

Export of reverse hanging planter pots for urban agriculture to Nepal.

AGR*1110 Introduction to Agri-Food Systems

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Part 1: Product Information

Introduction

Before delving too far into the product for export which is the reverse hanging planter pot, it is necessary to review the general facts of Nepal and its current status to keep in mind while considering the effectiveness of this product.

Nepal is a country located between India and China and has an area of 147,141 km² with a population of 28 million people (Chapagain, 2015). This is 6 million people fewer than Canada but in an area 64x smaller (Chapagain, 2015). The GDP per capita is \$656 USD or in their currency 69,442 Nepalese rupees (Chapagain, 2015).

A large portion (28%) of the land is used for agricultural purposes and employs about 70% of the population (Chapagain, 2015). 18% of the land is used for purposes other than natural resources which would include cities (Chapagain, 2015). This number is growing as urbanization is increasing which is occurring in most countries (Rimal, 2012).

There are three main agroecological regions in Nepal; the Mountain region, Hill region and Terai region (Chapagain, 2015). The Mountain and Hill regions make up 77% of the area and are the location of major fruit, vegetable and livestock production (Chapagain, 2015). This is also where two of the major cities, Kathmandu and Pokhara are located (Chapagain, 2015). The Terai region is where the majority of grain production occurs (Chapagain, 2015).

It is important to create opportunities to optimize the current situation of Nepal for improvement of nutrition, self-sufficiency and furthermore empowerment which can be aided by exporting the reverse hanging planter pot.

Product Description

As mentioned in the previous section, the product itself is the reverse hanging planter pot which is at this point is mostly a concept with high potential (general idea can be seen pictured in Figures 2 a) & b) in Appendix B). This is simply because there are several ways to assemble and export a planter or pieces of the planter, to Nepal. The idea behind the reverse hanging planter pot is a container (regular nursery pot or 3.5-5 gallon pail) with holes in the base and sides with a snap-on lid to allow growth out of the bottom. It would also have a hanging mechanism, whether it be already built in to the product or an addition like heavy duty rope (Rhoades, 2015). There is also the possibility, that for maximization of space, the Nepalese may be able to divide the pot/pail in half with a divider to allow for growth out of the top, as well (paddy-gibbo, 2011). This concept is ideal for hanging from balconies or roofs in the urban centres of Nepal like Kathmandu or Pokhara and promoting urban agriculture to some extent. There are several Canadian corporations in particular that would be suited to being involved in this type of project on different levels. Their contact information is located in Table 1. in Appendix A if further inquiry is desired. The first and most involved would be Re-Plast, a division of Cascades which is located in Notre-Dame du-Bon-Conseil, QC (Produits Re-Plast, 2015b). This company uses recycled plastics to build more industrial-type structures like park benches and garbage bins but is also able to do custom projects (Produits Re-Plast, 2015a). The second option for a provider for this type of product, which is slightly less involved likely in terms of cost and potentially time, would be the Canadian Tire Corporation which has a distribution centre in the Greater Toronto Area (GTA) (Canadian Tire Corporation, 2015b). This would involve the purchasing of separate products to make the reverse hanging planter pots and sending them over to Nepal to be made into the planters by the Nepalese (i.e. pots/pails, lids, rope and a drill set). That way, a co-op could be formed amongst a community to produce these planters for them to use and

eventually, depending on the demand could increase productivity for sales in the future. Finally, the last option is the cheapest but the least involved in terms of the planter itself being produced in Canada. The company U-Line is located in Brampton, ON and is a producer of sturdy, bulk plastic pails and lids (U-Line, 2015a). They come in varying sizes which could potentially be used for various different fruits, vegetables and legumes (U-Line, 2015b). The idea with this would be to produce the pails and lids in Canada and ship them to be sold in Nepal and then processed (adding holes, rope, etc.) by urban citizens individually to meet their personal needs and preferences for growing.

