

# ROADMAP INDEX:

A visual index of thematic interventions on the Modern Energy Cooking Cambodia Roadmap aiming to successfully realize **VISION 2030**

## VISION 2030: Ensuring access to affordable, reliable, sustainable modern cooking energy for ALL in Cambodia

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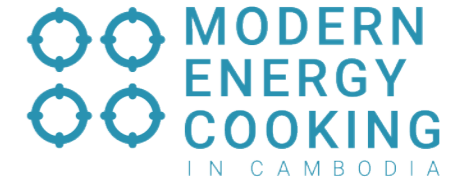
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# ROADMAP GLOSSARY:

An index of acronyms and terminology on the Modern Energy Cooking Cambodia Roadmap



<b>ADB</b>	Asian Development Bank	<b>MME</b>	Ministry of Mines and Energy
<b>AFD</b>	Agence Française de Développement	<b>MoE</b>	Ministry of Environment
<b>CCA</b>	Clean Cooking Alliance	<b>MRD</b>	Ministry of Rural Development
<b>CCCC</b>	Cambodia Clean Cooking Champions including iDE, SNV, UNDP, Geres, and a number of sector stakeholders	<b>NIS</b>	National Institute of Standards, under MISTI
<b>CCWC</b>	Commune Council for Women and Children	<b>PFAN</b>	Private Financing Advisory Network, impact investment in green sectors
<b>DP</b>	Development Partner	<b>PPP</b>	Public-Private-Partnership
<b>EAC</b>	Electricity Authority of Cambodia, under MME	<b>RBF</b>	Results Based Financing
<b>E-cooking</b>	Used interchangeably with electric cooking	<b>REEs</b>	Rural Electrification Enterprises
<b>EDC</b>	Electricité du Cambodge, under MME	<b>RUPP</b>	Royal University of Phnom Penh
<b>EV</b>	Electric Vehicle	<b>SBCC</b>	Social and Behaviour Change Communication
<b>FI</b>	Financial Institution	<b>SMEs</b>	Small and Medium Enterprises
<b>ISO/CE</b>	International Standardisation Certification	<b>WASH</b>	Water, Sanitation and Hygiene
<b>ITC</b>	Institute of Technology of Cambodia, university		
<b>Modern Cooking</b>	Gas and Electricity based cooking solutions		
<b>MEF</b>	Ministry of Economy and Finance		
<b>MFI</b>	Micro-Finance Institution		
<b>MISTI</b>	Ministry of Industry, Science, Technology and Innovation		

# Deploying Integrated National Behaviour Change Campaigns

## D 1. Integrated National Behaviour Change Campaigns

### Why is this important?

Multiple SBCC implementers are promoting the benefits of cooking with modern cooking solutions. Some messages, approaches and tools are highly effective, but they are used only by a handful of implementers. There is an opportunity to align sector efforts through an integrated behavior change campaign featuring a common strategy and messaging. This will influence the transition to modern cooking on a large scale.



### IMMEDIATE WINS

1. Organisations engaged in SBCC develop a cohesive SBCC strategy, including strategies to market clean cooking as a more aspirational cooking experience compared to biomass fuels
2. SBCC implementers prioritize the most effective SBCC and mass-marketing approaches
3. Stakeholder mapping of actors involved in the COVID-19 SBCC is created
4. Successes and lessons learnt from the COVID-19 campaigns in Cambodia are distilled and provided as guidance for the Clean Cooking sector
5. Leveraging the lessons learned from the COVID-19 campaigns, sources of financing for mass SBCC related to respiratory diseases and public health are identified

### SHORT TERM ACTIONS

6. An open source SBCC campaign is developed, disseminated and mainstreamed which leverages the best practice from SBCC implementers

### MEDIUM TERM ACTIONS

7. Funding is mobilised for a multichannel collective SBCC campaign implementation, multiple actors with proper implementation capacity are invited to partner on the implementation
8. Communities where Open Defecation Free (ODF) SBCC delivery mechanisms were established are targeted for clean cooking campaigns to leverage existing successes and social networks

### LONG TERM ACTIONS

9. Clean cooking messaging is integrated into SBCC campaigns focused on WASH and Nutrition
10. A clean cooking village awards to celebrate early adopters uptaking clean cooking solutions is established
11. SBCC implementers who use the SBCC toolkits continuously share learnings and experience on campaign delivery and implementation through regular meetups or sharing sessions

### END OUTCOME:

**A targeted and consistent SBCC campaigns across national, provincial, district, commune and village implementers boost awareness of the unclean cooking impacts, generate behavior change to modern cooking and establish clean cooking as aspirational**



# Developing Customer Centric Products

## D 2.1. Understanding Customer Needs and Aligning the Sector Closer to them

### Why is this important?

Policy and supply side actors are missing an in depth understanding of customer needs and expectations. Reaching product-market fit is crucial to scaling up modern cooking.



