GPI Water-Flow Meter for Fish Farming

Denys semenovych

Part 1: Production

Product Description

The product that I believe should be essential for export to Nepal is the Great Plains Industries (GDP) water-flow meter for fish farming (figure 1). This product is currently used for many purposes in North America, but in Nepal it will be used for fish farms of any scale. Fish farms are very common to come across in Nepal, as there are more than 6000 rivers that are suitable for farming in Nepal (AIN 2016). Labour and technology are two lacking sectors of this industry. The GPI water-flow meter is simple to install and requires little to no maintenance after installation if used correctly (ITM Instruments 2015).

Figure 1

This product is a basic tool used in fish farms to measure the flow of water, the temperature and pressure. The flow meter can be mounted at the end or in-line of a hose or pipe. Each GPI water-flow meter comes with an LCD screen to give the farmer a clear reading (GPI 2016). There

is no required previous technological knowledge to use this product; the simplicity is what makes this product so efficient. There are no additional costs to operate it after purchase and installation, The flow meter is made out of reliable materials such as tungsten carbide, stainless steel and ceramic so replacement would be rare (ITM Instruments 2015). Despite the benefits of this product, the cost of this tool could be too expensive for some farmers that are experiencing low incomes during that time.

Product Origin

The product is created by Great Plains Industries which is a subsidiary of Metex Corporation Limited, which has a factory located in Calgary, Alberta (GPI 2016). Due to the small size of the product; shipping weight of about 0.5kg, shipping and transporting the product would be cheaper than most technologies. The product would be purchased and shipped from the Metex factory in Calgary. (Metex 2015) Materials used to create this product are obtained from other various manufacturers in Canada.

Product Cost

The price of the water-flow meter varies by the strength of the meter and the year of the product. Production of newer flow meters would decrease the price of the older models. A small-scale common water-flow meter such as the GPI 01N Series would cost 243 CAD (ITM Instruments 2016). The conversion of this price to Nepalese Rupees is 19718.31. This is considered to be expensive when in relation to the price of living in Nepal. Another cost that the consumer will bear is the cost of transportation and delivery. The best way to transport this product to Nepal from Calgary to a single consumer would be by using an international courier, which would be the transportation company A1 Freight Forwarding. The cost of transporting a single unit to a farmer would be 127.76 CAD or 10352.55 Nepalese Rupees. It would be very costly for the farmers to purchase this product by themselves. If farmers from a certain region ordered together

it would be wise to ship by cargo plane. The cost of transporting about 500 flow meters would be 1582.50 CAD or 128241.45 Nepalese Rupees (A1 Freight 2016).

The Market

The main region for fish farming in Nepal would be the Terai region where 96% of fish farms are located. The aquaculture sector only makes up 2% of the Nepal's GDP. The potential of this industry is huge if they have the proper technologies to maximize efficiency (FAO 2016). The GPI flow meter could be classified as a niche product because of its small size and it only benefits one specialized industry within agriculture. The flow meter would a product that would be helpful in Nepal because of the abundance of fresh water resources; about 5% of Nepal's total area is made up of various bodies of water that could be used for fish farming (FAO 2016). With the amount of fish farms available in Nepal, it is evident that a water-flow meter would be a beneficial product for the famers.

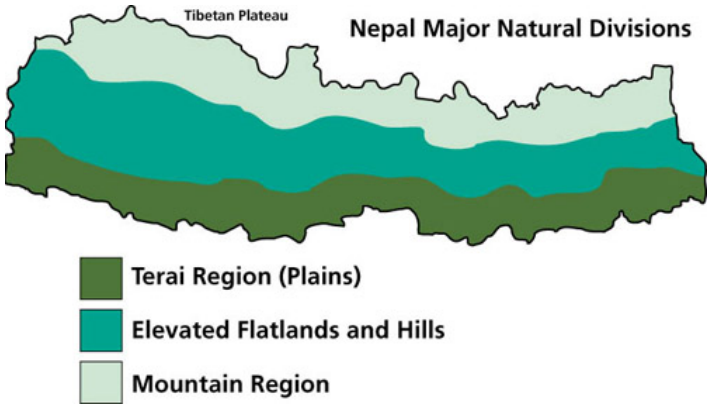
Canadian Benefits

The export of this product has the potential to be very beneficial to the Nepalese farmers, the citizens and even the Canadians. Creating a new network will benefit the employees at Metex Corporation and Great Plains Industries. The employees will have more work to do and thus increasing their income. The export of the water-flow meter opens them up to a new market in Nepal to do business with in the future. Exporting this good will increase the GNP of Canada when multiple companies get new business. The first company to be benefited in this situation would be GPI as they are the ones who developed the product. Metex would be benefited after the product created and distributed to the consumer. If the consumer needs any replacement parts

