

Canadian Agrifoods Exports to Nepal  
BCS Model 852 Two Wheeled Tractor with Accessories  
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**Background information Nepal:**

Flat semi-tropical plains, cold harsh Himalayans, the diverse landscapes in Nepal have resulted in a wide range of agricultural practices throughout the country. Nepal is a small land locked country located in between India and China, which is broken down in to three main regions; the terai (plains), hills and the mountain regions (CIA, 2014). Agriculture plays a fundamental role in the life of Nepalese people as it provides the livelihoods for over seventy percent of the country's population (CIA, 2014). Most of the farms in Nepal are less than one hectare in size and are used to produce food for the farmer and his/her family to eat in a sustenance based agriculture system (Conory, Joshi, & Witcombe, 2012). As a developing country dependent upon sustenance based agriculture on a very small scale, industrialized sized tractors and implements are not affordable or a practical option for the average farmer. Therefore, when looking at improving the livelihood of Nepalese farmers, small two wheeled tractors are the ideal alternative.

**Mechanisation in Nepalese Agriculture:**

Unlike the countries surrounding Nepal, many of the farmers in Nepal still use man and animal power (National Agricultural and Environmental Forum, 2008). According to Shrestha (2012) seventy seven percent of the power used by Nepalese farmers is supplied by humans and animals. Of the twenty three percent mechanical power used in the country, ninety two percent is located in the terai region of the country (Shrestha, 2012). While only a small percentage of Nepal has shifted to mechanical power, the bulk of the country continues to use tools made by the local blacksmith such as wooden plows, hoes and sickles, with a small percentage of farmers using animal drawn iron plows (Shrestha, 2012). One of the reasons for the small percentage of mechanization outside the terai region is the lack of infrastructure in the hilly and mountainous

regions to get the products to the farmers (Conory, Joshi, & Witcombe, 2012). Also the style of terrace farming in the hilly and mountain regions with the variation between narrow flat sections and steep sections, presents a challenge for large mechanized equipment trying to navigate the fields (Conory, Joshi, & Witcombe, 2012). The need for mechanized power in Nepal is increasing as more of the country's young population choose to go abroad for work instead of staying in Nepal to farm (Conory, Joshi, & Witcombe, 2012).

**Labour in Nepal:**

Labour shortages are becoming a major problem in the agricultural industry in Nepal, as many of the country's young population migrate out of the rural areas into urban areas or leave the country entirely, in order to find higher paying work (Conory, Joshi, & Witcombe, 2012). As a result, the hard, labour intensive jobs in agriculture, are being left to the women and elderly people, who are left in the community, to perform (Shrestha, 2012). Introducing mechanical techniques to Nepalese farmers would help not only to ease the burden on women and elderly, but would also help convince young people to stay in the country as the farmers. Therefore the need for mechanization in Nepal is increasing in order to continue to feed the country's population there by increasing food security.

**Company Description:**

BCS is Europe's largest manufacturer of two wheeled tractors with its factory and head of operations based in Italy (BCS America, 2014a). Since being established in 1942, BCS has been producing high quality, gear driven two wheeled tractors with the goal of reducing the physical labour common in small scale agriculture, while at the same time increasing the overall productivity of their customers (BCS America, 2014a). In the 1970s, BCS extended its area of

operations to include North America, and since then has established over 650 plus dealers and service centers across both, Canada and the United States (BCS America, 2014a). While BCS offers a wide range of different tractors and accessories the optimal product to help Nepalese farmers would be the BCS model 852 two wheel drive tractor.

