Analysis of Export to Nepal:

Lallemand Inc. Nutritional Yeast

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This paper analyzes the export of a Canadian company's nutritional yeast product to Nepal. This could benefit Canada and Nepal in economic, physical and social ways. There are two sections that evaluate the potential of this venture. The first section describes nutritional yeast and the proposed Canadian provider. The second section highlights the opportunities and challenges of the export of this product to Nepal. It looks at the physiological need for such a product in Nepal, costs, distribution and marketing methods, and possible competition. The conclusion will suggest areas of further exploration to improve its potential.

Section 1: Nutritional yeast and its Canadian supplier, Lallemand, Inc.

a) Yeast: brief description and background

Yeast microorganisms belong to the eukaryotic domain and fungus kingdom (Maheshwari, Dubey, & Saravaranmuthu, 2010). Despite their microscopic size, 1,500 species of these single-cell organisms have been identified to date (Maheshwari et al., 2010). Yeast reproduces very rapidly asexually through budding, in which the organism, including its nucleus, splits to form a daughter cell (Yeasts, 2011).

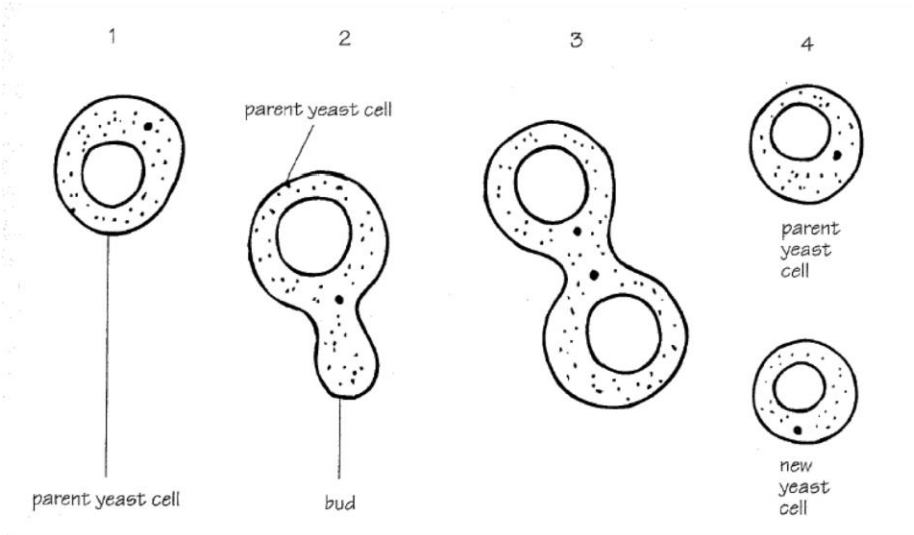

Figure 1: Budding - asexual reproduction process of yeast cells. (Yash, 2014).

As far back as ancient Egypt, the properties of these microbes has been utilized in baking and brewing. The knowledge of yeast as living did not arise until the late nineteenth century with this discovery made by microbiologist Louis Pasteur (Maheshwari et al., 2010). In its early use, yeast would have seemed magical, able to increase the quantity of food through leavening, and change taste through fermentation.

More recently in history, yeast has not only been identified as a leavening and fermenting agent in food processing, but also as a nutritious product. During WWI, the German army was supplied with a variety of yeast for its high protein content (Maheshwari et al., 2010; Yeasts, 2011). Further nutritional benefits of yeast have been discovered. It is now broadly marketed for taste, texture, and nutrition.

b) Yeast: production and inputs

Yeast is well suited to industrial production. Like the larger organisms that people are most likely to associate with the agri-food industry, yeast mass growth is dependent on factors of its physical environment, for example energy sources, nutrients and temperature. Successful production requires a sugar-rich substrate, like sugar beet molasses, for energy (Bio-Lallemand, n.d.; Yeasts, 2011). In fact, the name *Saccharomyces*, which is the most common genus of yeasts in industry, translates to ‘sugar-loving mold’ (San Francisco Baking Institute, 2003).

