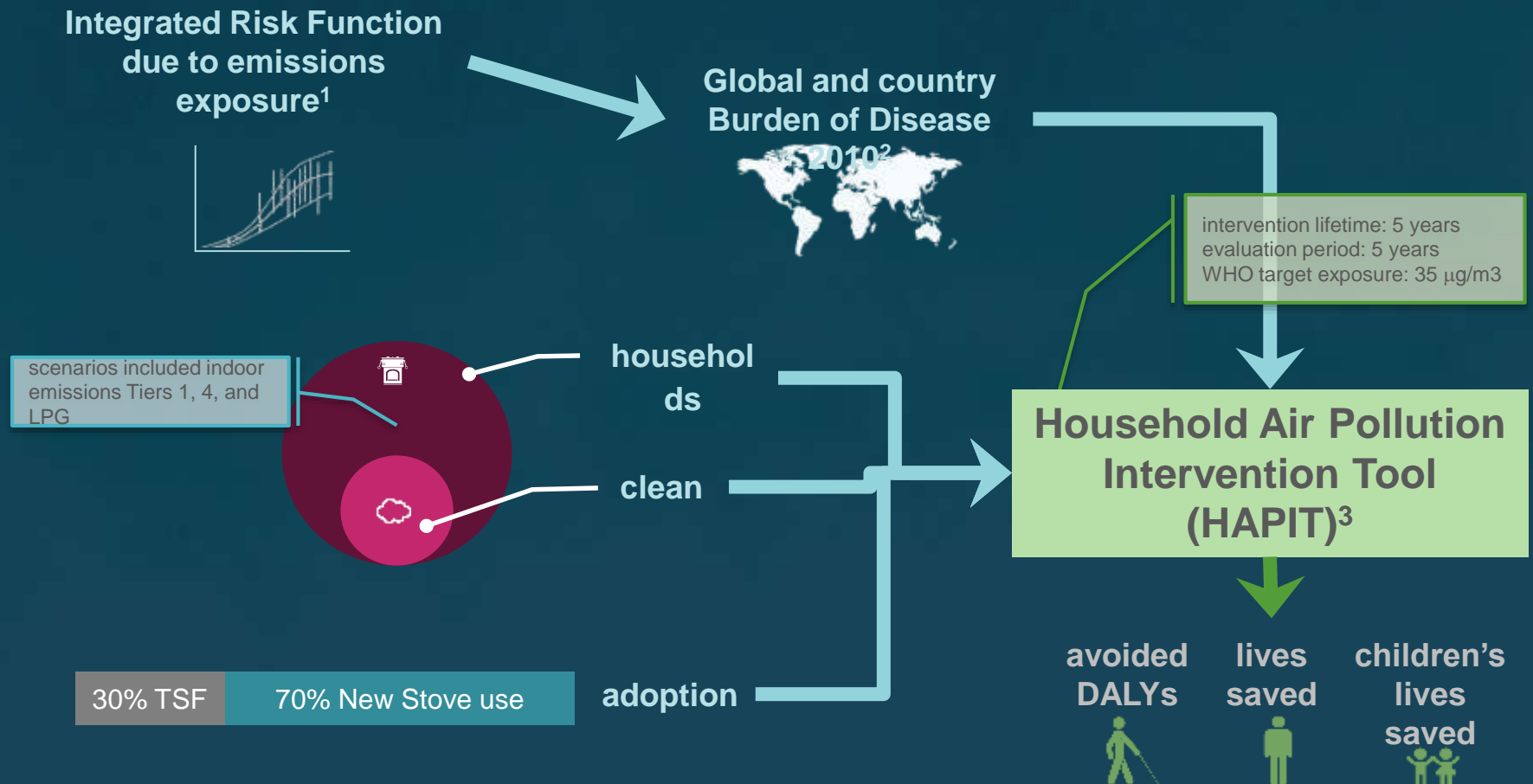
Methodology – Overview for Global and Country Impacts



