



Market Study of Water



For
DEPARTMENT OF INDUSTRY
MINISTRY OF ECONOMIC AFFAIRS
ROYAL GOVERNMENT OF BHUTAN

By
IDRG CONSULTANCY SERVICES
In Association with Druk Associates, Bhutan
November 2011



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CHAPTER – 1

INTRODUCTION

1.1 Background

1.1.1 Water is the most important necessity of life. It is essential for the very survival and health of human beings. Water is a key to social equity, to environmental stability and to cultural diversity. If one goes back to the culture of ancient times, with all the great religions of the world, it will be seen that water is much more than an economic issue. Water is directly linked with spiritual values. Water is also firmly linked with health. According to the estimates of World Health Organization (WHO), 80% of all diseases are water borne disease and approximately 25 million deaths per year in the developing countries are caused by contaminated water.

1.1.2 Pure and safe drinking water has always been a necessity for human life. It is therefore desirable that every individual has access to safe, affordable and sufficient quantity of water for drinking, other personal use and sanitation. The drinking water needs for individuals vary depending on the climate, physical activity and the body structure. For an average consumer, it is estimated to be about two to four liters per day.

1.1.3 Non availability of safe drinking water around the world and particularly in third world countries has opened new avenues for bottled water Industry. The growing number of cases of water borne diseases, increasing water pollution, increasing urbanization, increasing scarcity of pure and safe water etc. have made the bottled water business just like any other business in consumer items. Scarcity of potable and wholesome water at railway stations, tourist spots, and role of tourism industry in promoting bottled water etc. have also added to the growth in the consumption of bottled water.

1.2. Over view of Bottled water market scenario in India

1.2.1 According to estimates of 2004, the bottled water market in India was estimated at about Rs1500 cr. and it has been growing at a very fast pace. The estimates for 2010-2011 based on over five liter per capita consumption are over rupees 3000 crores. This also includes the drinking water being supplied in large sized (20 liters) bottles which have become very popular in large cities. The formal bottled water business in India can be divided broadly into three segments in terms of price and consumer segments:

- Premium natural mineral water
- Natural mineral water
- Packaged drinking water

1.2.2 In India, the per capita consumption of bottled water is still quite low, little over five liters a year as compared to the global average of 24 liters. However, the total annual bottled water consumption has risen rapidly in recent times and it has tripled between 1999 and 2004 i.e., from about 1.5 billion liters to five billion liters. These are boom times for the Indian bottled water industry, more so because the economy is on sound footing, the bottom line is fat and the concerned agencies have not been able to instill the sense of confidence among the urban population about purity and safety of tap water being supplied through government supply system. Since 1991-1992, Indian bottled water industry has not looked back, and the demand

in 2004-05 was over 5 billion liters and sales of 1500 Crores which is expected to increase to 10~11 billion liters and 3600 Crores by 2012.

1.3. Bottled water industry in Bhutan

1.3.1 The Royal Kingdom of Bhutan has the potential to provide pure drinking water to the global market. The water is available from the numerous snow and rain fed streams that abound in the country, as well as from a large number of natural springs. The water from such natural springs universally commands the highest price as packaged natural mineral water. Exploitation of these natural resources of Bhutan would be completely in accord with the enlightened policies of His Majesty and the Royal Government of Bhutan for green, clean and environment friendly development that generates employment and encourages private sector participation. At present in Bhutan, M/s Bhutan Agro Industries Ltd. Thimphu and M/s Tashi Beverages Ltd. Pasakha are manufacturing packaged drinking water under their own brand names:



1.3.2 M/s Bhutan Agro Industries Ltd., Thimphu - M/s Bhutan Agro Industries Ltd., a Royal Government of Bhutan (RGOB) undertaking is a multi-product horticulture company located in Thimphu. Their present turnover is around Nu 80 millions, out of which, the contribution from bottled water is around 20%. Accordingly, the company's bottled water market is around Nu. 16 millions. Their brand is 'Royal Bhutan Mountain Spring Water' and they are marketing bottled water in 1000 ml and 500 ml packaging. The company is having its own PET bottle manufacturing facility. The company is marketing their almost entire production of bottled water in the local market and there are no substantial exports.



1.3.3 M/s Tashi Beverages Ltd. – M/s Tashi Beverages Ltd. is a Tashi Group Company and also an associate of Coca-Cola located at Pasakha. They are manufacturing bottled water in their own brand name mostly for domestic market. The company is planning to shortly introduce packaged natural mineral water in the market. Requisite infrastructure for production & marketing of mineral water is being created.



1.3.4 Himalayan Dew - The Kurjelhakang Drubchu, spring water considered to be holy is now available as a commodity in one liter PET bottles. The Drubchu is being purified and bottled by Himalayan Dew, a private company, which has set up its plant near the lhakhang. The product, marketed as Kuje Drubchu natural mineral water, costs Nu 15 a bottle in Bumthang. The spring water goes through a multistage purification process, including micron filtration, ultra filtration and ozonisation, before it is bottled.

1.4. Mineral water resources in Bhutan



1.4.1 Recently, Ministry of Economic Affairs, Royal Government of Bhutan has sponsored a study on exploitation of mineral water resources in Bhutan. The study has identified the following possible locations with natural mineral water resources and considered suitable for setting up mineral water packaging facilities.

S. No.	Location	Dzongkhag
1	Demola Bridge	SamdrupJongkhar
2	Demola (Marthang)	SamdrupJongkhar
3	25 km Milestone N of SamdrupJongkharTown	SamdrupJongkhar
4	Eusuna	Paro
5	Aipoly Top Spring	Sarpang

Source – Ministry of Economic Affairs Govt. of Bhutan

1.4.2 It was noted in the study that the first 3 sites are located within a few kilometers of each other, on the Samdrup Jongkhar - Trashigang road. Accordingly, it was recommended that one project is set up at the best of these three sites, viz. Demola Bridge, for a 50 bottles per minute (BPM) natural mineral water bottling plant. After this project goes on stream and the market picks up, other units could be established on the same access road. Eusuna, Paro comes next in ranking in the list, and the study recommend for setting up of a 25 BPM natural mineral water bottling

plant at this location. The third ranking is of the Aipoly Top Spring. At this site, the water has a TDS of 69 only, which excludes it from certification under IS: 13428:2005, for the Indian market, however, it is natural mineral water acceptable for European and Far Eastern markets. It can be introduced to the Indian market as ‘Sparkling Spring Natural Mineral Water’, which will be its unique selling point, placing it in a premium niche market. The study has recommended for setting up a plant at Aipoly Top Spring for a 50 BPM packaging of Sparkling Spring Natural Mineral Water. In view of these findings, there are enough natural mineral water resources for commercial exploitation in Bhutan.

1.5. Justification for the project

1.5.1 Like any other developing economy, the promotion and development of industries based on natural resources available in the country, constitutes an important aspect of the strategy for industrial development in Bhutan also. Among others, one of the major natural resource is the availability of abundant perennial water, both spring water and mineral water in Bhutan. The above said study by MOEA has further confirmed the availability of mineral and spring water resources suitable for commercial exploitation. Water packaging industries are therefore prioritized for development in the future industrial development spectrum of Bhutan. Keeping in view, the limited size of domestic market and presence of industrial units manufacturing bottled water for domestic market, it is desirable to assess the potential for export of drinking water in bulk packaging or bottle packaging, as also the natural mineral water to neighboring markets. It is also essential to analyze and understand the bottled water market scenario in the adjoining regions and also the structure and operations of the bottled water industry in these areas. Such a study would provide the basic information and details to the prospective investors in bottling water operations as also the existing water bottling enterprises in Bhutan to design their production and marketing strategies and also decide the product mix for the export market.

1.5.2 In view of the above, Department of Industry, Ministry of Economic Affairs, Royal Government of Bhutan has engaged the services of M/s IDRG Consultancy Services for carrying out ‘Market Study of Water’. The study primarily aims at assessment of the potential for export of bottled water and mineral water from Bhutan to neighboring markets. The focus of the study is to assess the demand for water in different forms such as potable water, packaged spring water, mineral water, etc in the bordering Indian states and other markets in the region, as also the current scenario about production and supply of bottled water in these markets and recommend measures to tap the emerging markets. The terms of reference of the study are as given in Annexure I.

1.6. Approach to Work

1.6.1 The terms of reference envisage that the study would be conducted in two phases. The first phase will comprise of the preliminary studies of the bottled water industry in Bhutan as well as in adjoining regions, global market scenario, market scenario in the region, global / regional trends in the production and sales of bottled water, different types and quality of water available in the adjoining markets, existing

marketing infrastructure and prevailing price scenario. Based on these preliminary observations and the production scenario, both existing and envisaged in Bhutan, analysis would be carried out to identify the regions / locations for detailed market study of packaged water from Bhutan in consultation with Department of Industry, Ministry of Economic Affairs and other concerned authorities and stakeholders. The second phase would be devoted to detailed market study of water in identified regions / locations as per terms of reference.

1.7. Methodology

1.7.1 The methodology followed is combination of:

- Desk review of reports and publications
- Meetings with authorities and other stakeholders
- Analysis of bottled water industry in Bhutan and other adjoining regions
- Analysis of demand and supply scenario
- Market surveys in identified areas / locations
- Analysis of the findings of the survey
- Develop a marketing strategy for water from Bhutan
- Submission of report.

1.7.2 The study is based on both the primary & secondary sources of information. Information & data collected through field visits, market survey in selected areas / locations and information generated from discussions with various stakeholders in bottled water industry would be the primary source of information. The literature review and existing reports & documents would form the basis of secondary source.

1.8. Meetings and Consultations

1.8.1 The work on the project assigned to IDRG Consultancy Services was started forthwith on 3rd January 2011. The consultant team had initial briefing meeting with Chief Industries Officer, Department of Industry, Ministry of Economic Affairs. After briefing meeting, IDRG team held a series of meetings to seek the views of the various stakeholders. The IDRG team had detailed interaction with the various authorities, organizations and other stakeholders. The list of the organizations visited and all the persons who were kind enough to spare their valuable time for discussions with IDRG team during their visits to Bhutan is as given in Annexure II.

1.8.2 Meeting with M/s Bhutan Agro Industries The main focus of the discussions was on marketing of packaged drinking water and prospects for its export. M/s Bhutan Agro is in the business of food & fruit products and packaged drinking water. Their brand is 'Mountain Spring Water'. The current production level for packaged drinking water is Nu 18 millions. The company is not manufacturing mineral water and they have no such plans for future. Most of their packaged drinking water is being sold in the domestic market. Some small quantities have been marketed abroad. However, there are no substantial exports. The company has not carried out study / market survey about the possibilities of export of their produce.



Discussions at Tashi Beverages Ltd

1.8.3 Meeting with M/s Tashi Beverages Ltd M/s Tashi Beverages Ltd is a Tashi Group company manufacturing soft drinks and packaged drinking water. They are an associate company of M/s Coca-Cola. The discussions mainly centered around the possibilities for export of packaged drinking water in adjoining markets. It was informed that though the quality and taste of packaged water from Bhutan is little better than most of the locally available brands in adjoining areas but the penetration of this product in Indian market appears to be difficult in view of the poor competitive strength of products from Bhutan. The local brands in adjoining markets are available to retailers at much lower price as compared to landed cost of Bhutan's product. It was further informed that M/s Tashi Beverages would be shortly introducing packaged natural mineral water in the market in their own brand. They have identified the source of natural mineral water and requisite infrastructure has been created. The possibilities of introducing this product in Indian market need to be explored.

1.8.4 Meetings and discussions during market survey in India – IDRГ team had detailed meetings and discussions with distributors, retailers, hotel chains, restaurants and consumers in Kolkata, Siliguri, Guwahati and Gangtok for ascertaining information and details on various parameters covered in the market survey of packaged drinking water and mineral water. The team also had conducted an online survey to assess the views on various factors influencing market of packaged drinking water and mineral water as a part of their market research. The details of the market survey are given in subsequent chapters.

1.8.5 The team's endeavor has been to collect maximum possible information and details on the present market scenario & future prospects of packaged drinking water and mineral water in Bhutan. The information collected during the discussions was

further supplemented by the published literature and the information available on internet in public domain. List of documents and publications consulted by IDRГ team is as given in Annexure III.

1.9. Presentation of Inception Report

1.9.1 Based on the information from various stakeholders and review of relevant literature and available data, IDRГ submitted an inception report on market study of water. At a meeting held on 23rd March 2011 in the Ministry of Economic Affairs, wherein various stakeholders were present, IDRГ team made a presentation on the findings of inception report on market study of water. During the presentation, it was suggested that a detailed market survey would be carried out in the adjoining areas of India to study the prospects of marketing of various categories of bottled water from Bhutan in these markets, analyze the findings of market survey and determine the competitiveness of Bhutanese water in the target market. Based on discussions at the time of presentation and subsequent correspondence, it was decided that the bottled water industry and market scenario of Bangladesh and Nepal would also be covered in the market study report. It was further decided that both packaged drinking water and mineral water in all types of packaging shall be covered in the proposed market study.

CHAPTER – 2

CATEGORIES AND PRODUCT MIX OF BOTTLED WATER INDUSTRY

2.1. Categories of Bottled Water

2.1.1 There are two distinct categories of bottled water viz. Packaged Drinking Water and Packaged Natural Mineral Water. According to codex and Indian Standards, packaged natural mineral water is distinct from the bottled or packaged drinking water. Mineral water is further graded in the market as premium and natural mineral water, mainly on the considerations of the source of mineral water its quality, brand image, targeted consumer segment and the price. The formal bottled water business in South-East Asian region can be divided broadly into following three segments in terms of quality and price:

- Packaged Drinking Water
- Natural Mineral Water
- Premium Natural Mineral Water

2.1.2 Packaged Drinking Water - The packaged drinking water is defined in the European codex CAC/RCP 48-2001 as “water filled into hermetically sealed containers of various compositions, forms and capacities that is safe and suitable for direct consumption without further treatment”. The Indian standard for this category of packaged water is ‘IS 14543: 2004 Packaged Drinking Water (Other than Packaged Natural Mineral Water). IS 14543:2004 defines the packaged drinking water as under:

2.1.2.1 “Packaged drinking water means, derived from any source of potable water which may be subjected to treatments, such as decantation, filtration, combination of filtration, aeration, filtration with membrane filter, depth filter, cartridge filter, activated carbon filtration, demineralization, re-mineralization, reverse osmosis or any other method to meet the prescribed standard and packed. It may be disinfected to a level that will not lead to harmful contamination in the drinking water. It may be disinfected by means of chemical agents and /or physical methods to reduce of the number of micro-organism to a level that does not compromise food safety or suitability. It shall be filled in sealed containers of various compositions, forms and capacities that is suitable for direct consumption without further treatment. In case re-mineralization is a part of the treatment process, the ingredients used shall conform to the requirements of the Prevention of Food Adulteration Act, 1954 and the rules framed thereunder”.

2.1.3 Natural Mineral Water - "Natural" is defined as "exact to original composition with the absence of any form of artificial or synthetic materials". Packaged Natural Mineral Water falls under a separate codex standard 108-2001. According to American and European Regional Codex Standard, “Natural Mineral Water” is obtained directly from natural or drilled sources from underground water - bearing strata&is collected under conditions which guarantee the original natural bacteriological purity, it is bottled at the point of emergence of the source with particular hygienic precautions and is not subjected to any chemical treatment.

2.1.3.1 The Indian standard for mineral water is IS 13428:2005-Packaged Natural Mineral Water. IS 13428:2005 states that natural mineral water is clearly distinguishable from ordinary drinking water because:

- It is obtained directly from natural or drilled sources from underground water bearing strata for which all possible precautions should be undertaken within

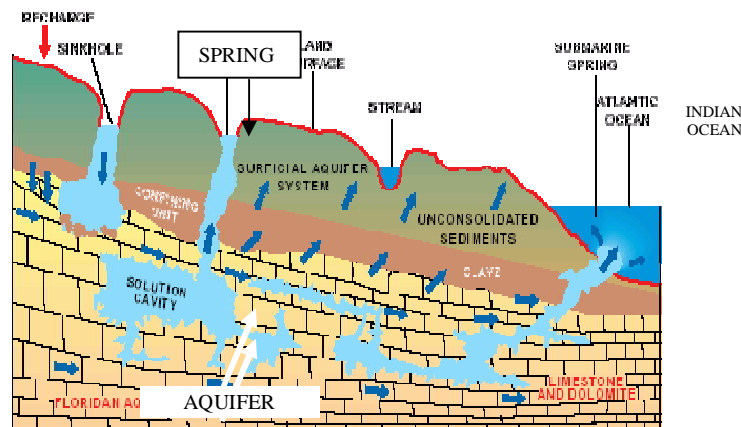
the protected perimeters to avoid any pollution of, or external influence on, the chemical and physical qualities.

- It is characterized by its content of certain mineral salts and their relative proportions and the presence of trace elements or of other constituents.
- Of the constancy of its composition and the stability of its discharge and its temperature, due account being taken of its cycles of natural minor fluctuations.
- It is collected under conditions, which guarantee the original microbiological purity and chemical composition of essential components.
- It is packaged close to the point of emergence of the source with particular hygienic precautions.
- It is not subjected to any treatment other than those permitted by this standard.

2.1.3.2 The Indian Standard 13428:2005 fully incorporates the European Codex Standard for natural mineral water. Infact, it goes beyond, in respect of specifying minimum and maximum limits for total dissolved solid as “Total Dissolved Solids (TDS) - 150mg/to 700 mg/ respectively”. IS 13428:2005 also specifies certain microbiological criteria as also the limits for pesticide residual. The limits of TDS and microbiological criterion are not covered under requirements of Codex.

2.1.3.3 The above said Indian standards viz. IS 13428: 2005 & 14543:2005 fully meet the criteria for drinking water &natural mineral water as specified in WHO standards. The US FDA Standard of Identity at 21 CFR 165.110(a) (2) (VI) states that 'Mineral water is spring water that contains at least 250 mg/liter or 250 parts per million of Total Dissolved Solids (TDS).Packaged water upto 249 mg/liter of TDS is classified as 'spring water' from 250 to 500 mg/liter, it is considered 'Low Mineral Content' or 'Light Mineral Water' and above 500 mg/liter to 1000 mg/liter is called 'Mineral Water - High Mineral Content'.

2.1.4 Spring Water – Spring water must be collected directly from the source without any possibility of contamination with ground water, as shown in the figure below. When this water has a significant mineral content in it, it is categorized as ‘Natural Mineral Water’. The amount of mineral content is expressed as Total Dissolved Solids (TDS) in units of milligrams per liter of water. The Indian Standard requires a minimum TDS content of 150 mg/l, whereas the American classification of ‘Low Mineral Content Spring Water’ starts at 250 mg/l. Asthe name suggests, this is water derived from a natural spring as shown in the diagram below.



Formation of a Mineral Spring

2.2. Variety of packages:

2.2.1 Packaged drinking water is sold in a variety of packages ranging from 300 ml to 20 liters and above. Natural mineral water is normally packaged in bottles of 300 ml to 1 liter. Following are the various types of packages of drinking water.



Drinking water in bulk package

2.2.2 20 to 50 liters bulk water package, mostly in PET containers – The consumers for bulk packages of water are mainly households or institutions. In India, the supply chain mechanism has been developed for the distribution of bulk packaged water. The water bottling companies supply the sealed water containers to their dealers / retail shops. From these shops, these filled containers are sent to the households and the empty containers are taken back which are again used by the water bottling companies. The price range of water is Rs. 2-3 per liter in the Indian market. There has been a substantial increase in the sales of bulk packages mainly on account of growing awareness about the importance of safe drinking water for health and the problems in quality of the water available from government supplies.



Drinking water / mineral water in bottle package

2.2.3 2 liters, 1 liter and 500 & 330 ml package – PET bottles – This constitutes the major segment of packaged water industry both in terms of volume and coverage of consumers segment. In India, bottled water is consumed by a wide cross-section of consumers viz. household, railways, hospitals, educational institutions, airports, hotels & restaurants, offices and commercial establishments, etc. Both packaged drinking water & mineral water are sold in bottle packages, however, as compared to packaged drinking water the quantum of mineral water is relatively much small.