### **IMMEDIATE WINS**

1. A sector wide assessment of current gaps in achieving product-market fit of LPG and Electric cooking products is published, this enabling stakeholders to identify pathways to address these gaps

### **SHORT TERM ACTIONS**

2. Purchasing recommendations for the right products that match Cambodian cooking culture and market demand (present or future), are developed and disseminated

### **MEDIUM TERM ACTIONS**

- 3. International manufacturers have access to local market information and tailor their technologies accordingly
- 4. End-users are engaged in the design and development of products

### **LONG TERM ACTIONS**

- 5. Import tariff incentives are introduced, enabling international manufacturers to readily test and adjust product lines to local consumers

### **END OUTCOME:**

**Suppliers are aligned with customer needs and are able to market convenient, safe, energy efficient, aspirational and cost-effective modern cooking products, boosting demand for these products**



# Developing Customer Centric Products

## D 2.2. Innovation Funds

### Why is this important?

Currently cooking products in Cambodia are not locally manufactured. This leads to multiple manufacturing, shipping and supply chain dependencies which increase cost to customers. Boosting supplier access to innovation funds will pave the way for developing local (or regional), affordable products.



**IMMEDIATE WINS**

### **SHORT TERM ACTIONS**

1. An Innovation Fund concept is developed focusing on procurement and development of clean cooking products and projects
2. Investments in R&D projects lead to new innovations in efficient cooking stoves and fuels

### **MEDIUM TERM ACTIONS**

3. Initial Innovation Fund is rolled out with a focus on procurement and adaptation of regional and international product lines

### **LONG TERM ACTIONS**

4. Innovation Fund grows, and its focus is expanded to include domestic producers, to boost localisation of products

### **END OUTCOME:**

**Cambodian domestic research and development capacity in modern cooking is strengthened, enabling the creation of a next generation suite of culturally relevant and market competitive cooking solutions which meets future consumer needs**



# Developing Customer Centric Products

## D 2.3. Data Driven Product Development and Service Delivery

### Why is this important?

Organizations implementing clean cooking programs miss the opportunity to combine their research across their different programs, to drive research and development of new products



**IMMEDIATE WINS**

1. A data analytics plan to track, analyse and distill consumer trends, and inform sector interventions is developed
2. A modern cooking consumer trends report is commissioned to share knowledge on future customer cooking preferences, new products and their most desirable functions to Cambodian customers.

### **SHORT TERM ACTIONS**

3. Business process (sales and marketing) data from different suppliers is aggregated into a common database to build evidence of successful approaches to drive adoption

### **MEDIUM TERM ACTIONS**

4. A sector workshop sharing key findings and trends in modern cooking helps suppliers assess their priorities for research and development of new products, or product supply chain management for sourcing new/existing products.

### **LONG TERM ACTIONS**

5. Data analytics and reporting expands its scope to communicate socio-ecological benefits related to uptake of clean cooking

### **END OUTCOME:**

The sector is a 'Learning Sector' which operates collectively in an evidence based manner, opening up new avenues of financing based on socio-ecological benefits, and accelerating progress due to analysis and dissemination of market trends



# Developing Customer Centric Products

## D 2.4. Domestic Workforce Development

### Why is this important?

To boost Cambodia's capacity to transition from low-value product creation to high-value product development, the domestic workforce will need investments in building workforce knowledge and capacity to produce or assemble high quality modern cooking appliances



**IMMEDIATE WINS**

1. A landscape analysis of the current appliance/stoves manufacturing capacity in Cambodia is commissioned. Pathways to facilitate the transition from low value to high value production emerge from the analysis

2. A stakeholder mapping of the emerging domestic production sector helps highlight the most valuable technology developers/ innovators in the field

### **SHORT TERM ACTIONS**

- 3. Strategic partnerships are forged between key actors in the technology and engineering ecosystem in Cambodia
- 4. The clean cooking sector collaborates with MISTI to provide inputs on the R&D and Domestic Innovation Sub-Decree, to create alignment between multiple stakeholders

### **MEDIUM TERM ACTIONS**

- 5. Tailored workforce up-skilling programs are developed in collaboration with government, private and public sector to boost local manufacturing or assembly of modern cooking products

### **LONG TERM ACTIONS**

- 6. Financing is allocated to human resource (HR) capacity development programs using Clean Cooking sector financing

### **END OUTCOME:**

**A skilled domestic workforce develops high quality domestic parts manufacturing, assembly lines, and products, facilitating access to a suite of cost-effective, localised products, whilst also creating new jobs**



# Improving Access to End User Finance for Future Customers

## D 3. Improving access to end user finance

### Why is this important?

End-user financing, especially the provision of installment plans, has been linked with triggering a significant uptake in modern cooking products. However, the available options for end-user finance in modern cooking are currently underdeveloped. Implementing strategies to boost uptake of diverse financing options on the supplier side will result in greater demand and uptake of modern cooking products.



