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GINGER AND GINGER PRODUCTS FROM NEPAL

MARKET ANALYSIS AND MARKET ENTRY STRATEGY
IN FOUR SELECTED MARKETS



Imprint

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SCOPE OF THE STUDY

The Nepal Trade Integration Strategy (NTIS) by the Government of Nepal (GoN) aims to strengthen the capacity of the Ginger sector. The Nepali-German Trade Promotion Programme (TPP) aims to improve the implementation of the revised Nepal Trade Integration Strategy (NTIS) and is implemented under the guidance of the Nepalese Ministry of Commerce (MoC). On behalf of German Federal Ministry for Economic Cooperation and Development (BMZ), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH supports MoC to execute the programme. The programme, covers three areas of action:

- (i) Implementation of the trade strategy
- (ii) Improving the trade-related environment
- (iii) Strengthening the export potential in selected value chains.

Area (iii) of the Programme concentrates on international marketing, improving product quality, establishing international market linkages to strengthen the export potential of the companies in the ginger value chain.

Ginger is a High Value Crop (HVC). It is estimated that 1.2 million people (4.3% of the Nepali population) grow ginger all over Nepal, especially in the Eastern and Western regions. Nepal is the 4th largest producers of fresh ginger in the world of which the largest part is for the domestic market and all exported ginger is destined mainly for India.

Being a priority product of NTIS 2016 export potential sector, the programme aims to facilitate the trade related capacity of the ginger sector of Nepal. Therefore, an in-depth study- "Product diversification and development of strategy as per market requirement" was needed. It was expected that the purpose of this assignment will be the base for generating income for ginger farmers, traders, exporters and cooperatives to decrease their dependency on the Indian export market.

The objective of this market study is to identify four diversified ginger products in Nepal and their market entry strategies and market requirements for four selected markets.

- **Develop a competitive positioning** for Nepalese ginger products to increase their quality.
- **Show diversity in ginger products** in addition to the traditionally produced limited value added varieties.
- **Make the Ginger sector more export-oriented** based on future growth prospects, access requirements and technical standards for Nepalese ginger products.
- **Identify market segments for diversified ginger products** by segmentation of some specific identified potential markets/niches on the basis of their market requirements and demand.

The selection of the markets was done during a focus group discussion that was held on the 19 March 2017 where the proposal for the market study and for ginger product diversification was presented.

Markets: The UAE, Japan, India and Bangladesh were the most desired markets among the stakeholders and companies. Japan is the largest ginger market by value, the UAE is a fast growing market. India and Bangladesh are both fast growing markets that are geographically close to Nepal.

Products: The priority products were fresh ginger, dried ginger, ginger pickles, ginger candy and ginger essential oils/oleoresins for the following reasons:

- **Ginger Fresh:** With improvement in cleaning, grading and sorting, packaging, it will be ready to export and may face lesser SPS (Sanitary and Phytosanitary) measures from the selected importing markets.
- **Dried Ginger:** Nepalese traders have received demand of dried Ginger from different international markets.



Recently, during a visit to Dubai, with support from GIZ, traders have received order for one container of fresh and one container for dried ginger (whole and slice).

- **Pickles:** Ginger pickle processing is simple and can be done at cooperative level. No additives are needed for preservation and ginger pickled are easily consumed in the domestic and Indian market.
- **Ginger Candy:** The Asian ginger market is growing. Ginger candy is popular in Asian countries such as Japan and Bangladesh. Ginger candy is also consumed in domestic market.
- **Ginger essential oils/oleoresins:** Both have many applications in food, drink, fragrance (natural cosmetics) and herbal/traditional medicines (aromatherapy). Although more research was needed to find out the suitable ginger variety for ginger oil distillation.

The study gives recommendations to comply with the strict market access requirements and develop options to access the four selected markets. This was done by analysing retail sales developments in three key market segments - *flavour, fragrance, herbal/traditional* – and further analysing the main product categories in the processing industries where ginger is likely to be used. The key market segments are divided into the following categories and products:

Flavour segment

- **Fresh / Healthy** e.g. starchy roots, breakfast cereals.
- **Herbs & Spices.**
- **Sauces** e.g. cooking sauces, barbecue sauces, fish sauces, chili sauces, salad dressings, pickled products.
- **Confectionery** e.g. chocolate tablets, boxed chocolate assortments, boiled sweets, pastilles, chews.
- **Bakery** e.g. cakes, pastries, baked goods, dessert mixes.
- **Biscuits** e.g. plain biscuits, filled biscuits, cookies, snack bars, dried fruit.
- **Hot drinks** e.g. tea (black or green), natural health (herbal) teas.
- **Cold drinks** e.g. sports/energy drinks, natural health juices, ready to drink teas.

Fragrance segment

- **Beauty and Personal care products** e.g. hair care, skin care, bath and shower gels, aftershave, perfumes.

Herbal / Traditional segment

- **Ayurvedic medicines.**
- **Natural medicines** (topical analgesics, digestive remedies, cough-cold-allergy, dietary supplements).
- **Aromatherapy.**

For each of these product categories it is indicated in which form ginger is mostly used which could be for example in fresh, dried, crystalized form or in the form of ginger oil.

The study also provides relevance on:

- How to enter these markets with the best opportunities for the selected ginger products from Nepal.
- How to comply with market access requirements in the UAE, Japan, India and Bangladesh, recommend how to enter these markets by indicating main importing companies in each country.
- Giving the best recommendations for a Global market access strategy for Nepali companies and suggest how to move forward to reinforce the ginger sector in Nepal in a sustainable manner with the support of governmental institutions, trade associations and NGOs.

Main topics in the strategic part of the study, covered in Chapter 6, which were discussed during the validation workshop on 27 August 2017 with the stakeholders include:

- Current situation of the Ginger sector in Nepal.
- Choosing the best segments/product categories markets for Nepali exporters based on retail sales development for 2021 for each of these categories and the possible ginger products that can be processed and exported in the simplest way for Nepalese companies.
- How to comply with market access requirements (legislative, quality and voluntary).
- How to jointly apply for Organic Labelling (e.g. by organic growers group).
- Improving the competitiveness of Nepal in the ginger export markets.
- Recommended strategy to make the ginger sector in Nepal export-ready to the benefits of all actors in the value chain to encourage collaboration on all levels and to attract foreign companies for sustainable sourcing to gain more security in supplies, fair prices and know-how sharing between farmers, cooperatives, exporters, government, NGOs and other stakeholders.
- Enhancing the marketing skills by companies and cooperatives by taking a more customer oriented approach by using marketing mix (product, price, distribution and promotion strategy).

Methodology for the study

Extensive desk research was conducted where all available secondary source information was accessed. A thorough search was made using official statistics (ITC,

Eurostat), research databases, market reports - including from Euromonitor, Samarth, ANSAB, FAO, trade press, trade associations/web portals, company information sources, governmental and non-governmental trade information as well as other information via the internet.

Field research was done in Abu Dhabi through discussions with various wholesalers at the Aka Al Mina Fruit & Vegetable market and several store checks in November 2016.

Limitations

The scope of this study is primarily on the development and potential in exports markets in terms of significance (market size), key segments and market opportunities. The current situation of the ginger sector in Nepal is reviewed and technical issues like the best processing machines (recommended capacity) for Nepalese companies or details about policy making were not requested in the ToR. However, some recommendations are given in Chapter 6.4.2 and 6.5.1.

The market study gives recommendations to comply with the strict market access requirements and develop options to access the UAE, Indian, Japanese and Bangladeshi markets. This was done by analysing retail sales developments in three key market segments - flavour, fragrance, herbal/traditional – and further analysing the main product categories in the processing industries where ginger is likely to be used.



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I sincerely appreciated the spirit of cooperation and openness of all.

It has been a great challenge to make this study and having more insight in the complex but very interesting world of ginger and ginger processing. I sincerely hope that this market study will be a good reference tool for all stakeholders and will contribute to further development of the export-readiness ginger sector in Nepal.

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EXECUTIVE SUMMARY

PRODUCT AND COUNTRIES

This market study covers fresh ginger (*Zingiber officinale* Roscoe) and ginger products such as dried ginger, powdered ginger, pickled ginger, ginger candy and ginger essential oils and oleoresins.

The covered markets in this study are: United Arab Emirates (UAE), Japan, India and Bangladesh.

GLOBAL SCENARIO

Global demand. Ginger was increasingly recognised as a tasty spice in Asian cuisine and became more popular all over the world. Besides, scientific studies revealed the healthy properties of ginger.

This resulted in an increased use of fresh ginger in e.g. stir fry dishes, sauces, dressings or (hot) drinks in Asian and Western markets. Food and beverage processors used ginger as a healthy ingredient, as a taste enhancer, flavouring agent and as a substitute for sugar. World imports of fresh ginger increased between 2012 and 2016 from 417 to 636 tonnes. Imports of dried ginger, ginger oil or oleoresin and powdered ginger rose as well, although ginger powder is increasingly processed locally.

Global production of ginger was estimated at 2.3 million tonnes in 2015 with large increases in India and China which together accounted for 54% of world production. Most of India's production (790,000 tonnes) was for the domestic market. In 2015, Nepal produced 242,000 tonnes and was the 4th largest ginger producer in the world of which a large part of ginger is for the domestic market. Other producing countries such as Nigeria, Indonesia, Thailand, Vietnam, Myanmar or Peru are serious competitors for Nepal in export markets. Most countries managed to control rhizome rot, invested in processing equipment, trainings and increase their exports of fresh and dried ginger.

Dominance of China. In 2016, China exported 521,220 tonnes of fresh ginger and accounted for 73% of world exports, while India's share was just 2.2%, being slightly below Nepal (2.8%). China produces large ginger rhizomes in greenhouses and produces dried ginger on a large-scale, which implies less taste than the ginger from India or Nepal. But, Chinese exporters can deliver ginger throughout the year by sea with very short lead times using storage in cooling cells and cooling chains for transport.

Chinese influence on prices. The Chinese usually offer low prices to penetrate new markets. In 2013 and 2014, expansion of planting areas led to an oversupply of Chinese ginger which set the global ginger price level more under pressure. This discouraged Indian farmers who invested in leasing land.

Exports from Nepal are currently small. Almost all exported ginger is fresh and goes to India, while smaller quantities of bleached, dried ginger (*sutho*) and powdered ginger went to India as well.

More than 200,000 families are involved in the production of ginger. Most farmers are women with many being poor and illiterate. They prefer to sell quickly to traders in order to get fast cash. Small-sized farmers struggle with uncertainty (no market guarantee), rhizome rot, no washing facilities, poor storage, lack of quality seeds and being pressurized by traders. There are around 40 companies engaged in ginger exports. They are mainly operating in the mid-western and eastern regions.

OPPORTUNITIES IN THE SELECTED MARKETS

The best opportunities for ginger and ginger products from Nepal are in three key segments: *Flavour* (sauces, confectionery, baked goods, biscuits, snack bars, healthy/

fresh food, hot and cold drinks), *Fragrance* (Beauty and Personal Care products) and *Herbal/Traditional medicines*.

JAPAN imported almost three times as much more fresh ginger than India in 2016 and is the world's largest ginger importing country by value. Fresh ginger, pickled ginger and dried ginger are an essential ingredient and side dish in the traditional Japanese cuisine that mainly uses myoga ginger.

Japan produced 59,000 tonnes in 2016 of which 75% was for the domestic market, while 64,000 tonnes of ginger (mainly fresh or ginger preserved in salt or brine) came from its main trading partner China.

Key segments. Japan is by far the largest market in each key segment. Despite the declining population, the flavour segment in Japan will grow by +0.6% reaching US\$ 63,668 million by 2021. International cuisines (Indian, Mexican), stir-fry dishes, Nabe (hot pot) dishes are popular among young Japanese and tourists. Dried ginger, ginger powder or ginger oil from Nepal could be interesting to Japanese processors of dry savoury sauces. There are opportunities for dark chocolate with ginger as a healthy energy boost for elderly people or as a gift (Valentine's Day). Dried ginger (cubes), crystallized ginger are in demand by processors of baked goods, snack bars and filled biscuits.

The Olympic Games in 2020 will drive more purchases of healthy food, (FOSHU) drinks and Ready-to-drink teas during the hot summer. Dried ginger, ginger oleoresin and extracts will be in demand.

For Nepalese exporters, it will be very challenging to meet the strict quality and logistical requirements of Japanese buyers. Possibilities should be explored with partners who are willing to invest in sustainability programmes e.g. for Japan-made chocolate using ginger from Nepal.

UNITED ARAB EMIRATES (UAE) was the fastest growing market and imported 49,000 tonnes of fresh ginger in 2015. This was almost twice the imports of fresh ginger by India. Between 2012 and 2015, UAE imports rose by more than three times from 12,175 tonnes in 2012. Re-exports of ginger accounted for almost half and were destined for Sudan, Iran, Saudi Arabia, Oman, other Arab and African countries. In the UAE there is a rising demand of food by consumers and the food service sector because of a fast growing young population and more settlement of Asian families.

The flavour segment is expected to be worth US\$ 2,755 million by 2021. The fast growing categories will be confectionery (+7.1% by 2021), biscuits and snack bars (+5.6%), hot and cold drinks (+5.8%) and sauces (+4.3%).

Nepalese fresh or dried ginger having a strong aroma and health properties could be useful in biscuits, breakfast cereals and snack bars. Besides, crystallized ginger (ginger candy) can be used as a healthier sweetener in products for children in order to reduce the obesity.

In curries and cooking sauces for Asian families, Indian or Nepalese ginger are preferred over the Chinese. Another option is to provide fresh ginger for UAE ginger powder processors. There are also opportunities for ginger oils or oleoresins that could be offered to perfume makers in the UAE.

For Nepalese exporters it will be challenging to compete with China (88% share in ginger supplies in 2015) providing weekly supplies of fresh ginger. Other competing countries include Nigeria and India. Fresh ginger from Nepal is interesting as long as it is fresh and not old looking. To meet delivery times, it would be best to work with an Indian partner to enter the UAE market. She/He can keep fresh ginger in cold storage and make regular shipments combined with onions, garlic or dried fruit.

BANGLADESH was the largest volume importer of ginger in the world (85,000 tonnes of fresh ginger in 2015). The distance from Nepal is short and access requirements are not as strict as in Japan, Europe or USA. This offers good opportunities for Nepalese exporters if they can offer quality ginger that is clean, sorted and well-packed in (new) jute sacks. Bangladesh is still a Least Developed Country and price levels are lower. There is a preference for fresh ginger by importers/wholesalers.

Ginger has its important place in vegetarian and non-vegetarian dishes and is traditionally used in food for widows. The processed food industry is small and most food is still imported. An ageing population will generate demand for more natural medicines – including fresh or dried ginger, ginger tea, ginger candy. Ginger from Nepal for Ayurvedic medicines may attract the Hindu population.

Larger imports of ginger is also due to growing presence of Chinese companies/investors in Bangladesh re-exporting fresh ginger and processing dried ginger for Bangladeshi food processors.

For Nepalese exporters, there are still problems at the Indian border despite the Kakadbhitta-Panitanki-Fulbari-Bangalabandh trade route was opened. There is hope that an agreement between the Nepali and Indian governments will simplify the traffic of goods between Nepal and Bangladesh when making a transit through India.

INDIA is for Nepal still the main market for fresh ginger. India cannot replace by another market. Nepalese exporters can still benefit from the fast growth in India and make Nepalese ginger more known in India as a variety with a reasonable quality that can command reasonable prices. Indian farmers also struggle with rhizome rot. There are de-motivated ginger farmers affected by drought in the South and price falls. This implies more demand for fresh ginger of a reasonable quality.

Main growing key segments are Sauces (+9.7% by 2021), Confectionery (+6.6%), Hot and Cold drinks (+9.1%) and Beauty and Personal Care (+7.0%). Fresh ginger, ginger powder, dried ginger and crystallised ginger will be more in demand. Ginger oils or oleoresins could be offered once Nepalese companies succeed to find the right ginger varieties and offer consistent quality of oils. Otherwise fresh ginger can be exported for oleoresin production by Indian companies.

For Nepalese exporters it will be crucial to identify the right trade partner. Instead of an agent or trader, this should be an importer or wholesaler or processors in India dealing with other developing countries. She/he may be able to advice Nepali exporters how they tackle problems at Indian border.

DIFFICULTIES FOR NEPAL TO OVERCOME

- A weak infrastructure where ginger need to come a long way on foot from remote villages.
- Nepal's landlocked position makes it time-consuming and complex to reach harbours in India.
- Exports are overshadowed by India. Indian traders buy ginger direct at very low prices.
- Little recognition and bad image of ginger from Nepal, despite being the 4th largest producer.
- Poor quality, lack of proper storage leading to product rejection Almost no cold storage facilities.
- Few local processing facilities that limit the potential to realise value from ginger processing.
- High transport costs and transit taxes through districts and at the border for custom clearance.
- Poor coordination between farmers, exporters, government, trade associations and NGOs.
- Farmers have no direct market access and many do not take risks to become entrepreneur.
- Exporters have no clear strategy, act on impulse and there is no joint promotion/branding.
- Sector growth is held back by low trust, cartels and a fragmented business lobby.
- Average prices/ton of Nepalese ginger are the lowest in the world.

RECOMMENDATIONS FOR THE GINGER SECTOR

To overcome the difficulties in cultivating ginger and ginger products for exports, the following steps can be taken:

- Export oriented farmers should be willing to work hard to manage diseases (seed treatment, land preparation etc.) and share with other farmers (farmer-to-farmer approach).
- Show how rhizome rot, fungus and bacteria can be managed, e.g. by using fungicides (Trichoderma, Bacterimycin, Bio-cure), treating seedlings and right post-harvest measures.
- Local trainings and demonstrations with local agro-vets facilitated by seed companies, Nepalese ginger exporters or ginger importers.
- Pest Risk Analysis clarifying risks at various stages of ginger cultivation, processing, storage and transportation with identification of critical control points in order to manage the risk.
- Investments in processing machines (spray washing machine, hot air circulation oven, ginger powder crushing machines) and more distillation units (using the right ginger varieties).
- Investment in proper storage, packaging in new bags (jute or mesh), carton boxes or in aluminium containers (oils).
- Encourage investment by foreign companies e.g. by PPP partnerships. This is a win-win situation as more companies commit themselves to sustainable sourcing strategies.
- A participatory approach on each level between export-oriented farmers, processors, exporters, government and NGOs is a must to upgrade the ginger sector. Larger volumes can be produced. Other advantages are combined shipments, reduced waste of rejected (old) ginger, dealing directly with buyers, logistical issues and problems at the Indian border.

GINGER PRODUCT COVERAGES AND APPLICATIONS



CHAPTER 1

1.1 Ginger varieties and popular types

Ginger (*Zingiber officinale* Roscoe) called ‘Aduwa’ or ‘Suntha’ in Nepali, is a flowering plant stemming from the Zingiberaceae family. The ginger family is cultivated in tropical and sub-tropical countries such as Jamaica, India, South China, Nepal, Indonesia, Japan, Thailand, Sri Lanka, other Asian countries, Africa (Nigeria, Ghana, Ethiopia), Australia and Latin America.

Ginger is an herbaceous perennial that can grow 60 – 90 cm tall bearing narrow green leaves and yellow flowers. Since the first century, ginger was exported to Europe via India.

Its rhizome referred to as ‘ginger root’ or just ‘ginger’ which is recognised as one of the healthiest spices in the world. The ginger root is closely related to turmeric, cardamom and galangal. Even if galangal and ginger look very similar, their taste is different. Galangal has a sharp citrusy, almost piny flavour, while ginger is fresh, pungently spicy, and barely sweet.

Planting is done in April/May during the monsoon rains. Ginger is harvested by digging out the rhizomes when the tops have died down.

Ginger contains vitamins A, C, E and B-complex, magnesium, phosphorus, potassium, silicon, sodium, iron, zinc, calcium and beta-carotene. Its strong and spicy aroma gives a sweet flavour that is warm, peppery and woody. The spicy aroma comes from ketones and gingerols being the main bioactive compound in ginger.

Varieties for Ginger Cultivation

Some important indigenous cultivars are Maran, Kuruppampadi, Ernad, Wayanad, Himachal and Nadia. The China variety is common in most selected markets because of its bold large rhizome, high yield and it is low fibre. The Rio-de-Janeiro variety have also become popular among cultivators because of its high flavour and low fibre. Some of the varieties can be grouped as shown in Table 1.

Table 1. Ginger characteristics and main varieties

Characteristic	Variety
High dry ginger	Maran*, Nadia*, Karakkal, Maran/Lodi*, Valluvanad*
Green ginger	Rio-de-Janeiro*, Wynad local*, China, Tafengiyya and Varadha.
High volatile oil	Sleeve Local, Himachal*, Narasapatlam*
High oleoresin	Ernad, Chernad, China, Rio-de-Janeiro*
Low fibre content	Jamaica, Bangkok and China.

* Cultivated in India



Nepal produces mainly two varieties of ginger: **Nasse** (with fibre) and **Bosse** (with less fibre). It should be noted that the fibre content also depends on the soil and climate. The Bosse variety is preferred as fresh and regarded as premium quality, while the Nasse variety is 'industrial quality' and preferred for (traditional) medicines and to produce ginger powder (Samarth, 2014).

In Panchtar and Tehratum the **Bhainse** variety is also cultivated. Both Bosse and Bhainse varieties are larger in size and are often exported to India. There are 30 commercial ginger varieties that are cultivated in Nepal – more information can be found in 'Nepal Ginger Profile' (Samarth, 2016).

Popular types and uses of cultivated ginger roots

There are broadly four varieties of ginger roots used in food:

- **Yellow**, the most common variety grown most Asian countries and widely sold in groceries and used as a spice or condiment in food, drink and medicines.
- **White**, mainly from China and Nigeria which is milder in taste and contain less fibres.
- **Blue Hawaiian**, which maintains a yellow core and is mild in taste.
- **Baby**, also called green, pink, young, new, stem or spring ginger. They are juicy and fleshy with a very mild taste and often used for the preparation of can dried ginger.
- **Black ginger**, mainly from India (Mizoram) which is small-medium rhizome, strong scent and contains fibres.

1.2 Main uses of Ginger

The industrial use of ginger and ginger products can be subdivided into three industrial segments: Flavour, Herbal/ Traditional medicine and Fragrance as is shown in Figure 1.

FLAVOUR

The global market for flavours has expanded rapidly over the last 60 years because of the population growth and a demand for increasing variety of food products containing flavours (e.g. sweet or savoury sauces) and which can be kept longer. Most applications for ginger can be found in this segment.

In food, ginger is mainly used as a common spice in Asian cuisine, while in the Western cuisine ginger powder is used as a condiment in salad dressings, tomato ketchups, sauces, soups, pickles or sausages. Other popular uses of ginger are in confectionery (sugar and chocolate), bakery products, sweet biscuits, snack bars, fruit bars, jam, jellies or chutneys. In the food and drink industry, ginger is used as a flavouring agent.

In drinks, fresh ginger pieces are soaked in boiling water to make ginger tisane combined with honey to tone down the spicy taste. Sometimes sliced lemon or orange is added. This is common in many Asian countries. Ginger tea, coffee with ginger are other popular hot drinks, while ginger ale, ginger beer and (non-) alcoholic cocktails with ginger remain popular cold drinks.

HERBAL/TRADITIONAL MEDICINE

Companies are certainly interested in herbal medicines with still unknown properties, especially in Western



countries but also in Japan or UAE. However, large companies want proofs of their effectiveness and constant and continued supplies.

Aromatherapy. Linked to the natural trend is the *aromatherapy* market, which has almost doubled in demand for natural ingredients since the 1990s in the Western countries. Despite the regulation about claims for the efficacy of medical treatments, the use of essential oils has revived in recent decades with the aromatherapy, as an alternative medicine in Japan, UAE, India as well as the rising popularity of *nutraceuticals*.

Due to the numerous health benefits of medicinal plants, spices and essential oils, they are increasingly examined for the treatment of a variety of diseases including cancer and many more. Therefore, there are good opportunities for ginger essential oil and oleoresin from Nepal.

In the Indian and Bangladesh markets, ginger has been used for many years in herbal/traditional medicine and is considered as an excellent herb which helps against various types of stomach problems, seasickness, morning sickness, colic, upset stomach, gas, diarrhoea, pains from arthritis, various forms of nausea e.g. caused by chemotherapy, HIV/AIDS treatment or after surgery.

Side effects of ginger include bloating, acid heartburn or allergic reactions of the skin (rashes), particularly if taken

in powdered form. Not chewed fresh ginger may result in intestinal blockage, adversely affect individuals with gallstones or affect heart rhythms and blood pressure.

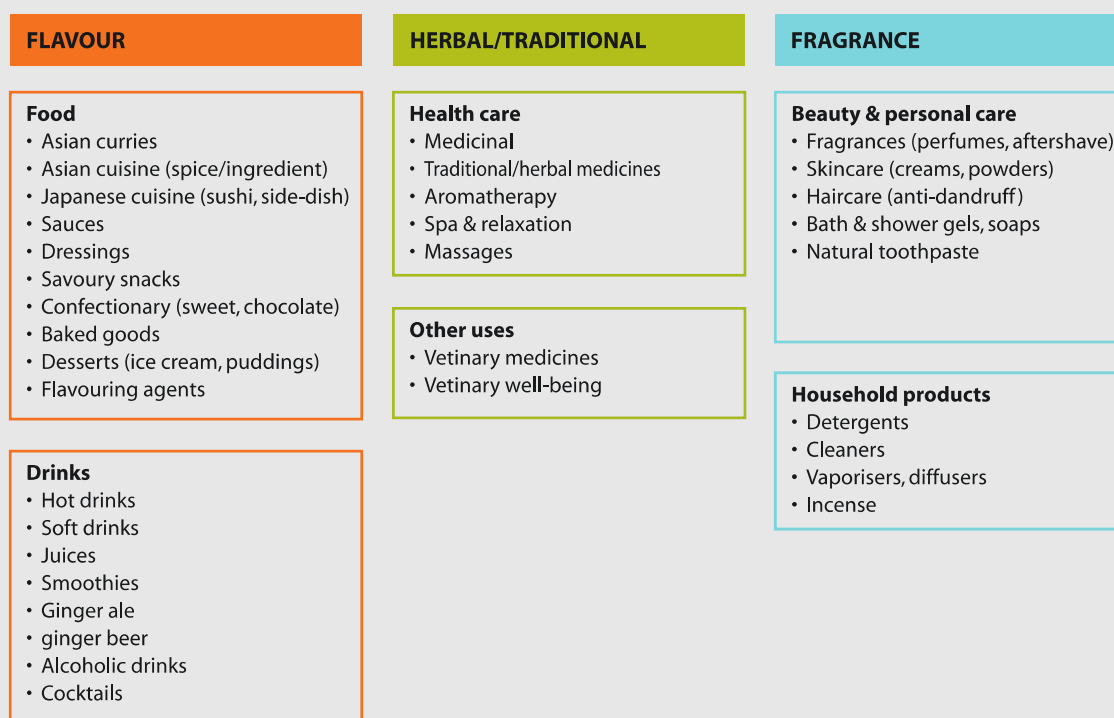
FRAGRANCE

The fragrances industry comprises the segments beauty and personal care and household products as shown in Figure 1. Recently ginger is increasingly used to add a special fragrance e.g. perfumes, skin care (creams, soaps, after-shave), in hair care (shampoos) and as a flavouring in tobacco.

In skin care, traditional uses of fresh ginger, ginger powder or ginger juice include:

- **Anti-ageing.** The antioxidants in ginger increase the blood circulation under the skin, slowing down the ageing process. The skin can become softer and radiant by rubbing ginger on one's skin.
- **Purifying.** Ginger is used to remove toxins from the skin.
- **Cleaning.** Ginger has cleansing agents making the skin smooth. It cleans the blemishes and kills the acne bacteria.
- **Moisturizing.** It helps to moisturize and improve the skin tone. A mask can be made by adding one teaspoon of honey with grated ginger on one's face for 30 minutes.

FIGURE 1: Main industrial uses of ginger and ginger products



Source: FAO, Seance estimates (2017)

- **Healing.** Ginger juice can treat marks and scars on someone's skin or treat burned skins.

Related to hair care, some well-known uses of ginger are:

- **Dandruff.** Ginger is well known against dandruff through its anti-septic properties and reducing a dry scalp in a natural way.
- **Fortifying.** Improve the blood flow on the scalp making hair stronger from the roots preventing hair fall and breakage and it is said that it also stimulates hair growth.
- **Moisturizing.** Function as a natural moisturizer by mixing ginger juice with shampoo making dry hair smooth, shiny and helping to reduce split ends.
- **Removing curls** from the hair which is useful for those people preferring a straight hair style.

1.3 Forms and applications of ginger

Ginger is used in various forms such as fresh, dried, sliced, ground, preserved-salted, pickled crystallised and candied ginger. In its processing, ginger oil is first obtained. Afterwards, the processed ginger is dried, sliced or pulverized to ginger powder used as condiment/ingredient in various consuming industries.

FRESH GINGER

This is the main traded ginger in Nepal. It is collected, sorted and may be peeled before eating. Both mature and immature ginger roots are consumed as a fresh vegetable in cut or chopped form. In the food processing large quantities of fresh ginger are used in the preparation of sauce and pickles.

Storage

Fresh ginger is perishable and if not kept at a cold place after 1-2 weeks the root becomes soft and there is a moist texture. If you see wrinkles, it is already beginning to deteriorate. When not properly stored or kept too long outside, it dries out and rhizomes become more fibrous as well.

Ginger stored in the refrigerator can be kept for 3 – 4 weeks with the peel still on as is shown in Table 2. The best is to place it in a freezer bag (or plastic bag) and press out most of the air.

Storing peeled ginger in a refrigerator is around 1 week. Peeled or grated ginger should be mixed with salt to make a paste and then stored in a sealed plastic container in the refrigerator or freezer. To extend the shelf life, it can be placed in a small glass jar and pour vodka or sherry into the jar to cover it. This way it should keep for several weeks. Once it starts looking cloudy, that indicates mould or bacterial growth and you should discard it.

Fresh Ginger can be frozen to extend its shelf life 3 months or more. The ginger roots can be frozen in either whole form or in a paste-form with salt added. Both options should be wrapped in plastic bag, press out the most of the air, and then store in a freezer safe container. Spread the paste on a sheet of plastic wrap and then roll the wrap so that small quantities can be unfrozen as needed.

The juice from ginger roots is often used as a seasoning in Indian recipes and is a common ingredient in seafood, meat and vegetarian dishes in the Japanese, Chinese, Korean and Vietnamese cuisine.

DRIED GINGER

Dried ginger spice is produced from the mature rhizome, as the flavour and aroma have become much stronger. It is exported, usually in large pieces which are then ground into a spice in the export market where it is used. Dried ginger can be ground and used directly as a spice, but is also can be used for the extraction of ginger oil and ginger oleoresin.

In Nepal, dried ginger is referred to as 'Sutho'. This is the major traditional processed product made out of fresh ginger in whole, sliced or piece form. The pieces are irregular in shape or are small cut pieces with a minimum size of 20mm. The pieces are pale in colour with peel not entirely removed. They are washed and dried in the sun. Afterwards, the ginger roots are put on nets - made of metal wire – and dried over a fire. Some farmers dry the root on the temporary firewood oven built on the open ground.

Better prices for sutho. Before the monsoon season, sutho is made to get better prices (up to 10 times higher than fresh ginger). Besides it can be stored for a longer period of time. The traditional processing of sutho is labour intensive and tedious and farmer basically make it for their own use and only prepare larger quantities when fresh ginger market price is low.

The water content in commercial grades of dried ginger rhizomes varies from 12-20% percent, compared to 68–73% in fresh ginger. This is mentioned to emphasize the importance of drying ginger rhizomes prior to shipment to save freight cost (unnecessary water in fresh ginger), minimize deterioration of ginger and hydrolysis of oil constituents.

Storage: Dried, ground, or crystallized ginger should be stored in a cool dark pantry- ideally in a sealed bag or container. Spices with the moisture removed do not really go bad and can be kept for several months, unless they get wet. However, they lose their potency over time. If the aroma is gone, the flavour is most likely also gone from the dried ginger.

In Nepal, this process is labour intensive and still done on small scale. Since India continues to restrict Nepalese ginger citing pesticides contamination and Indian traders offer rock bottom prices, Nepalese farmers will processing more sutho is expected to rise in the coming years. Sometimes the dried ginger pieces are lime bleached.

For exporting to food processing industries in the UAE, Japan or Europe, dried ginger needs processing in large volumes throughout the year and therefore, ginger peelers and mechanical drying machines (air-dried ovens) will be necessary.

Table 2 Average storage period of ginger and ginger products

	Store room	Fridge	Freezer
Fresh Ginger Root	1-2 Weeks	1 Month	3 Months
Peeled/Chopped Ginger	--	1 Week	--
Ginger Paste	--	1 Month	3 Months
Prepared Jar of Chopped Ginger	2-3 Months (Unopened Only)	2-3 Months	--
Dried Ginger	2-3 Months	2-3 Months	--
Ground Ginger (Powder)	1.5 Years	--	--
Crystallized Ginger lasts for	1.5 - 3 Years	--	--

Source: Searce estimates (2017)



POWDERED GINGER

The dried ginger roots are ground into powder. Fresh ginger can be substituted for ground/powdered ginger at a ratio of six to one. However, the flavours of fresh and dried ground ginger are somewhat different.

In Nepal, the processing of powder is still limited. There is still demand by confectionery and drink processors although much ginger powder is processed by companies in export markets. Still savings can be made on transport costs when exporting powdered ginger. For 1 kg of ginger powder, 6 kg of fresh (or dried) ginger is needed. This means a reduction of transport cost by six times.

Main applications for ginger powder are as a spice for food preparations and in pharmaceuticals for the production of herbal medicines in the treatment of cold fever. In food, powdered ginger is typically used as a spice in Asian cuisine, in confectionery, bakery products, as a flavouring for recipes such as cookies, crackers, cakes, cold drinks (ginger ale and ginger beer) or in food supplements.

PICKLED GINGER

Pickled ginger is prepared from peeling fresh ginger and slice them into paper-thin strips with a (mandolin) slicer. These strips are put into a container with a tight lid combined with a boiled mixture of vinegar, sugar, water and salt. The container is kept in a cool place or in a refrigerator. There are different uses of pickled ginger, as a side dish or tasty snack with drinks amongst others.

Pickled ginger or (chopped) ginger prepared in a jar can be kept 2 – 3 months in a refrigerator or in an unopened jar.

CRYSTALLIZED GINGER / GINGER CANDY

Ginger candy or crystallized ginger, is the root cooked in syrup until it becomes soft. They can be solid candies accompanied by high-grade refined starch, or glutinous rice made of ginger syrup. Ginger candies are promoted by manufacturers for generating heat, cold resistance, promoting metabolism, refreshing, avoid vomiting, strengthening muscles and bones for elderly people or eliminating stomach pain.

Applications by food processors are as a taste enhancer or healthy sweetener in desserts or in the processing of type cakes, fruits salads, yoghurt for ice cream, jam, jelly, chutneys or for sugar confectionery such as liquorice, pastilles, chews or gums.

GINGER ESSENTIAL OIL

Ginger oil is produced by steam distillation, occasionally by water-and-steam distillation of the dried, unpeeled, freshly ground rhizomes of *Zingiber Officinale*. For the production of essential oil, the Nigerian, Chinese,

Jamaican and some of the Indian ginger varieties are the most important.

The yield is approximately 0.25 to 1.2%. The oil has a warm, spicy, aromatic odour; the oil tends to thicken and darken on exposure to air. The oil lacks the pungency of the other derivatives.

Unlike ginger essential oil commonly made in China from dried ginger, in Nepal the essential oil should be distilled from the fresh ginger root. The difference in aroma is like day and night.

In Nepal, dried and fresh ginger roots are used for oil distillation and oleoresin extraction. The Nepalese *Nashe* variety is dry and the ginger roots have a high fibre content. Even if they are chopped up beforehand, there are around 150 kg of fresh ginger roots needed to make 1 kg of essential oil by steam distillation. One distillation batch takes around 20 hours. If ginger Marc as a by-product can be sold, making essential oils from Nepalese ginger could be profitable.

Alternatively, seeds of ginger varieties from China could be used to cultivate ginger roots for making oil. These varieties containing more juice can be cultivated by Nepalese farmers for oil production.

Since the essential oil is located in cells just under the skin, peeling of the rhizome means a loss of essential oil. This could be by unintended removal of oil cells, or by hardening or evaporation of oil caused by exposure of the oil cells to the air.

Ginger essential oil is made in India, China, Nigeria, Jamaica and in all (sub) tropical countries, where ginger grows. A proportion is still made under control of the large Flavour & Fragrance houses which also do the blending and refinements. In Japan, an oil is distilled from locally grown ginger. This oil has a different aroma and is mostly for the domestic market.

The typical odour and flavour of ginger is caused by a mixture of zingerone, shogaols, and gingerols, volatile oils that compose 1-3% of the weight of fresh ginger. Ginger contains up to 3% of a fragrant essential oil whose main constituents are sesquiterpenoids, with (-)-zingiberene as the main component.

6 gingerol - properly as [6]-gingerol - is the active constituent of fresh ginger and causes the major pungent characteristic of ginger.

Applications of Ginger oil

In Food, the main application of the ginger oil is in confectionery, chewing gum, bakery products and beverages. Because of the high concentration of 100% pure

Table 3 Relative importance of ginger oil in food and drinks

Food category	Usual ppm	Max ppm	Food category	Usual ppm	Max ppm
Alcoholic drinks	11.33	14.95	Gelatins, puddings	24.60	37.88
Baked goods	21.78	36.88	Hard candy	17.77	46.14
Chewing gum	32.00	32.00	Meat products	11.47	19.67
Condiments	12.90	21.18	Soft candy	16.36	27.61
Frozen dairy	22.37	29.47	Non-acholic drinks	5.75	10.61

ppm= parts per million

Source: Fenaroli's Flavour Ingredients (2010)

ginger oil, the ppm is relatively low, although the relative importance in some main food categories are given in Table 3.

In Flavour, traces of ginger oil have an interesting effect in strawberry, pineapple, peppermint (modifier), but the most important field by far is that of baked goods: cookies, powder cakes, spice cakes, where pungency is not particularly called for. It seems that ginger nuts are flavoured with ginger oleoresin.

In alcoholic drinks, ginger oil gives interesting twists to the herbaceous types of liquors (such as Benedictine, whisky or rum), while *in soft drinks*, ginger ale is usually flavoured with ginger oleoresin, or with a mix of ginger oleoresin, ginger oil, capsicum oleoresin and sweet orange oil.

In Fragrance, Ginger oil is used in perfumes for its sweet, warm, woody and balsamic-floral odour that relates to the exotic-tropical world. It is also used in men's perfumes, aftershave and in formulations for skin and massage oils. In perfumery, ginger is used in heavy Oriental bases and in a few floral fragrances. The interest in the oil for perfumery use increased thanks to the 'spice-trend' in men's fragrances and in lotions. Ginger oil blends well with bois de rose oil, cedarwood, coriander, coumarin, berizyl acetate, citrus oils, eugenol, ionones, nitromusks, rose de mai absolute, nonanolide and nerol.

The use of ginger oil is also common in anti-dandruff shampoos. They also can be used in incense sticks such as ginger Lily incense or ginger lime candles.

In Aromatherapy, ginger oil is used to support healthy digestion, reducing nausea, antioxidant protection or food flavouring (Asian dishes), in drinks (hot drinks, soft drinks, cocktails), smoothies (blueberry, peaches) or in a room diffuser providing a purifying, refreshing aroma.

Other applications include remedies against irregular and painful menstruation, depression, coughing, constipation, inflammation, arthritis or bad blood circulation. It is used

aromatic e.g. through a diffuser, putting 1 drop behind the ear, on the skin diluted in other oils, 1-2 drops in meals, or sometimes internal diluted with water, oil or honey.

Some examples of usage.

- 2 drops with 8 ounces (0.25 litres) of hot water to relieve digestive upset.
- 1 drop per 1 tablespoon of ground ginger in savoury recipes or in drinks (with moderation).
- 1-2 drops with fractionated coconut oil and rub on addomen area.

Laboratory tests on animals showed that the gingerols increase the movement of the gastrointestinal tract and have analgesic, sedative, anti-fever and antibacterial properties. Gingerols can inhibit growth of ovarian cancer cells. *Other therapeutic properties can be found in Annex 3 of the GIZ market study 'MAPs and Essential oils in the USA'.*

GINGER OLEORESIN

This is produced by solvent extraction of the dried unpeeled rhizome of *Zingiber officinale*, ground to a moderately coarse powder and subsequent removal of the solvent. The solvent is ethyl- ether, acetone, ethyl alcohol or occasionally chlorinated hydrocarbons. It is rarely benzene because this is highly toxic.

Oleoresin can be also obtained by the extraction of powdered dry ginger with suitable organic solvents. The removal of the last few percentages of solvent is a problem. Certain solvents can be removed by the use of small amounts of ethyl alcohol as a "chaser" during the last stages of evaporation. The contents of a container should be thoroughly stirred before the material is weighed for compounding or sale.

Ginger oleoresin has a characteristic odour being warm-spicy, sweet and aromatic-rich that relates to the exotic Asian world. It has the pungent flavour of ginger.

Table 4 Relative importance of ginger oleoresin in food and drinks

Food category	Usual ppm	Max ppm	Food category	Usual ppm	Max ppm
Alcoholic drinks	79.75	99.83	Gelatins, puddings	40.10	45.37
Baked goods	81.19	103.60	Hard candy	40.23	50.00
Condiments	82.53	107.60	Meat products	31.13	62.36
Frozen dairy	32.81	36.81	Soft candy	45.05	61.58
Fruit juice	53.00	203.00	Non-alcoholic drinks	34.05	63.91

ppm= parts per million

Source: Fenaroli's Flavour Ingredients (2010)

The applications in food are similar as for ginger essential oils. However, the rough ppm indications have become higher in drinks. Indications are also higher in baked goods, candies and condiments as is shown in Table 4.

In soft drinks, ginger oleoresin have been used more in the past decades, especially in Ginger Ale.

Ginger oleoresin is frequently adulterated with capsicum oleoresin, whose pungent effect is many times greater. The pungency of ginger oleoresin preparations disappears after treatment with hot alkali, while the pungency of capsicum is not reduced. Capsicum additions to ginger preparations may be prevalent.

Ginger oleoresin could replace the powdered ginger rhizome in Indian curry powder, but it is still custom to prepare the curries from several powdered spices.

In baked goods, ginger cookies can be flavoured with a ginger-lemon combination to add some citric acid along with the flavour. In this case, the pungency of the ginger oleoresin is maintained.

In fragrance, ginger oleoresin is rarely used in perfumery, unless it concerns an alcohol extracted oleoresin. Generally, the oleoresin is poorly solubility in alcohol, it has a dark colour and is incompatible with a number of perfume chemicals. Instead, Ginger Absolutes are used as raw material by some perfume companies.

GINGER ABSOLUTE

Ginger absolute is produced by extraction of the ginger rhizome with hydrocarbon solvents. After evaporation of the solvent, the residue is extracted with alcohol. After chilling and filtration of the alcohol extract, this extract is evaporated under gentle vacuum until the alcohol is removed. The residue is ginger absolute.

It is very important that the natural flavour, pungency and aroma of ginger is maintained. Its uses are similar to those of ginger oleoresin. In perfumes, ginger absolute may present most interesting and surprising notes that are used in high-class lotions and perfumes, after-shaves etc. Ginger absolutes blend well with woody notes (sandalwood, vetiver, patchouli, linalool, olibanum etc.), with floral notes, with animal notes (castoreum, civet, costus, labdanum), and in many types of modern fantasy fragrances.

GINGER AND GINGER PRODUCTS IN THE UNITED ARAB EMIRATES (UAE)



CHAPTER 2

Brief overview



Population

9.4 million; 1.5% growth rate (2017)
Emirati 12%, Other Arab & Iranian 17%,
Asian 62%, other expatriates 8%

- 0-14 years: 20.9%
- 15-24 years: 13.5%
- 25-54 years: 61.3%
- 55-64 years: 3.2%
- 65 years and over: 1.0%



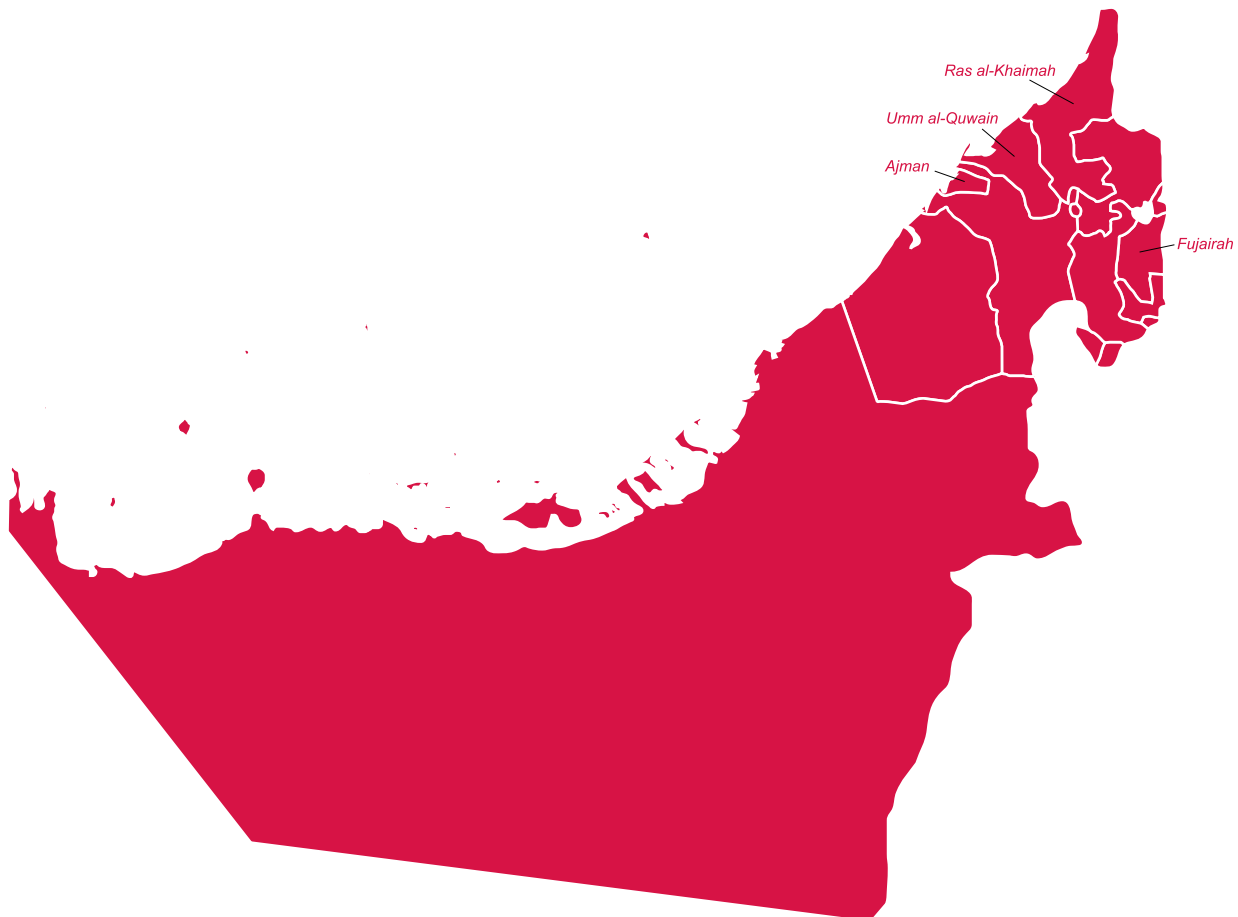
Economy

Disposable income US\$ 28,518
per capita (2016)
Unemployment rate 4.2% (2012)



Social

Women in labour force: 13.1% (2014)
Marriage rate: 2.4 per 1,000 (2012)
Over 90% of population live in urban areas



2.1 Market conditions

The UAE has become the gateway country for the food, spices and a variety of consumer goods to access the wider Gulf region, Middle East and North Africa. Companies come to Dubai in particular and use this as a base from where further expansion is often planned. The UAE is located within an 8 hour flight of two thirds of the world's population and is home to people from over 200 nationalities.

Levels of disposable income grew strongly between 2010 and 2015, driving consumer spending to new levels, with many consumers feeling optimistic about their financial situation. Recent falls in oil and gas prices has dampened this somewhat, but this is seen as a relatively short term issue.

Buying food and cooking at home is expensive for the Asian expatriates, unless it concerns a larger family. Therefore, it is cheaper to dine out or to get food delivered. Dining out is also preferred by business man/women who spend long hours in the office.

Popular cuisines

According to KPMG, the most favoured cuisines are Indian, Lebanese, Chinese and American. Fresh ginger is mostly used in a variety of Indian dishes as well as in Indian (lime) pickles. Like in most Arabic countries, Shawarma and Falafel are popular fast food among Emiratis. Shawarma is sliced chicken or lamb meat rolled in flat bread. Cucumber, vegetables, chillies and crushed garlic are common in pickles for chicken. Lamb meat often comes with tahini paste, onions and tomatoes.

Ramadan

During the holy Ramadan month (May/June), home-made broth made from beef, chicken or fish bones with sea salt and several spices including ginger are popular during fasting days giving people energy and staying hydrated. Green tea with ginger, hot lemon with ginger or non-alcoholic concentrated ginger-lime squashes are popular in this respect as well.

Both of the suhoor and iftar meals during family celebrations in the evening (after sunset) contain fresh fruit, vegetables, dates, halal meats, breads, cheeses, sweets and concentrated juices or powdered beverages.



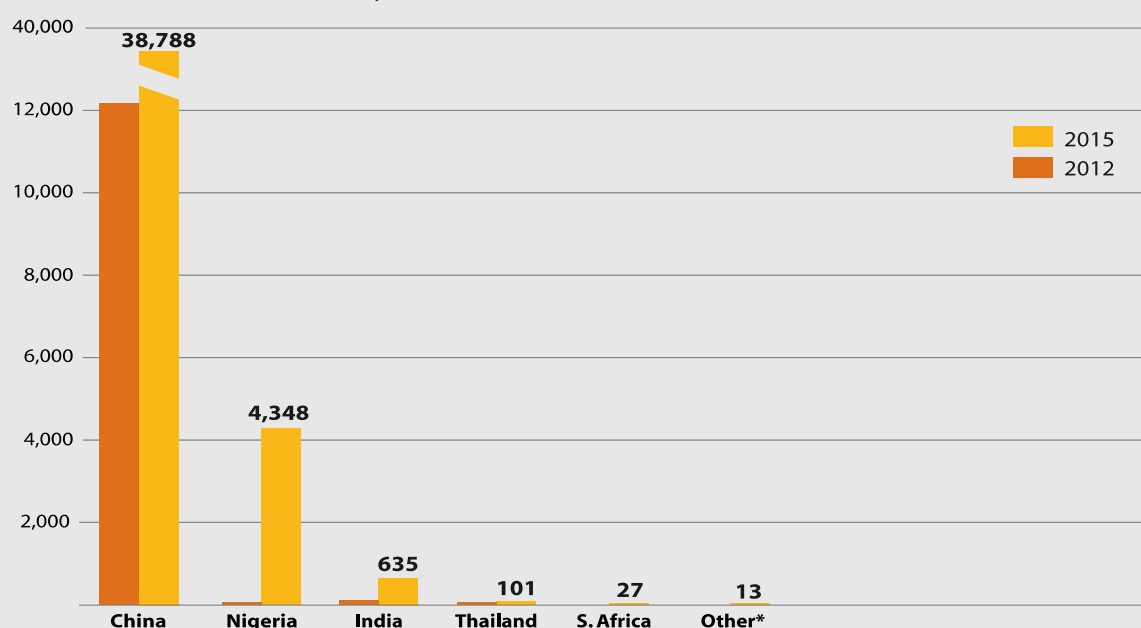
2.1.1 Ginger imports

GINGER FRESH (091011)

Being the gateway and having the logistic infrastructure for trading with other countries, 40-50% of ginger imports (fresh or dried) is re-exported to other countries, particularly Saudi Arabia and other countries in the MENA region – 20 countries with a population of 315 million people. Re-exports are likely grow further along with the young and fast growing populations in Arab and African countries. In this respect, the freshness of imported ginger by the UAE is an important requirement, as it has to go a longer way.

- **Fresh ginger imports have increased by more than three times from 12,175 to 49,913 tonnes** between 2012 and 2015. Growth by value increased by more than six times reaching US\$ 28 million, mainly due to the high world market prices of ginger in 2014/2015. The large volume increases can be attributed to fast rising re-exports of ginger by traders in Dubai and Abu Dhabi to Sudan, Iran, Saudi Arabia, Oman, other Arab and nearby African countries. Another reason was the rising demand by consumers and the food service sector in the Gulf States because a fast growing population.
- **China is by far the largest supplier** and accounted in 2015 for 88% of the UAE volume imports of fresh ginger. The large value increase is also due to higher prices by Chinese suppliers. Between 2012 and 2015, UAE imports rose from 12,011 to 38,788 tonnes – as is shown in Figure 1.
- China usually develops the market by offering low prices, and once they are more settled in the market, they increase their price level. The average value/ton of imported ginger doubled from US\$ 342 to US\$ 776 between 2012 and 2014, although prices are still lower than fresh ginger from other countries. UAE traders regard Chinese ginger as good quality. The rhizomes are large, clean and not fibrous and can be delivered fresh with 1 week by sea, using a cooling chain. This is ideal for re-exports to other countries to prevent a loss on its quality and freshness.
- **Since 2015, Nigerian supplies have grown fast** from 22 to 4,348 tonnes between 2012 and 2015. Nigeria is an important second supplier and accounted in 2015 for 10% of UAE volume imports. Between 2014 and 2015, imports from Nigeria rose continued to rise by 107%. Nigerian ginger is rather new in the UAE market and has been popular because of its size, taste and fibreless rhizomes. The yellow ginger is rated as the best because of its pungency and high level of oleoresin oil, which is the active ingredient most people look for in the ginger processing industry.
- **Imports from other countries were just 2% of UAE volume imports, led by India.** According to the report 'Opportunities for Nepalese ginger in Dubai'

FIGURE 1: **UAE - Ginger fresh (091011), imports by supplying countries**
Volume increased* by 59% from 12,175 to 49,913 tonnes, 2012-2015



* Uganda, USA, Guinea, Japan, Netherlands, Belgium, Indonesia

Source: ITC (2017)

by Samarth, Indian ginger is recognised for its spicier taste and is acceptable for some UAE buyers. However, they found dealings with Indian suppliers too risky. The supply is unstable, qualities are inconsistent and the packaging in jute bags damaged the rhizomes. In addition, the average value/ton was high at US\$ 1,166 in 2014 and even US\$ 2,018 in 2015. Indian fresh ginger supplies dropped by more than half between 2014 and 2015, from 1,253 to 635 tonnes.

- **The average value/ton of fresh ginger** from smaller suppliers such as Thailand and South Africa with both having their fresh ginger exports decreased drastically in 2015, although their supplies to the UAE rose fast between 2012 and 2014 – see Annex 2 - Table 1 for more details.

GINGER POWDERED

- **Imports of ginger crushed or ground (including powder) increased** from 103 to 201 tonnes between 2012 and 2015. By value the increases were higher due to higher prices of ginger on the world market in 2014/2015.

