BUSINESS MODELS FOR IMPROVING ENERGY ACCESS

Case Studies on Biomass and Biogas

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SAARC Workshop

Participation of Private Sector in Overcoming Energy Poverty in SAARC Member States

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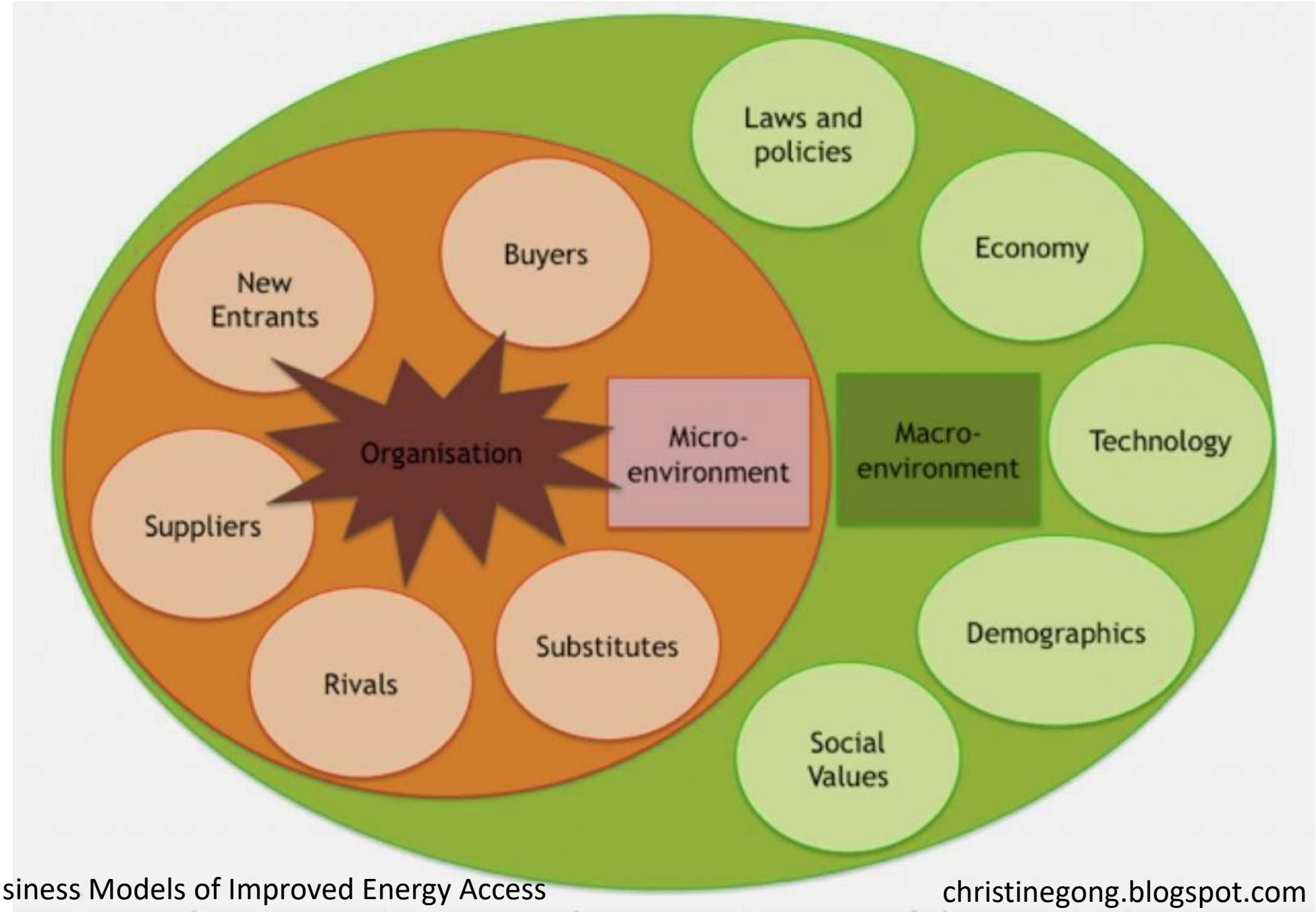
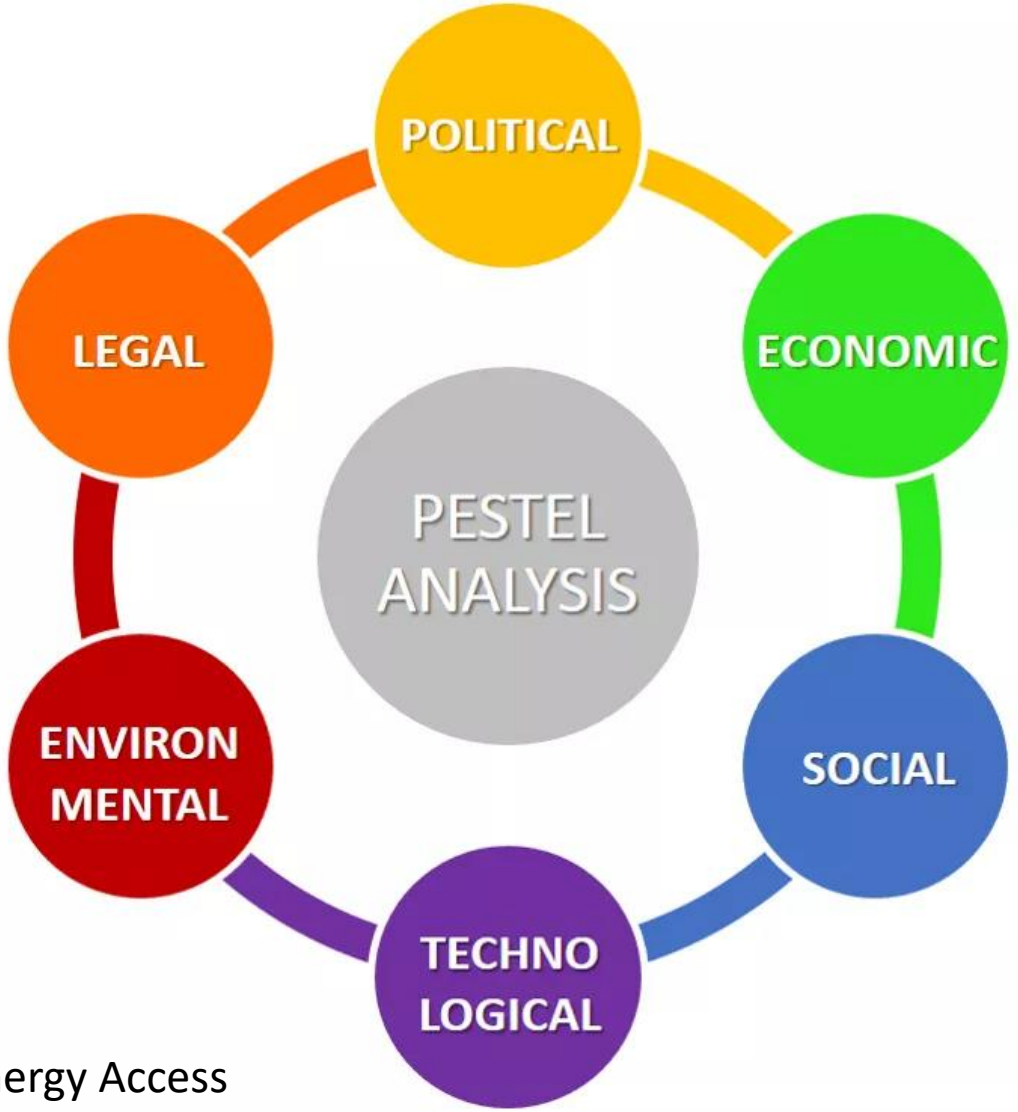
MARKETING MIX

categorymanagementsolutions.com

BUSINESS ENVIRONMENT



PESTEL ANALYSIS



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Business Models of Improved Energy Access