Drinking water in glass package

2.2.4 100 to 300 ml glasses – Glass packages of water are mainly used during functions, conferences, seminars and other gatherings. In India, the market for glass packaged water is growing at a very fast pace.



Drinking water in pouch package

2.2.5 Pouch packages – Pouch packages are mostly used during travel and these are relatively less costly than bottled packages.

- Natural Mineral water is mostly marketed in 300 ml to 1 liter bottle packages.



2.3. Price range of packaged water

2.3.1 As stated earlier also, the bottled water business in India can be broadly categorized in three segments in terms of price range and target consumer segment.

- Premium Natural Mineral Water – This category includes the brands such as Evian, Santelligrino, Perrier which are imported and priced between Rs. 80 to Rs. 110/- a liter.
- Natural mineral water with brands such as Himalayan, Catch which are indigenously packaged and are priced around Rs. 30/- a liter.
- Packaged drinking water which is treated water and includes brands such as Parle's Bisleri, Coca-Cola's Kinley & PepsiCo's Aquafina and priced in the

range of Rs. 12/- to Rs. 15/- per liter. This category constitutes the biggest segment of packaged water market both in terms of quantum and value. Parle's Bisleri enjoys around 65% market share in the branded water segment.

2.3.2 Due to the increase in awareness brought about by advertising, consumers have started differentiating between mineral water and packaged drinking water and are ready to pay the higher prices which mineral water commands over ordinary packaged drinking water. Traditionally, mineral water is somewhat less likely to be found in developing countries, whereas packaged drinking water is available in huge quantity.

2.4. Preference for taste of bottled water

2.4.1 The taste of water reflects different concentrations of minerals and trace elements. Highly mineralized water can sometimes taste metallic. High levels of bicarbonates can taste salty. The taste of water particularly the mineral water varies depending on the source and environment. Highly subjective preferences for taste and flavor in water help drive the market for bottled water. Water has different flavors and tastes depending on its origin, type, duration of storage, treatment, and method of delivery. Other than concerns about the quality of water, the most common reason offered to explain the growing use of bottled water is dissatisfaction with the taste of locally available tap water.

2.4.2 The taste of packaged water from Bhutan emerging from natural resources viz. mountain springs and absence of any contamination due to safe environment is reported to be much better than the packaged water from ground water sources. The taste of natural mineral water would be a further added advantage. The advantage of "taste and natural" need to be incorporated in the marketing strategy for packaged water from Bhutan.

2.5. Procedure for obtaining BIS certification

2.5.1 BIS is operating a product certification scheme for foreign manufacturers. In this scheme, a licence can be granted for any product against an Indian Standard specifying product characteristics, which is amenable to certification. The scheme operates on self-certification basis, whereby the manufacturer is permitted to apply the Standard Mark on the product after ascertaining its conformity to the Indian Standard licensed for. Through its surveillance operations, the Bureau maintains a close vigil on the quality of goods certified. Separate application is required to be submitted for each product/Indian Standard. The BIS licence is granted to the factory address at which the manufacturing takes place, final product is tested as per relevant Indian Standards and conforming product is applied with BIS Standard Mark. Those desirous of obtaining the BIS licence have to apply to BIS in the prescribed application form (Annexure-IV) along with requisite application fee.

2.5.2 The foreign manufacturer shall set up a liaison/branch office located in India with the permission of Reserve Bank of India, which shall meet all liabilities with respect to BIS Act, Rules and Regulations for purpose of the BIS licence. The requirement to set up an office in India shall not apply, if BIS enters into an MOU

with the respective Foreign Government for implementation of BIS Act, Rules, and Regulations including the punitive provisions, or if the foreign manufacturer nominates an Authorized Representative located in India who declares his consent to be responsible for compliance to provisions of BIS Act 1986, Rules and Regulations on behalf of the manufacturer as per terms and conditions of the Agreement signed between BIS and the foreign manufacturer. The Authorized Representative may either be in-charge or a senior officer of the Indian office or a legally appointed agent of the manufacturer in India

2.5.3 Licence is granted to an applicant if results of preliminary inspection(s) conducted by BIS Officers (normally not more than 2 officers) and testing of samples drawn during the preliminary inspection are satisfactory; the applicant has in-house requisite manufacturing & testing facilities (as per relevant Indian Standards) ; has competent testing personnel (permanently employed) ; agrees to comply with requirements laid down in Scheme of Testing & Inspection (STI) and undertakes to pay the BIS Marking Fee. Copy of STI (different for different products) is available with BIS and can be obtained any time on request/at the time of submission or recording of application/during visit.

2.5.4 Immediately after grant of licence, the applicant is required to pay annual minimum marking fee and annual licence fee. Subsequently, the licensee is required to quarterly pay the fee based on production marked during the quarter as per prescribed marking fee rates.

2.5.5 The initial validity period of the licence is one year. Licence can be renewed for further periods of one or two years subject to satisfactory operation of licence as observed during surveillance (periodic) inspections, satisfactory factory & independent testing of samples drawn from factory & market etc.

2.5.6 At the end of validity, the licensee shall apply to BIS on the prescribed renewal form along with the renewal application fee + annual licence fee (for one or two years as applicable) + annual minimum marking fee + marking fees based on production marked during the preceding operative year of licence (less the amount already paid as quarterly fee). Prescribed application form for renewal of licence (Annexure-V) is required to be filled up and submitted to BIS along with applicable fee and requisite details/documents two months in advance for timely renewal of licence.

2.6 Schedule of fees and charges for grant of BIS license

The Schedule of various fee/charges to be paid by applicant/licenses is as under:

2.6.1 For SAARC Countries

Type of Fee/Charges	Amount
Application Fee	Rs 1000/-
Processing Fee	NIL
Renewal Application Fee	Rs 500/-
Marking Fee (annual)	Minimum Marking Fee fixed for Larges Scale Domestic Manufacturer OR Marking Fee based on Unit Rate calculation whichever is higher
Annual Licence Fee	Rs 1000/-
Visit Charges	
1. Visits prior to Grant of licence or visits for considering inclusion or Resumption of Marking	Rs 4000/- for first day Rs 3000/- per day for subsequent days PLUS Cost of Ticket, Visa, Insurance and per-diem Expenses
2. Surveillance Inspections	-same as above-
Testing Charges	
1. Samples drawn prior to GOL or inclusion samples or samples drawn to consider ROM	Borne by Applicant/Licensee on actual
2. Samples drawn during Surveillance inspections	--3
3. Market Samples	--3

Note :

1. All payments can be made either in Indian Rupees or in equivalent US \$
2. In case of payments being made in Indian Rupees, Service Tax (currently @10.3%) shall also have to be paid.
3. In case of some products having long duration tests or very costly tests, payment is realized from licensee.

2.6.2 For Non-SAARC Countries

Type of Fee/Charges	Amount
Application Fee	Rs 1000/-
Processing Fee	US\$300/-
Renewal Application Fee	Rs 500/-
Marking Fee (annual)	US\$2000 PLUS Marking Fee based on Unit Rate calculation
Annual Licence Fee	Rs 1000/-
Visit Charges	
1. Visits prior to Grant of licence or visits for considering inclusion or Resumption of Marking	Cost of Ticket, Visa Insurance and per-diem Expenses
2. Surveillance Inspections	-same as above-
Testing Charges	
1. Samples drawn prior to GOL or inclusion samples or samples drawn to consider ROM	Borne by Applicant/Licensee on actual
2. Samples drawn during Surveillance inspections	Borne by Applicant/Licensee on actual
3. Market Samples	Borne by Licensee on actual

Note: All Fee/Charges are to be paid in equivalent US\$ only.

2.6.3 It would be in the interest of applicant, for expeditious processing of the case, to submit application for grant of licence only if following is satisfied:

1. Manufacturing facilities are available within the factory premises/address indicated in the application form (else, details are provided).
2. All infrastructures to test the product in accordance with relevant Indian Standard is available in-house (else, details are provided along-with provisions of alternate arrangements made).
3. The product conforms to the requirements specified in relevant Indian Standards (get a sample tested in your own laboratory and/or any accredited independent lab for all requirements as per relevant Indian Standards and enclose a copy of the test reports with application showing conformity of the product to ALL requirements indicated in the product specification).

While submitting the application, the applicant shall make sure that it is complete in all respects and all the relevant documents are enclosed. Applicant may contact at the following address both for further enquiry & submission of application:

Head (Central Marks Department-I)

Bureau of Indian Standards,
9-Bahadur Shah Zafar Marg,

New Delhi - 110002.

Telefax: 91 11 23239382

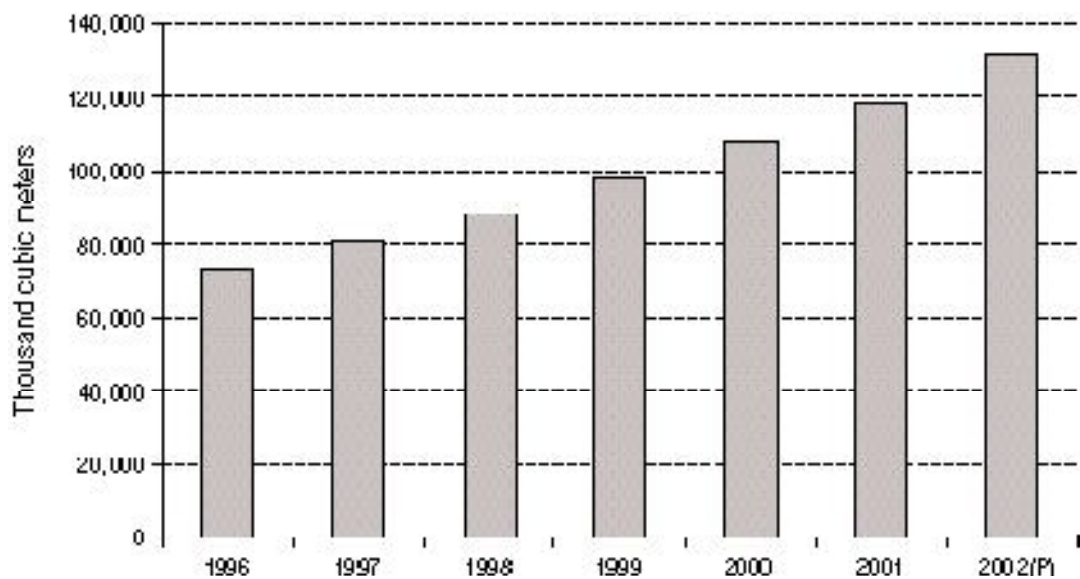
E-mail: cmd1@bis.org.in

CHAPTER – 3

GLOBAL MARKET SCENARIO & STRUCTURE OF INDUSTRY IN SOUTH ASIAN REGION

3.1. Global Market Scenario

3.1.1 Throughout the world, the sales and consumption of bottled water have sky rocketed in recent years. The global consumption of bottled water during 1988 to 2002 has quadrupled to a level of 131 billion liters per annum. The consumption of bottled water is growing faster than 10 percent per year with substantial growth in sales volumes in every continent. In European countries, the growth rate has been 5 to 10 percent. The highest growth rate are observed in Asia and South America with annual sales increase of 15 percent or more in places as diverse as Egypt, Kuwait, USA, Vietnam and India. The following graphical presentation shows the growth of packaged drinking water industry during 1996-2002.



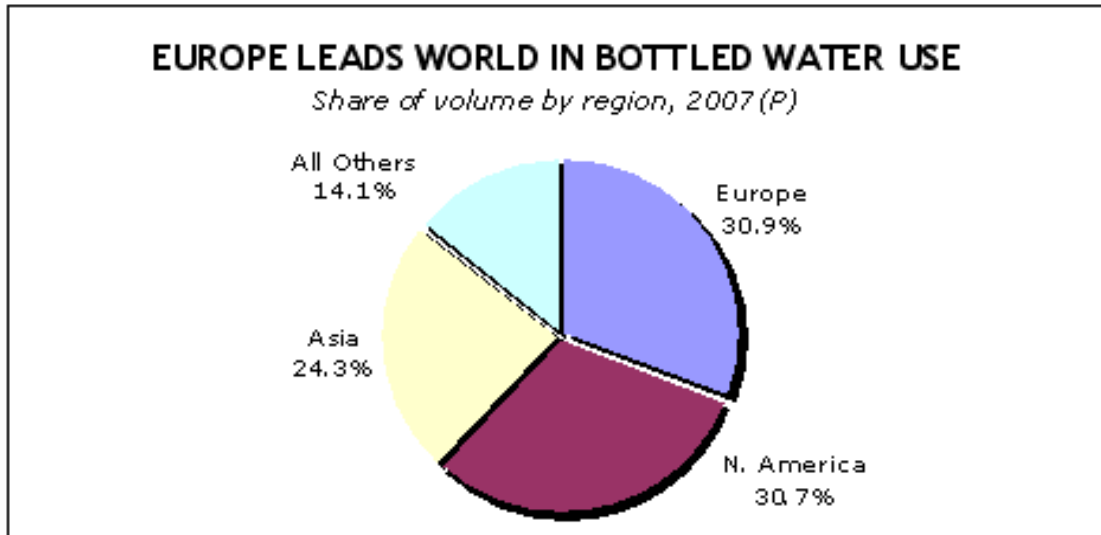
Global water consumption – 1996 to 2002

3.1.2 In the year 2006, the world bottled market grew to a level of 200 billion liters with a value of \$22 billion. The major companies in the world include Thames Water, Perrier, Vivendi, Pepsi, Coca-Cola, etc however, 75% of the world market is catered by local manufacturers and vendors.

3.2. Per Capita Consumption – Global

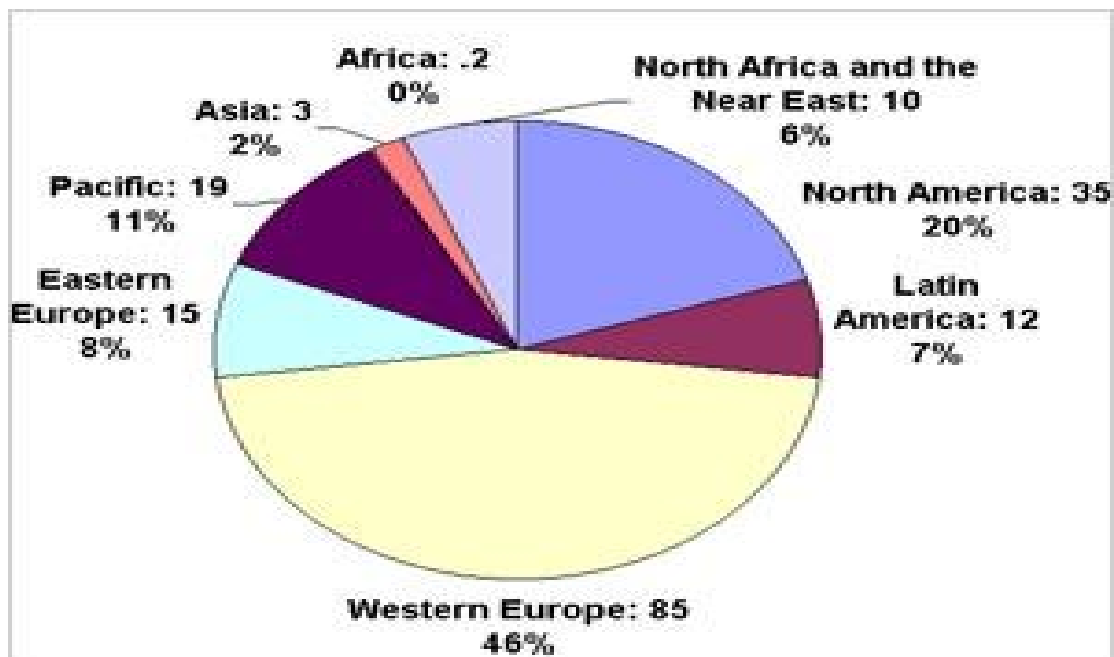
3.2.1 Global per capita consumption of bottled water has also risen from 12.6 liters in 1996 to over 21 liters in 2002. The rate of increase is extremely high in South America where consumption has doubled from 14 to 28 liter. In Asia, the consumption is growing by 20% per year and has increased from 4 liter to 8 liter. In North America and Europe, the per capita consumption is 85 and 64 liters, respectively.

3.2.2 Europe and USA are the leading consumers of bottled water. On the basis of market scenario prevailing during 2007, the global distribution of bottled water market is as shown below:



(P) Preliminary
Source: Beverage Marketing Corporation

3.2.3 Per capita consumption of bottled water varies from 0.2 liter to 85 liters per person per year. The following graphics shows the per capita consumption in various regions and their percentage share in the per capita consumption.



Region wise per capita consumption of bottled water

3.3. Structure of Bottled Water Industry in India

3.3.1 The market for bottled water in India has been growing exponentially over last two decades. Bottled water industry is considered as one of the fastest growing and competitive industrial venture in India. As per BIS statistics, there are 2849 license holders for the production of packaged drinking water and 19 license holders for packaged natural mineral water in India including a number of multinational

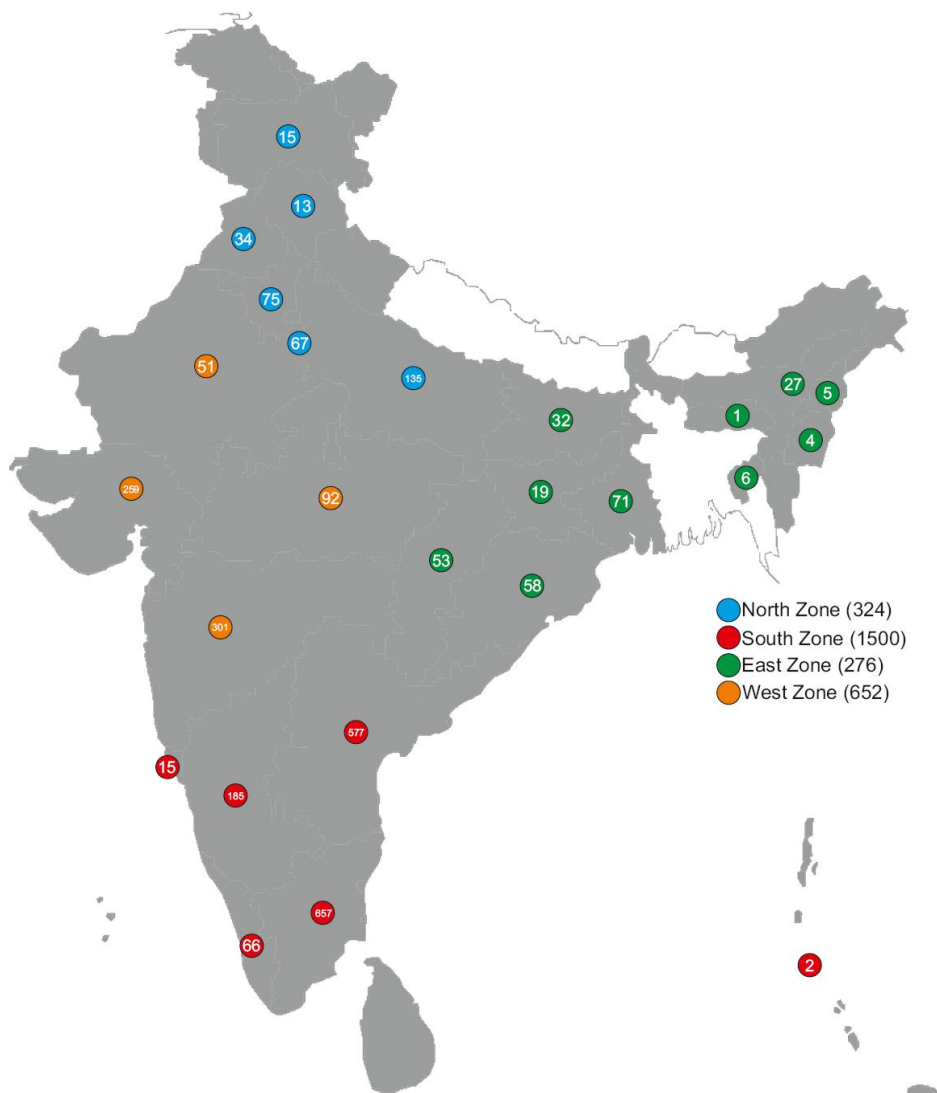
companies. The major players in the market include Parle, Coca-Cola, Pepsi Co, TATA, Mohan Meakins, Britannia, SKN Breweries, United Breweries, Hindustan Unilever, Shaw Wallace, Thermax, Godrej, Nestle, DS Foods, etc. Leading brands include - Bailey, Bisleri, Peppy Minerelli, Trupthi, Kristal, Oasis, Yes, Penguin, Golden Eagle, Stream, Kingfisher, Jaldhara, Pondicherry, Himalayan, Golden Valley Stream, Evion, Aquafina, Perrier, Kinley, Pure Life, Ferra, Relle. The following table shows the leading market players and their brands

Parle Bisleri
Parle Agro
Coca Cola
Pepsi
Mohan Meakin
Indian Railway
Mt Everest
Sri Sarvaraya
Vijay Shanthi
BisilPlast
Kothari Products
Titanium Equipment
Mohan Meakin
Mysore Breweries
United Breweries
NDOB
Golden
Hello
Dadi Group
S M Foods
Group Denone

3.3.2 Segments of bottled water industry in India – There are two distinct categories of bottled water viz. Packaged drinking water (other than packaged natural mineral water) – IS 14543: 2004 & Packaged natural mineral water IS 13428: 2005. The Government of India decided towards end of the year 2000 to bring about stringent guidelines for packaged water. All companies were made to sell their products only under the BIS (Bureau of Industrial Standards) certification mark. The bottled water was classified as "food" and has been brought under the Prevention of Food Adulteration Act. The producers have to adhere to rules pertaining to colour, odour, taste, turbidity, total dissolved solids and aerobic microbial count. Accordingly, for both packaged drinking water and packaged natural mineral water, BIS certification has been mandatory under Prevention of Food Adulteration Act. As per records of Bureau of Indian Standards (BIS), there are 2849 licensed holders for packaged drinking water and 19 license holders for packaged natural mineral water. With a view to ensure quality Water Purification of Australia had tied up with Sri-ram Institute of Industrial Research to set up a quality control laboratory in Uttar Pradesh. Similarly, Thermax Culligan Water Technologies (JV of Thermax and Culligan International, USA), which had launched 20 liter bottles in the name of Good Water Everflo, had also placed a quality control network in place. The outfit is now part of Coca-Cola.