### IMMEDIATE WINS

1. Best practices and insights emerging from formal and informal end-user financing are distilled and disseminated
2. A report highlighting the different options for bundling modern cooking product finance with existing financial products exists to guide the sector
3. A map exists of the potential financing instruments, including loans, installments, guarantees, insurance, for clean cooking products, cooking wares, and installation
4. A map exists of the formal products and services available, and the informal financing practices (i.e. use of 220g LPG canisters as an informal installment implement)
5. A map of all of the safe clean cooking products exists, and is disseminated to FIs to guide their financing interventions, and ensure the sector is not financing unsafe products

### SHORT TERM ACTIONS

6. Information about end-user financing is disseminated to consumers
7. Consumer awareness campaigns promoting the benefits of payments models such as PAYGO and e-commerce are conducted
8. Partnerships are developed to explore the potential of IoT (Internet of Things) enabled metering for 15 kg LPG tanks, to introduce flexible payments for safer LPG products

### MEDIUM TERM ACTIONS

9. Financing organisations provide financing for clean cooking as part of their suite of end-user financing products
10. Mapping of all financiers working in clean cooking is developed and disseminated
11. Subsidies and installments exist to break the affordability barrier for households which cannot afford products without assistance

### LONG TERM ACTIONS

12. Clean cooking implementers and financiers partner to develop a range of end-user finance options in clean cooking
13. Technology providers provide consumer finance, digital marketing and e-commerce, to facilitate awareness and ease of purchase
14. An IoT enabled meter exists for 15kg LPG tanks, breaking the up front affordability barrier for larger tanks, leveraging innovations in PAYGO LPG done abroad

### END OUTCOME:

**Consumers can access high quality end-user financing, boosting affordability and demand for aspirational products, and accelerating uptake in Cambodia**





# Improving Safety Standards for Modern Cooking Products & Services

## D 4. Improving Safety Standards

### Why is this important?

Currently, safety across the value chain is a concern, especially for the entire LPG value chain - including refilling, bottling, handling and distribution. For electric cooking products, products are perceived as more safe - however, there are fears of electrocution due to unsafe installation. Issues around safety, both actual and perceived, need to be overcome to ensure a large scale transition to modern cooking. Strengthening safety labelling standards, and improving the adoption of those standards is required to ensure safer quality modern products are adopted by future customers



### IMMEDIATE WINS

1. A dedicated Safety Taskforce exists within the CCCC
2. Safety standards and enforcement guidelines are developed for LPG across the entire value chain
3. Financial incentives to promote safety across the value chain of modern cooking products are identified
4. Safety guidelines for electrical wiring and household electricity supply are enforced through regulating housing developers
5. A certification program for certified safe electricians helps create local focal points for improving appliance safety and extending the productive life of a modern cooking appliance

### SHORT TERM ACTIONS

6. A stakeholder mapping of the existing quality and safety testing and accreditation ecosystem exists
7. Safety messaging, including identifying safe products, installation is embedded into SBCC campaigns and product sales and marketing materials
8. Consumer guidelines on identifying and sourcing safe products, and their installation are developed and disseminated
9. All safety information on imported products is localised
10. Testing mandates and capacity of existing labs are expanded, enabling them to reach standards for local accreditation of LPG and domestically produced electric cooking products

### MEDIUM TERM ACTIONS

11. Government-run LPG refilling centers conforming to the appropriate safety guidelines are established
12. A 'Safety mark' for accredited safe modern cooking products is established
13. The 'safety mark' and related messaging is disseminated to consumers and sector stakeholders
14. Existing labs expand their testing mandates, testing volumes, and capacity to reach standards for regional accreditation of LPG and domestically produced electric cooking products

### LONG TERM ACTIONS

15. Existing labs expand testing mandates, testing volumes, and capacity to reach ISO accreditation standards and provide endorsed labelling using the 'safety mark' for LPG and domestically produced electric cooking products

### END OUTCOME:

**Products available on the market are rigorously tested and accredited across the value chain and customers trust in the safety of clean cooking products**



# Supply Side Financing for Appliance Providers

## S 1.1. Financing the Right Products

### Why is this important?

There is currently no identification of specific modern cooking products which are most appropriate the Cambodian market and suitable for end-user financing. Existing small businesses at the last mile are an important part of the last mile supply chain. In order to enter and scale the modern cooking market, they need to bear financial and operational risks. Reducing the risk of doing business for them is needed in order to reach more rural households



### IMMEDIATE WINS

1. The sector has identified a range of products on the market that are best suited (based on price, safety, quality, and cooking cultures) for end-user financing. A financing strategy recommending mechanisms for scaling demand for the most suitable products is shared with suppliers and stakeholders
2. DFI's and MDBs play key role in mobilizing larger pools of funding, and as allies in helping shape government and policy making agendas for modern cooking
3. Financial Institutions, SME's and last mile distributors work together to introduce finance options (consignment procurements, credit lines, installments, flexible payments and free trials) to their customers

### SHORT TERM ACTIONS

4. The feasibility of providing Results Based Financing (RBF) and Carbon Credits for distributors in the last mile is assessed through sales pilots
5. The long term success of RBF mechanisms in enhancing demand and strengthening supply of modern cooking productions is evaluated through small scale pilot projects
6. Risk sharing agreements between micro-finance institutions, last mile distributors, and development programs have been developed, to scale small appliance loans in the last mile