### **Product Description:**

The BCS model 852 tractor is one of BCS's largest tractors which allows it to have sufficient horse power to run all of BCS's implements (BCS America, 2014b). The 852 model is one of the few BCS tractors with the road/ transport speed of 8.3 mph allowing tractor to be used to transport goods along with working the ground (BCS America, 2014b). To increase effectiveness while working the land the tractor has three working speeds ranging from 0.7 to 2.7 mph (BCS America, 2014b). The operator has access to all three speeds while working with both front and rear mounted implements, allowing the operator to be more productive with their time (BCS America, 2014b). With operator comfort and safety in mind, BCS has designed their handle bars to be vibration free, and have the ability to move up and down to adjust for different operator heights (BCS America, 2014c). To increase performance and cut down on power loss, BCS uses an all gear drive system, to run both the tires and the independent power takeoff (BCS America, 2014c). All of these features combine to make a world renowned machine that any Nepalese farmer would be happy to have.

The BCS model 852 tractor has a retail value of around \$4000 US when purchased separately from a Canadian or American dealer (BCS America, 2014b). This price could be lowered by at least 25% when bought whole sale directly from BCS resulting in a price around \$3000 US (R. Johnson, personal communication, Nov 17, 2014). This price is not accounting for the price of shipping to Nepal or the percent cut for the Canadian and Nepalese dealers.

**Benefits to Canada:**

When the benefits to Canada for exporting the BCS model 852 were accessed, it was determined that there are very little direct benefits to the Canadian economy from the export of this product. The main benefit would be the additional sales for one of the BCS dealers in Canada, as they would receive a cut in the money made because they would be the ones brokering the deal with Nepalese suppliers. A possible spinoff benefit could be the creation of a custom manufacturing industry to make accessories and implements for the tractors. The implements could be made from old machinery which would be restored and modified to be smaller and work again. For example an old plow, could be cut up and made in to several small plows to be exported with a minimum of work required. Whether the product is a small accessory or the tractor its self, they all need to be trucked to the nearest ocean port, it would create jobs for the trucking industry and if the piece is small, the express package shipping industry. All of these tiny benefits would accumulate to allow this product to have a small impact on the Canadian economy by creating jobs and supplying additional income for small Canadian companies.

**Transportation:**

To get the product to Nepal there are many potential routes that can be taken. First the decision to either ship directly from the Italian factory to Nepal or to first ship the product from Italy to BCS's distribution warehouse in Portland USA and then on to the Canadian dealer (R. Johnson, personal communication, Nov 17, 2014). To cut down on unneeded shipping costs the product will be shipped directly from the warehouse to the Vancouver sea port, which will benefit the Canadian shipping industry. This cuts out the step of first shipping the product to the dealer and then to the port, because this is an unneeded step since the dealer is just acting as a

broker and never needs to receive the goods. Before the product is shipped from Portland it will need to be packaged securely in sealed crates to protect the products during sea travel (PF Collins, 2003). Approximately 48 tractors and their corresponding plows and cultivators fit in a 40 foot ocean container (R. Johnson, personal communication, Nov 17, 2014). Shipping a full container load of tractors and implements in one shipment, drastically reduces shipping costs per unit (PF Collins, 2003).

Once the container load reaches Vancouver it will be loaded into ocean freighter to be shipped across the pacific to Asia. Since Nepal is a landlocked country it has negotiated trade agreements with India for the use of some of its sea ports on the eastern coast (Pohit, 2009). The trade deal between India and Nepal states, Nepal can have free access to ports and shipping routes to import products from third party countries using the previously agreed ports and routes (Pohit, 2009). Once the container reaches the port of Kolkata, India it will need to be shipped by truck to Katmandu, Nepal for distribution to the dealers. Since roads in both India and Nepal are often very congested and in poor condition, this stage of the trip will take some time (Pohit, 2009). When importing two wheeled tractors into Nepal a duty of five percent of product value must be paid per tractor imported (Government of Nepal, 2013).