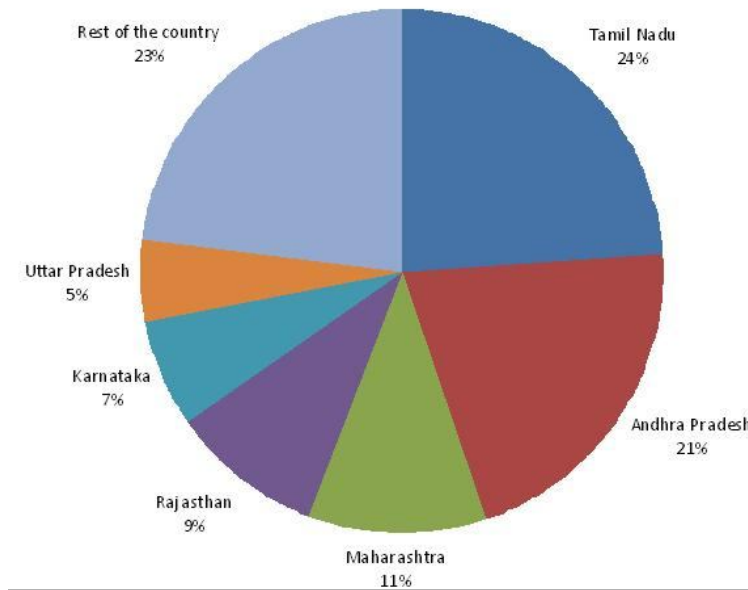
3.3.3 In view of the wide distribution of the industry, large number of players and emergence of new units, the accurate information about the total size of operations is not readily available. According to trade analysis reports, the size of the bottled water industry in the year 2004 is estimated to be around Rs 1500 crores and the estimate for 2007 is around 2000 crores. The current market size is estimated around Rs.3000 crores. The projections for 2012 are around Rs. 3600 crores. These figures would indicate that there has been a tremendous growth in Indian bottled water market and the growth trend still continues. Water bottling plants are located in different parts of the country, however, Tamil Nadu accounts for the maximum number of units. The following map shows the distribution and number of packaged drinking water units in different states.

LIST OF BIS LICENSED PACKAGED DRINKING WATER PLANTS IN INDIA

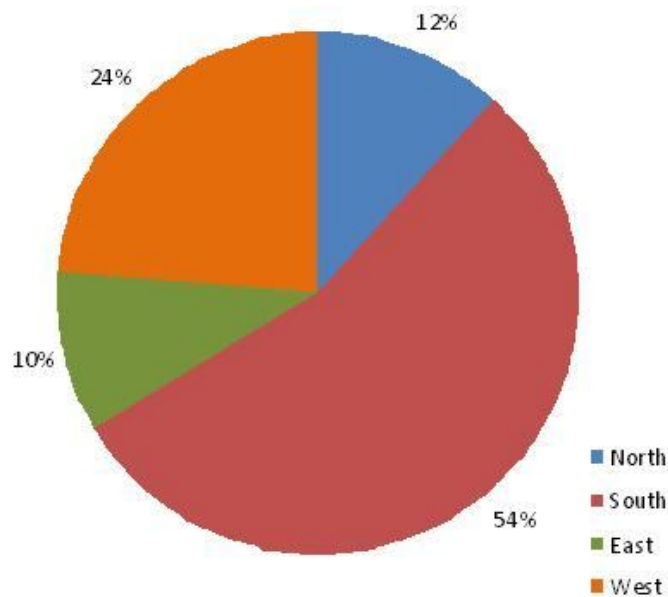


North Zone: Jammu & Kashmir, Punjab, Himachal Pradesh, Haryana, Delhi and Uttar Pradesh
South Zone: Goa, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu and Andaman & Nicobar Islands
East Zone: Bihar, Chattisgarh, Jharkhand, Orissa, West Bengal, Assam, Nagaland, Manipur, Mizoram and Tripura
West Zone: Rajasthan, Maharashtra, Madhya Pradesh and Gujarat

3.3.4 Packaged drinking water units are dispersed all over the country. However, southern region accounts for 54% share of the production units followed by west which accounts for 24% numbers of the license holders. When viewed as state-wise distribution pattern, Tamil Nadu accounts for the major share of 24% followed by Andhra with 21% share and Maharashtra having 11% in terms of license holders. As regards, the mineral water, there are only 19 license holders including Evian, the French company. Maximum numbers of units (12) are in Himachal Pradesh followed by 4 in Uttarakhand, Uttar Pradesh and Gujarat having 1 each. There are no mineral water manufacturing units in the eastern and north-eastern region of India, the areas adjoining to Bhutan. The following charts depict the distribution of packaged drinking water units in India both region-wise and state-wise.



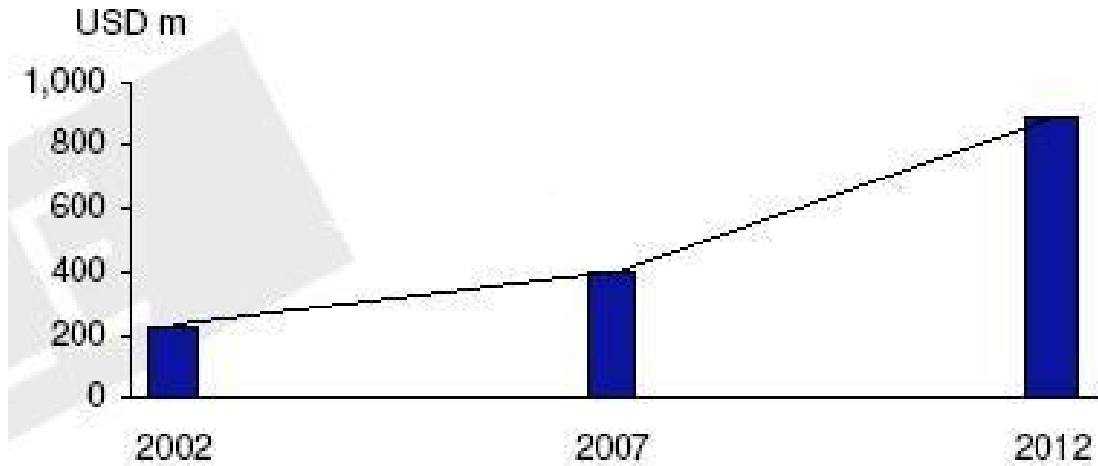
State wise Distribution of Packaged Drinking Water Manufacturers in India



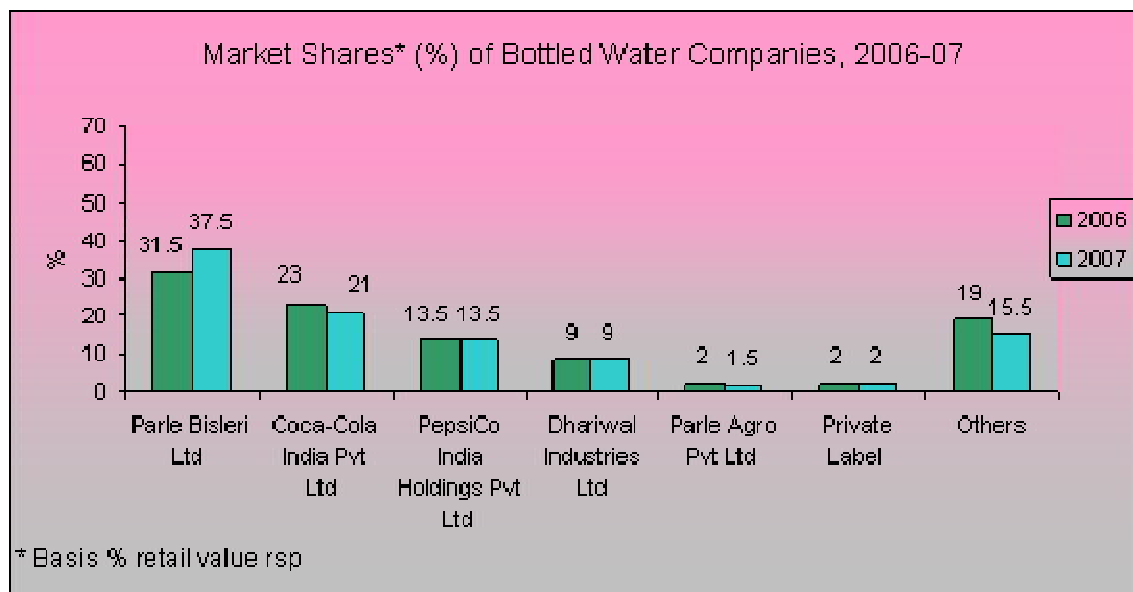
Zone Wise Breakup of BIS Licensed Packaged Drinking Water Manufacturers

3.3.5 The bottled water market in India is growing at a rapid rate of around 20% a year. At this growth rate, the market is estimated to compete with the soft drinks market soon. Multi-nationals Coca-Cola, Pepsi, Nestle and others are trying to grab a significant share of the market. There are more than 1800 brands in the unorganized sector. The small players account for nearly 25% of the total market. Following graphics represent the growth pattern in Indian bottled water industry.

Market Size and Growth

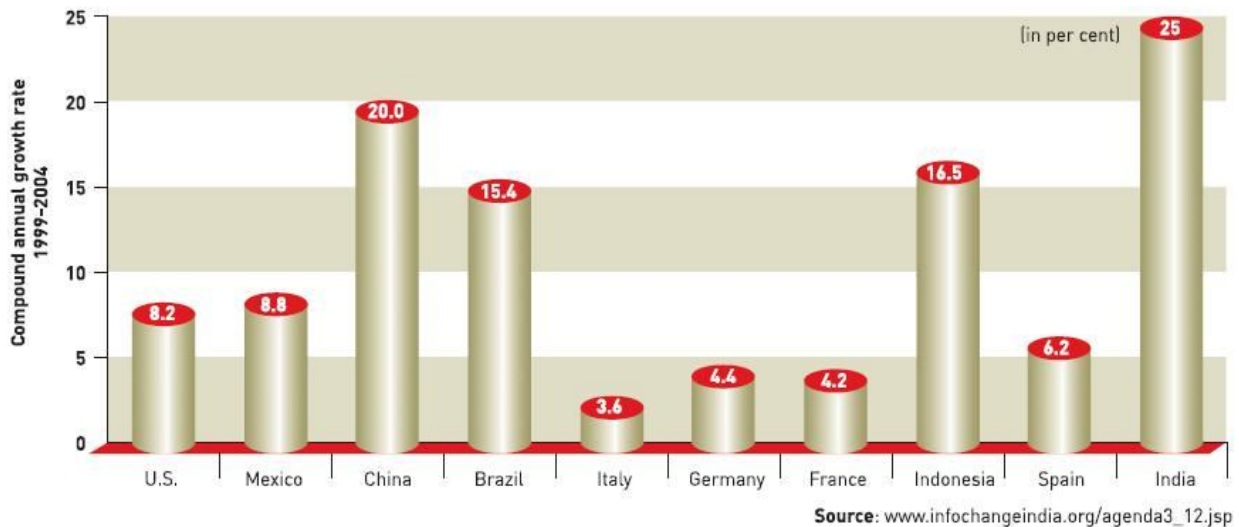


3.3.6 In the bottled water market in India Parle Bisleri is the leading player with over 30% market share followed by Coca-Cola and Pepsi. Local brands have been growing very fast mainly in the semi-urban and rural areas and account for around 15% share in the market. The following graphic shows the market share of bottled water companies in the Indian market.



3.3.7 During last two decades, the bottled water market has grown at a very fast pace in the South Asian regions. In India also, there has been a tremendous growth in the market size. Over the last ten years, the market has witnessed an exponential growth. The change is very much evident. Once a product found mainly at railways stations & hotels, bottled water today occupies a place on the shelf in all superstores, provisional stores and even paanwalas. From a mere 60 towns in the year 1997, it is predicted that bottled water is today available in more than 1000 towns and cities across India. With a compounded annual growth rate of close to 25% over the last decade, the bottled water market has witnessed a large growth in terms of volumes. The following depicts the growth rate of bottled water market in various countries.

Indian bottled water industry growing at the highest rate in the world.



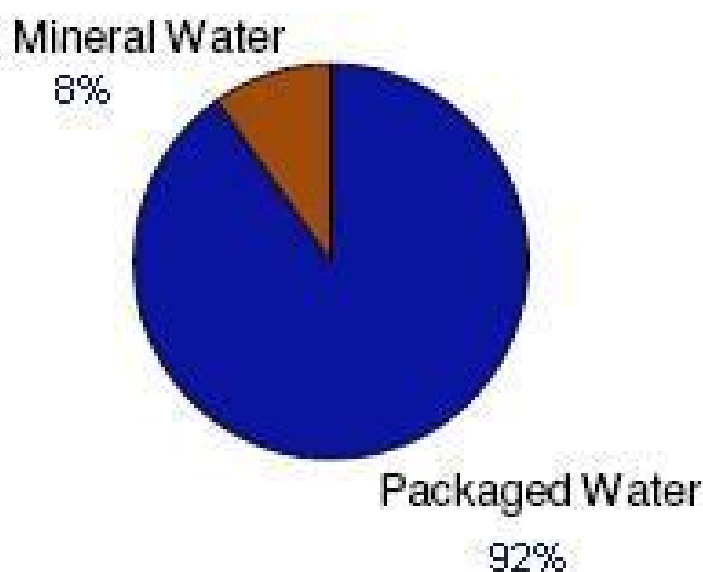
3.3.7 Per capita consumption – India

While per capita consumption levels of bottled water in countries like India and China are not yet at par with the European countries & USA, total bottled water consumption has risen rapidly in recent times -- tripling in India and more than doubling in China in the five-year period. Per capita consumption of bottled water in India, according to an estimate for 2004 is around 5 liters per person per year. This consumption level is much lower as compared to countries in Europe at 111 liters and US at 45 liters which points out towards a huge growth potential in the bottled water market in India.



3.3.8 Consumption of bottled water in India is linked to the level of prosperity in the different regions. The western region accounts for 40 per cent of the market and the eastern region just 10. However, the bottling plants are concentrated in the southern region. Over 600 bottling plants are located in Tamil Nadu. Further, as compared to packaged drinking water, the market share of package mineral water is comparatively much lower. Package mineral water is estimated to constitute around 7-8 percent of the total market of bottled water in India. The following depicts the percent share of mineral water and drinking water in the total bottled water market.

Major Segments



Mineral water accounts for only 8% in the total consumption of bottled water in India

3.3.9 Export of packaged drinking water from India – The following table depicts the export of packaged drinking water and packaged natural mineral water from India during 2008-09 and 2009-10. It would be seen from the table below that mineral water happens to be a major commodity in the export of packaged drinking water export from India.

(Quantity in MT, Value in Rs. lacs)

Product	2007-2008		2008-2009		2009-2010	
	Qty	Value	Qty	Value	Qty	Value
22011010 Mineral waters	632.93	87.57	642.45	79.39	571.32	90.93
22019090 Other water (including natural waters)	349.23	55.58	380.92	73.58	222.36	24.43
Total	982.16	143.15	1023.37	152.97	793.68	115.36

Source - Trade Statistics (DGCIS) Ministry of Commerce Govt. of India

3.4. Structure of Bottled Water Industry in Bangladesh

3.4.1 One of the important markets for Bhutan Mineral Water may be neighboring Bangladesh. Sales of bottled water in Bangladesh are rising by 20 percent a year mainly due to consumers' lack of confidence in public water service facilities. The bottled water industry in Bangladesh is estimated to be around Tk 7 billion industry providing employment to around 15000 people directly and indirectly. The current number of the bottled water manufacturing units is estimated to be 350. As per law, all companies planning to manufacture bottled water in Bangladesh are required to obtain license from Bangladesh Standard & Testing Institution (BSTI), 4 Jublee Road Jibon Bhavon Chittgong Bangladesh.

3.4.2 One of the major problems faced by packaged drinking water industry in Bangladesh is the availability of poor quality & low cost packaged water in the market. These companies are selling their products at a much lower price creating problems for genuine products by the large companies. The genuine companies are left with not much alternatives other than to either degrade the quality of their product or stop their business operations. It is reported that the production cost of a 19-liter packaged drinking water container is Tk 35 and they had fixed the selling price at Tk 43.70 while the local companies manufacturing bulk packages are marketing same package at Tk 30only.

3.4.3 The main associations representing package drinking water industry include Pure Drinking Water Manufacturers Association of Bangladesh and Association of Bangladesh Mineral and Purified Drinking Water Manufacturers. According to data made available by Bangladesh Chamber of Commerce and Industry (FBCCI), the bottled water companies were doing a business of Tk 700 crores. Bangladesh Mineral and Purified Drinking Water Manufacturers Association have currently 21 full members and 50 associate members. Dhaka Water Supply Authority is also manufacturing packaged drinking water under the brand name 'Shanti' and selling the same in 500 ml, 1 , 2 liters, 5 liters and 20 liters package. Mum happens to be the market leader brand and the list of main brands includes the following:

- Mum
- Alpine
- Everest
- Duncan
- Shanti
- Pipasha

3.4.4 The local market size is estimated in the range of Tk.700 crores, out of which mineral water constitute 10% of the total market volumes. A 600 ml packaged drinking water bottle that sells at Tk.10 in retail, costs between Tk.6.25 and Tk.7.90 in wholesale. The one liter bottle sells at Tk.18-20, costs between Tk.12.00 to Tk.15.00. The only local mineral water "Pure" is available in 600ml, 1.5 and 5 liter and selling at Tk. 24.00, Tk.52 and Tk.155 respectively, which is equivalent to Nu.14.15 for 600 ml, Nu.30.75 for 1.5 and Nu.92 for 5. The names & complete addresses of major manufactures of packaged drinking water in Bangladesh with telephone/e-mail are given in Annexure VI. The names of some of the manufacturers are as under.