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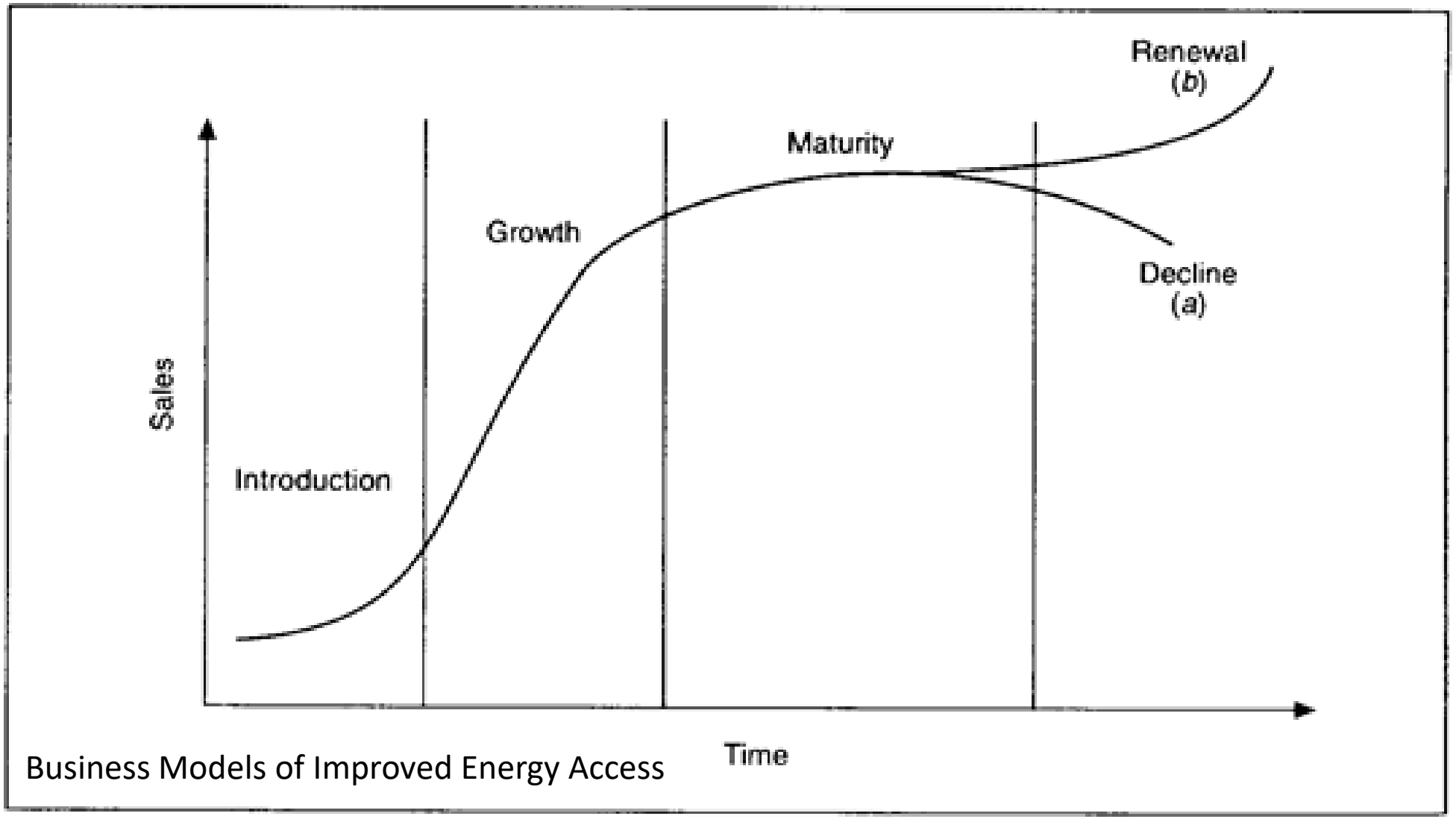
PRODUCT LIFE CYCLE