Associated Costs

Cost is a major factor that needs to be taken into consideration seeing as Nepal is a developing country that must truly prioritize where they spend each dime. In terms of machinery and input, all of the manufacturers would likely be using large machines and using a fuel like gasoline or diesel to run them. This could potentially be more expensive, in terms of efficiency, for certain companies depending on their size of mass production. This similarly goes for labour costs in that with the majority of the companies the staff would be working to produce products year-round regardless of this project. Beginning with the product that would be manufactured at Re-Plast, unfortunately this cost is unknown currently and will be further discussed in a later section. Based on the larger, more industrial products that are produced, it is inferred that the larger equipment and processing will be somewhat costly. On the next level down, with the do-it-yourself planter kit (1 pail, rope, drill set & lids) from Canadian Tire, the cost would come to about \$128.00 CAD which is approximately 10,169 Nepalese rupees (Canadian Tire Corporation, 2015a/c/d). This would be about $\frac{1}{6}$ th of their average annual earnings and although some sharing within a community can occur (drill set and rope) it is still a sizeable investment. Finally, with the U-Line pails and easy-peel lids, they can come on skids of 120 for 5 gallon pails

at \$6.26 CAD each resulting in a total cost of \$751.20 CAD (U-Line, 2015b). The lids are an additional cost of \$2.15 CAD each resulting in a total cost of \$258.20 CAD (U-Line, 2015b). Together, 120 lids and pails are \$1009.40 CAD being a total cost of \$8.41/pail w/ lid. This is much less than the pails sold at Canadian Tire and would be easier to ship as single units on a skid to Nepal. Granted, manual labour will have to be done to the pails to give rise to the reverse hanging planter pot but, on the other hand, the Nepalese will be able to choose how they design it for their needs. As well, different sized pails could be shipped in skids depending on the demand which may vary the cost slightly. Shipping costs as calculated with A1 Freight Forwarding comes to \$756.16 CAD for a skid, directly from Toronto to Kathmandu via plane (A1 Freight Forwarding, 2015c). By boat from Toronto to Kolkata, India would be \$327.15 USD which would be approximately \$427.42 CAD for one skid (A1 Freight Forwarding, 2015e). There would also have to be shipment from Kolkata to Nepal which would require a trucking company like Shangri-La Freight (Shangri-La Freight, 2011b). This cost would likely bring up the total shipping to about the same as a direct plane to Kathmandu. Table 2. in Appendix A will more clearly outline the cost differences between the three levels of production for the reverse hanging planter pot.

Patent/Intellectual Constraints

Some current patent or intellectual constraints at hand would be that of the Felknor Ventures LLC “As Seen on TV” TopsyTurvy Upside Down Tomato Planter™ which is a very similar idea that involves a plastic bag with a lid on the top and a hole in the base where plants, particularly tomato plants, are able to grow out of the bottom (ETTP Heritage Center, 2015). The reason this was not specifically chosen as the export for this project was due to the fact that Canada did not seem to carry it at many stores and those who did own the TopsyTurvy Planter

mentioned that its durability was less than ideal (Canadian Tire Corporation, 2015e). Another similar product on the market that could potentially result in patent or intellectual constraints, is the Sky Planter produced by a company called Boskke in the United Kingdom (boskke, 2015). There are many different models but the concept is again very similar however, in this case they are truly ceramic or plastic pots being used as opposed to a plastic bag (boskke, 2015).

Market Opportunity

The reverse hanging planter pot has the potential to be either a niche product or used in large numbers. It is likely that it will begin as a niche product for those who wish to try them for use at first, however, they could be quite beneficial in the long run to use in large number as urban centres grow. It also depends if urban centres are seen as a niche market as well since normally they are not considered agriculturally productive areas. Regardless of that, although this would be a highly effective product if used by many people, it is best to distribute smaller amounts in different urban centres of Nepal at the beginning to make sure it will work the way they want it to. Therefore, there is a market in Nepal for both niche and large scale eventually but further tests with these products should be undergone. Also, as a side note, this has the potential for a niche market in Canada as well, for those looking to try out urban agriculture.