1. Abbas Printers, Dhaka
2. Agricultural Marketing Co. Ltd. Dhaka
3. Aqua Fresh Ltd. Dhaka
4. Milcoma Dairy Farm. Khulna
5. Sanowara Group Of Company. Chittagong
6. Techno Food Agro Ind. Ltd. Dhaka
7. United Mineral Water & PET Ind. Ltd. Dhaka
8. Nazib N. Minaral Water Ind. Dhaka
9. Everest Drinks & Dairy Products Ltd. Dhaka
10. Oasis Industries Ltd. Dhaka
11. Unique Mineral Water Dhaka
12. Venus International Ltd Dhaka
13. Water System Ltd. Dhaka
14. Paradise Drinking Water Co. Dhaka
15. Eximp Trade Ltd. Dhaka

3.4.5 For trade enquiries regarding packaged drinking water/mineral water the following associations can be contacted.

1. Pure Drinking Water Manufacturing Association of Bangladesh

Section-11, Block-A
 Main Road-3, House # 18
 Pallabi, Mirpur, Dhaka-1216
 Tel: 01911-929788, 01711-860309

2. Association of Bangladesh Mineral and Purified Drinking Water Manufacturers

125/A, New Kakrail Road, Shantinagar Plaza,
 Shantinagar Chourasta (2nd fl.)
 Room # 58, Dhaka – 1000
 Tel: 8311059
 Mob: 01711-620583

3.5. Structure of packaged drinking water in Nepal

3.5.1 With the rise of health consciousness among local people and the expatriate community, Nepal has entered a new arena of drinking water. In the mid 1980s, bottled mineral water was introduced in the Nepalese market. In the early days, it was imported from India and other parts of the world. As the demand for bottled water in the country rose, local companies also began production. Nepal has the great comparative advantage of harnessing drinking water from its pristine water resources such as glaciers, rivers, and streams that originate from the Himalayas. Many bottled water companies are working towards developing appropriate transportation systems, such as bottled water tankers, and are expanding the bottled water market. To capitalize on this opportunity, Nepal has been striving to actively participate in this expanding global bottled water market.

3.5.2 There are an estimated 250 water bottling plants in Kathmandu valley alone and the valley daily consumes about 9 lacs liters of bottled water daily and 3285 lacs

liters annually. Valley population is 13310000 making per capita consumption 0.676183321 daily and 247 liters annually. Average daily production per water bottling plant within Kathmandu Valley is 3600 liters, assuming production is equal to consumption. Average annual production per water bottling plant is 1314000. Foreign tourists in Nepal are the largest consumers of bottled water with about 526700 tourists arriving in 2007. Since the only international airport is in Kathmandu, it can be assumed that most of the tourists are in the Kathmandu valley. Assuming one foreign tourist drinks the human average water consumption of 2 liters per day and each tourist stays 11.4 days on average, it can be assumed that the total annual consumption by foreign tourists over a year is $526700 \times 11 \times 2 = 11572000$ liters. This is for entire Nepal and not just Kathmandu valley. Water bottling plant and valley water consumption Source: <http://www.ekantipur.com/the-kathmandu-post/2011/08/17/money/two-mineral-water-companies-ordered-to-stop-operations/225303.html>.

Population Source: <http://en.wikipedia.org/wiki/Nepal> Tourist behavior data source: <http://www.mof.gov.np/publication/budget/2010/pdf/chapter8.pdf>

3.5.3 About 300 bottled-water companies are now registered with various government agencies, including Nepal Food Corporation and Department of Commerce. According to Nepal Bottled-water Industries Association (NBWIA) the industry directly employs more than 6,000 persons. The bottled water market in Nepal is estimated to be around Rs 500 million per year. According to Nepal Bottled-water Industries Association (NBWIA), the Valley consumes a total of 900,000 liters of bottled-water in a day. Nepal is also facing the problem of low-entry barriers. According to Department of Food Technology and Quality Control (DFTQC), Government of Nepal, the local low-cost products which do not strictly comply with the standards set by the government account for over 25% market share. The major brands of packaged drinking water and mineral water and their selling prices in Nepal are as given in table below.

Aqua 100	1 litre	Rs 15
Pokhara	1.5 litre	Rs 18
GosainKunda	750ml	Rs 10
Bailey	1 litre	Rs 15
Bisleri	1 litre	Rs 12
LA 100	1 litre	Rs 12
Mt Peak	1 liter	Rs15
Thirst-Pi	1 litre	Rs 15
Himalyan Natural Spring	1.5 litre	Rs 18
Today	1 litre	Rs 15
Yes	1 litre	Rs 15

3.5.4 The names and complete addresses with telephone and e-mails of some of the major manufacturers of packaged drinking water in Nepal are given in Annexure VII. The names of some of these companies are as given below.

- 1. Raybot Spring Mineral Water Pvt. Ltd,**
Kathmandu
- 2. Srijana Pure Drinking Water Industries**
GPO: 8226, Ktm, Kupondole, Kathmandu
- 3. Tamor Mineral Water Industries**
GPO: 8975 EPC 7320, Sundarijal, Kathmandu
- 4. Himalayan Hygenic Products (P.) Ltd**
GPO: 6156, Ktm, New Baneshwor, Kathmandu
- 5. Highland Distillery (P) Ltd**
GPO: 5226, Ktm, Putalisadak, Kathmandu
- 6. United Brewery Nepal (P) Ltd**
GPO: 595, Ktm, Baneshwor, Kathmandu
- 7. Amar Sales,**
Bansbari, Kathmandu
- 8. Aqua Smiles**
GPO: 6661, Ktm, Naikap, Kathmandu
- 9. Garg Beverages (P) Ltd**
New Road, Kathmandu
- 10. Himalayan Aqua Mineral Industries**
GPO: 485, Ktm, Kantipath, Kathmandu
- 11. Dolphin Mineral Water**
Kathmandu, Kathmandu
- 12. Nepal Beverage Udyog**
Kathmandu, Kathmandu
- 13. Nilah Water Treatments**
New Baneshwor, Kathmandu
- 14. NirmalJal**
Eastern Nepal's first manufacturer of packaged water.
Avaliable all over Eastern Nepal
- 15. Purwanchal Nirmal Jal Udyog**
Biratnagar, Dharambanah Road, Biratnagar
- 16. Himalayan Water Co. Pvt. Ltd**
Nuwakot, Dhunche, Nuwakot
- 17. Tamor Mineral Water Industries**
GPO: 8975 EPC 7320, Chabahil, Kathmandu
- 18. Aqua Minerals Nepal (P) Ltd**
Balaju, Kathmandu
- 19. Srijana Pure Drinking Water Industries**
Tripureshwor, Kathmandu
- 20. Everest Beverage (P) Ltd**
GPO: 13340, Ktm, KathmanduPlaza, Kathmandu
- 21. C.M. Aqua Beverages**
Mahendra Pool-4, Pokhara
- 22. Purwanchal Nirmal Jal Udyog**
GPO: 141, Ktm, Baneshwor, Kathmandu

3.5.5 All companies in the field of packaged drinking water/mineral water are members of Federation of Nepalese Chambers of Commerce and Industry (FNCCI) and the trade enquiries can be sent to FNCCI at the following address.

Federation of Nepalese Chambers of Commerce and Industry (FNCCI)

Pachali Shahid Shukra FNCCI Milan Marg, Teku

P.O. Box 269, Kathmandu

NEPAL

Telephone : (00977-1) 4262061 / 4262218 / 4266889

Fax : (00977-1) 4261022 / 4262007

E-mail : fncci@mos.com.np

Website : <http://www.fncci.org>

CHAPTER 4

MARKET RESEARCH IN IDENTIFIED LOCATIONS IN INDIA

4.1. Objective, scope and coverage of market research

4.1.1 Objective – In accordance with the terms of reference and the decision after presentation of the inception report, a market research was carried out at identified locations in the adjoining areas of Indian markets. The market research was carried out by the IDRG team with the assistance of three interns of (Abhinav Arya, Vineet Bakshi and Siddharth Deshwal) of the Indian Institute of Foreign Trade (IIFT) Kolkatta. The objective of the market research has been to develop information on the following issues:

- Market findings in the target area.
- Market Segmentation of the various kinds of water and SKUs.
- Market Overview.
- Current competitive scenario.
- Analysis of markets for water, trends, current scenario and growth estimates for next 5 years.
- Price Sensitivity of Consumers to Packaged Drinking Water and Natural Mineral Water.
- Marketing strategy of leading brands.
- Distribution network and its operations
- Profit Margin Sensitivity of Distributors and Retailers.
- Cost of Production of Water (Extraction, Treatment, Bottling, Capping, Labelling, Transportation and Margins to Channel Partners)
- Current competitive scenario.
- Risk and challenges Involved.
- Brand Equity analysis.
- Estimation of the Size of the Target Market.
- STQM Issues in bottled water industry.
- Competitiveness of Bhutan water vis-à-vis Indian players, both local and national.
- Suitable marketing strategy to penetrate the target market as well as develop and spread further.

4.1.2 Scope and coverage of market research – The following product range of bottled water have been covered in the market research.

A). Packaged drinking water

- Bulk package of 20 liters and above
- Bottle package of 500 ml-2 liters
- Glass / cup package of 200-500 ml

B). Packaged Natural Mineral water

- Bottle package of 300-500 ml
- Bottle package of 1 liter

4.1.2.1 Keeping in view, the logistics, lack of developed supply chain, costs involved in transport of water from Bhutan, the focus of the study has been in the regions bordering Bhutan. The criterion for the selection of target market for Bhutanese water includes the following:

- Logistics
- Cost of transport of water from Bhutan
- Lack of developed supply chain management
- Market access
- Cost of economy – prevailing market prices
- Brand equity of Bhutan product yet to be established

4.1.2.2 Based on the above criterion, it was decided that the focus of the market research be kept in the regions of India bordering Bhutan. Accordingly, the market research was conducted with special reference to neighboring areas of India viz. Bengal, North-east Bihar, Assam and Sikkim. The focus of the market survey and research has been at the following locations:

- Kolkata
- Siliguri
- Guwahati
- Gangtok

4.2. Market research – Methodology, Design and Sampling

4.2.1 The market research survey was done by the team in the above mentioned locations both through offline physical market visits and online responses of the target population. The team had visited the stockist & traders, retail stores, hotels and restaurants to compile the information on various parameters of market research. The team has also conducted an online survey to ascertain the views and information on these parameters. A list of stockists & dealers in target market areas is as given in the Annexure VIII of the report.

4.2.2 The Indian water market is growing at a CAGR of 15%. It is desirable to assess and analyze the behavior of Indian consumers to understand the rationale of the high growth rate of the Indian market and gauge the market potential for new players to enter into the Indian market. Through this survey, it was intended to study the consumer behavior in Indian bottled water market. Primary data was collected through questionnaire from various stakeholders. An online survey was also conducted. However, since the survey feedback comes from many respondents from different places and different works of life, the bias due to individual perception needs to be accounted for.

4.2.3 Research Design – Research design is the program of the research. It expresses both the structure of the research problem, the framework, organization or configuration of the relationships among the variables of a study and the plan of investigation used to obtain empirical evidence on those relationships. In short, research design constitutes the blue print for the collection, measurement and analysis of data. Conducting exploratory research, precisely defining the variables, and designing appropriate scales to measure them are also a part of the research design. It suggests how the data should be obtained from the respondents. It is also necessary to design the questionnaire and a sampling plan and select respondents for the study. In order to test the hypothesis, the team designed a questionnaire. This comprised of a number of close ended questions, gauging the preference of the prospective customers.

4.2.4 Sample Design – There are three methods of collecting data such that the information collected can be used to draw inferences about the target universe. These include

- Collection of data from all enterprises. This is a costly and lengthy procedure unless the target universe is small.
- Collection of data from a sample of units that have been selected from the target universe with the intention that they should be representative of that universe. A sample of this kind is referred to as a purposive (or sometimes judgmental) sample. In order to draw inferences about the target universe using a purposive sample, a number of assumptions have to be made about the representativeness of the data collected and of the reporting units and, in general, there are limitations to the inferences that can be drawn from purposive samples when the probability of selection is not known.
- Collection of data from a random sample of units which have been selected with known probabilities of selection from among all units in the target universe. In this case no assumptions about representativeness are needed in estimating totals or averages for the target universe and, in addition, there are well known techniques for determining the precision of these estimates. This said, estimates based on random samples will only be unbiased if the business registers from which they are drawn are comprehensive and up to date.

4.2.5 Sample design consists of the following steps:

- Target Population which includes –
- Sample element – sample element is the sample used for research study
- Sample unit – Where the sample will be available
- Extent – the geographical area to be covered,
- Time – time at which sample will be available and study would be carried out.
- Framing the sample – List of the samples which would be considered for survey.

4.2.6 Sampling procedure –Sampling methodologies are classified under two general categories viz. Probabilistic sampling and Non-probabilistic sampling. The three common types of non-probability samples are convenience sampling, quota sampling, and judgmental sampling. Four basic types of methodologies are most commonly used for conducting probability samples; these are simple, random, stratified, cluster, and systematic sampling. Simple random sampling provides the base from which the other more complex sampling methodologies are derived.

4.2.7 Sample size – The sample size denotes the number or quantum of the sample considered for the market research.

4.3 Details of market survey conducted

4.3.1 Based on the above considerations, in the present market research, IDRГ team conducted the survey through offline physical visits and online response from target population and the basis of the survey has been as under:

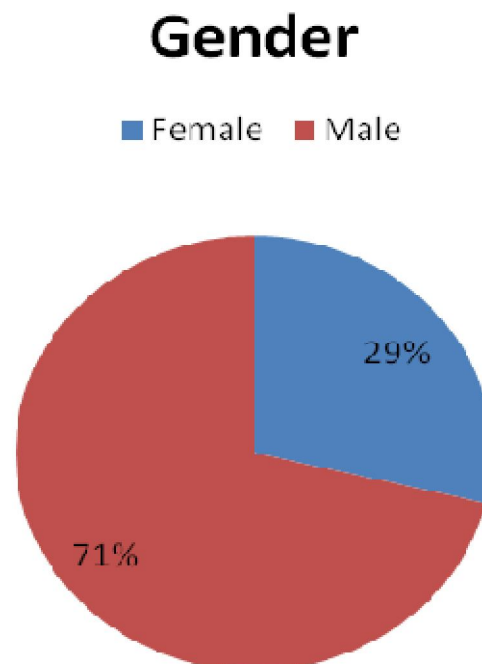
- **Locations covered:** Kolkata, Siliguri, Gangtok and Guwahati
- **Sampling unit:** People who consume packaged drinking water in the target market areas
- **Sampling technique:** Simple Random Sampling
- **Sampling Size-**150

4.3.2 Basic assumptions – Following are the basic assumption of the survey conducted at the identified locations.

- The data collected is not biased and respondents gave true opinions on the questions asked.
- The person taking the interview did not push for the product in any way.
- The data was collected in a neutral environment.
- The data was collected legally and no government rules and regulations were bypassed.

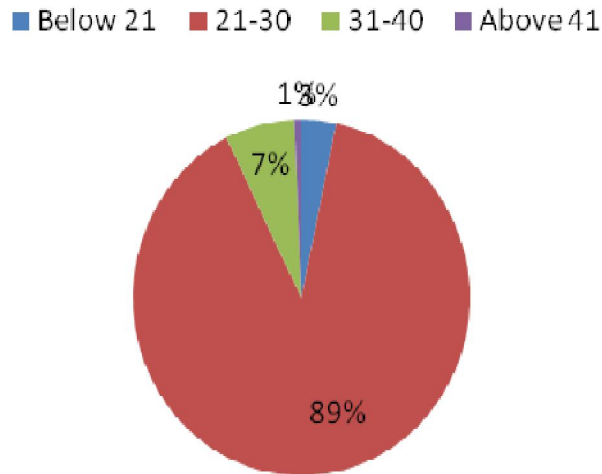
4.3.3 Composition of respondent sample based on gender, age and employment.

4.3.3.1 The following chart depicts the break up of respondent sample covered in the market survey based on gender, which indicates that amongst the 150 respondents, 71% were male while 29% respondent were female.



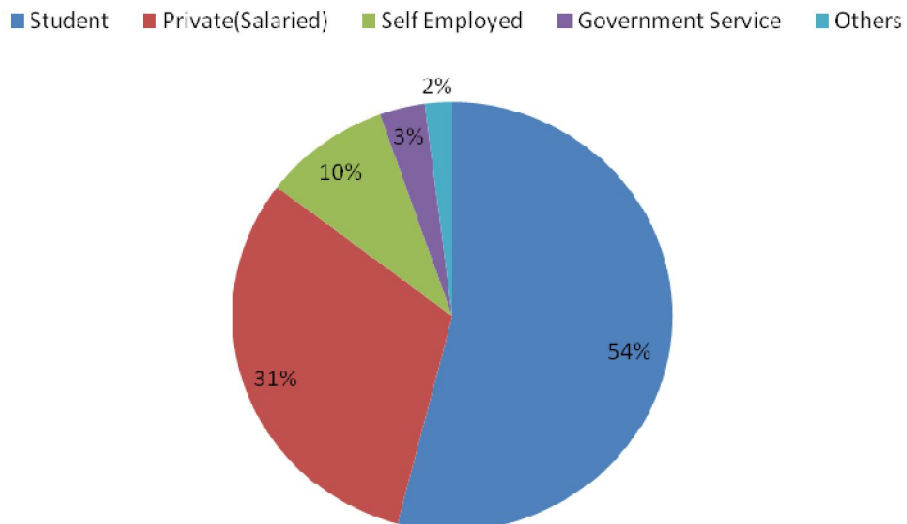
4.3.3.2 The following chart depicts the break up of respondent samples covered based on age of the respondents which shows that 89% of the respondent were in the age group of 21-30, 7% in the age group of 31-40, 3% below 21 and remaining 1% above 41. The younger generation constituted the major share of the respondent sample.

Age



4.3.3.3 The following chart depicts the composition of the respondent sample based on their occupation which shows that among the respondents covered, 54% were the students, 31% were private salaried persons, 10% self employed, 3% government servant and remaining 2% were others. Evidently, the students and private salaried persons representing the younger generation and having a preference for bottled water constituted the majority of respondent sampler.