### MEDIUM TERM ACTIONS

7. National RBF program is launched based on pilot learnings
8. The performance of various supply side financing initiatives such as cashflow based repayments, liquidity loans for purchasing stock, loan incentives to retailers (per unit sale) has been evaluated
9. Early-mid stage enterprises showing success and socio-ecological impact have been linked with impact funds, grants and investment

### LONG TERM ACTIONS

10. A Clean Cooking Investment Readiness Program is implemented to prepare mid stage SMEs to secure investment
11. A PPP exists which provides working capital and liquidity loans for purchasing stock
12. A Clean Cooking Investment Readiness Program is implemented to prepare mid stage SMEs to secure investment
13. A PPP exists which provides working capital and liquidity loans for purchasing stock



### END OUTCOME:

**Sector provides new and appropriate end-user financing options which make the right products affordable for end-users.**

**Existing last mile suppliers have the financial support to de-risk their investments in new product lines, and develop supply chains to scale adoption of modern cooking products in rural areas**

# Supply Side Financing for Appliance Providers

## S 1.2. End User Financing

### Why is this important?

In order to ensure that no households are left behind, mechanisms to boost affordability are vital to scaling adoption of for energy-efficient and safe cooking especially in rural Cambodia



**IMMEDIATE WINS**

1. Clear guidelines exist detailing the customer segments to be served by affordability mechanisms
2. Recommendations exist related to how modern cooking product suppliers can integrate affordability mechanisms in their product offering

### **SHORT TERM ACTIONS**

3. FIs and MFIs successfully bundle new financing offerings for modern cooking products
4. The feasibility of scaling peer-to-peer micro loans in Cambodia is assessed through launching financing platforms such as KIVA

### **MEDIUM TERM ACTIONS**

5. Subsidy programs are rolled out for households unable to afford modern cooking products without any financial assistance
6. Carbon emissions reductions achieved from sales of modern cooking are measured and shared with donors/development project financiers

### **LONG TERM ACTIONS**

7. A carbon financing audit is introduced which details pathways to using carbon financing to break the affordability barrier for the poorest households

### **END OUTCOME:**

**Affordability mechanisms which reduce barriers to entry especially for the poorest are easily accessible and widely used, ensuring a large scale transition to modern cooking products**



# Supply Side Financing for Appliance Providers

## S 1.3. Securing Public Investment and Incentives

### Why is this important?

Enabling equitable access to modern cooking for all requires unlocking a larger amount of public funding than is currently available to the sector. This public financing can be used to boost affordability and ensure that no one is left behind



### IMMEDIATE WINS

1. Advocacy for the inclusion of modern, clean cooking in health projects creates interest for MoH and DPs such as ADB and WB to provide additional financing with flexible repayment terms. These will address finance gaps in current interventions

### SHORT TERM ACTIONS

2. A smart subsidy guideline is developed for modern cooking which details mechanisms for subsidizing pricing for rural vulnerable households, whilst avoiding market distortions
3. The implementation of robust monitoring and evaluation mechanisms help ensure utilization of funding is used for targeted subsidies to ID Poor populations, therefore avoiding the creation of market distorting effects

### MEDIUM TERM ACTIONS

4. Tax incentives for modern cooking products are introduced by the government, similar to those introduced for relaxing import duties and taxes for electric vehicles and solar panels
5. A platform for encouraging entrepreneurship titled 'Women in Modern Cooking' shares business success stories and offers incubation support through public funds

### LONG TERM ACTIONS

6. The modern cooking agenda is added into existing and planned policy frameworks including Natural Resource Management (MoE), Green Buildings (MoE), National Energy Efficiency Policies (MoE and MME), Circular Economy (MoE), and Energy Technology Roadmap (MISTI), and into the nation wide planning for ministries, to create pathways for financing of clean cooking products through the MEF



### END OUTCOME:

**Public financing is used to boost affordability, competitiveness and accelerate uptake of clean cooking products**

# Increasing Electric Cooking Uptake on Mini Grids

## S 2. Reaching Un-Electrified Villages through Mini-Grids

### Why is this important?

350 villages in Cambodia remain un-electrified, and it is not commercially viable to connect them through Grid extension. Electrifying these villages is crucial for leaving no-one behind in Cambodia's electrification and clean cooking transition



**IMMEDIATE WINS**

### **SHORT TERM ACTIONS**

1. The \$6million earmarked for mini-grids under the Rural Electrification Fund (REF) is repurposed to provide Viability Gap Funding (VGF) for mini-grids in the remaining 350 un-electrified villages
2. Partnerships with mini-grid technology providers and modern cooking product providers are established to service those villages

### **MEDIUM TERM ACTIONS**

3. The mandate of Rural Electrification Enterprises (REEs) has been expanded to the provision of services including but not limited to: electric cooking, water pumping, lighting (including public street lighting), resulting in a boost in their profitability
4. A range of energy efficient electric cooking solutions such as rice cookers and electric pressure cookers are marketed by the REEs to mini grids households
5. Targeted behavior change messaging is deployed through the sales and marketing activities of the REEs promoting modern cooking solutions

### **LONG TERM ACTIONS**



### **END OUTCOME:**

**The last 350 un-electrified villages are now electrified, and clean cooking technology providers have worked synergistically with MG developers to provide remote rural HHs with electric cooking products, in the process, boosting consumption and therefore profitability of MGs**

# Decarbonizing Cambodia's Electricity Production

## S 3. Decarbonizing Cambodia's Electricity Production

### Why is this important?

Currently, the share of coal in electrifying Cambodia is 41%, with diesel contributing a further 7.6%. The remaining 49.6% is generated by renewable energy. The cost of coal electricity generation for EDC is between 1.4 and 2.4 times the cost of solar or wind, and is becoming more economically unappealing.