Metex will be able to supply them, creating more business. At this point A1 Freight Forwarding would be benefited with creating a new network with Metex and also receiving the payments from the consumer for their service. The fact that they would have to airfreight the product, A1 Freight Forwarding would make a lot of money for every transaction. The materials used to create the GPI water-flow meter can be obtained from Canadian sources thus continuing to increase incomes of people and profits of companies.

The Canadian government would begin to benefit by creating and building international relations with the Nepal government. Creating this new trade relation has the potential of influencing the Canadian agriculture sector to do more business with Nepal and surrounding countries.

Figure 2



Part 2: Export Benefits to Nepal

Nepal Background

It is important to understand the background of Nepal in order to properly assess the benefits of this product to the fish farmers. Nepal is situated in between India and China, with land surrounding them from all sides. This creates the issue of the lack of access to any oceans which causes all fish supply to be depended on imports or to be produced on fish farms in smaller bodies of water such as rivers and lakes but more actively in pond culture (FAO 2016). Over 65% of Nepal's population works in the agriculture sector, which includes fisheries as well (MOAD 2011). There is a large amount of importance that is placed on growing and raising your own food in Nepal so the further development of the agriculture sector would be

obviously in the best interests of everyone. Nepal has a population of 27.8 million, which is considered a lot of people for a country of its size (World Bank 2013). The people of Nepal are continuing to face an ongoing issue with food security due to the constant decline of arable and available land. There are many other geographical issues Nepal has three main geographical regions, which include the, mountain regions, elevated flatlands/hills and the Terai region (Figure 2). It is tough to find usable water sources in Nepal because of the severe changes in elevation in the country. Mountains make up approximately 83% of Nepal's area (AIN 2016).

Export Location

The product for export would have to be targeted to a certain region in Nepal in which the product would strive the most. The Terai region or the Terai plain is the main region for fish culture in Nepal. This particular region of Nepal is the host of 94% of the country's fishponds. The aquaculture industry in Nepal contributes to only about 2% to their final GDP. A larger focus on aquaculture would increase the GDP and overall livelihood of the Nepalese people. This product would be transported to the main markets in the country's capital, Kathmandu (figure 3). The product would be delivered by air freight if ordered in mass quantities through the logistics company A1 Freight Forwarding. This option would only be efficient if there is high demand for the product, otherwise the shipment of the GPI water-flow meter from Calgary to Nepal would be too expensive. Once the product has landed in Kathmandu, it would be collected by transport trucks and delivered to the desired marketplace or

Figure 3

individual consumer. It would become difficult for trucks to travel to remote farms because of the road quality and the distance limitations. For most fish farmers it would be up to them to obtain this product from the closest marketplace if their location is unreachable.

Cost Analysis and Profitability

Unfortunately due to the constant increase in poverty and decrease in food supply, a technology such as the water-flow meter would be an irrational purchase for the time being. The GPI water-flow meter is an expensive tool when compared to the cost of living in Nepal. A single unit of this product is almost the same price as the rent to a 3-bedroom apartment in the capital city (Numbeo 2016). Even if the farmer decides to invest in this tool, the cost of having it shipped from Canada to Nepal and then delivered to the farmers themselves is too much for them to bear. This product will not increase the yield of fish itself, which means that profit levels will not be greatly impacted in the short run. Farmers have issues with being able to support and feed themselves as well as their families. Small-scale ponds are the most prevalent in Nepal with only less than 200m^2 which means that certain technologies will not be worth the purchase for them, such as this flow meter. Not all of the fish produced by the farmer is put to commercial use. A Napalese fish farm family will on average consume 60-70% of their fish and put the remaining 30-40% for sale in local markets.