In the early ages of its utilization, it was up to individuals to will wild yeasts in the environment to inhabit their foods, but now yeast is produced under very controlled conditions in sterile lab environments (SFBI, 2003). Seasonality does not come into play in the production of yeast. Rather, the indoor environment is regulated by computers and the yeasts are housed in increasingly larger vats of mixtures of water, sugar and nutrients

as the yeast mass grows. The optimal growth rate temperature is 30 to 35 degrees Celsius, depending on the level of aeration of the yeast culture (Merritt, 1965; Vanoni, Vai, & Frascotti, 1984). In ideal conditions, the exponential growth of budding can lead to a mass increase by nearly ten million times in 10 days (SFBI, 2003). After the desired yeast mass concentration has been reached, the yeast mass is harvested from its liquid surroundings (Yeasts, 2011). It can be sold on the market in cream form, compressed or, more commonly, dried on large roller drums (L. Valk, personal communication, October 28, 2015; Yeasts, 2011).

c) Focus on nutritional yeast and its market

A popular form of yeast consumed for health purposes today is nutritional yeast. Nutritional yeast is a form of the species *Saccharomyces cerevisiae* (Yeasts, 2011). The method of production is what distinguishes this form from other forms of *Saccharomyces cerevisiae,* like baker's yeast. Nutritional yeast is marketed for, as its name suggests, nutritional benefits, as well as gastronomic applications.

Yeasts are primarily known for their role in leavening bread or fermenting alcohol. Nutritional yeast is different from these forms because, after sufficient reproduction, it is deactivated. Deactivation kills the organisms while maintaining high nutrient content (L. Valk, personal communication, October 28, 2015). Containing protein, all essential amino acids, fibre and a variety of minerals and B-vitamins, nutritional yeast is very nutrient-dense (Bio-Lallemand, n.d.). Due to increasing interest in nutritional yeast for its macro- and micronutrient content, producers often grow nutritional yeast in enriched media, enabling the yeast to metabolize the nutrients as they grow, resulting in the nutrients to be present in the matrix of the yeast themselves when

they are harvested (L. Valk, personal communication, October 28 2015). This is different from conventional fortification, which involves the mechanical addition of nutrients. The alternative to conventional fortification may increase the proportion of the consumed nutrient that actually takes part in body functions, a measurement known as bioavailability (Bioavailability of Lallemand Vitamin Rich Nutritional Yeast, n.d.) A 2012 study comparing bioavailability of the vitamin thiamine (B1) in the company Lallemand Inc.'s nutritional yeast verses a synthetic B1 blend shows that the former form of B1 was bioavailable in greater amounts and for a longer period of time in the rat subjects (Bioavailability, n.d.; L. Valk, personal communication, November 19, 2015).

The particular levels of nutrients in nutritional yeast varies according to the production environment. Each company that produces nutritional yeast can manipulate the presence of particular nutrients during the growing process. For this evaluation, the company Lallemand Inc.'s "Vegevita" version of their Engevita brand nutritional yeasts will be used as a nutritional reference. The levels of some significant nutrients in 100 grams of Vegevita is provided in Table 1.

Table 1: Nutritional profile of Engevita brand Vegevita powder by Lallemand Inc.
(Typical values per 100 grams)

Protein	51 g
Thiamine (B1)	45 mg
Riboflavin (B2)	18 mg
Pyridoxine (B6)	34 mg
Folic acid (B9)	4400 mcg
Cobalamin (B12)	44 mcg

(Technical Data Sheet: Engevita Vegevita Powder, 2014)

Aside from its health benefits, the yellow flaked or powdered nutritional yeast (Figure 1) has practical and gastronomic advantages. Similar to its yeast counterparts that make bread rise, nutritional yeast can change the eating experience. Its taste is described

as cheesy and nutty (L. Valk, personal communication, October 28, 2015). It creates the perception of saltiness and enhances the overall flavour of dishes without the addition of salt (Bio-Lallemand, n.d.). Its chemical properties improve the Maillard reaction and dissolves to create creamy textured sauces (Bio-Lallemand, n.d.). Nutritional yeast has the ability to greatly change the flavour, texture and appearance of a dish in a time shorter than to rise a loaf of bread.

Figure 2: Nutritional yeast in flaked form (Harwood, 2015)

d) Lallemand Inc.: past and present

The Canadian company Lallemand Inc. was founded in 1915 in Montreal, Quebec by immigrant Fred Lallemand (Canadean, 2014; Lallemand's History, n.d.). Initially, the Montreal plant only imported baker's yeast, but the expertise and technology was established to begin baker's yeast production during the Second World War (Lallemand's History, n.d.). Since then, products have expanded to include bio-fertilizers, feed ingredients, and inactive yeasts such as nutritional yeast, among others (Canadean, 2014).