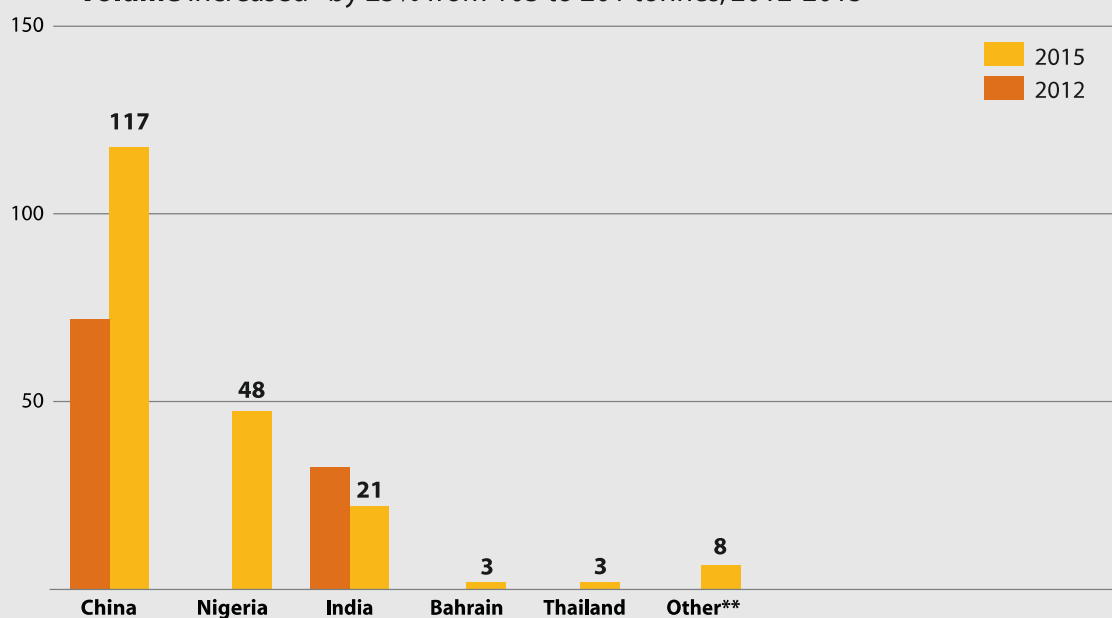
- **Compared to fresh ginger, China's dominance is less here** at 58% of the imported volume in 2015. After substantial rises since 2012, supplies dropped from 427 to 117 tonnes between 2014 and 2015 despite its low value of US\$ 630/ton compared to US\$ 1,460 of imported ginger crushed or ground from Nigeria. Possible reasons are the stronger taste of Nigerian crushed ginger or ginger powder, and increased processing of ginger by local processors and packers e.g. Sabah Food Industries, Cyma Food, Sondos, Arab Gulf Flour mills, Liwagate and others.

- **Supplies from Nigeria started in 2015** accounting for 24% of supplies. The popularity can be partly attributed to the stronger taste.

- Nigeria is followed by India, Bahrain and Thailand.

More details can be found in the report 'Opportunities for Nepalese ginger in Dubai' that can be obtained from Samarth at <http://samarth-nepal.com/portfolio/ginger>

FIGURE 2: UAE - Ginger crushed or ground (091012), imports by supplying countries
Volume increased* by 25% from 103 to 201 tonnes, 2012-2015



* Compound Annual Growth Rate (CAGR)

** UK, Germany, Australia, Pakistan, USA

Source: ITC (2017)

2.1.2 Production

Food processing is developing in the UAE following the growing demand from the food service sector offering a variety of Asian cuisine and taking up the largest part of the UAE food market. Along with the upcoming events like the Dubai 2020 World Expo and 2022 World Cup in Qatar more availability of processed food and spices such as ginger is required. Hypermarkets/supermarkets are part of the newly built shopping centres that need regular supply from local processors or in neighbouring countries such as Saudi Arabia.

Increasing food processing facilities in the region.

There is a large number of Asian fast food chains and casual dining restaurants that require local food processors to use origin food ingredients and spices to meet their purchasing requirements. In Saudi Arabia, the food processing sector has grown from 460 to 732 companies between 2002 and 2012, thanks to various government subsidies to food companies, rising per capita income, and major demographic and socio-economic changes.

A similar development in food processing is likely to happen in the UAE in order to diversify from the oil industry.

Local processors offer reliable and fast deliveries of fresh stocks (daily deliveries are possible avoiding the need for keeping large stocks) and reasonable minimum order requirements. Large number of local catering companies depending on the competitively priced local food products to prepare meals for several million workers from Asia (Indian, Iranian, Nepali, Pakistani, Bangladeshi etc..) working on the construction sites.

Multinationals enticed by attractive investment

conditions to establish production facilities in Saudi Arabia as well as in the Gulf States e.g. Nestle, Unilever, Heinz, American Garden Products. Besides production for the home market, Saudi Arabia currently exports a significant part of its processed food production to all MENA countries. Saudi Arabia imports ginger direct, but also via UAE.

Main players in food and drink processing are given in Chapter 2.3.1.



2.2 Consumption trends

Ginger sales in the UAE. Ginger is called *zanjabil* in Arabic and *gingayu* in other Middle Eastern countries. In 2016, sales of ginger in the UAE was estimated at US\$ 37 million according to the Chinese agency QY Research. Between 2013 and 2016, ginger sales increased by a CAGR of 4.4% compared to US\$ 32 million in 2013. In 2017, value sales are expected to drop because of price decreases of imported ginger from China as well as from India.

According to QYResearch, expectations are positive for 2021 driven by higher quantities sold in the UAE. If prices do not further decrease, a continued growth in value sales is expected reaching US\$ 38 million – as is shown in Figure 3. Because of increased demand for re-exports and the entry of new ginger supplying countries (Indonesia, Thailand, South Africa, Nepal), volume sales increases will be more significant than value sales.

Uses of ginger in the UAE

In the local UAE food service sector, food processing industry and in home cooking, ginger is mainly used to spice up Asian meals, curries, sauces or salads. Other popular uses in the UAE include confectionery, bakery goods, juices and drinks and to some extent beauty and personal care. According to the Samarth report

‘Opportunities for Nepalese ginger in Dubai’, 75% of all ginger is used by the food service sector.

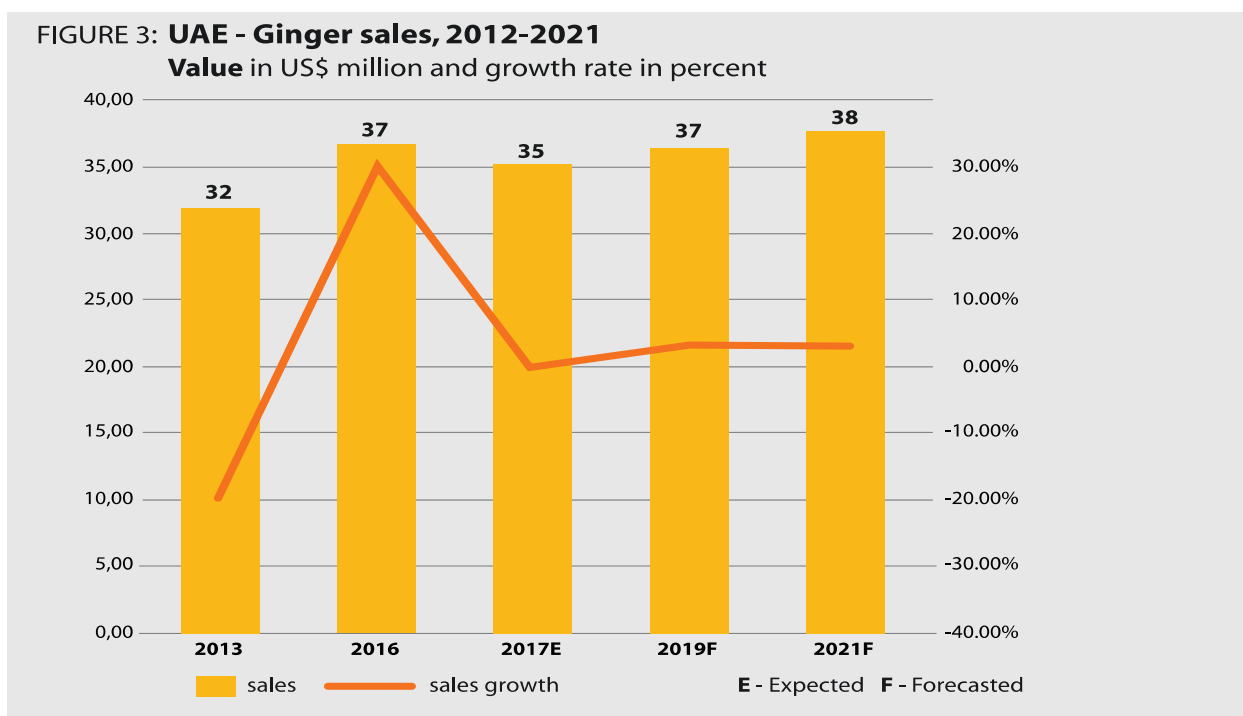
Fresh ginger is generally sold at street markets or direct at wholesalers for sizeable quantities. In grocery stores, super/hypermarkets, ginger can be found raw in fresh, powdered or crystallized form.

Ginger oil is primarily used as a flavouring agent in confectionary and for soft drinks. The ginger is also used for several medicinal purposes, shampoos or perfumes. However, its use is still on a small scale.

RELEVANT TRENDS IN THE UAE MARKET

Some significant trends in the food sector in 2016 that have an impact on the ginger market were:

The popularity of fresh food being fuelled by more expatriates, higher disposable incomes and increasing health awareness among consumers living in the UAE. In addition, Arab and South-Asian workers decided to bring their families to the country and there was more influx of Syrian families. This has led to an increasing demand for freshly cooked food including vegetables and spices (including ginger) from their home country, bought at affordable prices at local street markets, super/hypermarkets and eaten at home.



Source: Experts interview, Secondary sources and QYResearch (2017)

- **Foodservice outlets lost share in 2015**, due to the decline in tourism from Europe, Russia and China mainly because of the low exchange rate with the euro and rouble and visitors staying shorter which is partly due to some increased political tension in the area.
- **Increased focus on Asian and Arab consumers eating in restaurants in hotels** that offer more fresh vegetables and healthy food (using ginger as an ingredient). The EXPO 2020 in Dubai is expected to attract tourists again, particularly from Asia and neighbouring countries. This might lead to an increasing demand for very specific ethnic foods, such as bitter melon, okra, and various pulses, as well as lamb, poultry or Asian dishes (using ginger).

2.3 Market segments and applications

According to the distinction in Chapter 1.2, consumption and use of ginger and ginger products can be subdivided into the following segments:

FLAVOUR | FRAGRANCE | PHARMACEUTICAL

2.3.1 Flavour segment

Flavour industry in Food & Beverages. The global market for flavours in processed food and beverages has expanded rapidly over the last 60 years along with a need for more variety in food, snacks and beverages which are the most important segments for ginger as a spice and food ingredient.

New flavour forecasts. Every season new flavours and mixes (sweet and sour) from different countries are developed according to suggested dishes or snacks by flavour forecasts from the multinational spice processor McCormick which can be downloaded from <https://www.mccormick.com/Flavor-Forecast-2017>

These global forecasts are being followed as well in the UAE with its multi-cultural population and its large food service sector. Other influences or inspirations come from popular cooking programmes.

Selected food segments where fresh, dried, powdered ginger, pickled ginger, ginger candy and ginger oil are likely to be used are:

- Fresh food/Healthy food including herbs & spices
- Sauces, pickled products, dressings
- Biscuits and snack bars
- Confectionery
- Baked goods
- Soft drinks and hot drinks

FRESH FOOD/HEALTHY FOOD

National campaign to reduce obesity. Around 45% of children aged between 11 and 16 year old and 20% of children under the age of 11 are obese, according to the Dubai Health Authority. A national campaign 'Healthy Children 2021' to reduce the obesity level by 12% in 2021 has been launched targeted at schoolchildren, schools



and parents. Restaurants introduced new healthy dishes and healthy appetisers for adults. The behaviour of those children still continuing to eat junk food will be reported to the parents or school.

Promoting a healthy lifestyle by a reward system. A range of lifestyle choices such as smoking, poor diet, obesity, lack of exercise and age are considered to be affecting fertility rates. In order to motivate residents in the UAE, a free gym membership, movie tickets or a shopping voucher are given if they eat salads, sugar-free snacks or walk a few kilometres per day. This reward system which started in 2016 is jointly organised by the Health Authority, companies and the health insurance.

Increasing awareness has led to healthier eating. Health statistics showed that 25% of adults being afflicted with diabetes, with around the same number diagnosed as pre-diabetic. Because of the campaigns aimed at increasing the awareness about the consequences of eating too much meat and junk food, the popularity of fresh vegetables and organic food is rising in the UAE. According to Euromonitor, 103 local organic farms have been certified by the Emirates Authority for Standardisation and Metrology (ESMA) in the UAE cultivating 2,701 organic products in 2015.

The Starchy roots segment (including fresh ginger) shows an increasing trend of 2.8% by volume between 2016 and 2021 - as is shown in Table 1.

Sales of fresh food - including herbs and spices - was US\$ 126 million, and is expected to rise by a CAGR of 9.1% reaching US\$ 161 million by 2021. The increase ratio of herbs and spices, including ginger powder, is high at 4.5% as these key ingredients enhance the taste of an ethnic or healthy dish.

Willing to pay higher prices. Affluent Emiratis and expatriates from the USA and Europe are willing to pay higher prices for certified organic food and that increases with age as they become more health conscious.

The breakfast cereals market is led by multinationals (Kellogg, Nestlé, Weetabix, Quaker, Jordans, Dr. Oetker and many private labels. Marketing campaigns ('staying slim and fit') are primarily focussed on young women, children and to some extent older people. Despite the claims for healthiness, many cereals contain excessive levels of sugar and salt and feature several varieties that contain chocolate. Dried fruit and dried ginger are healthier ingredients that can compensate the sweetness of sugar to some extent.

SAUCES, PICKLED PRODUCTS AND DRESSINGS

In 2016, UAE retail sales of sauces pickled products and dressings was valued at US\$ 714 million, of which 96% were pickled products. This includes all kinds of chutneys e.g. mango chutney combined with ginger or combinations of vinegar, garlic and fresh ginger in Chinese dishes.

The sauces were dominant by volume with Chinese, Indian and Thai sauces most popular because of the majority (62%) of Asian people in the UAE. Nestlé launched Maggi Indian Masala Mix with the tagline 'Authentic Indian Cooking Simplified'.

Ketchup and mayonnaise are large categories and are popular among most nationalities. But as ginger is not used in these sauces, they are not included in Table 2.

Main players in the UAE are 4 multinational processors Heinz, Nestlé, American Garden Products and Unilever taking up almost one third of this segments' retail value sales in 2016. Other companies like IFFCO Group, Basamh Marketing, Gyma Food and McIlhenny Co, accounted each 2 - 3% of the market followed by 20 other (local) companies.

Future sales of the sauces segment will be driven by an ongoing introduction of additional flavours and varieties including ginger flavours. For Asian families, a stronger taste of ginger is likely to be more important than the

Table 1 UAE - Sales of selected Fresh Food and Healthy Food 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Starchy roots	na	na	na	na		216,700	253,000	275,000	281,000	2.8%
Herbs & Spices	12.7	17.0	21.1	23.8	6.9%	542	655	780	870	5.8%
Organic food	13.0	21,6	29,4	33,2	10.5%	na	na	na	na	na
Breakfast cereals	79.2	86.9	99.4	104	4.5%	na	na	na	na	na
TOTAL**	104	126	151	161	9.1%					

* Expected Compound Annual Growth Rate 2016 - 2021

Source: Euromonitor (2017)

Table 2 UAE - Sales of Sauces, Pickled products and Dressings in 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Cooking sauces	2.4	3.2	4	4.3	5.7%	389	477	552	609	5.0%
Pickled products	557	685	780	844	4.3%	38	52	62	67	5.8%
Barbecue sauces	3.8	4.9	6	5.9	3.7%	333	385	427	456	3.5%
Fish sauces	0.3	0.3	0	0.3	-0.5%	78	86	94	105	4.1%
Oyster sauces	0.3	0.3	0	0.3	-0.7%	34	39	41	42	1.5%
Salad dressings	4.9	6.2	8	8.4	5.8%	390	509	592	652	5.0%
Chili sauces	10	13.8	17	20	7.8%	2,154	2,626	3,388	4,009	8.8%
TOTAL	579	714	814	883	4.3%	3,958	4,829	5,936	6,810	7.1%

* Expected Compound Annual Growth Rate 2016 – 2021 Source: Euromonitor (2017)

Note: Ketchup, mayonnaise and mustard are not included

Chinese ginger. The main forms of ginger used for sauces are ginger powder, ginger oil and dried ginger.

BISCUITS AND SNACK BARS

In 2016, the UAE sales of biscuits, dried fruit and snack bars was valued at US\$ 150 million, of which 70% were biscuits. Sales of filled biscuits continues to develop further in the coming year by a CAGR of 7.2% reaching US\$ 62.1 million in 2021 as shown in Table 3. While plain biscuits taking up around 60% of the market by volume, continues to grow along with the growing population, reaching 21,748 tonnes by 2021. An interesting niche market are ginger jam or the Ginger Anti-Nausea Biscuits targeted at pregnant women or nursing mothers. These biscuits contain vitamin Bx and magnesium.

Snack bars are healthy bars containing cereals, granola and dried fruit including ginger. Snack bars are often consumed

by women, sports enthusiasts and busy people. Snack bars can be further divided into cereal bars taking up the largest part in this segment and fruit and nut bars. Some energy bars contain sodium and (saturated) fats, which are not healthy if they are eaten regularly instead of a meal.

Health conscious people, busy business people and sports enthusiasts are willing pay for in-between snack bars that provide greater nutritional value with e.g. added vitamins, potassium, iron, calcium which are found in dried ginger as well. Therefore there are good prospects for snack bars using organic/fair trade ingredients: dried ginger, dried mango, banana, honey, nuts and seeds, to create quality snacks.

Future sales of the biscuits, dried fruit and snack bars segment is expected to be 36,210 tonnes, valued at US\$ 197 million. The volumes sold in this segment are rather

Table 3 UAE - Sales of Biscuits, Dried fruit and Snack bars 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Dried fruit	11.6	15.9	19.4	21.9	6.4%	1,170	1,551	1,847	2,087	6.1%
Snack bars	14.3	20.0	24.0	26.5	5.7%	605	776	947	1,079	6.8%
Plain biscuits	44.0	62.1	71.8	76.1	4.2%	10,884	15,650	19,139	21,748	6.8%
Filled biscuits	28.9	44.3	53.7	62.9	7.2%	4,785	6,634	8,446	9,720	7.9%
Cookies	5.9	7.8	9.2	9.5	3.6%	987	1,198	1,412	1,576	5.6%
TOTAL	105	150	178	197	5.6%	18,431	25,809	31,791	36,210	7.0%

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

Table 4 UAE - Sales of selected Confectionery 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Chocolate Tablets	50.2	77.5	92.6	104.0	6.0%	2,900	4,300	5,300	6,000	7.7%
Boxed Chocolate assortments	48.3	77.8	102.6	117.5	8.6%	1,605	2,207	2,800	3,200	7.0%
Boiled sweets	2.7	4.1	4.6	4.6	3.0%	302	412	433	463	3.7%
Medicated confectionery	2.7	3.2	3.8	4.1	4.7%	103	111	155	168	3.9%
Pastilles, gums, jellies, chews	19.7	27.5	33.8	37.5	6.3%	1,410	1,809	2,200	2455	6.0%
TOTAL	124	190	237	268	7.1%	6,320	8,839	10,888	12,286	6.8%

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

high. Most categories showing high increase ratios following the demand of growing population. The market will be driven by new healthier products with a good taste and giving the necessary energy boost to perform well in a hectic society. The main forms of ginger used in these products include dried ginger, sweet/crystallised ginger, ginger powder, ginger oil and oleoresin.

Main players. According to Euromonitor, the local IFFCO Group is leading the market and took up a 12.5% share and has a long tradition and strong distribution in the UAE offering different brands of sweet biscuits, snack bars and fruit snacks. United Biscuits (McVitie's) and Mondelez (Oreo) are in second and third places with retail value shares of 10% and 9% in 2016. Other larger players include Strategic Food, Loacker AG having each an 8% of the market; Bahlsen, America Group and Gyma Food with an approximate 5% share each, followed by 15 other international and local companies.

CONFECTIONERY

Sales of confectionery was valued at US\$ 190 million, of which 82% was chocolate confectionery taking up the largest part in volume as is shown in Table 4.

Within the chocolate segment, count-lines, chocolate pouches & bags are large categories. However, they are not included in Table 4 because ginger is hardly used in these products.

The market was driven by the ongoing popularity of chocolate among Emiratis, the growing number of children and more variety in smaller packaging (fun-size or on-the-go) and in family sized packs. Families in the UAE are relatively large. The main seasons for chocolate confectionery are around holiday and festival seasons, which are the Eid holidays in particular. Consumption is higher during the winter season.

Boxed chocolate assortments is another growing category where Western expatriates were the main consumers. Pieces of fresh ginger, crystallized ginger or dried ginger are used here. In the past decade, Emiratis have been increasingly attracted by these premium chocolate products offered by International companies such as Lindt Excellence or Ferrero Rocher. Therefore, the growth prospects are bright and sales is expected to reach US\$ 117.5 million in 2021, being more than double compared to US\$ 48.3 million in 2012.

Plain milk chocolate tablets remain the preferred type in the UAE and accounted for an unchanged 53% of retail value sales of tablets in 2016. Filled chocolate tablets represented 43%, plain white chocolate 2%, while plain dark chocolate was 2.4%. Along with the growing health consciousness, the share of plain dark chocolate tablets slightly increased from 2.0% in 2012 according to Euromonitor.

In the chocolate confectionery market, combinations of chocolate with new ingredients (e.g. ginger, exotic fruits, nut pieces, stevia, caramel etc.), are expected in order to stimulate chocolate market and give the product, especially pure chocolate, a healthier image. Ginger and dark chocolate are gaining attention in the sports and performance nutrition category. The main forms of ginger include dried ginger (cubes), sweet/crystallised ginger or ginger powder.

Main players. The chocolate market is expected to grow substantially in the coming years both in value and volume (see Table 4) and is dominated by multinationals led by Mars (30% of the market in 2016), followed by other large international players such as Nestlé, Cadbury, Ferrero Group, Lindt and Mondelez. The competition between these players is expected to be in the development of new (healthy) chocolate variations in an appealing packaging

Table 5 UAE - Sales of Baked goods 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Cakes	49.7	67.2	79.4	88.8	5.8%	5,809	7,421	9,414	10,703	7.7%
Dessert mixes	4.3	5.4	6.2	7.0	5.0%	1,121	1,234	1,446	1,526	3.3%
Baked good (frozen)	4.1	5.1	5.9	6.2	4.2%	1,423	1,628	1,802	1,933	3.4%
Pastries	86.7	115	133	146	4.9%	21,638	26,145	30,622	33,801	5.3%
TOTAL	145	193	224	248	5.1%	29,991	36,428	43,284	47,963	5.7%

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

aimed at specific consumer target groups in the UAE, combined with intensive promotion campaigns.

In sugar confectionery, Lollipops, mints, toffees, caramels and nougat are large categories. However, Table 4 covers selected products in which ginger might be used.

Pastilles, gums, jellies and chews form a large category representing a volume of 1,809 tonnes in 2016, valued at US\$ 190 million. Medicated confectionery includes oral health aids against cold, dusts or nausea and is a growing niche market.

The boiled sweets segments is expected to grow as expatriates bring in their families which implies good opportunities for ginger candy for Asian children. Until now, most Emiratis regards sweets only for children as they usually take local traditional sweets such as halawa.

The main forms of ginger in sweet confectionery include ginger candy, sweet/crystallised ginger, dried ginger (cubes) or ginger oil and oleoresin.

BAKED GOODS

Baked goods sales is within the flavour segment the largest in terms of volume representing 36,428 tonnes in 2016, valued at US\$ 119 million. Pastries and cakes are the largest categories which are mainly used by the food service sector. Bakeries focus their business on special products for particular hotels or restaurants.

Main players. More than half of sales still comes from artisanal producers offering unpackaged bread, cakes and pastries. The market is highly fragmented, although large companies such as Almarai Co in Saudi Arabia or Modern Bakery LLC, currently having a share of 3% each, penetrate more in the UAE market. They offer packaged cakes and pastries at very low prices to the hyper/supermarkets. The Saudi government makes it possible to offer such prices by subsidising raw materials such as flour and diesel.

Smaller local UAE bakeries are threatened by the longer shelf-life of packaged product being offered these companies. In addition, they offer bread and cakes in small pack sizes for single people or health-conscious consumers for e.g. new healthy bread using chia or quinoa that are high in protein and fibre but low in sugar. New packaged cake varieties are also offered to hypermarkets, but also to the food service sector. This has been very successful and at the expense of small bakeries who need to specialise further in using new ingredients e.g. ginger for Asian families.

Small bakeries are likely to challenge new combinations of flavours or textures, both in baked products or chocolate. For the baker or cake maker, it is a skill to create, surprise, innovate or use the yellow ginger as a healthy taste maker. This implies good opportunities for dried ginger from Nepal, which have a stronger taste than those from China. The main forms of ginger in baked goods include ginger candy, sweet/crystallised ginger, dried ginger (cubes) or ginger oil and oleoresin.

SOFT DRINKS AND HOT DRINKS

Sales of hot drinks was valued at US\$ 829 million in 2016, of which 75% was coffee, 23% tea and 2% other hot drinks. The food service sector takes up around 13% of sales in 2016 according to Euromonitor. There are over 4,000 tea and coffee houses now operating in the UAE, and 82% of the population say they drink coffee each day according to a research by the Hotelier Middle East. Coffee is typical for men and is an inherent part of the culture in the Middle Eastern countries, being a leisure pastime and business pre-requisite.

On the other hand, tea is most popular among Asian expatriates and is increasingly becoming popular among Arabic women. In 2016, around 12,500 tonnes of tea were sold most of which is black tea. Driven by the popularity of instant flavoured teas and green tea, this segment continues to develop as an important hot drink reaching

16,109 tonnes by 2012, especially because more Asian families settling in the UAE.

New herbal teas including hot drinks with ginger. By value, the NH (Natural Healthy) tea market is expected to grow by a CAGR of 5.8% (see Table 6) stimulated by rising popularity of green tea, launches of new herbal teas, fruit teas or tea mixes with ginseng. Green tea with ginger or hot lemon with ginger offer good opportunities as an energy boost or for pregnant women. The main forms of ginger in hot drink include fresh ginger pieces, dried ginger of ginger powder in instant tea.

For Asian and Western expatriates, chai is popular, being black tea spiced with some combination of cinnamon, ginger, pepper, cardamom and other ingredients commonly found in traditional Indian chai masala. Chai also comes in milkier forms like in sweet hot tea lattes, and the rich, sweet flavours that people enjoy with espresso based latte products. Lipton or Twinings have one or more chai teas in multiple formats.

Main players. Unilever dominates the UAE tea market with the Lipton brand, while smaller tea companies include Ahmad Tea, James Finlay or Dilmah Tea.

The growing popularity of hot drinks is likely to be at the expense of soft drinks. Especially, Natural Healthy Ready-to-drink tea showed a strong growth in 2016 which was led by the Lipton brand. As new brands enter the UAE market, this niche market is expected to grow further.

Tea is also finding a bigger place in alcoholic drinks. Rishi Tea promoted matcha mojitos and turmeric ginger dark & stormies. In the food service sector liquid tea concentrates and flavoured iced teas can work well with a variety of alcohols, which both gives bartenders options when creating cocktails and allows tourists to feel that their cocktail is healthier. It should be noted that drinking

alcohol is illegal for Muslims and non-Muslims can only do so at licensed establishments or at home if they have obtained a licence.

Total sales of cold drinks in the UAE was US\$ 1,967 million in 2016, dominated by bottled water, carbonated drinks and conventional juices.

Relevant categories for ginger and ginger products in the cold drinks market are sports and energy drinks and NH fruit/vegetable juices which together accounted for 27% of the total UAE cold drinks market. Tendencies for both categories are positive for the coming five years as is shown in Table 6.

Children under 16 are banned from buying energy drinks in the city of Sharjah. Energy drinks contain too much sugar and harmful additives. Now a ban on restaurants and cafeterias from adding energy drinks to juices, smoothies and other beverages has been welcomed by parents and doctors.

New products are driving the future market, i.e. sports/energy drinks with herbal/botanical flavours (e.g. *ginger*, *mint*, *sarsaparilla*) which are considered to be better than the fruit-flavoured ones.

Some relevant developments in cold drinks were:

- **Alternative cold drinks** with potential to fill the gap left by traditional soft drinks and healthy drinks include *ginger* drinks (e.g. *ginger ale* or *ginger beer*), flavoured waters, renewed sports drinks, sparkling waters and blended juices e.g. mango-ginger juice as a new refreshment during the hot and humid weather in the UAE.
- **Need for stronger flavours** in drinks including mint and *ginger* being both regarded as very healthy). Along with the health trend, vegetable flavours experienced are becoming popular as well.

Table 6 UAE - Sales of Hot and Cold Drinks 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Tea	154	210	247	284	6.3%	11,559	12,353	14,377	16,109	5.5%
NH Tea	8.6	11	13.2	14.9	5.8%	na	na	na	na	
Sports & Energy drinks	177	251	294	329	5.6%	na	na	na	na	
NH Fruit/Vegetable juices	229	281	335	371	5.7%	na	na	na	na	
NH Ready to Drink tea	0.3	0.5	0.5	0.8	5.7%	na	na	na	na	
TOTAL	570	753	890	998	5.8%					

* Expected Compound Annual Growth Rate 2016 – 2021

NH = Natural Health

Note: Food service sales is not included

Source: Euromonitor (2017)

- **Coca-Cola introduced its *Ginger Coke*** to China in March 2017, which is likely to be sold in the UAE as well.
- **Detox juices usually blend fruits and vegetables**, using the functionality of these ingredients to promote the benefit. For example, Frutaria uses lemon, apple, kale, *ginger* and coconut water.
- **New adult sodas, or sparkling beverages** with sophisticated flavours and generally less-sweet profiles. Even if sweetened with real sugar or fruit juice, the key to their positioning is that sweetness is not the primary note. As a result, they are often also flavoured with bitter, sour or spicy ingredients, such as vinegar, *ginger*, herbs or citrus.
- **The emerge of low-alcohol shandies** with fruit flavours, which balance out the loss of alcohol, such as *Ginger Flavoured Lager* launched in 2016.
- **Lemonades that are made more healthful/functional** by blending it with vegetable juices or ingredients such as *ginger*. Frozen Fruit Drinks have ingredients that help strengthen health, such as vitamin C, lemon, honey and *ginger*.

The main forms of ginger in cold drinks include ginger powder, ginger oil, ginger oleoresin and pieces of fresh ginger in juices featuring natural flavours.

2.3.2 Fragrance segment

BEAUTY AND PERSONAL CARE

In 2016, the beauty and personal care market in the UAE for the selected categories was valued at US\$ 1,599 million and is growing steadily since 2012. The major drivers were the growing young population, consumer confidence and fashion/beauty awareness among women and men.

The selected categories that could use ginger as an ingredients are shown in Table 7. The premium end of the mark consists either of *higher quality products* - with added benefits e.g. multifunction or *green products* using natural or organic ingredients such as ginger. Interest in natural cosmetics is also increasing in the UAE with products containing natural ingredients. Most popular are argan oil, shea butter, olive oil, almond oil, aloe vera and musk being used as ingredient in skin care, hair care and bath and shower.

Possible uses of ginger

- **In hair care**, ginger stimulates blood circulation of the head skin, promotes scalp metabolism, strengthen the hair root and possibly prevent dandruff and hair loss. In addition, ginger oil in the shampoo has a certain therapeutic effect in migraine headache and in cyclical headache.
- **In perfumes** that are made in Middle Eastern countries for many generations and are often characterised by warm, sweet, musky and woody notes.
- **In male fragrances and after shaves**, the main forms of ginger in beauty and personal care include ginger oil and ginger extracts.
- **In soap and bath/shower products** ginger grass oil could be an ingredient for products for the Asian eeexpats. While in natural toothpaste ginger extract can be used.

Main multinational players are Unilever, Procter & Gamble having a share of 9% each, followed by L'Oréal, Estee Lauder, Beiersdorf and LVMH. These six multinationals accounted for 37% of the beauty and personal care market in 2016 and benefit from a high awareness of their well-known brands (e.g. Lux, Dove, Gillette, Hugo Boss and Pantene) among Western expatriates.

Table 7 UAE - Sales of selected Beauty and Personal care products 2012 - 2021
Value in US\$ million

VALUE					
	2012	2016	2019	2021	CAGR*
Hair care	214	268	312	348	5.3%
Skin care	228	284	330	369	5.4%
Bath & shower	136	161	177	191	3.4%
Men's grooming	229	284	336	376	5.8%
Fragrances	461	602	729	847	7.1%
TOTAL	1,268	1,599	1,884	2,130	5.9%

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

Local players Arabian Oud and Abdul Samad Al Qurashi feature in the top 10 companies, mainly due to the strong presence in the traditional Arab fragrances.

Indian based companies. Asian expatriates prefer products from Indian-based (multinational) companies such as Marico, Dabur International and The Himalaya Drug Co. The establishment of more Asian families who know their brands and their ingredients provides good opportunities to increase their market share in the UAE.

The beauty and personal care market is expected to grow further by + 5.9% reaching US\$ 2,130 million by 2021 being driven by more expatriates and (Asian) tourists – visiting the Expo 2020 in Dubai – looking for gifts for their relatives.

2.3.3 Herbal Traditional Medicines segment

The use of Herbal/Traditional medicines is still very small compared to Japan, India or other Asian countries. As is shown in Table 8, sales were valued at US\$ 22 million in 2016. Due to prevalence of allergies, hair loss and lifestyle ailments (diabetes), demand for alternative medicines has grown substantially in recent years according to Gulf News (2016). While Indian expatriates have been using treatments such as homeopathy for years, the rise in use among Emiratis is a new phenomenon.

The increasing number of patients visiting one of the four chains of homeopathic clinics in the UAE, has demonstrated an increased interest in the past six years. According to Euromonitor, Emiratis account for 20% of the clinic's practice, with others patients - including Indian/Asian accounted for the remaining 80%. Even in Dubai, mothers tend to opt for homeopathy treatment for allergies and hair problems for their children and for themselves.

Cough, Cold & Allergy remedies are expected to show the largest growth (+8.6%) in the coming years, followed by Topical Analgesics (+7.1%) and Digestive remedies (+7.0%). *Ginger*, dandelion and angelica dahurica root are believed to be able to drive away coldness and causes of illness.

The government regards herbal remedies as standard medicines in terms of regulating where they are sold, advertised and consumed. Only licensed chemists/pharmacies, drugstores/parapharmacies and healthfood shops are usually able to sell them. Only licensed practitioners and clinics can practice and prescribe the drugs to patients.

The government bans any unsafe herbal remedies which could potentially cause harm to consumers. Therefore practitioners working from their homes/clinic without licence are fined and punished by law and must to stop immediately.

The Ministry of Health, providing the licences, recognises Herbal Traditional medicines and trusts these treatments as long as it is done according to the regulations. This encourages consumers to try them. A large health care exhibition 'Arab Health' is held annually demonstrating the importance of alternative natural medicines in the UAE.

The main forms of ginger in herbal/traditional medicines include dried ginger, ginger powder, fresh ginger and ginger essential oils (aromatherapy).

2.4 Prices and Distribution

2.4.1 Prices and price developments

The price of ginger will depend on where it is sold, from which country it has been imported, how it is shipped (by sea or air), using cooling chains and the number of channels/middlemen in the distribution.

Table 8 UAE - Sales of selected Herbal Traditional Medicines 2012 - 2021
Value in US\$ million

	VALUE				
	2012	2016	2019	2021	CAGR*
HT Topical Analgesics	2.4	3.8	4.6	5.1	7.1%
HT Digestive Remedies	3.2	4.3	5.4	6.2	7.0%
HT Cough Cold & Allergy	3.2	5.4	6.8	8.1	8.6%
HT Dietary Supplements	3.0	4.6	5.7	6.2	5.8%
TOTAL	12	18	22	26	7.6%

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

Apart from the supply chain, the main key determinant of price is the variety/quality of the ginger itself, its cleanliness, freshness, whether or not processed, how it is packed and how long it can be kept fresh. Most ginger goes via wholesalers in local markets, and many of whom also act as retailers.

Ginger import prices

In order to obtain a rough idea, it is best to compare the price levels (based on imported unit value) of ginger (091011) that were imported by the UAE between 2013 and 2015 as is shown below in Table 9.

Here import price differences can be seen, with prices from Japan being the highest while prices from China were extremely low – due to a high availability of ginger due to overproduction in 2014/2015. Another reason is the Chinese expansion to penetrate more in the Gulf State markets and Saudi Arabia by offering low prices. The Indian prices were higher than the Nigerian, but lower than the Thai or Dutch prices averaging between US\$ 2,525 – 3,000 per ton. Price levels from other African countries were lower than from Nigeria, except for Uganda.

Wholesale prices and margins

Based on an interviews with wholesalers and stand holders at the Aka Al Mina Fruit & Vegetable Market in Abu Dhabi, the freshness of Chinese ginger can be maintained for 1-2 weeks. One wholesaler told us that stock rotation should be fast with the hot climate and high electricity costs for cooling.

Every week, he receives new deliveries from Dubai Port,

which he stocks in his own cooling cell. The Chinese ginger comes in carton boxes of 6 – 7 kg, which he sells for 50 AED (US\$ 13.60) per box to supermarkets. His standard CIF buying price for ginger was 10 AED (US\$ 2.72) per kg, which means US\$ 2,720 per ton. He sold his ginger for 15 AED (US\$ 4.10) per kg. So, his standard margin was 50%. Larger quantities are also sold direct to consumers (large families).

Retail prices

Based on a store check at the Coop Hypermarket in Abu Dhabi retail prices were found as follows:

It was observed that most of the ginger powders were either made from ginger from India or were imported ginger powder from India



Table 9 UAE – Import price per ton in US\$ for ginger*, 2015
Leading and selected suppliers

Exporters to UAE	2013	2014	2015	Imports, US\$ 1,000 (2015)	Imports, Tonnes (2015)
	US\$/Ton	US\$/Ton	US\$/Ton		
World (average)	538	832	639	28,068	43,913
China	509	778	504	19,565	38,788
Nigeria	1,276	1,433	1,577	6,856	4,348
India	1,433	1,166	2,019	1,282	635
Thailand	681	817	2,525	255	101
Uganda	6,500	5,250	8,250	33	4
South Africa			963	26	27
USA	8,000	5,400	6,667	20	3
Japan		11,000	14,000	14	1
France				4	0
Netherlands			3,000	3	1
Guinea			1,000	2	2
Indonesia	471	781		2	0

* Ginger neither crushed nor ground (091011)

Source: ITC Trademaps (2017)

Retail prices				
	US\$	Content	Brand	Packaging
Fresh ginger	1.89	1 kg	-	Loose rhizomes
Powdered ginger	2.04	200 g	Zarah	Plastic bag
	1.76	200 g	Arab Gulf Flour Mills	Plastic bag
	1.29	140 g	Sondas	Plastic bag
	2.69	135 g	Shan	Jar

Store check at Coop – Abu Dhabi (2017)

Prices of processed food

Average unit prices for chocolate confectionery, biscuits etc. sold in supermarket, hypermarket and smaller groceries usually remain stable due to the strong government price controls on packaged food goods in the United Arab Emirates.

More details on ginger prices in the UAE can be found in the report 'Opportunities for Nepalese ginger in Dubai' that can be obtained from Samarth at <http://samarth-nepal.com/portfolio/ginger>

2.4.2 Distribution

The UAE distribution is very much geared on re-exports via the free-trade zones that facilitate smooth exports to neighbouring countries and North Africa. Wholesalers and processors/importers play a key role in having fresh food stored in cooling cells and transported as fast as possible to foreign customers to maintain its freshness. Most fresh ginger is purchased together with onions and garlic coming in weekly from China or India (Kerala) in reefer vessels.

Wholesale companies are often run by Asian residents (Indian, Pakistani), while processing companies are more controlled by the Emiratis. Most wholesalers and importers can be found at the free trade zones for vegetables in Dubai e.g. Al Aweer, Al Ras Market in Deira Port (dried products) or the Al Hoor Central vegetable market in Abu Dhabi.

Large food processors in Gulf States and Saudi Arabia include the main players in each key segment that were covered in section 2.1.3.

They usually import direct from the exporters and often have access to ingredient suppliers because of the large volumes they import. Examples of local processing companies include spices and herb processors, vegetable processors, dairy processors, canned vegetable processors, and other high value food processors such as jams, honey, confectionary, sauces, snacks, juice and beverages.



If the required quantity is small (less than a container full), they usually purchase from local wholesalers or agents. There is a large availability of ginger powder most of which is ground locally. Therefore, processors prefer buying dried ginger.

Small and medium sized food processors as well as the food service industry, source their food products ingredients from food processors or from wholesalers or from international company representatives.

Smaller importers specialize in supplying food processing and food service sectors by importing and distributing a wide range of food ingredients particularly spices condiments, sauces, bakery and pastry ingredients or seasonings.

Indirect and Direct Channels

For a ginger exporter or ginger cooperative from Nepal without any direct contacts, it is likely that a reliable food processor or wholesaler in the UAE should be found. Assistance can be sought via Nepalese residents in order to identify suitable partners who are willing to collaborate with Nepalese companies. At this moment, there is no awareness at all about Nepalese ginger. However, if it concerns exports of fresh ginger high investments must be made to have shipments delivered fast and efficiently without trouble at the Indian border.

Alternatively a close collaboration could be sought with a partner company in India for fresh ginger as well as for dried ginger exports to the UAE – as shown below.

On retail level, hypermarkets and supermarkets are the main distribution channels for all the flavour segments. They offer wide and varied product ranges from local processors or multinationals. Hypermarkets allocate large shelf space for ground spice offered by different local processors such as Sondos, Zarah, Arab Gulf Flour Mills, Sabah Food industries, Cyma Food, Mina, Bab Al Firdous, Liwagate amongst others. They organise regular price promotions, bundle-offers and sell large size/ mega packs for Emirati families which often are large. Hypermarkets offer a wide set of products to choose from. As for baked goods, Waitrose and Spinney's have an in-store bakery to ensure the freshness of their products.

Expansions in hypermarkets, supermarkets and superstores have grown very fast since 2010. However,

there is a shift towards smaller supermarkets or convenience stores because of a lack in space and related high costs of creating more large stores in the UAE, being a densely populated area now.

Consumer cooperatives are strong in Kuwait and UAE and to a lesser extent in Qatar. According to the USDA Foreign Agricultural Service, cooperatives accounted for 25% of retail sales in the UAE in 2016. In addition to their loyal local shareholders and customers, the coops attract a wide range of middle class consumers of Arab and Indian origin.

For fresh food, small independent vegetable shops and grocers in residential Asian areas, street market vendors remain most important in terms of quantities sold in the UAE. Consumers can buy as well from wholesalers at the larger vegetable markets.

In Beauty and Personal Care, hypermarkets and supermarkets are main key retail channels as well with strong presence of BPC products in leading hypermarkets such as Carrefour, Spinney's, Lulu and Union Coop. However, each ethnic group living in the UAE has their preferred super/hypermarket:

- **The Indian expatriate** community do their shopping at Lulu offering economy brands and Asian which are familiar to them including brands from Dabur.
- **Western expatriates** with high incomes tend to shop regularly at Spinney's and Waitrose that offer premium products, often imported from Europe and USA. They also offer positioned natural BPC products including organic products.
- **Local Emiratis** opt more for Union Coop selling large-sized family packs and BPC products with local ingredients e.g. camel-based soaps and shampoos.

The **online sales channel** is small, especially in comparison with the growing share this represents in many other countries. This is partly due to the fact that shopping in shopping centres or markets is ingrained in behaviour. It is also partly due to the fact that consumers lack confidence in buying online. Some online retailers that exclusively use this channel such as MarkaVIP, Namshi and Souq have found success by offering secure payment methods, or other features such as free delivery or sale or return.

Necessity to work with other (Indian) companies

According to interviews held by Samarth dried ginger is often mixed in one container combined with other dried products. If Nepalese exporters it will be important to work with a reliable Indian partner e.g. in Kerala, who is able to make combined shipments e.g. dried fruits, nuts etc. that are processed by his company.

Table 10 Retail distribution share of food (by value) in the UAE in 2012 - 2016

Outlet type	2012	2014	2016
Store-Based Retailing	100%	99.4%	98.7%
Food Retailers	100%	99.4%	98.7%
- Hypermarkets/Cooperatives	54.3%	54.9%	54.6%
- Supermarkets	22.9%	22.2%	22.1%
- Convenience stores	7.3%	6.0%	5.5%
- Department stores	4.3%	4.7%	4.9%
- Traditional retailers	3.8%	3.7%	3.5%
- Independent small grocers/Street markets	4.8%	5.7%	6.5%
- Tobacco specialists	2.6%	2.8%	2.9%
Non-store Retailing	0.0%	0.6%	1.3%
Internet Retailing	0.0%	0.6 %	1.3%

Source: Euromonitor (2017)



2.5 Access requirements for the UAE market

Food Safety Law

In January 2016, a Food Safety Law was in force to protect the health of the UAE population and of the people in export markets. With more than 80% of food products in the UAE being imported, the country has to compete in a global trading system where increasingly strict requirements apply with regard to product quality, safety, health and environmental impact. Some of the aspects that are covered in the Food Safety Law were:

1. No food may be imported into the country for the first time without approval of the Ministry of Environment and Water.
2. Those dealing in food or products that contain pork or alcohol or any of their by-products without Permission, face a prison term of not less than a month and a fine of up to AED 500,000 (US\$ 136,000).
3. Misleading consumers by publishing a false description of food or using incorrect labels is subject to a fine ranging from AED 10,000 to 100,000 (US\$ 2,720 to 27,220).

Dubai Municipality carries out regular inspections at Fruits and Vegetables Markets checking the hygiene of vegetables, fruits, meat and fish that must be suitable for human consumption.

More information and references to other useful sites can be found at <http://beta.government.ae/en/information-and-services/justice-safety-and-the-law/food-safety>

A manual with detailed explanation about the procedures to follow when exporting to the UAE is titled 'Import and re-export requirements for Foodstuff' which published by the Food Control Department and easily can be downloaded via a search on Google.

Samples

There are no specific requirements for imported food samples. Samples for trade fairs and other promotional events are routinely exempt from local labelling and shelf life requirements. Product samples must be clearly marked as samples and accompanied by a Statement claiming that they are not for sale.

Important legislative requirements for the UAE are similar to the international standards such as:

Legislative requirements

- Phyto sanitary certificate from Nepal, packing list and Halal certificate (if applicable).

- Certificate of Origin
- Form A for reduced import duty (GSP)
- Other certificates that you needed for Customs Clearance in Nepal (see Chapter 6.3.1)
- Ginger must be totally free from rhizome rot
- Comply with the HACCP guidelines
- A laboratory test will be required to assure the product is in compliance with the standards and regulations
- Proper packaging must be used
- Clear labelling (name product, manufacturing date, expiry date, net weight etc...)
- Include an Arabic label or sticker on your product, otherwise there is risk of rejection.
- Include a barcode following the registration procedure in the FIRS database



Quality requirements

Fresh ginger

- Each piece should be intact and thick rhizomes are preferred
- Ginger rhizome should have a weight of 150 – 250 grams
- Ginger must be fresh. Indian ginger has the image of old looking.
- Packaging in carton boxes (6 – 7 kg)

- Compliance with the guidelines of Codex Alimentarius.

Dried ginger

- Each piece should be clean and not old looking
- For production of ginger powder or other processing purposes a strong taste is preferred
- Usual packaging is in 50 kg bags.

Voluntary requirements

- ISO standards (9001 and 14001).
- Global Gap standard

Trade licence

The buyer should have a trade licence with food trading activity or general trading which is issued by the government licencing authority in the UAE

Further explanation and suggestions how to deal with these requirements are covered in detail in Chapter 6.3.2 of this study.

The UAE is a member of the Gulf Cooperation Council, which consists of Kuwait, Qatar, Bahrain, the UAE, Oman and Saudi Arabia, and provides special trade and investment privileges to those member states. As a member, the UAE implemented a customs law in 2003 to facilitate regional trade. **Consequently, the UAE imposes a 5% tariff** on the CIF (cost, insurance, freight) value of most imported products, including ginger.

Other details on Access requirements in the UAE can be found in the report 'Opportunities for Nepalese ginger in Dubai' – see <http://samarth-nepal.com/portfolio/ginger>

2.6 Options for entry

2.6.1 Future growth and market potential

POTENTIAL USERS FOR GINGER AND GINGER PRODUCTS

- **Young people.** The population structure is characterised by a high rate of people younger than 25 year (35%) and middle-aged people (61%). Although life expectancy is increasing, the over 60s – being rather conservative – still represent a small share of the population. The composition of the population, primarily younger people and more men will in a large part determine the future direction of the market.
- **Emiratis, Asians and expat.** However, the majority of Emiratis are open to western and Asian eating habits, which also applies to Asian people and expatriates. They all are receptive to international trends in health, wellness, natural medicine and cosmetics. Another important fact in understanding this market is the high number of males in the population (2.2 males for every female in the 20-35 age group and 70% of the total population) among the Emirati, Arab and Asian people.
- **Asian people** (Iranian, Indian, Pakistani, Bangladeshi, Nepali, Filipinos etc.) representing around 60% of the population and Western expatriates (8%) account for the largest volume share of the market. Added to this are the significant and increasing numbers of international tourists to the country, many of whom come with dining and shopping in mind.

Another key characteristic of the UAE, which has a significant bearing on the cuisine available, is the **diverse**



ethnic mix of the country. Less than 20% of the country's population is indigenous to the Emirates. The Emirati population is expected to grow further in the next few years, but the foreign population is expected to grow rapidly.

OPPORTUNITIES

Despite the economic slowdown, consumers living in the UAE are not expected to cut on their expenditure as the mood remains rather optimistic despite the political unrest in the Middle East. Besides, there is a clear trend towards healthier eating, exercising to slim down and most importantly as growing number of Asian families in the UAE. This means a steady growth in healthy food, healthy snacks, Asian cooking, new types of drinks and fragrances. Younger people and new families from Asian settling down being more curious in new products and new kinds of food.

There are a number of other opportunities to be aware of that are specific to the UAE market:

- 25 million tourists are expected to **visit Dubai for the 2020 World Expo** - <http://www.expo2020dubai.ae/> - this will be the first to be anywhere in the Middle East/North Africa/South Asia region. It will be a major opportunity to showcase new products to both the local population and the many visitors coming specifically for the expo.
- The **2022 World Cup** tournament is scheduled to take place in Qatar. This will attract many visitors and much global interest in the wider Gulf region, not just Qatar. Shopping in Abu Dhabi and Dubai will benefit.
- **The 470,000 Nepali living in the UAE** must offer a major opportunity. There has been significant migration to the Gulf States in recent years. Although many are based there on short term contracts, the network of various groups already established in the country should be an important first port of call for any Nepali ginger exporter. Other Gulf States with a high Nepali population include Saudi Arabia (550,000 people) and Qatar (400,000).

Opportunities for ginger

- With ginger's anti-inflammatory credentials gaining more recognition, there are opportunities to put more emphasis on ginger as a health-enhancing component across packaged food and drinks. Ginger teas already have this recognition used by pregnant women.
- In chocolate and sugar confectionery, bakery goods, filled biscuits, cakes, cookies and in jams, there are also good opportunities for e.g. crystallised ginger as a healthy sweetener in sugar-free or sugar reduced products, or as an energetic/taste maker in fruit bars.
- Furthermore, ginger is much more versatile than it may appear. A study published in the LWT – Food

Table 11 UAE - Sales of selected Segments 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
FLAVOUR	1,640	2,143	2,515	2,779	5.3%					
- Herbs & Spices	13	17	21	24	6.9%	542	655	780	870	5.8%
- Sauces, Pickled	579	714	814	883	4.3%	3,958	4,829	5,936	6,810	7.1%
- Confectionery	124	190	237	268	7.1%	6,320	8,839	10,888	12,286	6.8%
- Baked goods	145	193	224	248	5.1%	29,991	36,428	43,284	47,963	5.7%
- Biscuits and Snacks	105	150	178	197	5.6%	18,431	25,809	31,791	36,210	7.0%
- Fresh and Healthy food	104	126	151	161	9.1%	-	-	-	-	-
- Hot and Cold Drinks	570	753	890	998	5.8%	-	-	-	-	-
FRAGRANCE	1,268	1,599	1,884	2,130	5.9%	-	-	-	-	-
- Beauty and Personal care	1,268	1,599	1,884	2,130	5.9%	-	-	-	-	-
HERBAL / TRADITIONAL MEDICINES	12	18	22	26	7.6%	-	-	-	-	-
TOTAL	2,920	3,760	4,421	4,935	5.6%	-	-	-	-	-

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

Science and Technology journal illustrated that bread could be enriched with up to 3% ginger powder without having a negative impact on the product's sensory properties, while, at the same time, significantly boosting its antioxidant content.

Growth of ginger market. As mentioned in Chapter 2.2., the UAE ginger market is forecast to continue growing, albeit at a slower pace by value than recently. The market is expected to grow between 2016 and 2021 by an average rate (CAGR) of +0.5% per year, reaching a value of \$ 38 million – see Figure 3. While by volume, the ginger market is expected to grow further by 3.0%, from 32 to 37 thousand tonnes in the same period.

Based on the above opportunities and the growth projections in each selected segment in Table 11 the following forms of ginger forms are likely to have good chances in the UAE market.

Potential trade partners and Useful addresses

Many names of main players are given in Chapter 2.3.1 – 2.3.3 which can be found easily via Google.

The first place to look would be to contact the main trade association(s), followed by trade fairs, which tend to feature a list of exhibitors, many of which may be potential partners.

Table 12 Five main ginger forms with best opportunities in the UAE market

FLAVOUR		USE	REASON	BEST GINGER FORM
	PRODUCT			
1. Fresh Food Healthy Food	Fresh ginger	Asian cuisine	Growing market	Fresh ginger
	Breakfast cereals	Healthy breakfast	Niche (use of healthy sweetener)	Dried ginger (Crystallised)
2. Sauces	Curry sauces	Asian cuisine (families)	Growing market	Dried ginger Ginger powder
	Salad dressings	Healthy meal	Niche	Dried ginger Ginger oil
3. Confectionery	Boxed assortments	Bon-bon with ginger	Growing market	Dried ginger cubes (Crystallised) Ginger powder
	Ginger candy	Children of Asian families	Niche	Dried ginger (Crystallised) Sweet ginger cubes
4. Biscuits and snack bars	Filled biscuits	Emiratis and western Eexpats	Ginger as tasty and healthy sweetener	Dried ginger (Crystallised) Sweet ginger cubes Ginger powder
	Snack bars/ Fruit bars	Healthy snack	Ginger combined with other dried fruits (dates...)	
5. Hot drinks	Ginger tea Hot ginger with lemon	Pregnant women Healthy hot drink	Growing market	Ginger powder Fresh ginger
6. Cold drinks	Juice Cocktails Mojitos	Emiratis, Asian (Western) Eexpats	Niche	Dried ginger Ginger oleoresin Ginger extract
FRAGRANCE		USE	REASON	BEST GINGER FORM
1. BPC*	Perfumes, aftershave	Asian males	Niche	Ginger oil Ginger extract
HERBAL / TRADITIONAL MEDICINES		USE	REASON	BEST GINGER FORM
1. Cough and cold	Dietary supplement	Immunity and Energy boost	Growing market	Ginger powder Ginger oil

* Beauty and Personal Care

Source: Searce estimates (2017)

GINGER AND GINGER PRODUCTS IN INDIA

CHAPTER 3

Brief overview



Population

1,267 million, growth rate 1.58%
(July 2016 est.)

- 0-14 years: 27.7%
- 15-24 years: 18.0%
- 25-54 years: 40.9%
- 55-64 years: 7.3%
- 65 years and over: 6.1%

Urban population 32.7% of total

Obesity (adult prevalence): 4.7%



Economy

GDP US\$ 6,700 per capita
Unemployment rate officially
estimated at 8.4% (2016)



Others

Health expenditure: 4.7% of GDP
Physicians density: 0.70 per 1,000
Tourists to Nepal in 2016: 118,249



3.1 Market conditions

India is currently the second fastest growing economy in the world as exports from India experienced a new period of growth since the 1990s. More and more people are moving to urban areas and many small towns have seen a rise in urbanisation.