Benefits to Canada

There are several benefits to Canada by exporting the reverse hanging planter pot to Nepal. The first would be the employment opportunities for Canadians who work for companies like Cascades, U-Line, Canadian Tire Corp. distributing and the companies that provide products to the Canadian Tire Corp. This will have a positive impact on the Canadian economy and will potentially allow for more jobs for the nation's youth and influx of people immigrating to Canada. As well, if possible and if necessary, an effort to remove plastic mulches from Canadian

farmers' fields as opposed to going to a landfill, can be recycled and used in the production of the planter pots or pails (Corbin, 2012). This would create a sustainable product produced by Canada that is highly useful to those in Nepal's urban centres. Finally, as mentioned in the last section, there is the potential for a niche market from Canada's urban centres or even perhaps rural areas that are located on the Precambrian shield where agriculture is not very possible. This would involve Canadians not only contributing positively into their own economy when purchasing but also positively into the Nepalese economy.

Part 2: Export Potential to Nepal

Transportation Logistics

There are 2 possible shipping methods that can be used but leaving from two different places. If the planter pot were to come from Re-Plast in Quebec, they would be trucked to and shipped out of Montreal, QC , whereas if the products were coming from U-Line or a Canadian Tire Distributing centre (likely in the GTA), they would be trucked to and shipped out from Toronto, ON. From these Canadian cities they can then be delivered one of two ways; the first being a direct flight from Montreal or Toronto to Kathmandu, Nepal (A1 Freight Forwarding, 2015b/c). After this, they would then have to be transported by truck to various hardware stores in Kathmandu as well as other larger cities like Pokhra (Shangri-La Freight, 2011b). This method would be more time efficient likely but has the potential to be more expensive (see Table 2. in Appendix A). The second method is to have the products transported to either Montreal or Toronto and then shipped by boat to Kolkata, India, as the first step (A1 Freight Forwarding, 2015d/e). The products would then have to be trucked from Kolkata to the urban centres in Nepal (Shangri-La Freight, 2011b). This would likely be slightly cheaper but not very time efficient. A flow chart of this transportation chain for each company by each method can be seen in Figure 1. Appendix A.

Storage Strategies After Arrival

The whole idea with the hanging planter pot is to minimize space consumption and so at the beginning it would be best to only several skids to each area to determine its market before sending over mass quantities that would be hard to store easily. However, with the skids, they are easily stackable in a store front or storage room.

Cost Analysis to Achieve Profitability

As mentioned previously, cost is a major player in whether or not this product will be successful in the importing nation of Nepal or not. Basically, there are three options (Table 2. in Appendix A); a fully-built reverse hanging which would be built by Re-Plast (likely the most expensive); the kit of separate items used to build the planter by Canadian Tire and associated companies (mid-range pricing); and finally, the U-Line pails with easy peel lids that would be able to be made into the hanging planters mostly entirely by the Nepalese (lowest pricing). The most beneficial and realistic option is the latter because although, it involves additional labour by the urban citizens, it is much cheaper than the other two options (U-Line, 2015b). It gives opportunities to those to make the planters to suit their needs and this might reduce the amount of financial waste if one generic pot was not useful for all. As well, with the pail and lid combo, variations could be made in terms of the tools used to put holes in the pail which would cut price down (drill vs. hammer and nail) along with having the choice of what type of hanging mechanism to use. Giving the Nepalese choice in terms of the products they produce and how they produce them is hugely important in aiding in the countries empowerment and in investigating what works and what does not.

Another potential option in terms of reducing cost is to inquire with the three large corporations at hand to determine whether they could see a philanthropic venture or project in this export idea.

