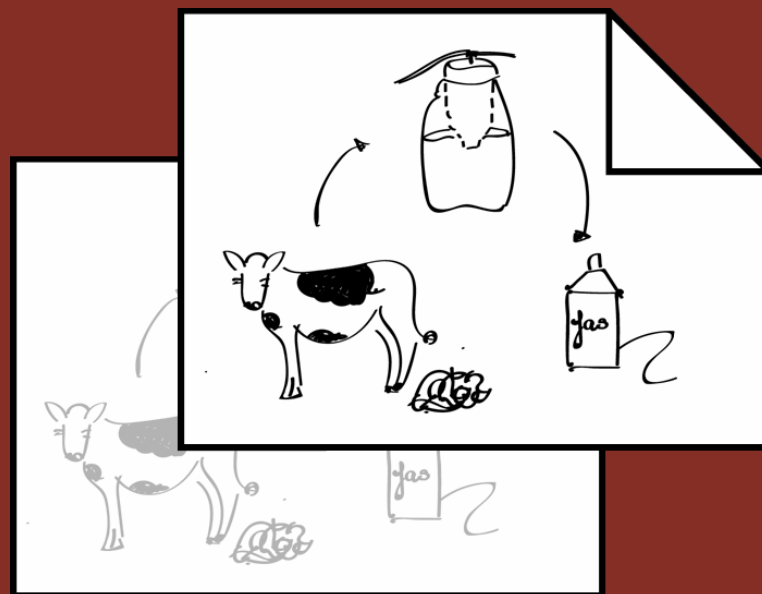


Waste to Biogas

Replicator Workbook Preview



What's it all about?




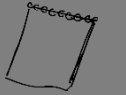


Do you want to learn from proven business models from eco-inclusive enterprises around the world to tackle some of the key challenges your country is facing?

Various entrepreneurs have already developed innovative business models that turned out to be successful and create relevant social, economic and environmental impacts. Replicating solutions that work can offer a fast and effective way to contribute to sustainable development and improve people's livelihoods.

The Replicator Workbook guides the process

We developed our SEED Replicator Workbooks to guide you through the process of transferring a business model to another geographic location. Our workbooks identify best practices and shed light on conditions under which eco-inclusive enterprises in your sector operate. They include exercises that will guide you to explore your market and adapt business models to your context.

Steps	 Detect Challenges & Opportunities	 Determine Customer Needs & Segments	 Discover Inspiring Success Stories	 Develop Innovative Business Models
Tools	Business Idea Tool	Customer Segmenting Empathy Map	Business Model Adaptation	Visual Prototyping Lean Enterprise Blueprint

How to use the Replicator Workbook?



In this workbook preview, click on **INSIGHTS** or **TOOLS** to discover more
Or simply scroll to the next page



Insights

into success stories & challenges of established eco-inclusive enterprises

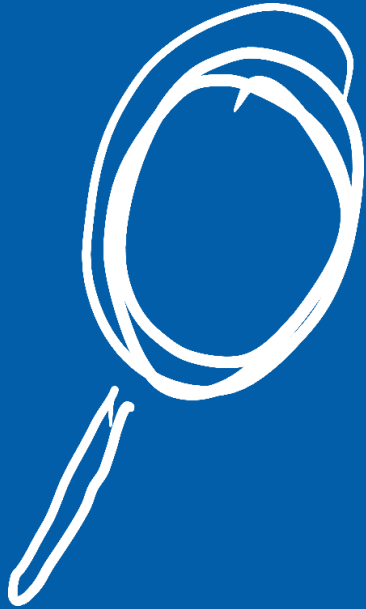
In our workbook, we include various **READINGS** on **proven models of eco-inclusive enterprises** around the globe, complemented by sets of best practices and explanations of conditions under which eco-inclusive enterprises operate. These readings are based on experiences of entrepreneurs active in the field of **waste to biogas**.