Emerging Middle class

The share of poor people who live on US\$ 2 or less, decreased from 35% to 20% of the population (Pewter research, 2014). People who live on US\$ 10 - 20 per day - defined as Middle Class - have rapidly grown to over 250 million people. Around 8 million people belonging to the upper middle class live on US\$ 20 or more. Although in terms of buying power India is becoming a larger market, particularly in the urban areas. However, it should not be forgotten that the majority of Indians still are either poor or had a low income with some saying they belong to the middle class.

Affluent versus poor states

Unemployment was officially 8.4% in 2016, but there are large differences between the States. Affluent States in the West (e.g. Maharashtra, Gujarat) and North (e.g. Punjab, Haryana, Chandigarh) report unemployment rates of 6% or lower. Additionally, Hyderabad with its IT industry has been a contributor to high-level employment in India. While poor States in the North (West Bengal, Bihar, Tripura etc.), the Center (Madhya Pradesh, Maharashtra), and the South (Tamil Nadu) report unemployment rates of 30% or more which was mainly among young adults (18 - 29 years) in rural areas with a high level of illiteracy or basic education (secondary).

The shift of workforce from agriculture to other sectors is a positive trend of a developing economy. However, unemployment rate for graduates (15-29 years) in rural areas went up to 36.6% in 2013.

Population growth slows down

Even though India currently has a predominantly young population, population growth is slowing down as a consequence of declining birth rates. Between 2005 and 2014, the birth rate declines from 24.7 to 21.2, while the fertility rate decreased to 2.5 births per woman in 2013, in comparison with 2.8 in 2005. The main reasons were government campaigns for population control and a higher number of working women (15.4% in urban areas in 2011 compared with 11.9% in 2001). Young Adults (15-24 year) and Middle Aged (25-54 years) people are expected to account for around 60% of the Indian population in the coming years.

Eating habits

Eating habits in India largely differ by income. According to a 2014 report in The Hindu, the top 5% of urban India spent an average of US\$ 408 per capita annually on food, US\$ 149 was spent on eating out, while US\$ 38 was spent on snacks such as chips, chocolates and other processed food.

Along with the rising income level, people also spend more on milk products, meat, fish, fruit and vegetables. Consumption of these products, confectionery, (sweet and savoury) snacks and (alcoholic) drinks is expected to increase steadily in the coming years.

3.1.1 Ginger imports

GINGER FRESH

India was the tenth largest importer of Fresh ginger in volume terms, relatively small for the size of its population and perhaps indicative of the extent to which their own ginger production supplies the domestic market. In 2016, India imported 18,765 tonnes of fresh ginger valued at US\$ 4,099 million. This represented 3% of world imports by volume and just 0.6% by value. Nepal was the most important supplier. Supplies of fresh ginger by Nepal rose by 18% from 15,843 tonnes in 2015. According to ITC, the average value/ton rose from US\$ 235 to US\$ 280 between 2015 and 2016.

GINGER (SEMI -) PROCESSED

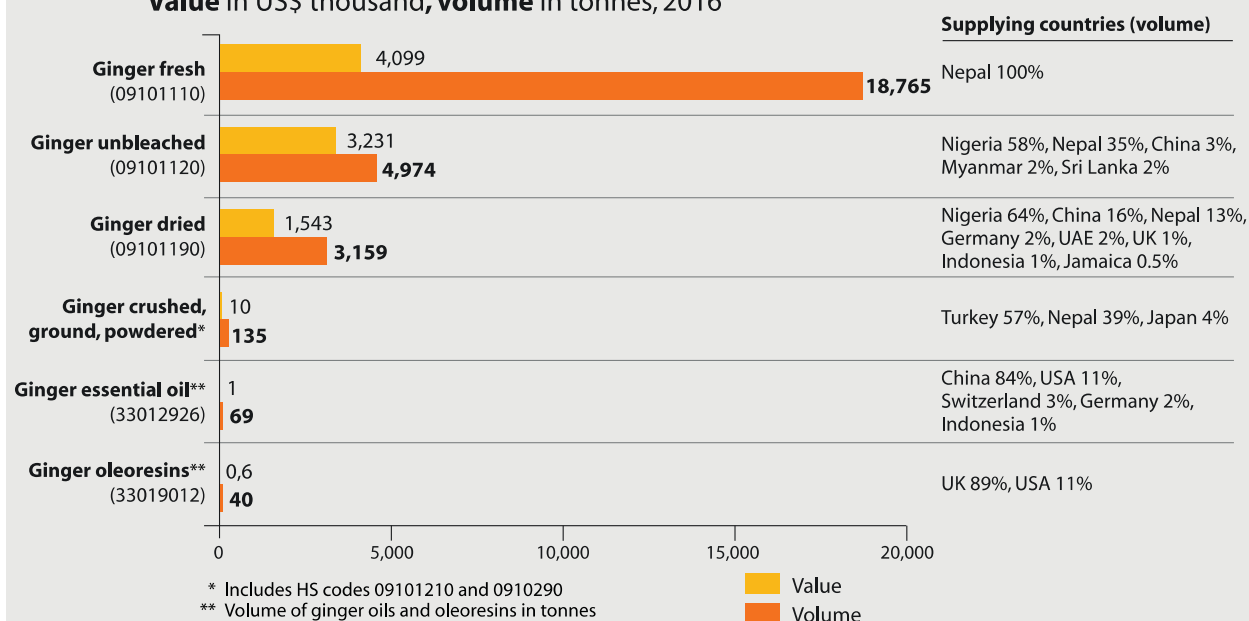
The other product groups in Indian ginger imports were sub-divided as follows:

- Ginger dried - unbleached 3,231 tonnes valued at US\$ 4,974 thousand, which mainly was imported from Nigeria (58% of imported volume) and Nepal (35%), followed by China and Myanmar as is shown in Figure 1. Imports from Nepal fell by 17% in 2016 which is mainly attributed to the earthquake, obstructions at the Birgunj border (fuel crisis) and rhizome rot.

Instead, India imported more dried unbleached ginger from Nigeria (+15%) and China (+315%) between 2015 and 2016. Dried ginger was more in demand for use in the fast growing sauce and healthy drinks segments in India. According to Zaubas, most trade with Africa and the Middle East was through Cochin Sea port and the popular container port Nhava Sheva (Maharashtra/Mumbai).

- Ginger dried - Other (split) 1,543 tonnes valued at US\$ 3,159 thousand, which mostly came from Nigeria (986 tonnes, or 64% of imported volume) followed by China (252 tonnes 16%) and Nepal (204 tonnes, 13%). Imports from Nepal have picked up in 2016, after being zero in 2015.

FIGURE 1: India - Ginger imports by productgroup and supplying countries
Value in US\$ thousand, volume in tonnes, 2016



Source: ITC (2017)

India imported less dried – other (split) ginger from Nigeria (-55%), but more from China (+5%), Germany, UK and Indonesia between 2015 and 2016.

- Crushed/ground ginger and Powdered ginger together represented a small part of Indian imports as most ginger processing is done by Indian companies. Indian imports of Crushed/ground ginger (steam sterilized) amounted to US\$ 100 thousand all of which came from Nepal. However, volumes of Nepalese supplies dropped by 66% since 2015 - from 10 to 3.4 tonnes, whereas values rose from US\$ 44 to 100 thousand in 2016.

Indian imports of crushed/ground ginger dropped substantially by -96% from 131 to 5 tonnes between 2015 and 2016 indicating more processing of ginger in India. Supplies by Nigeria, Thailand and USA dropped to zero in 2016, while Turkey became a new supplying country.

- Ginger essential oil imports were 965 kilograms in 2016 valued at US\$ 69 thousand most of which came from China and USA. Indian imports of Chinese ginger oil fell by 45% which perhaps is due to the low quality (or adulteration) of Chinese oil. Another reason is increased distillation of ginger oil by Indian companies. Supplies of good quality essential oils by large international companies e.g. Doterra or Young Living for use in aromatherapy showed an increasing trend in Indian imports.
- Ginger oleoresins imports were 608 kilograms in 2016 valued at US\$ 40 thousand most of which came from the UK and increasingly from the USA (+48% between 2015 and 2016).

3.1.2 Ginger exports

In 2016, India was by volume the sixth largest exporter of Ginger neither crushed or ground (091011) after Nepal – being the fifth largest exporter (to India). Most ginger was shipped via the Nhava Sheva port, Bangalore port and Cochin Sea port according to Zaubia.

Total exports were 15,977 tonnes in 2016, valued at US\$ 20,080 thousand. In the same year, Indian exports dropped in 2016 by 43% from 28,043 tonnes in 2015 being largely attributed to falling exports to Bangladesh (-51%), Saudi Arabia (-18%), USA (-17%) and the Netherlands (-32%). These countries imported more from China offering lower prices and regular deliveries of fresh ginger. Perhaps the occurrence of rhizome rot in some Indian ginger has also negatively impacted Indian exports.

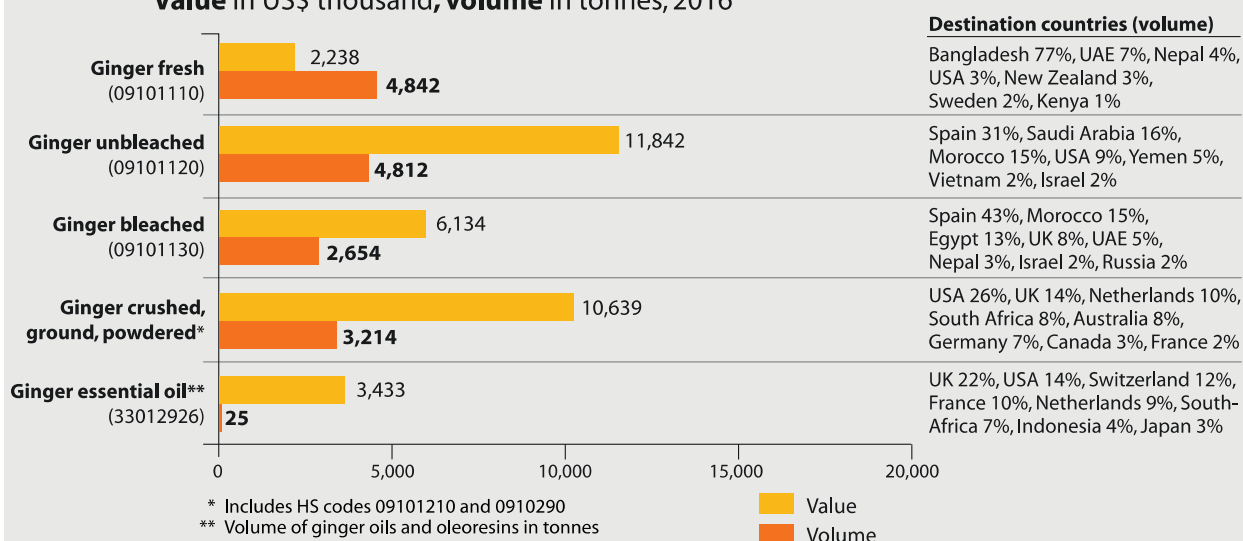
Surprisingly, increasing exports from India to Nepal were registered by ITC. Exports rose by 328% from 97 to 416 tonnes between 2015 and 2016 with a similar rise by value (US\$ 216 to 997 thousand).

GINGER PRODUCT GROUPS

According to ITC statistics, the Indian product groups were sub-divided as follows:

- Ginger dried - unbleached - 4,812 tonnes valued at US\$ 11,842 thousand, which mainly went to Spain (31% of exported volume), Saudi Arabia (16%), Morocco (15%) and USA (9%) as is shown in Figure 2. Indian exports increased considerably by 28% in 2016 from

FIGURE 2: India - Ginger exports by productgroup and destination countries
Value in US\$ thousand, volume in tonnes, 2016



Source: ITC (2017)

3,739 to 4,812 tonnes, although the values/tonnes to all export destinations fell – average values decreased from US\$ 3.31 to 2.41 per kilogramme which might be a reason to keep India's market share facing growing competition from Nigeria, China or other supplying countries.

- Ginger dried – bleached – 2,654 tonnes valued at US\$ 6,134 thousand that also mainly went to Spain (43% of exported volume) followed by Morocco (16%), Egypt (13%), UK, UAE and Nepal (3%).

Indian exports increased substantially by 38% in 2016 from 1,925 to 2,654 tonnes, although just by 2.4% in value.

- **Crushed/ground ginger** – 3,214 tonnes in 2016, which slightly decreased from 3,298 tonnes in 2015 with values slightly decreased. The average value/ton of US 3.31 is higher than the other product groups. India was the second largest by volume exporter of Ginger crushed or ground (091012) after China which accounted for more than half of world exports estimated at 30,549 tonnes in 2016. Indian exports were mainly destined for the USA, UK, The Netherlands, South Africa, Australia and other (mainly) western markets, as is shown in Figure 2.
- **Ginger essential oils** – 25 tonnes (25,216 kilogrammes), which rose by 5% from 24 tonnes, and mainly went to Europe, South Africa, Indonesia and Japan. Values of ginger oil exports rose by 14%, from US\$ 3,009 to 3,433 thousand. Average value/ton increased from US\$ 126 to 136 between 2015 and 2016. Indian export of Ginger oleoresins increased enormously (+205%) being mainly destined for Uganda.

See tables 3 - 11 in Annex 2 for more detailed statistics.

3.1.3 Production

In the first century AD, ginger was one of the lucrative spices exported by the Romans from or via India to Europe. Ginger is one of the earliest known oriental spices and is being cultivated for a very long time in India as fresh vegetable, cooking ingredient and as a dried spice.

India is now the largest producer of ginger in the world, producing 790,000 tonnes in 2015 according to FAO. The total area for ginger production was nearly 159,600 ha. This was more than 6.6 times the production area of Nepal and more than 3 times the production area in China. An estimated 75% of Indian ginger was for use in the domestic market.

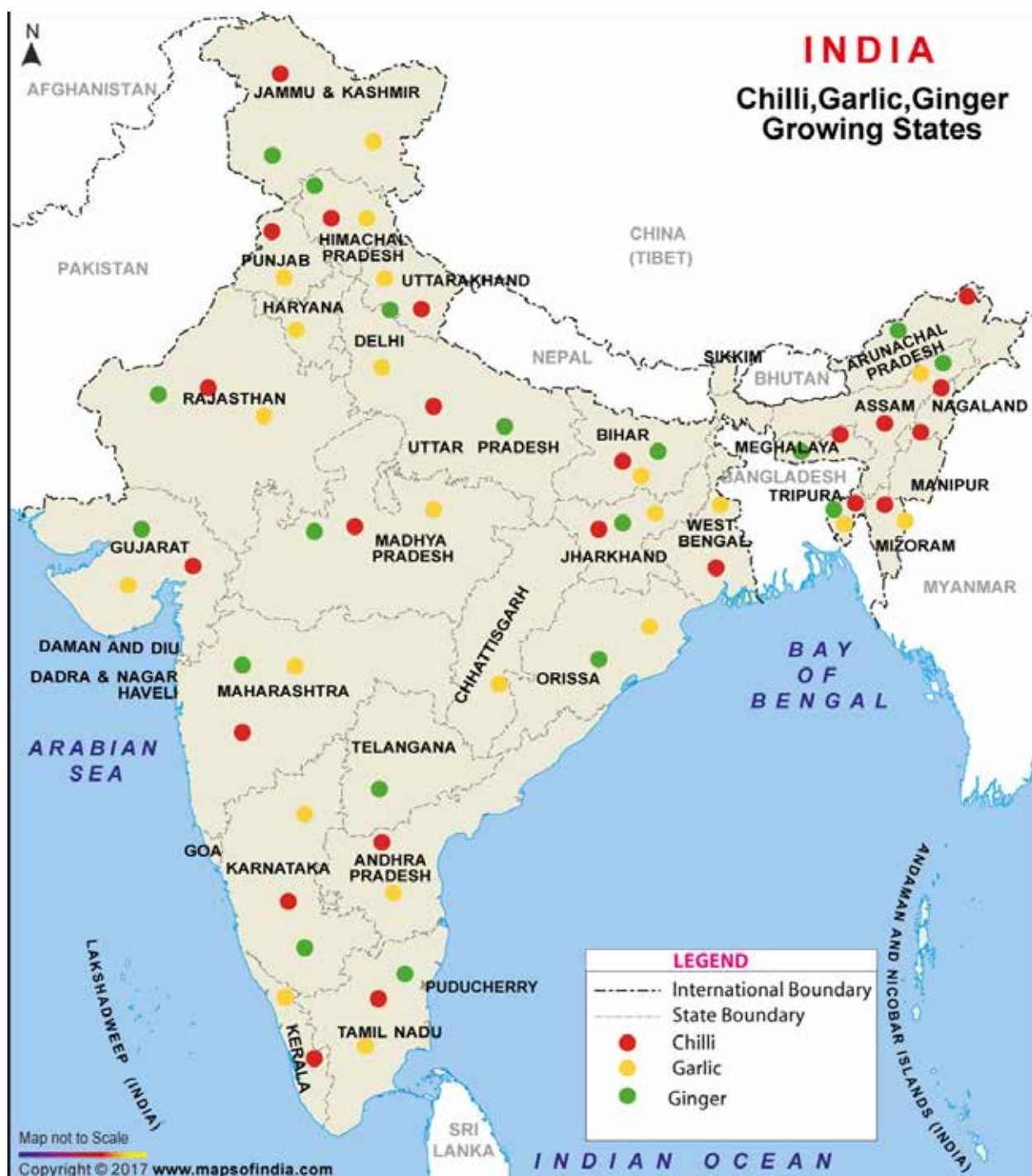
Most important production States

Orissa, Karnataka, Assam, Gujrat, Meghalaya, Odisha and Arunachal Pradesh are the most important States where annual quantities between 55,000 up to 140,000 tonnes. Smaller quantities of ginger are cultivated in most other Indian States as a main crop or as an intercrop in plantations.

Ginger varieties in India

The most important ginger varieties grown in different parts of India are Maran, Assam, Himchal, Kuruppampadi, Wynad Local, Suprabha, Suruchi, Suravi, Himgiri, Varada, Mahima and Rejatha. China and Rio-de-Janeiro are the two imported varieties.

A distinction in characteristics of ginger varieties in Indian is shown in Table 1.



Ginger production in India for 2015/16, which was harvested between January and February, is estimated at 800,000 tonnes. Increased supplies also led to higher ginger exports, which rose by 40% between April and June, compared to the corresponding period last year.

Cochin Ginger and Calicut Ginger for Kerala

Kerala was a major producer of good quality ginger with a low fibre content and special lemon flavour. Cochin Ginger and Calicut Ginger were internationally well-known for its high oil content as well and could be sold at high prices. However, in the past decade Kerala

was affected by drought, labour shortages and rising alcoholism. More investigation and experimenting with high oil content varieties in Nepal, where there is more rainfall than in Kerala, should be considered.

Production of oleoresins

Since 1947, industrial organizations started large scale processing and production of spices, oleoresins, essential oils and perfumes. According to the Kathmandu Post, Indian companies produce 60% of the oleoresins that are sold in the global market. They are increasingly used in the food and drink processing industries. This could give good

Table 1 – Characteristics of main varieties of ginger in India

High dry ginger	Maran, Nadia, Karakkal
High oleoresin	Ernad Chernad, China, Rio-de-Janeiro
High volatile oil	Sleevea Local, Narasapattam, Himachal
Green ginger	Rio-de-Janeiro, China, Wynad Local, Maran, Varadha

Agrifarming India (2017)

opportunities for Nepalese companies selling ginger with a high content of oleoresins.

Some major trends in Indian production of ginger

Farmers lease land at very high costs. Usually the size of land holding is very small and farmers tend to cultivate many different crops. Commercialization of ginger has been stimulated by giving opportunities to farmers to lease land in order to have a sense of belonging to the land and to manage it well.

Farmers from across Kerala had made huge investments in the high-stakes ginger farming in Karnataka by taking up a record INR 1.0 - 1.5 lakh acres (1,500 – 2,300 US\$/acre) on lease in 2013/2015. There had been a four-fold increase in the area of land taken on lease by farmers from Kerala over the last three years not foreseeing the potential risks of e.g. drought.

Move to lower cost areas. This has proved to be a too risky venture for many farmers due to droughts which even have moved desperate farmer to other areas – as is shown in the box.



Drought in Karnataka dries out Kerala farmer's ginger dreams

- Due to the drought in Karnataka in 2016/2017, farmers who have made huge investments in leasing land, tried to save their crop by resorting to early harvest (February) and they are forced to sell the produce despite low market prices.
- 'Many farmers are facing bankruptcy as acute water shortage has dried-up the ginger output by half. In normal conditions farmers used to get 350-400 sacks (of 60 kg) of ginger per acre. But this year the yield has dropped to just around 150 sacks per acre'. 'With even bore wells running dry, the farmers have no choice but to go for early harvest as they will not be able to leave the ginger in the field to mature till April, when it is normally harvested'
- According to the Deccan chronicle, the Kerala Ginger Growers' Association general secretary Navarang Mohanan told Deccan Chronicle that the shift in rainfall patterns in Karnataka, depleting levels of ground water, drying up of tube-wells, plummeting lease price for land and high wages had forced the farmers to go in search of greener pastures having fertile land, water availability and cheap labour.
- Desperate farmer from Karnataka were moving to other areas up to 2,000 km north in India such as Chhattisgarh taking 5.5 hours by plane to go there. Here the lease fees were more than ten times cheaper, i.e. INR 8,000 (US\$ 125) and labour costs were much lower.
- 'The wages of Karnataka have almost trebled during the last five years which is around INR 250 and INR 400 for women and men respectively whereas in Chhattisgarh it is around INR 100 and INR 200,'
- 'Even if we are paying INR 60,000 for a 12-tonnes truck to transport ginger seeds to the farm from Karnataka, we hope it would be profitable considering the cheap cost of all other farming inputs' 'We also get a better price up to INR 1,000 (US\$ 15.50) per bag (60 kilograms) higher than what we get in Karnataka and Wayanad,"
- Being far away from their families, farmer will stop ginger farming if the prices won't improve in future.

Increased production of ginger in other areas of India means less dependency on supplies from abroad. There is a tendency to reduce imports from Nepal, which already has a bad quality image by Indian buyers and traders.

More information about the ginger industry in India can be found in the Market study of Nepalese Ginger and its derivative products in India and Bangladesh by ANSAB (2015).

3.2 Consumption trends

In 2016, the sales of ginger in India was estimated at US\$ 280 million according to QY Research.

Between 2013 and 2016, ginger sales decreased by a CAGR of 17.1% compared to US\$ 495 million in 2013 which can be mainly attributed to oversupply, lower prices and inferior qualities of ginger in the Indian market. From 2019, value sales are expected to pick up which is mainly due to a rising consumption along with the rising population.

According to QYResearch, expectations are positive for 2021 driven by higher quantities sold in India. If prices do not decrease, a continued growth in value sales is expected reaching US\$ 301 million – as is shown in Figure 3.

Because of increased demand for re-exports, volume sales increases will be more significant than value sales.

RELEVANT TRENDS IN THE INDIAN MARKET

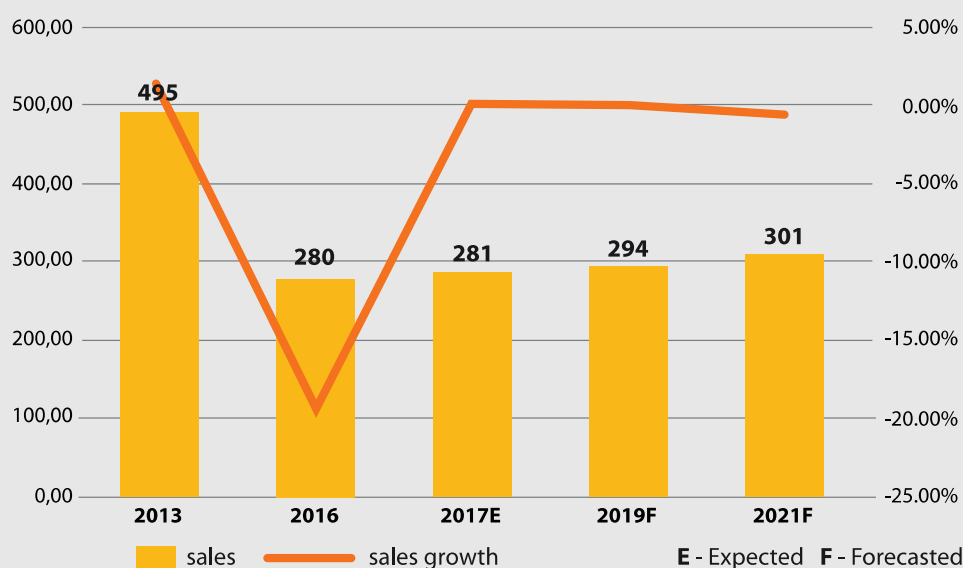
Some significant trends in the food sector in 2016 that have an impact on the ginger market were:

A move towards individuality. Young Indians are gradually move from a collective past into a personal present. The status of being from a good family is gradually replaced by the development of someone's personality. According to Euromonitor, young Indians have become highly experimental as well, especially with regard to food, media and personal care making them very receptive to products from other countries.

- **Experimentation with global cuisines.** Growing income has meant more foreign holidays and an increasing willingness of Indian people to experiment with different global cuisines e.g. Japanese, Peruvian, Mexican or European. This has led to the trend of a new fusion cuisine where combinations are made with the Indian cuisine.
- **More convenience in cooking and dining out in fast food chains.** Lifestyles are getting busier leaving little time to cook a meal at home. If they eat at home

FIGURE 3: **India - Ginger sales, 2012-2021**

Value in US\$ million and growth rate in percent



Source: Experts interview, Secondary sources and QYResearch (2017)

convenience is most important and people tend to choose for packed ready meals, potato chips, deep fried Indian snacks, instant noodles or are dining out in a fast-food restaurant (Indian, Chinese, Italian or American).

- International fast food chains have introduced Indian fast food meals e.g. Masala Grill Burger by Mc Donalds, or the murg kathi wrap (chicken wrapped in Indian flatbread) by Starbucks. Their success is being followed by new Indian fast food restaurants.

3.2.1 Ginger and Ginger products

GINGER – FRESH

In India, ginger is called *inji* in Tamil and *adarak* in Hindi. It is an important ingredient in the Southern Indian cuisine being used in several traditional dishes. Children usually do not like the intense aroma and pungy taste, but parents strongly advise to eat ginger as a rejuvenator and killer of diseases. Soft ginger rhizomes are pickled or added as a spice in daily cooking.

Food: Fresh ginger is a main ingredient in Indian cuisine, especially in *thicker sauces*, as well as in several *vegetarian and meat-based dishes*. It is an important spice used for making *pulse curries*, lentil curries or for other vegetable preparations. Fresh ginger together with peeled garlic cloves is crushed or ground for making *ginger garlic masala*. Ginger slices or cubes are also used in various side dishes as well as in various chutneys e.g. combined with mango, tamarind, curry leaves, mustard seeds and chilies.

As a type of *confectionery*, the ginger root is cooked in sugar until it becomes soft and then *crystallized ginger* can be obtained.

Drink: Fresh ginger is also used in traditional Indian hot or cold drinks for example in *masala chai*. Ginger is used in *spice tea and spice coffee*, especially in winter. In South India (Kerala), 'sambharam' is a *spiced buttermilk* flavored with ginger, green chillies, shallots, salt and curry leaves. It is a refreshing drink during summer. Ginger clove drinks stimulate digestion and metabolism. While lemon ginger is often served as an appetizer in restaurants.

Medicine: An important principle in *Ayurvedic medicine* is that a healthy body and nervous system exists when there is a balance between three fundamental bodily bio-elements (doshas) called 'Vata', 'Kapha' and 'Pitta'. Ginger is a warming spice helping to calm down and balancing the Vata and Kapha. Ginger (fresh or dried) also helps to increase Pitta by stimulating digestion, enhancing appetite, pacifying stomach disorders and maintaining joint health and respiratory system health.

GINGER – POWDER

Food: Ginger powder is used in *health food preparations* intended primarily for pregnant women to strengthen the immune system. In Gujarat, a popular sweet dish is 'katlu'. This is a mixture of gum resin, ghee, nuts, ginger powder and sugar and regarded as a *digestive aid*. Powdered ginger is also used for making tonics that stimulate digestion.

Spiritual tradition of Ginger during the Pongal festival

In India ginger is an integral part of the spiritual tradition. During the 4 day harvest festival of Pongal in Tamil Nadu (January) a ginger plant is tied along with the turmeric plant into the pots in which the new harvest of grains and vegetables are cooked.

The cooking area is cleaned and kolam is drawn around cooking stove or a fire. The fresh ginger and turmeric crops with rhizomes and leaves represent the eternal life force of nature. The sun provides a reward for preventing diseases, rejuvenate and healing. Therefore, during the Pongal celebration, the first harvest is first enclosed in the powerful geometrical symbols of kolam that represents the universe, then the cooked food is offered to the Sun God or Suria before being eaten as prasadam.



GINGER – DRIED

Dried ginger is known as *sukku* in Tamil and used in relieving coughs, colds and chest congestions or tooth ache by swallowing on a piece of sukku. Chewing on a piece of ginger helps against throat infections.

Food: Dried ginger enhances taste to vegetable and lentil dishes or in stir-fry dishes combined with other spices, especially with curcuma, cayenne pepper, cumin, coriander, cinnamon and fennel. It is used extensively in baking and in desserts in combination with other spices such as cinnamon and nutmeg.

Drink: Dried ginger can be also used in hot drinks (tea, coffee) or refreshing cold drinks (sambharam).

GINGER – CANDY

Ginger candy is popular in India and sold in small groceries or supermarkets as a solid candy or as rice covered with ginger syrup, which popular in the South. Eating a ginger candy can generate heat, cold resistance, promote metabolism, refresh oneself, prevent vomiting, strengthen the muscles and bones (which is healthy to old man) or eliminate abdominal pain. In India and Bangladesh there are several small ginger candy manufactures and exporters.

3.3 Market segments and applications

According to the distinction in Chapter 1.2, consumption and use of ginger and ginger products can be subdivided into the following segments:

FLAVOUR | FRAGRANCE | PHARMACEUTICAL

3.3.1 Flavour segment

New flavour forecasts. Every season new flavours and mixes (sweet and sour) from different countries are developed according to suggested dishes or snacks by flavour forecasts from the multinational spice processor McCormick which can be downloaded from <https://www.mccormick.com/flavor-forecast-2017>

These global forecasts are being followed as well in India and its food service sector. Other influences or inspirations come from popular cooking programmes or from one of the most influential.

Selected food segments where fresh, dried, powdered ginger, pickled ginger, ginger candy and ginger oil are likely to be used are:

- Fresh food/Healthy food including herbs & spices
- Sauces, pickled products and dressings
- Biscuits and snack bars
- Confectionery
- Baked goods
- Soft drinks and hot drinks

FRESH FOOD/HEALTHY FOOD

Sales of fresh food – excluding starchy roots - was US\$ 707 million in 2016. Volume sales of starchy roots was 31 million tonnes. This segment has grown fast along with the growing Indian population. A smaller group of Indian people are more conscious about their food and drink intake that should give them the required daily nutrition

Table 2 India - Sales of selected Fresh Food and Healthy Food 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Starchy roots	na	na	na	na		30,501,200	31,101,100	34,144,400	36,741,100	3.4%
Herbs & Spices	235	413	503	551	5.9%	66,600	94,800	119,900	138,100	7.8%
Organic food	37	71	99	123	11.6%	na	na	na	na	na
Breakfast cereals	115	223	327	405	12.6%	na	na	na	na	na
TOTAL	387	707	929	1,079	8.9%					

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

and energy. They are willing to spend extra money on the quality of fresh vegetables in urban India. Increasing demand for fresh vegetables – including starchy roots such as ginger - led to growing availability of such products at the street markets, mom & pop stores, and in modern food retailers. Demand for fresh food is also generated by more health food restaurants.

The Starchy roots segment (including fresh ginger) is expected to reach 37 million tonnes by 2012, an increase of 3.4%% - as is shown in Table 2.

As the use of spices and herbs are a must in Indian dishes, so this forms a large category with the Fresh/Health food segment. Along with the expected population growth and more experimentation in food, sales of herbs and spices is expected to increase by 5.9% reaching US\$ 551 in 2021.

Fusion cuisine with new taste sensations. Urban affluent people like to try out new foods. This has led to a trend of fusion cuisine. Following various Indian online blogs, consumers are beginning to use international ingredients in Indian dishes and Indian spices/ingredients in international favourite dishes. Next to the Indians still preferring traditional food, there is an emerging group who are open to experiment in the search for new taste sensations that can be more refined than the strong curries.

Market for traditional Indian food still strong. Now that Indian consumers are more exposed to international food and shelves of retailers show modern packaged food such as pasta and spreads, the market for traditional Indian food items continues to remain strong. As health awareness among Indian consumers grows, there is a greater demand for sanitary versions of Indian street food. Although these meals should be quick to prepare.

Organic food is still expensive for most Indian people and therefore sales (US\$ 71 million in 2016) are still small compared to organic food sales in Japan (US\$ 696 million).

But substantial growth is expected also being driven by government initiatives by supporting organic farming (trainings) and promotion of the benefits at event and conferences. New organic specialty stores that also sell online attract many visitors. A good example is <http://www.isayorganic.com>

Most Indian consumers do not recognise the difference between the different organic labels that popped up in the past few years. The largest sales of organic products is in Mumbai, New Delhi, Bangalore, Ahmadabad, Hyderabad, Indore and Chandigarh.

The breakfast cereals market grows very fast in India because of its convenience (see Table 2). The market is led by multinationals such as Kellogg, Nestlé, Quaker, Jordans and many other brands. Marketing campaigns are primarily focussed on affluent children and busy women who buy them to slim down. Despite the claims for healthiness, many cereals contain excessive levels of sugar and salt and feature several varieties that contain chocolate.

Future growth is expected with a tendency towards healthier breakfast cereals. This implies good opportunities for more natural dried ginger in breakfast cereals as a healthy seasoning and energy boost.

SAUCES, PICKLED PRODUCTS & DRESSINGS

In 2016, Indian retail sales of this segment was valued at US\$ 1,233 million, of which 80% were dry sauces, which were also dominant by volume. In the coming five years the sales of dry sauces is expected to grow substantially by 14%, from 144,200 to 277,600 tonnes. Within dry sauces, the Indian and Chinese flavours are most popular.

Wet/cooking sauces remains promising because Indian prefer to make their own freshly-prepared sauces and ingredients when cooking. Besides, they are low in price and available to all Indians. Further expansion in new flavours and more convenient solutions in making these sauces is expected.



In urban areas, packaged sauces are likely to be preferred as they are convenient, can be stored longer and there is much more choice, but they are more expensive.

It should be noted that ketchup and mayonnaise are large growing categories and are popular with Western plates (pasta) and increasingly with Indian snacks (e.g. samosa). But as ginger is not used in these sauces, they are not included in statistics below.

Pickled products is another large category with 87,600 tonnes sold in 2016. Although this volume is much lower compared with 585,000 tonnes sold in Japan. Nevertheless, the sales of pickled product is expected to grow along with

the increasing population. In India pickled product mainly include all kinds of chutneys e.g. coconut or mango chutney which can be combined with ginger or with combinations of vinegar, garlic and fresh ginger that are used in Chinese dishes.

Main players in India are the two Indian processors Narendrakumar (Everest) and Mahashian Di Hatti (MDH) both with a share of 12-13%, taking up almost one quarter of the category's retail value sales in 2016. Other large players were Eastern Condiments (5.3% of retail sales), DS Group (4.4%), Desai Bros (3.9%), Nestle India (3.7%), Skati Masal (3.5%), Ushodaya (2.5%), Nilon's (1.7%), Dabur India (1.6%), 25 other brands and other local/unbranded processors (33.3%).

Table 3 India - Sales of selected Sauces and Pickled products in 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Dry sauces	455	986	1,366	1,642	10.7%	79,500	144,200	215,600	277,600	14.0%
Pickled products	135	224	264	288	5.2%	65,700	87,600	106,100	119,200	6.4%
Salad dressings	1.6	2.5	2.7	2.9	3.4%	400	500	700	800	8.5%
Soy sauces		3.8	5	5.3	6.7%	700	900	1,200	1,600	11.2%
Chili sauces	9.5	18	22	25	6.8%	3,200	4,200	5,000	5,500	5.4%
TOTAL	602	1,233	1,660	1,963	9.7%	149,500	237,400	328,600	404,700	11.0%

* Expected Compound Annual Growth Rate 2016 – 2021
Note: Ketchup, mayonnaise and mustard are not included

Source: Euromonitor (2017)

The Hommade brand by Dabur includes a range of cooking pastes in ginger, garlic, ginger-garlic & tamarind, tomato puree and coconut milk. Dabur has a branch in Nepal and is positioned as convenient and an aromatic/pungy addition to meals.

Future sales of the sauces segment will be driven by a more interest in International cuisine along with a continued popularity of Indian food and new fusions using additional flavours and variants including ginger flavours. For Indian families, a stronger taste of ginger is likely to be more important than the Chinese ginger. The main forms of ginger used for sauces are ginger powder, ginger oil and dried ginger.

BISCUITS AND SNACK BARS

Biscuits and snackbars is within the Indian flavour segment the largest in terms of volume. In 2016, sales of biscuits, dried fruit and snackbars in India was valued at US\$ 3,552 million.

Even if the Indian population is ten times higher than in Japan, sales in Japan was at a similar level (US\$ 3,470 million). This is lower price levels and a lower share of filled biscuits in the Indian market. Typical for the Indian market is the high share of plain biscuits, similar as in other developing countries. By volume over 1 million tonnes were sold in 2016, which accounted for 56% of this market segment, albeit decreasing in the coming years.

Sales of dried fruit, processed snacks and cookies will see the strongest growth in the coming five years both in value and volume. Fruit snacks are perceived as healthy and convenient. This is also the case for the small category

of snack bars that increasingly become popular among people doing fitness.

Future sales of the biscuits, dried fruit and snack bars segment is expected to rise along with the growing population and available income reaching 2,267 thousand tonnes in 2021, valued at US\$ 3,893 million. The volumes sold in this segment are very high as plain biscuits remain a very important snack among the largest part of the Indian population.

On the middle class level consumers are expected to be more health and diet conscious with manufacturers developing high fibre biscuits and extra refined wheat flour biscuits as well as snack bars with high fibres and herbal ingredients e.g. basil or neem. The use of garcinia in snack bars was promoted as a simple way to lose weight and burn fat. However, his popular weight-loss supplement has now been linked to mania, as well as liver damage.

The market will be driven by new healthier ingredients in fruit snacks, biscuits and cookies with a good taste and giving the necessary energy boost. The main forms of ginger used in these products include dried ginger, sweet/crystallised ginger, ginger powder, ginger oil and oleoresin.

Main players. According to Euromonitor, the two Indian companies Britannia Industries (Wadia Group) and Parle Products held a share of 29% and 25% respectively. Another large player is ITC Ltd (15% of the market), followed at a distance by Surya Foods (4%), Anmol Biscuits (2%), Unibic Food India (1%), Mondelez India, Lion Datex Impex and Saj Industries followed by 10 other (international) companies and many medium/small-sized local companies.

Table 4 India - Sales of Biscuits, Dried fruit and Snack bars 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Dried fruit	164	374	547	678	12.6%	21,900	32,200	45,500	55,900	11.6%
Processed fruit snacks	74	144	190	220	8.9%	22,900	34,400	48,400	59,500	11.5%
Snack bars	2.0	4.4	5.6	6.7	8.6%	200	300	400	500	9.5%
Plain biscuits	887	1024	915	826	-4.2%	908,000	1,014,600	1,067,100	1,100,400	1.6%
Filled biscuits	449	710	688	686	-0.7%	169,000	272,500	309,100	328,400	3.8%
Cookies	694	1,295	1,420	1,476	2.6%	298,400	468,500	603,900	722,200	9.0%
TOTAL	2,271	3,552	3,766	3,893	2.8%	1,420,400	1,822,500	2,074,400	2,266,900	4.4%

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

CONFECTIONERY

Sales of confectionery was valued at US\$ 1,180 million, of which 72% was chocolate confectionery taking up less than half by volume, due to lower importance of boxed chocolates in India being a luxury product. Sweet confectionery is more affordable such as boiled sweets and pastilles, gums and jellies are widely sold at the large number of small independent groceries. Therefore, sweet confectionery accounted for 52% in this segment.

Within the chocolate segment, count-lines, chocolate pouches & bags are large categories. However, they are not included in Table 5 because ginger is hardly used in these products.

Chocolate tablets. Within the chocolate tables, milk chocolate was the favoured (60% of sold tablets in 2016) and filled chocolate (31%). Since 2012, the share of dark chocolate increased from 4.5% to 6.5% mainly attributed to eating something healthier after meals instead of sweet products e.g. ice cream or biscuits. In this respect, dark chocolate is recognised for helping to control blood pressure and as a healthier energy boost. Growth prospects are optimistic and sales is expected to reach US\$ 907 million in 2021 with a further rise in volume from 47,900 to 67,800 tonnes between 2016 and 2021.

Boxed chocolate assortments. Even if sales of boxed chocolates is small, it is expected to be a fastest growing category, with annual growth rate more than 10% as is shown in Table 5. Adults form the largest consumers group as chocolate boxes of Cadbury Glow or Ferrero Rocher are popular gifts during festivals (e.g. Diwali) or other special occasions. This trend has been at the expense of the traditional Indian sweets.

The chocolate market is expected to grow substantially in the coming years both in value and volume. In the chocolate confectionery market, combinations of pure chocolate tablets with new ingredients (e.g. ginger, exotic fruits, nut pieces, stevia, caramel etc.), are expected in order to stimulate chocolate market and give the product, especially pure chocolate, a healthier image. The main forms of ginger include dried ginger (cubes), sweet/crystallised ginger or ginger powder.

Main players. Since 2013, the market is largely dominated by the US multinational taking up around half the market (49% of sales in 2016). While Nestlé and Ferrero Group took up 13% and 8% respectively. Smaller players included Gujarat Co-operative (1%), Global Consumer Products (0.6%), Lindt (0.2%), Buttercup Confectionery, Cadbury India and many smaller local companies.

In sugar confectionery, Lollipops, mints, toffees, caramels and nougat are large categories. However, Table 4 covers selected products in which ginger might be used.

Pastilles, gums, jellies and chews form a large category representing a volume of 23,600 tonnes in 2016, valued at US\$ 114 million and is set to very fast in the coming five years as is shown in Table 4. Children are the largest consumers and the growth of the children's population in the past few years and more available money to spend have led to more impulse buying. In future, fruit jellies are expected to be more popular with new flavours by the market leader Perfetti van Melle.

Prospects for medicated confectionery are good as well. This category includes oral health aids against cold, dusts or nausea.

Table 5 India - Sales of selected Confectionery 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Chocolate Tablets	440	716	829	907	4.8%	47,900	56,400	63,400	67,800	3.8%
Boxed Chocolate assortments	59	133	188	229	11.5%	5,900	10,800	15,900	20,200	13.4%
Boiled sweets	58	111	124	130	3.3%	24,600	36,800	41,100	42,900	3.1%
Medicated confectionery	65	107	133	149	6.9%	10,400	13,400	16,200	18,200	6.4%
Pastilles, gums, jellies, chews	46	114	170	212	13.3%	14,100	23,600	33,100	40,100	11.2%
TOTAL	668	1,180	1,442	1,628	6.6%	102,900	141,000	169,700	189,200	6.0%

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

The boiled sweets segments is expected to grow at a lower rate. The main forms of ginger in sweet confectionery include ginger candy, sweet/crystallised ginger, dried ginger (cubes) or ginger oil and oleoresin.

Main players are Perfetti van Melle, Mondelez and Mars together taking up more than 50% of the market. Indian players such as Mapro and DS Group holding a share of 2.2% and 1.0% respectively are slowly growing in importance at the expense of foreign multinationals. Other smaller Indian companies included Sugar Farms, (0.8% of sales in 2016), Plethicao (0.4%), Mala's Fruit (0.4%), Dabur India (0.3%) and smaller local companies.

BAKED GOODS

Baked goods sales is within the flavour segment the second largest in terms of volume representing 259,900 tonnes in 2016, valued at US\$ 367 million. Cakes is the largest category and accounted for 77% of the volume of baked goods sold in 2016 in India. The substantial growth rates shown in Table 6 are largely attribution to more availability of packaged cakes in rural areas. In addition, manufacturers launched single packed cakes as a convenient in-between snack or as an easy breakfast option for women and children in urban areas.

Main Players. Britannia Industries is leading the market and accounted for 9.5% of the market in 2016. Since 2015, Modern Food Enterprises has become a second largest player, taking up 4% value share. The Everstone Group, a private equity firm in New Dehli acquired the Modern brand from Hindustan Unilever. Modern food aims to focus on quality, affordability and health aspects of their products and want to enter into new categories. Other players include Monginis Foods (3.5%), Weikfield products (1.0%), Gits Food Products (0.9%), Spencer's Retail and 10 other players.

However, the large number of small artisanal and local bakeries in smaller towns and rural areas are still taking up the lion's share of the market as they understand well

local needs. As the number of modern supermarkets or hypermarket is still limited, the share of private labels in baked goods is low.

Growth prospects are optimistic and sales is expected to reach US\$ 787 million in 2021 with a further rise in volume from 259,900 to 349,700 tonnes between 2016 and 2021, with the largest growth rates of cakes, pastries and especially for dessert mixes.

Obesity rates on the rise among affluent Indians. The obesity rate was 4.7% in 2016 and have been increasing steadily, although this is not seen as a big issue yet. Instead of their traditional Indian tiffin boxes, children of busy affluent parents prefer wafers, cupcakes and popcorn all of which contain much sugar. This likely will lead to a tendency to use healthier ingredients in cakes or substitutes for sugar such as ginger.

Small bakeries are likely to challenge new combinations of flavours or textures in baked products. For the baker or cake maker, it is a skill to create, surprise, innovate or use ginger as a healthy taste maker. This implies good opportunities for dried ginger from Nepal, which have a strong taste. The main forms of ginger in baked goods include ginger candy, sweet/crystallised ginger, dried ginger (cubes) or ginger oil and oleoresin.

HOT DRINKS and COLD DRINKS

As the largest tea producing and tea drinking country in the world, India leads volume sales of tea of 303,600 tonnes in 2016 being more than three times the volume of Japan (82,505 tonnes). Having tea for breakfast or the afternoon tea break remain an important part of social culture in India with all people drinking tea, regardless their social class or income.

Sales of all hot drinks was estimated at 565,300 tonnes, valued at US\$ 3,884 million in 2016, of which 55% was tea, 10% coffee and 35% other hot drinks. The other hot drink category includes malt-based drinks of Milo, Horlicks

Table 6 India - Sales of Baked goods 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Cakes	284	494	568	617	4.5%	154,800	199,000	234,500	260,600	5.5%
Dessert mixes	55	88	99	107	3.9%	20,200	32,000	42,900	51,000	9.7%
Pastries	35	55	60	64	3.0%	21,900	28,900	34,200	38,100	5.7%
TOTAL	374	637	728	787	4.3%	196,900	259,900	311,600	349,700	6.1%

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

Table 7 India - Sales of Hot and Cold Drinks 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Tea	1,422	2,243	2,799	3,222	7.5%	269,800	303,600	345,400	376,000	4.4%
NH Tea	79	158	266	362	18.1%	na	na	na	na	
Ready to drink Tea	11	16	17	18	0.7%	na	na	na	na	
Sports & Energy drinks	71	116	150	174	8.3%	na	na	na	na	
NH Fruit/ Vegetable juices	87	187	319	437	18.5%	na	na	na	na	
TOTAL	1,671	2,720	3,551	4,212	9.1%					

* Expected Compound Annual Growth Rate 2016 – 2021

NH = Natural Health

Note: Food service sales is not included

Source: Euromonitor (2017)

and Ovaltine are well-known brands. It also comprises chocolate based powdered drinks which are mostly consumed by children. The food service sector takes up around 20% of hot drinks sales in 2016 with tea houses can be found in any corner of the country.

Better quality teas consumed in India. Driven by higher disposable incomes, affluent Indians are willing to spend more to enjoy better quality tea from their own country instead of the yellow Lipton tea bags from Unilever, while the best qualities were only for export markets. India is well-known for its Darjeeling tea or Assam tea. Besides, new players e.g. Chai Point, Chaayos, Chai Thela and Tea Trails opened up tea lounges in urban areas with a more western look attracting young people. Similar teas and new trendy packaged teas (James Finlay, Dilmah Tea, Tulsi etc.) were available in attractive packaging at supermarkets. This has given an extra boost to the tea market which slightly has suffered from the growing popularity of coffee in India.

Chai remains popular which is black tea spiced with some combination of cinnamon, ginger, pepper, cardamom and other ingredients commonly found in traditional Indian chai masala. Chai also comes in milkier forms like in sweet hot tea lattes, and the rich, sweet flavours that people enjoy with espresso based latte products.

Driven by claims that tea is healthier than coffee, further development of the tea market is expected with the volume of tea sales reaching 376,000 tonnes by 2021. New specialty teas (e.g. state teas), small tea growers' tea teas and green tea will be introduced providing more added value. Therefore, the tea segment continues to develop

faster in value terms (+ 7.5%), than in volume terms (+4.4%), as is shown in Table 7.

New herbal teas. Concerns related to weight control and more exercising have driven the market for health and wellness products including herbal teas. By value, the NH (Natural Healthy) tea market is expected to grow by a CAGR of 18.1% driven by rising popularity of green tea, launches of new herbal teas, fruit teas or tea mixes. Green tea with ginger or hot lemon with ginger offer good opportunities as an energy boost for pregnant women. The main forms of ginger in hot drink include fresh ginger pieces, dried ginger of ginger powder in instant tea.

COLD DRINKS - SOFT DRINKS AND OTHER DRINKS

Sales of cold drinks was valued at US\$ 8,136 million in 2016, of which 46% was sold via food service. Consumption of cold drinks depend on the climate with carbonated drinks sales rising during hot periods. Recently, carbonated and sports/energy drinks have lost some popularity among consumers due to growing health concerns. Since May 2015, several energy brands (Monster, Tzinga and Cloud 9) were withdrawn from the Indian market as they contained a combination of caffeine and ginseng which is not advisable to use in combination.

New products in soft drinks with new flavours are driving the future market. A tender coconut juice was introduced by Nature's First India aimed at working class people who do not have time to have coconut water from a street vendors but still would like a cold drink that is hygienic. In Ready-to-Drink tea, the company Paper



Boat introduced in October 2014 their Ginger Lemon Tea aimed at health-conscious people. A growing number of Indians are moving away from the regular cola or other carbonated drinks (Fanta, Sprite) that are very sweet giving good opportunities for new healthy drinks using more refined fruit or herbal/botanical flavours.

Some relevant developments in cold and alcoholic drinks in India were:

- **Alternative cold drinks** with potential to fill the gap left by traditional soft drinks and healthy drinks include ginger drinks (e.g. ginger ale or ginger beer), flavoured waters, renewed sports drinks, sparkling waters and blended juices e.g. mango-ginger juice as a new refreshment during the hot and humid weather in India.

- **Demand for health-based beverages** and wider variety beyond sweet carbonates in the form of new variation on traditional drinks such as ginger, lemongrass, sugar cane, tamarind juice or other typical Indian drinks.
- **Sparkling Green.** India, Canada Dry, known for its ginger ale, has a variant that combines ginger with green tea, called Sparkling Green.
- **Consumption of mineral water, juices** and soft drinks has more than doubled over the past decade, between 2005 and 2014, per capita consumption more than doubled, from US\$ 5.73 in 2005 to US\$ 11.43 in 2014 and is expected to reach US\$ 15.53 by 2020. Rising health awareness and poor access to clean water have also led to an increase in the popularity of bottled water to drink at home, on-the-go or when eating out at a restaurant.
- **Detox juices.** Driven by much attention in the media, detox juice cleanses have made their inroads in India as well, being popular among affluent people. Instead of serving alcohol, only juices are served at parties of health conscious Indians.
- **Drinking alcohol more common.** Consumption of alcohol, cocktails and mocktails rose substantially since the millennium. Between 2000 and 2014, the per capita expenditure rose from US\$ 6.07 to US\$ 9.54, and is expected to be US\$ 10.73 by 2020.

Young people with increasing disposable incomes enjoy drinking at home and in bars which had led to an increasing social acceptance of alcohol. Drinking in pubs during the week is becoming more common in urban areas. As more women enter the workforce and can make their own choices, a women-only pubbing segment is emerging.

- **Acceptance of alcohol still differs per State.** Kerala has the highest per-capita liquor consumption in India, and a high alcohol abuse. In 2014, the local government announced a proposal to make the state alcohol free in 10 years. In states such as Karnataka and Andhra Pradesh, the rules have been relaxed somewhat and liquor is now sold in supermarkets and hypermarkets as well.

The main forms of ginger in cold or alcoholic drinks include ginger powder, ginger oil, ginger oleoresin and pieces of fresh ginger in juices featuring natural flavours.

3.3.2 Herbal Traditional Medicine segment

HERBAL/TRADITIONAL MEDICINES

Ayurvedic or herbal medicines are very popular in India and are used for many generations. Herbal medicines

Table 8 India - Sales of selected Herbal Traditional Medicines 2012 - 2021
Value in US\$ million

	VALUE				
	2012	2016	2019	2021	CAGR*
HT Topical Analgesics	162	226	240	256	2.5%
HT Digestive Remedies	65	84	88	92	1.8%
HT Cough Cold & Allergy	141	212	221	229	1.6%
HT Dietary Supplements	234	379	437	464	4.1%
HT Tonics	26	31	33	34	1.6%
TOTAL	627	932	1,019	1,075	2.9%

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

are accessible to the majority of the population and are generally preferred over chemical medicines (OTC medicines). They are well-recognised to treat ailments, such as digestion problems or sleep disorders. In herbal products, the majority of Ayurvedic medicines are considered OTC. This gives herbal/traditional medicines a prominent role in health care.

Its steady performance can be attributed to its long traditional and consumer perception that Ayurvedic medicines are safe and have no side effects compared to regular OTC medicines. They are used as home remedies and are taken as health supplements.

The sales of herbal medicines via practitioners are often not precisely registered. Therefore, official sales according to Euromonitor, represents just a portion of what is sold in the country and only gives a tendency of herbal medicines sold by the **main players** such as Emami (18% of the market), Dabur India (17%), PGT Healthcare (6%), Ranbaxy Laboratories (5%), Mondelez India (3%), Amrutanjan Health Care (2.6%), GlaxoSmithKline (2.4%), Forever Living Products (1.7%), Himalaya Drug Co (1.4%) and 15 medium-smaller players followed by many companies in the category 'others' (37%).

As is shown in Table 8, sales valued US\$ 932 million in 2016. Sales of herbal/traditional medicines are expected to rise by +2.9% in the review period. Along with the growing population, all categories will increase the coming five year, especially dietary supplements and topical analgesics in order to perform well in an increasing busy lifepace. *Ginger*, dandelion and angelica dahurica root are believed to be able to drive away coldness and causes of illness.

Uses of ginger

In addition to the uses given in Chapter 1, common uses of ginger in India include pain relief from rheumatoid

arthritis (RA), osteoarthritis, menstrual pain, upper respiratory tract infections, cough, respiratory problems, migraine headache, bronchitis and diabetes.

Ginger is also sometimes used for chest pain, low back pain, and stomach pain, discontinuing use of drugs called selective serotonin reuptake inhibitors (SSRIs), anorexia, to stimulate breast milk, as a diuretic, and to increase sweating. It is also used to treat cholera, bleeding, bacterial bloody diarrhea, baldness, malaria, inflamed testicles, poisonous snake bites, and toothaches.

Some people pour the fresh juice on their skin to treat burns. The oil made from ginger is sometimes applied to the skin to relieve pain. Ginger extract is also applied to the skin to prevent insect bites. The main forms of ginger in herbal/traditional medicines include dried ginger, ginger powder, fresh ginger and ginger essential oils (aromatherapy).