Business Models of Improved Energy Access

LIFE CYCLE ANALYSIS

CIRCULAR ECONOMY

ec.europa.eu/jrc/en/news

SUSTAINABILITY & GREEN LANDSCAPE

- Green Financing
- Eco Products
- Sustainable - Green Procurement
- Green Jobs
- Eco Labels
- Responsible Consumption and Production

Key Elements of a Business Model

Components	Key Questions
Value proposition	Why should the customer buy from you?
Revenue model	How will you earn money?
Market opportunity	What marketspace do you intend to serve, and what is its size?
Competitive environment	Who else occupies your intended marketspace?
Competitive advantage	What special advantages does your firm bring to the marketspace?
Market strategy	How do you plan to promote your products or services to attract your target audience?
Organizational development	What types of organizational structures within the firm are necessary to carry out the business plan?
Management team	What kinds of experiences and background are important for the company's leaders to have?

CASE I - ENVIROFIT

- CCS - Colarado, USA: Operations South America, Africa, Asia
- Technologies for people living in extreme energy poverty
- Energy products for people living in remote parts of world
- Innovative - aesthetic, hi performance, meet customer needs
- Years of consumer research & product development
- Serve over 5 million people

Source: envirofit.org

L1: ADAPT, INNOVATE & RESPOND TO CONSUMER PREFERENCES

- Using market-based approach - shift users from beneficiaries to customers
- Building a market require research and pilot stoves the consumers willing to buy
- Quality, Durability, and Performance of stove important
- Models to adapt & evolve to meet needs of different cultures & cooking traditions
- Segment the market by price, fuel, and product features
- Models with accessories and multi-use features

L2: CENTRALIZED MANUFACTURING

- To scale a product for consistent & reliable quality, centrally manufacture with stringent quality-control
- Localize supply-chain in phases - Grow with demand reduce cost
- Manufacturing decisions made based on Market Demand
- Centralized manufacturing in regional hubs to overcome bottlenecks
- Centralized manufacturing - more permanent jobs, develop transferable skills, pay higher wages, more consistent hours

L3: SCALE AT RIGHT PACE TO MAXIMIZE IMPACT

- Building a market requires balance of growing production, distribution, and marketing synchronously
- Supply chain needs to be developed before sales can initiate, though requires investment
- **Grant funding needed to support Technology Innovation, Development, Distribution & Marketing Development ?**
- **Initial growth stage, mixed funding required; each business component require grants before investment case made ?**