Methodology - Major Parameters and Impacts



Methodology – Health Impacts

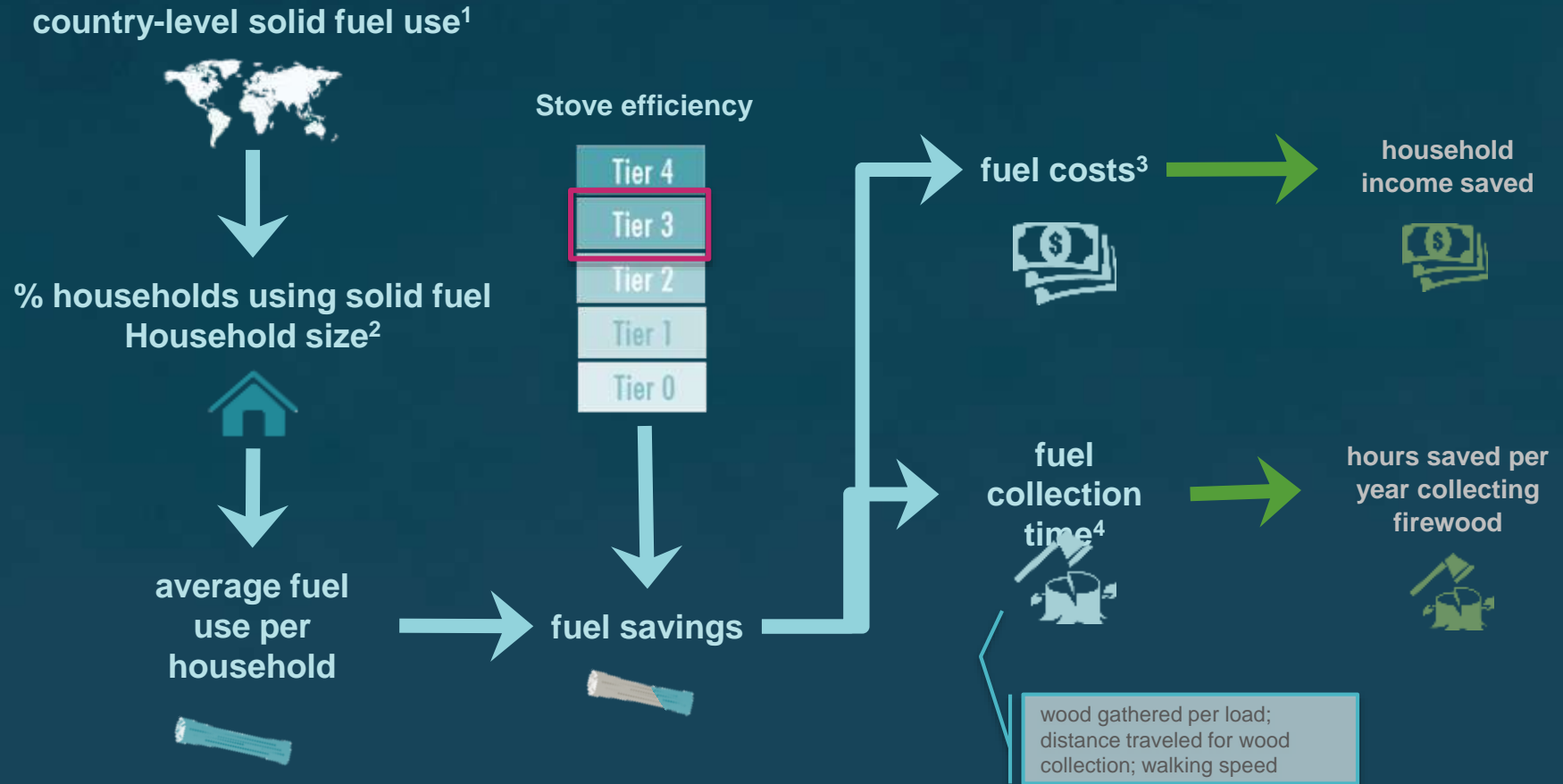


¹Burnett et al. (2014) An Integrated Risk Function... Environ Health Perspect

²Lim et al. (2012) A comparative risk assessment of burden of disease... Global Burden of Disease Study 2010. Lancet