### IMMEDIATE WINS

1. The socio-economic and ecological benefits of switching from coal powered to RE electrification (including increases in energy sovereignty and increase in competitiveness of SMEs) are calculated and disseminated to policy makers
2. The negative impacts to Cambodia's economy if suppliers who are pledging to decarbonize their supply chains leave Cambodia are calculated and disseminated to key decision makers
3. The benefits of solar electrification, including price competitiveness compared with coal, ease, modularity, and speed of installation are disseminated to decision makers
4. Solar and wind projects are structured and presented as more viable and profitable alternatives to coal powered electrification, with an evidence base developed based on the experiences of other countries (including China and Australia)

### SHORT TERM ACTIONS

5. Business models and technical analyses focusing on maximising the feasibility and viability of solar and wind energy exist, providing crucial project development information to facilitate decision making for policy makers
6. Investment in research and development is leveraged for solar and wind projects showing high levels of feasibility and viability (especially for key areas such as solar energy storage)

### MEDIUM TERM ACTIONS

7. Increase the risk appetite for projects diverting from 'business as usual' by investing in human resources, infrastructure and technology related to electrification through renewable energy
8. Existing programs focusing on strengthening Cambodia's grid are expanded to increase the share of electrification coming from renewable energy - examples include AFD's Grid Strengthening, ADB's power planning programs

### LONG TERM ACTIONS

9. Policy and technical support for Electricity du Cambodge (EDC) exists, with a focus on energy efficiency, renewable energy and decarbonization



### END OUTCOME:

**Cambodia's Grid is fully decarbonised as the grid is powered by 100% Renewable energy, ensuring that Electric cooking is truly clean and allowing Cambodia to reach Carbon Neutrality by 2050 resulting in 2.8% annual GDP growth and create 449,000, boosting Cambodia's competitiveness regionally and internationally**

# Piggybacking Existing Last Mile Supply Chains

## S 4. Piggybacking Existing Last Mile Supply Chains

### Why is this important?

Currently very few last mile distributors market modern cooking solutions to rural Cambodian customers. Creation of strong last mile networks between different enterprises could create win-win partnerships bringing modern cooking products closer to households



**IMMEDIATE WINS**

1. Actors in the clean/modern cooking and WASH sectors explore possible synergies in their supply chains serving the same rural households
2. Modern cooking, rural electrification actors explore possible synergies in leveraging their existing supply chains reaching rural customers
3. Carbon offsets associated with drinking water provision to households - where water was previously was boiled - are captured and used to make a case for carbon financing

### **SHORT TERM ACTIONS**

4. A suite of clean cooking communication tools for existing last mile value chain actors is repurposed from open sourced behavior change communication message. This helps them understand market potential, and convinces them to enter the market retailers in rural last mile areas.

5. Pilot projects leveraging last-mile supply chains in WASH and REE are deployed and evaluated for impact and effectiveness

### **MEDIUM TERM ACTIONS**

6. Pilot projects leveraging last-mile supply chains in WASH and REE are deployed and evaluated for impact and effectiveness

7. Business, financial management and sales support is provided for last-mile suppliers entering the clean cooking sector

### **LONG TERM ACTIONS**

### **END OUTCOME:**

**Existing last-mile suppliers enter the clean cooking sector, leveraging distribution networks and social trust already in existence at community level to facilitate distribution of clean cooking at the last-mile**



# Building the Capacity of Local Entrepreneurs to Develop Customer Centric Product Lines

## S 5. Building the Capacity of Local Entrepreneurs to develop customer centric product lines

### Why is this important?

Cambodia does not have local manufacturing, leaving suppliers at risk of global supply chain disruptions especially due to COVID-19. The cultural relevance of the available products that are designed for western customers means product-market fit is sub-optimal. Finally, costs can be prohibitive especially due to import tariffs and shipping costs.



