Module 02 : Scanning the business environment

cewas

IWMI
International
Water Management
Institute

Week 02:
Analyse market demand

Resource Recovery and Reuse
(RRR) Entrepreneurship

Week 2 module 2: Analyse market demand

“Module 2, week 2: analyse market demand.

Last week you determined your waste supply and you should have a better idea now where you get your raw material from, in which quality and at what price. This week we are going to look at market demand.

Let us imagine that this is your market. Not your local vegetables market but similar. In business, when we talk about market we mean the total sum of buyers and sellers of a particular product in a particular area. So, let’s say the fertilizer market in your regional county or district or wherever you decide to sell your product or service.

Before venturing into that market, you will need to find out if it makes sense to do so – so if there are enough potential customers on that market. Just like on a vegetables market, there is no point in taking the effort of growing vegetables and putting up a market stand if there are no or not enough customers around that buy these vegetables.

So in assessing your market demand, you want to make sure that there are enough customers around that could potentially buy your product. I say potentially because – even though they have a need that you can satisfy with your product – there are other businesses like you in the market that are satisfying the same need (or even selling the same product). That is the other side of the market, the market supply, so your competitors. We will take a closer look at your competitors next week.

You also want to make sure that these customers buy your product frequently and in big enough quantities so that you can actually survive as a business. For this you have to calculate the market size: so the number of customers multiplied by the amount they are buying per year. Now estimate how many of those customers could buy your products (your market share) and multiply this number by your selling price. This directly translates into your annual sales and allows you to assess if you can cover your costs and survive.

To give you an example: The women’s cooperative COOCEN is located in Kigali, Rwanda, and produces briquettes for heating made from Municipal Solid Waste. There are 30 prisons (total market size) in Rwanda in total and COOCEN sells to 16 of them (COOCEN’s market share). Each prison buys 94 tons of briquettes per year. So the annual sales volume of COOCEN amounts to 1´500 tons of briquettes. Multiplying this annual sale by the selling price of 122 US dollars per ton results in an income of 183´000 USD per year. In the case of COOCEN this is enough to cover its costs of 105´680 US dollars and to make a profit of 77´604 US dollars.

Apart from assessing your market size, you should also look into the future and forecast for which products or services the target market may be growing. This will inform your strategic planning and give you useful clues on the business activities you could expand in the future to grow your business.

Again, I am going to walk you through a set of questions that you need to answer for assessing your market demand and growth.

1. What are potential market segments and their sizes?

Before you can calculate the number of potential customers in a market, you need to define customer segments for your product or service. You probably have already intuitively thought about your customer segments because you have identified the challenges that some of your community members are facing. So if you are selling irrigation water, you probably want to sell it to farmers, your compost you might want to sell to nurseries and the biogas to rural households. These farmers, nurseries or rural households are what we call customer segments. The idea behind it is that you segment the total sum of buyers into groups that have similar needs, behaviours or other characteristics like area, gender, income, values, etc.

So COOCEN, the briquette business from Rwanda, has chosen to cater to the customer segment "prisons". Although there are more potential customers in Rwanda that could be interested in buying briquettes for heating their houses, COOCEN has decided to cater to prisons only for the moment because the company has limited capacity to produce and deliver briquettes. The distribution and money collection is also easier for them, because they enter into long-term bulk-delivery contracts with the prisons, something that wouldn't work with households.

When defining these characteristics be as specific as possible so that you don't have a segment that is too large to cater to. Here is an example: if you are selling nutrient-rich irrigation water and you define your segment as farmers in the Middle East, then you are being too general. First of all, not all farmers in the Middle East need irrigation water – olive farmers do not irrigate their trees. Secondly, all farmers in the Middle East are a lot of farmers to reach out to. Think of your capacity – you are a start-up with limited resources and in the first 10 years of operations you will likely not be able to conquer the whole market in the Middle East.

Having said that, being all too specific is not a good idea either. If you are selling biogas for cooking and you define your segment as poor households living in an Indian village of 5'000 inhabitants, then your potential market is probably not large enough to make enough sales to survive over the years.

2. Are these customer segments already using an alternative product and could they be willing to switch to your product?

You might have had trouble with the previous question, because no one of your potential customer segments is currently using a RRR product – for example no household is using biogas for cooking

yet. This will be the case for most RRR businesses because - as we saw in the previous module – the concept of recovering nutrients, water or energy from waste is relatively new in many countries and few RRR products exist in the market.

In this case you will have to assess the market size of an alternative (or substitute) product. So a product currently sold in the market with the potential of being replaced by your RRR product. Examples for these alternative products are fire wood, charcoal as energy sources, artificial fertilizer as a nutrient source and wastewater from the drain for irrigating.

The last example might startle you because it is not an actual product being sold – and also dangerous to apply this dirty wastewater to crops that are to be consumed by humans or animals. Unfortunately this is the reality in some cases and has to be considered as an alternative solution to your RRR product.