Tools

to guide you step-by-step as you develop your own eco-inclusive enterprise

Each **TOOL** provides step-by-step guidance to arrive at key outcomes. The first page of each tool offers a short overview of **when** to use the tool, **what** you do in the tool, **how** the tool is best used and which **key outcomes** are expected. The workbooks explains in detail what to do and which questions to ask yourself at each step while using worksheets for you to document your outputs.



Detect sustainability challenges in your country and brainstorm solutions to tackle them. Learn about the potential of waste to biogas and the social, environmental and economic impacts you could achieve.



The global market

According to the Global Alliance for Clean Cookstoves (GACC), in 2015, an estimated 20.6 million stoves and fuels were distributed.³ Of those, 13 million (=63%) were clean and/or efficient. Between 2010 and 2015, a total of 53 million clean cookstoves were distributed. GACC projects that by 2020, a total of 250 million clean and/or efficient stoves and fuels will have been put onto the market.

This growth potential also attracts investment. Between 2010 and 2015, clean cookstove and fuel companies raised nearly US\$60 million of debt and equity finance. There is a range of financing opportunities available (see the extra section on this at the end of this workbook).

Different types of clean cookstoves and the fuel mix

The World Bank and GACC define three categories of “clean cooking solutions”.⁴ Ordered by their potential for impact, these are:

- **Advanced improved cooking solutions:** natural draft gasifiers, fan-assisted gasifiers and TChar stoves (a combined gasifier/charcoal stove)
- **Modern fuel stoves:** liquefied petroleum gas (LPG) and dimethyl ether (DME), electric and induction, natural gas, kerosene
- **Renewable fuel stoves:** biogas, methanol, ethanol, solar ovens, retained heat cookers

The fuel mix (for cooking) of households in the developing world between 2005 and 2015 was estimated at:⁵ wood 40%, coal 11%, charcoal 4%, LPG/natural gas 30%, electricity 3%, kerosene 3%, other 10%. Across the world, the use of LPG and other so-called “modern fuels” is markedly lower in rural areas compared to urban areas. There are also significant differences among regions: in Sub-Saharan Africa, 95% of rural households rely on solid fuels, whereas only 58% of those households do so in Latin America and the Caribbean.

Opportunities along the entire value chain

As you will see in this workbook, the clean cookstove sector offers various opportunities for economic activities along the value chain. This includes:

- Designing the stoves
- Providing input materials for the production of stoves (e.g. steel)
- Producing and/or assembling the stoves
- Selling the stoves (as an agent/distributor)
- Collecting and selling biomass as fuel
- Processing biomass into pellets and selling them
- Servicing the stoves

From Organic Waste to Energy

A grey silhouette of a world map with a network of thin white lines connecting various points across the continents, representing a global network or connectivity.

Participate in an upcoming Replicator Workshop
to discover **more about waste to biogas!**



Discover proven business models and adapt them to your local market. Identify key business model features.

The Originators: SP Eco Fuel / SPRE

Successful examples of eco-inclusive enterprises



SP Eco Fuel / SPRE is an India-based eco-inclusive company aiming to provide location-specific biogas solutions to rural customers; thereby bringing a reliable and sustainable energy source to off-grid communities. Their main range of products are cow dung-fuelled biogas digesters targeted at dairy farmers, cowherds or families owning more than one cow. The digesters produce biogas for cooking or other energy purposes through the process of anaerobic biomethanisation and as a by-product produce organic manure for fertilising fields and horticultural purposes. Apart from selling biogas digesters, the company includes a variety of other activities in their value chain, such as granting loans for digester purchases to low-income customers and setting up biogas cluster networks in which farmers sell the manure produced by the digesters as a by-product back to the company. SPRE then fortifies, packages and brands the manure and supplies it to the open market as a high-performance fertiliser. For SPRE, this constitutes an additional revenue stream in addition to selling digesters, and for low-income farmers, this is an opportunity to repay the cost of the digester without incurring additional expenses. SPRE works with women empowerment initiatives in their after-sales services and outsources their entire production workforce to them. This increases the representation of women in the business sector, offers them income and livelihood and brings them into formal work. SPRE is a Miller Centre GSBI Alumni.