Occupation



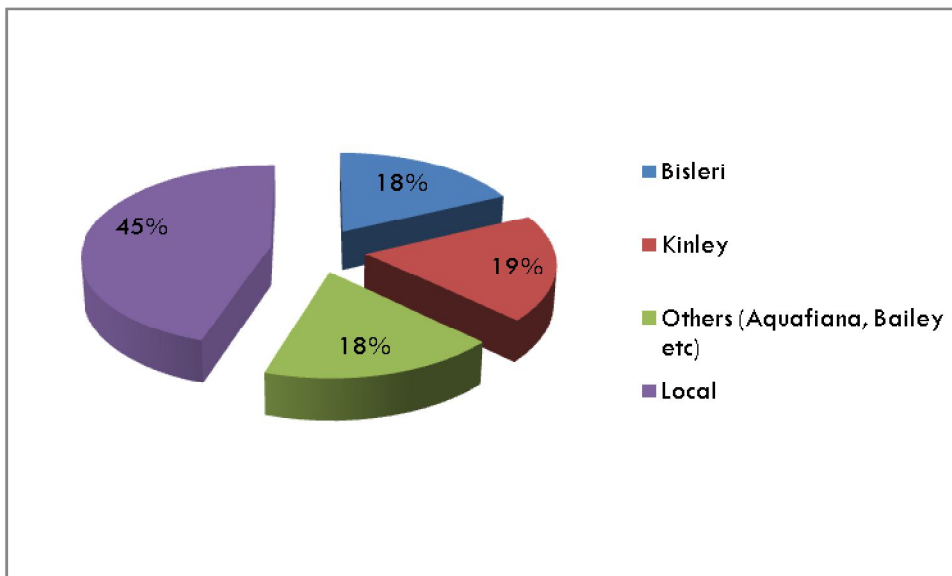
4.4. Findings of market research in Kolkata and adjoining areas

Major findings of market research at Kolkata are summarized as under:

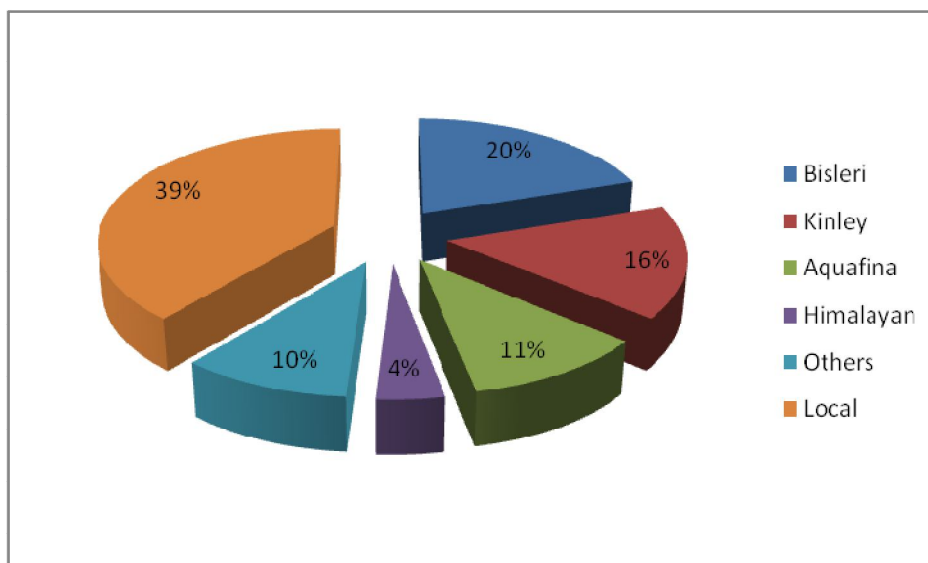
4.4.1 Most visible brands in Kolkata

- Bisleri
- Kinley
- Aquafina
- Bailey
- Himalayan

4.4.2 Market Share in 20segment in Kolkata



4.4.3 Market Share in 1 segment in Kolkata



4.4.4 Mineral Water Brands

Himalayan
Evian
Qua
Vedica

4.4.5 MARKET SCENARIO – ONE LITER BOTTLE

- **Bisleri** – There are 4 distributors of Bisleri in and around Kolkata each having around 50 dealers under them. Bisleri's margin to the dealer is approx Re.1 and to the retailer is Rs.2 Per bottle. MRP is Rs 15 in Kolkata at present.
- **Kinley** – There are 3 distributors of Kinley in and around Kolkata. MRP is Rs 14 in Kolkata. Margins are more or less same as for the case of Bisleri.
- **Aquafina-** Retail price is Rs 14. The Bottling plant is in Kolkata. The margins retail (Rs 2.5) and Stockiest (Rs 1).

4.4.6 MARKET SCENARIO – PREMIUM BRANDS

- **Himalayan** – The distribution of Himalayan is presently picking up in Kolkata. The MRP is Rs.25 and the margin for the retailers is Rs.3. This brand is mostly available in all the famous restaurants in Kolkata and has a big market in the one market segment. It has only one SKU and that is 1 liter bottles.
- **Qua** – The bottle has a high presence in the market. It is quite available in areas like Park Street, Alipore and Salt Lake. There is only one distributor in Kolkata. MRP is Rs. 40 and dealer's margin is Rs. 2.5 and retailer margin is Rs. 4.
- **LOCAL BRANDS** - Local brands have a good market in Kolkata. The margin in the case of local brands is much higher for the retailers. Most of the local brands sell for around Rs. 12 per. The margin for the retailers range from Rs. 4-6 per bottle which is quite higher compared to national brands

4.4.7 20 Liter Bottle segment

Twenty liter bottle market is quite famous in Kolkata. Families prefer to buy twenty liters packs and it has a good presence in corporates also. A large number of local brands are present in this segment with national brands like Bisleri, Kingfisher, Kinley, Bailey and Aquafina.

4.5. Findings of market research in Siliguri and adjoining areas

Major findings of market research at Siliguri are summarized as under:

4.5.1 Most visible brands in Siliguri

- Bisleri
- Aquafina
- Bailey
- Kinley
- Vedica

4.5.2 Local Brands:

- Delta
- Poonam
- Aqua Amrit Jal
- Aqua World
- RG

4.5.3 Major Brands that were not available:-

- Himalayan: No stockiest present for Himalayan
- Qua: No Stockiest available for Qua

4.5.4 Market scenario for most visible brands

4.5.4.1 Bisleri:

- The bottling plant is situated in Durgapur.:
- 2 liter, Dealer price at Rs 20,MRP Rs 24
- 1liter, Dealer price at Rs 11, MRP at Rs. 14
- 0.5 liter, Dealer price at Rs 6, MRP Rs 8
- 9-10 Distributors in Siliguri Region, Average sales 4000 cases/month, Dealer's Margin is Rs 12/Case

4.5.4.2 Aquafina:

- 7-8 distributors in the Siliguri region
- Retail Margin is Rs 2-3 per liter
- Average sales 2500 cases/month
- Margin to distributor is approx Rs11 per case.

4.5.4.3 Bailey:

- 2 liter bottle, Dealer price Rs 17, MRP Rs. 23
- 1 liter bottle, Dealer price Rs 12-13, MRP Rs 14

4.5.4.4 Kinley:

- The supply of Kinley is lesser than the demand
- The margin available on kinley is Rs 3 on a 1 liter bottle
- The margin available to the distributor is Rs 12/ Case

4.5.4.5 Local Brands:

- As the manufacturing of local brands takes place very near to the market, the margins available to the retailers are much higher than those available on national / regional brands.
- The margins available to the retailer for local brands are as high as Rs 8 for an MRP of Rs 15. Because of high margins in local brands the retailers push these brands on their end. Even in good restaurants, local brands are dominant and there are only few national brands available.

4.6. Findings of market research in Guwahati and adjoining areas

Major findings of market research at Guwahati are summarized as under:

4.6.1 Most visible brands in Guwahati

- Bisleri
- Kinley
- Aquafina
- Bailey

4.6.2 Local Brands

- Aquafresh
- Nibedita
- Silver Drop
- Swaraj

4.6.3 Major Brands which were not available

- Himalayan: No stockiest at present for Himalayan
- Qua: No Stockiest available for Qua

4.6.4 Market scenario for most visible brands

4.6.4.1 Bisleri:

- 2 liter bottle, Dealer price Rs 20, MRP Rs 25
- 1 liter bottle, Dealer price Rs 11, MRP Rs 14
- 500 ml bottle, Dealer price Rs 6, MRP Rs 8
- 3-4 Distributors in Guwahati Region, Average sales 3000 cases/month, margin is Rs 15/Case

4.6.4.2 Aquafina:

- Retail Margin is Rs 2-3 per liter
- 3-4 distributors in the Guwahati region
- Average sales 2000 cases/month
- Margin to distributor is approx. Rs 12/case

4.6.4.3 Bailey

- 2 liter bottle, Cost to retailer Rs 18, MRP 24
- 1 liter bottle, Cost to retailer Rs 12-13, MRP Rs 14 for retail

4.6.4.4 Kinley

- The margin available to retailer is Rs 3 on a 1 liter bottle
- The margin available to the distributor is Rs 12/Case

4.6.4.5 Local Brands

- The manufacturing of local brands takes place very near to the market so the margins available to the retailers is higher as the transportation cost is not that high.
- The margins available to the retailer for local brands are as high as Rs 7 for an MRP of Rs 15
- Because of high margins on local brands, the retailers push these brands on their own

4.7. Findings of the market research in Gangtok and adjoining areas

Major findings of market research at Gangtok are summarized as under

4.7.1 Most visible brands

- Bisleri
- Vedica
- Qua
- Aquafina

4.7.2 Local Brands

- Delta
- Aquafeel
- Aquatech
- Sikkim
- Poonam Enterprises

4.7.3 Major Brands which were not available

- **Kinley:** The demand for Kinley is more in the planes, there is no stockiest in Gangtok due to short supply
- **Himalayan:** No stockiest present for Himalayan
- **Bailey:** No stockiest in the area

4.7.4 Market scenario for most visible brands

4.7.4.1 Vedica:

- Retail price of the Vedica is Rs 25
- Margin available to retailer is Rs. 5
- Margin available to the stockiest is Rs 1.5-2
- Assuming transportation cost Rs 2-3, the ex-factory price around Rs 15
- Monthly sale is approximately 150 cartons/month (In tourist season)

4.7.4.2 Bisleri:

- The bottling plant is situated near Siliguri.
- The Retail price of Bisleri Rs 15 for the 1 liter bottle.
- Margin available to the retailer is Rs 3.
- Margin available to the stockiest is approx. Re 1
- The sale of Bisleri (1liter) is around 400 cases/month
- The Sale of the other SKU's 2 liter and 5 liter is approximately 100-150 cases/month.
- The Margins available is 25% to the retailer and 5% to the stockiest.

4.7.4.3 Qua:

- The retail price is Rs 40
- Margin available is Rs 8-9 to retailer and Rs 2 to Stockist
- The Sale of Qua is around 150 cartons/month

4.7.4.4 Aquafina

- Retail price is for 1 liter bottle Rs 14
- Margin to retailer is Rs 3
- Margin to stockist Re 1
- The local transportation, loading and unloading cost is Rs 0.5 per bottle
- The Sale is 50-60 cartons / month

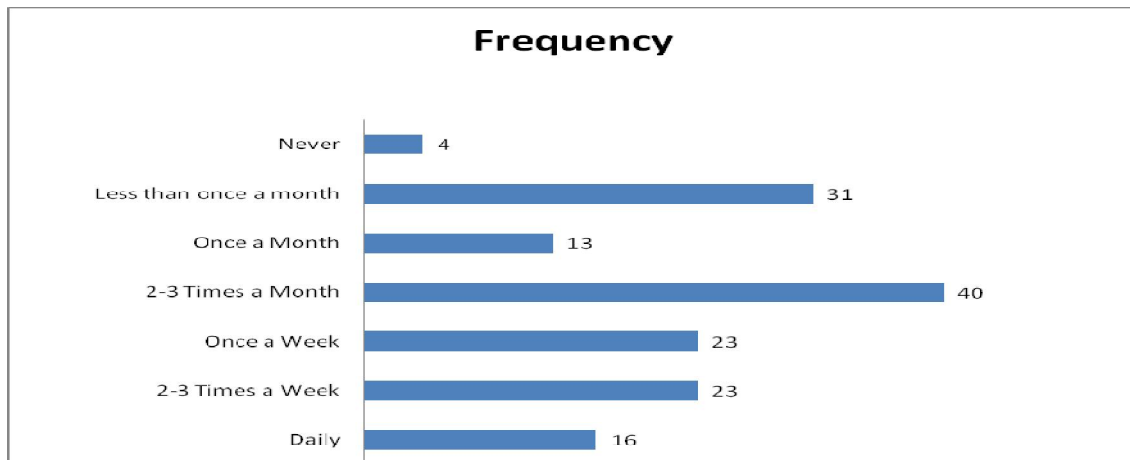
4.7.4.5 Local Brands

- The bottling of all the local brands takes place in nearby areas of Siliguri and Gangtok.
- The Margins available to the retailer for local brands is as high as Rs 7 for an MRP of Rs 15
- Because of high margins in local brands the retailers push these brands on their end.
- Even in good restaurants, there are few known brands available

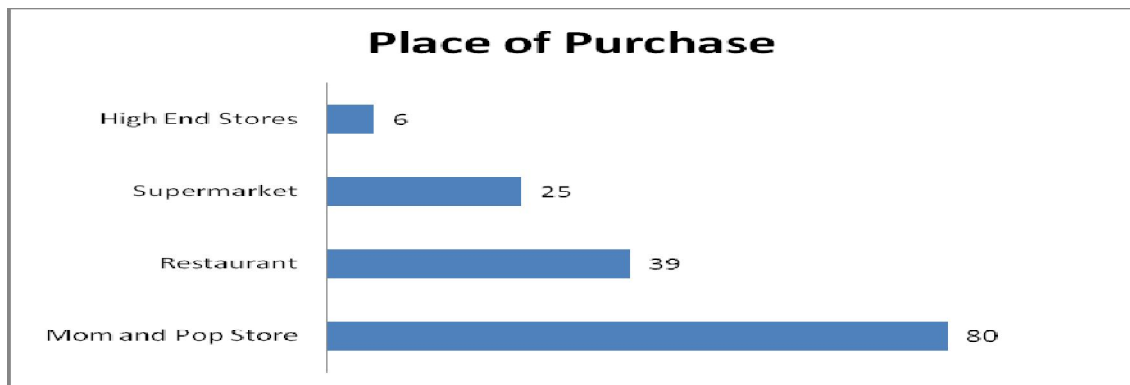
4.7.4.6 Local brands in high demand – In a very few cases like the Mayfair Hotel which is 5 Star hotel in Gangtok the team could find the availability of brands like Qua. The Gangtok market is very immature in terms of availability of national water bottle brands. One Major reason behind this is the lower margins available to the retailers on these brands as compared to the high margins available in case of local brands. Moreover the high transportation cost in hills reduces the margins as most of the bottling plants for national brands are located in the planes.

4.8 Consumer's behavior & response – With a view to assess the characteristics and trends in the bottled water market in these areas, the views of consumers were sought on various parameters relating to purchase of packaged water. Based on visits and online survey, efforts were made to ascertain the behavior and response of the consumers on various aspects. The responses were analyzed and the results are given below for each of the parameter.

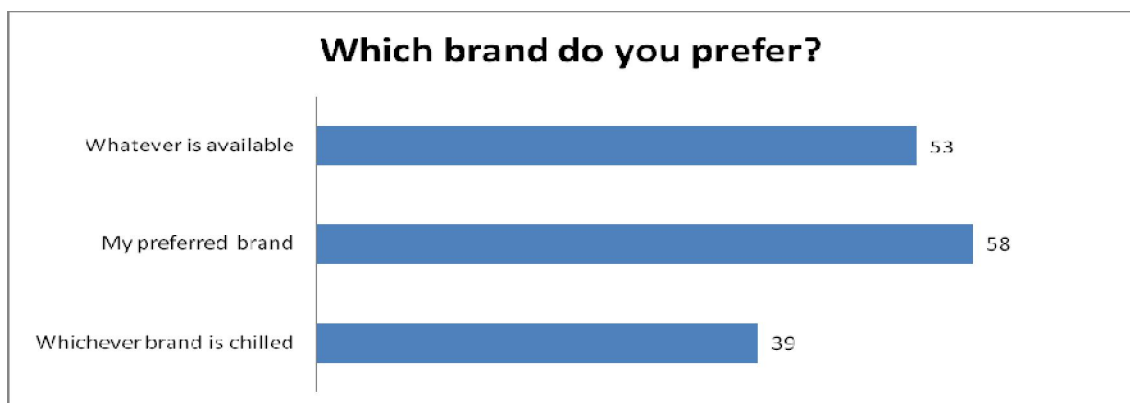
4.8.1 Frequency of purchase –The following chart depicts the frequency of purchase. It was observed from the results that the frequency of purchase of bottled water for 53 respondents ranges from 1-3 times a month. For 46 respondents, the frequency is 1-4 times a week.



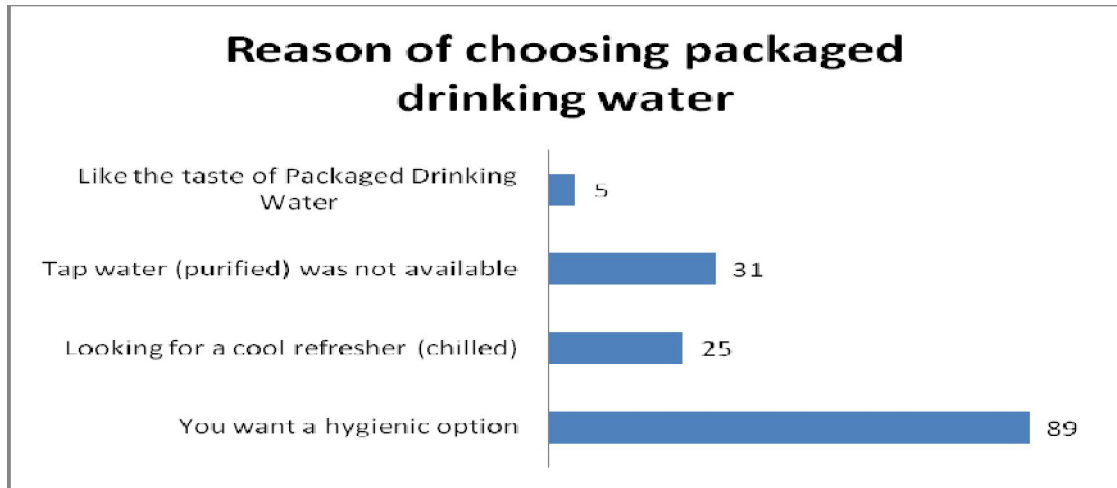
4.8.2 Place of purchase – The following chart depicts the response regarding the selection of place of purchase of the packaged drinking water. It would be seen that most of the people buy packaged drinking water from closeby shops.



4.8.3 Brand preference –The following chart depicts the choice of brands for consumers. Majority of the consumers opt for their preferred brands, however, at the same time, over 30% people buy whatever is available and another 26% opt for whatever brand in chilled for is available.



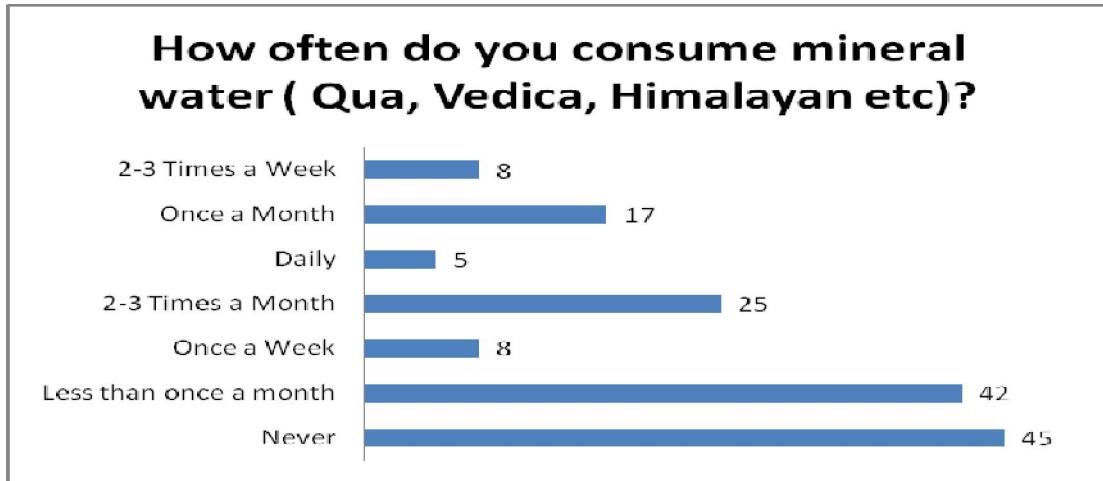
Reason for choosing packaged drinking water – The following chart depicts the views of respondents on the reasons for choosing the packaged drinking water. As would be seen from the chart given below, around 60% respondents opt for packaged drinking water on hygiene considerations.



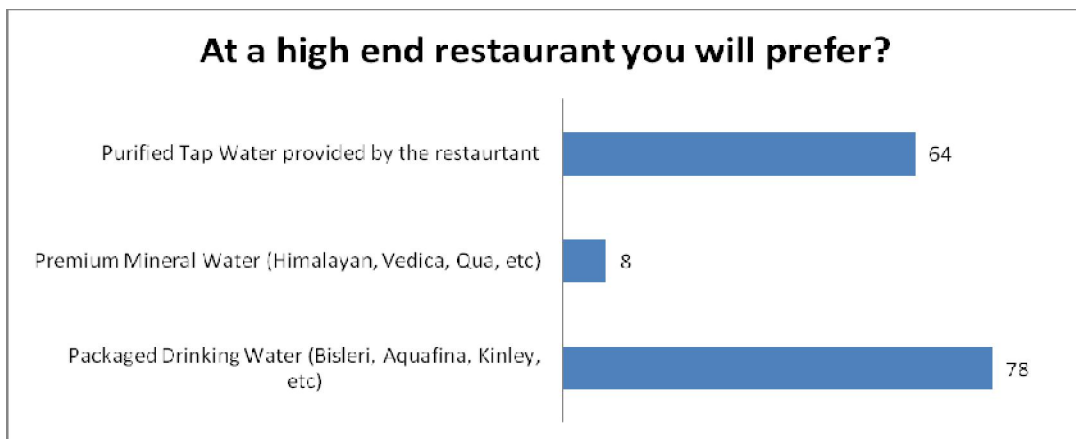
4.8.5 What do you do if your preferred brand is not available – The following chart depicts the response of consumers with regard to alternative choice if their preferred brand is not available. Over 80% respondents have indicated that they would opt for another less preferred brand. It is an indicator that the market is not highly brand conscious.