The company has also *geographically* expanded past Montreal. Today, Lallemand Inc. has over 2800 employees working in 36 countries across 5 continents (Careers at Lallemand, n.d.). The research, development, and marketing of the diverse biological products created by Lallemand are organized under 5 major divisions, one of which is Bio-Ingredients (Canadean, 2014). Bio-Ingredients is responsible for the production of inactive yeasts, like nutritional yeast, and yeast extracts and derivatives (Corporate Profile, n.d.). While Bio-Ingredients remains administered in Montreal, production of inactive yeasts has occurred in Salutaguse, Estonia (see Figure 2), since 1994 under the brand Engevita (Corporate Profile, n.d.; Salutaguse Yeast Factory, n.d.). The Salutaguse yeast factory is the largest facility in the world fully dedicated to the production of inactive dry yeasts (Salutaguse Yeast Factory, n.d.).

Figure 3: Lallemand Inc.'s Salutaguse Yeast Factory is located in Estonia, northern Europe (Google Maps, 2015a)

e) Environmental considerations of Lallemand Inc. in nutritional yeast production

Participation in the green movement by businesses is becoming increasingly important to customers (Vandermerwe & Oliff, 1990). Lallemand Inc. has taken steps to decrease their environmental footprint in their production plants and strives to make further improvements in sustainability in the future. Waste water that remains in the large fermentation vats used as the growth medium for the yeast masses is evaporated and biologically polished to make it appropriate in cleaning factory equipment (Salutaguse Goes Green, n.d.). Various nutrients, like minerals and carbohydrates, that are not consumed by the yeast during production are also utilized after evaporation of the water. These components are gathered and sold as feed and fertilizer for the agriculture sector. Steam boilers that provide warm environments favoured by the multiplying yeast are powered by the biogas by-product of the fermentation of the yeast of past production (Salutaguse Goes Green, n.d.). Lallemand has taken on a variety of initiatives to maximize the use of resources and by-products.

f) General market opportunity and potential benefits to Canada

Due to its essential amino acid and B-vitamin content, a major component of this product's market are vegetarians and vegans, who consume little or no animal products, which are well-known sources of the mentioned nutrients (Ruscigno, 2013). In affluent societies like Canada, nutritional yeast holds a niche market with plant-based consumers, but in societies where plant-based diets are the norm this nutrient-dense food product could hold a broader market. In developing countries like Nepal, animal-product consumption is very low relative to that of industrialized countries like Canada, at 12.6% verses 27.9% of total calories respectively (FAO, 2003). Figure 2 shows that while the

discrepancy in animal product consumption is decreasing, there will still be a major difference by 2030.