Needs & Benefits of Nepal

In terms of the export potential to Nepal, it would be beneficial to those in urban centres because no farm equipment or products are needed to keep weeds out of the planter since it is singular and hanging up away from the ground (*PR Newswire*, 2010). Simultaneously, this is a

fairly sustainable product since no real treatments, like herbicides which can impact the surrounding environment, need to be used on the plants. As well, there is likelihood for better growth since it would be watered from the top down and therefore, gravity would take water and nutrients directly from roots to leaves, flowers and fruits (*PR Newswire*, 2010). This is as opposed to capillary action in the roots of upright plants where water is pulled upward. Additionally, there are likely to be more fruits/vegetables produced when hanging upside down as was observed personally during an experiment in AGR*2470 involving soy beans and reverse hanging planters. The importance of the movement of nutrients is because much of Nepal is malnourished and having well grown plants that are in a backyard or hanging off of a balcony give much easier access to nutrients (Rai et al, 2002). In a journal article in the Malaysian Journal of Nutrition, it discusses the fact that 78% percent of young children, 75% of pregnant women and approximately 68% of women have nutritional anemia (Rai et al, 2002). If we were able to give them this resource, it might play an important role in giving the future (children) of Nepal a chance to make a difference in shaping the country. Finally, this export would be beneficial to the Nepalese people because the large amounts of urbanization occurring in Nepal are creating serious issues in terms of loss of food production area for an already dismal situation (Rimal, 2012). With the capabilities to grow your own food in the city or at least enough to be semi self-sufficient would be at least a step in the right direction.

Marketing Strategies & Contacts

A good way to market the concept of this product is to sell it with the intention of it lasting a long time and money will be saved in the long run. Another good method would be to specifically market them towards women and children and get them excited about having something to grow in their backyard like a do-it-yourself hanging planter. This might also give the children a responsibility to look after the plants. It may also be beneficial to send over

varying colours and sizes to attempt to attract people to them and even suggest using the different colours for different cultivars as a way of labelling them. Another great marketing tactic would be to suggest that if the urban citizens feel as though semi self-sufficiency has been achieved, selling of their small crops. The idea that these planter pots could be used indoors and outdoors would be a selling point as they might be able to avoid seasonal interference. Finally, it is important to describe the effectiveness based on the science and potential nutritional benefits of a plant being grown upside down alongside with its huge space-saving capabilities.

These products whether the full planter is chosen or whether the more economically-friendly version, the U-Line pail is chosen, these would be distributed to hardware stores and then individuals could purchase them there. An example of a hardware store in Kathmandu is Devi Hardware Centre (The Directory of Nepal, 2015a) and its contact information is located in Table 1. in Appendix A alongside the contact information for the Canadian producing companies and the potential shipping companies.

Canadian & International Loan or Grant Programs

An option for a grant program for Canadian businesses to extend their companies internationally is called the Global Opportunities for Associations (GOA) (Government of Canada, 2015a). This program gives non-repayable funding from \$20,000 to \$250,000 that will allow Canadian associations to expand or develop new international business ventures (Government of Canada, 2015a). The application for funding and approval is a year-long process and to be eligible the company must be an incorporated national company looking to develop international business on a large scale (Government of Canada, 2015a/b). This would be specific to a certain sector and would be a long-term plan (Government of Canada, 2015b). This type of funding would be highly beneficial in reducing the cost for the Canadians producing the reverse

hanging planter pot or components which in turn would reduce the cost for the Nepalese. However, this funding must be applied for and is not guaranteed (Government of Canada, 2015a).

