

Canadian Agri-food Exports Project: Collapsible Rain Barrel

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PART 1: Product Information

Product Introduction

Rain barrels are simple water storage devices that are commonly used in North America, more often for small scale horticulture such as backyard gardening or flower beds. The unique feature of the collapsible rain barrel (Figure 1) is that when it is not in use, it can be folded up and put away (Wong, 2016). The rain barrel is made up of strong material that prevents it from tears or UV damage and includes a filter to keep pests and debris out of the water. In addition, the rain barrel is supported by five heavy duty legs and has a zippered lid for easy access to the water. There are two available sizes, a 200 L barrel that is 28” tall and a 400 L barrel that is 32” tall (Wong, 2016). This paper investigates the effectiveness of the collapsible rain barrel as an export product to Nepal in terms of cost, simplicity, sustainability and potential to aid the Nepalese agri-food system.

Company Background

The collapsible rain barrel can be purchased through a few different companies but for this assignment, the distributor that will be evaluated is a company by the name of Young Urban Farmers (YUF). YUF is a small company based in Mississauga, Ontario and is managed by founder Christopher Wong (Atchison, 2012). The initiative behind YUF is to promote sustainability by teaching



Figure 1: Collapsible Rain Barrel
(Young Urban Farmers, 2016)

residents of Toronto about urban agriculture (Atchison, 2012). The company offers many versatile products and tools designed to make backyard gardening simple and the collapsible rain barrel is one of these products (Young Urban Farmers, 2016).

Manufacturing Information and Issues

The rain barrel is not made in Canada but is manufactured in China and shipped to other companies for sale (C. Wong, personal communication, October 19, 2016). This brings up the issue of how logical it would be to ship from Canada if it is made in China, which is located just beside Nepal (World Factbook, 2016). It makes more sense environmentally and logistically to ship from China than from Canada. Other manufacturers of the collapsible rain barrel or similar products are all made in either China or the U.S.A and are sold at a much lower cost than what YUF sells it for (Alibaba, 2016). Another issue is that most sources state that the product has a 1-year warranty (Walmart 2016). Nepal is a lesser developed nation, having a GDP of 70.4 million dollars, in comparison to Canada's 1.32 trillion dollar GDP the citizens of the nation can not afford luxury agricultural tools (World Factbook 2016). Subsistence farmers especially could not afford to replace something as often as once a year for over \$69.00 CAD so they need a product that will last longer.

Since the rain barrel is not manufactured in Canada it would be cheaper and more sustainable to source it from China. China is one of Nepal's neighboring countries so the amount of fuel and cost of transportation would be substantially lower than shipping the same product from Canada (World Factbook, 2016). This increases the cost for Nepalese farmers and makes it difficult for them to afford the product, supporting the argument that states that it would not be worth the cost if it only has a one year warranty or shelf-life (Walmart 2016) (Alibaba, 2016).

Benefits to Canada

This export idea would be beneficial to the local economy in Ontario if purchased through YUF than from another company. Table 1 shows a comparison of a few different sources that sell the rain barrel in Canada and their prices for the product. The prices listed in the table do not include shipping if there is a charge for it. Although YUF is not the cheapest source, it is not as well known as the other companies. Other sources of the product such as Walmart, the largest retail company in the world, would only engross already multinational corporations (Strauss, 2015). Purchasing the product from YUF would giving a smaller company an opportunity to expand and benefit the local economy in Toronto. YUF currently only operates in the GTA for the majority if their work and ships their products outside of Ontario but not outside of Canada (Wong, 2016). In Toronto, the company runs programs and workshops to teach Torontonians about urban agriculture and help citizens set up their own backyard gardens (Atchison, 2012). If they could expand out to other cities and provinces it would not only employ more Canadians, but more people would have to opportunity to learn about sustainable practices.

Table 1: Price comparison of the 200 L rain barrel from different sources

| Source | Price in CAD | Web page link |
|---------------------|--------------|---|
| Young Urban Farmers | \$69.00 | http://store.youngurbanfarmers.com/collections/all/products/collapsible-rain-barrel |
| Walmart | \$63.98 | http://www.walmart.ca/en/ip/200-l-collapsible-rain-barrel/6000010977225 |
| Home Depot | \$87.98 | https://www.homedepot.ca/en/home/p.200-l-collapsible-rain-barrel.1000722228.html |
| Amazon.ca | \$94.98 | https://www.amazon.ca/Heaven-Earth-Collapsible-Rain-Barrel/dp/B01F2J8VUO/ref=sr_1_7?ie=UTF8&qid=1480176530&sr=8- |

Another area of benefit that the export idea has is the creation of jobs in a variety of areas. Firstly, there would need to be individuals to coordinate sales from Canada to Nepal and oversee communication and negotiations between the two nations. In addition, if this project was successful, YUF could potentially open branches in other cities and provinces that would employ even more Canadians. There would also be a creation of jobs for individuals to ship the product to Nepal as YUF currently does not ship outside of Canada (Young Urban Famers, 2016).