3.3.3 Fragrance segment

BEAUTY AND PERSONAL CARE

In 2016, the **beauty and personal care** market for the selected categories in India was valued at US\$ 8,896 million and is one third of the Japanese market (US\$ 25,403 million). However, beauty and personal care is growing steadily since 2012 as a rising number of Indian people become more concerned about their looks and have the money to spend. Influenced by TV commercials, celebrity endorsements and social media, upper middle class consumers became highly interested in premium BPC (Beauty and Personal Care) products.

Traditionally bath & shower and hair care are together taking up the lion's share (66%) of the total market. Contrary to the other selected markets, skincare products



is still a small category (18%) which is also the case for fragrance which is a fast growing category as is shown in Table 9.

The selected categories that could use ginger as an ingredients are shown in Table 7. The premium end of the mark consists either of *higher quality products* - with added benefits e.g. multifunction or *green products* using natural or organic ingredients such as ginger.

Significant trends in the premium BPC (Beauty and Personal care) market were:

- **In hair care, colourants were not only limited to older women but younger women** were more open to change the colour of their hair regularly. Hair oils and hair styling agents (gels, creams) are often used. Keo Karpin (Dey's Medical Stores) is a leading brand for hair oil in East India. In order to reduce the expense of

Table 9 India - Sales of selected Beauty and Personal care products 2012 - 2021
Value in US\$ million

	VALUE				
	2012	2016	2019	2021	CAGR*
Hair care	1,795	2,720	3,455	4,055	8.3%
Skin care	961	1,607	2,060	2,417	8.5%
Bath & shower	2,279	3,119	3,255	3,320	1.3%
Men's grooming	693	1,168	1,705	2,203	8.3%
Fragrances	155	281	402	507	13.5%
TOTAL	5,882	8,896	10,876	12,501	7.0%

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

a salon, hair care tends to be more often done at home. In the North East, Middle and South, people use more traditional and natural products. They are lower in price, are effective and have less side-effects.

- **Indian men spend more time and money** to look well-groomed in order to increase their chances to be successful in their career. In addition to the usual after shave products, men now spend more on specialised skin creams, shampoos and bleaches that are specifically developed for men. Beauty salons and parlours have also seen rise in the number of men.
- As shown in Table 7, sales for men's grooming products almost doubled between 2012 and 2016 from US\$ 693 to 1,168 million, and is set to increase further reaching US\$ 2,203 by 2021. Manufacturers now launch beer shampoos, whitening creams and face wash and perfumes for men.
- **The organic skin care market is still a niche market in India**, as affluent consumers consider organic food more important than organic skin care. Indian players are more export oriented. For example, Radico offers certified hair colouring and henna products at a similar price level (US\$ 9) as conventional hair colourants. But their sales in the domestic market remains low compared to their sales in Japan, USA, Canada, Middle East, New Zealand, Malaysia or Europe.
- Other players in organic BPC products include Souttree (organics bath & shower), Vedicare (herbs and cold pressed oils), Kerala Nature, Lotus, Iraya and Lakme.

Possible uses of ginger

- **In hair care**, ginger stimulates blood circulation of the head skin, promotes scalp metabolism, strengthen the hair root and possibly prevent dandruff and hair loss. In addition, ginger oil in the shampoo has a certain therapeutic effect in migraine headache and in cyclical headache.
- **In male fragrances and after shaves**, the main forms of ginger in beauty and personal care include ginger oil and ginger extracts.
- **In soap and bath/shower products** ginger grass oil could be an ingredient for products for the Asian expats. While in **natural toothpaste** ginger extract can be used.
- **Gingergrass Oil** once was a popular perfumery raw material for rose compounds, particularly for soap perfumes. Frequent and crude adulteration, often at the place of production, ruined the good reputation of this oil. The annual production has now dropped and the oil is mainly used in Indian soaps and detergents, and could be of interest to export by Nepal.

Main players. There are at least 30 players in the BPC market dominated by Hindustan Unilever that held 27.9% of the total BPC market in 2015, although their share decreased from 32.5% in 2010. Other multinational players include Colgate-Palmolive (6.7%), Procter & Gamble (5.2%), L'Oréal (4.3%) and Indian multinationals such as Dabur India (4.2%), Godrej India (3.9%), Reckitt India Benckiser (3.4%), Wipro (2.1%), Emami (1.5%), Amway, Himalaya Drug etc... About two-third of the leading players are foreign multinationals having a strong presence within the large and complex network of small retail shops.

The beauty and personal care market in India is expected to grow further by + 7.0% reaching US\$ 12,501 million by 2021 being mainly driven by the growth in hair care and skin care products.

3.4 Prices and Distribution

3.4.1 Prices and price developments

The price of ginger will depend on where it is sold, from which country it has been imported, how it is transported, unofficial payments to (Customs) officials and the number of channels/middlemen in the distribution.

Apart from the supply chain, the main key determinant of price is the variety/quality of the ginger itself, its cleanliness, freshness, whether or not processed, how it is packed and how long it can be kept fresh. Most ginger goes via wholesalers based in local markets, and many of whom also act as retailers.

Ginger import prices

In order to obtain a rough idea, it is best to compare the price levels (based on imported unit value) of ginger (091011) that were imported by India between 2014 and 2016 as is shown below in Table 10. Import price differences can be seen with prices from Nepal being extremely low while prices from the UK, Germany, Indonesia and Jamaica were high. The low average price level is mainly attributed to the low prices of Nepalese ginger.

There is a trend towards lower average import prices due to decreasing prices for ginger coming from China and Nigeria. The Chinese prices were slightly higher than the Nigerian averaging between US\$ 1,875 – 2,000 per ton in 2016.

Price levels from other African countries and Peru were also in the range of US\$ 2,000 per ton in 2014 and 2015. Price levels of Sri Lanka were half of this level (US\$ 936). This should give enough reasons for Nepalese exporters to considerably increase their price levels to Indian buyers if

Table 10 India – Import price per ton in US\$ for ginger*, 2016
Leading and selected suppliers

Exporters to India	2014	2015	2016	Imports, US\$ 1,000 (2016)	Imports, Tonnes (2016)
	US\$/Ton	US\$/Ton	US\$/Ton		
World (average)	706	659	519	12,213	23,539
Nepal	230	235	280	5,629	20,112
Nigeria	1,502	2,135	1,876	5,334	2,843
China	3,071	3,744	2,069	745	360
Myanmar	1,583	1,884	1,827	137	75
Germany	1,300		3,323	103	31
UK			3,864	85	22
Indonesia	1,250		3,250	65	20
UAE	2,200		2,167	52	24
Sri Lanka			936	44	47
Jamaica	5,000	8,500	3,600	18	5
Djibouti	1,960			0	0
Cameroon		2,167		0	0
Ethiopia	2,263			0	0
Ghana		1,833		0	0
Guatemala	1,432			0	0
Guinea	1,125			0	0
Peru	2,313	1,741		0	0
Viet Nam	1,333			0	0
Thailand	1,800	1,375		0	0
Uganda		2,000		0	0

* Ginger neither crushed nor ground (091011)

Source: ITC Trademaps (2017)

they can deal direct with them and to overcome all trade barriers at the border points.

More information about price trends of ginger exports from Nepal to India can be found in the Market study of Nepalese Ginger and its derivative products in India and Bangladesh by ANSAB (2015). An example about transaction costs that are involved in exporting ginger from Nepal to India can be found the Report ‘Ginger Action Research’ (2015) from Samarth.

3.4.2 Distribution

The Indian flavour & fragrance market is very fragmented ranging from multinational companies and larger Indian food and drink processors, herb and spice packers to small-scale local industrial and artisanal companies. Especially in the flavour segments such as bakery, confectionery and savoury the market is complex due to many small specialised companies.

The demand for processed food and the growth of supermarkets in urban centres, has led to a substantial

growth of Indian processors such as Narendrakumar (Everest), Mahashian Di Hatta (MDH), Eastern Condiments, DS Group, Desai Bros, Skati Masal, Ushodaya, Dabur India and Emami amongst many smaller other companies that all benefit from the growing Indian economy. With more multinational players form India, the Indian market will be more competitive in future. Although, the Indian government has taken initiatives to organise the Indian food sector and to encourage the collaboration between companies by establishing Food parks. A good example for Nepalese companies is shown below.

Detailed information about trade channels in exporting ginger from Nepal to India can be found the Report ‘Ginger Action Research’ (2015) from Samarth.

The distribution network in India comprises more than one million intermediaries (dealers and stockists) that sell on specialised small producers and to different retail shops in 3,800 cities/towns and in more than 500,000 villages. Most common intermediaries are brokers, agents, wholesalers, stockist’s transporters and retailers involved in the distribution of a food, cosmetics, medicines and

Improving Infrastructure and reduce wastage by Food parks

The infrastructure for the storage and transportation of fresh food has been always poor in India. The central and state governments built five very large food parks in 2015 with facilities for production, processing, cold storage, collection and transportation. They also supported and facilitated Indian farmers by fair compensations for their hard work. These also enable to reduce the wastage of fresh food

The central government is also providing financial aid, and with the help of private/public partnerships in collaboration with Indian food retailers. They aim to build also small food parks in the smaller cities of India to reduce wastage. There are now long-term agreements with farmers for the supply of fresh food to Indian food retailers (Big Bazaar, Reliance Fresh, More, D-Mart and Star Bazaar).

other consumer goods. In larger cities and urban areas there are larger supermarkets, superstores or chains stores (drug stores, cosmetic chains).

This distribution network is supported by a banking network. Consumer financing is an accepted form of consumer goods marketing in India. The use of credit cards in India has shown tremendous growth in recent years. International cards like Diners Club, Visa International, Master Card and American Express Bank are widely used and several domestic banks offer credit cards as well.

Indirect and Direct Channels

For a ginger exporter or ginger cooperative from Nepal without any direct retail or wholesale contacts, it is likely that a reliable food processor or wholesaler must be identified. They can advise how to deal e.g. with malpractices at the Indian border and with transport or logistical issues. If collaboration turns out to be positive, a joint venture with this Indian business partner could be set up for the exports to the UAE.

Usual distribution flow

Transport. Clearance of a consignment at a port in India takes about 7–10 days. If the importer is not based in the same city as the port of landing, it will take longer due to domestic transportation problems (traffic jams, inter-state hold ups etc.). Cross transportation from one state to another ranges from one week to two weeks.

There are many large and small logistics companies that transport dry goods. However, vans and trucks equipped with refrigerated containers are costly and not very common. Snowman and Radhakrishna Foodland are the biggest and most sophisticated operators in India of cold chain services.

Cold and dry storage. The importer/wholesaler generally has the necessary infrastructure including the cold storage and dry storage facilities and a distribution network in place.

If not, they outsource storage and other logistical issues to *Logistics service providers (LSP)*. Large importers/wholesalers who operate in many parts of India have warehousing facilities in a few cities that supply outer regions.

Delivery to retailers. After clearance from the ports, the Indian importer/wholesaler generally transports the goods to their warehouses and afterwards to the retailers. They usually deliver the goods twice a week. Most supermarkets have an inventory of about one - two weeks. Once the retailer places the order, they receive the products the next day under normal circumstances. Some supermarkets prefer to source certain products directly. For instance, the supermarket Food World imports boxed chocolates (Ferrero Rocher) directly from the manufacturer. Metro Cash N Carry has a base of 743 registered suppliers from all over the world and also imports directly.

On retail level, independent vegetable shops, small grocers, street market vendors remained dominant in the distribution. They buy from farmers or markets (mandis). They are very large in number and have a strong penetration in the majority of cities and rural areas. They broadly can be sub-divided into:

- **Street-side vendors and pushcart vendors:** They usually roam from place to place and sell fresh fruits and vegetables.
- **Paan shops or Street-side shops:** They mainly stock tobacco products like cigarettes and chewing tobacco, betel leaves, beverages and select items of biscuits, confectionery, and snack foods.
- **Public Distribution System shops:** They are controlled by the respective State Governments, these shops sell only unbranded food.
- **Kirana stores** ('Mom n Pop' shops or convenience shops): These are usually small to medium food retail outlets selling milk, grocery, beverages as well as a host of personal-care and household products.

Table 11 Retail distribution share for food (by value) in India in 2011 - 2015

Outlet type	2011	2013	2015
Store-Based Retailing	100%	99.4%	98.7%
Food Retailers	100%	100%	99.9%
- Hypermarkets	5.4%	5.6%	5.8%
- Supermarkets	4.2%	4.5%	4.8%
- Convenience stores	0.5%	0.5%	0.4%
- Forecourt retailers	0.2%	0.2%	0.2%
- Independent small grocers / Street markets	81.9%	81.6%	81.2%
- Other grocery	2.7%	2.6%	2.5%
- Tobacco specialists	5.0%	5.0%	5.0%
Non-store Retailing	0.0%	0.0%	0.1%
Internet Retailing	0.0%	0.0 %	0.1%

Source: Euromonitor (2017)

Modern grocery retailers like supermarkets and hypermarkets are slowly but steadily developing, primarily aimed at affluent Indians and Expats offering greater convenience, a large (hygienic) product range and competitive prices.

Online retailers are still very minimal in India being primarily due to difficult traffic conditions in the cities. Some sellers such as the Grofers mobile app and bigbasket.com increased their efforts to reach more consumers.

Food service. Along with the growing economy, the foodservice channels also recorded strong performance in the past few years, especially through speciality coffee shops, tea shops, food courts kiosks and pubs.

In Beauty and Personal Care around three quarters of sales was sold via independent grocery retailers and chemists/pharmacies that are scattered all over the country.

Department stores are strong represented in urban areas and increased their share in total BPC sales from 9.1 to 10.9% between 2010 and 2014 according to Euromonitor. Hypermarkets and supermarkets held a share of 17.4% in 2014 and are gaining ground in the BPC sales, at the expense of small grocery retailers (43.8% of BPC sales in 2014). Direct sales is mostly through small vendors and street markets.

3.5 Access requirements for the Indian market

Legislative requirements

The Indian Government has strict rules and regulations that are often not being followed by small and medium sized companies. Within the extensive distribution network, proper control is almost impossible. Besides, there is more competition from multinationals. The Indian Government has allowed many international players to set up their manufacturing facilities across the country.

Ginger has been exported to India for a long time and ongoing complaints from India buyers related to poor post-harvest operations, unclean ginger, too high pesticide residues etc. resulted in import bans of Nepalese ginger.

There are no technical regulations for raw ginger, although there is an Indian Standard, IS 1908 (2008) for Spices and Condiments, Ginger, Whole and ground, specification. For dried rhizome (Sutho) and ginger powder this standard mainly concerns compositional parameters and general quality parameters like moisture, total ash, acid insoluble ash, and others. For example, there is a limit of sulphur dioxide in dried ginger that should not exceed 2000 ppm. Standards and regulations

for all food fall under the Food and Safety Act, which is also applied for imports of ginger and ginger products.

The Food Safety and Standards Act, 2006

This Act incorporates several different law, including the Prevention of Food Adulteration Act 1954 and is based on international legislations and on the Codex Alimentarius. The Food Safety and Standards Act covers the following main issues that are related to ginger and ginger products:

1. **Licence or registration.** Every entity in the food sector should get a licence or a registration, issued by local authorities.
2. **Labelling.** Packaged food products have to be labelled as per regulations in the Act and should not mislead consumers about quality, quantity or usefulness.
3. **Plant Quarantine Order, 2003** Under the Destructive Insects and Pests Act, 1914, the Government of India formulated the Plant Quarantine (Regulation of Import into India) Order, 2003. It was published on 18 November 2003, with the purpose of prohibiting and regulating the imports into India of agricultural articles.

Obtaining Import licence

Import licence. Fresh agro products that are imported require an import license which can be obtained from Plant Quarantine office from the Ministry of Agriculture. The main parties involved here are

1. Exporter from Nepal
2. Indian trade partner (importer, wholesaler or agent)
3. Product Quality officer (PQ Officer)
4. Plant quarantine officer

In theory, the following steps are to be followed for clearance for all agricultural products:

STEP 1. Application form. The Indian trade partner (2) should fill in an application in PQ Form-15 in respect of each cargo immediately upon arrival or in advance in case of perishable consignments to the officer-in-charge of plant quarantine station at the notified point of entry along with the other documents.

To avoid problems or unpleasant surprises you should send some samples beforehand to your trade partner for testing to avoid the unexpected outcome.

STEP 2. Payment inspection fee and receive quarantine order. On receipt of the application the PQ officer (3) must examine the application and if this is OK, he registers the application and assess the inspection fees. The *prescribed rates inspection fees* are paid by the Indian trade partner (2). A demand draft/pay order is drawn up in favour of

the local 'Pay and Accounts Officer' (Department of Agriculture and Cooperation). Then the plant quarantine officer (4) must issue a *quarantine order* specifying name of inspecting staff (3), date, place and time of inspection of the consignment.

STEP 3. Inspection and Lab test. The Indian trade partner (2) arranges the inspection/sampling of the consignment on the scheduled date and time at the prescribed place by the nominated plant quarantine officer as per the quarantine order issued.

The trade partner (2) should associate with the inspecting officer while undertaking inspection. The PQ Officer (3) who is assigned for inspection must draw appropriate size of sample for detailed laboratory testing.

STEP 4. Possible disinfection to be arranged by trade partner (2). In the event of live insect infestation is noticed, the trade partner must arrange for disinfection of consignments by an approved pest control operator at his own cost under the supervision of PQ officer. The trade partner submits a task for supervision of disinfection operations along with payment of supervision charges as per the prescribed rates. The trade partner will surely contact you (4) and asks you to pay the cost and to intervene/assist in this matter.

STEP 5. Release order or re-inspection. A release order is issued if a consignment on inspection is free from exotic pests. However in case of consignments infested with *live pests* this is only permitted for clearance after disinfection and re-inspection.

A *custody order* is issued for consignments that are found infested/infected with quarantine pests or that are imported in infringement with PQ regulations. These must be removed or destroyed at the cost of the Indian trade partner.

STEP 6. Checking the consignment and documents. On arrival of the consignment, the documentation and certificates are checked by the custom authorities to ensure that the product is permissible for imports in India. In order to ensure that the packaging and labelling requirements conform to importation requirements, the container is opened and checked.

Required documentation

The prescribed bill of entry format, where importers must furnish an import declaration, mentioning the value of imported foods. This must be accompanied by the following documents:

- Import permit original. A permit authorised by the Plant Quarantine Officer as described in Steps 1 – 6 with a clear description the specified quantity

intended to be imported. The Import Permit issued shall be valid for six months from the date of issue and valid for multiple port access and multiple part shipments provided the exporter, importer and country of origin are the same for the entire consignment.

- Phytosanitary certificate (original) issued at the country of origin or PSC— re-export format, in case of re-exported consignment along with attested copies of PSC issued from the country of origin.
- Customs bill of entry
- Shipping/airway bill.
- Invoice and packing list.
- Fumigation certificate (disinfection).
- Certificate of Origin.
- Bill of lading.

Other information about access requirements of ginger exports from Nepal to India can be found in:

- Market study of Nepalese Ginger and its derivative products in India and Bangladesh by ANSAB (2015).
- Report ‘Ginger Action Research’ (2015) from Samarth with more information about Customs issues and transaction costs that are involved in exporting ginger from Nepal to India.

3.6 Options for entry

3.6.1 Future growth and market potential

Both AT Kearney and the McKinsey Global Institute (MGI) predict that India will be the world’s 5th largest consumer economy by 2025, up from 12th now. The population continues to grow by 1.4% per year. By 2025, the young Indian population will have an average age of 28 years, compared to 48 years in Japan. India’s middle class, estimated at 30 million people in 2012, continues to grow at a stable pace with a disposable income of US \$10 - 20 per day, or more. Even a number of 30 million people provides opportunities.

POTENTIAL USERS FOR GINGER AND GINGER PRODUCTS

The number of Young Adults (18-29) are more open for new products and more concerned about healthy food and the use of (natural) beauty and personal care products. This age group rose from 204 million in 2005 to 228 million people in 2014 and is projected to increase to 238 million by 2021. They are exposed to new kinds of food is likely to generate a demand and receptiveness for different flavour products using healthy additives. Therefore, this will be an interesting segment for Nepalese exporters.



Table 12 India - Sales of selected Segments 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2016	2012	2019	2021	CAGR*
FLAVOUR	6,208	10,442	12,579	14,113	6.2%					
Herbs & Spices	235	413	503	551	5.9%	66,600	94,800	119,900	138,100	7.8%
- Biscuits and Snackbars	2,271	3,552	3,766	3,893	2.8%	1,420,400	1,822,500	2,074,400	2,266,900	4.4%
- Confectionery	668	1,180	1,442	1,628	6.6%	102,900	141,000	169,700	189,200	6.0%
- Baked goods	374	637	728	787	4.3%	196,900	259,900	311,600	349,700	6.1%
- Sauces	602	1,233	1,660	1,963	9.7%	149,500	237,400	328,600	404,700	11.0%
- Healthy food	387	707	929	1,079	8.9%	-	-	-	-	-
- Hot and Cold Drinks	1,671	2,720	3,551	4,212	9.1%	-	-	-	-	-
FRAGRANCE	5,882	8,896	10,876	12,501	7.0%	-	-	-	-	-
- Beauty and Personal care	5,882	8,896	10,876	12,501	7.0%	-	-	-	-	-
HERBAL / TRAD. MEDICINES	627	932	1,019	1,075	2.9%	-	-	-	-	-
TOTAL	12,717	20,270	24,474	27,689	6.4%	-	-	-	-	-

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

Nepalese living in India. Although there has been significant migration to the Gulf States in recent years, India remains the pre-eminent destination for Nepalese living outside the country. Accurate numbers are unavailable but estimates range between 1-2 million people. This group would represent a positive opportunity for ginger exporters from Nepal.

OPPORTUNITIES

- **The market for ginger oleoresin** is increasing with more applications in the food and beverage industries. In 2014, the global oleoresin market (all products) was valued at \$1.15 billion, with India accounting for 50% of global production. As Indian supplying companies will have to expand their capacity to meet the growing demand, there is a good opportunity for Nepal to supply ginger to India as they can claim premium prices for ginger with high oleoresin.
- **Gingergrass oil** will be an interesting product for the Indian market. This oil is hardly a regular item in the European or US market due to adulteration practices, often at the place of production. Now the ginger grass oil has a bad image and it may slowly disappear from the perfumery field except in its country of origin. Now the oil is used in Indian soaps and detergents. The grassy, spicy notes may be used in new bath and

shower products for young Indian men. This implies an opportunity for exports of ginger grass oil from Nepal to Indian processors.

- **Exports of natural extracts** The use of natural extracts in BPC and pharmaceutical industries and in nutraceuticals is likely to increase in Western countries and offers good opportunities for Indian exporters. Therefore, extracts will be more in demand among Indian exporters. However, the best for Nepali companies would be to export these extracts direct to buyers in Western countries.

Growth of ginger market. As mentioned in Chapter 3.2., the ginger market in India is forecast to continue growing steadily along with the population growth despite lower expected prices of fresh ginger. The market is expected to grade up with more ginger products and will grow between 2016 and 2021 by an average rate (CAGR) of +1.4% per year, from US\$ 280 to 301 million. While by volume, the ginger market is expected to grow further by 1.1%, from 708 to 746 thousand tonnes in the same period.

Based on the above opportunities and the growth projections in each selected segment in Table 13, the following forms of ginger forms are likely to have good chances in the Indian market.

Table 13 Five main ginger forms with best opportunities in the Indian market

FLAVOUR		USE	REASON	BEST GINGER FORM
	PRODUCT			
1. Fresh Food Healthy Food	Fresh ginger	Asian cuisine Fusion cuisine	Fresh ingredients	Fresh ginger (organic)
	Breakfast cereals	Healthy breakfast for women, children – middle class (urban)	Niche (use of healthy sweetener)	Dried ginger (Crystallised)
2. Biscuits and Snack bars	Biscuits (plain)	Tasty and healthy sweetener	Big market	Dried ginger (Crystallised)
	Snack / Fruit bars Cookies	Lose weight Energy boost	More healthy than garcinia	Sweet ginger cubes Ginger powder
3. Confectionery	Boxed assortments	Popular Gifts (festivals, Diwali)	Growing market (middle class)	Dried ginger cubes (Crystallised) Ginger powder
	Ginger candy	Indian Children	Niche	Dried ginger (Crystallised) Sweet ginger cubes
4. Baked goods	Cakes	Fresh made or small pre-packed servings	Ginger combined with other dried fruits (dates...)	Dried ginger (Crystallised) Sweet ginger cubes
5. Cold drinks	Ready-to-Drink teas	Ginger lemon Detox juices	Niche Health conscious	Dried ginger Ginger oleoresin Ginger extract
FRAGRANCE		USE	REASON	BEST GINGER FORM
1. BPC*	Hair care Aftershave Natural toothpaste	Indian (young) men Indian women	Niche	Ginger oil Ginger extract
HERBAL / TRADITIONAL MEDICINES		USE	REASON	BEST GINGER FORM
1. Ayurvedic		Stomach, morning sickness, nausea, arthritis etc.	Growing market	Fresh Ginger Dried ginger Ginger powder
2. Dietary supplements	Ginger as source of vitamins, sodium, magnesium etc....	Immunity and Energy boost	Growing market	Ginger powder Ginger oil

* Beauty and Personal Care

Source: Searce estimates (2017)

Potential trade partners and Useful addresses

Many names of main players are given in Chapter 3.3.1 – 3.3.3 which can be found easily via Google.

The first place to look would be to contact the main trade association(s), followed by trade fairs, which tend to feature a list of exhibitors, many of which may be potential partners.



GINGER AND GINGER PRODUCTS IN JAPAN

CHAPTER 4

Brief overview



Population

126.8 million; - 0.13% growth rate (2016)
Japanese 98.5%, Koreans 0.5%, other 1%

- 0-14 years: 13.0%
- 15-24 years: 9.7%
- 25-54 years: 37.7%
- 55-64 years: 12.4%
- 65 years and over: 27.3%



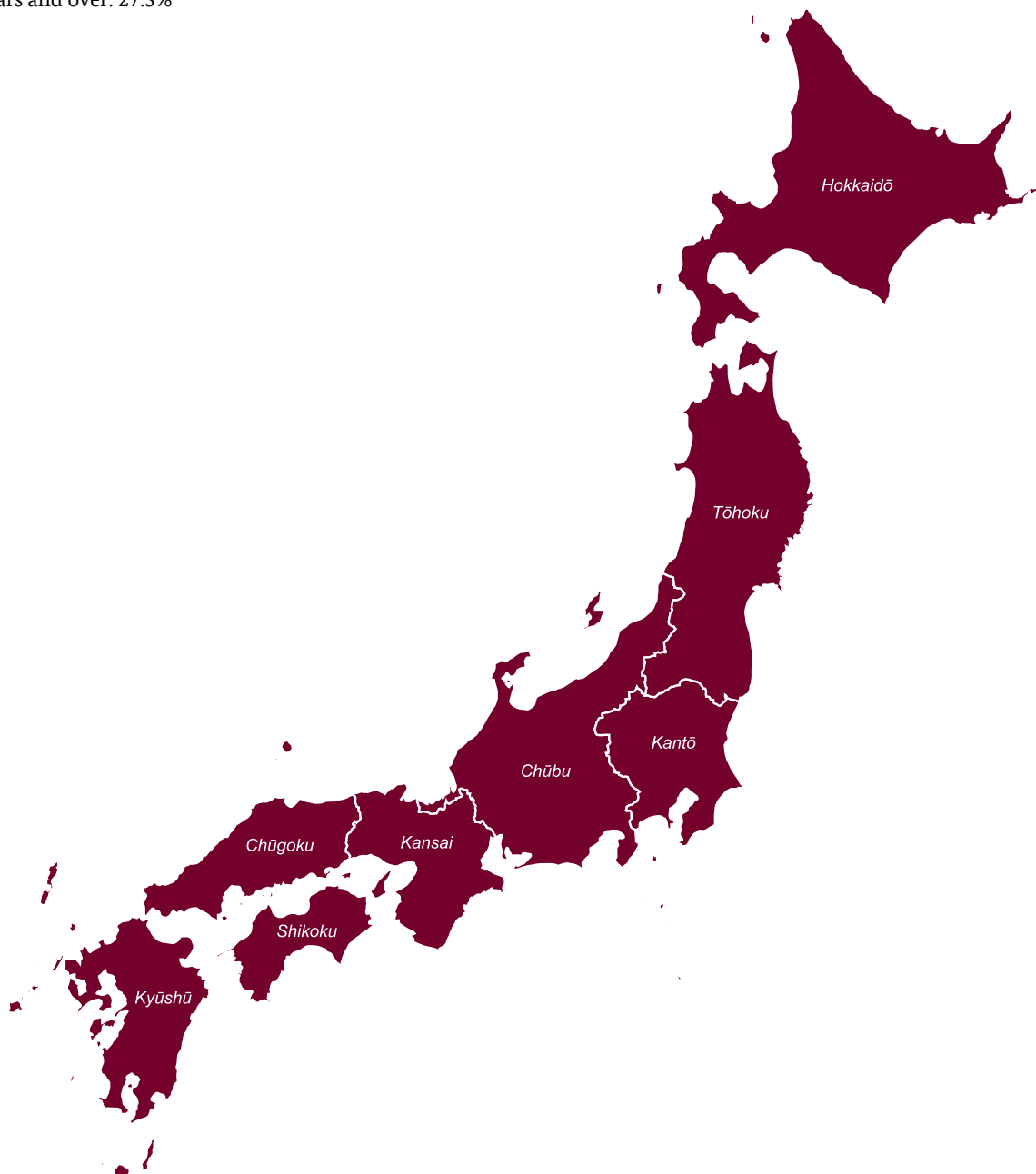
Economy

Disposable income US\$ 20,140 per capita (2015)
Unemployment rate 3.4% (2015)
Inflation rate -0.1% (2016)
Retail sales US\$ 528 billion (2012)



Social

Women in labour force: 42.7% of total (2014)
Marriage rate: 5.1 per 1,000 (2015)
Tourists to Nepal in 2016: 22.797



4.1 Market conditions

Japan is a high consuming country, a key component towards economic growth. Approximately 23% of household expenditure is spent on food in 2015, according to the Japanese Statistics Bureau. With the very rich traditional cuisine, Japanese people are sophisticated with tastes and preferences introduced via strong cultural, societal and environmental drivers.

The elderly people (senior population (over 65) is growing fast and reached 35 million people in 2015, representing 27% of the population. This is predicted to reach 29% by the year 2020 and 36% by 2040. This means a decrease of the Japanese population to be estimated at 105 million people in 2040. This will impact eating habits by more people eating at home with a rising demand for convenience food such as pre-cooked meals and home delivery service in future.

Eating habits are changing

Convenience food has already taken part in the Japanese cuisine such as the Bento lunchboxes – rice, a piece of meat or fish, two or three types of vegetable, a frozen snack such as a dumpling, seasoning and pickles (radish or sometimes ginger). Bento boxes remain popular for taking into work and are mostly cooked fresh.

Choosing vegetables more carefully. Japanese eating and drinking habits have changed dramatically since the nuclear disaster in 2011. When eating at home, consumers choose vegetables more carefully. They want to make sure that all the food they buy is properly sourced. Vegetables are often bought either at the supermarket or via a delivery service as the Japanese have little space for gardens in urban centres. Only some herbs (rosemary and basil) are grown on their windowsills or balconies.

More variety in pre-cooked meals. There has been much more variety in pre-cooked meals or instant meals with new flavours and Japanese are now more open to international cuisines with spice sets for cooking Mexican, Indian and other cuisines.

4.1.1 Ginger imports

GINGER FRESH

Japan was the fourth largest importer of fresh ginger in volume terms, and the world largest importer by value. In 2016, Japan imported 63,989 tonnes of fresh ginger valued at US\$ 85,123 million. This is more than 3.5 times the import volume of India and more than 20 times the import value of ginger by India being attributed to a better quality of imported fresh ginger by Japan.

In 2016, Japan represented 11.8% of world imports by volume and 12.5% by value. China being the largest trading partner of Japan, accounted for three-quarters of fresh ginger supplies to Japan.

Shandong province in China is the main origin for the export of ginger to Japan. China is followed by Thailand and Indonesia.

Despite the ongoing depreciation of the Yen against the Chinese Yuan and US\$, Japanese imports of fresh ginger rose by 12% from 56,608 tonnes in 2015. According to ITC, the average value/ton decreased from US\$ 1,843 to US\$ 1,330 between 2015 and 2016, which indicates a substantial decrease in prices from China. In addition, this reflects an extreme low price level of exported ginger by Nepal to India of US\$ 280 in 2016.

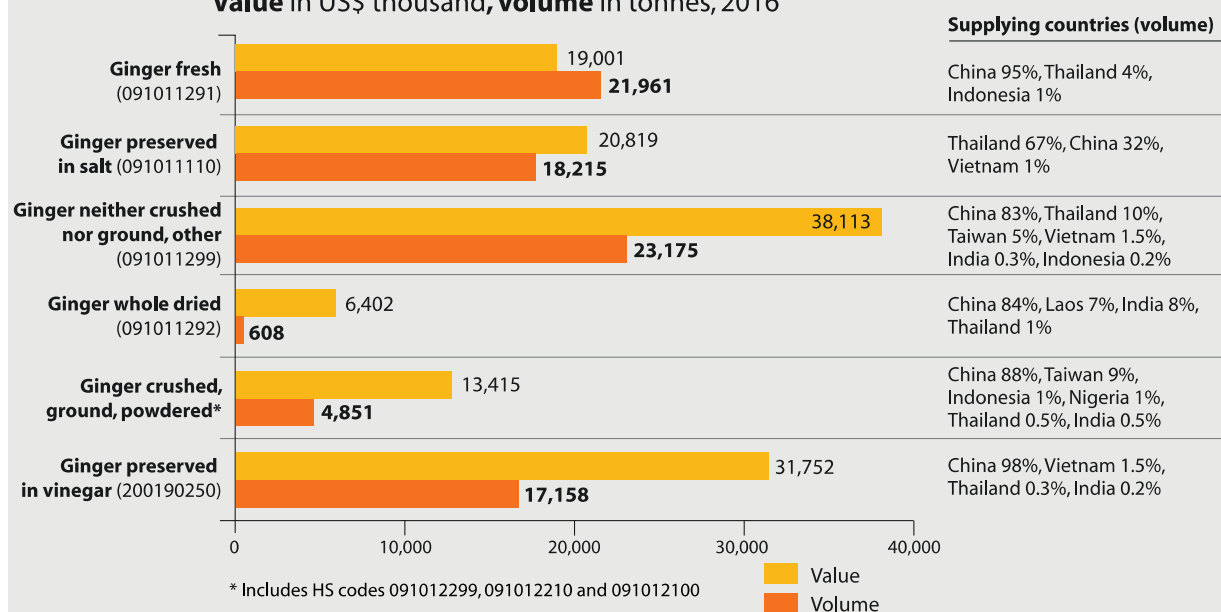
GINGER (SEMI -) PROCESSED

The other product groups in Japanese ginger imports were sub-divided as follows:

- **Ginger preserved in salt or brine** - 18,215 tonnes, valued at US\$ 20,819 thousand in 2016, which mainly was imported from Thailand (67% of imported volume) and China (32%), followed by Vietnam as is shown in Figure 1. Imports from both Thailand and China rose by 30% in 2016 which can be mainly attributed to the lower prices of imported ginger or for



FIGURE 1: Japan - Ginger imports by productgroup and supplying countries
Value in US\$ thousand, volume in tonnes, 2016



Source: ITC (2017)

use of salted ginger in nabes (hot pots). Imports from Taiwan showed a decreasing trend since 2012. Detailed figures can be found in Annex 2 – Table 13.

- **Ginger neither crushed nor ground (Other)** – 23,175 tonnes, valued at US\$ 38,113 thousand in 2016. This is the largest product group by value and supplies to Japan are dominated by China as well, as shown in Figure 2. Between 2015 and 2016, Japanese imports rose by 3%. Volume supplies by China increased (+5%), as well as those from Thailand (+2%) and particularly those from Vietnam (+18%), whereas as less was imported from Taiwan. Detailed figures can be found in Annex 2 – Table 16.
- **Ginger whole dried** – 608 tonnes (US\$ 6,402 thousand) in 2016 and represented a small part of Japanese imports but imports of this product group rose by 10% from 555 tonnes which can be related to more demand for dried ginger in the confectionery and health food segments. Japanese imports from China increased between 2015 and 2016 by 18%, while imports from Laos and India fell considerably by -10% and -26% respectively. In 2016, the average value/ton from China was US\$ 9.42. This was much higher of imports from Laos (US\$ 31.76) and much lower from India (US\$ 3.76). Perhaps there were problems with the quality of the Indian ginger.
- **Ginger crushed or dried/powdered** – 4,851 tonnes in 2016 valued at US\$ 13,415 thousand, most of which was powdered ginger (091012299) - other for

food processing or for herbal medicines being 3,638 tonnes, valued at US\$ 10,106 thousand, of which Japanese volume imports slightly rose by 2% since 2015. Supplies were led by China, followed by Taiwan, Indonesia and Nigeria as is shown in Figure 2. Volume supplies by Taiwan have doubled.

- **Japanese imports of powdered ginger for retail sale** (091012210) were 1,169 tonnes in 2016, valued at US\$ 3,252 thousand coming mainly from China and to a much lesser extent from Germany, South Korea and UK. In 2016, Japan imported 100 kg from Nepal, valued at US 2,000 as is shown in Annex 2 – Table 18. Between 2015 and 2016, Japanese import of ginger 091012210 increased substantially by +64%. This implies good opportunities for Nepal.
- **Ginger preserved in vinegar** – 17,158 tonnes in 2016, valued at US\$ 31,752 of which 98% was imported from China. The remaining 2% were supplies by Vietnam, Thailand and very small quantities by India and Pakistan. Between 2015 and 2016, Japanese imports increased by 2% due to low prices from China (value/ton US\$ 1.85), compared to higher values/ton from the other supplying countries which averaged around US \$ 2.50 or higher prices when made in Japan. In addition there is a sustained demand of pickled ginger as a side dish.

More details can be found in the report 'Opportunities for Nepalese ginger and derivative products in Japan' that can be obtained from Samarth at <http://samarth-nepal.com/portfolio/ginger>

4.1.2 Production

Japan is the eighth largest producer of ginger in the world, producing 59,000 tonnes in 2015 according to FAO. The total area for ginger production was nearly 2,000 ha. Around 75% was destined for use in the domestic market.

Production increased compared with 50,000 tonnes in 2013, when ginger crops were affected by poor rainfall. Another reason was a rise in demand for small sized ginger in the domestic market which has contributed to a higher yield as smaller ginger plants were cultivated per hectare. Therefore, the yield (hectogram/hectare) of 290,070 in Japan was the highest in the world and far above the world average yield of 85,773.

Japan produces three varieties of ginger:

- Ginger rhizome (ne-shoga) that takes up the largest part of ginger production and is most popular in Japan. The harvesting season is from August – November. Ginger from the first harvest is soft and less fibrous.
- Ginger leaf (ha-shoga) which are very small young rhizomes that are harvested, mainly in Chiba prefecture, together with the green leaves. These pale reddish coloured rhizomes have a limited shelf life and are only available during summer in the eastern part of the main island Honshu. The leaves and young flower shoots are edible, while parts of plant and the root are poisonous if eaten.
- Ginger ‘arrow’ (ya-shoga) being larger than ha-shoga and is cultivated with many plants on a surface in dark places

to achieve a white and soft stem. Once the stems are 15 cm high, they are exposed to sunlight for a short time to create the reddish colour that typical for Japanese ginger.

Use of different parts of one rhizome

The experience in ginger cultivation and the use of ginger in many different products in Japan has led to using different parts of a ginger rhizome for different purposes. For example one part for use in juices, one part suitable for thin strips of pickled ginger (beni-shoga), one part for grinding and so on.

This proves to be an efficient and optimal use in ginger processing that is based on experience and R&D.

Production areas in Japan

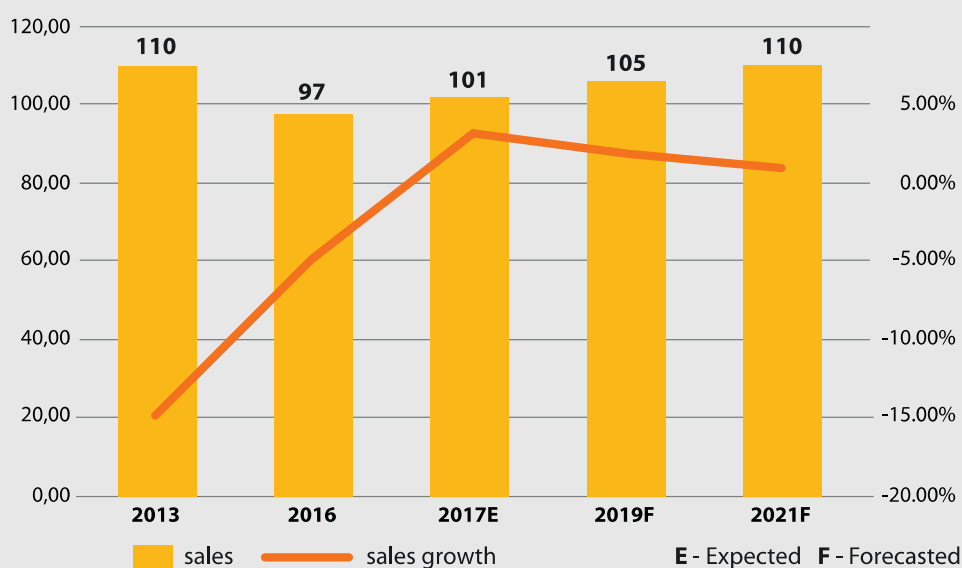
- Around 40% of ginger is produced on the southern Island Shikoku in Kochi prefecture which has a good reputation for its quality. Mainly ne-shoga is cultivated here.
- Further South on Kyushu island ginger is produced in Kumamoto (ne-shoga), Miyazaki as well as in Nagasaki prefectures.
- While on the main island Honshu, Chiba prefecture is the main production area (ha-shoga), followed by Shizuoka and Wakayama.

Main players in food and drink processing are given in Chapter 4.3.1.

More details on domestic production in Japan can be found in the report ‘Opportunities for Nepalese ginger and derivative products in Japan’ that can be obtained from Samarth at <http://samarth-nepal.com/portfolio/ginger>



FIGURE 2: Japan - Ginger sales, 2012-2021
Value in US\$ million and growth rate in percent



Source: Experts interview, Secondary sources and QYResearch (2017)

4.2 Consumption trends

The Japan ginger market size was 131.1 million USD in 2016 and it will be 112.45 million USD in 2022, with a CAGR -1.39% from 2016 to 2022

According to QY Research, estimated sales of ginger in Japan was at US\$ 97 million in 2016. Between 2013 and 2016, ginger sales decreased by a CAGR of 4.4% from US\$ 110 million in 2013 which largely attributed to lower prices of the Chinese imported ginger in the Japanese market.

Expectations are positive for 2021 showing a year-on-year growth by value – as is shown in Figure 2. Here, much will depend on price development in the world market, but it is expected that volume sales increases in Japan will be more significant than value sales.

RELEVANT TRENDS IN THE JAPANESE MARKET

Some significant trends in the food sector in 2016 that have an impact on the ginger market were:

- **More meat instead of fish.** Japanese people increasingly choose more often for meat rather than fish due to more consciousness about overfishing and the idea of possibly eating fish from a sea exposed to very high radiation. This may negatively impact the consumption of myoga ginger eaten with sushi or sashimi, although they continue to be used in tsunomono (thinly sliced raw vegetables) or miso soup.

Whereas in meat dishes with curries or Chinese dishes, imported ginger is likely to be more used.

- **More international food in Japan.** The International cuisine Japan was rather limited to American fast food, Italian and mild curry/rice plates. However, since the millennium the availability of international food has become more diverse. Japanese people gradually opened up to new taste sensations from other countries due to influences picked up via the Internet, rather than more traditional media such as TV and magazines. Cooking blogs and new food tastings at *depachika's* (basement levels of department stores with food) have become increasingly influential in generating more curiosity among Japanese for food with stronger (spicier, pungent) flavours they are used to e.g. ginger from Asian countries. This shift towards more eating bread, potato's, oven dishes instead of rice has been at the expense of the traditional Japanese diet – fish, rice, miso soup and vegetables.
- **More convenience in the big urban areas.** In addition to convenience, the quality of food and single-serving sizes are most important to the white and blue colour workers. In Japan, around 3.2 million people commute daily in the Tokyo area every day using the extensive train and metro network' instead of taking the car. Therefore, convenience and easy accessibility of food are highly valued by the Japanese. Being on-the-go, they can choose for restaurant meals or a high-quality instant meal from the convenience store offering pre-cooked meals that are fresh and good quality, for reasonable price.

- **Improving health by a healthy diet**, popular among young women in urban centres buying more fresh food and organic food including ginger as a healthy/tasty vegetable or spice. Dried fruit and edible nuts have been popular as well because they also contribute to a better health for Japanese consumers.
- **Growing concern about sustainability**. Nature has been always an important issue to many Japanese people. Because of the disaster in Fukushima, people have become even more concerned about where vegetables are cultivated, how food is processed and what their impact is on the environment. Especially middle and older aged people feel a sense of responsibility to society and are willing to pay more for sustainable food from companies whose environmental claims are believable.

4.2.1 Ginger and Ginger products

Traditionally, ginger is used for culinary purposes as well as in confectionery industry. It is also used as a spice in many culinary products ranging from bakery products (ginger bread, ginger cake, ginger biscuits), to ginger tea, ginger ale, ginger beer all of which are of importance in the Japanese food industries. Besides, there are used of ginger that are typical in the Japanese cuisine.

GINGER – FRESH

- **Myoga ginger** or **Japanese ginger** is the species *Zingiber mioga* in the Zingiberaceae family. It is an herbaceous perennial native to Japan, China and South Korea.
- The **myoga** does not produce an **edible root**, but the flowers and flavourful shoots are used in cooking, and considered delicacies in Japanese cuisine because the taste is much milder than the usual ginger rhizomes. The flower buds are finely shredded and used as a garnish for miso soup, sunomono (uncooked vegetables and seafood) and dishes such as roasted eggplant.
- **Fresh ginger rhizomes of other varieties (imported) are used in daily food dishes** for example ginger rice, ginger pork, ginger soup and in fresh/pickled for with sashimi.
- **Fresh ginger rhizomes are also being crushed** into small pieces with added honey and brown sugar for ginger sauce.
- **Grated ginger**. After peeling, fresh ginger can be grated as well and used to flavour uncooked noodles or tofu.

GINGER – PICKLES

Ginger Pickles are predominantly used in Japan. The root of the ginger is sliced paper-thin and pickled in a sweet vinegar solution. This pickle often accompanies sushi



and is served to refresh the palate between courses. It is coloured pink or red. In Japan, ginger is pickled to make different kinds of 'Tsukemono' (pickled things) which are preserved vegetables usually pickled in salt, brine (salt in water) or in a bed of rice bran.

Tsukemono can be used as follows:

- Most often it is eaten with plain rice
- Served as a small 'okazu' (side dish),
- Served as garnish for meals
- Part of a traditional Japanese meal style called
- Kaiseki after a tea ceremony.
- Served with drinks as an 'otsumami' (snack)

Beni shōga is a type of tsukemono made from thin strips of ginger pickled in umezu, the brine that results during the process of making Umeboshi (salted plums). This is served with many Japanese dishes, including gyudon (noodles with beef), okonomiyaki (savoury pancake) or yakisoba (fried buckwheat noodles).

Gari is a type of 'tsukemono' (pickled vegetables). It is sweet, thinly sliced young ginger that has been marinated in a solution of sugar and vinegar. Young ginger is generally preferred for gari because of its tender flesh and natural sweetness. Gari is often served with sushi and therefore called **sushi ginger**. It is used either to cleanse the taste between eating different pieces of sushi, or between different meals.

GINGER – ESSENTIAL OIL

Ginger oil is often used in flavouring and blends well with sweet orange oil, lime oil, bergamot oil etc. in flavour compositions. Traces of ginger oil have an interesting effect in strawberry, pineapple, peppermint (modifier).

In food, important applications are by far is that of baked goods such as cookies, powder cakes or ginger cakes. Ginger nuts are flavoured with ginger oleoresin.

In drinks, ginger oil can be used in carbonated ginger ale that is usually flavoured with ginger oleoresin, or with a mixture of ginger oleoresin, ginger oil, capsicum oleoresin and sweet orange oil. In alcoholic beverages, ginger oil gives interesting twists to the herbaceous types of liqueurs such as benedictine, etc.

Ginger oil is produced according to demand, and there is ample supply of the spice available in Japan. Deliberate adulteration can be made with galanga oil (China, India), but usually the differences in the quality of the oils can be traced back to lack of experience in distillation technique at the producer's place, or poor selection of botanical material for distillation.

4.3 Market segments and applications

According to the distinction in Chapter 1.2, consumption and use of ginger and ginger products can be subdivided into the following segments:

FLAVOUR | FRAGRANCE | PHARMACEUTICAL

4.3.1 Flavour segment

New flavour forecasts. Every season new flavours and mixes (sweet and sour) from different countries are developed according to suggested dishes or snacks by flavour forecasts from the multinational spice processor McCormick which can be downloaded from <https://www.mccormick.com/flavor-forecast-2017>. These global forecasts are being followed to some extent in Japan as well.

Selected food segments where fresh, dried, powdered ginger, pickled ginger, ginger candy and ginger oil are likely to be used are:

- Fresh food/Healthy food including herbs & spices
- Sauces, pickled products, dressings
- Biscuits and snack bars

Table 1 Japan - Sales of selected Fresh Food and Healthy Food 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Starchy roots	na	na	na	na		1,873,600	1,806,800	1,782,000	1,773,200	-0.4%
Herbs & Spices	396	414	424	427	0.8%	4,900	5,100	5,210	5,230	0.6%
Organic food	669	696	716	724	0.8%	na	na	na	na	na
Breakfast cereals	401	668	838	895	6.0%	na	na	na	na	na
TOTAL	1,466	1,778	1,978	2,046	3.0%	-	-	-	-	-

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

- Confectionery
- Baked goods
- Soft drinks and hot drinks

FRESH FOOD/HEALTHY FOOD

Despite the tendency toward eating more at home in the evening, the share of food service in fresh food distribution was high at 44% in 2015 of the total volume sold in Japan as catering service in companies are very important. The share of fresh food for institutional use (hospitals, universities and military) averaged around 16% of volume sales between 2012 and 2016.

The Starchy roots segment included fresh ginger and shows a decreasing trend of 0.4% by volume mainly attributed to the expected declining population in the coming years. Although by value starchy root consumption is likely to increase as Japanese choose their vegetables more carefully and are willing to pay for higher quality (organic) vegetables including starchy roots.

Sales of fresh food - including herbs and spices - was US\$ 1,778 million, and is expected to rise by a CAGR of 3.0% reaching US\$ 2,046 million by 2021. The increase ratio of herbs and spices, including ginger powder is expected to be minimal at 0.8% after a rise from US\$ 396 to 414 between 2012 and 2016. Nevertheless spices remain important in Asian-inspired stir fries in which fresh ginger features regularly as a primary flavouring ingredient and for healthy meals.

SAUCES, PICKLED PRODUCTS AND DRESSINGS

In 2016, retail sales of sauces, pickled products and dressings was valued at US\$ 11,196 million, of which 46% were pickled products. This includes all kinds of pickled used traditional cuisine (Tsukemono, Beni shōga, Gari etc.) as well as pickles used in Chinese dishes and to some extent in other Asian dishes including Indian.

Soy sauce is the most popular type of table sauces in Japan and the largest category in this segment both by volume and value (See Table 2). Soy sauce is almost always consumed with Japanese meals and are used for various types of meals, not only Japanese cuisine but also for Chinese and ethnic cuisines.

Japanese hot pot dishes (Nabe-tsuyu) are popular during autumn and winter and use ingredients such as meat, seafood, vegetables and tofu alongside soy sauce, miso or dashi based sauces. As they are easy to cook and to enjoy with the whole family or friends, Nabe dishes grew in popularity.

In order to promote the sale of sauces, companies now promote Nabe in all seasons and introduce new sauces for making nabe e.g. like tomato, curry and kimchi-based sauces, curry and tomato. Kimchi based sauces is a spicy chili sauce made from garlic, dried bonito, ginger, and a touch of vinegar, which is also perfect as a spicy condiment for a variety of other dishes.

Ketchup and mayonnaise are large categories and are popular among most nationalities. But as ginger is not used in these sauces, they are not included here.

Table 2 Japan - Sales of selected Sauces and Pickled products in 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Dry sauces	1,242	1,323	424	427	3.2%	121,000	122,000	134,000	140,000	2.7%
Cooking sauces	648	657	655	656	0.2%	51,000	53,000	54,000	55,000	0.9%
Pickled products	5,400	5,175	4,889	4,680	-2.0%	622,000	585,000	546,000	521,000	-2.3%
Barbecue sauces	522	540	566	579	1.4%	59,000	60,000	61,000	62,000	0.8%
Fish sauces	18	18	18	18	1.2%	1,000	1,000	1,100	1,200	0.8%
Oyster sauces	72	72	68	68	-0.6%	5,400	5,300	5,200	5,100	-0.3%
Salad dressings	1,035	1,170	1,225	1,244	1.2%	87,000	96,000	100,000	101,000	1.0%
Soy sauces	1,341	1,422	1,448	1,454	0.4%	423,000	406,000	400,000	398,000	-0.4%
Chili sauces	18	18	18	18	-0.5%	1,100	1,057	1,040	1,010	-0.2%
Other table sauces	810	801	791	789	-0.2%	144,000	140,000	139,000	137,000	-2.3%
TOTAL	11,106	11,196	10,103	9,933	-0.8%	1,514,500	1,469,357	1,441,340	1,421,310	-0.3%

* Expected Compound Annual Growth Rate 2016 – 2021
Note: Ketchup, mayonnaise and mustard are not included

Source: Euromonitor (2017)

Main players in the Japan are 4 multinational processors Kewpie Corp, Ajinomoto, House Foods, Kikkoman (soy sauces) and S&B Foods taking up almost one fourth of the category's retail value sales in 2016. Other companies like Ebara Foods, Mizkan Group, Japanese Consumers Cooperative, Kagome, AEON Group, Marumiya Corp, Nagatanien, Yamaki, Pickled Corp, Nisshin Seifu and Tokai Tsukemono and McIlhenny Co, accounted each 1 – 2.2% of the market followed by 20 other Japanese, Chinese and a few Western multinationals (e.g. Heinz). Note that Japanese Consumers Cooperative are open to import direct from foreign countries.

Future sales of this segment. Along with the rise in convenience food cooked at home, dry sauces (+3.2%), barbeque sauces (+1.4%) and fish sauces (+1.2%) offer good prospects in the next five year, as shown in Table 2. In healthy food, sales of salad dressings is expected to rise by 1.2% in the forecast period. The latest variety in salads dressing features ginger combined with mango, Japanese sweet potato, coconut parsnip or leeks.

In all sauces, additional flavours and variations, including ginger flavours, will drive the market. It remains to be seen if Japanese consumers are going to prefer the stronger taste of Nepalese ginger compared to the Chinese ginger. The main forms of ginger used for sauces are ginger powder, ginger oil and dried ginger.

BISCUITS AND SNACK BARS

Japanese sales of biscuits, dried fruit and snackbars was valued at US\$ 3,470 million, of which 55% were biscuits. While filled biscuits is the largest category both in value

and volume taking up around 40% of the market by volume - 83,600 tonnes, valued at US\$ 1,242 million in 2016. Filled biscuits are driven by continuous new product development, premium biscuits with special ingredients in a luxury package which is ideal to bring as a gift when visiting someone. These new varieties were introduced to Japanese adult consumers although they became popular among a wider audience. According to Euromonitor, middle aged women are the main consumers of sweet/filled biscuits, whereas younger consumers are more attracted to chocolate coated biscuits.

Middle aged and the elderly people are the main consumer for plain biscuits that also represent a large volume reaching 46,200 tonnes by 2021. However, sales of filled biscuits continues to develop faster in the coming year by a CAGR of 2.1% reaching 92,700 tonnes in 2021. Expectations for sales of cookies are optimistic as well as shown in Table 3. The main forms of ginger used in these products include dried ginger, sweet/crystallised ginger, ginger powder, ginger oil and oleoresin.