Figure 1: Transportation Cost Break Down

	Cost per Container US Dollar	Cost per Unit (48 units per container) US Dollar
Trucking Portland, USA to Vancouver Seaport Canada	\$1 150	\$23.95
Ocean Freight Vancouver Seaport to Kolkata, India	\$2 400	\$50
Trucking Kolkata to Katmandu, Nepal	\$3 200	\$66.66
Total transportation cost	\$6 750	\$140.62

(World Freight Rates, 2014)

### **Benefits to Nepal:**

The use of a two wheeled tractor on a farm in Nepal would bring many benefits to the farmer and community. In Nepal there is currently very little mechanization in the agriculture industry, with most of the farm work being done by hand or with animals. The benefits of just a small advancement in mechanization, for example a two wheeled tractor would be significant (Conory, Joshi, & Witcombe, 2012). A two wheeled tractor is the perfect fit for much of Nepal as most of its farmers, have farms of less than one hectare in size and so have no need for large equipment (Shrestha, 2012). In addition many of the small farms are in the hilly or mountainous regions of Nepal where terrace farming is the predominant method and a large tractor would not be able to navigate the slopes effectively (Conory, Joshi, & Witcombe, 2012).

### **Benefits to the Farmer:**

Currently little of the agriculture production in Nepal is done with mechanical equipment, as a result a farmer who starts using a tractor will experience many immediate benefits. The amount of work required to prepare the ground for planting would decrease significantly,

because the tractor can be used to plow the land. Using a BCS 852 would make preparing the land faster and easier when compared to doing the work manually or with animals. The use of the tractor would also cut down on the weeding of the field because the cultivator attachment can be used instead of manually hoeing the field. In addition, a cutting bar can be added to the tractor to assist in the harvest of grass for hay, or grains. Overall, a farmer would see a decreased amount of work in all parts of their operation. Better prepared soil and maintained crops would not only increase a farmers overall yield but would also result in a higher income, which would benefit the entire family and community. The decrease in the amount of manual labour required would also make life easier for the increasing numbers of women farmers in Nepal (Shrestha, 2012).

As a result of farmers spending less time planting, tending and harvesting their crops they would be left with more time to do other things that would result in higher income. The farmer would be able to use the tractor to tow a wagon to the market to sell their own produce or to the mill to have their grain made into flour (Conory, Joshi, & Witcombe, 2012). In addition the farmer could also take their neighbours produce and grain to market to earn additional income. The farmer could also rent out the tractor to surrounding farmers when they are not using it, which would benefit the entire community. Since the tractor has an independent power takeoff it could be used to run a generator to power the family's home (BCS America, 2014d). As a farmer gets more income they could invest in additional attachments for their tractor for example a seeder or harvester which would help to make their farm more profitable.

### **Support Industry:**

For the BCS 852 tractor to reach its full potential in Nepal, a successful support industry needs to be established. The industry would need to include everything from fuel to spare parts.



Access to gasoline, which these tractors run on, would be very difficult for many farmers to obtain, since many farmers are located some distance from main roads which in themselves are often treacherous (Conory, Joshi, & Witcombe, 2012). To effectively get fuel to the farmers a transportation network would have to be created that is able to navigate the road. Alternately roads could be improved, providing jobs to thousands in the construction labour industry.

One of the main concerns of the farmers in Nepal in relation to mechanization, is the availability of spare parts and repair services (Shrestha, 2012). To address these concerns a network of parts suppliers would have to be established with a distribution facility in Nepal so parts are readily available when needed. The second concern is the availability of skilled people to fix the machinery. A solution to this problem could be the training of the local village blacksmith in to be a mechanic. As a blacksmith would already have some mechanical knowledge and be skilled with their hands, it would take only a little bit of training for a blacksmith to become a certified mechanic, with the knowledge to fix the simple machines in Nepal. Overall, training local residents would be a good solution because most villages already have blacksmith that would be losing business, as the need to build farming tools for the community decreases and more mechanical tools are introduced (Shrestha, 2012).

### **Competition:**

The main competition that this product would have, are the Chinese built tractors already offered in Nepal (National Agricultural and Environmental Forum, 2008). These tractors are much cheaper, with prices anywhere between \$300 and \$2000 US (Alibaba, 2014). The problems with these tractors is that they are mostly belt or chain driven which result in more maintenance when compared to the gear driven BCS model 852 tractor. Since a cheap

competitive product already exists in Nepal, it will be harder for the people trying to market the BCS 852 tractor than if there was no competition.