PART 2: Export Potential to Nepal

Brief Introduction to Nepal and

Nepal is a small landlocked country that borders China and India in Southern Asia and is one of the countries where the Himalayan mountains are located (World Factbook, 2016). The population size is approximately 28 million, which is not much lower than Canada's but it is much smaller and has a much higher population density (World Factbook, 2016). Nepal is a developing nation that struggles with issues such as food security, healthcare, and electricity availability which can have negative effects on the way their agri-food systems operate.

Agriculture makes up approximately 30% of the GDP in Nepal and the country is split into three unique agricultural zones, the mountain region, hill region and terai region (World Factbook, 2016). The terai region has the most fertile land and is mainly made up of rice based cropping systems thus, this area is also the most densely populated. The hill region is where terrace farming is practiced and is mainly used for horticulture crops and subsistence farming. The mountain region is where nomadic cattle farming is practiced due to lower temperatures that do not allow for abundant crop yields (Chapagain, 2016).

Current challenges in Nepal's agri-food system include needing to find easy and cheap ways to manage their farms while being environmentally conscious in their farming practices. Most farmers do not make enough money for expensive equipment and the narrow and sloped landscape do not allow for use of large machinery (Chapagain, 2016). There are also issues with soil degradation and erosion because of storm water runoff (World Factbook, 2016). For this paper, the product suggested is targeted to aid with soil depletion and water conservation.

Current Water Storage Methods and Needs in Nepal

A current need in Nepal's agri-food system is improved water storage methods for the horticulture industry and subsistence farmers (Chapagain, 2014). Nepal is a wealthy country in terms of freshwater resources as the Himalayan mountains are the origin of many rivers and streams coming from the melting snow (Babel, Pandey, Rivas, & Wahid, 2016). It is common for farmers in Nepal to collect water from fresh resources for irrigation purposes when it is accessible but there are farmers in regions where freshwater resources are not as easily accessible (A. Sagar, personal communication, November 3, 2016) (Babel et al., 2016). In addition, current trends for population increase suggest that there will be an increased strain on freshwater sources in Nepal as well so it would be logical to increase practices such as rainwater conservation to help reduce effects (Babel, Pandey, Rivas, & Wahid, 2016).

Currently, a common rainwater harvesting method is the creation of monsoon ponds. Farmers dig large pits on their land and line them with plastic tarps to collect water from the monsoon rains to



use for irrigation (Parvaiz, 2011). Figure 2 shows an image of a Nepali farmer and her monsoon pond that she created to have more water for irrigation after the region where she lives was affected by a drought following the monsoon season (Parvaiz, 2011). These ponds are simple and cost-effective but require the labour to set up, and there is a desire amongst farmers for improved water storage tools (Chapagain, 2016). For this reason, the collapsible rain barrel would be beneficial to farmers as it is also simple to use but only takes a few minutes of assembly (Wong, 2016). In addition, the collapsible rain barrel is very easy to transport if needed and would not take up as much space as a monsoon pond (Wong, 2016).

Effect on Crop Yields

Harvesting rainwater is a sustainable practice that also positively benefits crop yields and growing seasons. Due to climate change, rainfall patterns have not been as consistent in previous years in Nepal and this has affected the success of crops for Nepalese farmers (Ghimire, Shivakoti & Perret, 2010). Yields are often abundant in the monsoon season but recently droughts have shortened the growing season and therefore affected crop productivity (Ghimire et al., 2010). If farmers used the rain barrels to harvest rainwater during the monsoon season, they could extend their growing season because they would still have available water during the dry season or if a drought were to occur (Parvaiz, 2011).