Snack bars are healthy bars containing cereals, granola and dried fruit including ginger. Japanese consumers regard find them tasty, convenient and a substitute for meals at busy times. New flavours and textures have been added in the form of cheesecakes, brownies and wafer types in addition to the usual cereal and shortbread types. Snack bars, dried fruit snacks and dried fruit with yoghurt for breakfast continue to be in demand among all aged groups being driven by the health and wellness trend in Japan. Sales of snack bars is expected to rise by 2.9% reaching US\$ 743 million and 27,700 tonnes in 2021.



Table 3 Japan - Sales of Biscuits, Dried fruit and Snack bars 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE				CAGR*	VOLUME				
	2012	2016	2019	2021		2012	2016	2019	2021	CAGR*
Dried fruit	227	236	247	253	1.5%	15,800	16,300	16,700	16,900	0.8%
Snack bars	552	644	711	743	2.9%	22,100	25,100	26,900	27,700	2.1%
Plain biscuits	636	667	714	737	2.0%	44,200	43,800	45,500	46,200	1.1%
Filled biscuits	1,009	1,242	1,391	1,466	3.4%	70,700	83,600	90,000	92,700	2.1%
Cookies	582	681	756	794	3.1%	39,800	43,300	46,100	47,200	1.7%
TOTAL	3,006	3,470	3,818	3,992	2.8%	192,600	212,100	225,200	230,700	2.7%

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

Snack bars are not meant to replace a meal. Some people do eat them instead of a meal because they are very busy. Snack bars give a quick energy boost and help to stay slim, as a great digestive effort is not involved. However, some energy bars contain sodium and (saturated) fats, which are not healthy if they are eaten regularly instead of a meal.

Busy business people and sports enthusiasts are willing pay for in-between snack bars that provide greater nutritional value with e.g. added vitamins, potassium, iron, calcium which are found in dried ginger as well. Therefore there are good prospects for snack bars using organic/fair trade ingredients e.g. dried ginger, dried mango, banana, honey, nuts and seeds, to create quality snacks.

More innovation in snack bars will be needed to face the growing competition from the chocolate confectionery segment now developing new count lines, chocolate bars or brownies that offer health benefits as well.

Main players are mostly Japanese companies. According to Euromonitor, Ezaki Glico is leading the market and took up a 14% share in 2016 featuring its well-known brands Pocky and Pretz that are found in almost any retail outlet in Japan.

The Bourbon Group and Meiji Co are in second and third places with retail value shares of 10% and 9% in 2016 respectively. Other larger players include Lotte (8% of the market), Otsuka Holding (5%), Morinaga (3%), Yamazaki Baking (3%), Fujiya, Asahi Group followed by 20 other Japanese companies.

CONFECTIONERY

Sales of confectionery was valued at US\$ 3,860 million, of which 50% was chocolate confectionery taking up 28% in volume as is shown in Table 4. Within the chocolate segment, count-lines, chocolate pouches & bags are large categories. However, they are not included in Table 4 because ginger is still hardly used in these products.

Ginger used in dark chocolate tablets are gaining attention in the sports and performance nutrition category and is likely to develop into an interesting niche market.

In the chocolate confectionery market, combinations of chocolate with new ingredients (e.g. ginger, exotic fruits, nut pieces, stevia, caramel etc.), are expected in order to stimulate chocolate market and give the product, especially pure chocolate, a healthier image.

Valentine's Day. Winter is the peak season for chocolate with special events like Halloween, Christmas and particularly in the first half of February before Valentine's Day where women give chocolate to their partners. In the past few years women started to give chocolates to their



Table 4 Japan - Sales of selected Confectionery 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Chocolate Tablets	544	698	776	815	3.2%	27,000	32,300	34,700	36,000	2.2%
Boxed Chocolate assortments	964	1,225	1,458	1,600	5.5%	13,800	15,700	17,300	18,300	3.1%
Boiled sweets	425	386	374	369	-0.8%	28,100	24,400	22,900	22,400	-1.7%
Medicated confectionery	682	655	651	646	-0.3%	35,300	33,800	33,000	32,600	-0.7%
Pastilles, gums, jellies, chews	807	896	1,057	1,139	4.9%	55,100	65,900	75,200	80,200	4.0%
TOTAL	3,422	3,860	4,316	4,571	3.4%	159,300	172,100	183,100	189,500	3.5%

* Expected Compound Annual Growth Rate 2016 – 2021

Note: Seasonal chocolate (e.g. Valentine's Day) is not included

Source: Euromonitor (2017)

colleagues and managers as well as to their female friends. Companies now promote limited seasonal editions of chocolate products for Valentine's Day as a day to enjoy chocolate with family and friends.

Boxed chocolate assortments are an ideal gift and has been a substantial growing category where middle aged and elderly people are the main consumers. Pieces of fresh ginger, crystallized ginger or dried ginger are used here. The growth prospects are good and sales is expected to reach US\$ 1,600 million in 2021, an increase by 5.5% as is shown in Table 4.

Eating chocolate is healthy. After the health benefits of chocolate were revealed by the Japanese media, chocolate is gaining a healthier image among the Japanese. Scientific research showed evidence that polyphenol in cacao is effective for improving health. Cacao contains a fine balance of minerals, such as calcium, iron and magnesium being effective in, preventing arteriosclerosis, obesity and cancer and reducing the blood pressure. Besides, digestive health is improved by the protein in cacao. Especially dark chocolate with a cacao content of 70% or more, has become popular among the elderly people.

Plain milk chocolate tablets remain the preferred type in Japan and accounted for 60% of retail value sales of tablets in 2016. Filled chocolate tablets represented 19%, plain dark chocolate grew to 17%, while plain white chocolate decreased to 3%.

Main players. The market is dominated by Meiji (12% of the market in 2016), followed by other large players such as Lotte (10%), Morinaga (9%), Godiva Japan (7%), Nestle Japan (4%), Fujiya Co (4%), Mary Chocolate (3%), Ezaki Glico (3%) and many other companies.

The Japanese chocolate market is fragmented and is expected to grow substantially in the coming years both in value and volume (see Table 4).

In sugar confectionery, Lollipops, mints, toffees, caramels and nougat are large categories. However, Table 4 covers selected products in which ginger might be used.

Pastilles, gums, jellies and chews are the largest category representing a volume of 65,900 tonnes in 2016, valued at US\$ 896 million. Substantial growth (+4.9%) by value is expected reaching US\$ 1,139 million in 2021 as a result of encouragement by the media of eating them in between the meals to avoid peaks in blood sugar levels.

Medicated confectionery includes oral health aids against cold, dusts or nausea and is a declining niche market since 2012 due to a lack of new development and a declining population.

The company 'The Ginger People' with the brand *Ginger Rescue* targets children with fun packaging and an easy chewable format to appeal to them. Being free from additives and GMOs will certainly appeal to parents. Ginger is used for making candies that are known as *shoga*.

The main forms of ginger in sweet confectionery include ginger candy, sweet/crystallised ginger, dried ginger (cubes) or ginger oil and oleoresin.

BAKED GOODS

Baked goods sales is the second largest category in the flavour segment (after sauces) and represented 1,431 billion tonnes in 2016, valued at US\$ 16.8 billion. Pastries was the largest category by volume, while cakes were large

Table 5 Japan - Sales of Baked goods 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Cakes	10,272	10,189	10,399	10,520	0.6%	568,900	555,900	560,100	560,200	0.2%
Dessert mixes	138	131	126	123	-1.2%	11,700	11,200	10,800	10,700	-0.9%
Baked goods (frozen)	22	23	24	24	1.0%	2,700	2,800	2,900	2,900	0.8%
Pastries	6,352	6,481	6,593	6,634	0.5%	850,800	861,600	871,600	874,000	0.3%
TOTAL	16,783	16,825	17,142	17,302	0.5%	1,434,100	1,431,500	1,445,400	1,447,800	0.2%

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

by value at US\$ 10,189 million accounting for 60% of sales in the baked goods segment. The baked goods segment was primarily driven by development of premium products which has proved to be successful.

Most cakes are sold at supermarkets carrying a wide range of packaged and unpackaged baked goods. Many medium sized supermarkets have in-store bakeries offering fresh baked goods. Supermarkets accounted for 31% of value sales of baked goods in 2016, followed by convenience stores (29% of sales) promoting their private labelled baked goods.

In the coming five years, frozen baked goods, cakes and pastries continue to grow despite the declining population as is shown in Table 5. According to Euromonitor, packaged cakes, including single-serve formats, is expected to show faster growth by value than unpackaged cakes. They are sold at convenience stores, in-store cafes (e.g. at bookstores) or as gifts or souvenirs among tourists which are expected to rise for the Tokyo Olympic Games in 2020.

The fragmented baked goods market is dominated by Yamazaki (13% of the market in 2016), followed by other large players such as Fuji (6%), Shikishima Baking (5%), Kobeya Kashipan (2%), First Baking (2%) and many other companies.

Pastries and cakes continue to develop more variety of flavours and textures when combined with grilled hazelnut, fudge, dried fig, walnut crisp, or the smoothness of an almond cream. For the baker or cake maker, it is a skill to surprise consumers by adding new taste sensations for example by adding ginger.

This implies good opportunities for dried ginger from Nepal. The main forms of ginger in baked goods include ginger candy, sweet/crystallised ginger, dried ginger (cubes) or ginger oil and oleoresin.

HOT and COLD DRINKS

Sales of hot drinks was estimated at 209 thousand tonnes in 2016, of which 55% was coffee, 40% tea and 5% other hot drinks. Japan has a long traditional tea culture but similar as in food, consumers have shifted to Western style coffee (including new instant coffee mixes and Café latory sticks) that can be prepared quickly. The successful idea of new style coffee shops where consumer can make their own cup of coffee and coffee variations with milk offered at Starbucks, has led to new instant coffee for busy on-the-go consumers offered at convenience stores. This trend for new premium products is expected to continue in the coming five years.

The food service sector took up around 13% of sales of hot drinks (including coffee) in 2016 according to Euromonitor.

In 2016, around 82,919 tonnes of tea were sold in Japan most of which is green tea. In packaged black tea more variation in flavours (e.g. lemon, cassis) and new blends are offered following the choice offered at restaurants and hotels. The usual *mugicha* tea of roasted barley continued to be a popular cold drink during the hot summer and the rainy season (June). Oolong tea is also still common, although it has suffered from the image of being 'unsafe' as it is imported from China.

As is shown in Table 6, the categories Tea and NH tea decline in the coming five years suffering from a growing consumers' preference to coffee and new cold drinks that are trendy and convenient, for example reduced sugar flavoured waters or Ready-to-Drink teas, including RTD green tea.

Green tea with ginger or hot lemon with ginger offer good opportunities as an energy boost during winter

Table 6 Japan - Sales of Hot and Cold Drinks 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE				VOLUME					
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
Tea	3,289	3,095	3,011	2,995	-0.7%	86,505	82,919	79,773	79,027	-1.0%
NH Tea	2,719	2,587	2,465	2,424	-1.3%	na	na	na	na	
Other Plant-based hot drinks	12	13	14	14	0.3%	393	417	422	424	0.5%
Sports & Energy drinks	4,751	5,049	4,977	4,956	-0.4%	na	na	na	na	
NH Fruit/Vegetable juices	5,021	4,693	4,485	4,315	-1.7%	na	na	na	na	
NH Ready to Drink tea	9,181	9,658	9,968	10,018	0.7%	na	na	na	na	
Asian Specialty drinks	1,074	1,077	1,095	1,103	-0.4%	na	na	na	na	
TOTAL	26,048	26,172	26,015	25,824	-0.3%					

* Expected Compound Annual Growth Rate 2016 – 2021

NH = Natural Health

Note: Food service sales is not included

Source: Euromonitor (2017)

or for pregnant women. The main forms of ginger in hot drink include fresh ginger pieces, dried ginger of ginger powder in instant tea.

Main players. Nestlé Japan dominates the hot drinks market and increased their share from 17% to 20% of the market between 2012 and 2016. Other main players include Ajinomoto (9%), UCC Ueshima (7%), Ito En (7%), Harada Seicha (4%), Key Coffee (3%), Fukuju En followed by many smaller companies.

COLD DRINKS - SOFT DRINKS AND OTHER DRINKS

Total sales of cold drinks in Japan was US\$ 50,372 million in 2016, dominated by carbonated drinks, conventional juices and bottled water. Relevant categories for ginger and ginger products in the Japanese cold drinks market are: sports and energy drinks, NH Ready-to-drink teas, NH fruit/vegetable juices, which together accounted for 42% of the total cold drinks market. Prospects for juices, energy drinks and Asian specialty drinks are negative for the coming five years as is shown in Table 6. Driven by the instant rising sales of bottled water after the earth quake in 2011 to have always safe and reliable water available, consumers continued to buy bottled water which now is available with different subtle flavours (lemon, orange etc.). This resulted in a growing preference for healthy and reduced sugar drinks.

Elderly people in Japan tend to prepare their own cold drinks at home with raw ingredients. Recipes include ginger, honey and lemon tea, and rose tea. However, there

are also more complex cold drinks now being made at home including fresh ginger ale soda cocktails.

FOSHU (Food for Specific Health Uses) has become popular, referring to food and drinks containing ingredients with functions for health. FOSHU is now officially approved to claim its physiological effects on the human body, provided that these are scientifically proved. The popularity of FOSHU drinks created more demand for Natural Healthy Ready-to-Drink teas, which have grown by 1.3% between 2012 and 2016 and is expected to grow further as is shown in Table 6.

Main players. Coca Cola Japan dominates the soft drinks market and has kept its share of 25% of the market between 2012 and 2016. Other main players include Suntory Beverage (18%), Asahi Soft drinks (11%), Ito En (10%), Kirin Beverage (9%) Otsuka Holdings (2%), Dydo Drinco (2%), Kagome, Ajinomoto, Pokka Sapporo, Morinaga followed by many smaller companies including some private label producers. Specific brands for naturally healthy (NH) juices are Oi Ocha Iyemon (Suntory), Ayataka (Coca Cola), Tennensui (Suntory), Sokenbicha (Coca Cola), Yasai Seikatsu 100, Jurokucha (Asahi) and Namcha (Kirin) and around 25 other brands.

New products are driving the future market, i.e. Ready-to-drink teas, with new blends in flavours mixing lemon to ginger to raspberry, and FOSHU drinks with herbal botanical flavours (e.g. ginger, mint, sarsaparilla that are considered to be better than the fruit-flavoured ones. Although manufacturers recently introduced a sparkling matcha tea drink flavoured with ginger and the nashi pear



being promoted as ‘providing a soft energy kick’.

Some relevant developments for ginger in cold drinks were:

- **Lemonades that are made more healthful/functional** by blending it with vegetable juices or ingredients such as ginger. Frozen fruit drinks have ingredients that help strengthen health, such as vitamin C, lemon, honey and ginger. An example is a ‘recovery drink’ made with apple, beetroot and ginger which is said to help build and maintain the muscle mass.
- **Detox juices usually blend fruits and vegetables**, using the functionality of these ingredients to promote the benefit fitting well into the FOSHU trend. For example, combinations of lemon, apple, kale, *ginger* and coconut water.
- **Multi-functional products on the market** for example concentrated syrup that can be mixed with soda water to make ginger beer, stirred into cocktails, or poured over ice cream. Another example is a thick smoothie that is topped with granola, yoghurt, fruit or nuts that is a popular breakfast in Hawaii (main honeymoon destination for the Japanese). This is referred to as Acai juice or Acai bowls which was introduced by the Japanese company Fruta Fruta.
- **Coca-Cola introduced its *Ginger Coke* and *Ginger mocktails*** in March 2017, which is likely to be sold in the Japan as well.

The main forms of ginger in cold drinks include ginger powder, ginger oil, ginger oleoresin and pieces of fresh ginger in juices featuring natural flavours.

4.3.2 Herbal traditional medicines segment

Traditional medicines have been used effectively in Japan for more than a thousand years. Japan is the second leading market after China. The per capita consumption of herbal medicine was US\$ 26.80 in 2016 which the highest in the world compared to US\$ 7.95 in China.

Traditional medicines are divided into *folk medicine* and *Chinese medicine* from ancient China, the so-called *Kampo medicine*. Nowadays, raw medicinal herbs used as folk medicine, are combined with modern preparations. Chinese traditional medicines are combined in a similar way.

Kampo drug is a formula usually consisting of 5-10 different herbs and is extremely popular in Japan. Today in Japan, Kampo is integrated into the Japanese national health care system with a rising popularity of Kampo clinics. In 1967, the Ministry of Health, Labour and Welfare approved four Kampo medicines for reimbursement under the National Health Insurance (NHI) program.

Medicinal mushrooms like Reishi and Shiitake are herbal products with a long history of use. In Japan, the *Agaricus blazei* mushroom is a highly popular herb, used by 500,000 people being a most popular herb used by cancer patients. The second most used herb, is an isolate from the Shiitake mushroom, known as Active Hexose Correlated Compound to treat cancer as well or any other disease.

Table 7 Japan - Sales of selected Herbal Traditional Medicines 2012 - 2021
Value in US\$ million

	VALUE				
	2012	2016	2019	2021	CAGR*
HT Topical Analgesics	104	104	103	102	-0.2%
HT Digestive Remedies	346	341	336	334	-0.4%
HT Cough Cold & Allergy	488	486	492	494	0.3%
HT Dietary Supplements	2,021	2,077	2,152	2,178	0.9%
HT Tonics	405	396	389	388	-0.4%
TOTAL	3,364	3,404	3,472	3,496	0.5%

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

As is shown in Table 7, sales valued US\$ 3,404 million in 2016. Sales of herbal/traditional products are expected to rise by +0.5% in the review period. Most categories posted a decline due to the decreasing Japanese population.

Dietary supplements are still expected to grow (+0.9%) in the coming years with the growing elderly population who want to stay healthy and prevent disease. Dietary supplements took up 61% of the herbal/traditional market in Japan in 2016. Sales are also driven by the newly introduced *Foods with Functional Claims (FFC)*. In April 2015, this new idea was launched to further promote self-medication in Japan. Manufacturers do not need to obtain approval but they should notify the Consumer Affairs Agency (CAA) of their specific offerings. After confirmation, they can sell the product after 60 days. This implies good opportunities for new products using ginger.

Cough, Cold & Allergy remedies is the other growth category. *Ginger*, dandelion and angelica dahurica root are believed to be able to drive away coldness and causes of illness. Kakkon Tou is a well- recognised remedy to prevent cold or allergies. As Japanese consumers have become extremely careful after the Fukushima disaster, they tend to take this remedy as early as possible.

Main players. Miki Corp has slightly lost market share from 14% to 12% between 2012 and 2016. Other main players include Sata Pharmaceutical (5%), Yomeishu Seizo (4%), Egao Co (4%), House Wellness (4%), Suntory Wellness (3%), Lotte (3%), Kenkou Kazoku (2%), Kanro followed by many smaller companies.

Prices of raw materials rose due to depreciation of the yen. Besides, margins of companies were pressurized as every two year they are expected to reduce drug prices every two years to make them more attractive to consumers. Because this had negatively influenced the market, companies have investigated to source domestically cultivated ingredients. Glycyrrhiza Glabra

is now mass cultivated by the Ingredients manufacturer Mitsubishi Plastics successfully.

Most Kampo remedies are still imported from China, since 2015, there are ongoing discussions to find the best solution to have constant access to raw material that is combined with a further development of local production. In this respect, Nepal could be an interesting lower cost supplier of several raw material, including ginger.

Uses of ginger

In natural medicines e.g. for elderly people, a stronger variety of ginger from Nepal can be used beneficial to dilate blood vessels, regulate physiological function, accelerate blood circulation, lower blood cholesterol, dilute the blood or prevent blood clots. In addition ginger plays a role in the prevention and treatment of the shoulder pain, rheumatism and other diseases.

The Japanese will also use ginger to keep warm, such as ginger foot bath and use of ginger wet cloths. Ginger juice can be squeezed into hot water when grated. A daily foot bath can stimulate the blood circulation of feet and improve the body immunity. The main forms of ginger in herbal/traditional medicines include dried ginger, ginger powder, fresh ginger and ginger essential oils (aromatherapy).

4.3.3 Fragrance segment

BEAUTY AND PERSONAL CARE

The Japanese beauty and personal care market for the selected categories was valued at US\$ 25,403 million and is still expected to grow despite the declining population. Due to economic uncertainty, consumers have become more careful in their spending on beauty and personal care. On the other hand, the weakness of the yen stimulated sales of products by Japanese in their own countries, instead of buying them overseas. The weak yen

Table 8 Japan - Sales of selected Beauty and Personal care products 2012 - 2021
Value in US\$ million

	VALUE				
	2012	2016	2019	2021	CAGR*
Hair care	5,861	5,817	5,692	5,589	-0.8%
Skin care	14,922	15,363	15,653	15,723	0.5%
Bath & shower	1,875	1,953	2,021	2,056	1.0%
Men's grooming	1,769	1,819	1,848	1,856	0.4%
Fragrances	439	450	457	459	0.4%
TOTAL	24,865	25,403	25,669	25,684	0.2%

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

also attracted foreign tourist attracted by Japanese brands such as Shiseido, Kosé, DHC, Kao, Pola, Bioré, Sofina and SK-II amongst others.

The selected categories that could use ginger as an ingredients are shown in Table 8. The premium end of the mark consists either of *higher quality products* - with added benefits e.g. multifunction or *green products* using natural or organic ingredients such as ginger. Interest in natural beauty was evident in haircare and skins care.

In hair care, consumers want their hair looking smooth, thick and healthy. Sales of colourants, styling agents and perms declined among women, whereas men were still attracted to hair loss treatment. There will be an increased focus on scalp health to secure hair growth and volume. This implies an opportunity for ginger as an ingredient in shampoos and other hair care products.

In skin care, facemasks for a better skin, and multi-functional creams were popular among working women. Both products combine a natural and glowing finish on the skin. For the elderly people new anti-aging products will be developed.

More tourism in Japan. The number of tourists has doubled in each of the last two years. The future beauty and personal care market will be also driven by an increased number of tourists buying gifts for their relatives. In preparation of the 2020 Olympics, the government has eased duty-free shopping and visa regulations by providing multiple-entry visa over 10 years for people from India, Vietnam, China and Russia. They will form a powerful consumer group as long as the yen remains weak.

Main players are Kao Corp (15% of the market) and Shiseido (12%), followed by Kosé (6%), Proctor & Gamble (5%), Lion Corp (3%), Unilever (3%), L'Oréal (2%), Rhoto Pharmaceutical, Mondom Corp and many other Japanese, French and German companies.

4.4 Prices and Distribution

4.4.1 Prices developments

The price of ginger will depend on where it is sold, from which country it has been imported, how it is shipped (by sea or air), using cooling chains and the number of channels/middlemen in the distribution.

Apart from the supply chain, the main key determinant of price is the variety/quality of the ginger itself, its cleanliness, freshness, whether or not processed, how it is packed and how long it can be kept fresh.

Import prices

In order to obtain a rough idea, it is best to compare the price levels (based on imported unit value) of the most common ginger product groups together that were imported by Japan between 2014 and 2016 as is shown below in Table 9. The tendency is a decreasing price level mainly because of lower prices from China and Thailand. Here import price differences can be seen, with prices from Laos being extremely high while prices from China - as main trade partner of Japan - were the lowest.

The Indian prices were much higher than the other Asian countries, but lower than the Peruvian prices averaging US\$ 6,000 per ton. Many Peruvian ginger is organic certified and has to come a long way. Note that African countries are not listed, as Japan does not source ginger from Africa.

From 2015, price levels from Chinese ginger decreased despite the depreciation of the yen. As Japan is a reliable trading partner of China for a long time and imported quantities usually remain at a similar level, Chinese companies are willing to make attractive price arrangements with Japanese buyers. Another reason is the high availability of ginger due to Chinese overproduction of ginger in 2014/2015.

Table 9 Japan – Import price per ton in US\$ for ginger*, 2016
Leading and selected suppliers

Exporters to Japan	2014	2015	2016	Imports, US\$ 1,000 (2015)	Imports, Tonnes (2015)
	US\$/Ton	US\$/Ton	US\$/Ton		
World (average)	2,101	1,843	1,330	85,123	63,989
China	2,228	1,744	1,260	58,561	46,490
Thailand	1,715	1,892	1,313	20,148	15,343
Taiwan	2,809	3,092	2,854	3,196	1,120
Laos	15,875	31,820	31,021	1,458	47
Viet Nam	1,229	1,431	1,468	1,004	684
Indonesia	2,183	2,124	1,934	439	227
India	5,565	5,338	4,250	255	60
Australia			4,143	29	7
Philippines		2,500	2,100	21	10
Peru		7,000	6,000	12	2
S. Korea		1,500		0	0

* Excluding Powdered ginger and Pickled ginger

Source: ITC Trademaps (2017)

Average import prices of ginger crushed/ground for retail sales (091012210) shows a decreasing trend between 2014 and 2016 as is shown in Table 10 with price level per kilogramme decreasing from US\$ 3.87 to 2.78. Compared to the other supplying countries, price levels of China are extremely low and even one tenth of those from Nepal and half of the average prices from India in 2015.

Average import prices of ginger – whole dried (091011292) are slightly increasing from US\$ 9.11 to 11 per kilogramme - as is shown in Table 11. Prices from India were almost 2.5 times lower than the Chinese whole dried ginger, while Laos and Thailand were well above the average price level.

More details on ginger prices in Japan can be found in the report ‘Opportunities for Nepalese ginger and derivative products in Japan’ that can be obtained from Samarth at <http://samarth-nepal.com/portfolio/ginger>

4.4.2 Distribution

The Japanese food distribution is very fragmented

comprising a traditional multi-layered distribution system from manufacturer to importers, primary wholesalers, secondary local wholesalers and retailers. The distribution used by large Japanese retailers (private labels) is direct from manufacturers, although medium sized retailers still buy products via wholesalers, importers or via trading houses. This layered system still works very efficiently where keeping minimal stocks remains necessary for timely supplying small neighbourhood supermarkets or convenience stores in the densely populated urban areas.

Sometimes deliveries can be a few times per day, especially for fresh food with a possibility to return unsold food.

INDIRECT CHANNELS

Following the multi-layered system, this means that your best option is to go via an importer or agent. The key is choosing a suitable importer. Each type has its own strengths and weaknesses and it is important to find a partner you are comfortable with. A good option for supplying ginger to the Japanese market, is via Co-ops and voluntary chains who import direct from foreign food manufacturers – some recommendations are given in section 6.6.3.2.

Another option is via trading houses e.g. Itochu, Mitsui and Mitsubishi. This takes longer and is more expensive and this route leaves little capacity to retain control over your product. However, it offers the opportunity for wide distribution.

From the perspective of the Japanese retailers, they could source their products as follows:

- **Traditional entry points via importers** etc. One retail chain organization that operates large-scale supermarkets, regional supermarkets and convenience stores, can use several distribution systems to source products for procurement. Due to a growing competition there is a tendency to diversify distribution to be always sure the products are delivered in time.
- **Large-scale supermarkets** buying primarily via importers and wholesalers. Most are engaged to some

Table 10 Japan – Import price per ton in US\$ for ginger crushed/ground for retail sales, 2016
Leading and selected suppliers

Exporters to Japan	2014	2015	2016	Imports, US\$ 1,000 (2016)	Imported quantity/ kg (2016)
	US\$/Kg	US\$/Kg	US\$/Kg		
World (average)	3.87	3.10	2.78	3,252	1,169,640
China	3.34	2.98	2.73	3,195	1,168,345
Germany	38	49	46	21	460
S. Korea	66	60	72	20	279
UK	79	60	51	11	216
Sri Lanka	10		12	3	250
Nepal			22	2	90
India	6	5		0	0
Thailand	45	3.89		0	0

Source: ITC Trademaps (2017)

Table 11 Japan – Import price per ton in US\$ for ginger – whole dried, 2016
Leading and selected suppliers

Exporters to Japan	2014	2015	2016	Imports, US\$ 1,000 (2016)	Imported quantity/Kg (2016)
	US\$/Kg	US\$/Kg	US\$/Kg		
World (average)	9.11	10	11	6,402	608,223
China	9.08	8.81	9.42	4,823	512,037
Laos	16	32	31	1,380	44,311
India	5.82	5.25	3.79	196	51,765
Thailand			18	2	110

Source: ITC Trademaps (2017)

degree in developing and maintaining private labels which they tend to outsource to food manufacturers.

- **Conventional supermarkets** buying from local and national wholesalers who source imported food products from trading houses and importers. National wholesalers and big trading houses are interested in handling high volume products, and not in products for niche markets.
- **Department stores buying entirely from wholesalers** and tenant merchants. Imported products reaching department store ‘tenant merchant’ shelves are dependent upon the wholesaler purchasing these products from importers or trading companies. Tenant merchant companies mainly purchase the ingredients for their products from wholesalers and then manufacture the products to be sold.
- **Convenience store chains use trading companies or wholesalers**, depending on the type of product. Due to limited shelf space, convenience stores can only hold a few brands per category. Because of this, product performance is continuously reviewed, and products that show little or declining progress are quickly replaced, ensuring the highest turnover possible.
- Their management systems present the most significant challenges for imported packaged or processed foods because they require exporters to:
 1. Adapt product taste/specifications to consumer tastes.
 2. Shorten delivery time to ensure freshness
 3. Update and introduce new products frequently.
- **Specialty and Other Stores.** The remainder of the Japanese retail food industry is made up of a small, yet energetic group of stores ranging from co-ops and specialty shops to online marketplaces.
- **Consumer Cooperatives (Co-ops) and voluntary chains** use a variety of sources which include: direct importing, manufacturers, importers, and wholesalers. There are several major organizations serving voluntary chains including CGC Japan, Nichiryu, All Japan Supermarket Association (AJS) and Co-ops. Their major role is to develop private branded products with Japanese food processors and overseas sources to sell to member retailers. Some of these organizations directly import non-branded food products that are “volume” oriented in nature.

Table 12 Retail distribution share (by value) in Japan in 2012 - 2016

Outlet type	2012	2014	2016
Store-Based Retailing	94.3%	93.3%	91.9%
Food Retailers	90.2%	88.3%	86.7%
- Hypermarkets	0.3%	0.9%	1.0%
- Supermarkets	33.3%	33.0%	32.1%
- Convenience stores	24.0%	24.4%	25.3%
- Department stores	11.3%	11.0%	10.2%
- Conventional supermarkets	12.1%	11.4%	11.1%
- Independent small grocers	6.8%	6.0%	5.3%
- Tobacco specialists	2.4%	1.8%	1.7%
Non-store Retailing	5.7%	6.7%	8.1%
Internet Retailing	4.1%	5.0 %	6.2%
Home Shopping	1.2%	1.3 %	1.4%
Direct Selling	0.4%	0.4 %	0.5%

Source: USDA, Euromonitor (2017)

- **Locally-owned stores.** These are the independent small mom & pop shops that typically source from wholesalers. Penetration of imported foods into these shops is relatively low.
- **Specialty shops** (foreign foods, discount foods, etc.) who also primarily depend on wholesalers. Selected coffee shop chains, discount stores and natural food specialty stores with chain operations may present opportunities for food exporters.
- **Online sales, include TV mail order advertising,** offers a possible channel that you can consider for food distribution. While the majority of sales are for non-food items, food and beverage sales are increasingly being purchased online. Amazon Japan is the leading online seller, followed by Rakuten and Yahoo. According to the USDA, there were 9 large scale retailers such as Ito-Yokado and AEON were among the first to see growth in sales from e-commerce. Many major supermarkets now offer online grocery services in most parts of Japan, including rural areas.

RETAIL TRADE

The majority of food products sold in the flavour segment in Japan goes through supermarkets, convenient stores and traditional food retailers. **Supermarkets dominate** and accounted for 35% of sales as is shown in Table 5. In 2015, the top 5 supermarkets were: AEON Retail (563 outlets), Seven & 1 Holding (181 outlets), Uny (226 outlets), Daiei (468 outlets), Izumi (103 outlets).

Japan is well covered by the standard large-scale and conventional supermarkets and the number of supermarkets has reached its saturation point. The large supermarket chains now investing in city-center stores

which allow easier access for elderly people, mothers and value-conscious consumers.

Convenience stores accounted for around 25% showing an increasing trend between 2012 and 2016 as they are very close to consumers' homes and provide home delivery service of e.g. bento boxes. Delivery staff of Family Mart even checks the well-being of the elderly people. The top 5 convenient stores in 2015 were Seven & I Holdings (17,491 outlets), Lawson (11,900 outlets), Family Mart (10,514 outlets), Circle K (5,990 outlets) and Mini-Stop (2,151 outlets).



Department stores have a 10% share of food sales. Department stores can be found on the high street (e.g. Daimaru, Isetan, Mitsukoshi, Takashimaya), near railway stations (e.g. Hankyu Hanshin, Kintetsu Seibu), in suburbs (Sogo) and in rural areas.

4.5 Access requirements for the Japanese market

The requirements in Japan for 0910 Ginger, saffron and other spices are:

Import Clearance Procedures

At the import clearance, "export declaration" with all necessary documents attached including invoice, B/L, and insurance statement, etc. should be submitted to customs. After examination, inspection, and payment of taxes at customs, the *import permit* shall be issued.

Prevention of Plant Epidemics under the Plant Protection Act

- a. Import from areas where significant noxious insects are found is prohibited and quarantine under the Plant Protection Act is required for import from other areas.
- b. When plants and plant products are imported, importers should apply for inspection to the Plant Quarantine Station by submitting the documents including the «Plant import inspection application» accompanied by plant epidemic prevention certificates issued by the plant epidemic prevention agency of the exporting country. When any adhesions or damage by noxious insects are found as a result of the inspection, measures such as fumigation and disinfection will be necessary.
- c. Dried spices closely sealed in containers for retail are not subject to the Plant Protection Act.

Inspection Procedures under the Food Sanitation Act

- a. Two copies of an import notification should be submitted to the section in charge of food inspection of the Quarantine Station at the import site.
- b. Importers of processed products which are imported for the first time are required to submit reference materials showing a detailed ingredient list and the manufacturing process.

JAS System – Organic certified products

- (1) **Quality Labelling** in accordance with JAS Law, spices must bear on their label the name, ingredients, content quantity, names of manufacturers, open date, and preservation methods.
- (2) **Organic JAS:** In order to import and sell organic spice products in Japan, products must be certified by Organic JAS Standards and Organic JAS label must be affixed to the products.

Other important legislative requirements for Japan are similar to the international standards such as:

Legislative requirements

- Phytosanitary certificate from Nepal, packing list and Halal certificate (if applicable).
- Certificate of Origin
- Form A for reduced import duty (GSP)
- Other certificates that you needed for Customs Clearance in Nepal
- Ginger must be totally free from rhizome rot
- Comply with the HACCP guidelines
- A laboratory test will be required to assure the product is in compliance with the standards and regulations
- Proper packaging must be used
- Clear labelling (name product, manufacturing date, expiry date, net weight etc...)

Quality requirements

Dried ginger

- Each piece should be clean and not old looking
- Leaving the skin might be preferred
- If dried ginger is used for powder, low fibre or soft fibre ginger is preferred.

Powdered ginger

- Vacuum bags are preferred over loose bags
- Usually 25 kg bags are used
- Preferably fibre should be removed with a grinding machine, afterwards to be sifted (mesh size 500).

Voluntary requirements

- ISO standards (9001 and 14001)
- Global Gap standard

More details on Access requirement and Product requirements for the Japanese market can be found in the report 'Opportunities for Nepalese ginger and derivative products in Japan' that can be obtained from Samarth at <http://samarth-nepal.com/portfolio/ginger>

Tariffs and duties

Nepal enjoys preferential tariffs under the GSP Scheme of Japan, which means that the import duty is zero. Your trade partner (importer, agent) should submit a certificate of preferential country of origin issued by the customs or other issuing agency in the exporting country. If you follow this link, you can see how the zero tariff for Nepal compares with the WTO tariff rates for ginger or ginger product imports to Japan. For example, the WTO tariff rate for ginger and ginger products ranges between 5% and 15% http://www.customs.go.jp/english/tariff/2017_4/data/e_09.htm

4.6 Options for entry

4.6.1 Future growth and market potential

POTENTIAL USERS FOR GINGER AND GINGER PRODUCTS

Japan has an ageing and declining population. In future, people aged between 40 and 50 years and people aged 65 years expected to grow faster than the other age groups. This puts pressure on the future growth of the market. However, there are three consumer groups in Japan with an increased spending on food and who are more open for international cuisines - including ginger products:

- **Young people** (aged 20-30) who focus on their career and delay marriage and child-bearing. There is a rise of the working, single-households. Due to a busy lifestyle, they try to minimize cooking at home and choose for quick meal solutions such as ready-made meals, frozen meal, home delivery or they have their meal at restaurants. Young people are open to meals from other Asian countries and healthy drinks, which imply good opportunities for ginger.
- **Elderly people** who are rapidly expanding. Retailers in Japan find new opportunities by delivery services, mobile operations, internet shopping and new meal solutions. Senior are traditionally more respected than in Western cultures. This affluent group continues

to play an integral role in the Japanese market with projections. They are expected to grow by more than three times from 800 million in 2010 to 2,000 million in 2050. Ginger and ginger products are recognised by elderly people for their healthy properties and therefore has good opportunities in this segment.

- **Nepalese living in Japan.** Accurate numbers are unavailable but estimates range around 67,000 people which includes temporary expatriates, permanent residents and locally born descendants. Most of them live in the Tokyo area and in Sapporo (Hokkaido). This group would represent a positive opportunity for ginger and ginger products from Nepal.

According to the Nepal Tourism board the number of Japanese visitors decreased from 26,694 to 17,613 people between 2013 and 2015 mainly due to the earthquake. However, in 2016 this has picked up to 22,797 Japanese visitors. Around 69% were holidays for pleasure and 13% for trekking. Even if this is a fraction of the Japanese population (127 million), this contributes to a growing awareness among Japanese people about Nepal.

Please note some general attitudes of Japanese consumers when buying food:

- Consumers are well-educated and knowledgeable about food. They are very quality-conscious and look at the details.
- They 'Eat with their eyes' and often view food as art. A food product's aesthetic appearance—on the shelf,



in the package, and on the table—has a chance to be accepted by them.

- Care a great deal about seasonal foods and freshness—promotion of these characteristics can significantly build product sales.
- Eat fewer calories and prefer ready-to-eat products in smaller-sized portions.
- Often prefer food that is less sweet, except when it comes to fresh fruit.
- Prefer packaged foods with fewer ingredients and are turned off by many food additives.
- Are highly concerned about food safety and traceability – commonly used terms are *anzen* and *anshin* that respectively mean ‘safety’ and ‘peace of mind’.
- Japanese are highly brand-conscious—a brand with a good reputation or image will sell better.

OPPORTUNITIES

- **Dark chocolate with stronger ginger variety.** In the chocolate confectionery market, combinations of chocolate with new ingredients (e.g. ginger, exotic fruits, nut pieces, stevia, caramel etc.), are expected in order to stimulate chocolate market and give the product, especially pure chocolate, a healthier image. Ginger and dark chocolate are gaining attention in the sports and performance nutrition category. The main forms of ginger include dried ginger (cubes), sweet/crystallised ginger or ginger powder.

- **Ethical chocolate with ginger from Nepal.** As manufacturers in Western market continue to invest in sustainability programmes, including ethical and organic chocolate, whether or not combined with ginger, this may be an opportunity for Japanese manufacturers as well. Following the success of Fair-trade chocolate, sustainability and traceability in the chocolate value chain are likely to become more important buying criteria for consumers. Dried ginger can be chocolate coated and sold throughout the whole year in luxury packaging or specially packed at Christmas or Valentine’s Day.

- **Growth in foreign tourism.** The rapid growth of foreign tourists was driven by the devaluation of the yen and some economic measures by the government encouraging greater numbers of tourist arrivals to the country, particularly from other neighbouring Asian countries. This will generate demand for healthy food and healthy drink products using ginger as well as demand for Asian/Chinese curry or stir fried dishes in the food service sector and prepared meals sold at convenience stores. Asian tourist are likely to be also interested in premium beauty and personal care products of the main Japanese brands, some of which use ginger as natural ingredient.

- **Use of ginger in hair care products.** Japanese consumers tend to prefer their hair looking smooth, thick and healthy. Sales of colourants, styling agents and perms declined among women, whereas men were still attracted to hair loss treatment. Ginger can



Table 13 Japan - Sales of selected Segments 2012, 2016 and forecast for 2021
Value in US\$ million and Volume in tonnes

	VALUE					VOLUME				
	2012	2016	2019	2021	CAGR*	2012	2016	2019	2021	CAGR*
FLAVOUR	62,227	63,715	63,796	64,095	1.1%	-	-	-	-	-
- Herbs & Spices	396	414	424	427	0.8%	4,900	5,100	5,210	5,230	0.6%
- Baked goods	16,783	16,825	17,142	17,302	0.5%	1,434,100	1,431,500	1,445,400	1,447,800	0.2%
- Sauces, pickled products	11,106	11,196	10,103	9,933	-0.8%	1,514,500	1,469,357	1,441,340	1,421,310	-0.3%
- Confectionery	3,422	3,860	4,316	4,571	3.4%	159,300	172,100	183,100	189,500	3.5%
- Biscuits and Snackbars	3,006	3,470	3,818	3,992	2.8%	192,600	212,100	225,200	230,700	2.7%
- Healthy food	1,466	1,778	1,978	2,046	3.0%	-	-	-	-	-
- Hot and Cold Drinks	26,048	26,172	26,015	25,824	-0.3%	-	-	-	-	-
FRAGRANCE	24,865	25,403	25,669	25,684	0.2%	-	-	-	-	-
- Beauty and Personal care	24,865	25,403	25,669	25,684	0.2%	-	-	-	-	-
HERBAL/ TRADITIONAL MEDICINES	3,364	3,404	3,472	3,496	0.5%	-	-	-	-	-
TOTAL	90,456	92,522	92,937	93,275	0.6%	-	-	-	-	-

* Expected Compound Annual Growth Rate 2016 – 2021

Source: Euromonitor (2017)

be used in new shampoos fortifying or moisturizing hair or anti-dandruff shampoos.

- **Ginger oil in herbal traditional medicines and aromatherapy.** In the field of personal care products, ginger oil has been widely used as a kind of unilateral or compound essential oil. In addition, ginger oil in the shampoo has a certain therapeutic effect in migraine headache and cyclical headache.
- **2020 Olympic Games.** This is driving more purchases of healthy food and drinks and offers many opportunities to develop new snack or fruit bars with ginger indirectly linked to energy and sports and during this event in Japan. The spending power of visitors during the hot summer in Japan will surely present good opportunities, healthy cold drinks (FOSHU drinks) and NH Ready-to-drink teas.

Growth of ginger market. As mentioned in Chapter 2.2., the Japanese ginger market is forecast to grow steadily after a dip in 2016 due to lower prices. The market is expected to grow between 2016 and 2021 by an average rate (CAGR) of +2.5% per year, reaching a value of \$ 110 million. The yen is expected to depreciate further. This makes imported ginger more expensive which may increase price levels of products using ginger, unless Chinese companies will further lower their prices of ginger supplies to Japanese companies. By volume, minor growth by +0.4% the ginger market is expected, from 112 to 114 thousand tonnes between 2016 and 2021.

Based on the above opportunities and the growth projections in each selected segment in Table 14 the following forms of ginger forms are likely to have good chances in the Japanese market.

Table 14 Five main ginger forms with best opportunities in the Japanese market

FLAVOUR		USE	REASON	BEST GINGER FORM
PRODUCT				
1. Fresh Food Healthy Food	Fresh ginger	Asian stir-fried dishes (meat, vegetables)	Growing market Young people Tourists	Fresh ginger Ginger powder Pickled ginger
2. Sauces	Kimchi-based sauces	Asian cuisine Nabe dishes	Big market	Fresh ginger Ginger powder
	Salad dressings	Healthy meal	Niche	Dried ginger Ginger oil
3. Baked goods	Cakes	New taste sensations Ginger as healthy sweetener	Big market (all Japanese)	Dried ginger Ginger powder (Crystallised) Sweet ginger cubes
4. Confectionery	Boxed assortments Chocolate tablets	Bon-bon with ginger as a gift Dark chocolate tablets	Growing market	Dried ginger cubes (Crystallised) Ginger powder
5. Biscuits and snack bars	Filled biscuits	Middle aged women Elderly people	Ginger as tasty and healthy sweetener	Dried ginger (Crystallised) Ginger oil Ginger oleoresin Sweet ginger cubes
	Snack bars/ Fruit bars	Healthy snack Tourists Visitors Olympic G.	Ginger combined with other dried fruits	
6. Cold drinks	FOSHU drinks NH-Ready-to-drink teas	Young people Elderly people Visitors Olympic G.	Niche Refreshing (hot summer)	Dried ginger Ginger oleoresin Ginger extract
FRAGRANCE		USE	REASON	BEST GINGER FORM
1. BPC*	Hair care products	Hair loss treatment Hair fortifying Anti-dandruff	Growing market	Ginger oil Ginger extract
HERBAL / TRADITIONAL MEDICINES		USE	REASON	BEST GINGER FORM
1. Dietary supplements	Capsules, pills, powders	Stay healthy and prevent disease	Growing market (Elderly people)	Ginger powder Ginger oil
2. Cough, Cold & Allergy remedies	Capsules, drops, powders	Immunity during cold winter	Growing market	Ginger powder Ginger oil

* Beauty and Personal Care

Source: Searce estimates (2017)

4.6.2 Doing business with the Japanese

Getting the business take a long time. Often Japanese importers/processors stay loyal to their usual suppliers whom they can trust and who are able to deliver fast and provide the exact specifications, quality as agreed. Japanese usually look very much at the details, eliminate all possible risks and do not accept minor mistakes or discrepancies.

In this respect, try to find a Japanese speaking staff or consultant in Japan to reduce miscommunications. In general, Japanese are very purpose driven and find foreign people quickly 'too vague' in their explanation. Therefore,

being at the point from the beginning is recommended with all points discussed/agreed to be confirmed by email.

Making a good start in Japan

A distance and 'miscommunications' are often to the language barriers, but also related to deeply held traditions and practices. In order to make a good start with your potential trade partner, think about the following:

- Speak slowly and clearly, even if you know that your counterparts speak English.
- Use clear, simple words and expressions when writing in English.
- Use e-mail, rather than telephone, whenever possible.

- Make appointments as far in advance.
- Be on time for all meetings; the Japanese are very punctual.
- Carry plenty of business cards (meishi) and present them formally.
- Be prepared for negotiations move slowly and require a number of meetings and probably several trips to reach an agreement.
- Expect requests for information on ingredients, production process and quality controls.
- Try to respond to all requests for information as thoroughly and promptly as possible. Ensure that all the information is correct.
- Be aware that in Japanese, “Hai,” (yes) may mean, ‘I understand,’ not, ‘I agree.’
- Limit the discussion of business at evening meals, or when drinking with new Japanese counterparts; these occasions are for getting to know one another and building trust.

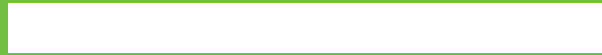
It usually takes a long time before decisions are taken and the actual business is established. But once the good relation has established, there will be a growing sense of joint effort to reach success. Also, you could keep in mind that Japan to a certain extent is a trendsetting country for other Asian markets.

Potential trade partners and useful addresses

Many names of main players are given in Chapter 4.3.1 – 4.3.3 which can be found easily via Google.

The first place to look would be to contact the main trade association(s), followed by trade fairs, which tend to feature a list of exhibitors, many of which may be potential partners

GINGER AND GINGER PRODUCTS IN BANGLADESH



Chapter 5

Brief overview



Population

161 million; growth rate 1.05% (2016)

- 0-14 years: 28.3%
- 15-24 years: 19.5%
- 25-54 years: 39.4%
- 55-64 years: 6.8%
- 65 years and over: 6.0%

Urban population 34.3% of total

Obesity (adult prevalence): 3.3%



Economy

GDP US\$ 3,900 per capita

Unemployment rate officially estimated at 4.9% (2016), 40% of the population is underemployed; many persons counted as employed work only a few hours a week and at low wages



Social

Health expenditure: 2.8% of GDP

Physician's density: 0.39 per 1,000

Tourists to Nepal in 2016: 23,440 (7)





5.1 Market conditions

Bangladesh is a densely populated country with the population divided since its independence in 1947 into Muslims (89%) and Hindus (11%) who co-exist peacefully together but have different religious, cultural and eating habits.

In the past 30 years, there were many reforms in trade policy, industrial policy and promotion of foreign direct investment. Liberalization of the telecom and financial sectors also received much importance. Now, service sectors (including retailing and wholesaling) have become the core of Bangladesh economy and accounted for 56% of the GDP, compared to 28% of the industrial sector and only 16% of the agricultural sector.

Bangladesh has been one of the most popular outsourcing destinations in the world. Apparel exports, the backbone of Bangladesh's industrial sector, accounted for more than 80% of total exports of which half went to the USA and Europe. Other export products include jute and jute goods, leather, spices (turmeric and chillies), juices and a variety of other agricultural products.

The agro processing sector in Bangladesh is developing and generates employment which is needed as the unofficial rate was 40% in 2016. The food processing sector serves the domestic market with a rapidly growing middle

class population. Still around 65% of the population lives in rural areas with 32% of the population living below the poverty line living on US\$ 2 or less. There is a high illiteracy in Bangladesh.

Eating habits

Rice is the main staple food of Bangladeshi people and it is served with a wide range of curries which include ginger. Sublime Bangladeshi dishes exhibit strong aromatic flavours; and often include eggs, potatoes, tomatoes and aubergines.

A variety of spices and herbs, along with mustard oil and ghee, is used in Bangladeshi cooking. The main breads are naan, paratha, roti, bakarkhani and luchi. Dal is the second most important staple food which is served with rice/porota/luchi.

5.1.1 Ginger imports

Similar to India, the Bangladeshi cuisine is exotic using many different spices and herbs including fresh ginger. The Muslim population (90%) use natural medicines or the conventional over the counter medicines. However, the Hindus which represent 10% of the Bangladeshi population are familiar with Ayurvedic medicines and (ginger) essential oils. Ginger oil can be used in natural cosmetics such as in soap or detergents, but no statistics are available on the imports of ginger oils. Therefore only fresh ginger and ginger powder are covered.

GINGER FRESH

Bangladesh was the largest importer of fresh ginger in world with volumes increasing by a CAGR of 6% from 68,058 to 85,247 tonnes in the period 2013 – 2016. In 2016, volume imports represented 12% of all fresh ginger imported in the world. Bangladesh in closely followed by the USA (11% of volume imports), Pakistan (11%), Japan (9%), Netherlands (8%), UAE (6%), Saudi Arabia (5%), Malaysia (4%) and other Asian and European countries.

Bangladesh is a developing country in Asia and is increasingly affected by climate change such as flooding caused by heavy monsoon rains, cyclones, melting water from the Himalayas, deforestation and flooding in many low-lying lands. Every year, many people become homeless or die from drowning.

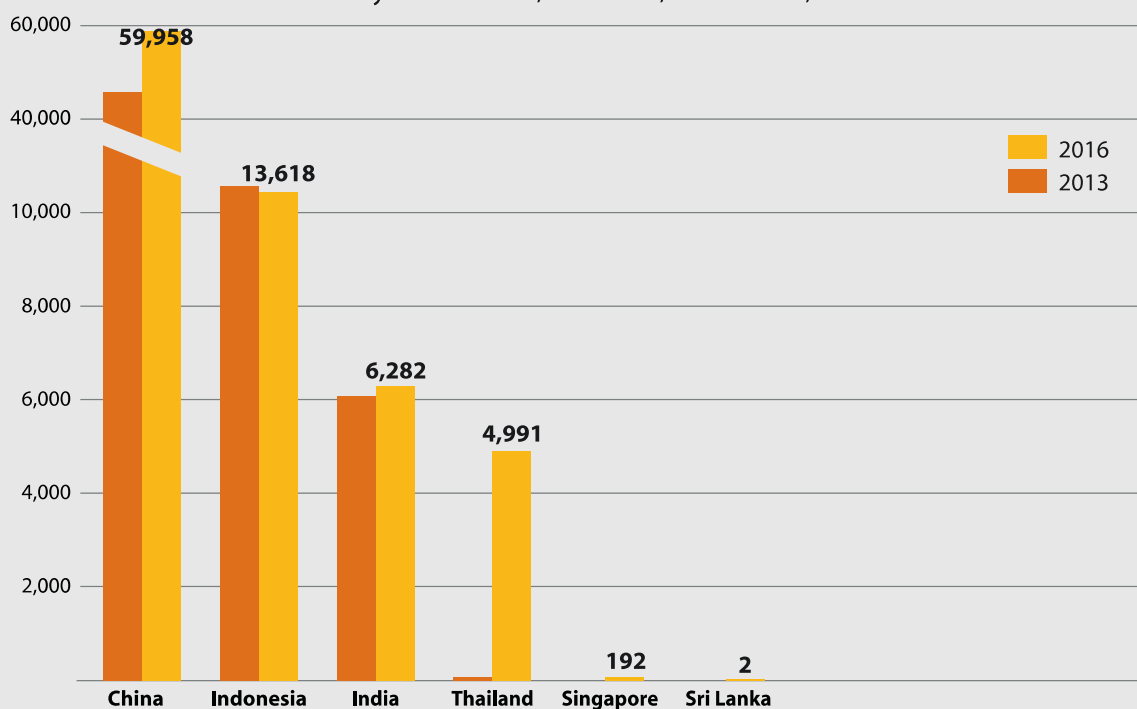
In July – October 2015, farmers face severe damages to their crops from the flood, leading to enormous price increases making many crops, including fresh ginger, unaffordable to local people. Imported ginger is much lower in price and this explains the substantial rise in the past few years.

- **By value, Bangladesh was the 5th largest importer** of fresh ginger with imports valued at US\$ 33,671 thousand, after Japan, the USA, Netherlands and Pakistan. The value of ginger imported by Bangladesh

is more than half of the value of imported ginger by Japan or USA. Besides, the imported value of fresh ginger by Bangladesh fell from US\$ 57,435 to US\$ 33,671 thousand between 2015 and 2016. This fall in values indicates more imports of lower quality ginger by Bangladesh.

- **China dominates fresh ginger supplies** and accounted in 2016 for 70% of the Bangladeshi volume imports of fresh ginger as is shown in Figure 1. Volumes supplies increased by 73% between 2015 and 2016, while values lowered in the same period from US\$ 28,445 to 24,321 thousand.
- China usually develops the market by offering low prices, and once they are more settled in the market, they increase their price level. The average value/ton of imported ginger fell from US\$ 969 to US\$ 502 between 2015 and 2016, although Chinese fresh ginger values/ton are also low to other Asian countries which also indicates dumping of excessive quantities at low prices offered by Chinese exporters.
- **Since 2015, Indonesian supplies rose by 15%** from 11,975 to 13,618 tonnes between 2015 and 2016. Indonesia is an important second supplier and accounted in 2015 for 16% of Bangladesh volume imports. Even if Indian ginger is recognised for its spicier taste, imports from India have dropped between 2014 and 2015 by 51% from 12,568 to

FIGURE 1: Bangladesh - Ginger fresh (091011), imports by supplying countries
Volume increased* by 9% from 68,058 to 85,247 tonnes, 2013-2016



* Compound Annual Growth Rate (CAGR)

Source: ITC (2017)

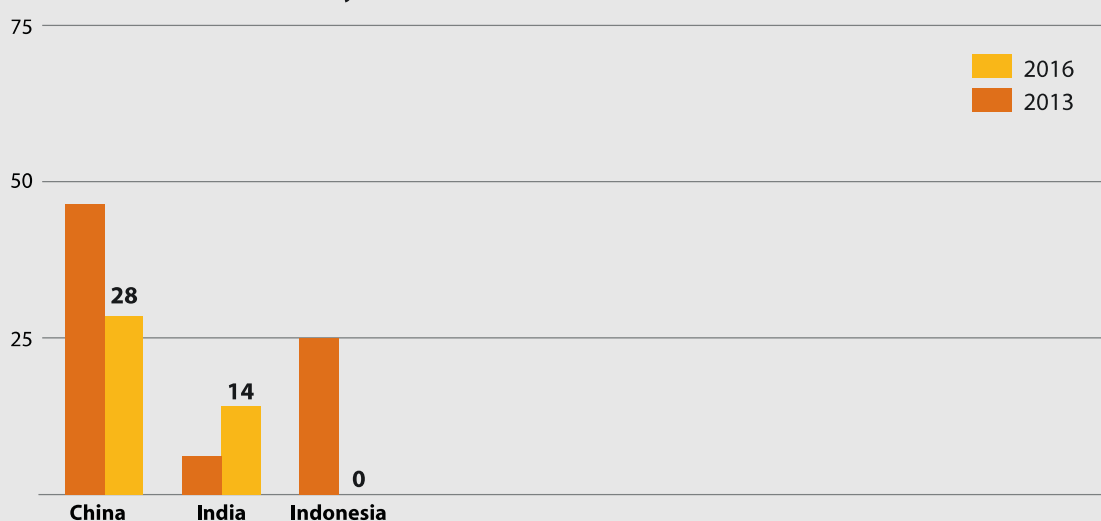
Bangladesh makes breaking deals to rebuild its ports

Chinese plans to rebuild a new port in Chittagong and Mongla, which is currently too small for large container ships, has also played a role in establishing good business relations with Bangladesh including supplies of commodities such as ginger at lower prices. However, China was in direct competition with other investors such as India and Japan. This has left Bangladesh geopolitically stalemated, making and breaking deals, going with one project and then changing position and going with another. It looks like India will be given the opportunity.

