

**Canada-Nepal Export Report**

***Solar Paneled Electrical Fencing for Livestock***

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## **Part I: Product Information**

### **Introduction of Product:**

Solar paneled electrical fencing is a great alternative compared to wooden, barbed and traditional electrical fencing. This system is self sufficient and portable which allows for a fence to be taken down with ease and re-established somewhere else with minimal efforts (Top 3, 2015). Solar paneled electrical fencing harnesses the power of the sun which makes it ideal in remote areas that do not have electricity. Electrical fencing offers a physical barrier but more importantly a mental barrier that livestock quickly learn to respect and avoid contact of the fence at all costs. Benefits of this portable electrical fencing are that it is economical, self sufficient, reliable, easy to carry and install. Due to the versatility of the fence all famers in Nepal can take advantage of its portability in order to increase the welfare of their livestock. It also used for selective grazing, grouping herds of different ages, and protection of predators. Not only can it be used for livestock but it can also be used to protect crops from unwanted wildlife.

### **Description of Companies:**

Woodstream Corporation was established in Pennsylvania in 1902, with facilities in Canada, Colorado, Missouri, Pennsylvania, Tennessee and China (Zareba, 2010). In 2010 Woodstream Corporation signed a definitive agreement to merge with and into Zareba Systems (Zareba, 2010). Zareba Systems, Inc. was established in Minnesota since 1960 and is the world's leading manufacturer of electronic perimeter fence and security systems for animal and access control (Zareba, 2010).

Based on a telephone interview with Heynes (2015) an employee of Gallagher Canada, the company was established in New Zealand since 1938 but planted its roots in Canada in 1979. The company currently operates out of Owen Sound, Ontario and was there since 1979.

Gallagher Canada develops innovative perimeter security systems including portable systems for cattle, horses, sheep, goats and deer.

	Company 1: Zareba Systems	Company 2: Gallagher Canada
Number of Employees	155	1000
Annual Revenue	\$35,000,000	\$200,000,000
Contact Info	(763) 551-1125	(519) 371-2141

**Figure 1:** Comparing both companies with contact info. (Distribution, 2012), (Zareba, 2010)

**Description of Products:**

Zareba Systems offers a portable electric netting kit that can fence in an area of 1,681 ft<sup>2</sup> with a vibrant orange colour that can be seen from a distance. This is one of many kits manufactured by Zareba but is one of the more versatile and ideal kits for the people of Nepal. The kit that was chosen includes 15 replaceable plastic posts, molded junctions for extra strength, easy to use lead out wire, guy ropes, pegs and a repair kit (Zareba, 2015). This electrical fence kit is missing a major component the energizer. The solar powered energizer that was chosen is also manufactured by Zareba it is called 10 mile solar low impedance charger. The energizers specs are a 10mile range, controls all livestock and nuisance animals, 6 volt solar battery, reliable solar power operates up to two weeks without sunlight, indicator light, fast installation to T-post, output voltage up to 7500 volts and a 1 year warranty (Zareba, 2015). This kit combo was chosen for the people of Nepal because the netting of the kit allows for confinement of smaller animals like sheep, goats, pigs, fowl and duck. Figure 3 displays that this would be targeting the majority of the livestock in Nepal with Fowl being the highest population of 48 million.

The alternative option to Zareba is the Gallagher Canada Smart Fence kit which is less expensive and offers less of a range of animal confinement. This kit does offer confinement for larger and more aggressive animals such as buffalo and aggressive bulls. It also offers a greater area of confinement reaching at 6,806 ft<sup>2</sup>. This company also offers a wide variety of electrical fencing products but the Smart Fence Kit was chosen for its compact portable design. The Smart Fence can contain goat, sheep, pigs, buffalo, cattle, horses, and aggressive bulls. The Smart Fence includes a 4 wire multi real, ten orange posts, 330 feet of multi wires and is all combined into an easy transportable package (TSC, 2015). The smart fence also needs to be packaged with a solar powered energizer and Gallagher supplies one that meets all the requirements for the smart fence and enables for expansion of the electrical fencing if so desired. The Solar Powered energizer that was chosen is called Solar Fence Energizer S17. The specs for the S17 are 1 mile range, built in solar panel t, LED confirmation of working fence, weatherproof with non-rusting case, easily transportable, internal 6v rechargeable battery and 2 year warranty (Provincial, 2015). This Fence kit combo would be ideal for the people of Nepal because it is the cheaper of the two combos and allows for confinement of larger more aggressive animals as well as confining the medium size animals like pigs, goats and sheep.