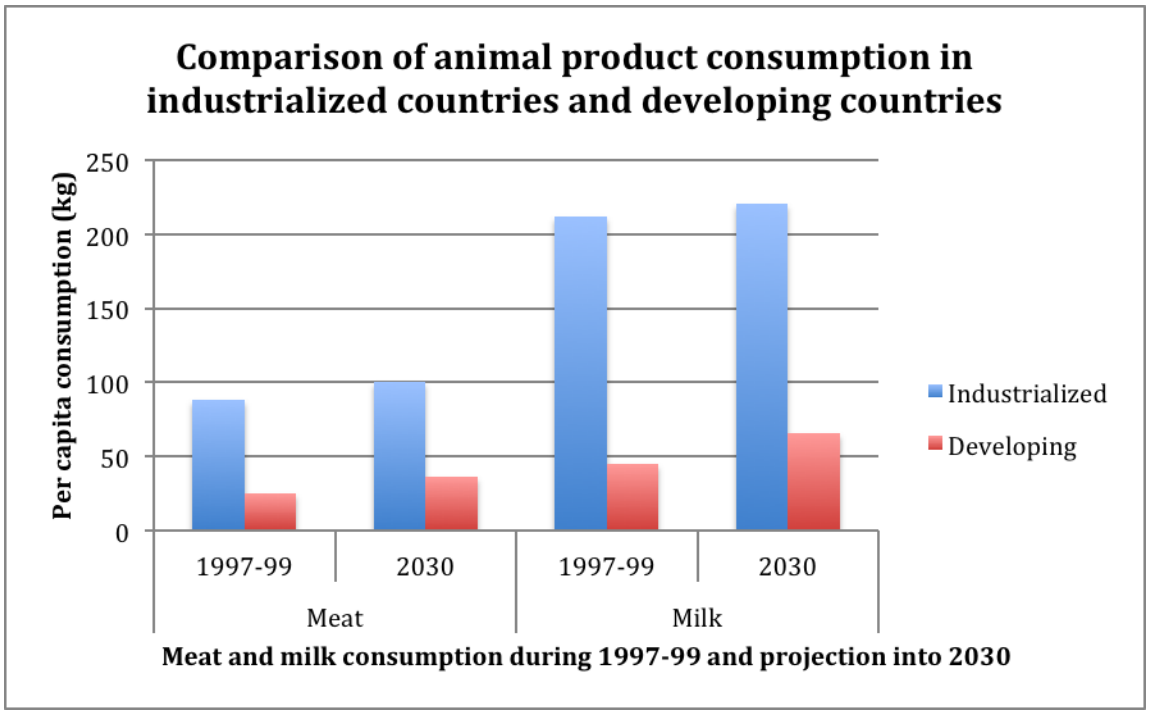

Figure 4: Compilation of animal product comparison in industrialized and developing countries. Created from information compiled from (FAO, 2003).

The export of Lallemand Inc.'s Vegevita nutritional yeast to Nepal would benefit Canada in several ways. As a Canadian company, Lallemand Inc.'s revenue in the selling of the product would stimulate the Canadian economy. This venture would also create jobs in Lallemand Inc.'s administration offices located in Montreal. The norms of international trade dictate that the importing party, which is Lallemand Inc. in its Estonia location, is responsible for the product shipment to Nepal (N.R. Dahal, personal communication, November 19, 2015). The shipment process would include opening a letter of credit with an international bank, so the importer is able to pay for duties and customs. Finally, upon arrival at its destination, trade documentation for the nutritional yeast would need to be completed by Lallemand Inc. (N.R. Dahal, personal

communication, November 19, 2015). For greatest benefit, this product would require regular consumption, and thus regular importation; therefore, jobs regarding organizing the export would be long-term.

This venture could also benefit Canada by developing a spot on the world business stage for Canadian companies and perhaps opening further business opportunities with Nepal or other countries. Doing business with a low-resource country would portray Lallemand Inc. as socially responsible. As a major Canadian company, this image would likely be projected onto Canada as a whole.

Part 2: Export potential of Lallemand Inc.'s nutritional yeast product to Nepal

a) A look at the potential importing nation: Nepal

The potential importing nation of this venture is the South Asian country of Nepal. Sandwiched between China and India, Nepal is completely landlocked (Pariyar, 2008). Its area is 147,181 sq. km and its population is 31,551,305 (CIA, 2015b). Despite its small size, Nepal contains diverse geography and climate. In the mountainous northern Himalayan region, Nepal houses 8 of the world's 10 highest peaks, the highest being Mount Everest at 8,850 metres above sea level (CIA, 2015b; Pariyar, 2008). In the roughly 200 km north-south distance between borders, the geography transitions from rugged mountains to the southern Terai plains (Pariyar, 2008). The resulting climates are cool summers and sub zero winters in the mountains, while in the plains summer temperatures that can exceed 37 degrees Celsius and winters that rarely drop below 7 degrees (Nepal Tourism Board, n.d.).

Over 53% of Nepal's population is 25 years old or younger, while under 27% of Canada's population is in this age bracket (CIA, 2015a; CIA, 2015b). Urban/rural living

in Nepal is roughly 20/80, which is the inverse dwelling distribution of Canada (CIA, 2015a; CIA, 2015b). The life expectancy in Nepal is about 14 years younger in Nepal than in Canada (CIA, 2015a; CIA, 2015b). Twenty-four percent of the countries' total population lives on less than $1.00 per day (FAO, 2010). Of Nepal's 74 districts, 42 districts are considered food insecure based on local production and 48% of rural Nepalese children are underweight (OCHA, 2008; Schulze et al., 2014). These realities make it easy to comprehend that Nepal's population faces a major challenge in accessing sufficient nutritious food for healthy lifestyles.