India had been asking for a direct access to the Chittagong Port for nearly five years. Once approved, this will help Indian industry and exporters save millions of dollars by sending direct shipments to Bangladesh and by using the Chittagong port as a transit hub to access other Southeast Asian destinations.

FIGURE 2: **Bangladesh - Ginger crushed or ground (091012), imports by supplying countries**

Volume decreased* by -18% from 78 to 42 tonnes, 2013-2016



Source: ITC (2017)

6,282 tonnes being attributed to higher prices and rhizome rot in Indian ginger. Note that there is still unregistered ginger exported by India.

here at 66% of the imported volume in 2015, while the remaining part of powdered ginger was imported from India.

GINGER POWDERED

Indian imports of Essential oils

- **Imports from other countries were just 6% of Bangladesh volume imports**, led by Thailand with supplies rising by 215% between 2015 and 2016 from 1,581 to 4,991 tonnes indicating that Thailand is becoming a new supplying country of fresh ginger at the expense of India.
- **Imports of ginger crushed or ground (including powder) have slightly picked up in 2016** to 42 tonnes compared to 14 tonnes in 2015 and much higher imports of 115 tonnes in 2013. This reduction over the period under review implies that more grinding is done by Bangladeshi processors
- **Compared to fresh ginger, China's dominance is less**

5.1.2 Production

According to the FAO, Bangladesh has become the seventh largest ginger producer in the world. In 2015, the country produced about 77,000 m tonnes of ginger from about 9,498 hectares of land. The total area for ginger production was 2.5 times less the production area of Nepal (23,826 ha).

Average yield of ginger in Bangladesh was estimated at 81,070 Hectogram/ha. Ginger is cultivated according to traditional methods. In the past, high yielding varieties were lacking although this has improved because Chinese varieties are increasingly cultivated.

Most important production districts

Ginger is an important commercial spice crop of Bangladesh. In the Chittagong Hill Tracts region in the South Eastern part bordering India and Myanmar, the



climate is suitable for ginger cultivation. However, shifting cultivation (slash-and-burn) accelerated erosion, land degradation, deforestation, and impoverishment of tribal people in this region. Besides, farmers were losing their interest in cultivation of ginger due to various diseases including rhizome rot and viruses.

Other regions where ginger is grown include Rangpur, Niphamari, Khulna, Rangamati, Bandharban Dinajpur, Tangail, Khagrachori and Rangpur districts. The usual growing period of ginger is from March until May and the harvesting period is usually at the end of the year from November until December.

Encouragement to cultivate ginger. In Rangpur, cultivation of ginger and other spicy crops has been encouraged in 2016 to farmers by the government to ensure crop diversification. According to the Department of Agriculture Extension (DAE), they provided trainings, inputs (quality seeds) and easy-term agriculture loans at only 4% interest rate to the farmers. The DAE had fixed a target of bringing 3,826 hectares of land under ginger cultivation to produce 43,999 tonnes of ginger in the 2016 season in Rangpur, Gaibandha, Kurigram, Lalmonirhat and Nilphamari districts.

Varieties of ginger in Bangladesh

According to research by Ansab, local ginger is available during the main harvesting season. Bangladeshi ginger is smaller in size, contains not too many fibres, has a dark

brown colour and has a good scent. As the rhizomes are not well cleaned Bangladeshi ginger is also sold as Indian ginger by some traders.

Popular fresh ginger imported from India include varieties from Bangalore and Hassan. These varieties are medium sized, washed, clean, light brown in colour, are low in fibres and have a good scent. Mizoram or 'black ginger' is also prevalent in Bangladesh and is mostly sold unwashed. Mizoram contains fibre, has a strong scent and the rhizomes are medium sized. Indian ginger is mostly available in Bangladesh from November to February. This could imply an opportunity for Nepali ginger which usually is available from October depending on the rainy season.

Chinese ginger is always available. According to Ansab, Chinese ginger is used for ginger powder and ginger paste production in Bangladesh. Chinese ginger is usually packed in 20 kg net bags with a clear label.

Ginger varieties for oil production

The essential oil composition of the Chinese ginger varieties cultivated in Bangladesh are rich in sesquiterpene and monoterpene hydrocarbon compounds. Studies by Jagannath University and the Bangladesh Council of Scientific and Industrial Research revealed that the oil from these varieties possessed a high antioxidant activity as well as antimicrobial effect among many other properties.

The ginger oil from Bangladesh could be used in food industries as preservative against spoilage by bacteria and fungi. It also can be used as a spice, in food processing or in medicinal preparations.

More information about the ginger industry in Bangladesh can be found in the Market study of Nepalese Ginger and its derivative products in India and Bangladesh by ANSAB (2015).

5.2 Consumption trends

In 2016, the estimated sales of ginger of ginger in Bangladesh was estimated at US\$ 74 million according to QY Research. Between 2013 and 2016, ginger sales decreased by a CAGR of 3.4% compared to US\$ 82 million in 2013, mainly because of price decreases of cheap imported ginger from China being largely available in Bangladesh. Expectations are positive for 2021 showing a continued moderate growth by value – as is shown in Figure 1

FOOD PROCESSING

According to Innovision Research/Katalyst, the Agro Processing sector in Bangladesh was valued at US\$ 2.2 billion in 2013. Between the fiscal years 2004-2005 and

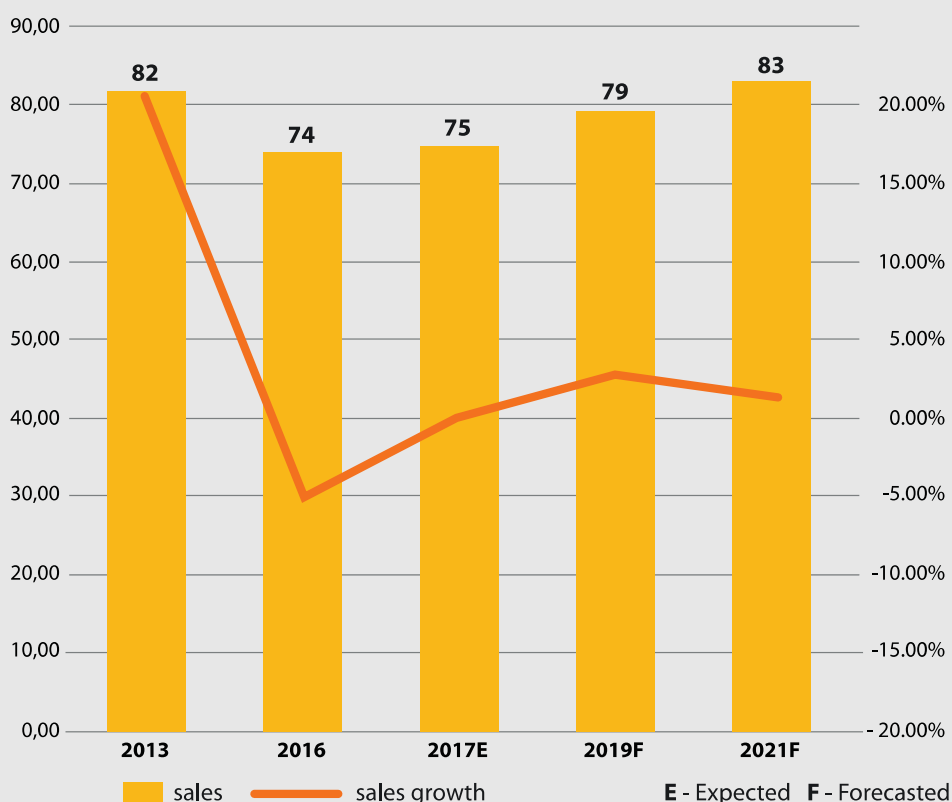
2010-2011, it has grown annually at an average rate of 7.7%. Despite these growth trends, the contribution of the food manufacturing or food processing industry in Bangladesh has remained mostly static at around 2% of the GDP.

Processing activity is needed. Most agricultural produce is consumed in raw form with little processing or value addition and the Bangladeshi processed food market is still small compared to the other selected markets. To make fruits and vegetables available throughout the year a processing activity is needed to break seasonality in order to be self-sustaining in the production of food for the larger population with a growing middle class.

Spices (turmeric and chillies), juices, biscuits, frozen fish, seafood, citrus fruit, pineapples, bananas, mangoes, mustard oil become important commodities in the domestic and in export markets.

Exports of processed food is primarily destined for the large Bangladeshi diaspora population. In Saudi Arabia, there are 1.0 million Bangladeshi's, followed by UAE (700,000), Malaysia (500,000), UK (450,000), USA (277,000), Kuwait (150,000), Qatar (137,000), Oman, Singapore and other countries.

FIGURE 3: Bangladesh - Ginger sales, 2012-2021
Value in US\$ million and growth rate in percent



Source: Experts interview, Secondary sources and QYResearch (2017)

Bangladesh's reputation as a vegetable exporter is suffering due to a lack of regulations (poor standards, testing facilities) affecting the quality of goods being sent abroad. After cases of worms and harmful bacteria in fruit Europe has threatened to ban imports from Bangladesh.

Main processors. According to Bangladesh Agro Processors Association (BAPA), there were in Bangladesh an estimated 700 food processing companies, of which 250 were registered. The largest companies are Pran, Akij, Square, Ahmed, ACI, BD Foods, Fresh, Teer, Olympia, Milk Vita, Isphahani, Igloo and Bombay Sweets.

Chinese influence. Exports of processed ginger has grown with the growing presence of Chinese companies/ investors in Bangladesh. Chinese ginger traders and processors are operating from Bangladesh re-exporting fresh ginger and processing dried ginger for Bangladeshi food processors, food service (hotels, restaurants).

Most demand is for ginger in fresh form. At the moment fresh ginger is needed for the domestic market. However, there is a need for ginger processing technology, processing equipment, skilled manpower and capital investment in order to develop a processing industry similar as in India, Malaysia, Indonesia, Thailand or Vietnam.

Projects by NGOs are initiated to develop food processing in Bangladesh. For example, Agri-business for Trade Competitiveness Project by Katalyst. This development project aims to contribute to increased income for poor men and women in rural areas. They work with

Bangladeshi processors in Tilapia and Pangus (aquatic fish), Mango and Tomato (fruits and vegetables), chili and turmeric (spices), Potato, Mung (Pulses), Maize (grain processing) and mustard (oil seed) and may have contacts and experience with ginger processing industries in Bangladesh (<http://katalyst.com.bd/>).

GINGER CONSUMPTION IN THE BENGALI CUISINE

Ginger in fresh or powdered form is used in home cooking or in restaurants as a spice for flavouring the following popular dishes:

Fish is largely available, especially freshwater fish, which is a distinctive feature of the Bangladeshi cuisine. Major fish dishes include (*ilish*), *pabda* (butterfish), *rui* (rohu), *pangash* (pangas catfish), *Jhol*, *chitol* (clown knifefish), *magur* (walking catfish), *bhetki* (barramundi), shrimps and tilapia.

Meat dishes include beef, lamb, mutton, chicken and duck and different kinds of kebabs. Gourmet pulao is served during feasts and festivals. Types of Bengali biryani and pulao include *Kachi* (mutton), *Tehari* (beef), *Ilish* and *Murg* (chicken).

Vegetables are widely served and include either mashed (bharta), boiled (sabji), or leaf-based (saag).

Desserts and confectionery ranges from Bengali pan-fried or steamed rice cakes (*pitha*) to halwa and sweets made from fruits, sweetened cheese or dried ginger (ginger candy). **Tea** is widely consumed as the national beverage and offered to guests as a gesture of welcome.



Main spices used in a Bengali household are dried red chili, bay leaves, cumin powder, cumin, red chili powder, turmeric powder, coriander powder, mustard and ginger. The distinct aroma in Bengali cuisine is created by the use of *panch phoran* which are five spices – fennel, black mustard, nigella seeds, fenugreek and cumin – sometimes with anise.

Specific use of ginger

Ginger referred to as *ada* is traditionally used in food for widows. While most Bengali castes ate meat and fish with curries, this was barred for widows. They were not allowed to eat ‘heating’ foods. Therefore, ginger found its important place in vegetarian and non-vegetarian dishes.

Some popular dishes in this respect are:

- Alu-dum (fried potato dish with ginger)
- Kalia (vegetables with oil and ghee with a sauce based on ground ginger)
- Kosha (fried ground and whole spices over high heat until shallot/garlic/ginger have dissolved into a thick paste served with meat and some shellfish).

In preparing the common fish dish ‘Jhol’, a thin jus of fish is made with ginger, turmeric, chili and cumin being the basic group of spices for this dish.

Seasonal demand

Before the Muslim holiday Eid-ul-Azha (late August/early September) the demand for spices goes up as these are used to cook meat and sweet dishes. In 2016, prices

of ginger could increase by more than 30%. For example, Chinese ginger prices rose from Taka 40 (US\$ 0.49) to Taka 60 (US\$ 0.73) per kg within one week. However, prices of ginger from Myanmar or Indonesia remained at around taka 45, which illustrates the popularity of Chinese ginger.

Detailed information of the market segments is not available for Bangladesh. An idea can be obtained from Chapter 3.3 about developments in India that also apply for demand in Bangladesh urban areas.

5.3 Prices and distribution

5.3.1 Prices and price developments

The price of ginger will depend on where it is sold, from which country it has been imported, how it is transported, unofficial payments to (Customs) officials and the number of channels/middlemen in the distribution.

Apart from the supply chain, the main key determinant of price is the variety/quality of the ginger itself, its cleanliness, freshness, whether or not processed, how it is packed and how long it can be kept fresh. Most ginger goes via wholesalers based in local markets, and many of whom also act as retailers.

Ginger import prices

In order to obtain a rough idea, it is best to compare the price levels (based on imported unit value) of ginger



Table 1 Bangladesh – Import price per ton in US\$ for ginger*, 2016
Leading and selected suppliers

Exporters to Bangladesh	2012	2013	2015	Imports, US\$ 1,000 (2015)	Imports, US\$ 1,000 (2015)
	US\$/Ton	US\$/Ton	US\$/Ton		
World (average)	723	836	868	57,435	66,204
China	722	843	933	30,271	32,449
India	1,286	761	883	13,374	15,144
Indonesia	-	848	835	10,096	12,097
Myanmar	-	-	538	3,001	5,579
Thailand	-	741	738	493	668
Singapore	-	-	741	120	162
Taiwan	-	-	778	42	54
Madagascar	-	-	780	39	50

* Ginger neither crushed nor ground (091011)

Source: ITC Trademaps (2017)

(091011) that were imported by Bangladesh between 2012 and 2015 as is shown in Table 1. Import prices of the different supplying countries are considerably lower than those in Japan, UAE and most of the supplying countries to India.

Differences can be seen, with prices from the neighbouring country Myanmar being lowest while prices from China and India were relatively high averaging between US\$ 800 – 900 per ton with both slightly increasing their price levels. Average prices of the other Asian countries were slightly lower than the Indian prices.

More information about price trends of ginger exports from Nepal to Bangladesh can be found in the Market study of Nepalese Ginger and its derivative products in India and Bangladesh by ANSAB (2015).

5.3.2 Distribution

The Bangladeshi market is very fragmented with mainly small-scale industrial companies and local producers. Especially in the flavour industry such as bakery, confectionery and savoury the market is complex due to many small specialised companies.

The distribution network comprises many intermediaries (small traders, large traders) who buy from the farmers and sell to wholesalers who sell on to retailers in the main cities (Dhaka, Chittagong, Kulna, Rajshahi, Comilla, Shibganj or Natore) and in the 87,000 villages.

Importers of ginger can be identified in the main cities. In order to import agricultural products into Bangladesh, all importers must have an import registration certificate issued by the Ministry of Commerce, trade license issued

by a municipal corporation under the Ministry of Local Government, Rural Development and Cooperatives, and a VAT registration certificate issued by the Ministry of Finance.

According to Ansab, they sell imported ginger through commission agents on a taka (US\$ 0.013) /kg commission basis. These agents can be found at the vegetable market centres e.g. Shyam Bazaar wholesale kitchen market in Dhaka.

Commission agents also sell the ginger to wholesalers who operate at local vegetable markets e.g. Kwaran Bazaar or New Market in Dhaka where they also sell to retailers.

Other main wholesale hubs are Mirpur, Mohammadpur Krishi Market, Jatrabari Arat, Rayer Bazar wholesale market and Narayanganj Arat. In past decade, around 300 wholesale markets have developed across the country reducing the dominance of the Shyam Bazaar located in Old Dhaka, facing problems in using of its terminal facilities and poor infrastructure.

Retailers

On retail level, independent vegetable shops, small grocers, street market vendors remained dominant in the distribution. Similar as in India, they can be sub-divided into:

- **Street-side vendors and pushcart vendors:** They usually roam from place to place and sell fresh fruits and vegetables.
- **Street-side shops:** They mainly stock tobacco products like cigarettes and chewing tobacco, betel leaves, beverages and select items of biscuits, confectionery, snack foods or cosmetics.



- **Mom n Pop' shops or convenience shops:** These are usually small to medium food retail outlets selling milk, grocery, beverages as well as a host of personal-care and household products.

The modern retail sector, including supermarkets and convenience stores, is growing as consumers attach more importance to appearance, ambience, comfort, and the availability of a vast range of products. Modern retail outlets are rising in number, although contacts believe they likely only represent 2 – 3% of total urban retail market sales

5.4 Access requirements for the Bangladesh market

Legislative requirements

The Plant Quarantine Act is in force since 2011 and gives officials the authority to inspect ginger consignments on the following issues:

- **An import permit** is required for any plant or plant product, organism, soil or packing material.

The import permit must describe the type of treatment to be applied on the plants or plant products at import, other measures before or after importation such as post-entry quarantine for determining phytosanitary risks.

In the import permit, it is clearly written as 'the Phytosanitary Certificate should in addition declare that the consignments are free from sand, soil and extraneous materials' and that 'the import permit number shall be quoted in the Phytosanitary Certificate'.

- **Only designated point of entry** at the Bangladesh border can be used on the conditions
 - 1. Notification for importation** is made
 - Import permit is issued against the consignment
 - 3. Phytosanitary certificate** issued by the National Plant Protection Authority of Nepal submitted to the concerned plant quarantine officer for examination.
- If there is any suspicion the imported - or in transit held - plant (or plant product) contains pests

It will be detained, refused to entry, destroyed, moved or treated by necessary phytosanitary measures.

Quality requirements

According to field research, conducted by Ansab in 2015, Nepalese ginger is still unknown and perceived as low – medium quality because the rhizomes are small.

Indicated price levels for Nepalese ginger were 40 taka (US\$ 0.49) for a kilogramme being one third less the price

of Chinese ginger of 60 taka (US\$ 0.73). The exact price depends on the size of rhizomes.

In 2016, the price of Bangladeshi ginger is comparatively high due to rhizome rot and viruses being sold at taka 2,000 (US\$ 24) per maund (40kg) – or 50 taka/kg in the wholesale markets whereas it was half of this price taka 1,000 (US\$ 12) in 2015.

Usual packaging for Chinese ginger is in a 20 kg net bag, while Indian ginger usually is in jute bags (45 - 60 kg) or in a net bag (45 kg).

Jute packaging. The Ministry has published a gazette on the Jute Packaging Act 2010, which became effective from January 01, 2014. With 11 new products, 17 products are currently on the list of mandatory jute packaging law. These are paddy, rice, wheat, maize, fertiliser, sugar, spices, turmeric, onion, *ginger*, garlic, coriander, pulses, potato, flour, crude flour and rice bran.

More information about access requirements of ginger exports from Nepal to Bangladesh can be found in the market study of Nepalese ginger and its derivative products in India and Bangladesh by ANSAB (2015).

5.5 Options for entry

5.5.1 Future growth and Opportunities

Currently, the density of the Bangladesh population is much higher than any country and is expected to become a city state. The area of cultivable land is under threat from the need for land for other uses (building, residential). The area of cultivable crop-land declined, while the area for smallholding increased. Similar as in Nepal, people are driven into the cities looking for work e.g. at the service or industrial sectors if available. Agricultural land is limited, although the government encourages crop diversification among farmers to produce more food locally. The Department of Agriculture Extension (DAE) is developing new ginger cultivation areas by giving support to farmers.

Climate change may have dramatic impacts on agriculture, through flooding and drought resulting from weather changes. As Bangladesh is a low-lying country, rising sea-levels will affect crops.

These development imply a greater dependency on imports of food, processed food and drinks.

World largest ginger importer. Bangladesh was the largest volume importer of ginger in 2016, the distance from Nepal is short and access requirements are not

as strict as in Japan, Europe or USA. This offers good opportunities for Nepali exporters if they can offer quality ginger that is clean, sorted and well packed in (new) jute sacks. As Bangladesh is still a poor country, price levels must be lower than in the other selected markets.

Challenges at Indian border. In the past, very small quantities of fresh ginger were exported to Bangladesh from eastern Nepal. Eighteen years ago the Kakadbhitta-Panitanki-Fulbari-Bangalabandh trade route was opened. Due to problems at the Indian side, traders were required to unload agricultural products one km away from the Bangladeshi warehouse. The Nepali side believes that it was mainly due to the reluctance of the Indian side to resolve the problem.

Still good potential market for quality ginger is there even if there is much competition from China, Indonesia, India and Thailand. Such challenges at the border must be solved in collaboration to find a construction with the Bangladeshi buyers. After an exchange of letters between India and Nepal for improving the use of the transit route, there is hope that an agreement will simplify the traffic of goods between Nepal and Bangladesh when making a transit through India. Although traders are still sceptical about the implementation of the agreement.

Ageing population. The age of marriage has not increased much in Bangladesh with still many very young mothers and no major decreases in child deaths. It are the mainly elderly people (>60 years) who are expected to grow in the Bangladesh population from 7 to 65 million by 2015. This requires an improved health system and generate demand for more natural medicines – including ginger in fresh or dried form, ginger tea, ginger candy or ginger-containing packaged foods and products. Fresh ginger from Nepal with strong health benefits used for Ayurvedic medicines may attract the smaller Hindu population in Bangladesh.

Middle class. Around 20% of the Bangladesh population say they belong to the middle class, defined as a person with an income that ranges between US\$2 - 3 per day. While in India this was defined as people living on US\$ 10 – 20 per day. In this case 7% of the Bangladesh current population can be classified as middle income or affluent.

Nevertheless, income and education levels are increasing with 61% of the middle-class population having internet connection at home. This implies more exposure to western food, drinks and BPC products. However, industrial development is hindered by power cuts and there is a shortage of skilled labour. Therefore, much processed food needs to be imported from India and elsewhere.

Growth of ginger sales by value and volume. As mentioned in Chapter 5.2., the ginger market in Bangladesh is forecast to continue growing steadily despite lower expected prices of fresh ginger. The market is expected to grow between 2016 and 2021 by an average rate (CAGR) of +2.3% per year, from US\$ 74 to 83 million – see Figure 3. While by volume, the ginger market is expected to grow further by 1.5%, from 121 to 130 thousand tonnes in the same period.

Preference for fresh ginger. With the absence of a modern food processing industry, fresh ginger remains the preferred product for importers and wholesalers. In future, crystallised ginger, ginger candy, dried ginger in biscuits, cakes, confectionery or soft drinks (such as ginger ale) will be more in demand depending on the needs of local processors.

Doing business

Trustworthy partner. It is very important to find a trustworthy trade partner as Bangladesh is a poor country with a risk that buyer cannot meet their commitments or payments.

Corruption is common in public procurement, tax and customs collection, and regulatory authorities. Corruption and bribery raises the costs and risks of doing business. It also deters investment, stifles economic growth and development, distorts prices, and undermines the rule of law.

GLOBAL ACCESS STRATEGY FOR GINGER



CHAPTER 6

6.1 Current situation and SWOT analysis

6.1.1 Ginger sector in Nepal

Ginger is a High Value Crop (HVC) in Nepal. It is estimated that 1.2 million people (4.3% of the Nepalese population) grow ginger all over Nepal, especially in the Eastern and poor Western regions.

According to the Ministry of Agricultural Development, 242,000 tonnes were produced in 2015 on around 23,826 hectares of which 60% is exported to India. Nepal is among the largest producers of ginger in the world. Due to the earthquake in 2015, ginger production fell from 276,150 in the previous year which has moved Nepal to rank tonnes after Indonesia.

PRODUCTION

In 2015, the world ginger production rose by 8% from 2,280,000 tonnes in 2014 with large increases in India, China and Indonesia. Production in Nepal is mostly done in a traditional way and generates a yield of 113,991 hectogram per hectare. The Nepalese yield level is higher compared to India, Bangladesh or Nigeria. This can be attributed to the smaller areas of ginger harvested in Nepal (23,826 ha) that is nearly seven times less than in India (159,600 ha), as is shown in Table 1.

Employment. In addition to being an HVC (High Value Crop), ginger has high employment content, comparative advantage and export earning potential in its production

process. This crop offers an alternative job opportunity to the marginalised farmers as it can survive the seasonal hail stone problem as opposed to other crops such as cereals, fruits and vegetables.

Nevertheless Nepalese farmers lack a commercial mind-set or they struggle with the following issues:

1. **Uncertainty** about growing ginger as there is no market guarantee based on a certain agreement.
2. **No harvesting on specific end use** as most of ginger is sold to Indian traders.
3. **Quality-reducing traditional drying methods** for the preparation of dried ginger (Sutho). Some farmers leave ginger on dusty and dirty floors after harvesting until it loses some moisture and spread them on the floor for full drying leading to mold development during rainy periods.
4. **Breaking the rhizomes** affecting the quality of the dried ginger by decreasing the volatile oil content of the rhizome on one hand, and enhancing development of Aflatoxins on the other. Similarly, peeling off and damaging of the skin during harvesting and drying should be minimized.
5. **No washing of the rhizomes before drying.** As far as the volume of ginger that a farmer owns and availability of water (or nearby river) and the time allocated by the farmer, washing of rhizomes at individual farmer's level is often regarded as impractical.

Table 1 Top 10 Ginger Producing Countries in 2015

	Country	Area Harvested (ha)	Production (tonnes)	Yield (Hectogram/ha)
1	India	159,600	790,000	49,248
2	China	48,610	552,000	113,025
3	Indonesia	22,394	269,000	258,913
4	Nepal	23,826	242,000	113,991
5	Nigeria	35,180	203,000	40,080
6	Thailand	9,693	161,000	26,000
7	Bangladesh	9,498	77,000	81,070
8	Japan	1,996	59,000	290,070
9	Cameroon	6,616	53,000	79,863
10	Taiwan	1,204	35,000	228,400
	Others	78,107	38,000	NA
	WORLD	396,724	2,479,000	85,773

Source: Ministry of Agricultural Development, FAO, IndexBox (2017)



6. **Market price developments affects quality.** Farmers often sell-out their fresh ginger right after harvesting - especially, when there is a high market demand. With the dominance often malicious Indian traders and fluctuating market prices, the ginger market has always been unstable.
7. **Bad storage affect the quality.** Farmers store (fresh or) dried ginger in their houses or barns. It is customary to store dried ginger either in bulk or in jute sacks in non-cemented dusty places, sometimes, for up to 10 years, depending on the type of the variety and the market demand.
8. **Problems in supply of good quality seed** and plant protection measures. Rhizome rot disease are common with many farmer still being unfamiliar dealing with this. Some farmers use diseased materials from previous years reproducing the disease.
9. **No distinctions in quality or quality grading.** There is little uniformity in the cleanliness and size and weight of Nepali ginger. There are few facilities in Nepal for washing ginger.
10. **The existence of malicious middlemen** along the ginger marketing chain not only reduced the producers' share, but farmers are pressurized to give low prices. In some cases, farmers are 'punished' through blocking by a group of traders when they try to deal directly with wholesalers.

11. **Bad business environment leading to malpractice and cheating by farmers.** When the price of ginger becomes higher, mixing fresh ginger with a damp soil, or dried ginger with special stones. Other practices are selling Chinese ginger for Nepalese ginger.

LARGE SCALE GINGER PRODUCERS/EXPORTERS

In Nepal, there are around 40 entrepreneurs engaged in ginger. They are either producer, exporter and/or processors and they are mainly operating in the mid-western and eastern regions.

Meeting the increasing demand for ginger and its various derivatives would provide more income for them and for Nepalese farmers and generate more foreign currency for Nepal.

However, the necessary basics such as proper ginger cultivation, harvesting product quality, proper ginger processing techniques, post harvesting handling and logistics are lacking to produce ginger and ginger products of the required export quality, complying with international market access requirements.

Over the years, there has been a rise in total volume, productivity, as well as areas of cultivation of ginger according to the National Spice Crops Development Program. Being among the largest ginger producers,

Nepal's share in world's import value was just 3.8% in 2015, while a large volume of unregistered exports went to India overshadowing the whole Nepalese ginger sector.

TRADE OF GINGER

Nepal exports mostly *fresh ginger* in raw form (HS: 09101110) which all went to India which amounted to 18,765 tonnes in 2016. It should be noted that substantial unregistered quantities are sold in India because of the open border between the 2 countries giving opportunities to smuggling.

Ginger that is cleaned, peeled, and dried with no other processing that is known commercially as rough or *unbleached ginger* is also exported by Nepal. In 2016, 1,143 tonnes of unbleached *dried ginger* went to India. While dried ginger exports to India were 202 tonnes in the same year, being often referred to as *Sutho*. Around 53 tonnes of powdered ginger mainly went to India and small quantities to Qatar.

Based on statistics from ITC, the main **export markets for Nepal** by value in US\$ 1,000 in 2016 were:

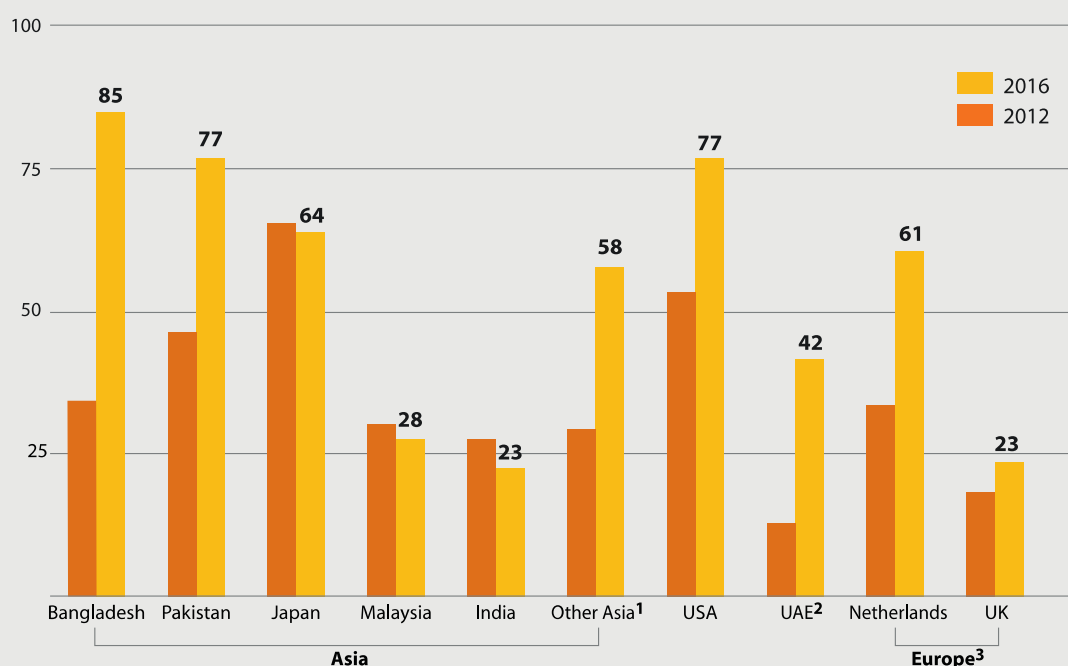
Fresh ginger

- **Nepal exports in 2016** were 18,765 tonnes, an increase from 15,843 tonnes 2015. All fresh ginger was exported to India.
- **Total world imports in 2016** were 720,296 tonnes of which the ten largest largest importing countries were by volume were Bangladesh, USA, Pakistan, Japan, Netherlands, UAE, Saudi Arabia, Malaysia, India and UK. Imports by Bangladesh, USA and most of the European countries rose substantially as shown in Figure 1.
- **In volume terms, Nepal exports represented 2.8% of fresh ginger supplies in the world** in 2016, being dominated by China (72% of total world supplies), Netherlands (6%), Thailand (6%), Indonesia (3%), Peru and Brazil.

Ginger Fresh (091011)	Ginger Dried Unbleached (09101120)	Ginger Dried Other (09101190)	Ginger Powdered (091012)	Essential oils (33012927) Oleoresins (33019012)
India (100%)	India (100%)	India (100%)	India (98%) Japan (2%)	no registered exports
4,099	1,282	261	103	

Source: ITC Trademaps (2017)

FIGURE 1: **Ginger fresh** (091011) imports, world markets in tons, 2012-2016
Volume increased by 9% from 417 to 636 thousand pairs



¹ Vietnam from 3 to 28, S. Korea 11, Thailand 8, **Nepal 5**

² Saudi Arabia from 30 to 37

³ Other Europe: Germany 14, Italy 8, Spain 8, France 5, Denmark 4

Main markets by value: Japan, USA, Netherlands, Pakistan, UAE, Bangladesh, Saudi Arabia, Germany

Source: ITC (2017)

Powdered ginger

- **Nepal exports in 2016** were 53 tonnes and almost all powder went to India and 2% went to Japan. In 2015, small quantities were exported to Qatar and Switzerland.
- **Total world imports in 2016** were 42,062 tonnes of which Malaysia the largest importing country taking up one third of powdered ginger imports. Malaysian imports have trebled between 2014 and 2016. Imports by Germany, Japan, Oman, USA, UK, Netherlands, Saudi Arabia and most other countries were on the rise as is shown in Figure 2. Imports by UAE, India and Bangladesh were very low due to increased local processing/grinding of ginger.
- **In value terms, Nepal exports represented just 0.2% of powdered ginger supplies in the world** where China (54% of total world supplies), India (10%), UAE (8%), Germany (5%), Netherlands (4%) and Vietnam (3%) were the main supplying countries.

6.1.2 SWOT analysis

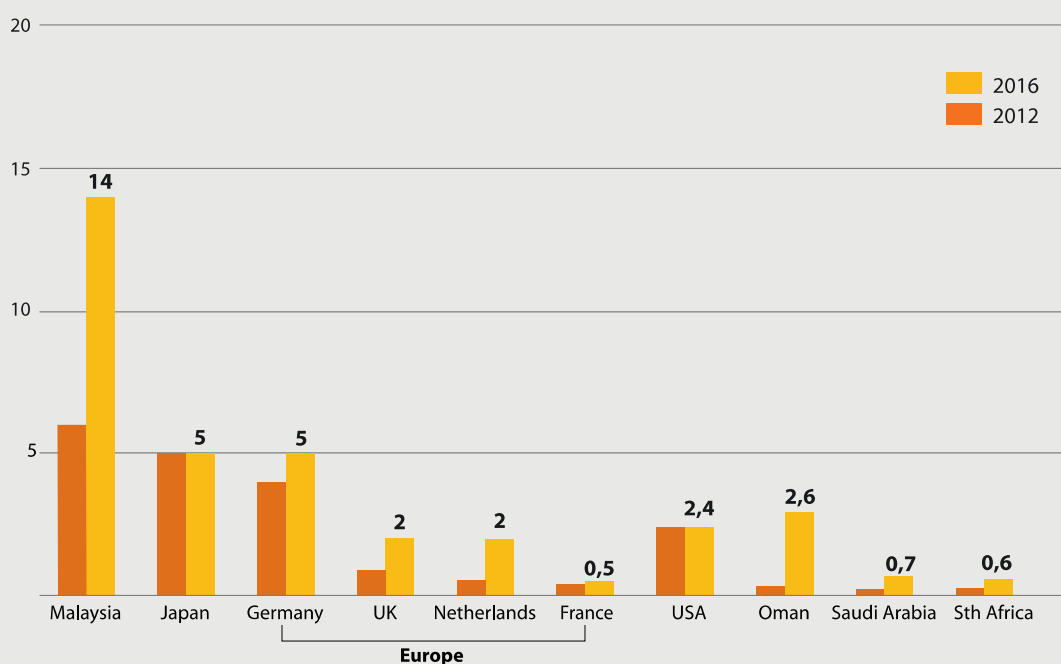
STRENGTHS

- Nepal has a long experience in cultivation of ginger that can be used for many different applications.
- Compared to Indian ginger from Bangalore, Nepalese

ginger has a strong pungency, aroma and chemical properties which is important to industrial users for further processing.

- Nepal is the fourth largest producer of ginger in the world thanks to its agro-climatic conditions, especially in the Eastern districts.
- Production of ginger essential oils and oleoresins can be done which is interesting for buyers who look for natural oils and want to contribute to the development in Nepal.
- Ginger is a HVC that can provide a good source of income and employment on the country side.
- The government started programmes to develop Nepal's laboratory infrastructure to raise quality standards and improve access to overseas markets.
- The possibility of inter-cropping ginger with other commodities.
- Affordable price level of fresh ginger and ginger products from Nepal for importers from Bangladesh and UAE, provided that rhizome rot and quality can be managed.
- Added value can be achieved both in conventional and organic markets which Nepali ginger could enter due to low use of chemicals.

FIGURE 2: **Ginger powdered** (091012) imports, world markets in tonnes
Volume increased by 12% from 19 to 42 thousand, 2012-2016



* Other Asian countries: South Korea 0.4, Vietnam 0.2, Brunei 0.13

** UAE 0.15, Kuwait 0.4

Five main markets by value: Germany, Japan, USA, Malaysia, UK

Source: ITC (2017)

WEAKNESSES

Production

- Prevalence of rhizome rot in Nepalese ginger and difficulty in sourcing good quality seeds.
- Poor packaging of fresh ginger in used jute bags – that are not cleaned and which sometimes are stocked along dusty roads to be picked up by transporting companies which is coupled with risks of diseases.
- Poor quality of Nepalese ginger, lack of proper storage leading to product rejection and prevents producers from accessing markets with higher returns. Almost no cold storage facilities are available.
- Poor framework for contract farming that could reduce the higher risks that farmers take in producing higher value ginger products.
- Frequent electricity cuts will constraint processing of ginger in larger volumes and regular supply to customers. Investigations in solar power drying units should be made.

Processing

- The small and fragmented land holdings makes it difficult for farmers to scale up their production through mechanization.
- The lack of local processing facilities that limit the potential to realise value from ginger processing.
- The export of essential oils is still in its early stages in Nepal. Research and tests with new ginger varieties are necessary in order to find exportable ginger oil with a consistent quality.
- The lack of capacity due to a decreasing number of labour from Nepal - working abroad - who could give a helping hand during harvesting and production periods.

Logistics and transport

- Landlocked country with almost all transports to go via India. Exports to Western countries are overshadowed by India being the main customer but also competitor.
- High cost of transport, Nepalese district taxes, bureaucracy, Customs clearance, lack of cooperation and the dominance of India discourages entrepreneurs to develop exports.
- Costs associated with exporting ginger are high due to high transport costs and transit taxes. Transit costs are charged as goods pass through districts, and at the border for custom clearance.

Institutional

- Complicated administrative procedures both on Nepal and in India delaying lead times that are most important among foreign customers.

- These procedures maintain the role of middlemen as the illiterate farmers cannot deal with this; they even cannot register their company. Moreover, strict procedures may incite ignorance and more illegal trade that currently still happens on a large scale with India.
- Lack of coordination that despite many efforts still is failing at multiple levels.

Marketing

- Supply chain is long, complex with many middlemen and ginger traded on spot markets.
- Farmers have no direct market access and still many do not take risks to become entrepreneur.
- Nepalese exporters are still supply driven and have little experience to sell in other markets than India.
- Exporters often have no clear strategy and act on impulse or follow what other exporters are doing (me-too strategy). They have no clear business plan based on market research and ginger availability.
- No joint promotion or common branding.

OPPORTUNITIES

- A large available area all over Nepal for cultivation of ginger with the possibility of mixed cropping.
- Ginger essential oil and oleoresin from Nepal corresponds well to the need for natural ingredients in food, drink, traditional medicines, skin and hair care, perfumery and in health and well-being.
- Even if regulations protect the multinational OTC industry, the natural medicines market and people self-medication is set to grow in the coming years. Medicinal properties of ginger are being more discovered.
- Communicate the health aspects of ginger along with curcuma, cardamom and MAPs from Nepal - still not known or recognized. However, claims should be made tactfully and carefully.
- Potential to join forces and sell under a common brand identity, either under a common Nepal (health or mountain related) brand or linked to medicinal traditional know how of e.g. the Tharu people from the Terai or the Tamang community in the Makawanpur district.
- Symbolism in Nepali culture and religion corresponds well to e.g. Japanese consumers. Besides, there is more sympathy from abroad for Nepal due to the earthquake.
- Still potential in India as an emerging market with a fast growing middle class population and more interest in health/spicy food, (hot) drinks, cocktails, beauty, personal care and natural remedies.

- If ginger cultivation or processing is done by women and/or poor marginalised groups in rural areas, this correspond well to the concern about sustainability.
- Link up ginger from Nepal with tea from Ilam, which is also little known.

THREATS

- There is a fluctuation in demand from India. More ginger production in Indian states with sufficient rain means less dependency on supplies from Nepal. The bad quality Nepalese ginger (recognised as Siliguri ginger) does not seem very welcome. The negative image was worsened by malpractices of Nepalese farmers exporting Chinese ginger to India during high demand in India via unofficial channels some of which contained too high pesticide residues.
- As long as the rhizome rot cannot be controlled by Nepalese farmers, export business remains very time consuming and costly to get food safety analytical reports for exports.
- Due to a lack of quality assurance systems, many Nepali exporters continue to have difficulty to the international market requirements (Japan, Europe, USA) becoming stricter in the coming years.
- There is a challenge regarding the 'branding' of Nepalese ginger with India and Indian trader as

competitors making it hard for Nepali companies to export to new markets in which India also operates.

- Fierce competition from India, China, Nigeria, Indonesia and increasing competition from Sri Lanka, Vietnam, Myanmar, Peru and Brazil.
- The growth of the private sector in Nepal is held back by low trust, cartels, a fragmented business lobby, weak power of the Ginger Trade Association and a risk-averse business behaviour among farmers. This seriously constraints a further development of the ginger sector.

6.2 Market forecast and future trends

6.2.1 Selected ginger market

- **In 2016, sales of ginger in the four focus markets** were 973,000 tonnes, valued at US\$ 488 million according to QY Research. As is shown in Figure 3 these markets accounted together for 40% of global ginger sales volume in the same year.
- **India is by far the largest market** by volume with good prospects for 2021 due to a growing population and an increased use of ginger in the Indian food processing industry which serves the growing domestic market as well as international market such as Europe and USA.



The Indian fresh ginger market is for 75% covered by its own production. The ginger production in Nepal serves as a 'buffer' for India's ginger in case of shortages due to e.g. droughts. The Indian market is still the main export market for Nepalese ginger. Despite quality problems, fibres, rhizome rot etc., Indian buyers still prefer Nepalese ginger over Chinese ginger because of its strong pungency and flavour suitable for making curries or other use in Indian cuisine.

CHANCES IN INDIA

- Right now the Indian market for fresh ginger cannot be replaced by another market. Nepal can still benefit from the fast growth and make Nepalese ginger more known in India as a variety with a reasonable quality that can command reasonable prices. Nepalese farmers should be mobilised to seriously engage in ginger as export crop. More collaboration and quality improvements are essential moves in the right direction.

If ginger rhizomes are selected, well-cleaned and packed properly, Nepalese exporters are advised to continue exporting fresh ginger to its large neighbouring country currently also struggling with rhizome rot problems and demotivated ginger farmers affected by severe drought in the South.

- **The right trade partner.** For Nepalese exporters it will be crucial to identify the right trade partner. Instead of an agent or trader, this could be an importer or wholesaler in India. It also could be a food processor operating in one of the growing key segments (biscuits, snack bars, confectionery, cold drinks) or in the Beauty and personal care segment. The best is to deal direct with them rather than via middlemen so that better price level can be achieved. Besides, they should know a way to deal with the malpractices of border agents.

Nowadays Indian processors strengthen their position in the home market competing with the international multinationals. Main growing key segments are sauces (+9.7% by 2021), Confectionery (+6.6%), Hot and cold drinks (+9.1%) and Beauty and personal care (+7.0%). Fresh ginger and ginger powder are mostly used in sauces, dried ginger and crystallised ginger (ginger candy) is used in confectionery. While in drinks, ginger oleoresin and extracts are used.

Diversified ginger and ginger products. Along with the trends toward more healthy food and continued popularity of the Indian cuisine, food processors look for improved fresh ginger as an ingredient – including new varieties with more juice and less fibres. Substantial higher price levels can be obtained by offering Nepalese air dried ginger (sliced, split or in cubes), sweet/crystallised ginger or ginger powder.

Ginger oils or oleoresins should be offered once Nepalese companies succeed to find the right varieties and offer consistent quality of oils. They are in demand for Beauty and personal care products. Otherwise fresh ginger can be exported for oleoresin production by Indian companies.

CHANCES IN THE UAE

- **Growing market but competitive market.** Similar demographic developments as in India take place in the UAE with a fast growing young population and more settlement of Asian families which is driving demand for food and drinks in the domestic market. The UAE imported 42,000 tonnes of fresh ginger in 2016, almost twice the imports of fresh ginger by India.

Fast growing segments include Confectionery (+7.1% by 2021), Biscuits and snack bars (+5.6%), Hot and cold drinks (+5.8%) and Beauty and personal care (+5.9%).

A challenge for Nepalese companies is to compete with the main supplying countries like China having the lions' share in ginger supplies (88% in 2015) and a highly efficient logical system using cooling chains for fresh ginger and provide weekly supplies of new fresh ginger. Other competing countries include Nigeria and India.

- **Demand for food and drink is likely to be more diverse** especially for curries and cooking sauces for Asian families (Indian, Nepali, Pakistani, Bangladeshi) in which Nepalese or Indian fresh ginger is preferred over the Chinese. Another selling point for Nepalese ginger is its strong aroma and healthy properties that is useful in food (biscuits, breakfast cereals, snack bars). Besides it serves as a healthier sweetener than Chinese ginger that is cultivated in glasshouses using fertilisers.

Fresh ginger from Nepal is interesting for UAE food and drink processors as long as it is fresh and not old looking. Another option is providing fresh ginger for UAE ginger powder processors. Dried ginger (cubes) are in demand by processors in all key segments, crystalized ginger (ginger candy) is preferred in healthy breakfast cereals, boxed assortments, snack bars, fruit bars and filled biscuits. Ginger oils or oleoresins should be offered to perfume makers in the UAE.

New economic activities take place such as food processing in order to diversify from the oil industry. In addition, the UAE still keeps its role as a trading hub to the other Gulf States and North African countries. To deal with strict logical requirements, it would be best to work with an Indian partner to enter the UAE market, who can keep fresh ginger in cold storage and make regular shipments combined with onions, garlic or dried fruit.

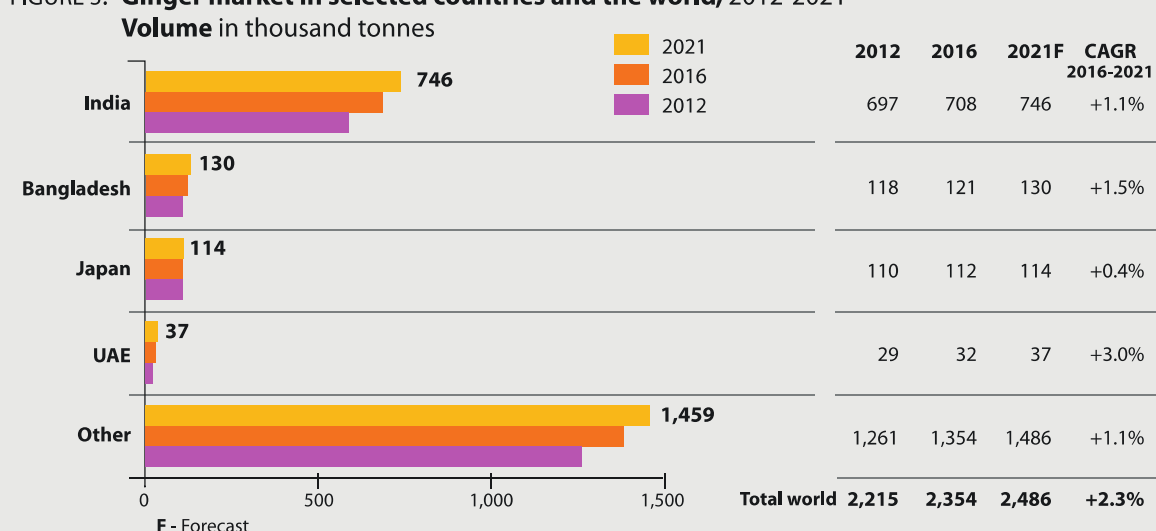
CHANCES IN JAPAN

- Japan is a large market by value, but a mature market due to its familiarity with ginger and its declining population. Nevertheless, Japan is the largest ginger importing country (64,000 tonnes in 2016) and the third largest country by volume, importing in 2016 almost three times as much more fresh ginger than India. Japan has close ties with China being nearby. Therefore, most ginger imports are dominated by China having a highly efficient logistical system using cooling chains too. It will be very challenging to meet the strict quality and logistical requirements for a landlocked country like Nepal.
- **The market is still growing** with Japanese young people more open to international cuisines with spice sets for cooking Mexican, Indian and other cuisines. Asian-inspired stir fries with meat fresh ginger and kimchi-based sauces for Nabe dishes are popular among Japanese. In this respect, dried ginger, ginger powder or ginger oil from Nepal could be interesting to Japanese sauce processors.
- **Elderly people recognise ginger** and ginger products for their healthy properties and therefore ginger with stronger health properties than Chinese ginger has good opportunities. Examples of include dark chocolate with ginger, hot drinks or dietary supplements with ginger.

Dried ginger (cubes) or are in demand by processors most flavour segments, while crystalized ginger is preferred in baked goods, chocolate tablets, snack bars, fruit bars and filled biscuits.

- In Beauty and personal care (BPC) products, Nepalese ginger can be used in new shampoos fortifying or moisturizing hair or anti-dandruff shampoos. As the BPC market in Japan is big and still expected to grow by 0.2% by 2021, Japanese companies will be interested in natural ginger oil and oleoresin that are mostly used in BPC products.
- **Increased tourism and the Olympic Games in 2020** will drive more purchases of healthy food and drinks. Japanese food processors will develop new snack or fruit bars with ginger that are indirectly linked to energy and sports and during this event in Japan. The spending power of visitors during the hot summer in Japan will surely present good opportunities, healthy cold drinks (FOSHU drinks) and NH Ready-to-drink teas. Dried ginger, ginger oleoresin and ginger extracts will be in demand by Japanese drink processors.
- **Sustainability and traceability** of products become a more important buying criteria for consumer. Japanese manufacturers are likely to invest in sustainability programmes, including ethical and organic chocolate, whether or not combined with ginger. This may be an opportunity for Nepalese companies to approach Japanese companies and NGOs from this perspective.
- **Getting the business take a long time.** Often Japanese importers/processors stay loyal to their usual suppliers whom they can trust and who are able to deliver fast and provide the e.g. the exact specifications, quality as agreed. Japanese usually look very much at the details, eliminate all possible risks and do not accept minor mistakes or discrepancies.

FIGURE 3: **Ginger market in selected countries and the world, 2012-2021**



Source: Seare estimates, QYResearch (2017)

CHANCES IN BANGLADESH

- Bangladesh was the largest volume importer of ginger in the world in 2016. The distance from Nepal is short and access requirements are not as strict as in Japan, Europe or USA. This offers opportunities for Nepali exporters if they can offer quality ginger that is clean, sorted and well packed in (new) jute sacks. As Bangladesh is still a poor country, price levels must be lower than in the other selected markets.
- **Chinese influence.** Exports of processed ginger increased due to growing presence of Chinese companies/investors in Bangladesh. Chinese ginger traders and processors are operating from Bangladesh re-exporting fresh ginger and processing dried ginger for Bangladeshi food processors, food service (hotels, restaurants).
- **Middle class is developing** which is estimated at 11 million people in 2016. Income and education levels are increasing with 61% of the middle-class population having internet connection at home. This implies more exposure to western food, drinks and BPC products. However, industrial development is hindered by power cuts and there is a shortage of skilled labour. Therefore, much processed food still needs to be imported from India and elsewhere.
- **Ageing population.** It will be mainly elderly people (>60 years) who are expected to grow in the Bangladesh population from 7 to 65 million by 2015. This requires an improved health system and generate demand for more natural medicines – including ginger in fresh or dried form, ginger tea, ginger candy or ginger-containing packaged foods and products. Fresh ginger from Nepal with strong health benefits used for Ayurvedic medicines may attract the smaller Hindu population in Bangladesh.
- **Preference for fresh ginger.** With the absence of a modern food processing industry, fresh ginger remains the preferred product for importers and wholesalers. In future, crystallised ginger, ginger candy, dried ginger in biscuits, cakes, confectionery or soft drinks (such as ginger ale) will be more in demand depending on the needs of local processors.
- **Problems at Indian border** despite the opening of Kakadbhitta-Panitanki-Fulbari-Bangalabandh trade route in the 1980s. Due to problems at the Indian border mainly due to the reluctance of the Indian side to solve this. After an exchange of letters between India and Nepal for improving the use of the transit route, there is hope that an agreement will simplify the traffic of goods between Nepal and Bangladesh when making a transit through India.

6.3 How to comply with access requirements?

Access requirements are all the requirements you can expect from your buyer. They can be divided into three groups:

1. Legislative requirements

2. Quality requirements

3. Voluntary requirements

Legislative requirements are mandatory and subject to penalties if they are ignored, especially in Western countries. These are related to environmental protection, food safety for consumers and hygiene. Voluntary requirements cover similar issues and are meant to improve good agriculture practices and to social issues. Last but not least, quality requirements must be met during the first export trials. In fact, good quality is the baseline for a successful business relationship.

6.3.1 Legislative requirements in Nepal

The following certificates are required in Nepal for Customs Clearance:

- Phytosanitary certificate (PC) based on quarantine office tests and providing:
 - Company Registration Certificate for export,
 - Citizenship Certificate, VAT number, Permit of import for consumption or processing Indian Plant Quarantine), Certificate of Origin, Invoice and Application letter for Phytosanitary Certificate (Ginger Action research, Samarth 2015).
- Central Food Lab certificate (CFL) for exports to India
- Certificate of industry registration/exporting company/firm
- Tax: Permanent Account Number (PAN) or VAT registration certificate
- Commercial invoice
- Payment certificate: Letter of Credit (L/C) or Advance Payment Certificate (APC)
- Certificate of origin
- Generalized System of Preference (GSP) form or form A (for exports to Japan or UAE)
- Type copy of formatted application stating name and address of importer and exporter
- Packing lists
- Means of transportation and route

- Bio-safety statement/Material safety data sheet (MSDS).