Raceway fishing is the most expensive, effective and luxurious option for fish farmers in Nepal. Raceway fishing farms uses concrete to enclose a body of water in order to create aquatic habitats for the fish, most commonly trout. This method is hard for small-

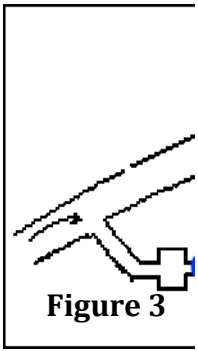


Figure 3

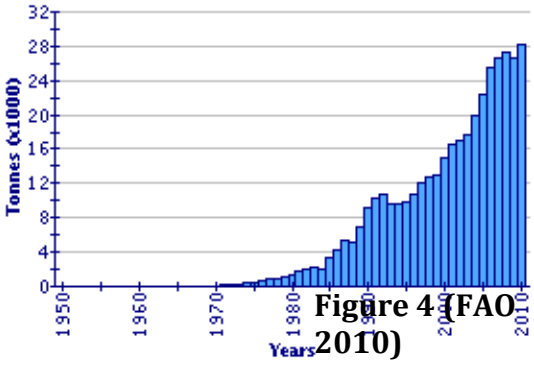


Figure 4 (FAO 2010)

scale farmers to use because of the lack of resources and land. The GPI water-flow meter would strive more in the market of raceway fisheries, as they are more likely to be creating more profit in the future and purchase newer technologies. The GPI water-flow meter would be able to measure the flow of water going into the raceways to give the farmer an idea of how the habitat is doing. After getting the reading for the water-flow, the farmer can go on to make further decisions towards the fish pond based on what the pond needs in order to continue to survive. Figure 3 shows how the raceway fishery works, and represented by the blue dot is where it would be suggested for the flow meter to be installed. Aquaculture is a fairly new industry in Nepal. Fish production has always had a low level but in recent years production has been on an increase (figure 4). The introduction of newer technologies could open up the door to vastly improve this sector and increase the profitability of the farmers. The introduction of a simple water-flow meter could set a trend for Nepalese farmers to invest more in attempt to increase their profits, although this seems unlikely in the current fishery market in Nepal. There are many costs affecting the ability for fish farmers to succeed in their industry. Fish seed is an input cost that is very important to the constant production of fish but is also expensive for the farmers to acquire. The government of Nepal in the past has shown little to no effort in supporting and funding fish farms. Perhaps if the Nepalese government takes note of the efforts by Canada to improve another country's aquaculture sector, it could influence them to increase funding for large fisheries to improve an already growing industry. Commercial fishing has been on the rise and in the last 5 years there has been a noticeable 23% increase in fish farms for commercial use in Nepal. The director of the Nepal Agriculture Research Council, Tek Gurgung has noted that the fish return rate is almost three times higher when in comparison to other farm activities (Republica 2014). There is a lot of potential for a new product to grow and help an already

growing industry, which has shown an annual increase in production by 6-9%. In the short run, achieving profitability is unlikely for a fish farmer with the purchase of the GPI water-flow meter because of the costs that are attached with the product. There is potential to show some sort of return in the long run because the meter itself does not increase the production of fish and profit the farmer directly. A water-flow meter is simply an instrument to give the everyday fish farmers more of an understanding about their fish farm and what happens in it. Using the given information from the flow meter, the fish farmer would be able to make an analysis and decision on whether to add certain inputs like fish fertilizers or any inputs to improve water quality. These factors will prove to have more positive long run benefits than in the short term.

Competition

With Indian and China being surrounding countries, the production of different versions of this product by other companies is very common. After looking on Alibaba I was able to instantly find similar products that are either similar in price or much less expensive. The reason for this could be because of the price and quality of materials, the ability to operate it with ease and the overall quality of the product are all factors that impact the price. A common company that would derive a lot of competition is the Xingtai Shanghong Mechanical Equipment Company (Alibaba 2016). This company is able to create their product for marginally less, 100 CAD per unit. Xingtai Shanghong is located in China and produces their product in China. The transport costs of this product would be substantially less. There are many logistics companies that offer cargo freights from China to Nepal. Due to the fact that the shipment is not crossing the ocean it will become a lot cheaper and affordable for farmers to bring in the product. The only issue concerning would be the confidence in the quality of the product. When products are cheaper,

there is a reason for it. Bringing in supply from North America is more reassuring in quality of the product than from a manufacturer in China.

Nepalese farmers would be aware of the cheaper markets that surround them and would be more enticed to purchase the less expensive product. A way to divert the fish farmers from purchasing the cheaper product from China would be to create a certain incentive for the farmers to invest in the Canadian-made product. Marketing the product to the correct population with proper incentives will make it more probable to get business over the competition.

Marketing

Marketing a Canadian product in Nepal would be very difficult because of the language barrier between the two countries. It would be wise for to be in touch with a proper Nepalese translator to ensure that the advertisement and information used in the description of the product has no mistakes or incorrect translations. There would a lot importance placed on getting this product introduced to communities in order to build knowledge and demand for it.