L4: TO REACH LAST MILE, BEHAVIOR CHANGE NEEDED FM DESIGN 2 DELIVERY

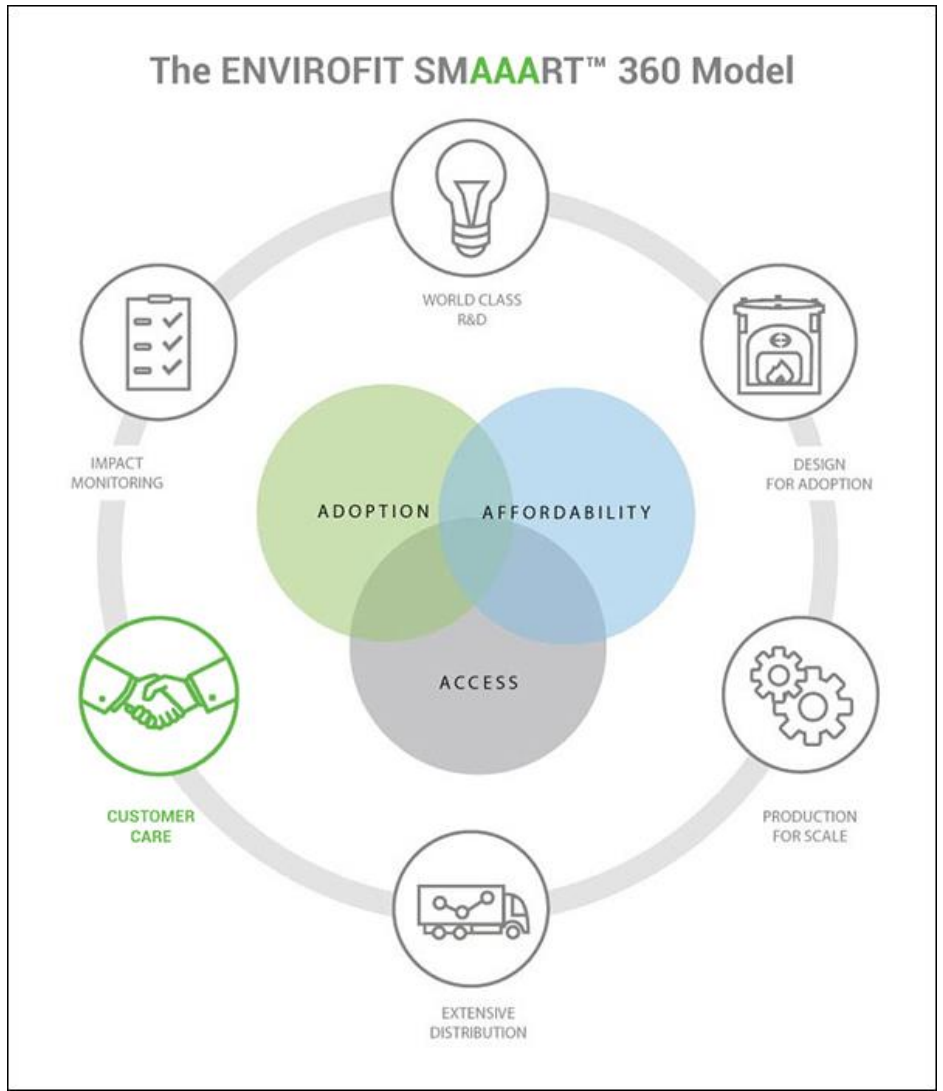
- Female entrepreneurs can increase sales & adoption in rural communities – so train & engage them
- Market-based approach ideal for scaling profitability, yet grants needed to technology development & pilot distribution approaches
- Convincing users to change cooking practices is a multi-step process. It require investment at all stages of program

L5: CLEAN & EFFICIENT STOVES - A TOOL TO REACH IMPACTS

- CCS have direct impact on consumers, improving household wellbeing
- CCS have indirect impact on the environment and economy
- A market-based approach provide win-win solutions for social, public, and private institutions
- Programs need to shift priorities from supplying stoves as an end goal to viewing stoves as to make impacts

    - on improved health, ecosystem regeneration, gender inclusion, livelihoods & reduced CC

ENVIROFIT MODEL



ENVIROFIT MODEL

- R & D - Cutting Edge innovations for customers' cooking needs
- Rigorous consumer testing, fix problems b4 reaching customers
- Production for Scale, Material & Products inspection for quality
- Extensive Distribution - Partner with last mile entrepreneurs, local businesses, international distributors for market access
- Customer Care – Training & support on awareness & adoption by Customer Care Centre
- Impact reporting - Customers monitor & evaluate products, collect infor on cooking habits; feedback to product innovation

ENVIROFIT - FEATURES

- Durability – Made of not scrap metals, but with heat-resistant materials with a 12 month warranty
- Speed - cook 50% & 20% faster than traditional and other ICSs
- Efficiency - 3x more efficient, fuel consumption reduction up to 60%
- Emissions - Maximize airflow, reduce smoke & toxic emissions up to 80%

Source: envirofit.org

CASE STUDY - SELCO

- Succeeded in creating a market for solar home lighting systems
- Decided to adapt same model for ICS
- External grant funding for 3 years sought
- Soon realised that ICS market was very different from solar home lighting market

SELCO FOUND THAT

- Improved cook stoves provide many benefits
- Yet, they have uniquely challenging characteristics to sell
  - Inappropriate design to meet end user needs
  - Too expensive for the poor to buy on cash
  - Price too small to attract regular consumer financing
  - Lack of end user value for the given advantages (underserved poor to spend their scarce money)