Largest export trade barriers in Nepal

A big trade barrier for Nepalese exporters starts in Nepal. The requirements by the Custom Clearance authorities in Nepal and in India for exporting ginger to India show a complexity in documentation and more importantly a poor coordination between the Customs authorities.

The Phytosanitary certificate ensures that the shipment is free of injurious plant pests and diseases. This is needed for plants and unprocessed or unmanufactured plant products such as roots, bulbs or seeds which also means for fresh ginger. In order to get clearance at Nepalese Customs, an exporter or clearing agents (CA) has to submit required documents including Phytosanitary certificate (PC) to the Nepalese Customs. After the consignment is checked and verified with related documents and payment of customs charges done, the CA or exporter is given clearance to export.

Further explanation about how this procedure is dealt with in practice can be found in the *Ginger Action Research*, Samarth (2015).

6.3.2 Legislative requirements in export markets

RHIZOME ROT

Fresh ginger that is affected by rhizome rot is rejected by all quarantine offices and laboratories in all export market to prevent the spreading of pests, disease or disease carrying organism from infected ginger. Rhizome rot is a disease that is spread unintentionally by using infected seed pieces from previous ginger crops. The diseases are found in India, Nepal and several other ginger producing countries. Therefore, plant quarantine offices are very strict in their control. In Nepal, rhizome rot occurs in almost all ginger growing areas and is the cause of high crop losses. The most common pests and diseases are:

- Bacterial wilt (*Ralstonia solanacearum*)
- Rhizome rot/Soft rot/Pythium rot (*Pythium aphanidermatum*)
- Dry rot (*Fusarium* and *Pratylenchus* complex)
- Root-knot nematode and Burrowing nematode (*Meloidogyne* spp.)



Detailed descriptions of, symptoms – with photo's, causes and management of affected ginger rhizomes can be found at <https://plantvillage.org/topics/ginger/infos>

A common disease in Nepal and India is bacterial wilt caused by *Ralstonia solanacearum*, which occurs in young seedlings. Infected seed materials are main source of disease. The main symptoms are leaf margin turning brown and becoming curled upward. Afterwards the plants fades and dies. The base of the infected pseudostem and the rhizome emit a filthy smell. To confirm the disease, the pseudostem can be cut and dipped it in clean glass of water to see milky fluids.

If the infected plant is not removed and burned there is a risk that the disease spreads around with all negative consequences for those neighbouring farmers who are seriously trying to control the disease. In some districts, farmers gave up cultivating ginger for this reason.

CONTROLLING RHIZOME ROT

On a scientific level, more human resources are needed in Nepal working in internationally accredited laboratories. Sufficient test parameters are required to find out how to solve this problem. Collaboration with Ministries of Agriculture in other countries or in export markets should be initiated.

On a local farmer level, technical knowledge must be improved about plant protection measures among the different Agro-vets in Nepal. Farmers must be better informed how rhizome rot, rhizome flies, fungus and bacteria can be managed, e.g. by using fungicides (Trichoderma, Bacterimycin, Bio-cure), treating seedlings, intercropping and the right post-harvest measures. Suggestions are given by the Icar-Indian Institute of Spices research (IISR) at <http://www.spices.res.in/pdf/package/ginger.pdf>

More farmer-level trainings and demonstrations along with local agro-vets should be organised and facilitated by seed companies, Nepalese ginger exporters or ginger importers. These demonstrations should be held in on plots in local villages explaining the reasons, symptoms

and management of rhizome rot, caused by fungal and bacterial infestations. They were also taught about pest control in ginger using fungicides as well as Neem Cake.

Detailed information is given at the video on ginger disease management in Makwanpur district: <https://www.youtube.com/watch?v=2oKudApktTw>

PEST RISK ANALYSIS

Pest Risk Analysis (PRA) and Integrate Pest management (IPM). PRA analysis entails an assessment of risks at various stages of ginger cultivation, processing, storage and transportation with identification of *critical control points* in order to manage the risk. The procedures to improve economic yields while reducing inputs includes:

- Integration of pesticides with cultural techniques for disease control.
- Biological, behavioural and environmental controls of pests such as weeds.

Biological and biotechnological control methods are alternatives to chemical control in integrated pest management. Biotechnology promises to have a major impact on IPM through the use of recombinant DNA techniques to genetically engineer microbes for the control of diseases, insects, and weeds, and to generate plants that resist insects, pathogens, and herbicides.

Improving the knowledge among scientists and universities in this field and applying such structured approach on a local level helps to correct the problems before damages occur. Following the examples of India, Malaysia and other Asian ginger producers, Nepal should start such approach.

STANDARDS FOR GINGER

Fresh ginger. There is no legal standard for fresh ginger in Nepal giving technical specification of ginger. When exporting to India, the Codex Alimentarius standard is followed by roughly classifying 'A-grade' ginger for good looking, palm size (with fingers). Other fresh ginger is regarded as 'normal quality' (Ginger Action Research, Samarth 2015). International markets have more specific import requirements following the Codex 218-1999 standard

CODEX Alimentarius

Standards can be downloaded from <http://www.fao.org/fao-who-codexalimentarius/standards/en/>

	Downloadable standard
Ginger (fresh)	CODEx STAN 218-1999
Ginger (dried)	Now under discussion
Hygiene practice for spices and dried aromatic herbs	CAC/RCP 42-1995
Standard for Labelling of and Claims for Foods for Special Medical Purposes (relevant for ginger essential oil)	CODEx STAN 180-1991

for fresh ginger that are related to minimum quality requirements - including classification in Extra class, Class I, Class II, marking/labelling, contaminants and Hygiene.

Dried ginger and ginger powder. The mandatory standards for dried ginger and ginger powder mainly cover compositional parameters and general quality parameters like moisture, total ash, acid insoluble ash, and others. There is also a limit of preservative (sulphur dioxide) in dried ginger not to exceed 2000 ppm. As there are currently different standards, a new initiative was taken in 2017 to harmonize the international standards (Codex) and formulate additional standards that also should address pesticide residue limits.

HACCP

HACCP is a term to be found often by suppliers on business platforms such as *Alibaba* or *21food*.

It is a management system that relates to the safety and hygiene of all food ingredients. Due to several scandals in food that were partly attributed to a badly hygienic production environment, the HACCP is becoming a legal requirement. Specific HACCP guidelines ingredients used in dairy or juice that are also relevant for the Japanese and UAE markets can be found at <https://www.fda.gov/food/guidanceregulation/haccp/default.htm>



Exporting to retailers

When selling direct to retailers or to catering sector, you must follow their requirements on quality and food safety. Even if these requirements are not legislative, they are regarded as a minimum to comply with. Large food retailers work according to different standards such as GlobalGap (Good Agricultural Practices), ISO or IFS (International Food Standards). Preferred suppliers are selected with whom they collaborate on a contract basis (short or long term). Through a better control, transparency, upstream (towards the source) and building farmer relationships, they can work efficiently in the whole value chain. To become a preferred supplier takes a long time. A possibility is to be a back-up supplier. However compliance with the Globalgap, ISO standards are still necessary.

6.3.3 Quality requirements

HARVESTING OF GINGER

Ginger attains full maturity seven to eight months after planting. Harvesting of ginger for culinary (domestic) use basically starts after 6 months based on the demand. Fresh ginger comes in young and mature forms. Young ginger has mild flavour and has a pale, thin skin that does not require peeling. The skin of mature ginger on the other hand is tough, which requires peeling to get to the fibrous flesh. It is either chopped or grated before use.

For dried ginger, the matured rhizomes are harvested at full maturity i.e. when the leaves turn yellow and start drying. Irrigation is stopped one month before harvest, and the rhizome clumps are lifted carefully with a spade or digging fork. In large scale cultivations, tractor or power tiller drew harvesters are also used. The dry leaves, roots and soil adhering on the rhizomes are manually separated. Late harvest is also practiced, as the crop does not deteriorate by leaving it for some months underground.

Processing for drying ginger basically involves two stages:

- Peeling of the ginger rhizomes to remove the outer skin
- Sun drying to a safe moisture level.

A Committee on Spices and Culinary Herbs (CCSCH) within the FAO is working on a new Codex standard for dried, split and ground ginger to be completed by 2020. The lack of harmonized and internationally accepted standards by USA, Europe, India, Nigeria and Malaysia is detrimental to the trade and has led to fraudulent practices and rejections of exports. Therefore, development of a Codex standard will allow the different stakeholders to harmonize their different requirements to facilitate international trade.

Peeling

Peeling serves to remove the scaly epidermis and facilitate drying. Peeling of fully matured rhizomes is done by scrapping the outer skin with bamboo splits having pointed ends and this accelerates the drying process. Deep scraping with knives should be avoided to prevent the damage of oil bearing cells which are present just below the outer skin. In India (Kerala) rhizomes are peeled only on the flat sides with much of skin between the fingers staying intact. This is known as 'rough peeled' or 'unbleached ginger'. The peeled rhizomes are washed before drying.

Sun drying

Generally ginger is sun dried in a single layer in open yard which takes about 8 to 10 days for complete drying. The sun dried ginger is brown in colour with irregular wrinkled

surface. The yield of dry ginger is about 19-25% of fresh ginger depending on the variety and climatic zone.

Polishing, cleaning and grading

Polishing of dried ginger is done to remove the dry skin and the wrinkles developed on the surface during drying process. It is generally done by rubbing against hard surface. Cleaning of dry ginger is done manually to remove the extraneous matter and the light pieces. Once the ginger is cleaned and it is graded manually based on size of the rhizome, its colour, shape and the extent of residual lime (in the case of bleached ginger).

More information on ginger processing can be found in the publication of the Icar-Indian Institute of Spices research ICAR- Indian Institute of Spices at <http://www.spices.res.in/pdf/package/ginger.pdf>



Stage of ginger harvesting for various end uses

End Use	Stage of Harvest (after planting)
Vegetable purpose and preparation of ginger preserve, candy, soft drinks, pickles and alcoholic beverages	5-6 months
Dried ginger and preparation of ginger oil, oleoresin, dehydrated and bleached ginger	7-8 months

Source: ICAR, Kerala (2017)



CONTROLLING THE QUALITY

The most important factors to control in the production of fresh and dried ginger are:

- The appearance of the product - especially for whole rhizomes for export. This is less important if the product is to be ground or used for oil extraction. Content of volatile oil and fibre - especially for distillation or extraction of oils.
- Level of pungency - especially for distillation/ extraction of oils.
- Aroma and flavour - especially for distillation/ extraction of oils.

DETERMINATION OF THE QUALITY OF THE GINGER

- The quality of the fresh and dried ginger is determined by both pre-harvest and post-harvest factors
- The most important factor is the cultivar of ginger grown. This determines the flavour, aroma pungency and levels of essential oil and fibre.
- The stage of maturity of the ginger rhizome at harvest determines its end use. At 8-9 months of age ginger rhizomes are most suitable for drying.
- When the ginger rhizomes are harvested they should be handled with care to prevent injury. They should

be washed immediately after harvest to obtain a pale colour. The wet ginger rhizomes should not be allowed to lie too long in heaps as they are liable to ferment.

- Care should be taken when removing the outer cork skin. It is essential to remove the skin to reduce the fibre content, but if the peeling is too thick, it may reduce the content of volatile oil which is contained near the surface of the ginger rhizome.
- During drying, the ginger rhizomes lose about 60-70% of their weight and achieve a moisture content of 7-12%. Care should be taken to prevent the growth of mould during drying.
- The use of a mechanical drier produces a higher quality, cleaner product. The drying conditions can be carefully controlled and monitored and the time taken to dry is considerably reduced.
- After harvest, the cleaning, peeling and drying processes should be carried out as quickly as possible to prevent the growth of bacteria and mould and to prevent fermentation. If the drying process takes too long there is a risk of the ginger becoming infected by aflatoxin or other fungus.
- Dried ginger should be stored in a dry place to prevent the growth of mould. Storage for a long time results in the loss of flavour and pungency.



GRADING OF DRIED GINGER

Quality specifications are imposed by the importing country and refer to cleanliness specifications of the ginger rather than the quality. It is important to meet the minimum standards or the ginger will be rejected by the importers.

QUALITY OF GROUND GINGER

Grinding can be a method of adding value to a product. In general grind spices are more vulnerable to spoilage after grinding. The flavour and aroma compounds are not stable and will quickly disappear from ground products. The storage life of ground ginger may be less than for the whole ginger.

It is very difficult for the customer or consumer to judge the quality of a ground spice. It is also very easy for unscrupulous processors to contaminate the ground ginger by adding other material. Therefore most consumers, from wholesalers to individual customers, prefer to buy whole spices.

GINGER OIL DISTILLATION

Ginger oil can be produced from fresh or dried rhizomes. Oil from the dried rhizomes will contain fewer of the low boiling point volatile compounds (the compounds that give ginger its flavour and aroma) as these will have evaporated during the drying process. The best ginger oil

Processing dried ginger	Quality control
Harvest ginger at 7-9 months of age <7-8 months flavour not developed >8-9 months becomes too fibrous	Take care to prevent injury and bruising
Remove the rhizomes and leaves. Wash the ginger rhizomes	Wash immediately to get a pale colour. Do not leave wet rhizomes in heaps for long periods as they will ferment.
Kill the ginger rhizome by one of the methods; • peel (knife or peeling machine) • rough scrape (knife or abrasive rollers) • chop into pieces • boil whole ginger rhizome (10 minutes)	Take care to only remove the fibrous outer cork skin. If peeling is too thick, essential oil and flavour will be lost. Boiling results in a black colour which requires bleaching
Dry to moisture content of 7-12% Store in a cool dry place.	Dry Rapidly to prevent growth. Do not store for long periods as flavour will be lost

is obtained from whole rhizomes that are unpeeled. The essential oil possesses the aroma and flavour of the ginger but lacks its characteristic pungency.

Ginger oil is obtained using a process of steam distillation. The dried rhizomes are ground to a coarse powder and loaded into a still. Steam is passed through the powder, which extracts the volatile oil components. The steam is then condensed with cold water. As the steam condenses, the oils separate out of the steam water and can be collected. In India the material is re-distilled to get the maximum yield of oil. The yield of oil from dried ginger rhizomes is between 1.5 to 3.0%. The remaining rhizome powder contains about 50% starch and can be used for animal feed. It is sometimes dried and ground to make an inferior spice.

Laboratory tests of ginger oil can be done in the new laboratory at the DPR (Department of Plant Resources) in Kathmandu.

In the export market, double-check by laboratories allow buyers to be able to test their oils to determine the quality. The pureness of the oil is checked as well as the quality sought after for each particular plant. Buyers' own laboratories or accredited laboratories will analyse your oils on the level of constituents, adulteration and the presence of MRLs or allergic compounds.

PACKAGING

Ginger rhizomes can be packed in new jute bags or gunny bags, mesh bags, carton boxes or lined corrugated cardboard boxes for shipping. Some examples of loose packed rhizomes are:

- 50 kg / new jute bag
- 10 kg / mesh bag or 20kg / mesh bag
- 10 kg / carton box

Dried ginger, ginger slices, frozen ginger flakes or powdered ginger are packaged in vacuum packs, carton boxes or multi-wall laminated bags. Some laminates are better than others due to film permeability. The packaging material should be impermeable to moisture and air. Sealing machines can be used to seal the bags. Some examples of packed dried ginger are:

- 50 kg / new jute bag
- 25 kg / pp bags (polypropylene bags)
- 5 kg / carton or 20 kg / carton

Ginger candies are usually packed in plastic bags, barrels, boxes or bottles in different quantities. A precise idea can be obtained by checking offers from ginger suppliers at <http://www.21food.com> and search for 'ginger', 'dried ginger' 'ginger candy' etc.



LABELLING

Shipments of ginger and ginger products should have the following on the labels (in English):

- Name of the product
- Brand name (if appropriate)
- Place of origin
- Details of the manufacturer (name and address)
- Date of manufacture
- Expiry date
- Net weight of the contents
- Added ingredients (if relevant)
- Recommended storage conditions

Any other information that the country of origin and of



import may require. In Western countries and Japan you might be requested to add a barcode, producer code and packer code. This extra information is required to help trace the product back to its origin. See <https://practicalaction.org/> for detailed information on labelling requirements.

Essential oils are regarded as hazardous chemical substances which must be clearly indicated on the packaging and labels. You must use international recognized hazard symbols and safety phrases.

Material Safety Data Sheet A Material Safety Data Sheet (MSDS) is designed to provide people with the proper procedures for handling or working with a particular oil, oleoresin, extract etc... These sheets include information such as physical data (melting point, boiling point, flash point etc.), toxicity, health effects, first aid, reactivity, storage, disposal, protective equipment, and spill/leak procedures. These are of particular use if a spill or other accident occurs. This MSDS is basically not meant for consumers, but for those people working professionally and intensively with the material e.g. practitioners.

A booklet 'Material safety data sheet of essential oils from Nepal' was published in 2014 by the Ministry of Forest and Soil Conservation, Department of Plant Resources. The booklet gives material safety data sheets of several essential oils from Nepal. Even if ginger oil is not included yet, it might give you an idea what to mention on these sheets. More information can be found from <http://dpr.gov.np/home>

STORAGE

Dried ginger rhizomes, slices and splits should be stored in a cool place (10-15°C). At higher temperatures (23-26°C) the flavour compounds start to deteriorate and ginger loses some of its taste and aroma. The storage room should be dry and away from the direct sunlight. During storage the rhizomes should be protected from attack by insects and other pests. Natural pesticides such as the leaves of *Glycosmis pentaphylla* or *Azadirachta indica* can be added to the rhizomes to prevent damage from the cigarette beetle (*Lasioderma serricorne*).

The storage room should be clean, dry, cool and free from pests. Mosquito netting should be fitted on the windows to

prevent pests and insects from entering the room. Strong smelling food, detergents and paints should not be stored in the same room.

6.3.4 Voluntary requirements

Good Agricultural Practice (GAPs)

The practice of GAP for the cultivation of MAPs used for natural ingredients is not compulsory, but it is highly advisable for both small and large farmers, processors. Global GAP is a term to be found often by suppliers on business platforms (Alibaba or 21food). The GACP can be done according to the conventional or organic methods. A guide of GACP can be downloaded via http://www.herbal-ahp.org/06_1208_AHPA-AHP_GACP.pdf

GLOBAL G.A.P. Standard is a business-to-business **standard for safe and sustainable food production and is linked to GAP** as it sets very strict criteria for Good Agricultural Practices that farmers must comply with. Certification to ensure that the products they sell to their consumers can be traced back to a certified farm or production facility.



ISO standards

There are ISO standards for fresh ginger, dried ginger, ginger oleoresins and ginger essential oil. This International Standard specifies certain characteristics of ginger in order to facilitate assessment of its quality such as:

ISO 1003:2008 for Spices – Ginger (*Zingiber officinale* Roscoe). Some examples of specifications include: Form and appearance; Odour and taste; Infestation; Extraneous and foreign matter; Freedom from coarse particles; Chemical requirements; Test methods; Packing, Recommendations storage and transport

ISO 13685:1997 for dried ginger and its oleoresins including determination of the main pungent components (gingerols and shogaols)

ISO 16928:2014 for essential oil of ginger; A general standard for essential oils is related to the determination of peroxide value - ISO standard 18321:2015

General ISO standards that are used by food exporters in China, India and other countries on business platforms (Alibaba or 21food). The most frequent standards are ISO 9001 (Quality management), ISO 22000 (Food Safety management) and ISO 14001 (Environmental management).



Organic label and certification

Organic cultivation of ginger is done for generations. However, for certification the crop must be under organic management at least for 18 months. This conversion period is more relaxed if no chemicals were used before and there is sufficient proof available. The certification process involves a third party (organic certifying agent) to evaluate the exporting company, processor, collectors and farmers in Nepal. Inspectors are employed by accredited agents such as Onecert.

The procedure for certification can be found in the publication of the Icar-Indian Institute of Spices research (IISR) at <http://www.spices.res.in/pdf/package/ginger.pdf>. Consumers often regard organic ginger of a better quality and tastier. They generally are prepared to pay higher prices for 100% certified organic products. Although for



most Indian and Bangladesh people organic food is far too expensive and most consumers do not recognise difference between organic labels.

Fair trade

A well-known standard is of the Fairtrade Labelling Organizations International, now called Fairtrade International (FI). One of the basic requirements of Fairtrade certification is that the **entire supply chain** (producer - processor - exporter - processor - distributor) up to where the product is in its final packaging must be FLOCERT certified. Only then a product can be bought and sold as Fairtrade. There is a standard for ginger under the Herbs & Spices category. The Fair trade standard is highly advised for the Japanese and Western markets. In order to access the FLO standards for producers, see <https://www.fairtrade.net/products/spices-and-herbs.html>

6.4 Recommended strategy to reinforce the ginger sector

6.4.1 Improving competitiveness

India still dominates the Nepali ginger sector and forms one of the biggest constraints to move the ginger sector in Nepal forward. As explained in the 'Ginger Action Research' from Samarth (2015), Indian officials use complex procedures, corruptive practices delaying lead times and thereby deliberately decreasing the freshness (and price) of Nepalese ginger.

MAIN COMPETITORS

In India, the main export market, Nepalese ginger faces competition with Indian domestic production mainly from Cochin, Bangalore, Assam, Guwahati and Uttarakhand being the main competitors. The ginger looks good, attractive and clean at first sight.

The international markets are largely dominated by Chinese ginger which are big rhizomes that are clean and fibreless. Nigerian ginger looks big as well and has a stronger taste than the Chinese ginger, which is a main reason of its success in the past few years.

Along with the growing demand in the international market, new supplying countries are coming up e.g. Vietnam, Myanmar, Sri Lanka, Peru, Brazil and African countries. They either focus on the exports of fresh ginger, organic ginger (Peru), dried ginger or any other forms of preserved ginger e.g. dehydrated or frozen. In these new countries and in smaller producing countries such as Fiji Islands, farmers are proactive and a sense of cooperation between farmers, exporters and government has been built up with support of foreign investors.



Farmers are facing many risks such as floods and cyclones which made them much more alert on immediate harvesting of ginger before it is too late.

Escape from the negative vicious cycle. There are many cases of successfully processing ginger in other developing countries. Despite several reports by government and NGOs giving repeatedly good recommendations, Nepal ginger production still struggles, using bad seeds, poor post-harvesting, and quality problems. In addition the Nepalese ginger sector is dominated India and constrained by big export barriers. It seems that facing the challenges and taking more risks by farmers and exporters are needed to escape from the negative vicious circle.

CHALLENGES FOR NEPALESE GINGER SECTOR

The main challenges to improve the competitive position of Nepalese ginger are to tackle the rhizome rot problem by creating an effective disease management of ginger, experimenting with new varieties (with less fibres), offering clean ginger, establishing a quality control system that is geared to maintain the freshness of ginger or to dry ginger in a modernised way.

Other challenges to export successfully to new markets include:

- **Investments in processing machines or distillation units, proper storage, packaging in new bags (jute or mesh), carton boxes or in aluminium containers (oils).**

- **Faster delivery and building relationships in the value chains** and work together with importers in foreign countries who know the procedures. Possible partnership with importers/processors in India for re-exports to the Gulf States, Europe or other countries.

6.4.2 Recommended strategy for the ginger sector

As described in the ToR, the NTIS aims to strengthen the capacity of the ginger sector and decrease the dependency on the Indian export market. This can be achieved by upgrading this value chain by facilitating in product diversification and development of marketing strategies.

Great potential by ginger product diversification

There has been growing preference for organic and herbal-based products in export markets. When considering Nepal's very low share in world exports, this means a huge potential for the marginalised farmers if better prices can be obtained by exporting to other countries than India and using the right sales channels and a realistic scale of operation and proper post-harvest handling.

Ginger products for the domestic market and export markets

Like in other developing countries, already being successful, it should be possible to develop ginger products for the domestic market as well. Examples are powdered ginger, ginger paste or slices of ginger mixed with vinegar. These



products are currently imported from India and Thailand. Not only the domestic market can be served - but there will also be also opportunities for product diversification for value added ginger products in export markets.

Working together in scaling up the ginger sector

Nepali farmers, cooperatives and processors should cooperate more and work together towards a scaling-up of cultivation, storage and production of fresh and dried ginger of an improved quality for new markets.

A participatory approach on each level between farmers (small and medium), ginger processors, exporters, government and NGOs is a must to upgrade the ginger sector and to enhance productivity and establishment of local processing units for washing and drying facilities following the example in the Terhathum District or in other districts.

A participative approach makes it possible to produce large volumes, reduce waste of rejected (old) ginger and deal direct with foreign buyers. The need for initiation of a joint export promotion is urgent to address the unexploited market potential for dry ginger, powdered ginger, extracted ginger oil, ginger candy or other ginger products.

1. INITIATIVES BY FARMERS

1a. Export-oriented farmers

Farmers can choose to cultivate ginger for own use, to focus on other crops or to become a serious larger-scale ginger farmer and be open for the necessary (pre-) processing of

ginger. They could continue selling to road-head traders or sell to Indian buyers, or they can take ginger cultivation seriously and professionally in order to produce for new markets with specific demands and more strict access requirements.

Export oriented farmers should be willing to work together with exporters, processors and cooperatives and on the other hand exporters and processor must work in a constructive way, pay fair prices, offer more facilitation and incentives.

- This means allocating time to ginger cultivation, sorting, washing, cleaning and other necessary post-harvest measures, especially properly storage them using labels.
- Those farmers who still rely on their traditional knowledge of Sutho making could continue to do so for their own use or for neighbouring villages, but not for exports.
- They must be willing to invest in better seeds and be prepared to develop other ginger varieties with less fibres.
- They should be receptive to education/training and willing to co-operate with other. They need to develop a sense of a guaranteed quality of ginger, make a stricter selection of exportable ginger and immediately burn infected roots.
- Farmers should harvest the ginger rhizomes at the right moment (when it is yellow).



1b. Own research

- Based on the results for new ginger varieties, farmers can do their own research and create their nursery. If this works out well, they can commercialise their nursery for ginger and register at the Forest Division Office. Once they are approved, they can sell ginger seedlings and saplings in Nepal and in neighbouring countries.

1c. Sharing knowledge

- As a successful 'entrepreneur, the key farmer can function as a role model for her/his children and other communities, motivating and teaching them to cultivate quality ginger for exports.

1d. Farmer-to-Farmer approach

- With the assistance of local NGOs successful key farmers should be willing to share their knowledge of farming ginger to the farmers from neighbouring villages who are interested in cultivating export quality ginger.
- Keeping a link with other farmers in her/his own district or other areas in Nepal, they can sell seedlings, saplings and cuttings of different ginger cultivars to buyers from all over the country and even in India.

1e. Cooperatives

- Cooperatives can offer much better prices to farmers being able to sell directly to the larger traders in India. If export procedures are better understood and

cooperatives are able to handle all documentation farmers can even get better prices as the cooperative can deal direct with importers/processors in export markets.

- The cooperative can assist in R&D, nurseries, identify improved varieties e.g. for essential oil, appropriate agronomic and post-harvest management practices including drying methods, sorting and grading techniques. Joint investment in new processing technologies can be done.

2. INITIATIVES BY PROCESSORS/EXPORTERS

Employment for women and poor in primary processing. In Nepal, there is lack of primary processing centres. In the eastern region, the ginger from Nepal is processed in Naxalbari, a border town in India whereas no processing centres is reported in western border. According to an exporter in Naxalbari, a single processing centres can provide employment to 50 people for 10 months. Most of the workers in such processing centres are found to be women and poor. The small number of ginger washing facilities in Nepal must be increased in addition to processing centres in order to offer more value added fresh and dried ginger.

Other initiatives to develop the processing of ginger in Nepal are:

2a. Access to information.

Having access via co-operations e.g. providing up-to-date price information will help each actor in the value chain. More transparency and better knowledge on international prices of fresh ginger or dried ginger - and the margin structure - will provide more insight in price setting and the effects of price fluctuations. Current prices of Nepalese ginger are among the lowest in the world.

2b. Improved sense of collaboration in the value chain.

The current supply chain is far too long, too complex with too many middlemen. When dealing direct with foreign buyers/partners, the number of actors can be reduced to a minimum all having a key role in the process. A better sense of collaboration between actors, and a better relationship with the final customers would strengthen the chain.

2c. Focus on development of supporting infrastructure.

Agriculture related infrastructures are not adequate to facilitate the export of ginger. In Jhapa District, there is a collection center in Chaar Ali, managed and operated by the local VDC. However, the building and infrastructure are not appropriate for keeping fresh ginger and at the right temperature. Collection centers for vegetables need to be developed at key locations like Itahari, Damak, and Dhulabari for export facilitation. Local elected bodies should be encouraged to set up wholesale markets and bazaars.

2d. Focused customer base

with exporters/commercial farmers having more know-how about applications e.g. in specific food, fragrance or other applications each having its specific requirement. Regular interaction with different customers will clarify what they need. Relying on only few customers reduces product innovation and is risky.

2e. Encourage farmers to take the risk of becoming entrepreneur.

The private sector in Nepal can only move forward if farmers are motivated to invest time and money to improve the quality of their ginger and work according grading guidelines. In order to create a friendlier business environment, the cartels and business lobby by the few big ginger exporters should be somehow controlled.

2f. Exporters should work with a clear own strategy

and not follow what other exporters are doing (me-too strategy). Having access to better market information and previous researches by NGOs and service providers, a business plan. Such plan must be backed-up with financial management and regular monitoring.

2g. Investigation in cold chain development.

Joint research by exporters, trade association (NGPTA) are needed to find a suitable low cost cold chain system to increase quality and lower the percentage loss and wastage of disqualified ginger during the transport.

2h. Good communication and frequent contact with customers

who want small orders on a regular basis. Consumer behaviour is more fickle especially in Japan and stock levels should be kept minimal. Especially when dealing direct with industries, a good planning, flexibility and short lead-times and fast response times to customers are now required in many International markets.

2i. Sustainable sourcing

as a process of buying goods and services that takes into account the long-term impact on people, profits and planet. Sustainable sourcing demands full transparency and fairness within the supply chain, insights into the sustainable competences of all parties and often co-

Case: Fresh ginger sales from collection points in Myanmar

Two NGOs have facilitated a linkage between private sector actors and communities in order deal with key constraints in ginger value chain in Myanmar and build trust among actors. The ICIMOD (International Centre for Mountain Development) and MIDD (Myanmar Institute for Integrated Development) jointly implemented pilot projects in six villages in Kalaw and Nyaung Shwe in Shan State. Despite the good potential for ginger production in the selected villages, the constraints were (a) lack of trust between traders and producers and (b) low bargaining power of the communities as production was not systemized and poor market linkages.

To tackle these constraints, the following questions were clarified:

1. Factors that contributed to lack of trust
2. Interest of private entrepreneurs and their requirements (quantity, quality, delivery terms etc.)
3. Strengths and comparative advantages of communities.

The project, together with local stakeholders, developed a strategy aimed to strengthen the farmer groups and using a collective approach to supply ginger in bulk from **one place (= collection point)**.

On a cost-sharing basis, six collection points/ginger seed banks (one in each village) have been established. In addition the capacity of community groups was enhanced in order to make a collective deal with the traders. A larger company was found that was interested in receiving a continuous supply of good quality ginger from Shan State.

As a part of marketing training, the project team facilitated dialogue between the communities and the regional agent of Phyo & Kyaw Co. Ltd., Win Myat Htun, from Taungyi. The agent saw the business benefits as the company could source bulk quantity of ginger from one collection point and make a collective deal rather than negotiating with a number of individual suppliers.

The company's agent has so far visited the pilot site 20 times on his own tractor to buy ginger. Farmers brought ginger to one place and sold it collectively. The NGOs provided a weighing scale. A total of 149 tonnes of ginger were sold to the company at an average price of MMK 335 (US\$ 0.25) per kg, bringing in total revenue worth MMK 49,500,000 (US\$ 36,575).

Farmers say the price at which they sell now is 10% higher than the price in local Heho market, and the weighing scale has ensured that the payment is made based on standard unit. In addition, farmers can now save on transportation cost and time.

At the invitation of MIID, the managing director of Phyo & Kyaw Co. Ltd., Kyaw Min Oo, came to the pilot villages from Yangon on 25 March 2016 and met the communities of three villages (Pantin, Thayetpin, and Kyaung Nar). At the meeting, Kyaw Min Oo made a commitment to buy ginger in the coming years as well. The price will be 10 MMK higher than in Heho. The company has also expressed interest in buying turmeric from the villages and promised to provide business-embedded services like the supply of quality seeds and fertilizer to grow turmeric. The company will not charge any interest on the money provided for purchasing seeds and fertilizer, and the communities will pay back the exact amount at the time of harvest.

operation with local governments/NGOs to secure support and the supply of sustainable commodities. And most importantly, contribution to communities by providing start-up capital and technical assistance.

3. INITIATIVES BY GOVERNMENT

3a. Increase the export readiness by reducing trade barriers in Nepal

In order to motivate commercial farmers and exporters, reduce the complex and lengthy inspection and checking procedures, bureaucracy and find a solution with the Indian government to stop the corruptive practices by Indian officials. Such corruptive practices delay the transport times, makes Nepal ginger more expensive and thereby reduces its freshness and competitiveness.

3b. Free trade arrangements.

The Nepalese government should start negotiations on a free trade agreement with Arab countries, Japan and Bangladesh and inform exporters/cooperatives accordingly.

3c. Stimulating business growth requires cultivating both a business-enabling culture

in government services, and strengthened entrepreneurship in public-private partnerships. To tackle other barriers in the business environment requires expanded investment in infrastructure such as road construction and providing electricity in rural areas allowing poor households to become more integrated in the Nepalese economy.

3d. Work with farmers group and encourage forming cooperatives.

Ginger farmers should be encouraged more to work together with local NGOs/Associations (NGPTA) and cooperatives to be stronger and having ideas shared with (local) governments, and shared benefits from better prices.

3e. Introduce quality standards and control post-harvest losses.

The government should extend their quality development programmes aimed at reducing post-harvest losses

by educating farmers and collectors about the right harvesting time.

3f. Make quality seeds more available.

More investment in R&D and better responsiveness of agricultural research institutions, find out other technologies to improve ginger cultivation. Enhance availability of quality seeds by truthfully labelled seed growers. Micro finance to farmers.

3g. Support for improved packaging.

Jute sacks are usually provided to farmers either by national traders or exporters.

3h. For faster delivery to export markets.

Advice and facilitation in transport to e.g. the Gulf States could be explored with Airline companies flying from Kathmandu (Fly Dubai, Etihad, Oman Air) where the high costs can be reduced via combined shipments by Nepalese exporters. Discussion with forwarders in export markets can be done, involving local Nepalese residents.

3i. Provide market information services.

With the development of mobile technology (hand held phones), it is possible to know and follow world price levels of ginger with little effort.

3j. Improving logistical routes from the country-side to the major trading centres

in Nepal and conducting further research on new transport possibilities in Nepal. For example, a study by Practical Action showed that the success in transporting vegetables on the Bhumlichok and Ghyalchowk Gravity Goods Ropeways of Gorkha district – see www.spotlightnepal.com/News/Article/Practical-Action-Nepal-Ropeways

3k. Improve the operation of laboratories at border posts.

According to SAWTEE, the quarantine laboratory at Kakarbhitta is underperforming as there is no technical staff. Similar conditions may be the case in other laboratories. Frequent transfer of technical staff results in poor test and unreliable time-consuming certification services.

3l. Create a cross border coordination and facilitation mechanism.

Protocol to Article-XI of Nepal-India trade treaty institutionalizes a joint committee headed by chief customs officers of both sides (Nepalese and Indian) at the border. This committee is supposed to resolve problems in clearance of goods, particularly perishable goods such as ginger. So far, little has happened.



6.5 Developing marketing strategy

The export market strategy should meet the key objectives in the Trade Policy 2009 to support economic development and poverty alleviation initiatives in Nepal. The Nepal Trade Integration Strategy (NTIS) aims to benefit from favourable market access opportunities and improve the trade capacity and trade performance of Nepal.

The next sections will give suggestions and recommendations on the marketing mix instruments

1. PRODUCT STRATEGY

2. PRICE STRATEGY

3. DISTRIBUTION STRATEGY

4. PROMOTION STRATEGY

6.5.1 PRODUCT STRATEGY

CURRENT GINGER IN NEPAL

FRESH GINGER

Fresh ginger is the main traded ginger product in Nepal. Young ginger has mild flavour and pale, thin skin that need no peeling. Fresh rhizomes with low fibre content yet rich in aroma, pungency, fat and protein are preferred for green ginger purposes and seeds.

Higher quality seeds and fibreless varieties. When producing fresh ginger for export markets, farmer should invest in quality seeds and cultivate high yielding ginger varieties. There are quality seeds available that can give

can give good rhizomes with fatty looks. Assistance can be given by the Nepal Agricultural Research Council (NARC).

Increase added value. Fresh ginger is cleaned by removing soil. Traders do not further clean or sort them. Due to lack of washing facilities Nepalese ginger prices are very low. Simple post-harvest handling practices like cleaning, sorting and grading will increase its added value.

BLEACHED GINGER

This can be obtained by dipping scrapped fresh ginger in a slurry of slaked lime, Ca(OH)_2 , (1 kg of slaked lime/120 kg of water) followed by sun drying. As the water adhering to the rhizomes dry, the ginger is again dipped in the slurry. This process is repeated until the rhizomes become uniformly white in colour. Dry ginger can also be bleached by the similar process. Liming gives ginger a better appearance and less susceptibility to the attack of insect pests during storage and shipping.

DRIED GINGER

Dried ginger spice is made from the mature rhizome. As the rhizome matures the flavour and aroma become much stronger. Dried ginger is exported, usually in large pieces which are then ground into a spice in the country where it is used. Dried ginger can be ground and used directly as a spice and also for the extraction of ginger oil and ginger oleoresin. Medium sized rhizomes are the most suitable for drying. Large rhizomes often have a high moisture content which causes problems with drying.

PRODUCING DRIED GINGER

Dried ginger is available in many forms. The rhizomes may



be left whole or they may be split or sliced into smaller pieces to accelerate drying. Sometimes the rhizomes are killed by peeling or boiling them for 10-15 minutes. This results in a black product which can be bleached using lime or a sulphurous acid. Cleanly peeled dried ginger is still preferred in most export markets.

Dried ginger is produced according to the following steps

- The fresh rhizome is harvested at between 7 and 9 months of age depending on application.
- The rhizomes and leaves are removed and the rhizomes are washed.
- The rhizome is killed or inactivated. This is done by peeling, rough scraping or chopping the rhizome into slices (either lengthwise or across the rhizome). The skin should be peeled off
- Using a wooden scraper made from bamboo to prevent staining the rhizome. Whole, unpeeled rhizomes can be killed by boiling in water for about 10 minutes.
- The rhizome pieces are then dried. The traditional method is to lay the pieces on clean bamboo mats or on a concrete floor and sun-dry until a final moisture content of 10%. Drying may take anything from 7 to 14 days depending upon the weather conditions. During drying, the rhizomes lose between 60 and 70% in weight.
- In rainy conditions, a mechanical drier such as a *tray drier* should be used to accelerate the drying process. Sliced ginger pieces take only 5-6 hours to dry when a *hot air* drier is used. Whole peeled ginger rhizomes take about 16-18 hours to dry in a mechanical drier. It is important to monitor the air flow and temperature during drying. The drying temperature should not exceed 60°C as this causes the rhizome flesh to darken.
- After drying, the rhizomes are cleaned to remove any dirt, pieces of dried peel and insects. An air separator can be used for large quantities, but at the small scale it is probably not cost effective.
- The dried rhizomes should be packaged into air-tight, moisture proof packaging for storage or export.

The necessity for processing machines

In Nepal, the number of processing machines are very limited to a few large companies. Traditionally, ginger is put on nets and dried in the sun, or dried over a fire. However, when exporting larger quantities that need be of a constant quality and taste, the ginger must be air-dried in ovens under a constant temperature as indicated in step 5.

Investments in dryers and processing machines will be necessary. Drying machines are available at prices starting

from US\$ 2,000 and higher depending on size and capacity. Solar dryers are higher in price. An idea about prices, availability and suppliers from China or India can be found at:

www.food-processing.net
<https://www.exportersindia.com>
www.vegetable-machine.com
www.pharmachemfood.com
www.alibaba.com www.aliexpress.com
www.machineryandequipment.com (selling second-hand equipment)

Dried ginger can be peeled, split or sliced as well. All can be used for oil distillation and oleoresin extraction. Such lack of ginger cleaning (high pressure), washing machines, peelers, splitters or slicers starting from \$US 1,750, are one of the reasons of major post-harvest problems in Nepal.

GINGER PROCESSING EQUIPMENT

Ginger spray washing machine adopts high-pressure water flow for washing ginger, having high cleaning capacity and impurities reduction efficiency. Brush type washing and peeling machine integrates the functions of washing and peeling, available for independent cleaning as well as simultaneous cleaning and peeling.

Hot air circulation oven takes advantage of circulated hot air in the oven to get the ginger dried. There are drying machines with different capacities like single door hot air drying ovens, double-door hot air ovens and large scale drying ovens to meet customers' specific demands.

Ginger powder crushing machine. This machine crushes the dry ginger slice by the impact & grind function of the relative motion between active and fixed fluted discs, and impact between the materials. The fineness can be adjusted by changing different sieves.

Co-operatives or groups of farmers could jointly invest in such processing equipment with support from the government, importers, private investors, Business Angels or INGOs – following the example of the FAO in 2014. Assistance/training must be provided in the procurement of these machines. Useful information in how other developing countries tackle this problem can be obtained from www.practicalaction.org

Increase the availability of Nepal-made ginger products in the domestic market. Presently Nepal still imports ginger paste, powder, slices mixed with vinegar etc. In Nepal there is also good demand for ginger powder, pickles and dried ginger. If these products can be processed in a proper way, they can easily penetrate the domestic market generating more profit compared to selling fresh ginger.

NEW GINGER PRODUCTS FOR NEPAL

Ginger powder: Demand in export markets is still on the rise, especially in Malaysia and Europe. Besides, the transport cost for ginger powder are lower than fresh or dried ginger because of lower volume allowing transport by air. Another advantage is a longer shelf life and storage for 1.5 up to 3 years so that it can be used in the domestic market throughout the whole year.

Ginger powder is made by pulverizing dry ginger to 50-60 mesh size. Export markets may require additional testing for bacteria/fungi to be done by a laboratory in Nepal. Also note the limits of sulphur that are present in ginger powder when charcoal fire is used for drying ginger.



Crystallized ginger or Ginger candy is the root cooked in syrup until it becomes soft. The processing of ginger candy is very limited in Nepal and is made by cooperatives and sold in the domestic market via groceries. In Asian countries ginger candies are sold in groceries and supermarkets. They can be solid candies accompanied by high-grade refined starch, or glutinous rice made of ginger syrup. In Nepal, processing techniques, packaging and marketing need to be developed.



There are good opportunities for industrial applications for crystallized ginger as a taste enhancer or healthy sweetener in confectionery, desserts or bakery products (cakes) fruits salads, jam, jelly, chutneys or for sugar confectionery such as liquorice, pastilles, chews or gums.

Ginger paste: Ginger is usually made into paste by consumers and used in curry etc. Larger volumes of ginger paste are mainly imported from India.



Ginger squash: Ginger squash is prepared by using fresh ginger mixing with water and preservatives. Ginger squash has short life and the popularity is also very less.

Ginger essential oil. The capacity for ginger oil production is still limited since quality of the Nasse variety is low due to high fibre content and inadequate farming methods. According to the Samarth 'Nepal Ginger profile 2016', there were 19 from the 30 reviewed cultivars that had an oil content of 1.5% or higher, which met the international standard. Particularly high oil content was found in cultivars from Harre and Surkhet (2.0%) and Phidim, Panchtar, Letang, Morang, Mainaghat and Nawalparasi. The estimated production volume of these cultivars was 27,860 tonnes (trading volume 16,716 tonnes).

In flavour compositions, ginger oil blends well with sweet orange oil, lime oil or bergamot oil.

Careful adulteration can be made with galanga oil (China and Japan). However, sometimes difference in quality of the oils cannot be traced back clearly.

Ginger oleoresin is obtained by extraction of powdered dry ginger with suitable organic solvents. There are very few industrial units for oleoresin in Nepal. However, the production may present a better opportunity as it is less sensitive to the quality of produce and has widespread uses.



According to the Samarth 'Nepal Ginger profile 2016', there were 2 from the 30 reviewed cultivars that had an oil content of 6.0% or higher which are found in Harre, Surkhet and Asihgram and Dadelhura.

Gingergrass oil is an interesting product for Asian markets. Gingergrass is similar as palmarosa grass although in perfumery gingergrass has very little importance. The oil is distilled from the East Indian grass, *Cymbopogon Martini*, varietas Sofia, a physiological variety of the palmarosa grass. In India, the two grasses are cultivated in the areas of Bombay, Madras, Bengal and Punjab.

The main constituent of gingergrass oil is *geraniol*, which is masked in this oil by the grassy and rather unpleasantly smelling trace components. However, one component i.e. *Perila Alcohol* possesses an extremely diffusive and strong, oily-grassy, fatty-herbaceous odour and is used in the construction of certain artificial essential oils such as bergamot oil, jasmine absolute, cumin oil or several 'tea'-notes.

Gingergrass oil once was a popular perfumery raw material for rose compounds, particularly for soap perfumes. Frequent and crude adulteration, often at the place of production, ruined the good reputation of this oil. The annual production has now dropped and the oil is mainly used in Indian soaps and detergents, and could be of interest in the Bangladesh or Indian market.

6.5.2 PRICE STRATEGY

PRICE DEVELOPMENTS

Decreasing prices of Chinese fresh ginger

China and India as world's main producers of ginger have a large influence on global ginger prices. In China, the high price level on the world market in 2013 and 2014 generated good profit for Chinese growers. This resulted in an expansion of planting areas in the Shandong provinces which accounted in 2016 where 88% of ginger for exports is cultivated and ginger products are mass-produced.

This expansion as well in other provinces (Yunnan and Guangdong) has led to an oversupply resulting in falling prices from the highest point of US\$1.45 per kilogram in 2014 to about US\$ 0.29 (2 yuan) per kilogram. In addition, Chinese companies used market entry strategies by dumping of excessive quantities of ginger at very low prices in (new) export markets in the beginning and afterwards driving up the prices. In order to compete, other Asian export companies followed the Chinese strategy. This price war has disturbed the price levels in the global market place.

Poorer storage in China led to selling out

Because of the lower prices, Chinese traders reduced the storage of ginger at large central cooling warehouses as is usually the case with onions. Storage in such places allow speculation in prices, but the costs (electricity) are high.

Table 2 World – Export price per ton in US\$ for ginger*, 2016
Leading and selected suppliers

Exporters	2014	2015	2016	Exports, US\$ 1,000 (2014)	Exports, US\$ 1,000 (2016)
	US\$/Ton	US\$/Ton	US\$/Ton		
World (average)	1,778	1,109	765	548,888	717,425
China	2,079	1,021	647	337,155	521,220
Netherlands	2,973	1,950	1,533	69,141	45,110
Thailand	1,434	1,191	615	27,164	44,164
India	930	1,326	1,095	27,080	15,977
Peru	2,193	2,077	1,679	24,053	14,330
Indonesia	798	681	428	9,270	21,637
Brazil	2,831	1,348	790	6,987	8,847
Nepal	185	166	280	5,629	20,112
Fiji	3,508	2,187	3,917	4,779	1,220
Germany	3,750	2,875	2,330	4,644	1,993
USA	3,081	2,297	2,350	2,893	1,231
Taiwan	2,490	2,969	2,959	2,231	754
Viet Nam	2,279	3,007	1,686	1,517	900
Saudi Arabia	1,640	1,092	776	1,270	1,636
Costa Rica	1,018	992	650	1,134	1,744
Myanmar			862	804	933
Sri Lanka	793	745	715	765	107
UAE	1,342	1,434	1,494	746	1,511
South Africa	3,796	2,417	1,901	688	362
Singapore	1,255	621	771	425	551
Tanzania	5,000		8,120	406	50
Nicaragua	819	667	1,410	382	271
Madagascar	1,444	2,897	2,966	350	118
Jamaica	5,060	4,016	6,652	306	46

* Ginger neither crushed nor ground (091011)

Source: ITC Trademaps (2017)

Recently Chinese ginger is stored at the farmer's cellars which implies a fast sales not too loose on freshness which even caused selling out at even lower price levels.

Indian fresh ginger prices under pressure

Due to the competition with China and Nigeria, the Indian ginger prices are under pressure. In addition, there is more availability of Indian ginger since 2015 that is cultivated in new areas such as Karnataka, Wayanad and neighbouring states where farmers are in search of new areas. The area of ginger cultivation have increased nearly threefold this

season because of good price for the produce for the past three years.

Fresh ginger export prices

In order to obtain a rough idea, it is best to compare the price levels (based on imported unit value) of ginger (091011) that were exported between 2014 and 2016 as is shown in Table 2.

Export price differences can be seen with prices/ton from developing countries being low while prices from

the Jamaica, Fiji, Germany and Taiwan were high. The low world average price level is mainly attributed to very low price level of Nepalese ginger.

Average prices/ton of Nepalese fresh ginger are the lowest in the world – even if prices slightly rose in 2016 according to ITC. If no further quality improvement can be made and the rhizome rot continues to be present in Nepalese ginger, India continues to restrict the entry of Nepali ginger, citing pesticide contamination. More intimidation by middlemen to Nepalese exporters will lead to further price decreases if Nepal continues to export to India.

Farmers and traders in East Nepal are prone to extremely lower margins due to:

- Presence of soft rot/rhizome rot disease (loss up to 30% in the field),
- Lack of domestic facilities for industrial extraction and distillation,
- Traditional drying and processing techniques (loss of oil content by 20%)
- Dominance of a single trade outlet in Naxalbari, India.

There is a trend towards lower average import prices due to decreasing prices/ton for ginger coming from China, Indonesia, Thailand, Sri Lanka and Myanmar all of which average between US\$ 420 and US\$ 860 per ton in 2016. The Chinese prices of US\$ 647 were 2.5 times lower than the Indian prices of US\$ 1,695 as is shown in Table 2.

Price levels from most of the other countries were in the range of US\$ 1,500 - 2,000 per ton in 2016 all of which were down from US\$ 2,000 – 3,000 in the previous years. This should give enough reasons for Nepalese exporters to considerably increase their price levels if they can deal directly with foreign buyers in new markets and to overcome all trade barriers at the border points in India.

Margins

In the UAE and Japan, the standard importers' margin is 10 – 15% for fresh vegetables and 15 – 20% for oils.

Retailers' margins are 20 - 30% depending on the size/kind of retailer.

Prices for ginger oil

China remains the dominant source of ginger oil, but the spice trade (whole and ground ginger) continues to dominate the ginger market restricting supplies for distillation. Prices are still high compared to the common essential oils. However, supplies of ginger oil from India have increased considerably and other Asian countries and African countries (Madagascar) are coming up. This means that prices will come down in the future.

Information on ginger oil can be found at <http://ultranl.com/> and search for 'ginger' other sources include http://www.made-in-china.com/products-search/hot-china-products/Ginger_Oil.html

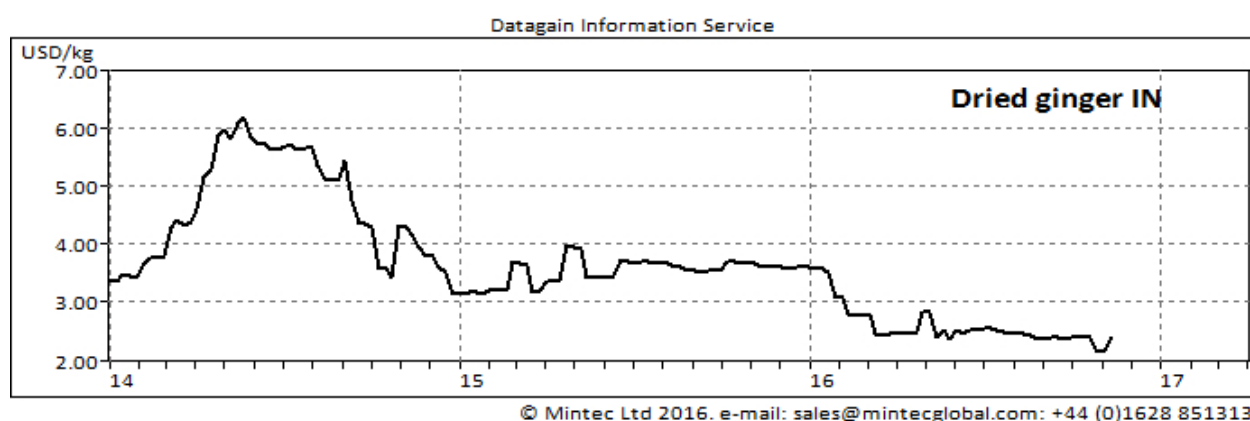
Prices of organically ginger can be 1-2 times higher than conventional ginger, largely attributed to the superior quality and their scarcity where often demand often outweighs supply.

Prices of dried Ginger

Average prices of dried ginger are 6 – 10 times higher than fresh ginger, depending on quality and price development of global price level of fresh ginger. According to Mintec, dried ginger prices in India were down 40% y-o-y at the start of November 2016 at US\$ 2.10/kg. This was mainly due to the abundant supply of fresh ginger in the market. In the 2015/2016 season, there were increased plantings, as farmers took advantage of the higher market prices in 2014 and 2015.

Falling price levels and drought in India. According to the Hindu News, the continuous fall in fresh ginger prices has put Indian farmers in a tight spot. The spot price for fresh ginger in Wayanad in September 2016 was US\$ 12.40 (INR 800) for a bag (60 kg) as against US\$ 38.80 (INR 2,500) a bag during the corresponding period in 2015.

For the upcoming 2016/17 harvest, increased production is expected in Karnataka, while production in Kerala is



likely to decline due to lower rainfall. In 2016, the southern States were seriously affected by drought with severe water shortages and desperately poor farmers suffer crop losses.

Falling prices due to rhizome rot in Indian ginger. In 2016, prices fell drastically because of a huge arrival of ginger in Kerala and Karnataka markets after was found out during premature harvest that Indian ginger was affected by various diseases affecting the rhizomes. Many farmers have tried their luck in ginger cultivation this year after a better price ruled the market for the past three years but most of them are facing huge loss now owing to the spread of soft rot, a fungal disease; and low price.

Unsafe ginger from Kerala. High levels of Profenofos and Methyl Parathion were found in many samples of dry ginger and cardamom in Kerala, India. Not only did they have a higher than permissible residue of pesticides and insecticides, but a research team from the Kerala Agricultural University (KAU) also found that many of the samples had two pesticides that were banned by the Kerala government in 2011. This also will have a negative impact on prices of ginger from India.

Information sources

Prices for ginger can be found via the Spices Board India (<http://www.indianspices.com/>), which publishes indicative international prices. A paid source is the Public Ledger, where a joint subscription could be considered among several Nepali companies (exporters, associations, cooperatives).

Average prices for ginger can be also found at Mintec - www.mintecglobal.com and search for 'ginger'.

An idea of prices for processed ginger can be obtained by www.alibaba.com and search for 'ginger products' or 'ginger'.

Other sources are ITC Insider - <http://www.intracen.org/itc/market-insider/spices/> and select 'Prices and market dynamics' and select 'prices'.

Other tips and recommendations for Price setting can be found in Chapter 3.7.2 of the GIZ market study 'MAPs and Essential oils in the USA'.

6.5.3 DISTRIBUTION STRATEGY

6.5.3.1 Value chain in Nepal

The value chain of ginger is based on the traditional free-market exchange where larger actors have long established business relations and dominate the market. It still is very fragmented with ginger coming from many small scattered plots. Therefore, middlemen can earn money to get small quantities of the ginger transported from small villages to Kathmandu or to trading centres at the

Indian border in Naxalbari, Bhairahawa, Mechi, Birgunj, Nepalgunj etc.