b) Micronutrient situation in Nepal

Whether or not people consume sufficient calories to carry out their day, they may be lacking necessary micronutrients to maintain their functioning. Micronutrient deficiencies are the hidden hunger of malnutrition because their manifestations are often not detected until the conditions are severe, perhaps irreversible (Bandhari & Banjara, 2014). Ohno et al. (1997) discovered that a Terai region sample population consumed enough dietary energy through boiled rice, but iron, zinc and Vitamin A deficiencies were present. In the Terai, Parajuli, Umezaki & Watanabe (2012) found that riboflavin (B2) intake was less than 50% of the recommended daily amount. Some impacts of low micronutrient intake include anemia, rickets, birth defects, and reduced intellectual capacity. Even when energy needs are met, decreased societal productivity due to micronutrient deficiencies in Nepal results in a 2-3% GDP loss per year (World Bank, 2012).

In Nepal, the diet consists mainly of maize, supplemented by rice, tubers, barley and bread (Bhandari & Banjara, 2014; FAO, 2010). Micronutrient-rich foods including

meat, milk, fruits, and vegetables are lacking in the average Nepali diet (Bandhari & Banjara, 2014). This is due to inaccessibility at multiple levels. In the household, food distribution is influenced by gender, resulting in females receiving less than males, making women, particularly pregnant women, nearly as vulnerable to micronutrient deficiency as growing children (Bhandari & Banjara, 2015; FAO, 2014). Population inaccessibility to food due to costs is also a major issue. As mentioned already, a quarter of Nepal's population lives on less than $1.00 per day. When it comes to feeding the family, priority would be to supply sufficient quantity of food for one's family over the nutritional quality of the food. Subsistence agriculture is depended upon by 80% of Nepal's population, making seasonality a big factor in how much and what kind of food they consume throughout the year (IFAD, 2013).

c) Potential benefits of nutritional yeast export to Nepal

Nutritional yeast could be beneficial for the Nepal population by providing a nutrient-dense food source. There have been only a few studies on the B-vitamin intake of Nepal's population. A 1968 study by Brown et al. revealed that B1 and niacin (B3) were consumed adequately because they are present in whole grains, while B2 intake was below recommendation. Jiang et al. (2005) reported that 33, 40, 12 and 28% of pregnant women were deficient in B2, Pyridoxine (B6), folic acid/folate (B9) and cobalamin (B12) vitamins respectively. For children aged 6 to 8 years of age, 43, 6, and 18% are deficient in vitamins B6, B9, and B12 respectively (Schulze et al., 2014).

Due to the high content of these vitamins in Lallemand's Vegevita nutritional yeast, this product has the potential to reduce the prevalence of these deficiencies if distributed effectively. Table 3 lays out the B-vitamins, their corresponding content in Vegevita, the recommended daily intake of the nutrient for children and pregnant women, and the effects of their deficiency.

Table 3	National Institutes of Health RDIs*			Vegevita content per 100 g**	Deficiency effect***
Vitamin	4-8 years	9-13 years	Pregnant		
Riboflavin (B2)	0.6mg	0.9 mg	1.4 mg	18 mg	Dermatitis, fatigue, impaired iron absorption
Pyridoxine (B6)	0.6mg	1.0 mg	1.9 mg	34 mg	Convulsions, neurological disorders
Folic Acid (B9)	200 mcg	300 mcg	600 mcg	4400 mcg	Neural tube disorder and other birth defects, megaloblastic anemia
Cobalamin (B12)	1.2 mcg	1.8 mcg	2.6 mcg	44 mcg	Megaloblastic anemia

*(Institute of Medicine, 1998)
**(Bio-Lallemand, n.d.)
***(Bandhari & Banjara, 2014)

A consideration to be made is if 100% of recommended daily intake is intended to be met by the nutritional yeast or just a portion to fill the discrepancy left by the average diet. No matter the amount consumed, all of these vitamins will be taken up by deficient bodies in some capacity and contribute to reducing likelihood of disorders that range from distracting skin rashes to deadly birth defects.