Company	Zareba		Gallagher	
	Canada	Nepal	Canada	Nepal
Energizer \$	229.99\$	19302.94\$	249.99	19910.94\$
Fence Kit \$	299.99\$	23874.64	209.99\$	16725.06\$
Total \$	529.98\$	42211.29\$	459.99\$	36636.00\$

**Figure 2:** Prices do not include tax or shipping cost. (Electric, 2015), (TSC, 2015)

Livestock Population of Nepal in 2012/2013	
Livestock	Population
Cattle	7274022
Buffaloes	5241873
Sheep	809536
Goat	9786354
Pigs	1160035
Fowl	47959239
Duck	375975

**Figure 3:** (Statistical, 2013)

### **Uses in Canada:**

There are many uses of electrical fencing in Canada that support the livelihood of livestock and crops. One use is that it simplifies the management of an effective and productive grazing system (OMAFRA, 2013). The fact that it is portable and easy to erect it minimizes labour and time which allows for selecting and implementing grazing pastures more frequently. Another use of electric fencing in Canada is protecting livestock from predators. Electric fences are an important component of any predator control program (OMAFRA, 2010). Electric fences can be an effective source at deterring coyotes from attacking livestock (OMAFRA, 2010). Electrical net fences are a good way to deter many coyotes from entering pastures and the higher the fences discourages coyotes from jumping over (OMAFRA, 2010). In Canada these fence used for protection of crops from elk and deer, temporary and permanent confinements for livestock, organizing livestock from age and size, selective pasture grazing and protect livestock from predators.

### **Manufacturing Information of the Product:**

Based on a phone interview with an employee of Gallagher Canada named Terry Cole (2015) it was confirmed where the Smart Fence and S17 are manufactured. It was concluded that

the Smart Fence and S17 are designed and built in New Zealand and then shipped to the Owen Sound location for distribution in Ontario.

Based on a phone interview with an employee of Woodstream corporation named Denise (2015) it was confirmed where the Portable Electric Netting for Goats and the Energizer are manufactured. It was concluded that the Portable electric netting and Energizer are designed and built in the US.

### **Canadian Benefits of Exporting to Nepal:**

Canadian benefits consist of creating new jobs and opportunities for Canadians because it opens up new markets for our world-class exporters around the world. Also, we know that as trade increases, so does our nation's prosperity, which creates jobs and puts more money into the pockets of hard-working Canadians (Canadian Economy, 2015). There are very few direct benefits to Canada due to the fact these products are manufactured in different countries. Indirect benefits to Canada include Canadian sales representatives that could create a trade agreement through the company of choice and the Nepalese government to benefit all participators and contributors.

### **Part II: Export Potential to Nepal**

#### **Description of Nepal:**

The following information is based on Tejendra Chapagain's lecture. Nepal is a country located in Asia between China and India and is home of 8 of the 14 highest peaks in the world. Nepal has a population of 28 million people with more than 70% of the population employed by the agriculture sector. The agro-ecological regions are divided into three regions based on altitude, crop and livestock productions. The mountain region makes up 35% of Nepal, the hills region makes up 42% of Nepal and the terai region makes up 23% of Nepal (Chapagain, 2015).

The following paragraph is based on the information collected from the FAO website. On April 25 2015 an earthquake struck central Nepal resulting in huge devastations across 14 districts. Over 6,000 people died in the earthquake with hundreds of thousands of people becoming homeless from the disaster (Five Things, 2015). Also more than 130,033 houses have been destroyed according to the UN (Nepal Quake, 2015). 80% of the households in Nepal own livestock and contribute to a portion of the household's income. Animal losses due to the earthquake resulted in 16% loss for cattle and 36% loss in poultry. The animals that survived are at risk due to lack of shelter and feed. The most urgent need for livestock is shelter followed by feed, medicine and vaccinations, and water. Restocking of livestock will become necessary after the population health and homes are reestablished (Nepal, 2015).