This complex, unstructured value chain involves many different actors who all want the maximum benefit for themselves. Farmers mostly take their fresh ginger up to local collectors or road-head traders. If demand from India is high, local collectors or Indian collectors go to the villages to buy directly from the farmers. There is little trust between actors with traders who are either blaming the farmers for their indifference about cleaning, quality or storage. Whereas farmers are blaming the (Indian) traders/collectors for pressuring them to offer the lowest price (SNV, Ansab, 2011).

Heavy reliance on many middlemen and on India

Despite its large fresh ginger production, Nepalese traders, processors and exporters still heavily rely on a many different kinds of middlemen being very in-transparent. There are: district traders, national traders, C and F agents, Indian agents, Nepalese and Indian border agents.

These agents and Indian traders and wholesalers have a too strong dominance throughout the whole chain and thereby taking up the largest part of the profit. Already at the Indian border, Nepalese ginger is already prepared for further processing in the Indian market. In Nepal, processing and manufacturing is limited to a few (Indian) food companies and cooperatives.

For ginger from Eastern Nepal, the major destinations in India are Siliguri and Kolkata passes via Naxalbari. Sometimes, Indian buyers speak about 'Siliguri ginger' and are not aware this is from Nepal (Samarth Action research 2015). Ginger from the mid-western and far-western regions in Nepal mainly goes to Indian trading centres in Gorakhpur, Lucknow, Kanpur, Bareilly or Banarash. Some fibreless ginger goes to Delhi, Jaipur and Amritsar.

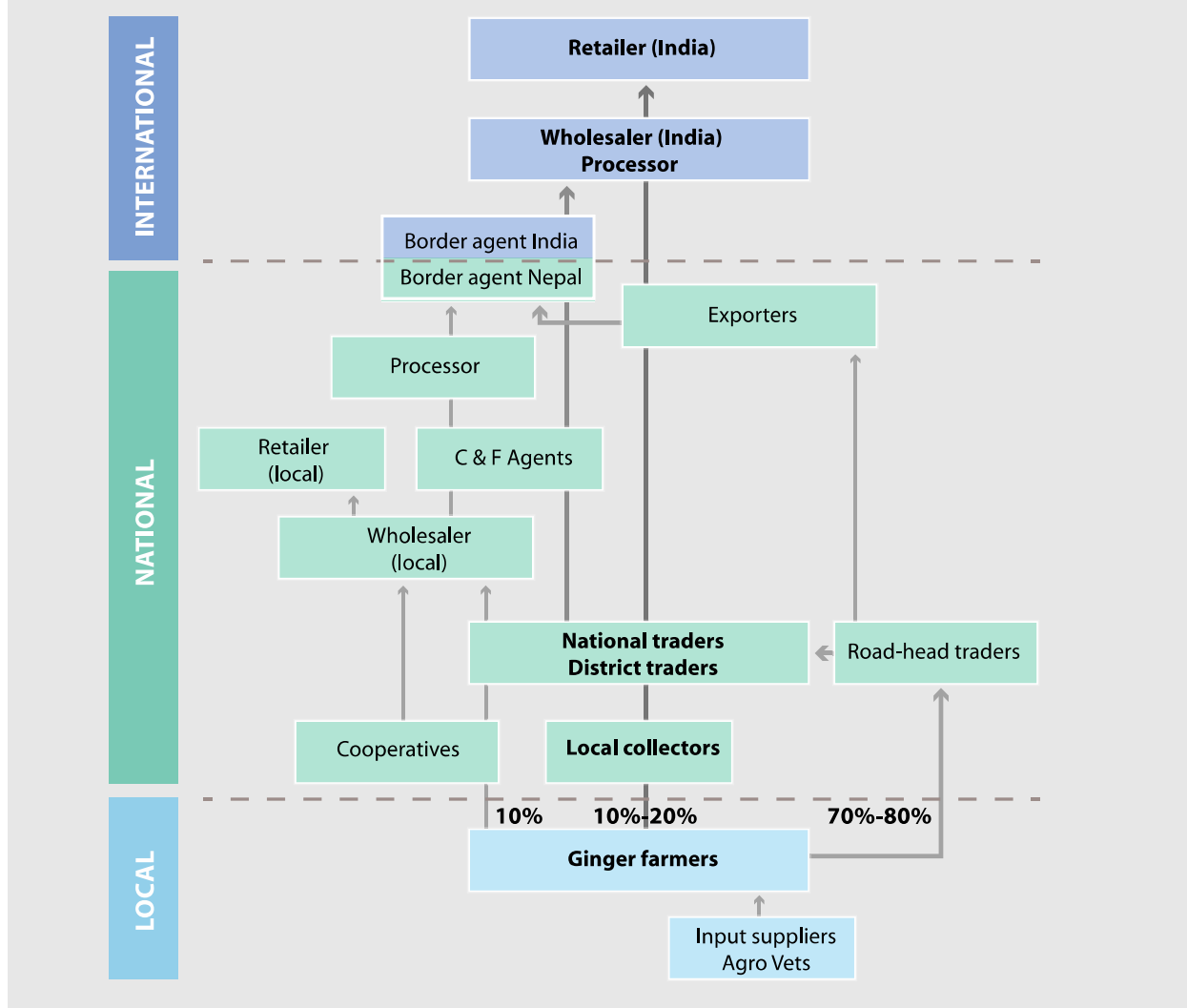
The value chain of ginger involves different actors:

Input suppliers supply the planting material (seeds, seed rhizomes) and other inputs like pesticides, fertilizers etc... These agrovets are close to where farmers live and are often private companies managed by local farmers. There are also institutional agrovets that are supported by the government.

Farmers: According to USAID there were 66,000 ginger farmers in Nepal in 2011. The majority are small and own less than 3 acres of land. There are three categories of farmers:

- **Small farmers** with subsistence production. They cultivate ginger for own use and sell surpluses in local markets in own or neighbouring villages.

FIGURE 4: **Ginger value chain**



Source: MOAD, Ansab, SNV (2012-2017)

- **Small commercial farmers**, producing small quantities and selling to road-head traders, local collectors, district traders or work for the local cooperative. Selling the right quality ginger at the right price could contribute 50% of more of the farm income and is regarded as a cash crop.
- **Large-scale commercial farmers** producing on a larger scale selling to the same actors as the small commercial farmers as well as to processors and to national or district traders.

Commercial farmers are engaged in ginger processing (dried ginger). Farmers sell ginger either to local collectors or cooperatives. An estimated 70 - 80% is sold to the road-head traders - see Figure 4.

Road-head traders collect the ginger and usually deal in vegetable and other food. The ginger is sorted to some extent such as removing the mouldy and damaged ginger.

Most of the gingers go to the national traders or to some extent directly to exporters.

Cooperatives sell fresh ginger, dried ginger (sutho) as well as ginger candy, pickles, squash and other processed products in a limited quantity and sold locally or through local exhibitions. Some of the cooperatives sell their processed dried, sliced ginger to exporters in Kathmandu.

National Traders buy ginger from road-head traders, local collectors or cooperatives. They sell ginger to Nepali wholesalers, processors/manufacturers and exporters or directly to Indian processors.

Larger food processors buy mainly from the National traders to be sure about a constant supply. Some well-known processors in Nepal include Dabur Nepal, Gorkha Ayurved, Singh Durbar Vaidyakhana, Male International, Coffee Plantec and some Nepalese spice producers. Ginger



is also one of the main ingredients in pickle industries and ingredient for the production of Ayurvedic medicines.

District traders buy ginger from farmers and sell to National traders, Indian traders as well as to the Commission and Forwarding agents (*C and F Agents*). Some ginger also goes to Indian trading centres.

Agents. Most of the ginger exported to India first goes to Indian commission agents (CA). They are not specialised in ginger but deal with other vegetable and spices (turmeric, coriander etc.). They act as a distribution centre for the Indian market and take 7-10% of the total sales as commission.

Wholesalers: Wholesalers sell ginger to retailers, hotels, industries and institutional users. Their minimum order quantity in the Kalimati and Kathmandu markets is 5 kg.

Larger wholesalers have their outlet at local weekly markets and buy ginger from other wholesalers or C and F-agents and keep small margin, many small lots sold to retailers in at the weekly markets.

Exporters: Almost all fresh and dry ginger is destined for the Indian market. Some of the exporters do some basic processing such as washing, cleaning and sorting. Exporters (and traders) usually transport the ginger by truck to the border from where they transfers the ginger bags to another Indian truck (the term is known as “Palti”), which is an extra delay in lead time.

Retailers in Nepal and in India buy from wholesalers and sell to end consumer. In each city, ginger is sold at vegetable shops, groceries and street market vendors.

CHALLENGES IN THE VALUE CHAIN

The current value chain is too complex, in-transparent and makes it almost impossible for Nepal to comply with the demand of international markets where fast delivery and freshness of ginger are most important. Main hurdles in the value chain are:

- **The washing and cleaning process** is very basic i.e. washing in water pools (or in rivers) spreading the rhizomes out, drying by open air circulation putting in a jute sack. Fresh ginger coming from west Nepal is not washed and contains soil, looks dirty and might be contaminated. This still forms around one third of total ginger production in Nepal.
- **Much of value addition work is done yet in border town of India.** If any processing facilities are made available, Nepalese ginger can compete in the world market. The existing traditional practice of processing and trading can be improved by few modifications such as sorting, grading, cleaning, peeling, drying & packaging, which could gradually improve the quality and value of the ginger for export markets.
- **Contract farming is still in its development stage.** Several programmes run by the government with donor support have tackled issues in ginger supply chains in different parts of Nepal with some success.

USAID NEAT's programme worked with value chains in eight central and western districts to support value addition. This programme facilitated contracting arrangements between a major buyer, Annapurna Organic Agriculture Industries, and 3,000 ginger farmers.

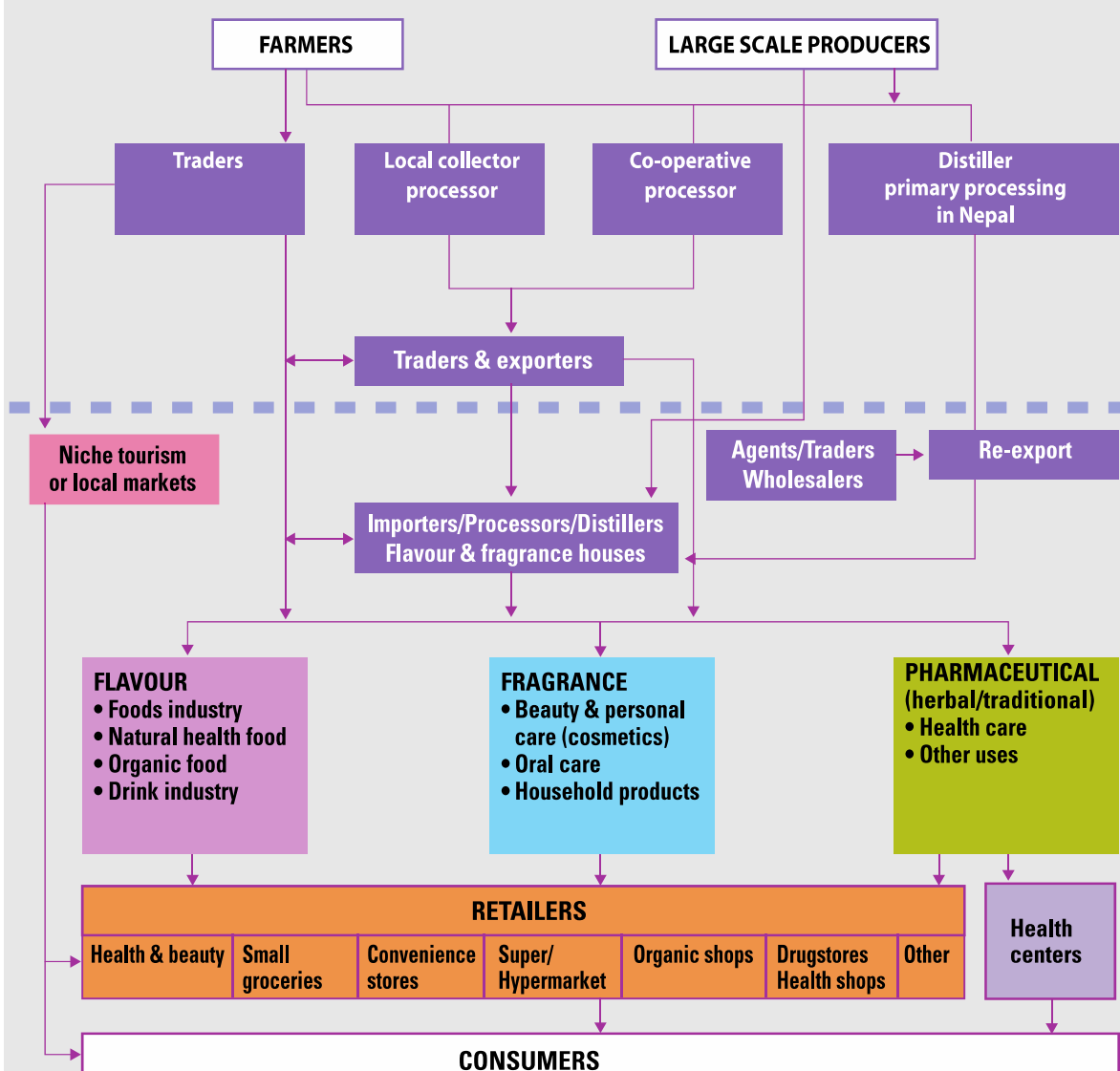
- **Hard to be in direct contract with potential customers.** Most farmers, collectors and cooperatives have difficulty to be in direct contract with potential customers in export markets due to communicative, business knowledge, financial and logistic constraints. There are still a number of people who are illiterate, are not familiar with computers. Besides there is often limited electricity and internet connectivity. Therefore, they rely on traders or exporters who handle the paperwork which is rather complex and time consuming in Nepal.

Future development in the Nepalese ginger exports should be towards higher value agriculture, where with involvement of industries in export markets more vertical coordination can be realised. Such structural changes create opportunities for small farmers, who challenge to take risks, to raise their income by participating to cultivate and sell in growing markets for higher value agricultural commodities. A successful approach in ginger can be applied for other commodities and spices as well.

6.5.3.2 Distribution channels in export markets

In export markets, the distribution of ginger involves many different actors as well, largely depending the application for ginger. For example, the distribution of ginger oils differs from food commodities because of the prominent role of food and beverage processors and

FIGURE 5: Ginger distribution channel



Source: FOA, Seance (2017)

flavour & fragrance houses developing specific product formulations for the industrial segments (Flavour, Fragrance and Herbal/Traditional).

Larger-scale commercial farmers (large scale producers) should focus to develop sustaining trade relations with importers and processors. The focus here to achieve long-term results.

The processor/distiller in Nepal does the primary processing of ginger, including essential oils and sell them to foreign importers/processors, or sometimes direct to foreign flavour and fragrance houses.

Wholesalers in the importing country usually buy large quantities, stocks the ginger in cool storage, and sells it to processors or retailers. This is also the case of Bangladesh, while a large part entering the UAE is re-exported. A wholesalers' commission is 10 – 20% depending on the processing ranging from basic cleaning, sorting to cold storage and re-packing.

Agents and Traders in the importing country use their marketing and trading knowledge to buy directly from producers, collectors and processors in Nepal. An industrial customer may have one or more brokers or agents acting on their behalf selling to different regions. They usually work on a commission basis (8 - 15% of the

sales). Generally, they do not keep products stock.

Importers/Processors/Distillers buy from all over the world. They mainly sell to the industrial segments (Flavour, Fragrance and Herbal/Traditional) as well as to Flavour & Fragrance houses, retailers and consumers via their websites. Larger specialised processors/distillers have their own R&D (research and development) units in-house. They compete by developing new (spicy) curries, (sweet & sour) sauces or new cocktails or hot ginger (candy) drinks.

Flavour & fragrance houses develop customized products (ingredients, nutraceuticals, essential oils or oleoresins) which is a key factor of their success. Their 'artistic' and unique flavour or fragrance is not easily interchangeable with other products. This uniqueness is well-recognised by industries, retailers and consumers. Most houses are selling essential oils by the Internet and or via direct sales.

ONLINE SALES

The online sales channel continues to grow in importance. You could take part in a site for international supplies of spices or ginger products. Although you must be able to open up an account to receive credit card payments. There are many well-known online marketplaces and online sellers of final ginger products e.g. <http://eu.iherb.com>

Trend to simplify the distribution

The traditional distribution structure has worked for many years, but the industries are trying to simplify the supply chain. As food producers and cosmetic producers became larger, the industries and flavour & fragrance houses now tend to deal direct with exporters or processors in developing countries in order to reduce the cost of middlemen. Quality and consistent supply issues can be discussed directly with the processors or with cooperatives or farmers (in case of sustainable sourcing) in Nepal.

6.5.3.3 Finding trade partners

WHICH APPROACH?

The first decision as an exporter/processor of ginger from Nepal you have to make is whether to approach your new market *directly* or *indirectly*.

- **1st Indirect approach via agents or brokers**, which means that sales activities are taken care of by a broker or agent in the importing country where they sell on to processors, distillers, industries, flavour & fragrance houses and sometimes to retailers. Note that the agencies, who do not carry a stock, are not responsible for delays in deliveries or supplies of bad quality or contaminated ginger.
- **1st indirect approach is via wholesalers in the importing country**. They have cold storage facilities

and can supply smaller quantities on a regular basis to processors, distillers, industries, flavour & fragrance houses and to retailers. In the UAE, contacting wholesalers - often Indian or Pakistani people - is a good option. In this case, an extra control by local Nepali residents/consultants is recommended.

- **2nd indirect approach is via wholesalers at ports in India** e.g. Kerala, Gujarat having regular shipments to the Gulf States and experience in ginger or ginger products. If the wholesaler is reliable, the best transport could be discussed to minimize a loss in freshness e.g. - by air from Kathmandu to Kerala and by ship (or *Reefer vessel*) to the UAE. For many products, including perishables, there are possibilities for bonded warehousing – see box.
- **3rd Indirect approach** via agents or brokers, which means that sales activities are taken care of by a broker

Bonded warehouse for storage without payment of duty

A bonded warehouse, or bond, is a building or other secured area in which dutiable goods may be stored, manipulated, or undergo manufacturing operations without payment of duty.

It may be managed by the state or by private enterprise. In the latter case a customs bond must be posted with the government. This system exists also in India at Whitefield (Bangalore), Tondiarpet (Chennai), Sanathnagar (Secundrabad), NewMulund (Mumbai), Tughlakabad (New Delhi), Sabarmati (Ahmedabad) and Gwalior.

Note that this arrangement must be initiated between the importer (e.g. in the UAE) and the warehouse proprietor. So, you will have to discuss this in detail with your customer, as he has to initiate the arrangement.

Larger importers from India possibly already have this arrangement for other products from India.

While the goods are in the bonded warehouse, they may, under supervision by the customs authority, be manipulated by cleaning, sorting, repacking, or changing their condition. However, not by processing into final products. Bonded warehouses provide specialized storage services such as deep freeze or bulk liquid storage, commodity processing, and coordination with transportation.

After manipulation, and within the warehousing period, the goods can be exported without payment of duty, or they can be withdrawn for consumption upon payment of duty at the rate applicable to the goods in their manipulated condition at the time of withdrawal.

or agent in the importing country. They are small and therefore flexible and can communicate with industries or retailers in their own language and identify new niches in your target market..Note that they keep you (as an exporter) responsible for delays in deliveries or supplies of bad quality or contaminated ginger.

- **Direct approach.** If you are able to deliver fast ginger or ginger products of a good quality that meets all the market requirements, you could enter the market direct to importers, processors, flavour & fragrance houses or direct to the industries. In this case be aware that you need to take care of in-market stocks to be able to deliver quickly.

HOW TO FIND TRADE PARTNERS?

You can find an agent or wholesaler by advertising in local trade magazines or on bulletin board at trade shows. After the first contact, check carefully their background/ web site, their knowledge about dealing with fresh ginger or other perishables, and what other products they sell.

From Nepal you can find them via on-line trade fair catalogues, local trade organisations, Chambers of Commerce, Trade directories (internet or in business libraries) or online telephone directories (yellow pages). Registration on social media e.g. linked-in is possibility to get in touch with people as well.

You could also ask forwarders/shipping companies in Nepal or – via Nepalese residents/consultants in UAE,

Japan, Bangladesh or India as they are in regular contact with importing wholesalers, processors etc.. Another possibility is via the following professional directories as shown in the box.

6.5.3.4 Delivery conditions and terms of payment

DELIVERY CONDITIONS

Delays can occur between an order and its delivery, but the exporter must at all times keep his importing partner informed of these delays so that he can adapt his schedule for further processing. Some other practical points to consider are:

- **Double-check carefully the kind of vessels and their routing** (several times). Is it going direct to the destination port or does it stops at a 'port of call'? Formerly shipped on cold decks, perishable goods are now sent by refrigerated container in a *Reefer vessel*. The sea freight transit time e.g. between Kerala and Dubai ranges between 10 and 15 days, depending on the shipping line, port of departure and unforeseen problems (transport of goods to the port, delays at sea or customs hold-ups). An overview of ports in India can be found at: <http://www.walkthroughindia.com/walkthroughs/the-12-major-sea-ports-of-india/> Basic check of distances can be found at <https://sea-distances.org/> or <http://www.portworld.com/map> or in India <http://ipa.nic.in/>

- **Check the minimum volume for shipping** e.g. by a reefer container (21 pallets in Europe). **For smaller exporters**, a Less than a Container Load service (LCL) is available. This service allows smaller exporters to ship low volumes (e.g. 5 tonnes). The forwarder aggregates several shipments and the costs are shared.
- **Do write down how operations were carried out**, what was good – what went wrong? This is a good basis for the next time and instructing/changing transporters, new employees or other service providers.
- **Get familiar with new techniques used** by large exporting companies e.g. cold chain management (with constant measuring of temperatures during the journey), chips on the pallets for a track and trace service. Assess the change in colouration and possible shrinkage of the ginger during transport.
- **Try to work with reliable freight forwarder** who have a good reputation and experience in perishable goods. Even if it costs you more, it definitely will save you costs in the end as trouble with trucks, rushed/careless overloading to Indian trucks, unloading when it is hot or defective cooling systems can be prevented.
- **Don't take unnecessary risks** (e.g. *too tight schedule or overcharging trucks*) especially with fresh ginger being extra perishable and that must be transported safely.
- **Use better packaging than the jute bags** for the Japanese, UAE and Indian market. Jute bags are still being preferred in Bangladesh.
- **Don't throw away damaged ginger** but seek wherever possible to sell them for juice production, animal feed processing or for any other use.

TERMS OF PAYMENT

Contracts are negotiated on the basis of samples supplied.

Most trade partners prefer to receive prices on FOB (Free on Board), CIF (Cost, Insurance and Freight) or Cost and Freight (C&F) destination basis in US\$ or ¥ (Japanese Yen). More information on the Incoterms can be found at <http://www.iccwbo.org/incoterms/>.

Usual payment term usually is 30 days after the date of receipt of the product. It may never exceed 45 days at the end of the month or 60 days from the date of issue of the invoice.

Define your invoice with your general conditions of sale such as the date of payment, which may differ from the date of delivery of your product. This is mandatory information to appear on your invoice and in your general conditions of sale.

New exporter. Buyers try to negotiate a payment after the receipt of the goods because you are a new exporter. But be very careful here and check the credibility of the buyer and his company. They also try to negotiate payment terms so that they pay a proportion of the money upfront as a deposit. For example 30% advance payment and 70% balance paid upon inspection and approval. It is advisable to have your own quality inspector on the spot who can (double) check.

Telegraphic Transfer (TT)

This transfer is an electronic method of transferring money. It is used primarily for overseas wire transactions. These transfers are used most commonly and banks normally charge a fixed bank transfer fee of \$30 to \$50 depending on your bank.

6.5.4 PROMOTION STRATEGY

So far, no promotion was done by Nepalese companies, cooperatives as all ginger was destined for the Indian market. Even Indian buyers did not have an idea that ginger from Silliguri actually came from Nepal. In the

Profesional trade platforms

<http://importer.tradekey.com/uae/ginger.htm>
<http://www.tradeboss.com>
<http://gulfbusiness.tradeholding.com/>
<https://www.spices1.com/ginger-importers/united-arab-emirates.html>
<https://www.go4worldbusiness.com/>
http://www.datadubai.com/directory/ginger_importers.html
<https://www.ec21.com/buy-leads/ginger.html>
<http://worldbiz.in/>
<http://www.21food.com/>
<http://www.trepup.com/>
<https://search.gmdn.net/b/Fresh%20Ginger%20Buyer.html>
<http://www.freshplaza.com> (choose UAE, Bangladesh etc.)
<http://www.fructidor.com> (paid directory can be shared with more exporters)
 In Nepal □ <http://www.gointernational.org.np/portal/index.php>



other selected markets buyers are not aware about ginger Nepal and are very surprised that Nepal is the 4th largest ginger producer in the world.

Therefore, increasing the awareness about ginger made in Nepal will be a crucial step towards the upgrading of Nepalese ginger sector. This could be partly supported by a recognisable collective brand and chart of the ginger growing districts and cultivars as indicated in the Nepal Ginger profile (Samarth, 2016).

There are the following cost-effective promotional tools:

Trade shows

This is one of the most important tools if you start exporting. In this sector, trade fairs are often the place where new food, drink and natural cosmetic trends are introduced for the coming season. Important benefits include:

- *Personal relationships and face-to-face communication*, which is very important in this sector.
- *Concentration of buyers and sellers in one location*. Most sellers are receptive to speak with you and provide information about the markets or about buyers. While buyers are often visiting a pre-selected number of stands, but you have a chance to make an appointment with them beforehand.
- *Direct feedback and ability to gain a rapid insight into*

the market. Current issues in the industry are discussed at e.g. seminars.

- *Ability to test your own performance against competitors* and learn at first-hand how to improve your chances for success by e.g. looking at large companies or companies similar to yourself (what is their marketing mix). When having a stand, tastings can be done as few people know about the good and strong taste of Nepalese ginger compared to the Chinese ginger.

You will have to consider the attractiveness of a trade fair in reaching potential new customers against the *relative expense of participation*. However, with proper *planning*, or perhaps working in conjunction with colleague companies, you can share the costs.

When participating, think about:

- *The design of your stand*, ensuring that it is visitor friendly and presents your ginger or ginger products in the best possible light.
- *The communication, advertising, advertorials and invitations* at least one month before the show starts in order to ensure that your key target customers will visit your stand.
- *That you have the proper materials in English* to hand out and enough information at the stand to answer all potential questions.

- *That you are organised to follow-up all questions and possible interest by having the business cards of all people who visited your stand.*
- *That you have a chance to do product tastings which is important since few buyers know the difference between Chinese, Indian, Nigerian or Nepalese ginger. Pickled ginger, ginger candy, ginger tea, ginger juice could be offered at the stand. If you offer ginger essential oils do not forget to prepare thin paper strips so that people can smell or check the oil. On a retail level, tastings could be also organised with the hypermarket. A special assigned person to be paid by you as an exporter should take care of this.*

If you cannot afford to have a stand at a trade fair, you could consider to *visit an international or local trade fair*. Although you will not have an opportunity to sell anything, you will meet other trade personnel in the industry. You will often find that representatives from the leading trade press are exhibitors at trade fairs, and they can be a very useful source of information.

Study visit and buyer-seller meetings

As Nepalese exporters have limited access to Bangladesh, UAE and Japan, visits of exporters to these destination markets, to become more familiar with the buyers' requirements will be very useful. Government representatives should join here too and the NGPTA could initiate and organise such trip. New contacts can be made and participants can see how ginger is being packed, processed and sold in other countries. Additional facilitation can be provided for meetings with chamber of commerce in these countries and for buyer-seller meetings for establishing business relations and building trust. These visits can be combined with trade fairs and or conferences.

Website

Going online is fundamental in this sector. Especially when taking into account that trust and credibility are major challenges for Nepalese exporters, your website could conquer these already to some extent. A website showing a well-presented range, competitive advantages (e.g. quality of Nepalese ginger), a newsletter and a list of other customers, helps to create a trustworthy environment. You have the following options here:

- *Create your own web site with a possibility to sell online.* Buyers look first at the website of a new supplier.
- *Create a simple 'shop window' to present your company online.* There are several special sites with tutorials to create your own site free or at very low costs. For example, www.joomla.org which have 'templates' with a structure of a standardised website. However, to make it more professional looking and user friendly, it takes time. It will take even more time if you want to

sell online.

- You probably could ask a free-lance web developer in Nepal or in your export market.
- *The use of pictures.* In both cases, it is very important to use good pictures. The best would be pictures on a similar background in the same format and the same size. With an online photo editing programme e.g. <https://pixlr.com/editor/> you can reduce the file size for fast viewing by the visitor of your site.

Storytelling has become an important trend in retailing to create sympathy, involvement and transparency spice value chain. You can back up your story by showing that you work according to sustainability standards and by showing certifications that 'prove' your compliance.

Create a number of an interesting stories in English that can be used for brochures, newsletters, websites or for videos on YouTube. Such impact stories should be derived from real talks/interviews by yourself (as an exporters), the local NGOs or by students with farmer families telling about their living conditions, culture of farmers, the role of ginger, the traditional drying (sutho) in a specific region in Nepal. How farmers regard ginger a high value crop, how they are willing to use better seeds, dedicate more time on cleaning, and how working direct with processors/exporters gives them more profit and security by e.g. contract farming: Examples of YouTube video stories can be found at:

<https://www.youtube.com/watch?v=jvaosi9q0XQ> - Ginger production and processing in Dhading

<https://www.usaid.gov/nepal/videos/usaid-neat-contract-farming> - Contract farming in Nepal

https://www.youtube.com/watch?v=IE_fUZhXKsw - Ginger drying technology

Try to work with other exporters or stakeholders to make videos of a good quality and using short sentences that are spoken in English.

As an exporter, be sure to demonstrate your transparency and positive contribution for a sustainable development in the region/district you are working. For instance, contribute to better farming practices and techniques, support to build up houses after the earth quake, medical care, better education by supporting schools (electricity) amongst others.

Catalogue or brochure

It is essential that you are able to show a good clear photograph of your fresh ginger and your ginger product range, together with their key descriptions and some considered claims. You will use this to send to customers

(in a mailing campaign) or to show them at trade fairs, presentations or website.

Rather than being straightforward by summing up product specifications, buyers in Japan, UAE or in Western markets get a better impression if your description includes something about the use of ginger in Nepal and how end-consumers can use ginger (including recipes).

The right timing

You could try to anticipate on National Promotion Campaigns by the industry especially related to spicy food, refreshing drinks during hot summers (UAE, India, Bangladesh), ginger teas as a prevention against colds, new aftershaves or perfumes, cosmetics and other gifts at the ending of the Ramadan, or in December (Christmas) and **integrate your promotion with trade partners or** across social media.

Joint promotion in Nepal

A collective brand will certainly give a contribution to the clear recognition of Nepal as an exporting country of ginger being a world producer from the Himalaya with clean air. Nepal's long tradition in using ginger and traditional distillation of medicinal plants for generations can be jointly promoted. More exposure can be given by a one-stop showroom for ginger and ginger products from Nepal. This could be in e.g. Kathmandu or in the export market to be controlled by a trusted trade partner, like for example in Nepal Bazar in Japan.

Promotion by Newsletter to stakeholders

Promotion to all organisations and Ministries and all stakeholders involved in the development of ginger processing industry via newsletter. Such effort should be initiated by the NGPTA and hiring dedicated people to take care of this promotion and communication and regularly sending out a newsletter showing what has been achieved so far and news about developments in trade. Now it is not clear what is (or will be) done e.g. to tackle the rhizome rot, to invest in processing facilities, to deal with the problems with India etc. Currently the Ministries, NGOs and INGOs are not well-aware about each-others' efforts resulting in much double work and losses of money.

Like in other Asian and African countries (Sri Lanka, Myanmar, Fiji Islands, Tanzania etc.), a clear communication between farmers, exporters, governments, associations and NGOs is the first step to enhance joint trade promotion efforts and image of the ginger industry in the home market and abroad. More transparency and trade promotion in a setting up new industry, helps to move from a traditional to a more professional and sustainable industry.

<https://www.youtube.com/watch?v=T3KVhXqcIcQ> - Ginger farming, Navua, Fiji Islands.

Example: Message about Ginger oil from Madagascar

Fresh ginger is used in many African dishes. It lends a hot, spicy kick to food while helping the stomach to digest food. Freshly picked ginger is always a welcoming aroma in an African bazaar. In Madagascar growing ginger brings vital income to small family farmers. Unlike ginger essential oil commonly made in China from dried ginger, in Madagascar the essential oil is distilled from fresh ginger rhizome. The aroma is like day and night. A whiff of Fresh Ginger Essential Oil can actually make your home cooked curry or ginger beer. Put a few drops in a room diffuser and relish the purifying, refreshing aroma.

ANNEX 1

PRODUCT COVERAGE AND STATISTICAL CODES

Ginger (*Zingiber officinale* Roscoe) called 'Aduwa' or 'Suntha' in Nepali, is a flowering plant stemming from the Zingiberaceae family. The ginger family is cultivated in tropical and sub-tropical countries such as Jamaica, India, South China, Nepal, Indonesia, Japan, Thailand, Sri Lanka, other Asian countries, Africa (Nigeria, Ghana, Ethiopia), Australia and Latin America.

Ginger is used in various forms such as fresh, dried, sliced, ground, preserved-salted, pickled crystallised and candied ginger.

Fresh ginger is the main traded ginger in Nepal. It is collected, sorted and may be peeled before eating. For longer-term storage, the ginger can be placed in a plastic bag and refrigerated or frozen. In the food processing large quantities of fresh ginger are used as a vegetable or spice in the preparation of a variety of Asian and increasingly western dishes, confectionery and drinks.

Dried ginger referred to as 'Sutho' in Nepal, is the major traditional processed product made out of fresh ginger in whole, sliced or piece form. The pieces are irregular in shape or are small cut pieces with a minimum size of 20mm. The pieces are pale in colour with peel not entirely removed. They are washed and dried in the sun. Sometimes the ginger pieces are lime bleached.

Powdered ginger. The dried ginger roots are ground into powder. In Nepal, the processing of powder is still limited even if there are good opportunities and exports and to save on transport costs.

Pickled ginger is prepared from peeling fresh ginger and slice them into paper-thin strips with a (mandolin) slicer. These strips are put into a container with a tight lid combined with a boiled mixture of vinegar, sugar, water and salt.

Ginger candy, or crystallized ginger, is the root cooked in syrup until it becomes soft. In Nepal, ginger candy processors are limited and made by cooperatives.

Ginger essential oil which is produced by steam distillation, occasionally by water-and-steam distillation of the dried, unpeeled, freshly ground rhizomes of *Zingiber Officinale*. For the production of essential oil, the Nigerian, Chinese, Jamaican and some of the Indian ginger varieties are the most important. The yield is approximately 0.25 to 1.2%. The oil has a warm, spicy, aromatic odour; the oil tends to thicken and darken on exposure to air. The oil lacks the pungency of the other derivatives.

Ginger oleoresin which is produced by solvent extraction of the dried unpeeled rhizome of *Zingiber officinale*, ground to a moderately coarse powder and subsequent removal of the solvent. The solvent is ethyl- ether, acetone, ethyl alcohol or occasionally chlorinated hydrocarbons. It is rarely benzene because this is highly toxic. Oleoresin can be also obtained by the extraction of powdered dry ginger with suitable organic solvents.

Interpretation of trade statistics

Please note that there are a large number of unregistered trade flows - especially of MAPs - from Nepal to India and from Nepal to China. Therefore, the trade statistics given in this report are useful to compare developments in these countries for the different types of products. However, they must be interpreted and used with extreme caution.

On the other hand, the registration of trade is compulsory and more strictly controlled between between Nepal and Japan, UAE and most of the Western countries. Even if trade statistics are more accurately represented, imports do not reflect domestic demand due to the presence of international trading companies e.g. in the UAE, a large re-exporter to Saudi Arabia.

STATISTICAL CODES	HS codes	Description
GINGER Neither crushed nor ground (incl. Fresh)	091011	Ginger neither crushed nor ground
	09101110 (India)	Ginger, neither crushed nor ground
	091011100 (Japan)	Ginger, neither crushed nor ground: Provisionally preserved in salt brine, in sulphur water or in other preservative solutions.
	091011210 (Japan)	Ginger, neither crushed nor ground: Other: Put up in containers for retail sale
	091011292 (Japan)	Ginger, neither crushed nor ground (detailed label not available)
	091011299 (Japan)	Ginger, neither crushed nor ground: Other: Other: Other
Ginger dried	09101120 (India)	Ginger, dried unbleached
	09101130 (India)	Ginger dried bleached (sliced)
	09101190 (India)	Ginger dried, other (split)
Ginger Crushed/Ground (incl. Powdered)	091012	Ginger, crushed or ground
	09101210 (India)	Ginger, crushed or ground: Processed steam sterilised
	09101290 (India)	Ginger, crushed or ground: Processed dried (organic)
	091012100 (Japan)	Ginger, crushed or ground: Provisionally preserved in salt brine, in sulphur water or in other preservative solutions
	091012210 (Japan)	Ginger, crushed or ground: Other: Put up in containers for retail sale
	091012291 (Japan)	Ginger, crushed or ground: Other: Other: Fresh
	091012299 (Japan)	Ginger, crushed or ground: Other: Other: Other
Ginger Pickled	200190250 (Japan)	Pickled ginger in vinegar
Ginger Essential oil	3301 2926 (India)	Ginger oil
Ginger Oleoresin	3301 2927	Ginger grass oil
	3301 9012 (India)	

Note: There are no specific HS codes for Ginger candy and codes of some fresh, dried or pickled ginger, ginger essential oils and oleoresins are only specified by the Indian Customs.

ANNEX 2

DETAILED IMPORT STATISTICS

Table 1 UAE - Imports of Fresh Ginger, 2012-2015
Value in US\$ thousand / volume in tons

	2012		2014		2015		2014-2015 (volume)
	value	volume	value	volume	value	volume	
Ginger fresh (091011)	4,328	12,175	30,777	36,990	28,068	43,913	+19%
China	4,111	12,011	24,939	32,058	19,565	38,788	+21%
Nigeria	13	22	3,006	2,098	6,856	4,348	+107%
India	121	103	1,702	1,460	1,282	635	-57%
Thailand	31	7	603	738	255	101	-84%
South Africa	0	0	54	738	26	27	-96%
Uganda	4	1	21	0	33	4	-
USA	3	0	27	4	20	3	-
Guinea	0	0	1	5	2	2	-
Japan	0	0	11	0	14	1	-
Netherlands	0	0	1	1	3	1	-
Australia	0	0	5	0	0	0	-
Belgium	0	0	1	1	6	1	-
Brazil	2	1	0	0	0	0	-
Sri Lanka	0	0	8	1	0	0	-
Ethiopia	40	30	30	6	0	0	-
France	0	0	0	50	4	1	-
Indonesia	0	0	370	16	2	1	-
Iran	0	0	48	474	0	0	-

* Compound Annual Growth Rate in value 2010 – 2014 Source: ITC Trademaps (2017)

Table 2 UAE - Imports of Ginger crushed or ground (incl. powder), 2012-2015
Value in US\$ thousand / volume in tons

	2012		2014		2015		2014-2015 (volume)
	value	volume	value	volume	value	volume	
Ginger crushed or ground (091012)	108	103	310	515	286	201	-61%
China	59	70	170	427	74	117	-72%
Nigeria	0	0	2	0	70	48	+380%
India	44	31	77	72	41	21	-71%
Bahrain	0	0	5	1	21	3	
Thailand	0	0	5	9	11	3	
United Kingdom	2	0	17	3	19	3	
Germany	2	0	16	1	22	2	
Australia	0	0	1	0	9	1	
Pakistan	0	0	11	0	2	1	
USA	0	0	8	1	11	1	

Source: ITC Trademaps (2017)

Table 3 India - Imports of Fresh Ginger, 2013-2016
Value in US\$ thousand / volume in tons

	2013		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger fresh (09101110)	7,008	30,484	2,499	15,843	4,099	18,765	+18%
Nepal	6,994	30,484	2,499	15,843	4,099	18,765	+18%
Myanmar	14	61	0	0	0	0	

Source: ITC Trademaps (2017)

Table 4 India - Imports of Dried Ginger – Unbleached, 2013-2016
Value in US\$ thousand / volume in tons

	2013		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger dried - Unbleached (09101120)	7,247	5,965	4,975	3,070	4,974	3,231	+5%
Nigeria	5,398	4,150	3,250	1,609	3,365	1,857	+15%
Nepal	1,045	1,296	1,552	1,379	1,282	1,143	-17%
China	321	170	51	26	148	108	+315%
Myanmar	2	15	0	0	135	75	-
Sri Lanka	0	0	0	0	43	48	-
Cameroon	0	0	25	12	0	0	-
Ethiopia	458	314	0	0	0	0	-
Germany	11	10	0	0	0	0	-
Guinea	0	0	0	0	0	0	-
Indonesia	0	0	0	0	0	0	-
Jamaica	0	0	16	2	0	0	-
Peru	0	0	32	18	0	0	-
Thailand	0	0	0	0	0	0	-
Uganda	0	0	49	24	0	0	-
USA	11	10	0	0	0	0	-

Source: ITC Trademaps (2017)

Table 5 India - Imports of Dried Ginger - bleached, 2013-2015
Value in US\$ thousand / volume in tons

	2013		2014		2015		2014-2015 (volume)
	value	volume	value	volume	value	volume	
Ginger dried - Bleached (09101130)	985	634	991	571	708	327	-43%
China	210	109	-	-	-	-	-
Ethiopia	175	122	-	-	-	-	-
Nigeria	600	403	991	571	708	327	-43%

Source: ITC Trademaps (2017)

Table 6 India - Imports of Dried Ginger – Other (split), 2013-2016
Value in US\$ thousand / volume in tons

	2013		2015		2016		2015-2016(volume)
	value	volume	value	volume	value	volume	
Ginger dried – Other (09101190)	4,330	3,074	6,323	2,697	3,159	1,543	-57%
Nigeria	2,344	1,721	4,896	2,205	1,981	986	-55%
China	163	58	960	240	593	252	+5%
Nepal	102	70	0	0	261	204	-
Germany	0	0	0	0	102	31	-
UAE	0	0	0	0	52	24	-
UK	0	0	0	0	85	22	-
Indonesia	0	0	0	0	65	20	-
Jamaica	15	2	0	0	18	5	-
Ethiopia	395	285	0	0	0	0	-
Djibouti	879	654	0	0	0	0	-
Bangladesh	3	8	0	0	0	0	-
Myanmar	176	135	329	172	0	0	-
Japan	14	0.5	0	0	0	0	-
Peru	0	0	117	67	0	0	-
Vietnam	142	65	0	0	0	0	-
Thailand	0	0	11	8	0	0	-

Source: ITC Trademaps (2017)

Table 7 India - Imports of crushed / ground Ginger – steam sterilized 2013-2016
Value in US\$ thousand / volume in tons

	2013		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger crushed/ground Steam sterilised (09101210)	7	2.6	115	21	100	3.4	-84%
Nepal	7	2.6	44	10	100	3.4	-66%
France	0	0	71	11	0	0	-

Source: ITC Trademaps (2017)

Table 8 India - Imports of crushed / ground Ginger – processed dried, 2013-2016
Value in US\$ thousand / volume in tons

	2013		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger crushed/ground Processed dried (organic) (09101290)	351	130	847	131	35	5.4	-96%
Turkey	0	0	0	0	18	5	-
Japan	0	0	37	2	17	0.4	-
Nigeria	185	124	279	105	0	0	-
Thailand	166	6	531	25	0	0	-
USA	0	0	1	23	0	0	-

Source: ITC Trademaps (2017)

Table 9 India - Imports of Ginger Essential oil, 2013-2016
Value in US\$ thousand / volume in Kilograms

	2013		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger Essential oil (33012926)	65	929	114	1,687	69	965	-42%
China	49	725	94	1,490	51	810	-45%
USA	21	120	8	95	10	105	+10%
Switzerland	7	33	5	25	4	25	-
Germany	0	1	1	1	3	21	-
Indonesia	0	0	1	1	1	3	-
UK	5	50	7	75	0	1	-
France	1	1	0	0	0	0	-

Source: ITC Trademaps (2017)

Table 10 India - Imports of Ginger Oleoresins, 2013-2016
Value in US\$ thousand / volume in Kilograms

	2013		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger Oleoresins (33019012)	158	3,044	34	586	40	608	+4%
United Kingdom	121	2,630	29	540	30	540	0%
USA	32	215	5	46	11	68	+48%
Australia	1	149	0	0	0	0	-
China	4	50	0	0	0	0	-
Singapore	0	0	0	0	0	0	-

Source: ITC Trademaps (2017)

Table 11 India - Exports of Ginger – 2015 - 2016 and breakdown by product groups and destinations
Value in US\$ thousand / volume in tons

	2015		2016		2015-2016 (volume)	Main destination countries (share in value 2016)
	value	volume	value	volume		
Ginger – neither crushed nor ground (091011)	37,174	28,043	20,080	15,977	-43%	-
Bangladesh	5,798	12,568	2,479	6,282	-51%	-
Spain	6,871	2,081	7,148	2,977	+43%	-
Morocco	1,668	534	2,977	1,198	+114%	-
Saudi Arabia	3,106	1,032	1,981	842	-18%	-
USA	3,817	996	2,432	723	-17%	-
Egypt	1,158	514	1,107	660	+28%	-
UAE	1,204	433	921	459	+6%	-
Nepal	216	97	997	416	+328%	-
Yemen	927	282	744	305	+8%	-
Germany	1,086	210	1,332	233	+11%	-
Israel	799	248	512	207	+16%	-
Netherlands	1,025	256	565	175	-32%	-
UK	704	198	553	157	-20%	-
Algeria	258	89	321	138	+55%	-
Malaysia	195	51	155	109	+113%	-
Product groups						
Ginger fresh 09101110	7,236	13,709	2,238	4,842	-65%	Bangladesh (77%), UAE (7%), Nepal (4%), USA (3%) New Zealand (3%), Sweden (2%), Kenya (1%), UK, Saudi Arabia.
Ginger dried unbleached 09101120	12,395	3,739	11,842	4,812	+28%	Spain (31%), Saudi Arabia (16%), Morocco (15%), USA (9%), Yemen (5%), Vietnam (2%), Israel (2%), Egypt, Oman.
Ginger dried bleached 09101130	5,991	1,925	6,134	2,654	+38%	Spain (43%), Morocco (15%), Egypt (13%), UK (8%), UAE (5%), Nepal (3%), Israel (2%), Russia (2%), Iran, Algeria.
Ginger crushed/ ground 091012	11,381	3,298	10,639	3,214	-2%	USA (26%), UK (14%), Netherlands (10%), South Africa (8%), Australia (8%), Germany (7%), Canada (3%), France (2%), Algeria, Sweden, Italy, UAE.
Ginger Essential oil 33012926	3,009	23,945 (kg)	3,433	25,216 (kg)	+5%	UK (22%), USA (14%), Switzerland (12%), France (10%), Netherlands (9%), South Africa (7%), Indonesia (4%), Japan (3%), Germany (3%), Sri Lanka (2%), China.
Ginger Oleoresins 33012927	na	634 (kg)	na	1,935 (kg)	+205%	Uganda (93%), Zambia (3%), Canada (3%), UK (2%), USA, Germany.

Source: ITC Trademaps (2017)

Table 12 Japan - Imports of Fresh Ginger, 2012-2016
Value in US\$ thousand / volume in tons

	2012		2015		2016		2015-2016(volume)
	value	volume	value	volume	value	volume	
Ginger fresh (091011291)	17,964	21,159	26,142	19,820	19,001	21,961	+11%
China	17,064	20,716	24,060	18,727	17,365	20,813	+11%
Thailand	158	143	1,582	849	1,224	898	+6%
Indonesia	599	256	436	221	331	221	0
Philippines	0	0	25	10	20	10	0
Taiwan	140	46	29	10	20	9	-
Australia	0	0	0	0	29	7	-
Peru	0	0	7	0.9	11	2	-
South Korea	0	0	3	2	0	0	-
Laos	0	0.2	0	0	0	0	-

Source: ITC Trademaps (2017)

Table 13 Japan - Imports of Fresh Ginger preserved in salt, 2012-2016
Value in US\$ thousand / volume in tons

	2012		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger fresh preserved in salt brine or in other ways (091011110)	24,273	21,024	23,606	13,703	20,819	18,215	+33%
Thailand	17,435	14,075	16,374	9,209	15,047	12,115	+32%
China	6,558	6,652	7,169	4,453	5,478	5,803	+30%
Vietnam	280	297	26	19	293	297	-
Indonesia	0	0	37	23	0	0	-
Cambodia	0	0	0	0	0	0	-

Source: ITC Trademaps (2017)

Table 14 Japan - Imports of Ginger – Whole dried, 2012-2016
Value in US\$ thousand / volume in tons

	2012		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger neither crushed nor ground – Whole dried (091011292)	3,457	433	5,767	555	6,402	608	+10%
China	3,190	371	3,832	435	4,823	512	+18%
Laos	113	10	1,561	49	1,380	44	-10%
India	153	52	373	71	196	52	-26%
Thailand	0	0	0	0	2	0.1	-

Source: ITC Trademaps (2017)

Table 15 Japan - Imports of Ginger – whole in containers for retail sales, 2012-2016
Value in US\$ thousand / volume in tons

	2012		2014		2016		2012-2016 CAGR*
	value	volume	value	volume	value	volume	
Ginger neither crushed nor ground – in containers for retail sale (091011210)	83	36	76	26	92	30	-4.5%
China	83	36	76	26	92	30	-

* Compound Annual Growth Rate in volume 2012 – 2016

Source: ITC Trademaps (2017)

Table 16 Japan - Imports of Ginger – whole - Other, 2012-2016
Value in US\$ thousand / volume in tons

	2012		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger neither crushed nor ground – Other (091011299)	41,189	23,990	49,014	22,529	38,113	23,175	+3%
China	30,039	18,148	38,467	18,426	30,338	19,332	+5%
Thailand	5,884	3,609	5,478	2,288	3,540	2,330	+2%
Taiwan	3,730	1,465	4,532	1,479	3,331	1,110	-24%
Vietnam	1,275	683	471	329	711	387	+18%
India	157	32	4	0.4	60	8	-
Indonesia	0	0	55	5	106	6	-
Laos	0	0	7	1.5	27	2.4	-
Nigeria	54	20	0	0	0	0	-
Philippines	50	35	0	0	0	0	-

Source: ITC Trademaps (2017)

Table 17 Japan- Imports of Ginger – crushed or ground (Powdered) preserved in salt, 2012-2016
Value in US\$ thousand / volume in tons

	2012		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger crushed/ground – preserved in salt brine or in other ways (091012100)	29	20	38	28	57	44	+57%
China	29	20	38	28	31	30	-
Thailand	0	0	0	0	27	14	-

Source: ITC Trademaps (2017)

Table 18 Japan- Imports of Ginger – crushed or ground (Powdered) retail sale, 2012-2016
Value in US\$ thousand / volume in tons

	2012		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger crushed/ground in containers for retail sale (091012210)	465	135	2,201	711	3,252	1,169	+64%
China	395	134	2,086	700	3,195	1,168	+67%
Germany	0	0	14	0.9	21	0.5	-
South Korea	0	0	31	0.5	20	0.3	-
Sri Lanka	0	0	0	0	3	0.3	-
United Kingdom	65	1.4	29	0.5	11	0.2	-
Nepal	0	0	0	0	2	0.1	-
India	0	0	6	1.2	0	0	-
Thailand	0	0	35	9	0	0	-
Australia	5	0.2	0	0	0	0	-

Source: ITC Trademaps (2017)

Table 19 Japan - Imports of Ginger – crushed or ground (Powdered) - Other, 2012-2016
Value in US\$ thousand / volume in tons

	2012		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger crushed/ground - Other (091012299)	15,190	4,742	11,192	3,562	10,106	3,638	+2
China	12,426	4,083	9,446	3,127	8,323	3,112	-0.5%
Taiwan	1,765	403	893	212	1,364	411	+94%
Indonesia	195	51	182	52	166	50	-4%
Nigeria	58	20	127	30	89	25	-16%
India	15	3	80	25	69	21	-15%
Vietnam	161	31	205	52	50	13	-75%
Thailand	569	151	236	66	31	3	
Myanmar	0	0	0	0	7	2	
USA	0	0	12	0.03	6	0.04	
Sri Lanka	0	0	10	0.7	0	0	

Source: ITC Trademaps (2017)

Table 20 Japan - Imports of Ginger – pickled in vinegar, 2012-2016
Value in US\$ thousand / volume in tons

	2012		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger – Pickled in vinegar (200190250)	38,230	19,674	43,374	16,842	31,752	17,158	+2%
China	37,522	19,233	42,808	16,502	31,270	16,874	+2%
Vietnam	535	344	371	271	405	253	-6%
Thailand	173	96	177	61	63	25	-59%
India	0	0	0	0	10	4	
Pakistan	0	0	18	7	4	2	
Philippines	0	0	0	0	0	0	

Source: ITC Trademaps (2017)

Table 21 Bangladesh - Imports of Ginger, 2013-2016
Value in US\$ thousand / volume in tons

	2013		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger fresh (091011)	49,155	68,058	42,528	60,704	33,671	85,247	+40%
China	34,442	45,388	28,445	34,680	24,321	59,958	+73%
Indonesia	8,474	13,838	7,664	11,875	5,010	13,618	+15%
India	2,958	6,101	5,798	12,568	2,479	6,282	-51%
Thailand	40	69	621	1,581	1,660	4,991	+215%
Singapore	0	0	0	0	192	396	
Sri Lanka	0	0	0	0	9	2	
Madagascar	0	0	0	50	0	0	
Malaysia	0	0	0	27	0	0	
Vietnam	3,241	2,658	0	107	0	0	
Bhutan	2	9	0	0	0	0	

* Compound Annual Growth Rate in value 2010 – 2014

Source: ITC Trademaps (2017)

Table 22 Bangladesh - Imports of Ginger crushed/ground (incl. powder), 2013-2016
Value in US\$ thousand / volume in tons

	2013		2015		2016		2015-2016 (volume)
	value	volume	value	volume	value	volume	
Ginger crushed or ground (091012)	115	78	48	14	129	42	+200%
China	101	47	17	3	91	28	+833%
India	10	6	31	11	38	14	+27%
Indonesia	4	25	0	0	0	0	

ANNEX 3

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ANNEX 4

LIST OF ABBREVIATIONS

AED	Arab Emirati Dirham
BPC	Beauty and Personal Care
BSCI	Business Social Compliance Initiative
CAD	Cash against Documents
CAGR	Compound Annual Growth Rate
CEO	Chief Executive Officer
C&F	Cost & Freight
CIF	Cost, Insurance, Freight
DFO	Departments of Plant Resources
DNB	Dun & Bradstreet (<i>checking financial status of companies</i>)
FAO	Food and Agriculture Organization of the United Nations
FLO	Fairtrade Labelling Organizations International
FOB	Free on Board
GACP	Good Agriculture and Collection Practices
GLOBALG.A.P.	The Global Partnership for Good Agricultural Practice
GMPs	Good Manufacturing Practices
GSP	General System of Preferences
HACCP	Hazard Analysis Critical Control Point
HIV	Human Immunodeficiency Virus
ISO	International Organisation for Standardisation
IOAS	International Organic Accreditation Service
ITC	International Trade Center
JETRO	Japan External Trade Organisation
L/C	Letter of Credit
LLC	Limited Liability Company
MAPS	Medicinal and Aromatic Plants
MITI	Japanese Ministry of International Trade & Industry
MRLs	Maximum Residue Levels
MSDS	Material Safety Data Sheet
NES	Not Exactly Specified
OTC	Over The Counter (<i>medicines</i>)
PPP	Public Private Partnership
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals (<i>EU- regulation</i>)
SCCP	Scientific Committee on Consumer Safety
UAE	United Arabic Emirates
USDA	United States Department of Agriculture
USP	Unique Selling Proposition
VAT	Value Added Tax