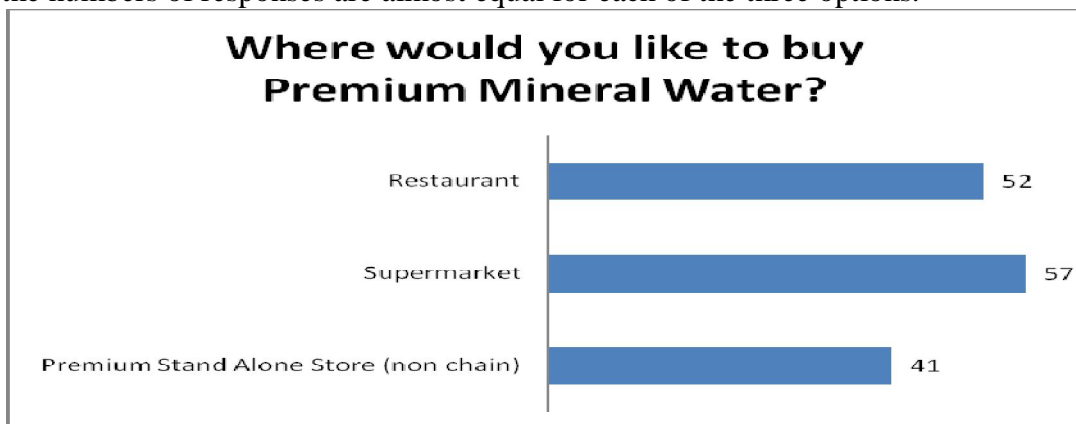
4.8.6 How often do you consume mineral water - The following chart depicts the response about the frequency of consumption of mineral water. It shows that a very small percentage 3% consume daily, 6% consume 2-3 times a week and over 10% consume once a month. Over 60% have negligible consumption of mineral water.



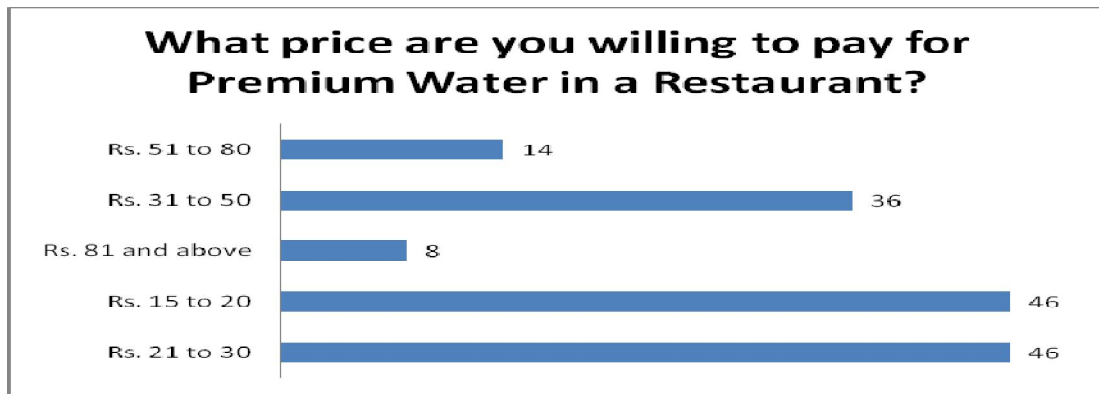
4.8.7 At a high end restaurant you will prefer which brand of mineral water – The following chart depicts the response of consumers with regard to choice of brand of mineral water at a high end restaurant. Only 5% of the respondents would like to opt for premium brands of mineral water, while over 50% would opt for popular brands of packaged drinking water.



4.8.8 Where would you like to buy premium mineral water – The following chart depicts the response with regard to choice of the place for purchase of mineral water. The preferred choices are restaurant, supermarket and premium stand alone and the numbers of responses are almost equal for each of the three options.



4.8.9 What prices are you willing to pay for Premium brand mineral water in a restaurant – The following chart depicts the response with regard to price sensitivity for purchase of premium brand mineral water. As would be seen, around 5% of consumers are willing to pay Rs. 81 and above, 10% Rs. 51-80, and another 20% willing to pay Rs. 31-50. This indicates that there is fast growing market for premium brand mineral water in India and the consumers are willing to pay the higher price for genuine high quality brands.



4.9. Price Sensitivity of Consumers to Packaged Drinking Water and Natural Mineral Water

4.9.1 Based on the analysis of data collected during market survey and general information available about the market trends, the price sensitivity of the consumers for various types of packaged drinking water has been studied. The consumer sectors covered in the study included Foreign Tourists, Consumers in Metropolitan Cities (tier-I) Consumers in large Cities (tier-II), Consumers in Small Cities and Towns (tier-III).

As per primary research conducted, consumers in Tier I and II cities preferred branded water over the local brands within the price range of 10 to 15 rupees per litre. If their primary brand was not available, consumer would switch to whatever was being recommended or provided by the shopkeeper. In Tier III cities, price plays a major role in consumer's preference for bottled water and the price sensitivity is of much higher order. In general, as soon as price reached beyond Rs.30, the consumers either displayed high price sensitivity or tried to switch back to brands like Bisleri, Aquafina, etc. The following depicts the price sensitivity of Consumers to various types of packaged drinking water.

4.9.2. Packaged Drinking Water – The following chart depicts the price sensitivity of consumers for packaged drinking water in bottles.

	Consumer	Foreign Tourist	Tier I City Consumer	Tier II City Consumer	Tier III City Consumer
Price Sensitivity at various point of purchases	Retail Outlet when there is a choice between two known brands	Low	Medium	High	High
	Restaurant	Low	Low	High	High
	Daily Use	-	Medium	High	High
	Retail Outlet- only a single known brand	Low	Low	High	High

4.9.3 Mineral Water– The following chart depicts the price sensitivity of consumers for packaged mineral water in bottles.

	Consumer	Foreign Tourist	Tier I City Consumer	Tier II City Consumer	Tier III City Consumer
Price Sensitivity at various point of purchases	Retail Outlet when there is a choice between two known brands	Low	High	High	High
	Restaurant	Low	Medium	High	High
	Daily Use	-	High	High	High
	Retail Outlet- only a single known brand	Low	Medium	High	High

4.10 Marketing Strategy of major brands

4.10.1 -The local brands mainly market their products in the vicinity of their bottling plants and target the price sensitive consumer segments of the market. Due to their low overheads and distribution and marketing expenditures, these companies are able to supply their products to stockist/retailers at much lower prices as compared to the popular national brands. In view of the higher profit margin, the stockist/retailers prefer the local products mainly in semi-urban and rural areas.

4.10.2 -The large companies follow an aggressive marketing strategy to promote their products. As mentioned earlier also, majority of the large and multinational

companies follow an integrated marketing strategy for soft-drinks and bottled water. The core components of the marketing strategy include the following.

4.10.3 Aggressive advertisement through print and electronic media – All large and multinational companies use the concept of aggressive advertisement for sales promotion. Companies introduce schemes and advertise them with electronic and print media. These companies also use services of known celebrities for advertising and market promotion of their products. These measures add to the building of brand image of the product of the company and establish awareness among the target consumers.

4.10.4 Focus on availability of products in market – The philosophy in the soft drink and bottled water market mainly in semi-urban and rural areas is “*Jo Dikhta Hai Wo Bikta Hai*” - *whatever is visible will sell*. The market developers check the availability of their brands of bottled water in the market.

4.10.5 Focus on availability of products in outlets and product’s visibility for consumers – There is a big difference between availability of the product in the market and availability of the product at the outlet. Companies want their products displayed in each outlet. Water bottles in chilled /cold state of any brand are preferred by the consumers. The companies provide water coolers to retailers so that their brands are available to the consumers in cold state.

4.10.6 More focus on rural area – Semi-urban and rural market in India constitutes one of the major segments of the consumer market. All companies are laying a lot of emphasis on taping this market segment.

4.10.7 Regular market vigilance by market developers – Companies appoint executives who check availability, visibility of their brand, take care of companies assets, check bottle coolers, talk to the shopkeepers and take their feedback.

4.10.8 Distribution of product according to locality – The companies operate the schemes according to the locality/area. Places like railway stations, bus-stop, tourist-centers are considered high selling areas and companies offer attractive scheme for these areas.

4.10.9 Extra focus on monopoly outlets – Outlets selling the company’s brand only are preferred. To such outlets companies offer extra incentives, schemes, discount and other gifts to build and strengthen the longtime relationship with them.

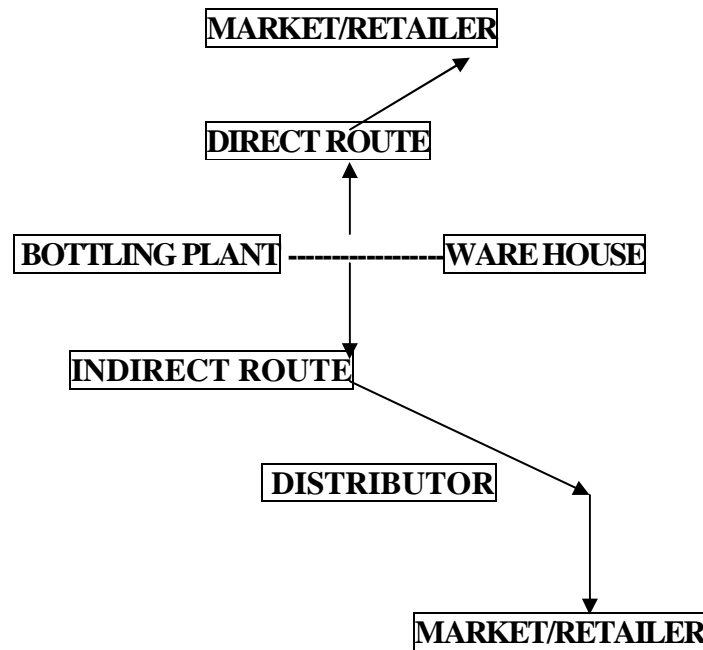
4.10.10 Target core brands – The companies regularly undertake study of the marketing strategies of their main competitor brands and reorient their marketing approach accordingly.

4.11 Distribution Network and its Operations

4.11.1 In the Indian bottled water market there are two main categories of the products viz. local brands which are manufactured in the vicinity of the consumptions centers and the branded products of multinational and large companies. The local

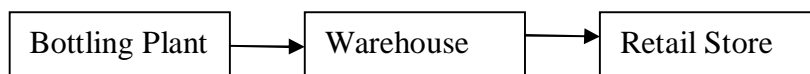
manufacturing companies supply their products directly to stockiest/retailers depending on the type of market segment. Majority of the multinational and large companies selling bottled water are in the main business of soft-drinks and they have well developed distribution network for their main business of soft-drinks. These companies use the same distribution channels for bottled water also.

4.11.2 FLOW CHART OF DISTRIBUTION SYSTEM –The following diagram depicts the overall distribution system for bottled water in India.



4.11.3 Distribution System in Urban Areas – In urban areas the products are invariably supplied directly to the retail stores.

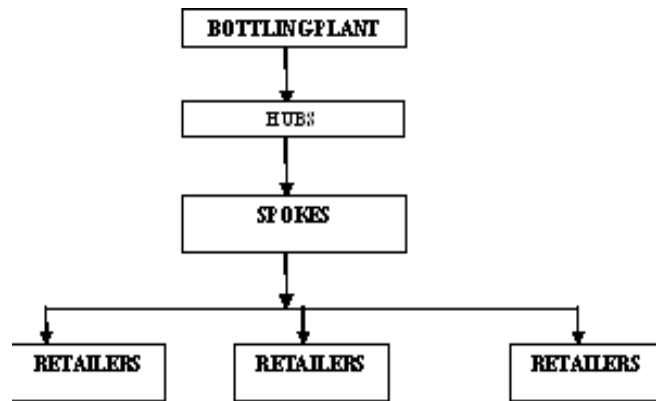
DISTRIBUTION SYSTEM IN URBAN AREAS



4.11.4 The large and multinational companies are targeting the rural areas in a big way for their soft drinks and bottled water. For semi urban and rural areas these companies use the Hub and Spokes system for distribution of their products.

4.11.5 Under the **hub and spoke distribution system**, stock is transported from the bottling plants to hubs and then from hubs, the stock is transported to spokes which are situated in small towns. These spokes feed the retailers catering to the demand in rural areas. The companies use large trucks for transporting stock from bottling plants to hubs and medium commercial vehicles transport the stocks from the hubs to spokes. For transporting stock from spokes to village retailers the companies utilize auto rickshaws and cycles. Major companies in business of soft-drinks and bottled water have developed their own transport system

SEMI URBAN/RURAL AREA DISTRIBUTION NETWORK



Source: Case Studies and Management Resources

4.11.6 The payment terms for the soft drink as well as bottled water are invariably cash / cheque payment at the time of delivery. However depending on the status of the stockiest/retailers and its relationship with the supplier company short term credits are also extended. As a part of their marketing strategy the manufacturing companies extend various incentives to retailers viz. free supply of bottle coolers, display boards, gifts, incentive schemes etc. As the marketing strategy covers both the products viz. soft-drinks and bottled water, the companies have been launching the incentive schemes in a big way. One multinational company has supplied around 200,000 refrigerators to its rural retailers. The expenditures on the market promotion are shared by the main company and its franchise bottling plant. The marketing variables and sales promotion variables are as under.

4.11.7 Marketing variables

- Display items
- Bottle coolers

4.11.8 Sales Promotion variables

- Discount for retailers.
- Scheme for retailers

4.12. Profit Margin Sensitivity-Analysis of Distributors and Retailers

4.12.1 General Trends-Distributors – The distributors of Bottled water are also distributors of soft drinks, for example a distributor of a leading soft drinks company such as Pepsi or Coca Cola stocks their bottled water brands also. The bottled water business is generally only 5% of the total business of the distributor. So it is highly likely that even if the profit margin sensitivity of the distributor is high there is no option but to stock the bottled water brands that are pushed by the soft drink companies. The chart below depicts the margin sensitivity of distributors.

Margin Sensitivity of Distributors		Tier I city Distributors	Tier II city Distributors	Tier III city Distributors
	Soft drink distributors	Low	Medium	Medium
	Other distributors	Medium	High	High

4.12.3 General trend-Retailers – The retailers on the other hand contribute to the sale of the brands depending on margin and incentives available to them. They are highly sensitive of the profit margins as they have easily available options of pushing the brand with better profit margins. In regions where the brand awareness and loyalty of the customers to known brands is low, the retailers push the local brands which have very lucrative profit margins. The chart below depicts the margins sensitivity of retailers.

Margin Sensitivity of Retailers		Tier I city Retailer	Tier II city Retailer	Tier III city Retailer
	Unorganized Retailers	Medium	High	High
	Organized Retailers	Medium	Medium	High

4.13. Risks and challenges Involved

4.13.1 Inefficient transport infrastructure

- Transportation, which is the key cost factor, is a challenge due to the vast size of India as well as the inefficient and insufficient infrastructure
- For domestic natural water companies, transportation costs account for nearly 2.5% of costs
- To get a sense of costs, typically transporting water costs nearly Rs.3.0 per case (1 case =12 bottles typically), freight for a distance of 200 km
- However, market leaders are emerging with innovative distribution methods:
 - Distributed plants: Bisleri is setting up plants in new cities to lower transport costs
 - Natural Mineral Water: Plans to use railways to transport Himalayan water across long distances (Tata Himalayan). Sourcing and bottling water from mountains other than the Himalayas. (Bisleri)

4.13.2 Low entry barriers and threat from low-quality products

- Considering the extremely low cost of manufacturing bottled water and lax regulations, the entry barriers for the packaged drinking water business are extremely low
- Prices of packaged water is generally same throughout and thus, local brands proliferate profits by supplying unsafe water
- There are instances of small players using trademarks of established players
- Unsafe water from small regional and unorganized players can negatively impact the image of the entire industry

4.13.3 Possible threat from litigation and public campaigns

- In recent years, bottlers have faced public campaigns and litigation against ground water exploitation by local communities living near their plants
- Similarly, there was public outcry over pesticides found in carbonated beverages, which impacted bottled water as well since both are made from the same contaminated groundwater
- Similar action cannot be ruled out in the future and large brands are likely to suffer the most
- Increased protests from public authorities and consumer cells are creating obstacles for the Manufacturers
- They also put forth arguments that packaged water actually leads to health detrimental effects and also degrades the environment through dumping of bottles in drains and roadsides

4.13.4 Brand and category differentiation

- In the crowded packaged drinking water segment, it is difficult for companies to differentiate their product since most marketing campaigns focus on purity
- Major companies like Coca Cola and PepsiCo have used smart merchandising and extensive advertising to capture market share
- Rural masses are unaware of the hazards and they land up paying same price for a local unsafe brand
- For natural mineral water brands, the challenge is that most consumers are unaware of the difference between packaged drinking water and natural mineral water

4.13.5 Increasing use of water purifiers

- The water treatment companies are increasing their foot holds owing to the shortage of safe drinking water in most of the regions of India
- There is a surge of water purifying equipments being launched in the market which serve as a possible threat to the market of bottled water sellers
- Major companies like Eureka Forbes, ION Exchange have upgraded their purifying systems and newer companies like Kent RO and Nu-chem water have also stormed the market with renewed energy

- These purifiers tend to occupy as good substitute in the households and offices to packaged water:
- The possible threat is faced by the market for the large packaged container (20 liters) section of the manufacturers
- The prices of these purifiers are also lowering steadily owing to the growing popularity
- They serve as a one-time investment for safe drinking water for a longer period of time
- The aggressive marketing and advertising has also led to its widespread use

4.14. Brand Equity Analysis

4.14.1 The value premium that a company realizes from a product with a recognizable name as compared to its generic equivalent is the contribution of the brand. Companies can create brand equity for their products by making them memorable, easily recognizable and superior in quality and reliability. Mass marketing campaigns can also help to create brand equity. If consumers are willing to pay more for a generic product than for a branded one, the brand is said to have negative brand equity. This might happen if a company had a major product recall or caused a widely publicized environmental disaster. In a market where products are similar, branding can have a large effect on the price that customers will pay. Brands add value to a basic product or service by enabling the product or service to command a higher price, or higher market share than an unbranded equivalent. The term Brand Equity is used to describe both the value of the brand and the brand's component values. It's value may be a monetary value (which may be discounted to a net present value), an increase in a rate of return or any number of softer market research measures such as awareness or consideration. In fact, brand equity is an essential lever of profitability. Brands with strong equities can

- Command premium prices
- Capture and maintain market space
- Support new line extensions
- Attract investors
- Fend off new competition (hence acting as a barrier to entry)

Very strong brand equity can make a brand nearly impervious to competition. Some years ago, a global corporation that had developed a superior technology asked USA to find out why they too often “won the sales presentation but lost the sale” to an American competitor. The study showed that the American firm’s brand equity was so strong in the United States that the only way the global firm could hope to gain a significant position in the U.S. would be to buy it, which they did.

4.14.2 Brand Equity of Packaged Drinking Water

As per the market research conducted by the team, after their first choice, most respondents to the survey did not really care about what brand of packaged water they got as long as it adequately satisfied their need for quenching thirst or as a cool refresher. That is to say, the respondents would first ask for their preferred choice of drinking water (eg. Bisleri, Aquafina or Kinley) and if their brand was not available, they would settle for the next best and/or available brand. Branding is weak in

packaged drinking water due to the fact that it is seen simply as purified water, with the major advantage for established brands accruing due to an implicit trust in the purity of the water.