Barriers w/ Trade Subsidies

A lot of the barriers in terms of trade revolve around the subsidies available for wealthier countries and the fact that it is relatively cheap to import products from developing countries and process before selling back to the developing country (Raizada, 2015). This is not very beneficial for economies like Nepal's and results in what seems like a bit of a stand still. However, with exporting simply the pails with the lids from U-Line for eventual fabrication into the reverse hanging planter pots, this would allow the Nepalese to process them for themselves almost completely. With the components from Canadian Tire it would be a similar idea but with a larger start-up cost. The Re-Plast product would be purchased and shipped, likely at a higher cost which is not exactly a proactive development (Raizada, 2015). As well, with the separate parts, the Nepalese could produce the planters at home or build up co-op for making the planters or even eventually harvesting the plants from it (Raizada, 2015). The whole idea behind this product is to aid in urban self-sufficiency and return most money spent back into the economy and develops the "developing" country of Nepal as opposed to giving hand-outs (Raizada, 2015).

Critical Analysis of Global & Regional Competition

Globally, there are definitely many plastics companies surrounding and including Nepal that could manufacture components of the reverse hanging planter pots and ship them for likely much cheaper and more easily. There are companies like Himalayan Multiplast Industries Pvt Ltd. and Hiltek Industries Pvt Ltd. that are even right in Kathmandu, one of the major cities that would be using this product (The Directory of Nepal, 2015b).

Also, from a different perspective, the actual farmers of Nepal may be impacted, although this somewhat unlikely. This is because if the planter pots become as useful as they have the potential for after they breach self-sufficiency, there may be a chance for urban citizens to sell some of their products they are growing.

On a regional level, there are products like the Felknor Ventures LLC “As Seen on TV” TopsyTurvy Upside Down Tomato Planter™ (USA) (ETTP Heritage Center, 2015) and the Sky Planter produced by a company called Boskke (UK) as mentioned in a previous section already have a very similar concept (boskke, 2015). This would create competition for the Re-Plast product but perhaps not the separate components to be sold.

Future Studies/Current Unknowns

With all of this said, there is still a lot of research that would have to be done before giving this product the go ahead. First of all, determining the unknown price of what Re-Plast’s full product would be, to be able to fairly compare it to the other two options. As well, testing the waters with whether or not the Nepalese find this an appealing idea, and if they do, impose a trial run in Canada first. Then after this, if quite successful and effective, create a trial run for Nepal. It is important to reduce cost where necessary especially if a product results in not being as useful as originally thought. Finally, investigating further into patents should be done along with applying for grants like the GOA program mentioned earlier on in the **Canadian & International Loan or Grant Programs** section or philanthropic ventures by large corporations.

Conclusion

In conclusion, although the words, “urban” and “agriculture” are not often used in tandem, as Theodore Roosevelt once said, “Do what you can, with what you have, where you are” (Brainy Quote, 2015). Exporting reverse hanging planter pots or the components of it will

maximize space in rapidly growing urban centres, will improve self-sufficiency and furthermore, the nutritional status of the Nepalese.

Appendices

Appendix A—Tables

Table 1. Contact information for the Canadian companies with potential to produce the reverse hanging planter pot or components of the reverse hanging planter pot for export to Nepal, the shipping companies and an example of a hardware store in Kathmandu that might sell these products.

	Address	Telephone
Re-Plast (Produits Re-Plast, 2015b)	1350 Chem. Quatre Saisons Notre-Dame-du-Bon-Conseil, QC J0C 1A0	819-336-2440
Canadian Tire Corp. (Canadian Tire Corporation, 2015b)	P.O Box 2000, Station Main Welland, ON L3B 5S3	1-800-387-8803
U-Line (U-Line, 2015a)	60 Hereford St. Brampton, ON L6Y 0N3	1-800-295-5510
A1 Freight Forwarding (A1 Freight Forwarding, 2015a)	1111 Flint Rd. Unit 22 Toronto, ON M3J 3C7	1 (800) 280-0277
Shangri-La Freight (Shangri-La, 2011a)	Bhagwan Bahal, Thamel GPO Box: 11829 Kathmandu, Nepal	+977 1 4424456
Ex. of a Hardware Store in Kathmandu (<i>Devi Hardware Centre</i>) (The Directory of Nepal, 2015a)	Bhaktapur, Nepal	1-6631085

Table 2. Cost breakdown for each reverse hanging planter pot option and potential shipping costs.

