

## **IPL 12-Series plastic container for storing food: Export to Nepal**

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### **PART ONE**

**Product Description:** The IPL 12-Series plastic container is an industrial container made for storing food during industrial transportation (IPL, 2016). It is made from polypropylene using an injection mold technique (IPL, 2016). IPL manufactures these containers in a variety of sizes ranging from 1L to 5.5L (IPL, 2016). They also offer a temperature resistant option, which could have a use in Nepal's mountain region (IPL, 2016). In the mountain region, it could be used to transport food and supplies during treks. The 12-Series container was designed to be leak proof, so it would be very useful in all 3 geographic regions of Nepal, not just the mountains (IPL, 2016). In the hills and terai region it would be very useful for storing grains and various items, especially during monsoon season. It would also be useful for keeping pests from reaching the stored products.

**Where/How is it Produced?:** The IPL 12-Series container could be made at any of IPL's 5 manufacturing locations across Canada and the United States. 4 of the 5 locations are in Canada, including the head office (IPL, 2016). The Canadian location include 2 locations in St. Damien, QC, 1 in Levis, QC, and 1 in Edmundston, NB (IPL, 2016). The location in the United States is in Lee's Summit, Missouri (IPL, 2016). IPL does not specify exactly how many Canadians they employ, but they do state that they employ over 900 people in 929,000 square feet of space (IPL, 2016). That means that for every one employee, there is 1032 square feet of facility. Subtracting the 234,000 square feet of facility in Lee's Summit, leaves 695,000 square feet in Canada. Using the ratio of employees to square feet of facility from before, it can be estimated that 673 of the over 900 employees are Canadian. IPL produces the container through an injection molding process which involves melting down plastic and pouring it into a mold to be cooled (IPL, 2016).

**Machinery Required:** IPL uses injection molding machines to make the 12-Series container (IPL, 2016). IPL currently owns 95 injection molding machines (IPL, 2016). IPL did not wish to reveal the costs associated with producing any of their containers, however since IPL sells them for \$0.81, it is understood that it likely costs much less than that to produce (Cools-Lartique, N., Personal Communication, 2016). To make a large profit, the cost to produces is likely under \$0.50 total. Whatever the cost, running the machines is likely a significant portion.

**Labour:** Labour is another portion of the production cost. The manufacturing of the containers occurs in a factory setting, so it is unlikely that the workers make more than minimum wage, which is \$10.75 in Quebec, and \$10.65 in New Brunswick (Government of Canada, 2016). For a company that makes 2.9 billion units annually at \$0.81 per unit, that would have IPL making \$2.3 billion before costs (IPL, 2016). If each of the 900 employees makes \$11 per hour, working 40 hours per week and 50 weeks per year, paying them would only cost the company \$19.8 million, or about 0.85% of the \$2.3 billion.

**Input:** IPL manufactures the 12-Series container by pouring heated polypropylene into a mold where it cools (IPL, 2016). Plastic can be purchased inexpensively, so purchasing plastic is not likely a large cost to the company. Plastics Information Europe listed the value of polypropylene to be 35 Euros per ton in October of 2016 (Plastics Information Europe, 2016). 35 Euros is ~\$50 Canadian. IPL does not list the weight for 1 container, but since plastic is characterized by weighing light, it shows that 1 ton can go a long way.

**Human and Nutritional Information:** The containers are made from polypropylene. Polypropylene is a #5 Resin Number Plastic (ASTM, 2013). Since it is being used to store food, it would likely need to be held to a certain health standard. It was found that plant workers had an increased risk to respiratory issues when working in a polypropylene plant, but did not cover risks to the general public (Atis et al, 2005).

**Patent Constraints:** IPL has patents for many of their containers, including handles, seals, and containers (Google Patents, 2016).

**Market Opportunity:** The use of the IPL 12-Series container would likely be widespread, as opposed to a niche market. This is because there are many possible uses for it. The target market is Nepalese farmers in the hills and terai regions. The primary use would be in the hills and terai regions, where it could be used for storage. Ideally it would be used to store dried grains and to keep them dry during monsoon season, as well as keep pests from getting at the grains. The 12-Series container is not limited to storing grains though, it can be used to store just about anything that fits in the available 5.5L. There is also a potential market in the mountain region, where the temperature resistant option that IPL makes could find market in being used to transport supplies during exhibitions up the various mountains (IPL, 2016).

Benefits to Canada: IPL is a Canadian company, so purchasing through them would contribute money into the economy (Canadian Company Capabilities, 2015). A secondary benefit is that the plastic purchased by IPL may be from another Canadian company, bringing even more money in. Another benefit to Canada is that it would promote trade between Canada and Nepal. This could even come full circle, as Canada imports 21% of Nepal's polypropylene exports (OEC, 2014).

Environmental Sustainability in Canada: As previously stated, IPL makes their containers through an injection mold process, where plastic is melted down, poured into a mold, and cooled (IPL, 2016). This would imply that IPL does not produce the original plastics, but rather buy from other companies, so as long as other companies continue to produce plastic, they can buy and melt down said plastic. This is environmentally sustainable in the sense that the other companies already produced the plastic, so it would be a waste for IPL not to further manufacture with it.