### IMMEDIATE WINS

1. Sector wide prioritisation of the best products to import is done, based on product quality, longevity, price, energy efficiency, compatibility with grids in rural and urban areas and safety
2. Technology Providers and Importers Partner to import the best products and bring down the price of clean cooking products
3. Training sales team led by women who deeply understand the needs of women in rural kitchens results in increased sales

### SHORT TERM ACTIONS

4. Intellectual Property Rights Policies are released, providing guidance for domestic manufacturing and safeguarding against imports of low quality, copycat cooking products
5. Parts manufacturing entities present in Science, Technology and Innovation (STI) Parks and Special Economic Zones (SEZ) in Cambodia and leverage their existing capacity, to produce spare parts to expand after-sales service capacity
6. Financing (including import tax incentives) for domestic producers is available to help them absorb upfront costs associated with R&D
7. Local technical capacity of universities in Cambodia, including Innovation Hubs such as ITC's Research and Innovation Center (RIC) and existing programs such as the Techno-Innovation Hub are leveraged to strengthen R&D for clean cooking

### MEDIUM TERM ACTIONS

9. Local clean cooking assembly capacity (with imported spare parts) is established
10. Local maintenance and repair capacities exist, resulting in an improvement in the quality and a reduction in the costs associated with after sales service, and a reduction in the impact of e-waste from the clean cooking sector

### LONG TERM ACTIONS

11. A Public-Private Standards entity exists to supplement the capacity of MISTI and NIS to regulate and mainstream quality and standards testing for locally produced clean cooking products
12. The Standards Institute is able to provide ISO certification
13. A suite of high quality, locally produced clean cooking products exists on the market



### END OUTCOME:

**Domestic production of clean cooking products in Cambodia boosts affordability, makes culturally relevant products locally available and reduces supply chain disruptions**



# Safety Standards for Products

## E 1. Improving Safety Standards for Products

### Why is this important?

Safety can be a strong motivator for end-users to take up modern cooking. The proliferation of unsafe, low quality products poses a risk to the growth of this sector, and the perception of clean cooking as safe. Regulations and guidance are critical towards ensuring maximum benefits of modern cooking to customers



### IMMEDIATE WINS

1. Existing national facilities with appliance testing knowledge and capacity are identified and commissioned to develop local testing capacity and test protocols
2. Government ministries engaged in the creation of standards and appliance labelling policy provide support / collaborate with national facilities to implement the policy mandate
3. Independent market studies conducted by research institutes identify cooking products in the Cambodian market that already satisfy international safety standards (CE/ISO). This knowledge is shared with local distributors to safeguard against marketing of unsafe products
4. The level of safety risks associated with different cooking products in Cambodia is well understood. Practical recommendations are developed for government and policy makers

### SHORT TERM ACTIONS

5. Policy development workshops inviting a range of stakeholders to co-design compliance standards for safe LPG practices for suppliers, and safety labelling requirements for electric cooking appliances
6. Effective policy implementation by multiple sector stakeholders creates supplier accountability for following the right appliance/fuel safety standards
7. The sector introduces voluntary safety standards which suppliers can opt to use until legally binding standards exist.
8. Products that have strong safety records are celebrated through national awards and recognition

### MEDIUM TERM ACTIONS

9. Newly developed safety standards are promoted widely through consumer awareness campaigns covering safety, efficiency, labelling and product performance indicators
10. The establishment of new redressal mechanisms allows consumers to share concerns about products and accidents publicly
11. Voluntary safety standards are underpinned by regulations to become locally certified standards. New products entering the market need to comply with locally certified standards

### LONG TERM ACTIONS

12. Cambodia joins ISO/CE international standards process to enhance credibility of labs
13. Policy mandates around e-waste, minimize the end of life including development of e-waste resource economy



### END OUTCOME:

**LPG and Electric Cooking products on the market are certifiably safe, high quality, and energy efficient. Consumer awareness on safety standards enables them to identify safer cooking alternatives.**

# 'Open Source' National Behaviour Change Communication Tools

## E 2. 'Open Source' National Behaviour Change Communication Tools

### Why is this important?

There is an existing pool of organisations who are championing SBCC in clean cooking. Aligning and synergising their efforts will ensure the sector can share best practices, align messaging and tools, and provide community implementers with targeted messaging of proven effectiveness

### **SHORT TERM ACTIONS**

3. The SBCC toolkit is officially launched, an event for disseminating SBCC tools and best practices for the SBCC implementers is organized
4. SBCC materials are shared with small businesses marketing products access to the SBCC toolkit to enable them to create demand in their communities
5. Funding and partnerships are identified to support multi-partner implementation of a nation wide SBCC initiative
6. Community level focal points are identified and equipped with the tools and training conduct behavior change communication across all Cambodian provinces
7. Health centers and schools are leveraged as a key channel for SBCC messages

### **MEDIUM TERM ACTIONS**

8. A monitoring and evaluation study is conducted to measure the extent of behaviour change in communities and to inform the future strategy for SBCC projects
9. Throughout multiples stages of campaign deployment key national government departments are involved in reviewing results and assessing next steps

### **LONG TERM ACTIONS**

### **END OUTCOME:**

**Behavior change communication triggers rural households to minimize biomass use and move them on a path of modern cooking.**

**A boost in uptake of modern cooking due to targeted and consistent SBCC campaigns is ensured**



**IMMEDIATE WINS**

1. The efforts of different organizations engaged in SBCC are aligned to a common goal. An SBCC toolkit leveraging best practices in key messages, specific audiences, channels and tools is developed.
2. A range of SBCC artefacts such as posters, videos, flip charts and other mass media tools to facilitate delivery of consistent messages across multiple implementers and communication channels