³Pillariseti and Smith, in progress

Methodology - Household-Level Impacts



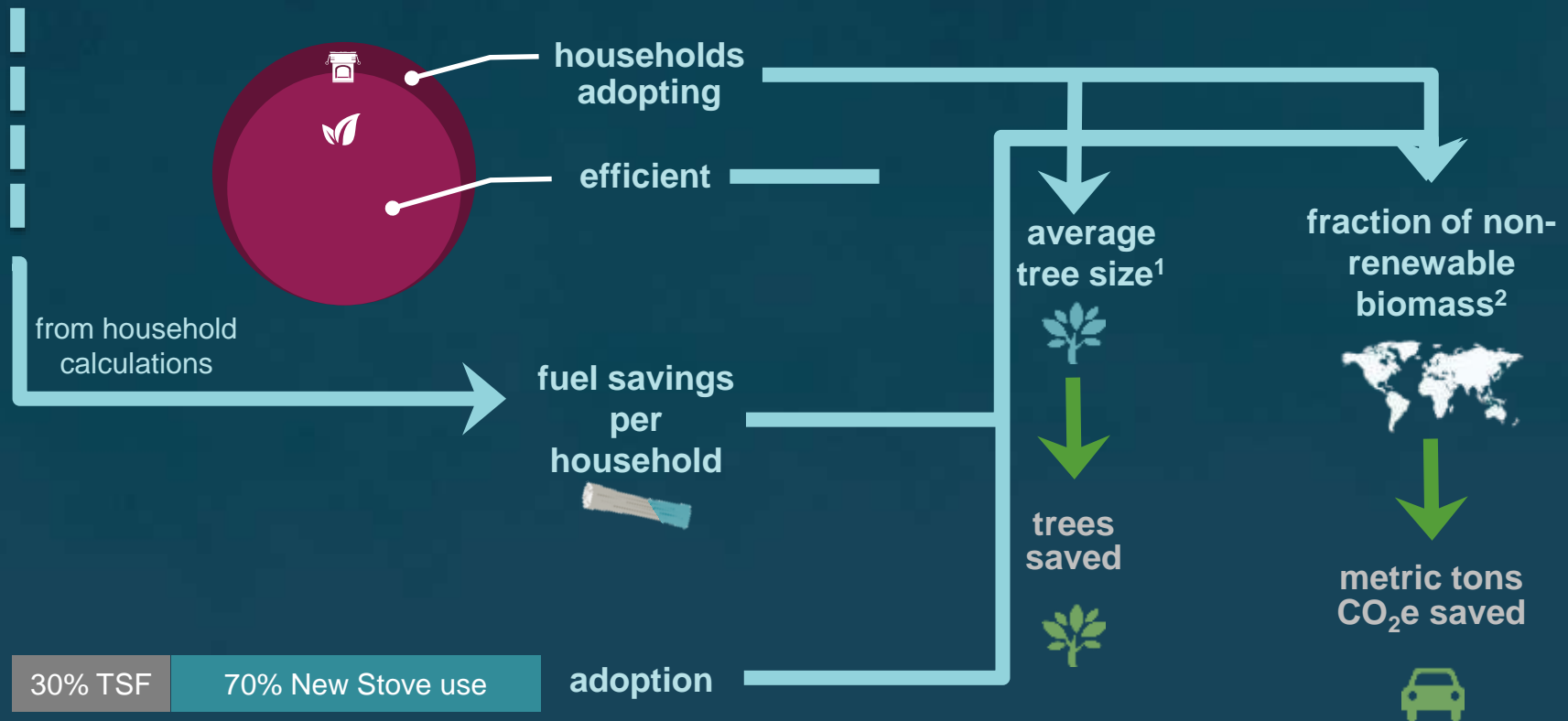
¹International Energy Agency Statistics, www.iea.org/statistics

²Global Alliance Data and Statistics, www.cleancookstoves.org/resources/data-and-statistics

³Global Alliance market assessment studies (2013 – 2014), FAO Wood fuel surveys (1983)