*--direct shipping is taken into account when calculating the total cost

	Re-Plast Product	Canadian Tire Corp. Planter Kit	U-Line Pail w/ Lid
Product/ Component Costs (\$CAD)	Unknown —likely quite high	<ul style="list-style-type: none"> ▪ Pail/Planter Pot--\$4.99-15.99 ▪ Rope-- \$15.00/100ft ▪ Drill Set-- \$100.00 ▪ Plastic Snap Lid (plastic plates)-- \$3.00/25 TOTAL: approx. \$128.00/planter	<ul style="list-style-type: none"> ▪ 5 gallon pail--\$6.26/each for 120 pails ▪ Easy Peel Lids--\$2.15/each TOTAL: approx. \$8.41/pail w/ lid
Product Cost (Nepalese Rupees)	Unknown	10198.77	670.09
*Direct Shipping via Plane (Toronto→Kathmandu)	Approx. \$764.65 CAD/ 36 cu ft. crate	Approx. \$764.65 CAD/ 36 cu ft. crate	\$756.65 CAD/ 36cu ft. pallet (i.e. for 120 pails)
Shipping via Cargo Ship (Toronto→Kolkata)	\$437.42 CAD + Truck Transport Cost	\$437.42 CAD + Truck Transport Cost	\$437.42 CAD + Truck Transport Cost
TOTAL (\$CAD)	Unknown	\$134.37/planter kit	\$14.78/pail w/ lid
TOTAL (NEPALESE RUPEES)	Unknown	10706.32	1177.64

(Canadian Tire Corporation, 2015a/c/d)

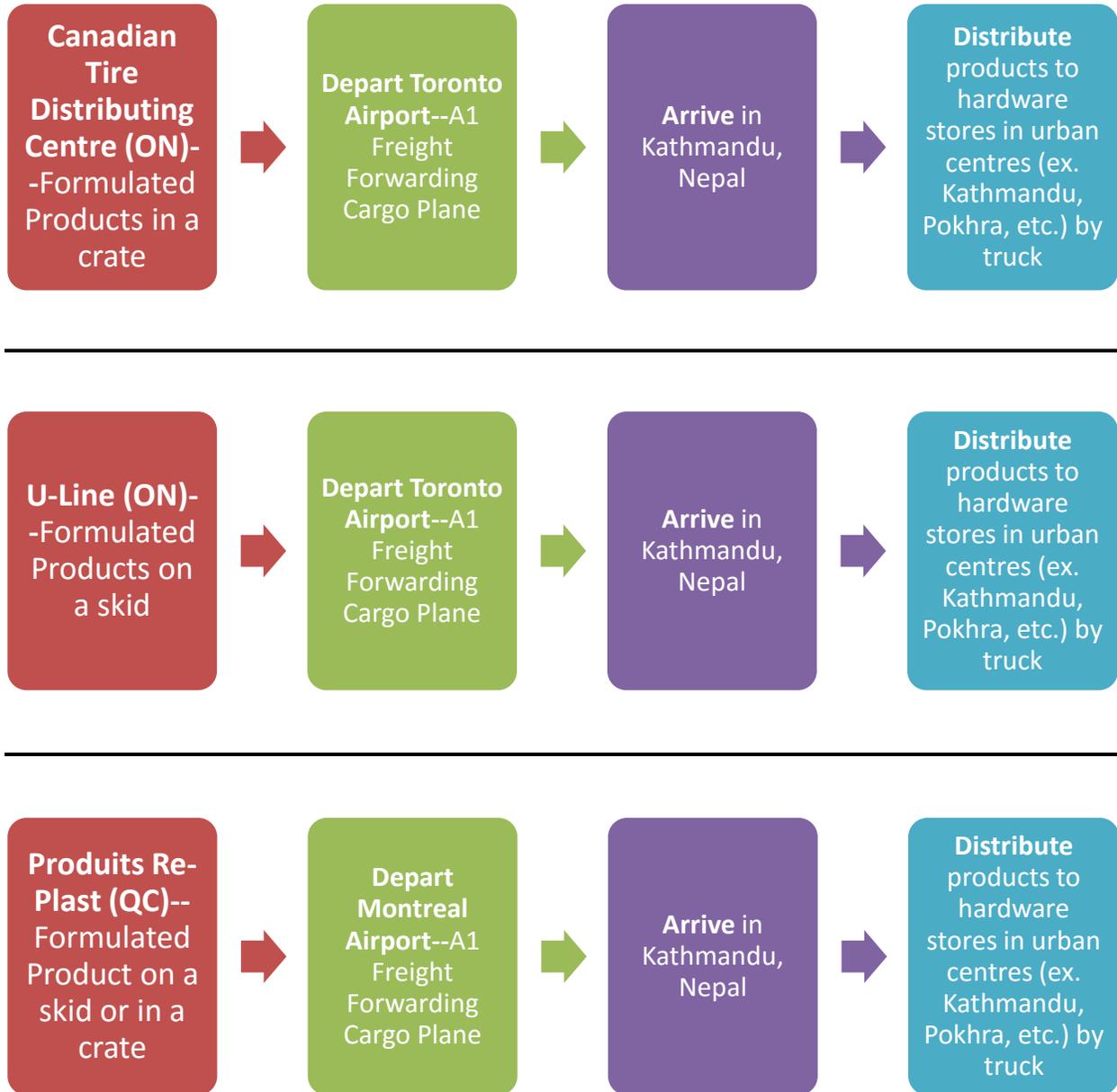
(U-Line, 2015b)