### **Marketing/ Sale potential:**

Once the tractors reach Nepal they will need to be sold to the Nepalese farmers in an effective way. To reach the farmers that are in most need of this product, a marketing team should travel with a demo unit across the country demonstrating the benefits of the product to the farmers. These demonstrations would inform the farmers, some of whom do not realise the benefits of mechanization, to how beneficial this product would be for them (Conory, Joshi, & Witcombe, 2012). As this product is very expensive in the eyes of a Nepalese farmer, the marketing team should work with groups of farmers and villages to form co-op groups, which would share the product and lower the cost significantly per farmer. Once a farmer or group buys the tractor a representative from the marketing team would need to be sent to teach the farmer how best to use the tractor. To beat the competition already in Nepal and make the farmers want to buy the superior, but more expensive BCS tractors, the marketing team will need to offer a reason why the farmer should spend the extra money. The reason could be the assurance that there will be spare parts always available and someone with the expertise to fix the tractor available whenever they are needed.

### **Cost Analysis:**

The retail value for the BCS model 852 tractor is currently \$4275 US in Canada and in the United States (BCS America, 2014b). A 25% discount off this price is offered when a company buys a bulk shipment (98 tractors or a 40 foot container load) (R. Johnson, personal communication, Nov 17, 2014). In order to make these tractors useful to the farmer they would

need to have implements. Therefore to get the farmers started each tractor would be equipped with a moldboard plow for the additional cost of \$299 US and a V-cultivator priced at \$349 US (BCS America, 2014d). The addition of these implements into the container load would limit the shipment to 48 units, but would still being eligible for the 25% discount on all products (R. Johnson, personal communication, Nov 17, 2014). Shipping and import duties will add additional cost to the product once it reaches Nepal (see figure 1, 2) along with the cuts for both the Canadian dealer who brokered the deal and the Nepalese company marketing the product. In order to make the export and import of this product profitable for all people involved, the price of the tractor becomes far too high for the average Nepalese farmer to be able to afford.

Figure 2: Cost Breakdown in US Dollars

	Price in Canada with 25% discount	Shipping Cost	Canadian Dealers Cut	Nepalese Dealers Cut	Import Duty	Final Price
Tractor price	\$3206.25	\$46.87	15%	5%	5%	\$4054.68
Cultivator price	\$261.75	\$46.87	15%	5%	5%	\$373.99
Plow price	\$224.25	\$46.87	15%	5%	5%	327.19
Package price	\$3692.25	\$140.62	15%	5%	5%	4755.86

(BCS America, 2014b) (BCS America, 2014d) (World Freight Rates, 2014)

### Conclusion:

Even though this product and similar products are desperately needed in Nepal, the price point of this product makes it far too expensive for the typical farmer or even groups of farmers to afford. When a price comparison is conducted with the substantially cheaper Chinese products already in the marketplace it is concluded that the BCS 852 is uneconomical for the average Nepalese farmer. The fact that the BCS tractor is significantly superior to the Chinese product

will not be considered by a farmer who is short on cash because they will most likely buy the cheapest available product. If the BCS tractor could be subsidized either by the Canadian or Nepalese governments or an aid organization in order to make the product have a comparable price to the Chinese tractors, it would have better chance of succeeding in the Nepalese marketplace.

The true solution to the problem of the lack of mechanization in Nepal is not the importation of tractors and implements but the creation of an manufacturing industry in Nepal to make cheap tractors specifically suited for the Nepalese people's needs. This would create many jobs for the manufacturing sector in Nepal as well as address many of the farmers concerns about the availability of parts and local expertise in servicing the machinery. Overall, although Nepalese farmers would benefit from the BCS model 852, the country's current economic and political situation makes this solution unsustainable to meet the current needs of the Nepalese farmers.

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