4.14.3 Brand Equity of Mineral Water

High end mineral water like Evian command a higher brand equity primarily amongst foreign travellers (both tourists and businessmen/professionals) due to the fact that they are most comfortable with these brands due to exposure in the home country and/or exposure at their hotel. These are again brands that they trust to have the highest standards of purity and health factor. Perhaps one of the reasons Evian's brand is so differentiated is due to their unique brand communication efforts. For example, with the slogan "naturally pure and mineral-balanced water supports your body's youth" the "Live Young" global advertising campaign was launched in July. The advertisement features a group of break-dancing babies and is much more playful than previous ad campaigns.

Evian brand could also be effectively differentiated as a result of their packaging design. Since 1995, Evian has issued limited edition bottles annually with customized design. In 2008 they collaborated with Christian Lacroix, and in 2009 with Jean Paul Gaultier, the Hermes creative director. By working with famous designers to create unique and exclusive bottles, Evian positions its brand as high end and fashionable. Elias Fayad - Evian' zone director for the Middle East - explains, "Every year we cultivate creativity and complicity with a new designer. What they are really doing is looking into the spirit of the brand and adding a little bit of each of their souls. Our water is untouched by man and perfected by nature, so we attempt to give the bottle an artistic expression."

When compared to Evian, local brands like Himalayan, Qua and Vedica have not been able to achieve the same level of equity. Himalayan's efforts were hampered due to a recent disruption in supply to East India where they could not provide the product to their regular customers (this was found out when the team visited various high end restaurants in Kolkata region).

4.14.4 Brand Equity of the Bhutan Brand

The "Bhutan" brand is built on its pristine and untouched natural beauty, the country's regular appearance on "World's Happiest Countries" lists and a general image of purity and a life still close to nature. The Bhutan brand can prove to be a major driver for sales of mineral water while being slightly less effective for simple packaged drinking water. The reason for this is that the country already has an image of cleanliness and purity, something essential to convince consumers of high end mineral water, while not facing the competition from national brands like Pepsi, Coca Cola and Bisleri and also fighting for market share in a rarified space with only about 14 players in India.

4.15. Cost of Production of Water including Extraction, Treatment, Bottling, Capping, Labelling, Transportation and Margins to Channel Partners

4.15.1 Following table depicts the cost of production for 1 liter of branded packaged drinking water based on the information available and standard costing procedures.

Cost of producing 1lt of branded bottled drinking water	
Cap Cost	Rs. 0.25
Bottle Cost	Rs. 1.5-2.5
Treatment Cost	Rs. 0.10-0.25
Label Cost	Rs. 0.15-0.25
Carton Cost	Rs. 0.50
Transportation Cost	Rs. 0.10-0.25
Others	Rs. 0.25
Total Cost excluding Labour, Taxes and Marketing	Rs. 2.85-4.25
Selling Price	Rs. 9-12
MRP	Rs. 12-17
Margins to Suppliers and Distributors	5%-7%
Margins to Retailers	15%-20%

CHAPTER 5

INDIAN MARKET – CHARACTERISTICS, TRENDS, CHALLENGES AND FUTURE PROSPECTS

5.1. Indian packaged water market – High growth

5.1.1 The bottled water market is growing at a rapid rate of around 20% a year. At this growth rate, the market is estimated to compete with the soft drinks market soon. The total size of the bottled water market in India is estimated at Rs 30 bn. The phenomenal increase in demand for bottled water from just 2.0 million cases a year in 1990-91 to nearly 210 million cases presently, was being boosted further by the concern and need for safe drinking water. What is amazing is that people are prepared to pay Rs 10 or more for a bottle of 'simple' water - especially when the cost of material input is negligible. The cost of packaging can be as high as 15% to 35% of the price of the product. In bottled water market, the cost of entry and the cost of exit are low. One does not require heavy investment and much equipment to produce bottled water.

5.1.2 The packaged drinking water is available in various packages ranging from 300 ml bottle / cup to 20 liters jars. During last few years, there has been a tremendous increase in the market size for large (20 liters) packages of drinking water. The 20 liter jars have found phenomenal acceptance in households and in work places. Almost all provisional stores in major cities are selling large size water jars, in addition to water bottles.

5.1.3 The consumption of smaller packs (500 ml) has also increased perceptibly by around 140%. Even school children are carrying the 500-ml packs in their school-bags. The growth trends in packaged drinking water and a growing demand is indicative of the fact that water and its variants will be the single largest beverage category, growing and becoming at least 20 times of the current market size within the next 10-12 years.

5.2. The demand level of packaged drinking water/mineral water – The following table shows the growth in the demand level of bottled water in Indian market.

Demand : Past & Future	
Year	Mn cases
1990-91	2.00
1991-92	2.60
1996-97	11.50
1997-98	15.50
1998-99	20.00
1999-00	26.00
2000-01	33.00
2001-02	44.50
2002-03	55.60
2003-04	68.15
2004-05	82.00

2005-06	97.60
2006-07	114.15
2007-08	131.30
2008-09	149.70
2009-10	169.10
2010-11	189.40
2011-12	210.30
2012-13	231.33
2013-14	254.46
2014-15	279.90
2019-20	450.80

5.3. Salient features of packaged drinking water market in India

- Rapidly growing market, almost at 20% per annum
- Size estimated worth Rs. 15 billion in 2004
- The current estimated size of market is 30 billion
- Projections for 2012 placed at Rs 36 billion
- Per capita bottled water consumption over 5liters
- Available in more than 1000 towns & cities
- 2849 BIS license holders for production of packaged drinking water
- 19 BIS license holder for packaged natural mineral water
- Majority of the bottling plants in South India viz Tamil Nadu
- Almost 200 brands present, 80% local brands
- Consumption of bottled water relates with the prosperity of Indian people

5.4 Market Drivers and key challenges

5.4.1 Market drivers – The Indian market for bottled water has registered the highest rate of growth during 1999-2004. Analysis of the market conditions and factors which have impacted the high growth in this sector shows that the following have been the main market drivers.

- Rise in income and consumption
- Switch over by institutions and organizations in favor of bottled water
- Water shortage or lack of safe drinking water in most places
- Low bottled water consumption
- Increasing consumer awareness on health issues
- Increase in water borne diseases
- Government laws supporting groundwater exploitation
- Sound economics and high profitability
- Growth in foreign visitors and expatriate population

5.4.2 Key challenges – The key challenges identified that are likely to influence the future market scenario of bottled water in India include the following:

- Inefficient transport infrastructure
- Low-entry barriers
- Possible threat from low-quality products
- Possible threat from public campaigns and litigations
- Brand and category differentiation
- Increasing use of water purifiers

5.5 Market Characteristics

5.5.1 The consumption of natural mineral water and the market size in terms of quantum is much smaller as compared to packaged drinking water. Moreover, there are only few companies and brands in the field of packaged natural mineral water as compared to a very large number in packaged drinking water. The 19 BIS license holders for production of packaged mineral water include 1 foreign company (French) and 18 domestic companies. Out of the 18 domestic companies, majority of the units viz 12 are located in Himachal Pradesh followed by 4 units in Uttarakhand and 1 each in Uttar Pradesh and Gujarat. The characteristic features of the Indian market for packaged drinking water and packaged natural mineral water are as under:

5.5.2 Packaged drinking water

- Highly attractive economics
- Huge size of market
- Fiercely competitive
- Number of multinational companies
- Large number of regional and local brands
- Bisleri, the Indian brand account for major share in market
- Production facilities located all over the country
- Maximum number of units being in Tamil Nadu

5.5.3 Packaged Natural Mineral Water

- Consumption mainly by high end customers
- Fast growth in consumption
- Only few manufacturers
- Market dominated by one company
- Domestic brands quite popular
- Niche market for imported premium brands
- Out of 18 domestic units, 12 located in Himachal Pradesh

5.6 Future Prospects

5.6.1 Bottled water is expected to continue its remarkable double-digit volume growth. Although natural mineral water is expected to grow faster than regular still bottled water, its volume sales are not expected to increase substantially. This trend is rather in line with the general perception in the Indian society where-in consumer did not intend to pay a premium price every time for a product as elementary as water.

The average unit price of bottled water is expected to rise gradually in future as the major national players such as Bisleri enter the more margins-driven flavoured bottled water. **Sales are expected to grow by a CAGR of 15% (in constant terms).** Although there was an appreciable price hike by leading bottled water players, the trend is not expected to continue each year. Retail unit prices of still bottled water have been rather uniform during last few years and it is predicted that the constant unit prices of this category will only go up marginally in future, Furthermore, flavored bottled water may offer high growth rates if correctly positioned against carbonates.

5.6.2 Flavoured and functional bottled water categories, which are both being tested by national players, may prove less viable amidst product offerings with similar selling propositions. Fruit/vegetable juice, for instance, may give direct competition to the “health and wellness” enhancement positioning of functional bottled water. In addition, flavoured bottled water could come up against the well-established liquid concentrates as well as widely available carbonate brands. Still bottled water is expected to maintain double-digit growth rates via penetration to semi-urban and rural markets outlets

5.6.3 Aware of its continued growth and potential, several retailers and pharmacy chains are eyeing the bottled water business. Aditya Birla and Apollo Pharmacy may be among the players who enter this highly competitive industry. Some existing players such as Parle Bisleri, Parle Agro and Coca-Cola have been involved in appreciable production enhancement plans, thus signalling their intent to capture a larger share of market.

CHAPTER –6

COMPETITIVENESS OF PACKAGED DRINKING WATER FROM BHUTAN

6.1. Consumer's preference and buying practices

6.1.1 The bottled water market in India comprises of packaged drinking water and packaged mineral water, the former constituting the major share over 90% and mineral water accounting for less than 10%. In packaged water, there are various sizes of packaging ranging from 300 ml to 20 liters or more, while in case of mineral water, the packaging is 300 ml to 1 liter. During market research, the review of the market trends in the packaged drinking water indicates the consumer's habit and buying practices as follows:

- Consumers are growing more health conscious and careful of their drinking habits
- The cross-section of the population is prepared to pay high prices for genuine products
- Brand awareness and availability in the chilled form plays a crucial role in purchase decisions.
- Brand loyalty is very low as all the products taste nearly the same and they can buy just any product which is on the shelf. However, in case of premium mineral water, the brand loyalty is very high.
- While there is no aversion to consumption of packaged water by any age group, this product is mainly consumed by the people in the age group of 20-35 years who have less attraction to soft drinks or other synthetic drinks whereas youngsters look for soft drinks and fruit beverages to quench their thirst.
- Visibility is another factor, as consumers are not very brand loyal and consume whatever is in front of them.
- Consumers often drink bottled water as an alternative to tap water. They think it tastes better and perceive it to be safer and of better quality.
- They also look for health security, and threat of water-borne diseases in developing countries greatly influence consumers' attitude.
- Consumers buy bottled water to feel well and to lose weight. Bottled water is perceived as a healthy alternative to other beverages.
- Increasing urbanization and decline in tap-water quality also explains the popularity of bottled water.
- At the office, a bottle of water is now a common sight on the desk, next to the computer and the telephone.

6.1.2 Major consumers of packaged drinking water – Drinking bottled water is a sign of social status, specially, during social gatherings and other functions. The packaged drinking water market is often categorized on the basis of type of clients which mainly include the following:

- Theatres / cinema halls/ multiplexes
- Corporate
- Caterers
- Picnic spots, Clubs, Gymkhanas
- Hotels, Resorts
- Tourist spots
- Railways
- In-flight kitchens

- School / college canteens
- General Stores
- Household for bulk package

6.1.3 Introduction of natural mineral water in the Indian bottled water industry is relatively a new phenomenon. It is mostly consumed by the high-end income group segment of the society and foreign tourists. Hotels, restaurants, airlines and foreign tourist constitute the major consumer segment of the natural mineral water. The prevalent trends and practices are as under:

- Because it is untreated, natural mineral water is perceived as “natural” by city dwellers / high end consumers always looking for genuine products.
- Higher living standards and greater awareness about health consciousness influences the decision in favor of natural mineral water.

6.2. Emerging trends in bottled water market

The key emerging trends in the bottled water market include the following:



- Brand building
- Institutional sales
- Bulk package market is growing very fast
- Emergence of semi-urban and rural market segment
- Wide packaging formats
- New entrants from other sectors
- Launch of flavored water
- Natural mineral water being exported

6.3. Segments of the market

6.3.1 As would be seen from the forgoing discussions, the major segments / sub-segments of bottled water market in India which need to be examined in the context of this study include the following:

A). Packaged drinking water in

- Bulk package
- Bottle package

B). Natural Mineral Water in bottle package.

6.4 Competitiveness of packaged drinking water from Bhutan in Indian market

6.4.1 Based on the market research findings and the general discussions with the stockists, traders & retailers and the study of consumer behavior, following point have emerged which need to be seriously considered while finalizing the marketing strategy of water from Bhutan in target Indian markets.

- The general market for packaged drinking water is highly competitive and price sensitive
- At majority of the outlets, the local brands compete even with the popular Indian brands
- Average consumer is not brand conscious and the purchase decisions are based on price considerations
- The loyalty for brand equity is very low in case of packaged drinking water, however, in case of premium mineral water, there is a strong brand loyalty.
- The stockists and traders invariably prefer to push the local brands because they get higher margins.
- The stockists and retailers play an important role in promoting the sales of a particular brand.
- The average retail selling price of 1 liter packaged drinking water bottle is ranges from Rs. 12 to Rs. 15.
- On an average, the stockists and the traders take a margin of Rs. 2-3 per bottle for established brand and Rs. 5-7 for local brands. Thus, the trade margins are in the range of 20% to 50%.
- However, in case of premium mineral water, the margins of stockists and traders are much lower in terms of percentage of MRP.

6.4.2 The retail selling price of packaged drinking water in Bhutan is Rs. 15 for 1 liter bottle. The trade margins are quite low. For selling the packaged drinking water in Indian markets, additional cost input in terms of transport cost would be further added. In order to make the packaged drinking water from Bhutan competitive in Indian market, the industry has to re-adjust the price structure of their products for Indian market and offer profit margins to the stockists and traders at par (or higher) with the established Indian brands. The companies place from Bhutan also needs to educate and convince the customers about the superior quality and taste of water from Bhutan. However, in case of natural mineral water, the situation would be quite different and the mineral water from Bhutan could compete with the premium Indian

and foreign brands of natural mineral water provided adequate market promotion efforts are put in place and brand equity of natural mineral water from Bhutan is created.

6.5 SWOT Analysis for water from Bhutan

6.5.1 The market study of water aims at developing a marketing strategy for export of packaged drinking water to India. It is, therefore, desirable to carry out a SWOT analysis of the different categories of water packages from Bhutan in Indian market, based on the findings of the market research & data, trade statistics and observations compiled during detailed market survey. The SWOT analysis based on the findings is as under:

6.5.2 SWOT analysis for marketing of Packaged Drinking water in bulk package – 20 liters and above

<p>Strength</p> <ul style="list-style-type: none"> • Himalayan brand equity • Good quality & excellent taste • Natural water specially mountain spring water • Good environment image of Bhutan • Low cost power 	<p>Weakness</p> <ul style="list-style-type: none"> • High transport costs • Weak supply chain • Problem of transportation of containers back to Bhutan • Product from Bhutan more expensive • Low profit margins to stockists and retailers
<p>Opportunity</p> <ul style="list-style-type: none"> • Advantage of huge market in vicinity • High growth rate in Indian market • Vicinity to many Indian states • Free trade with India • Taste can influence the choice in favour of Bhutan product 	<p>Threat</p> <ul style="list-style-type: none"> • Severe competition from domestic brands. Specially local brands • Not much brand consciousness • Purchase decisions mainly influenced by price • Problems of price competitiveness.

6.5.3 SWOT analysis for marketing of packaged drinking water in bottle package

<p>Strength</p> <ul style="list-style-type: none"> • Good environment image of Bhutan • Himalayan brand equity • Good quality & improved taste • Natural water specially mountain spring water • Development of 'Bhutan Natural', 'Mountain Spring Water' brand equity 	<p>Weakness</p> <ul style="list-style-type: none"> • High transport costs • Weak supply chain • Higher landed cost than the major national/local brands in India • Product from Bhutan more expensive • Low profit margins to stockists and retailers
<p>Opportunity</p> <ul style="list-style-type: none"> • Advantage of huge market • Possibility of placing Bhutan product at par with most preferred brands in India • Taste can influence the choice in favour of Bhutan product • Vicinity to many Indian states • Free trade with India 	<p>Threat</p> <ul style="list-style-type: none"> • Severe competition from national and local brands • Problems of price competitiveness • Purchase decisions mainly influenced by price

6.5.4 SWOT analysis for marketing of Packaged Natural Mineral Water

<p>Strength</p> <ul style="list-style-type: none"> • Good environment image of Bhutan • Assurance about premium quality natural mineral water • Good quality & improved taste • A number of cities and tourist destinations in vicinity • Free trade with India 	<p>Weakness</p> <ul style="list-style-type: none"> • Weak supply chain • Relatively new brand, not so popular • Brand building with high-end consumers is a time consuming and cost intensive process • Limited market demand in Bhutan
<p>Opportunity</p> <ul style="list-style-type: none"> • Advantage of growing market in India • There are no mineral water units in eastern and north eastern region of India • Development of 'Bhutan Natural' brand equity • Possibility of placing Bhutan product at par with premium brands of India and foreign countries 	<p>Threat</p> <ul style="list-style-type: none"> • Problems of entry in high end market • Competition with Indian and foreign brands • Problems in popularizing Bhutan brand

6.6. Marketing Strategy for Water from Bhutan

6.6.1 It is observed from the findings of the market research that packaged drinking water and natural mineral water from Bhutan has to necessarily compete with the major national brands of packaged drinking water in India and the major national/international brands of mineral water. The marketing strategy for packaged drinking water and mineral water from Bhutan has to be designed keeping in view the above factors into consideration. The product mix for marketing in India and the target markets also need to be carefully selected keeping in view the prevailing marketing trends and the quality and competitive strength of the products from Bhutan.

6.6.2 On the basis of SWOT analysis, it can be safely concluded that with adoption of certain trade practices viz. long term contract with stockists and traders and through offering higher trade margins, the packaged drinking water industry in Bhutan can market their produce in Indian markets. The industry has to popularize and advertise their brands in order to make them acceptable to Indian consumers especially in case of high end consumers looking for genuine products viz. high quality packaged drinking water/premium natural mineral water. The industrial units need to develop an organic linkage with trade system in India and to begin with, in eastern and north eastern region. The industry also need to study the pricing structure and trade margins in Indian market in details and adjust according to the prevailing conditions. Adoption of an internationally famous brand in case of mineral water through joint venture or franchising arrangement could be ideally suited for marketing of mineral water in high end markets of mineral water in India. BIS certification is mandatory for marketing of packaged drinking water and packaged mineral water in Indian markets and the industrial units in Bhutan have to obtain a license from Bureau of Indian Standards (BIS), Delhi.

6.6.3 The current size of Indian market for all types of packaged water is around Rs. 30 billion. The major share of this market is constituted by the packaged drinking water and the natural mineral water account for only 10% of the market share. Accordingly the market for packaged drinking water would be around Rs.27 billion and Rs3 billion for natural mineral water. In the packaged drinking water the major national brands account for over 50% market share and the remaining market is catered by the local brands. Further in the packaged drinking water a major share is contributed by bulk packaging in large sized bottles. While estimating the prospective demand size for water from Bhutan in Indian Market the following points need to be kept in mind.

- Packaged drinking water from Bhutan is likely to be marketed mostly in eastern and north eastern region on logistic considerations.
- The target market for natural mineral water would be the major cities mostly in eastern and north eastern part of India
- The main products would be one/two liter bottles
- The sales of water from Bhutan would be in competition to major national brands.
- The target market segment would be major cities in vicinity to Bhutan.

6.6.4 Based on the above considerations the estimated market size in India for packaged drinking water from Bhutan would be around Rs.0.5 to Rs. 0.75 billion per annum.