An additional benefit that could lend itself to the marketing of this product to the Nepalese people is its storage requirements. Unlike many food products containing B-vitamins (e.g. meat, dairy, vegetables), nutritional yeast does not require cool

temperatures or refrigeration to prevent spoilage. As long as the yeast is kept dry and in a sealed container, its shelf life is up to 3 years (Bio-Lallemand, n.d.). This is beneficial to Nepali people because 34% of the population does not have electricity and a much greater percentage would not have refrigeration due to its high energy requirements (World Bank, 2015). Due to its flavour-enhancing abilities, nutritional yeast could also be marketed as a method of adding some interesting flavours and textures to an otherwise homogenous diet.

c) Product cost

An obstacle to this venture is the cost of the product. The cost per kilogram of Lallemand Inc.'s nutritional yeast varies according to the total weight purchased. At 1,000 kg, the cost is 7,000 euros, which translates to about $10,000 CAD, or $1 CAD per 100 g. Table 4 lays out the cost to supply a single pregnant women or children ages 4-8 with 100% recommended daily intake of vitamins B2, B6, B9, or B12.

Table 4: Comprehensible cost breakdown for pregnant women and children to receive 100% B-vitamin RDIs

	Vegevita Content in 100g*	Pregnant Women RDI**	Children 4-8 years RDI**	Cost($)/pregnant woman/day	Cost($)/child/day
Riboflavin (B2)	18 mg	1.4 mg	0.6 mg	0.077	0.033
Pyridoxine (B6)	34 mg	1.9 mg	0.6 mg	0.056	0.018
Folic Acid (B9)	4400 mcg	600 mcg	200 mcg	0.136	0.045
Cobalamin (B12)	44 mcg	2.6 mcg	1.2 mcg	0.059	0.027

*(Bio-Lallemand, n.d.)
**(Institute of Medicine, 1998)

At under 3 and 6 cents per day to supply a pregnant woman and child respectively with their recommended daily intake of B12 may seem like very little; however, it must be taken into consideration that one quarter of the population lives on less than $1 per

day. From this perspective, the cost suddenly becomes much greater. On average 2.24 children are born to each woman in Nepal (CIA, 2015). If a household has three children and a pregnant mother, this would mean spending about 15% of the family's budget on the product, which is not meant to replace any part of a meal; rather, it is to supplement. Unfortunately, this cost would take away from the purchase of other foodstuff in a society where every calorie counts.

c) Transportation

Transportation will add further cost to this venture. Lallemand Inc. ships their products around the world with the freight company DSV (L. Valk, personal communication, November 16, 2015). If 400 kg of nutritional yeast is distributed, the product would be shipped from the Estonian warehouse on one FIN with dimensions of 1.0 m x 1.2 m (L. Valk, personal communication, November 16, 2015). If the per kilogram price is the same for 400 kg as it is for 1000 kg, the product cost would be about $4,000 CAD. The package would be shipped by sea freight, likely from Port Noblessner at the city of Tallinn, Estonia, of which the yeast factory is located just south (Salutaguse Yeast Factory, n.d.; Sea Distances, n.d.). The most likely shipping route would take the sea freighter through the Gibraltar strait and the Suez Canal, a distance of just over 9,000 nautical miles (Sea Distances, n.d.). The length of sea travel from Europe to the Kolkata port of eastern India takes at least one month (N.R. Dahal, personal communication, November 19, 2015).

Currently, the World Bank is in the process of completing the Nepal-India Regional Trade and Transport Project, with plans to finish in 2019 (World Bank, 2015). The project aims to improve infrastructure and border management along the corridor

between Kolkata and Kathmandu. If the project is successful, road transport from Kolkata to Kathmandu will take 8 days, including 1.5 days at the Raxaul (India)-Burgunj (Nepal) border post (World Bank, 2015). Upon arrival in Kathmandu, the decided Nepal-based distributors (possible distributors are explored in "Partnerships and marketing strategies") will look after the division of the bulk product and further distribute it to rural areas of Nepal.

Estimated costs, according to Intercargo (2015), for transportation from Tallinn, Estonia to Kolkata, India is 754 euros. This is equivalent to about $1,100 CAD. This estimate demonstrates the increase in overall costs of this venture when just a portion of transportation is considered, making the price nearly three times the cost of the product itself.