# Reducing end of life cycle e-waste

## E 3. Reducing end of life cycle e-waste

### Why is this important?

Low levels of e-waste recycling is a significant area of concern, the fate of the e-waste in Cambodia is largely unknown. Scale up of modern cooking requires critical attention to ensure that we do not transition from mitigating household air pollution and move into lack of e-waste management. For a large scale transition to modern cooking, developing systems of reducing, reducing and recycling of appliance spare parts is necessary



### IMMEDIATE WINS

1. Awareness campaigns are deployed to increase knowledge and encourage customers to choose durable, longer lasting products that match cooking needs
2. Environmental impact assessments quantifying emissions and waste generation impacts of cooking fuels and different types of cooking devices build an evidence base for government to invest in centralized waste collection systems
3. Cambodian enterprises are incentivized to buy high quality products and operate leasing/ rent to use, business models offering high quality after sales services. This extends the product life cycles, reduce throwaways

### SHORT TERM ACTIONS

4. Voluntary compliance standards offer incentives to the 'early adopting' businesses who agree that they will either take back products at end of life cycle or engage in the repair and refurbishment.
5. A local skills training program sparks an emergence of last mile technicians, who repair components of modern cooking products, reduce the most common points of product wear and tear and reduce throwaways
6. A localized service for recharging depleted solar batteries for rural last mile customers reduces costs of energy access

### MEDIUM TERM ACTIONS

6. A legal basis for enforcing compliance standards is developed in consultation with government and private sector enterprises. Import restrictions and procedures reduce the amount of low quality products entering the market
7. Countries with evidence of successful policy implementation and legal frameworks around e-waste are adopted for Cambodian policy making

### LONG TERM ACTIONS

8. With sufficient economy of scale in the long term, a centralized e-waste collection facility allows for extraction of precious metals and valuable materials, developing a new resource economy.



### END OUTCOME:

**End of life issues with modern cooking solutions are managed by policy and investments extending product life cycles, reducing throwaways, stimulating local repair industry and create a push for government to support the homegrown companies**

# Promote Access to, and Utilisation of, Carbon Funds

## E 4. Promote Access to, and Utilisation of, Carbon Funds

### Why is this important?

There are opportunities to leverage financing from untapped carbon markets. However, the awareness and demand for these sources is low. The process to secure these funds are unclear, and local projects are not connected with carbon financiers



### IMMEDIATE WINS

1. A step-by-step toolkit to educate stakeholders on carbon financing is developed to help businesses understand its potential
2. A common compliance standard and methodology generates consensus on the most effective process for measuring viability of carbon projects

### SHORT TERM ACTIONS

3. A Carbon Finance Portal is developed for the sector to boost access to latest information on carbon markets, best practices in accessing carbon finance, and facilitate connections between implementers and leading carbon financiers in the EAP region
4. Carbon finance Services providers develop mechanisms to finance the identification, registration and implementation of carbon projects to increase investment
5. Country specific data establishing a baseline on how people are cooking and the emissions released creates a standard set of metrics and co-benefits that help measure viability of carbon projects

### MEDIUM TERM ACTIONS

6. Clean cooking is integrated into the governments NDC's including the development of standardized compliance frameworks to qualify projects, channel funding
7. New carbon Funds are generated through Cambodia's NDC which allowing for reinvestment back into local clean cooking projects
8. Verification costs are reduced through digital technology. A set of digital tools and sensors are recommended to projects to help them remotely quantify and verify emissions, creating proof of carbon credits eligibility

### LONG TERM ACTIONS

9. Case studies of successful projects demonstrating multiple co-benefits of modern cooking projects attract new funders/buyers
10. A Carbon Credits incubator program is launched selecting development projects with high potential for modern cooking transition. Technical support and digital verification helps setup projects for success

### END OUTCOME:

**Modern Energy Cooking Projects in Cambodia are clear on the processes required to secure carbon financing and successfully secure investment to enhance capital liquidity, or make other business investments enhancing their profitability**



# A B2B Matchmaking Platform to Build Supplier Capacity

## E 5. Create a B2B Matchmaking platform to build supplier capacity

### Why is this important?

A number of suppliers providing modern cooking products lack key capacities in sales, marketing, distribution and management. Strengthening their capacities will better position them to serve more customers and scale demand



**IMMEDIATE WINS**

1. A clear value proposition is developed and disseminated to attract prospective members
2. A national platform/group of suppliers and support organizations is established, with the aim of strengthening supplier capacity to produce and distribute cookstoves
3. Tools and processes for sharing success stories of best business practices are established
4. A governance structure is established at the national level of the platform, including allocation of leadership roles and establishment of key partnerships

### **SHORT TERM ACTIONS**

5. The platform is represented as part of regional network, national level partnerships are established within regional networks
6. The B2B platform advocates for addressing product import issues, tax incentives and develop links to policy makers
7. The platform connects suppliers with real estate developers and condo owners (especially those following MoE's Green Building Code), and helps them unlock new avenues of growth
8. The platform provides SME support through a business incubation program for suppliers, providing them with support for their operations, business model development, marketing, navigating import tax, after sales service and financial literacy