Value Proposition: SPRE targets cow owners in rural communities without access to reliable and clean energy sources. Through selling digesters producing biogas for cooking and other powering purposes, as well as manure, the company provides off-grid households with a sustainable energy source, organic fertiliser and makes them independent from costly fossil fuels. By engaging women empowerment groups in their production, SPRE brings more women into the business sector and provides them with a formal income.

Key Facts

Country of headquarters: India

Founded in: 2011

Employee size: 7 (directly employed by SPRE full-time), 25 (working in outsourced production and deriving their income from SPRE's activities)

Products: Cow dung-fuelled biomethanisation digesters, producing biogas and organic fertiliser

Website: <http://www.spre.co.in>

The Originators: Biotech

Successful examples of eco-inclusive enterprises



Biotech is an India-based eco-inclusive company aiming to provide biogas solutions to various customer groups, such as private households, educational institutions and entire villages; thereby bringing a reliable and sustainable energy source to many different segments of the population. Their products range from digesters fuelled with organic kitchen waste, human waste from toilet facilities of public or private institutions to industrial-sized digesters for waste from slaughterhouses and markets. The digesters produce biogas for various energy generation purposes through the process of anaerobic biomethanisation and as a by-product produce organic manure for fertilising fields and horticultural purposes. Additionally, the company sells various add-on technologies, such as biogas-to-electricity transistors and water boilers, tailored to the specific energy needs of their customer groups. They further offer an array of online and on-campus training programmes focused on the promotion of biogas technology, and spreading knowledge about it beyond their customer group to anyone who is interested. For Biotech, this constitutes an additional revenue stream in addition to selling digesters. For the online and offline trainees, this is an opportunity to learn more about the possibilities of biogas technology without it being limited to product-specific training as part of an after-sales service. Through its multi-faceted biogas approach, Biotech helps to bring tailored waste management systems and education about renewable energy sources to many different segments of the population – such as private households, public institutions, communities and industries – instead of limiting itself to just one.

Value Proposition: Biotech offers sustainable biogas solutions to various beneficiaries in need of an effective waste management system and power generation. Through selling digesters producing biogas and manure, as well as various add-on technology, the company provides private households, public institutions, communities and industries with a sustainable energy source and makes them independent from costly fossil fuels. Through educating and training interested participants in online and on-campus courses, Biotech spreads the knowledge about the possibilities of biogas to even further segments of the population.

Key Facts

Country of headquarters: India

Employee size: 8 (directly employed by Biotech, administration), 36 (employed in production centres and derive their income from SPRE's activities), 3 (engineering personnel), 6 (customer relations and maintenance)

Products: Diversely fuelled biogas digesters that produce biogas and organic fertiliser; add-on technologies such as biogas-to-electricity transistors and water heaters; online and on-campus trainings

Website: <http://www.biotech-india.org>

Insights

The Originators

Successful examples of eco-inclusive enterprises



Participate in an upcoming Replicator Workshop
to discover **more exemplary eco-inclusive enterprises!**



Determine your target customer and the benefits you want to create for your stakeholders. Map out why your solution is unique and why your customers will love it!

Your Customer Tool



When?

To refine your business idea, you need to identify your potential customers. Therefore, this tool is best applied in the elaboration process of your business idea.

What?

Customers stand in the centre of any business. Even the best idea is worthless if no one buys the product. Most enterprises serve different groups of customers (customer segments) that share certain characteristics. Identifying the different segments in the first step helps you to learn more about each of them. Once you have stepped into your customers' shoes, you can target your product and marketing activities better.

How?

Sit down to think about which customer groups you would like to serve. Once you have identified the customer segments, it's time to go out and speak with your potential customers to gain a better understanding of their needs.

Steps?

Step 1 → Identify Customer Segments

Step 2 → Understand Your Customers



Key outcomes

- Get to know potential customer segments for your product
- Set the basis to build a customer-centric business model

Your Customer Tool



Step 1

Identify Customer Segments

The first step is to divide the large pool of potential customers into customer segments. Customer segments are groups of customers who share certain characteristics or behave in a similar way.