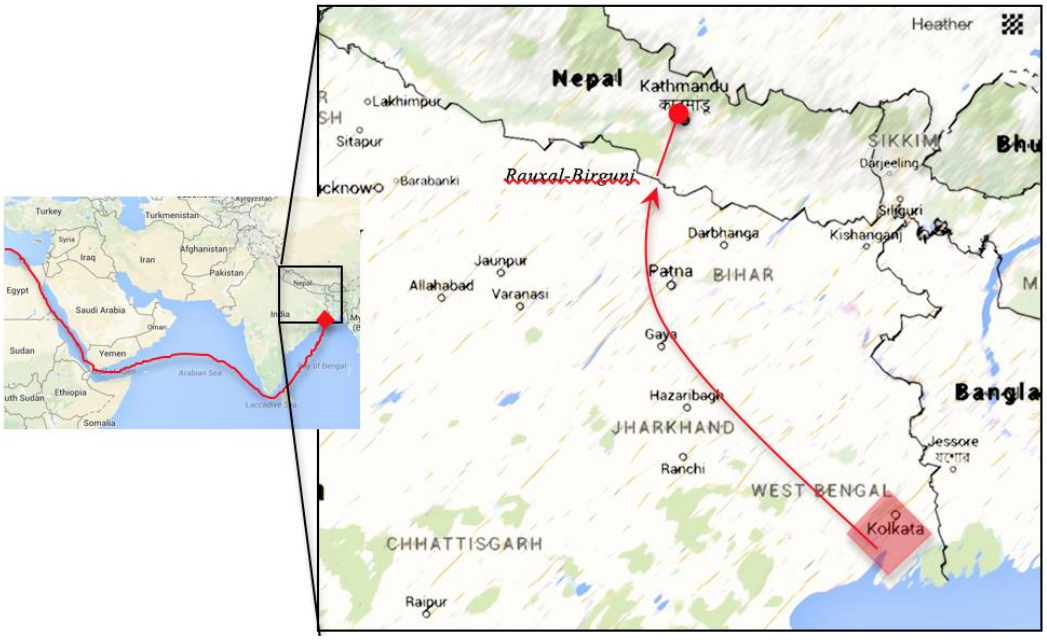

Figure 5: Estimated transportation route with focus on India-to-Nepal shipping. (Google Maps, 2015b), (Google Maps, 2015c).

d) Partnerships

Because this product's main marketing strategy would be to emphasize its nutritional benefits, Lallemand Inc. would want to seek help of groups that are aware of the communities who are in greatest need of the nutrient supplementation. These partners could include the Canadian organization Micronutrient Initiative or Nepal's Female Community Health Volunteers.

Ottawa-based organization Micronutrient Initiative (MI) has a branch that runs out of Kathmandu and performs bi-annual vitamin A tablet distribution across Nepali communities and promotes markets for iodized salt and folate-fortified flour (Vitamin A, n.d.; Nepal, n.d.). MI seeks private sector partners with proficiency in global supply management, quality production, packaging and delivery (Partners, n.d.). Lallemand Inc. would be a good match. The advantage of working with this organization is that the Nepal branch could play the role of the buyer in this venture, easing the burden of cost on the average Nepalese family.

There is currently no government policies to support B-vitamin supplementation, outside of B9, due to lack of nation-wide studies on these nutrients; however, in 2016, the MI will receive information on the prevalence of B12 deficiencies from the Nepal National Micronutrient Status Survey (K. Noor, personal communication, November 19, 2015). This highlights an obstacle: if nutritional yeast is distributed under a medical context, permission from the Nepali government must be obtained. Likely, a distribution proposal would have to be submitted and accepted by the government. If research shows that various B-vitamins are beneficial, there is the possibility that nutritional yeast will be desired in the near future, and it seems that this organization would be a committed partner.

Nepal's own Female Community Health Volunteers (FCHVs) could also be valuable partners at a smaller scale. The FCHV program began in 1988 and today has over 48,000 females across all 74 districts as lay health workers (USAID, 2007). The FCHVs are managed by Nepal's Ministry of Health and Population and play a key role in handing out vitamin A tablets, immunization and deworming clinics, and neonatal education (USAID, 2007). As members of the communities themselves, FCHVs would hold unique knowledge of who is in greatest need of nutritional yeast supplementation, as well as be ideal communicators of the recommended intake, overall benefits, and applications of the nutritional yeast.

f) International competition

No other Canadian producer of nutritional yeast has been identified, but if a need for B-vitamin supplementation is established within Nepal, the major competition for the import of nutritional yeast would likely be B-vitamin supplementation in tablet form rather than another company's nutritional yeast. There is a large multi-vitamin market in the world, and Alibaba.com is a source of producers in countries neighbouring Nepal. Chinese company Goldfield, for example, sells its product "Vitamin B family VB tablets" over the trading website (Goldfield, n.d.). The tablet components are laid out in Table 5.