The fact that 80% of households in Nepal own livestock and that the earthquake has destroyed a lot of their homes it would be beneficial to export electric fences to help livestock reestablish new homes and create new organized breeding projects. Also realizing that the people of Nepal use 99% less electricity than Canada, solar paneled electrical fences are perfect to help create new homes for livestock (Chapagain, 2015).

### **Description of the income sources of Nepal:**

The following information was obtained from the Poverty, Livestock and Household Typologies in Nepal article (Maltsoglou, 2004). Nepal remains a country that relies on agriculture as a main source of income. Figure 4 displays the percentage of income in each region. It is concluded that the people who live in the mountains, rural hills and the rural terai heavily depend on income from farming. The total population of Nepal has roughly a 50% income that is from farming. Income that is raised from farming includes crops, livestock sales and purchases, livestock production, net-revenue from agriculture assets, net agriculture land and

rent and foregone income from home production. The people of Nepal depend on agriculture as a source of cash income and food production this style of living can be improved with modern technology.

Region	Farm	Wages	Rent	Enterprise	Other
Mountains	71.2	7.6	10.8	4	6.4
Rural Hills	64.9	10.7	8.3	6.3	9.8
Rural Terai	60.8	13.2	7.8	11	7.2
Other					
Urban	17.8	25.6	24.1	23.1	9.4
Katmandu	6.5	36.8	21.9	28.7	6.1
Total	52.7	15.6	15.6	11.9	8.1

**Figure 4:** The percentage of income for different regions of Nepal (Maltsoglou, 2004).

### **Transportation Logistics to Nepal from Canada:**

Due to such a high cost of the product, in order to make this feasible to the people of Nepal outside support is necessary to cut cost on product and transportation. Canada offers great opportunities for local civil society organizations and other institutions working at the local level (Governments, 2015). The Canada Fund for Local Initiatives will only approve assistance to Nepal if the organization being shipped to is registered under the social welfare council act (Government, 2015). But there are many supportive groups in Canada that would jump at the opportunity to help with the costs and transportation of this product in order to create green sustainable living arrangements for the people of Nepal. Without assistance the route that was chosen to ship to Nepal is using UPS services which is not the cheapest route but a rough idea of the shipment costs for a 250 Kit Combos. Ups will pick up the product from the distributor in Canada and air freight it to the post office in Central Nepal. It will take roughly one day to ship to Nepal at a price ranging from 17,000-18,000 Canadian dollars. These figures were obtained from the UPS website and are a rough estimate of the transportation cost (Canada, 2015). If no

outside help is acquired this will be an impractical product to export due to the high costs of shipping and the product.

### **Needs and Benefits to Nepal:**

In Nepal the agriculture industry has a lot of room to grow and adapt to modern technology. With an ever growing population the requirements for food and water is always a challenge to be met especially in the third world countries. Nepal is a growing country that deserves the help of all nations in order to grow and contribute in the modern world. Portable solar paneled electrical fencing can work wonders for Nepal through increasing the livestock's welfare and creating more time for farmers. This portable system can be used anywhere in Nepal from the mountain region all the way to the city in Kathmandu. Since the majority of dependence on agriculture is in the Mountains (Figure 4) those are the people who would benefit the most from this technology. This technology is self sufficient and harnesses the power of the sun so no electricity or outside inputs are required for its operation. Also due to its portability farmers that live nomadic lifestyles would greatly benefit from this product. This product can also help the people living in the mountains to stop attacks from the snow leopard. The snow leopards diet consisted of 42% of livestock from a study conducted in 2002-2003 (Wegge, 2011). This amounted to 15.1% of the livestock population (Wegge, 2011). An electrical fence can implement the security of both predator and prey resulting in a safer environment for livestock. This will help secure the income from the people who are affected in the mountain regions and help protect the snow leopard from angry farmers.