- What will influence the preferences of potential customers towards your product or service?
- Will individual buyers have different expectations and needs from small stores? What about government institutions, NGOs or businesses?
- Will grandchildren have different expectations and needs than their grandparents for example? What about men and women, people with different religions, incomes, education levels or professions?
- Will people in rural areas have different expectations and needs from urban citizens? What about people in City X and City Y?
- Will people who have different knowledge about your product or service have different purchasing and usage patterns? Buy it more or less often, use it more or less often or use it in different ways?

Complete the information you gathered in the *Your Customer Segments* WORKSHEET on the following page. We have left space for up to five customer segments; you should identify at least two.

Step 2

Understand Your Customers

- Out of the customer segments you identified in Step 1, select the ones that appear most important for you, for example because of their size, because they are most likely to buy your product or because they are the easiest ones for you to reach.
- For each of your key customer segments complete the WORKSHEET *Your Empathy Map*.
- The *Empathy Maps* ask you to step into your customers' shoes: What does he/she think, say, see, do, feel, and hear? You can answer the questions in discussions with your team, through internet research, interviewing or observing potential customers etc.
- It's easier to answer the questions if you imagine one representative person of each segment, and add their name and age in the middle of the *Empathy Map*, in addition to the title of the customer segment.

You will find relevant key questions for your EMPATHY MAP on the next page!

Your Customer



→ What does she/he think?

- What matters most to her/him? What moves her/him? What are her/his dreams? Which may be her/his worries?

→ What does she/he say?

- What does she/he tell others? What is his/her attitude? Does she/he influence others?

→ What does she/he see?

- What kind of products/services does your customer see in the market? What attempt is being made to influence her/him?

→ What does she/he do?

- What is she/he constantly trying to improve? What activities does she/he cherish doing? How does she/he spend their time?

→ How does she/he feel?

- What does she/he experience in relation to your product or service domain? This experience can be negative or positive.

→ What does she/he hear?

- What do friends say? What do her/his influencers say? What media channels influence her/his opinions on products and services?

- Keeping the following questions in mind will prove useful during the refinement process of your business idea:

- How can you fulfill the needs of your customers, and provide them with more benefits?
- Should the product or service be targeted towards different market segments?
- Is there anything else you still want to learn about your customers?

Your Customer



WORKSHEET Your Customer Segments

Step 1

Customer Segments					
Title	Private Households	Industries	Hotels, restaurants, institutions	Farmers	
Description	Rely on expensive harmful fuels for cooking	Need more reliable source of clean energy	Consume large amounts of harmful fuels	Have excess of waste from agri-farming	

Your Customer



WORKSHEET Empathy Map

Step 2

<p>What does she/he think?</p> <p>What is a good and affordable solution?</p> <p>I would like to improve my income</p>	<p>What does she/he say?</p> <p>The fuels I am using are harmful for health</p> <p>Charcoal is expensive and harms the envi</p>	<p>What does she/he see?</p> <p>Expensive energy & fuel</p>
<p>What does she/he hear?</p> <p>Other farmers have same concerns</p> <p>Complains about increasing living costs</p>	<p>Who is he/she?</p> <p>A mother and farmer</p>	<p>What does she/he do?</p> <p>Runs local community farm</p> <p>Cares for her family</p>
<p>What does she/he feel?</p> <p>Frustrated & concerned</p>		
<p>How did you learn about your customer?</p> <p>Asking family members, friends, relatives and interviewing other locals.</p>		

SEED Replicator Tools

A light gray world map with a network of white lines connecting various points across the continents, representing a global network or replication process.

Participate in an upcoming Replicator Workshop
to discover **more business planning tools!**



Let's replicate the success of **eco-inclusive enterprises** together!

Learn more about the SEED Replicator and how to apply to an upcoming workshop near you:

- ✉ replicator@seed.uno
- 🌐 seed.uno
- 📘 facebook.com/seed.uno
- 🐦 [@seed_sustdev](https://twitter.com/seed_sustdev)