3. How much of the product do these customer segments use per year and when?

To estimate the total volume of your annual sales and hence production, you need to multiply the number of potential customers by the volume of the product they will be consuming during one year. For example, a farmer needs approximately 20 cubic meters of water – so 1 water truck load - to irrigate 1 hectare of maize per day. This would make 365 truckloads of irrigation water that you could sell every year.

But, since the farmer only needs to irrigate his maize during dry season, which lasts from June to September, your potential sales reduce to 122 truckloads. This does not only have an impact on your overall annual income but also your cash flow during the year. You will only be selling your product and having an incoming cash flow during those 4 months!

4. How much are customer segments willing and able to pay for your RRR product?

The easiest was to find out how much your potential customers are willing to pay for a product is to look at how much they are paying for their alternative product right now. Keep in mind the following though:

- customers may be willing to pay very little (or nothing!) if their current solution is for free – remember the example of farmers currently using wastewater from the drain
- customers may be willing to pay more if you can provide them with a product that has some kind of added value compared to the product they are currently using – so a higher yield of crops from organic fertilizer, a smoke free cooking gas etc. – we will look at these added values or benefits in more detail in the next module.
- Similarly, other factors like the income of your customer segments, the level of service you offer with the product (like usage instructions and demonstrations, warranty etc.), also influence the willingness to pay.

To give you an example[1]: The use of faecal waste as fertilizer is practiced by most farmers in Ghana. A study analysed that farmers are likely to pay more for a fertilizer if that product offers improvements and additional benefits. Results show that farmers are willing to pay an additional 51 US cents for 50kg of faecal compost that is packaged and an additional 32 US cents if application instructions and nutrient composition are added to the fertilizer in a form of a label. This willingness to pay more was especially higher with farmers that had experience with the use of faecal compost and whose household income and size was higher.

Whatever the factors might be that influence the willingness of your customer to pay a certain price, you need to make sure that you get a good estimation of it. Because if you price too low, you will not be able to cover your costs. If you price too high on the contrary, customers will not buy your products and you will equally not be able to cover your costs.

5. How will the market develop in the future?

Apart from estimating the current market size and potential sales of your product, you also need to look ahead, at the future market size. Just like ensuring that you have waste available in sufficient quantities in the future, you also want to make sure that demand for your product will remain stable or ideally even grow in the next 10-15 years.

While market growth for RRR products is difficult to estimate because no research is available, there are some factors that influence the demand for RRR products that are well-researched.

The demand for your RRR product will be driven by the scarcity of resources, so water, nutrients or energy – depending on your business model. You offer a direct solution to this scarcity by recycling waste and retrieving the valuable resources. So if you are selling irrigation water, then longer dry seasons that come with climate change will likely impact the demand for your water. Similarly, if you are selling biogas, the desertification caused by climate change will make it harder for households to find firewood and they will eventually turn to your product in the future. Likewise, the fact that global phosphorus resources, an important macronutrient, are declining, will lead to price increases for artificial fertilizer and more and more farmers will turn to cheaper nutrient sources like your RRR fertilizer. So instead of researching the dynamics of RRR markets per se – which is hardly possible due to its novel nature - you can also gather data on climate projections for your target area or data on the development of artificial fertilizer markets and global phosphorus reserves. These data should be readily available on the internet. But just like last week, you might not find all your answers by searching the internet. To get data and market forecasts, you can also talk to market analysts, other experts and of course your customers.

---

1 http://ir.knust.edu.gh/bitstream/123456789/9615/1/Willingness%20to%20Pay%20for%20Faecal%20Compost%20by%20Farmers.pdf

The questions and examples I have given you should enable you to assess the market demand and growth for your own RRR business now. You may download and use the worksheet below for guidance and to record your findings.

After you have filled in the worksheet, I will see you in week 3!”

List of Reference:

Graph sources:

- Unless otherwise noted, all graphics and case studies from OTOO, M. (Editor), DRECHSEL, P. (Editor) (2018): *Resource Recovery from Waste. Business Models for Energy, Nutrient and Water Reuse in Low- and Middle-Income Countries.* International Water Management Institute (IWMI). Routledge

Image sources:

- Unless otherwise noted, all images from IWMI flickr library www.flickr.com/photos/iwmi/
- Page 23:
  Photo 1: **Biogas system at Bangladesh: Flickr PhotoCredit: Marufish**
  Photo 2: Photo: Zoriah Miller for Dollar Street (CC BY 4.0) 2015 Year
- Page 29: Flickr: A farmer shows his fields where he grow cabbage by World Bank Photo Collection LINK
- Page 32: Photo: Zoriah Miller for Dollar Street (CC BY 4.0) 2015 Year
- Page 37
  Photo 1: Photo: Zoriah Miller for Dollar Street (CC BY 4.0) 2015 Year
  Photo 2: Pexels
  Photo 4: Flickr: Wastewater cc Raul Pacheco-Veg: LINK
- Page 56: Photo: Flickr: **Copper Mine by benketaro**

*Information and data were compiled to our best knowledge, but mistakes remain possible. In such a case we apologize and kindly ask for feedback to correct them.