### **MEDIUM TERM ACTIONS**

### **LONG TERM ACTIONS**

9. Aggregate suppliers through the platform to create the economies of scale required to qualify for carbon financing

### **END OUTCOME:**

**Suppliers have linkages with key support organisations and each other, to share learnings, successes and challenges, and boost their ability to market and provide clean cooking products**



# Enhancing Knowledge Sharing and Transparency Across the Sector

## E 6. Enhancing Knowledge sharing and transparency across the sector

### Why is this important?

Knowledge collection and dissemination is critical in building evidence bases for clean cooking, evaluating successes and limitations of projects, guiding future sector interventions and attracting new avenues of financing. However, right now, knowledge collection and sharing is minimal and informal



### IMMEDIATE WINS

1. An evidence base is established to inform intervention design and implementation
2. The evidence base is leveraged to communicate the importance of clean cooking and advocate for its inclusion in government planning
3. A mapping of the current state of cooking in target areas is done, similar to Sevea's 'Access to Drinking Water in Rural Cambodia' is done, identifying historical trends in uptake, intervention scenarios to reach access for all by 2030 and their corresponding budgets
4. Commune Schemes, showing electrification status, and clean cooking actors are created for target areas, with each commune scheme also identifying the most viable modern cooking fuel to transition to
5. A decision guiding tool, like the one created to suggest water supply provision strategies in rural areas in Cambodia, is developed to provide clear guidance of modern cooking transition strategies based on geography, electrification, tariffs and the maturity of the supply chain in the area

### SHORT TERM ACTIONS

6. A forecast of projected demand for modern cooking products under different scenarios and targets is created to guide sector interventions
7. National targets for modern cooking adoption are established
8. The forecast of projected demand is refined based on ongoing research, with the outputs and underlying hypotheses shared with the broader sector
9. An online knowledge repository for clean cooking is established which compiles all Cambodian modern cooking knowledge products
10. A M&E framework is established to evaluate the impact and effectiveness of interventions
11. The sector is clear on the importance of M&E and data collection for strengthening and expanding the modern cooking sector

### MEDIUM TERM ACTIONS

12. Research is regularly disseminated through sector exhibitions and workshops

### LONG TERM ACTIONS

### END OUTCOME:

The sector collects, disseminates and leverages data, analytics, knowledge and information in order to develop evidence based project strategies, guide interventions and refinements, and source financing, thus accelerating the uptake of clean cooking

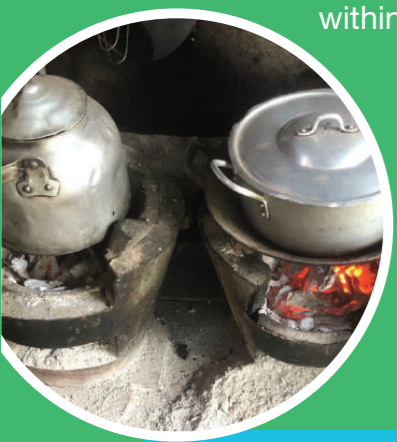


# Aligning and Structuring a Sector Working Group

## E 7. Aligning and Structuring a Sector Working Group

### Why is this important?

Many actors are working in clean cooking. In order to accelerate uptake of modern cooking solutions in Cambodia, it will be crucial to structure the sector, to facilitate knowledge sharing, and the development a coordinated strategy for collective action, This will help avoid duplication of similar efforts and boost collaboration within the sector



### **IMMEDIATE WINS**

1. A sector working group dedicated to Clean and Modern Cooking is established based on alignment between different ecosystem actors
2. Consultations and recommendations from key stakeholders create a structure, proposed roles, responsibilities and agenda's for the Working Group
3. Regular working group meetings support knowledge sharing of current insights in key areas, including demand generation, carbon financing and SBCC
4. The clean cooking sector develops a concept for Civic Champions to involve sub-national leaders as Champions of clean clean cooking in their communities, guided by the Civic Champions concept in WASH

### **SHORT TERM ACTIONS**

5. The Working Group is housed under a government line ministry to ensure long term commitment on modern cooking is achieved
6. A digital learning micro site shares success stories, case study and new innovations which could accelerate innovation in the sector
7. The working group transforms this roadmap you are reading right now into a detailed sector action plan which guides implementation of a number of interventions

### **MEDIUM TERM ACTIONS**

8. The working group represents the clean cooking agenda in Cambodia when engaging in cross sectoral dialogue with Public Health, WASH and Agriculture sector stakeholders
9. Coordination mechanisms with the CCCA through the MoE help unlock more investment to address climate issues related to clean cooking

### **LONG TERM ACTIONS**

10. Knowledge, and project implementation results are published on the UN's Sustainable Energy for all initiative. This helps leveraging more financing - Cambodia's status as a priority 1 country attracts investments towards modern cooking

### **END OUTCOME:**

**The working group is able to collectively advocate for greater investment and innovation towards clean cooking in Cambodia. A cohesive, collective sector strategy generates alignment and progress towards a common goal**