Table 5: B-vitamin content of Goldfield brand Vitamin B family VB tablets, per tablet

Vitamin	Content
Riboflavin (B2)	0.5 – 1.2 mg
Pyridoxine (B6)	0.4 – 1.0 mg
Cobalamin (B12)	0.7 – 1.3 mcg

(Goldfield, n.d.)

The minimum purchase is 100 cartons at $2.10 to $3.20 US per carton. Each carton contains sixty 600 mg tablets. This makes each tablet cost (using average cost of

carton at $2.65) just over $0.04. This price is comparable to the base price of a single "dose" of nutritional yeast. Transportation costs are not known for Vitamin B family VB tablets, but seeing as the product is coming from neighbouring China it would likely be significantly cheaper. Shipping time would also likely be much shorter than the month-long trip from Estonia, which would be an appealing aspect to buyers.

Ways in which Lallemand Inc.'s nutritional yeast product is superior to Goldfield's is that Vegevita contains B9, an essential vitamin in natal health, and already recognized as important in fortification. B9 content is not indicated by Goldfield on Alibaba.com. As well, the range in the vitamin content of the Goldfield product suggest an inconsistency in production, perhaps due to poor regulation. Lallemand Inc. is an internationally-known company held to high standards and is more experienced. Goldfield was established only in 2001 (Goldfield, n.d.). While Goldfield's product costs are comparable and transportation costs would likely be less expensive, Lallemand Inc.'s notability may make it a more reliable business partner.

g) Conclusion

Further analysis of the export of Canadian company Lallemand Inc.'s nutritional yeast to Nepal would be worthwhile. Research has shown that Nepal's population is facing significant micronutrient deficiencies and this is having a measurable impact on the economy through their disabling effect on the body. Currently, cost stands to be the major obstacle to making this venture active. This cost is exacerbated by the fact that this product is not self-sustainable by the people of Nepal after an initial import; rather, it must be imported regularly to maintain a constant supply. This would be an advantage to the Canadian company, but this would hurt the Nepali people because they would have to

make regular payments. Further thought should be made as to the distribution and storage of this product in the communities. If it is distributed in large amounts to families, air-tight containers should also be handed out, to ensure safe keeping. It must be remembered that Nepali people often do not have what Canadian consider the simplest resources, like plastic containers. Any company looking to do business in a developing country like Nepal needs to be prepared to provide every resource involved in such a project. Container purchase would add further investment by Nepal's buyers. There is the possibility that costs could be eased by an organization like Micronutrient Initiative. Alternatively, if near-future research shows that B-vitamin supplementation is a worthy investment in the country's health and economy, this may draw in government support.

Through the research process for this export idea, it is clear that there are many opportunities for developing the relationship between Canada and Nepal. This project reveals the complexity of a seemingly simple idea and the importance of building strong international relations. Not only are a Canadian company and Nepali buyer involved, but potentially also compassionate organizations and local volunteers (see Table 4 for contact information). Each of these groups operates at a different scale, but each has different capabilities to make this venture possible and combat the hidden hunger of micronutrient deficiency.

Table 3: Information of personally-contacted employees of companies/groups of potential involvement

Company	Name	Position	Information
Lallemand Inc.	Lauri Valk	Sales Representative, Lallemand Bio-Ingredients	Phone: +372 555 83 147
			Email: lvalk@lallemand.com
			Lallemand Bio-Ingredients Salutaguse Pärmitehas A.S. Salutaguse 79745 Estonia
Micronutrient Initiative	Dr. Noor Khan, MD	Senior Technical Advisor Food Fortification & USI	Phone: +1 613 690-6840
			Email: MI@micronutrient.org
			Micronutrient Initiative Ottawa, Ontario K2P 2K3 Canada
Consulate of the Republic of Estonia in Nepal	Nava Raj Dahal	Honorary Consul of the Republic of Estonia to Nepal	Phone: +977-1-443 6900
			Email: navaconsulest@gmail.com
			P.O. Box: 25728, Tridevi Marg, Thamel Kathmandu, Nepal

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