FAILED ASSUMPTIONS

- Existed stove technology & design capacity could be easily adapted
- Technologists understood product well - technically & commercially
- Along with Solar Systems, can implement and reduce overheads using
  - Existing network could be leveraged to deliver
  - Existing financial links (MFIs in particular)
- Financial innovation is achievable especially in MFI sector
  - Needs of consumer and entrepreneur financing would match with existing portfolios
  - High appreciation of social and economic benefits of ICSs

LESSONS

- SELCO's existing business model ideally suited for solar home lighting systems
- It is not suited for smaller products like cook stoves
- ICS require a new, innovative business model for effective long term distribution and use in a specific area
- Distinct disconnect between Developers & Actual Implementers
- Many technology developers are also implementers – but expertise for effectively deliver are different

ANAGI - TWIN CLAY COOK STOVE

- Energy Crisis
- Power of Ministry of Power
- Multi Purpose Development
- Initial Parties
- IDeA 1989
- Design, dissemination, commercialisation, diversification
- Autonomous Business Model
- Further development / improvement

KEY PROCESS STEPS

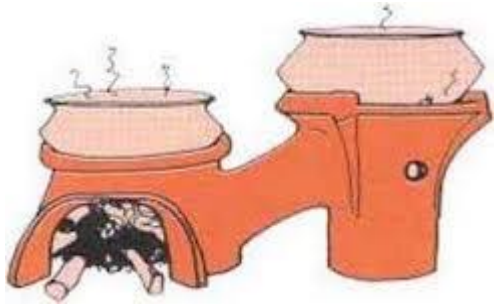
- Different research groups
- Technology Transfer
- R & D & Continuous Improvement
- Different Clay, Processes, Moulds
- Single, Dual pot,
- Tile Industry, Rural potters
- 6 month Guarantee
- Quality, Brand ‘Anagi’, logo, Pricing

FACTORS CONTRIBUTED FOR SUCCESS

- Catalyst role, deep involvement
- Training & Capacity
- Awareness & Promotion
- Learning and sharing
- Integrating with existing
- One among many products
- Initial Investments
- Time, commitment & perseverance

OUTCOMES

- 350,000 stoves / yr, penetration levels
- 339 trained, 5 clusters
- Less than $3, good mark-ups
- Nationwide distribution, availability
- Look alike sub standard products
- National Standards
- National Indoor Air Quality Guidelines
- Retain sustainable energy status



BIOGAS LANKA

- Energy Crisis
- Early Attempts & Failures
- Resource Data
- Technical Service Providers
- Separate Masons and Developers' Roles
- National Standards (SLS 1292)
- Quality Assurance and Check Lists
- Training and Capacity Building
- Mainstreamed Extension Services
- Energy to Waste Management

Biogas Lanka

- Household to Institutions
- Labour intensive to Mechanization
- Sweat Equity to Turnkey
- Integrated Organic Farming and Livelihoods
- Main and Affiliated Courses
- Subsidies to Debt and Self Financing, Market Driven
- Issues with R&D, Innovations and Appliances

BIOMASS - FUELWOOD SUPPLY - LANKA

- Concentrate on fuelwood for energy poverty
- Disregard biomass for industrial thermal and power generation
- Rubber and Cinnamon
- Gliricidia and Home Grown
- Subsistence or Out grower System
- End of harvest & uprooting
- Commercial Suppliers
- Transit and Exchange Points

Photos - Nilantha Kumara

Biomass Fuelwood Supply - Lanka

- Fuelwood Depots and Processing Centres
- Home Delivery or Stacked in Groceries
- Hand Carts, Bullock Carts, Hand Tractors and Mini Lorries
- Rice Husk and Saw Dust – Alternative Demands
- National Standards (SLS 1475)

THANKS

REFERENCES

Envirofit (2017), Cooking in one million kitchen: Lessons learned in scaling a social enterprise