### **Animal Welfare:**

The advantages of using electrical fencing are immense from reducing our carbon footprint to securing the health and safety of livestock. It is a great alternative from the

traditional barbed wire fencing and woven wire. Livestock greatly benefit from using electrical fencing since the electrical fence is an amazing deterrent of predators of all sizes (Zareba, 2015). Animals will have little to no injuries compared to other fencing where cuts, gouges and scrapes are constantly occurring.

### **Livestock Transitioning:**

Transitioning livestock to electrical fencing is very simple it not only creates a physical barrier but a mental barrier as well (Electric, 2015). This physiological barrier is created when an animal touches the live wire and completes the circuit resulting in a short sharp but safe shock (Electric, 2015). Since the shock is quick the animal recognizes the pain and associates the pain with the touching of the fence resulting in respect for the fence. In order to train the livestock to an electric fence it is recommended to place a charged wire inside the barnyard fence and leave the livestock there to learn about electric fencing (Farm, 2015). Due to this shock a sturdy wall is not needed to keep in even the most aggressive animals. As long as the electric current running through the wire is set at the recommendation level, the animal that is being housed will always respect the fence. After one or two shocks the livestock become aware and accustomed to the electrical fence and avoid it at all costs. The recommended voltage to keep predators at bay is 5000 volts and is only recommended after the livestock has been trained (Benefits of Electric Fencing, 2015).

### **Environmental Benefits:**

The use of solar paneled electrical fencing is a great alternative to housing livestock. It protects them from predators resulting in fewer encounters and less deaths. This contributes to the survival rate of wildlife reducing humans trying to protect their livestock from killing certain predators. Also harnessing the power of the sun reduces the global carbon footprint that has been

exponentially growing since the industrial revolution (Benefits, 2015). In today's society global warming is a phenomenon that has drastically been increasing with the use of electricity and CO<sub>2</sub> (Perry, 2008). The globe can benefit from any technology that helps reduce our carbon footprint. "The agriculture sector contributes significantly to global carbon emissions from diverse sources such as product and machinery manufacture, transport of materials and direct and indirect soil greenhouse gas emissions" (Hiller, 2009). Electricity usage in Nepal has been steadily rising since the 70's (Electric Power, 2011). Since there is very little electricity in Nepal this would help create a society that leads away from the dependence of burning natural gases to produce electricity. The reduction of burning natural gases reduces the amount of greenhouse gases released in the atmosphere which contributes to global warming.

### **Challenges:**

One of the main challenges in exporting this product from Canada to Nepal is why not ship right from the manufacturer and reduce transportation and product costs. Also if the Canadian government refuses to assist in the exporting of this product it will be extremely high priced where only the wealthiest of farmers in Nepal can afford. This product would also be very difficult to reach the people in the mountain region with reduced pricing. There is little competition in the market for these two products since they are the leading companies in solar paneled electrical fencing in the world (Grounding, 2015).

### **Conclusion:**

This paper has critically analyzed solar paneled fencing and the benefits it has on Canada and Nepal. Exporting from Canada is one way to go about helping the people of Nepal, but due to high costs there could be a better alternative. These products are only imported to Canada from outside countries resulting in more expensive transportation cost. But exporting from

Canada can have its benefits depending on how the government can help with reducing cost and supporting this idea through government grants. The fact that this product is a green source of energy it would be wise to promote this product in third world countries to help avoid the dependence on the burning of natural gasses.

People of Nepal are in dire need of help, not only did the earthquake set them back but the lack of technology is impeding the growth in the agricultural sector. The earthquake has resulted in not only taking away peoples house making them homeless but also destroyed the homes of many animals. That's why solar paneled electric fencing is a great idea to help support the people and animals of Nepal. Helping Nepal would only benefit the world from having another contributing country to the developing world. Since Nepal is one of the poorest countries in the world (Rural, 2015) it would greatly benefit from all the support it can obtain including the resources that can harness the power of the sun. Green technology is a great source of energy and can help the modern world reduce its dependence on the burning of natural gases for electricity.

**WORD COUNT: 3131**

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