⁴World Bank

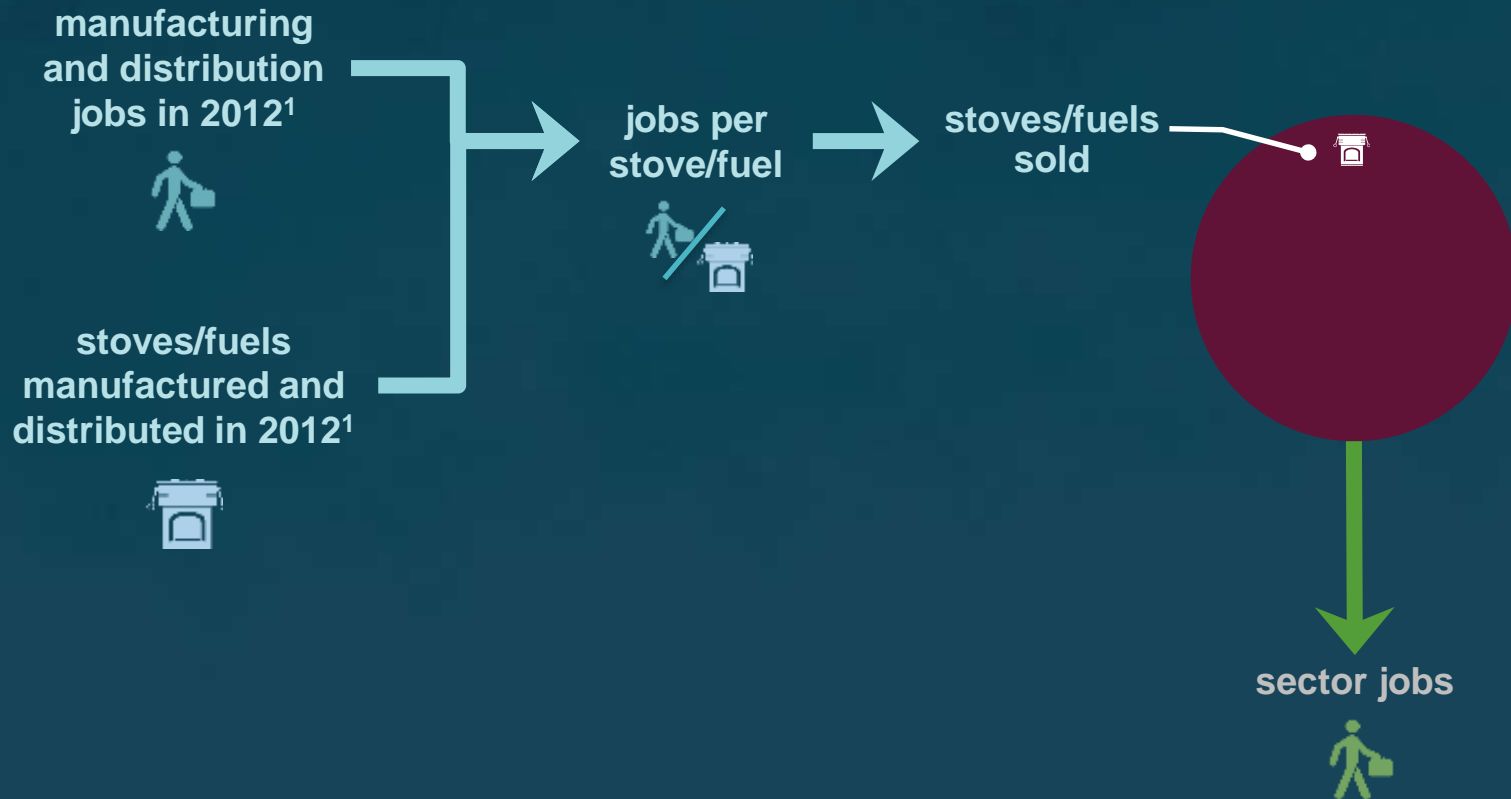
Methodology – Environment and Climate



¹Paradigm Project, <http://theparadigmproject.org/our-commitment/behind-the-numbers/>

²UN Framework Convention on Climate Change, Default values of fraction of non-renewable biomass

Methodology - Jobs



¹Results Report 2012, Global Alliance for Clean Cookstoves