(A1 Freight Forwarding, 2015b/c/d/e)

(The Money Converter, 2015)

Figure 1. The direct and indirect shipping/transportation methods of each of the three options from Produits Re-Plast, the Canadian Tire Corp. and U-Line from Canada to Nepal.

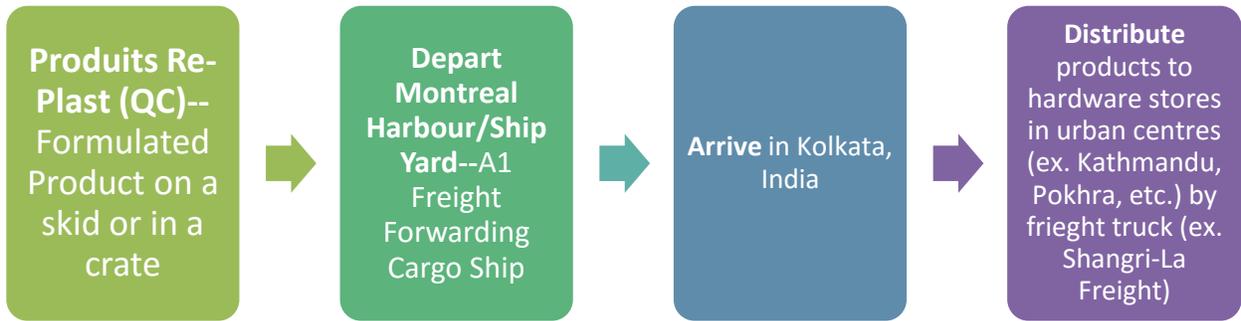
Method 1: Direct Shipping



(A1 Freight Forwarding, 2015b/c)

(Shangri-La Freight, 2011b)

Method 2: Indirect Shipping



(A1 Freight Forwarding, 2015d/e)

(Shangri-La Freight, 2011b)

Appendix B—Pictures



Figure 2. a) & b) The concept of the reverse hanging planter pot, where a) represents the singular growth point out of the bottom (Rhoades, 2015) whereas, b) involves the maximization of space by using both the top and bottom for growing points (paddy-gibbo, 2011).

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