Using the rain barrel as a water storage method would mean that farmers would have to irrigate crops by hand which is labour intensive but has added benefits. A study was done by Westarp, Chieng, and Shreier (2004) that compared the effects of low-cost drip irrigation, conventional drip irrigation and watering by hand on crops in Nepal. The results found that watering by hand is a viable option to increase crop yields in areas less abundant in water resources and is cost-effective. This is significant when taking into consideration the effects of

climate change on the world's availability of freshwater in the years to come, especially with the increase in population that will occur as well (Godfray et al., 2012) (Westarp et al., 2004). The collapsible rain barrel zips open at the top which would make water retrieval with a bucket easy for hand watering crops. If a product such as this can help increase yields for farmers than they can take better care of their families or make more money for their homes and local economy.

Environmental Benefits to Nepal

Rainwater storage is an environmentally friendly practice that would be beneficial to Nepal's agri-food systems, specifically for horticulture crops and subsistence farmers. Soil erosion is a major environmental issue in Nepal and one of the factors causing this is the monsoon season, the period of heavy rains that occurs in Nepal from May to September (Tiwari, Sitaula, Bajracharya & Trond, 2009). Figure 1 shows a graphical representation of the average rainfall in

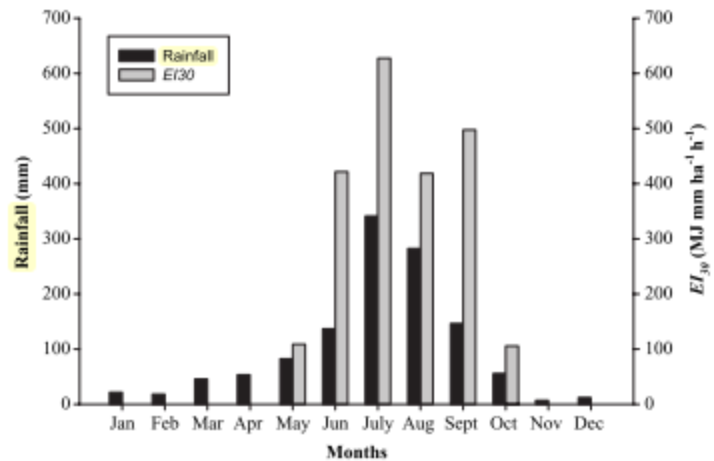


Figure 1: Average monthly rainfall in Nepal from 2004-2006 (Tiwari, Sitaula, Bajracharya & Trond, 2009).

millimeters in Nepal monthly from 2004-2006. This is a major contributor to soil loss because farmers begin to till the land in the pre-monsoon season, making the soil loose and is washed away easily when it starts to rain more (Tiwari et al., 2009). Adeel, Hopkins, Litofsky, and Wellstead (2013) state, that rainwater storage helps decrease soil erosion and nutrient depletion caused by storm water runoff. Having a water storage tool such as the collapsible rain barrel

would help decrease soil erosion for Nepalese farmers which in turn result in improved crop yields (Tiwari et al., 2009).

Environmental impacts are critically important to consider and if the export idea can benefit the environment in some way, it would in turn benefit Nepal. In Toronto, YUF uses their knowledge of sustainable agriculture to teach citizens of the city how to properly set up backyard gardens and tips to successfully maintain them (Atchison, 2012). If the company was interested in expanding globally for this project, they could also bring in this aspect by sharing their resources and teaching people in Nepal what they share with the citizens of Toronto.

Costs of Route from Toronto to Kathmandu

Geographically, Canada is far away from Nepal and exporting any product means added costs for Nepalese farmers. YUF does not ship outside of Canada and therefore Table 2 includes the approximate extra costs for shipping the 200 L size rain barrels from the YUF warehouse in North York, Ontario to Kathmandu International Airport (Young Urban Farmers, 2016). Table 2 shows that it would be more cost effective to ship multiple units at once rather than one at a time or by order basis as the approximate price to break even becomes out of range for what most Nepalese farmers can afford. From the airport, the products would need to be shipped to a potential store in the city and this can be done through a branch of FedEx in Nepal by the name of Everest de Cargo (Manandhar, S., personal communication November 4, 2016). Alternatively, Everest de Cargo can also ship to a few cities outside Kathmandu that have easier terrain for transport but the price of this extra shipping is unknown as neither the website or the assistant manager answered this question. Figure 3 shows where the Kathmandu Airport is located by the red marker and the purple markers indicate the cities where Everest de Cargo ships in Nepal (Manandhar, S., personal communication November 4, 2016). Most of these

locations are found in the Terai region and the central hill region so farmers interested in the product would need to travel to these locations to purchase or pick up the rain barrel, which may not be easy.