## PART 2

Transportation Logistics: There are a few potential possibilities when it comes to transportation. There are also a few different possibilities for where the journey starts. As mentioned previously, there are 5 different manufacturing facilities, in 4 different cities, where the containers could be made (IPL, 2016). From whichever facility the containers start at, they will be transported to a distribution facility. The logical choice of distribution centre for shipping by boat to Nepal would be the facility in Rancho Cucamonga, in California, USA (IPL, 2016). After making the trip across the country to California, the containers would be loaded onto a shipping container and sent across the Pacific Ocean. The ship could stop at any number of ports where the container of containers could then be transported to Kathmandu, Nepal, but for the purpose of this project Haldia, India has been chosen as the end location of the ship. At the port in Haldia, the IPL containers would be loaded onto a truck to begin the trek along several highways, eventually ending in Kathmandu. In Kathmandu, the IPL containers would be delivered to a distributor like Navin Distributors Pvt. Ltd., who would make sure it gets to the various smaller communities in Nepal. From there a Nepalese farmer could go to a local shop purchase an IPL container.

Storage Issues: One area where the IPL 12-Series plastic container excels is in storage. For one, it's primary use is storage. Secondly, when not being used to store various items, the empty containers store very well. They are stackable, which allows them to be stored very efficiently.

Cost: IPL sells in various sizes and qualities (IPL, 2016). The only quote given for this report was for the 5.5L 12-Series plastic container. The quote was for 1 truckload, which contains 38,592 containers, and 38,592 lids. The cost for 1 white pail, with a plastic handle and no printing is \$0.6289 (Cools-Lartique, N., 2016, Personal Communication). The cost for 1 white lid with no paint is \$0.1769, for a total of \$0.8058 per complete container (Cools-Lartique, N., 2016, Personal Communication). That adds up to \$31,097.44 per truckload. The prices are in \$ CAD. Neil Cools-Lartique from IPL also stated that IPL would ship directly to Nepal, so the cost of shipping is absorbed into that price (Cools-Lartique, N., 2016, Personal Communication). That being said, a business owner in Nepal could not afford to spend that much money on plastic containers. The business could sell the containers at \$1-2 CAD each, and that would still be affordable for the target market of farmers. A solution to the business owner's problem would be to have the distributor sell smaller amounts of the containers to the business owner, so that it lessens the financial burden on them.

Needs and Benefits of Nepal: According to Tejendra Chapagain, storage supplies like IPL's Series 12 are not needed, but storage structures are (Chapagain, 2016). The containers could be used in the meantime, as well as after better storage structures are built. There are some benefits as well. By keeping the products dry during monsoon season, and not allowing pests to have easy access to the products, Nepalese farmers can reduce the amount of product lost. A decrease in the amount of product lost would lead to an increase of food available, which could then be exported to the other regions of Nepal which are more food deficient.

Contact Information: In Canada, the person who has been the most beneficial to this report was Neil Cools-Lartique. He works for IPL as an Account Manager for the Region of Ontario. He can be reached by phone at 647-236-7776 or by email at [Neil.Cools-Lartique@ipl-plastics.com](mailto:Neil.Cools-Lartique@ipl-plastics.com) (IPL, 2016). The ideal distribution company to work with in Nepal is Navin Distributors Pvt. Ltd. They can be reached by phone at 01-4430785 and 01-4428196, or by email at [info@navindistributors.com](mailto:info@navindistributors.com) (Navin Distributors Pvt. Ltd., 2015).

Marketing Strategy: As previously stated, it would be too expensive for a business owner in Nepal to buy a full truckload, as the average GDP/person in Nepal is \$2500 USD (CIA, 2016). A better strategy would be to have the distributor sell the businesses smaller, more affordable, quantities of containers. The containers should then be marketed to farmers as a way to reduce the amount of product lost when used in conjunction with other techniques, most importantly the drying of grain.

Import/Export Documentation: To export from Canada in this case, an import/export business number is required (CBSA, 2016). An import/export business number is available from the Canada Revenue Agency (CBSA, 2016). An export permit may be required as well, but as IPL already exports internationally, they likely already have one. Nepal has many documents required if importing from a 3<sup>rd</sup> World country, but they do not list 1<sup>st</sup> World countries (Government of Nepal, 2016). It is likely that there is some overlap. Some of the documentation required would be a Documentation form, Invoice, Packing List, Document of Insurance and Country of Origin (Government of Nepal, 2016).

Global Competition: Nepal has the benefit of being located right between China and India, both of which produce plastic. Nepal imports 72% of their polypropylene plastic from India, and none from Canada, so ultimately India could easily produce a similar product and sell it at a better price (OEC, 2014). That being said, IPL still offers a price that would be reasonable for the farmers.

## FIGURES



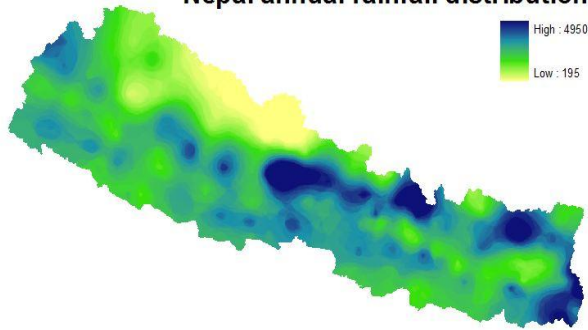
The IPL 12-Series Container. From <http://www.ipl-plastics.com/en/bulk-packaging/products/file/12-series-food/36>

IPL Facility in St. Damien, QC. Taken from <http://www.ipl-plastics.com/en/about-ipl/facilities>



The IPL Logo. Taken from <http://www.ipl-plastics.com/en>

### Nepal annual rainfall distribution



Map showing the Annual Rainfall Distribution in Nepal. Taken from <https://data.humdata.org/dataset/nepal-historical-annual-and-monthly-rainfall-distribution-for-monsoon-months>



Map showing the 3 different geographical regions of Nepal. Taken from <http://www.fao.org/ag/agp/agpc/doc/Counprof/Nepal/nepal.htm>

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