The most efficient way to build knowledge for an unused technology in a new market is to make informative pamphlets and to have a sample of the product to display and gain interest. It would be important to keep the pamphlet as simple and concise as possible in order to ensure that farmers do not get discouraged from using the product. The use of diagrams and pictures would be important as it also diminishes the chance of any language limitations. On the Canadian side, it would be helpful for the marketers to get in touch with agriculture societies, directors or agriculture leaders in Nepal to help them market the product to the farmers. Allowing farmers the chance to use and gain some experience with the water-flow meter will allow them to see the benefits of having the product and the farmer has the potential to become an ambassador himself

for the product and share his experience with other fish farmers. It would be important to market this product before the peak of the fishing season in order to ensure that when the farmer does use the product, no matter what, the results will please the farmer. Bringing in Canadian farmers to show off the product in Nepal would be very helpful as well. These Canadian farmers would the ones to introduce the product to the fish farmers and teach them how to install and operate it. Although it would be rather costly to fly farmers to Nepal, give out samples and create pamphlets, introducing new technologies in impoverished countries and creating food security is more important than short run costs of a couple units of products.

Final Words to Canada and Nepal

Post analysis of this product, the costs the consumer has to bear in order to receive this product in Nepal from Canada would be too large. Despite the usefulness and simplicity of the product it would just not make any sense to import a product of this magnitude from across the ocean when it can be produced and transported from surrounded countries for much cheaper.

In order for this product to strive in the Nepal market, the Government of Canada would have to grant the Nepal aquaculture sector a right or bursary to ship these products for a lower cost. This lower cost would affect the GNP of Canada on a small scale but in the long run it would create more transactions between the producer and consumers thus creating more money. Achieving profitability should not be as important to Canada as building stronger international relations and helping a country come out of poverty, improve their economy and create a standard of living that would be acceptable for everyone. Nepal should continue to improve their aquaculture sector, and improving technologies is the way to do it.

Bibliography

Electronic Digital Meters. (2015, June 14). Retrieved November/December, 2016, from http://www.itm.com/pdfs/cache/www.itm.com/113255-6/datasheet/113255-6-datasheet.pdf

Fish Farm. (2015, May). Retrieved November 25, 2016, from http://www.agricultureinnepal.com/fish-farm

Water flow meter. (2016, November 25). Retrieved November 25, 2016, from https://www.alibaba.com/countrysearch/CN/water-flow-meter.html

Nepal Aquaculture Overview. (2015). Retrieved November 17, 2016, from http://www.fao.org/fishery/countrysector/naso_nepal/en#tcN700DA

Where Is Kathmandu Nepal On A Map. (2013). Retrieved November 29, 2016, from http://www.lahistoriaconmapas.com/atlas/country-map02/where-is-kathmandu-nepal-on-a-map.htm

Gurgung, T. B., Mr. (2003, November). Fisheries and Aquaculture Activities in Nepal. Retrieved November 25, 2016, from https://www.researchgate.net/publication/233730806_Fisheries_and_Aquaculture_Activities_in_Nepal

Shrestha, M. K., & Mishra, R. (2014, March). Fish Production Systems. Retrieved November 14, 2016, from https://agrilinks.org/sites/default/files/resource/files/Fish Production Systems in Nepal-Madhav.pdf

About Metex Corporation. (n.d.). Retrieved October 24, 2016, from http://metexcorporation.com/about_us.html

Electronic Flow Meters. (n.d.). Retrieved November 22, 2016, from (n.d.). Retrieved October 20, 2016, from http://www.gpimeters.net/?_ga=1.193676397.114746308.1479182447

A1freightforwarding. (2015). A1 Freight Forwarding – Canada, United States & International Shipping & Logistics Retrieved 25 November 2016, from http://www.a1freightforwarding.com/

Water Flow Meter. (n.d.). Retrieved November 29, 2016, from https://www.alibaba.com/countrysearch/CN/water-flow-meter.html

FAO Fisheries & Aquaculture - Global Statistical Collections. (n.d.). Retrieved November 29, 2016, from http://www.fao.org/fishery/statistics/en

UPS. (2015). UPS Calculate Time and Cost: Enter Information for Your Air Freight Shipment. Retrieved 19 November 2015, from https://wwwapps.ups.com/fctc/processTimeAndCost?loc=en_US