Table 2: Approximate costs for exporting the 200 L size rain barrel from Toronto to Kathmandu

| <u>Costs for 20 units (200 L size)</u> | | <u>Costs for one unit (200 L size)</u> | |
|---|-----------------|--|---------------|
| Expense | Cost (CAD) | Expense | Cost (CAD) |
| 20 Collapsible rain barrels (taxes include) | 200L: \$1559.40 | One rain barrel | 200L: \$77.97 |

Figure 3: Locations where Everest de Cargo can ship to in Nepal from the

| | | | |
|---|-----------|---|----------|
| Shipping from YUF warehouse to Kathmandu International Airport Via Etihad Airways Cargo | \$1416.35 | Shipping from YUF warehouse to Kathmandu International Airport Via FedEx shipping | \$421.56 |
| Approximate “break even” price | \$148.79 | Approximate “break even” price | \$499.53 |

Market Analysis

The target consumer for this product is subsistence farmers or small-scale horticulture operations in need of improved water storage methods. This could also be a good investment for larger farms who could afford to have more than one unit if necessary. Both the 200 L and 400 L sizes could be sold to Nepalese consumers dependent on their specific needs. For example, the 200 L size may be more appropriate for urban centres or subsistence farmers while the 400 L size would be better for larger scale farms. Table 2 shows the approximate minimum cost of the 200 L barrel for consumers in Canadian dollars based on how many units are shipped at once. Insufficient information on the 400 L size is available to get an approximate minimum value. For this to be more cost effective for Nepalese farmers there would need to be enough interest to ship about 20 units or more at once because shipping one at a time or by the order is much more expensive (Table 2).

There is potential for consumers in Nepal especially for farm operations that wish to use sustainable practices. A project called Organic Farm Nepal that is located 350 km from Kathmandu in the mountain area has said that they currently use fresh water resource where they are located but wish to expand to zones where access to fresh water is not as abundant. Therefore, they need new methods of water storage and would be interested in a product such as the rain barrel if they could accumulate enough funds (Sagar, A., personal communication,

November 3, 2016). This farm also has a representative in Kathmandu where the product could be shipped to and then brought to the farm (Sagar, A., personal communication, November 4, 2016). Another potential consumer would be individuals involved in urban agriculture such as the RUAF foundation, which sets up projects in developing nations to teach sustainable farming in urban centres (RUAF Foundation, 2016). Currently, RUAF has a project in Kathmandu to set up rooftop gardens for people to have their own source of produce and the rain barrel could be an appropriate tool for them. This gives hope that there would be enough interest in a market for this product but there is not enough data available to be certain.

Future Steps to Evaluate Export Potential

There were a few details that could not be addressed in this paper to do lack of information available. Firstly, there is no certainty that YUF would be interested in a business deal such as this one because they were unwilling to share that information in email correspondence. Therefore, further contact would need to be made with them or a different supplier that would be interested in exporting the rain barrel. Also, the costs approximated in Table 2 are not accurate as they were estimated with outside shipping companies since YUF does not ship outside of Canada. Another uncertainty is that there is not enough data available to know if there would be a large enough market to sell this product in Nepal. There would need to be further investigation on how much a water storage tool such as this one is needed and how much farmers could afford to pay for one. In researching this assignment there was nothing found that stated that there would be issues or extra fees for exporting this kind of product into Nepal so there is another factor that would have to be double checked in the future. Many aspects of this idea need to be looked into with further detail to accurately evaluate its potential as an export product to Nepal.

Conclusions/Suggestions

The purpose of this paper was to analyze the export potential of the collapsible rain barrel sold by YUF to Nepal and the benefits that would come along with it. Because this product is manufactured in China and has many similar products that are sold for cheaper, it does not make exporting the project through YUF the best idea. It would not be environmentally sustainable to send the rain barrel from Canada when it is available from China at a much lower cost, which is important because Nepalese farmers can not afford expensive tools. In addition, most of the models found only have a one year warranty and it would be better for Nepalese farmers to invest their money in something that would be more durable. The benefits of using this kind of tool are significant in terms of sustainability and yield increase for farmers in Nepal and could make a real difference in the agri-food system of Nepal. To conclude, although this specific product is not the most logical source, it is important to consider creating a similar product either in Canada or in Nepal that would last longer and still be affordable for Nepalese farmers.

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