6.6.5 The production of mineral water is yet to be started in Bhutan and its brand image is yet to be established. However it could be roughly estimated that out of 3 billion market of natural mineral water the product from Bhutan could have a share of around 0.5% viz. around Rs.15 million.

6.7 Marketing Network for Water from Bhutan

6.7.1 As mentioned in earlier chapters there exists a well structured marketing network for supply of packaged drinking water and natural mineral water in India. The two marketing systems viz. direct supply system to retailers in urban areas and Hub and Spokes system for semi-urban and rural areas are being operated throughout the country. It is recommended that initially the bottled water from Bhutan is marketed through the existing trade channels/marketing network. It is estimated that the target markets for water from Bhutan would mainly be the large and medium cities in eastern and north eastern part of India including Kolkata. There are already a large number of existing stockists and dealers who are stocking and supplying the major national brands of packaged drinking water/natural mineral water and the Bhutan products could also be marketed through these stockist & dealers. At a later stage when the sales volumes of water from Bhutan are sufficiently large, appointment of dedicated stockist and dealers could be considered. Some of the suggested consumer segments for water from Bhutan could be high-end hotels and restaurants, tourist centers, corporate, clubs, airports, in-flight kitchens malls and superstores etc.

CHAPTER - 7

SELECTION OF TECHNOLOGY & PLANT FOR BHUTAN UNIT

7.1. Appropriate Production Capacity

7.1.1 The flow rate of water available is used to determine the capacity of plant required for treatment. Some part of the water is used for pre-washing the bottles before filling and that needs to be deducted while arriving at the capacity. It is recommended to design & select a modular concept which can be augmented if required and is capable of accepting size changeovers of various capacities like 200ml, 500ml, 1000 ml and 5000ml.

Table below illustrates the approximate production capacity of 1000ml bottles/min for different flow rates. In a recently carried out survey in Bhutan, based on the flow rate, the capacity for mineral water plants at various locations have been recommended.

Flow Rate liter/min	Approx Capacity bottles/Min
40	34
35	30
30	25
25	21
20	17
10	9

7.2. Appropriate Technology/equipment

7.2.1 The technology/technical concept of the project is dictated by the raw material, the desired output and the cost of achieving the desired outcome. The basic raw material in the case of Packaged Drinking Water is the right source of water, which has to be of the right quality. The technology for processing is in terms of physical treatments for ensuring absence of pathogenic micro-organisms, and in the proper packaging. Some of the other criteria to consider while selecting technology are the flow rate, effluent requirements, setup costs and cost of ongoing maintenance. Packaging/bottling water unit has little waste or by-product and hence can be termed as clean technology.

7.2.2. All international standards for Packaged Natural Mineral Water mandate that the process is carried out under hygienic conditions and original mineral composition of the water is maintained.

7.2.3 The treatment processes specified under these standards do not permit any chemical intervention for modification of any of the essential constituents, by either removal or fortification. The processes selected therefore are of filtration and disinfection before bottling. These processes must not affect the various characteristics of the water as specified in various tables in the Standard IS 13428:2005. Water available from bore well, open-well, spring do not have same physical & chemical characteristics, hence each treatment employed and the design of the plant depends upon the result of raw water analysis report. There are generally three types of impurities in raw water which needs treatment:

- Un-dissolved physical impurities. [Turbidity, Odour, Colour etc.]
- Dissolved chemical impurities. [Mg, Ca, Na, Hco3, iron etc.]
- Microbiological impurities [Bacteria, Virus, Pathogens etc.]

7.2.4 The raw water should be tested in a competent laboratory to ascertain the dissolved chemical impurities, level of pesticides in raw water as it requires typical absorption methods to treat excess level of pesticides. Some of processes carried out for treatment of water without altering the chemical composition are mentioned below:

- Removal of suspended particles & turbidity.
- Removal of undesirable odour and taste.
- Removal of macromolecules such as colloids, proteins, glycols, microbiological contaminants and large organic molecules through Ultra Filtration
- Disinfection through Ultra Violet radiation.
- Ozone Treatment for total disinfection.

7.2.5 The above stages of filtration can be achieved by the following equipment / method.

S. No.	Technology	Equipment
1	Removal of suspended particles & turbidity	Sand Filter
2	Removal of undesirable odour and taste	Activated Carbon Filter
3	Removal of macromolecules	Micron Filter
4	Disinfection	Ultraviolet Radiation
		Ozonizer

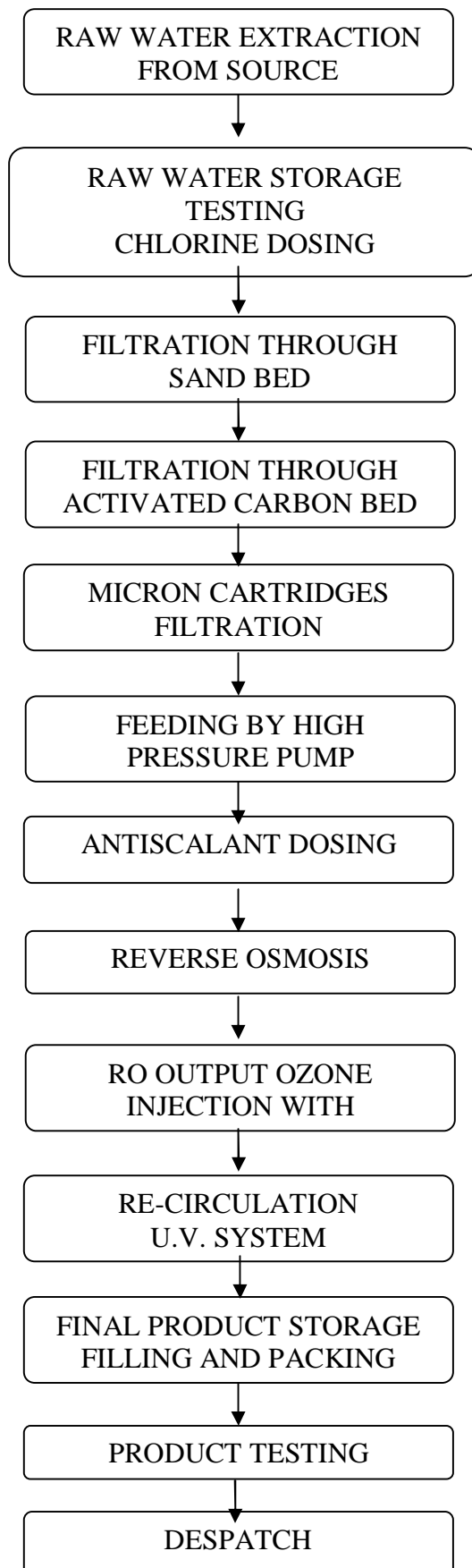
7.2.6 A TYPICAL MANUFACTURING PROCESS: Following treatment steps are involved in the manufacturing process for packaged drinking water:

Raw Water → Raw Water Storage Tank → Raw Water Feed Pump → dosing system 1 & 2 → Pressure Sand Filter → Activated Carbon Filter → Micron Cartridge Filter High Pressure Pump → Reverse Osmosis → Ozone generator and re circulation → Finished Water Storage → U.V System → Filling and Packing → Visual Examination → Storage for testing → Forwarding.

- **DOSING SYSTEM 1 & 2** - The water is drawn from source and collected in storage tank. It then goes to dosing system through raw water feed pump with use of anti-scalant for softening the water.

- **PRESSURE SAND FILTER** - From softener, the water is transferred to pressure sand filter for removing the impurities.
- **ACTIVATED CARBON FILTER** - The water is then passed through activated carbon filter to remove organic impurities.
- **MICRON CARTRIDGE FILTER (MCF)** - Water is then passed through a micron filter or a series of such filters (0.1 – 0.5 u) for removal of fine particles.
- **DEMINERALISATION BY REVERSE OSMOSIS SYSTEM (R.O.)** - Water from MCF goes to R.O. System through High Pressure Pump. R.O. removes 90-95% of dissolved solids. The finished water is passed into Storage Tank.
- **OZONE GENERATOR WITH RE-CIRCUALTION** - Finished water from R.O. system is stored in S.S made storage tank. The tank is provided with the man hole so that the tank can be cleaned. This tank is used as ozone circulation tank. The ozone is passed to this tank for disinfections.
- **U.V. SYSTEM** - Water from S.S. tank is passed through MCF to U.V. disinfection system, where the bacteria are inactivated.
- **FILLING AND PACKING** - Water is then filled in cleaned and rinsed containers.
- **VISUAL EXAMINATION** - Containers are visually inspected for any leakage and suspended matter against illuminated screen.
- **TESTING** - The raw water is tested once in three months. Finished water is tested as per scheme of testing prescribed by BIS.

7.2.7 A TYPICAL PROCESS FLOW CHART



7.3 Selection of technology

7.3.1 The selection of technology depends on the source of water and the type of bottled water proposed to be manufactured. In case of packaged drinking water, normally the source of water is underground water or river /lake water. This water contains harmful micro-organism and invariably not potable due to hardness and other contamination. In order to make it potable as per standards for packaged drinking water, various processes viz. Alum treatment, chlorine treatment, sand filtration, micron cartridge filtration, reverse osmosis, UV sterilization etc. are used to make it potable and safe in conformity to BIS standards. In case of mineral water the original composition of the natural mineral water is required to be maintained and therefore it is not subjected to any chemical treatment. The main process parameters for mineral water include the filtration and biological treatment. The companies are offering the composite mineral water units with facility for filtration and biological treatment. In case of Bhutan project as the main emphasis is on the production of mineral water the selected process technology would be based on the compact filtration unit with biological treatment facilities. The unit for production of PET bottles and filling and packaging plant has to be integrated with the filtration plant.

7.3.2 According to BIS, natural mineral water/package drinking water is required to be packed in clean, hygienic, colourless, transparent and tamperproof bottles / containers, made of polyethylene (PE) conforming to IS 10146 or polyvinyl chloride (PVC) conforming to IS 10151 or polypropylene conforming to IS 10910 or poly-alkylene ter-phthalate conforming to IS 14971 or polystyrene conforming to IS 10142 or sterile glass bottles suitable for preventing possible adulteration or contamination of the water.

7.3.3 There are basically four types of blow molding used in the production of plastic bottles, jugs and jars. These four types are:

- Extrusion blow molding
- Injection blow molding
- Stretch blow molding
- Reheat and blow molding.

7.3.4 Stretch blow molding is perhaps the best known process for producing PET. bottles commonly used for packaging water, juice and a variety of other products. There are two processes for stretch blow molded PET containers. In one process, the machinery involved is injection blow moulding machine. The first stage machine injection molds a pre-form, which is then transferred within the machine to another station where it is blown and then ejected from the machine. This type of machinery is generally called injection stretch blow molding (ISBM) and usually requires large runs to justify the very large expense for the injection molds to create the pre-form and then the blow molds to finish the blowing of the container. This process is used for extremely high volume (multi-million) runs of items such as wide mouth peanut butter jars, narrow mouth water bottles, liquor bottles etc.

7.3.5 The reheat and blow molding process (RHB) is a type of stretch blow process. In this process, a pre-form is injection molded by an outside vendor. There are a number of companies who produce these "stock" pre-forms on a commercial basis. Factories buy the pre-forms and put them into a relatively simple machine which

reheats it so that it can be blown. The value of this process is primarily that the blowing company does not have to purchase the injection molding equipment to blow a particular container, so long as a pre-form is available from a stock pre-form manufacturer. This process also allows access to a large catalog of existing pre-forms. Therefore, the major expense is now for the blow molds, which are much less expensive than the injection molds required for pre-forms.

7.3.6 For packaging of drinking water / mineral water normally PET bottle are used. The raw material for production of bottle is food grade PET granules. The production process comprises of two stages operation viz. injection molding of preform and stretch blow molding of bottles from preform. Besides the Pilfer Proof (PP) caps are manufactured by injection molding. Normally the requirement of raw material for various sizes of bottle is as under:

- 500 ml bottle - 20-22 grams PET granules
- 1 ltr bottle - 28-30 grams PET granules
- PP cap for 28mm neck - 3 grams polypropylene

7.3.7 The following table shows the average weight of perform for various sizes of bottles required for variety of applications including packaging of drinking water/mineral water.

S.No.	Weight (in Gms)	Total Length (in mm)	Neck Size	Std. Pkg. (pcs in carton)	Tentative Application
1.	24.0	107.4	28mm PCO	950	1 Ltr. Water, 300/400/500 ml CSD/juice/1 Ltr. Oil
2.	25.5	100.5	28mm PCO	950	500/600 ml CSD or Juice / 1 Ltr. Oil
3.	25.5	107.4	28mm PCO	950	
4.	27.0	100.5	28mm PCO	950	500 / 600 / 750 ml CSD or Juice
5.	27.7	107.4	28mm PCO	950	
6.	42.0	133.0	28mm PCO	550	1 / 1.25 Ltr. CSD or Juice / 2Ltr. Water
7.	44.0	133.0	28mm PCO	550	2 / 2.25 Ltr Water / 1.5 Ltr. CSD or Juice
8.	48.0	133.0	28mm PCO	550	1.5 Ltr. / 2 Ltr. CSD or Juice
9.	10.5	66	Alaska 3 Start	1900	200 / 250 / 300 ml Water
10.	13.5	81	Alaska 3 Start	1400	500 ml Water
11.	17.5	93	Alaska 3 Start	1200	1000 ml / 750 ml Water
12.	21.0	100.5	Alaska 3 Start	950	1000 ml Water

7.4 Recommended technology

7.4.1 The technology and filtration process need to comply with all the three standards viz. European, Indian and US. The following factors concerning investment and quality of water / water composition are to be taken into account for the selection of System Design.

- Absence of physical and chemical constituents in excess of those permitted by the standard
- Absence of biological contamination
- Lower capital cost
- Lower running and maintenance cost
- Operational suitability for adoption to local environment
- Easy availability of spare parts at lower costs

7.4.2 The choice of the treatment & packaging technology needs to be made keeping the above in mind. The process technology for natural mineral water would comprise the following stage;

(a) Filtration Unit

- Water collection and storage
- Multi stage filtration viz. sand filtration micron filtration
- Biological treatment.

(b) PET bottle manufacturing plant including pre-form moulding unit

(c) Pilfer proof cap manufacturing unit

(d) Bottling, labeling and packaging

7.4.3 As mentioned above the main sections of the mineral water plant include filtration unit, bottle filling, labeling and packaging unit, PET bottle molding unit and PP cap molding unit. The cost of plant would depend on the expected output in terms of numbers of bottle per minute. For a plant capacity with 50 bottles per minute production the corresponding filtration unit would be with a capacity of 5000 liters per hours. The capacity of the PET bottle molding unit and the PP cap unit has also to be synchronized. The estimated cost of the complete plant with 50 bottles per minute (50 BPM) capacity is around Rs. 25 million.

7.4.4 The list of manufacturer / suppliers of filtration plant / bottle filling and packaging unit, PET bottle molding units, PP Cap molding Machines, PET Preforms and PP caps are as given Annexure-IX.

7.5. Comparative Analysis of Cost, Quality and Environmental implications of using different technologies available

7.5.1 This project has no polluting processes, and there is no impact of atmospheric conditions such as temperature, rainfall or wind on the operation of the plant. The choice of technology for treatment of water as mentioned above is dictated by the type of impurities (chemical & Biological) found in water. Bottled water is sold in a variety of packages, pouches and glasses, 330 ml bottles, 500 ml bottles, one liter bottles and even 20 to 50 liter bulk water packs.

7.5.2 The treatment technologies available for Water treatment do not have any adverse impact on ecology, air quality, noise quality which adversely effects the environment. The only impact on cost, quality and environment comes from the choice of packaging material which is either plastic or glass. The same is summarized in the table below

S. No.	Technology	Cost	Quality	Environment Impact
1	Plastic	Low	High	Medium as bottles cannot be reused
2	Glass	Higher than Plastic	Very High	Reusable but transportation cost is higher

ANNEXURES

Annexure I

Scope of Services of the Consulting Firm

The Consulting Firm shall carry out an intensive investigation in close consultation with the Ministry of Economic Affairs and other relevant organizations, and shall;

- Study the structure of water industries at the close proximity and South Asian regional level
- Analyze regional market for water, covering past trends, current scenario and growth estimate for the next 10 years.
- Determine special characteristics and specific fields in which different water i.e. spring, mineral and potable can be marketed
- Identify target market for water, with specific analysis of prices for different types.
- Study existing water plants and list out names and addresses of all water plants in the target market including details of their annual capacity and production
- Study the installed capacity, technology employed, production level of different types, pricing and demand-supply gap in the target market.
- Estimate likely increase in installed capacity and production level of different types of water in the next 10 years in the target market.
- Study end users and list the names and addresses of major consumers of water in target market.
- Estimate demand for Bhutanese water at different consumer levels in the region as well as projections for demand supply gap for next ten years.
- Examine the impact of technological changes that could affect production costs and substitutions and analyze the performance of technology employed for manufacturing of water in the target market.
- Determine the competitiveness of Bhutanese water in the target market as compared to water supply from other sources. Work out details of cost of production per unit, ex-factory price and transportation cost.
- Study in depth the existing marketing programmes and strategies in the target market area.
- Study the possibility of long term market tie up with major consumers of water in the target market.
- Study in detail method of packaging and mode of transportation adopted.
- Determine appropriate production capacity based on market potential for different types of water in Bhutan, market segmentation for the product, and appropriate technology/equipment.
- Recommend appropriate technology and sources of plant and equipment. Provide comparative analysis of cost, quality and environmental implications of using different technologies available.
- Recommend suitable marketing strategy to penetrate the target market as well strategies to develop the market.

Based on the above, the Consulting Firm shall prepare and submit a detailed report on Market Potential for Bhutanese water.

Annexure II

Acknowledgement

The consultant's team would like to express grateful thanks to the following for the contribution and great assistance in making available required data and information that made the writing of this report possible:

1. Mr. LoknathChapagai, Department of Industry, Ministry of Economic Affairs, Thimphu
2. Ms. Yang Chen, Department of Industry, Ministry of Economic Affairs, Thimphu
3. Mr. SangayWangdi, Managing Director, M/s Bhutan Board Ltd. Phuentsholing
4. Ms. Yeshey Chen ChenLham, Chief Research officer, Bhutan Chamber of Commerce & Industry, Thimphu
5. Mr. LeelaDharPokhrel, Marketing Manager, Bhutan Agro Industries Ltd
6. Mr. JigmeTenxin, M/s Tashi Beverages Ltd., Pasakha
7. Mr. IndranilDey, M/s Drangchu Beverages Pvt. Ltd, Phuentsholing
8. Mr. SorjiWangdi, Chief Industrial Officer, Enterprise Development Division, Department of Cottage and Small Industries, Ministry of Economic Affairs, Thimphu
9. Mr. GelegNima, President, Bhutan Exporters Association, Phuentsholing
10. All concerned officers of Department of Industries, MoEA and other stakeholders who provided necessary guidance and support

List of References

1. Tenth Five Year Plan Document 2008-2013
2. Bottled Water Industry in US – www.fastcompany.com
3. Natural Mineral Water – www.articlealley.com
4. Bottled Water of India
5. Mineral Water
6. Bottled Water in India
7. Report on Bottled Water Industry
8. Bottled Water is a Big Business – www.infochangeindia.org
9. Packaging of Drinking Water
10. Beijing Packaged Drinking Water Market Investment Report 2009
11. Bottled Water business
12. Bottled Water – India (Report from Netscribes)
13. WHO / UNICEF Report on Joint Monitoring Programme for Water Supply and Sanitation for Bhutan
14. India Bottle Water Industry – Market Profile
15. Flavoured Water
16. The market of Branded Water Bottle Industry
17. Packaged Water Industry in India: An Overview

Some of the documents collected by the Experts and reviewed are further listed below:

1. Detailed Feasibility Report on Mineral Water Project in Bhutan Report A – Demola (Samdrup Jongkhar Dzongkhag)
2. Detailed Feasibility Report on Mineral Water Project in Bhutan Report B – Eusana Paro Dzongkhag
3. Detailed Feasibility Report on Mineral Water Project in Bhutan Report C – Aipoly Sarpang Dzongkhag
4. Trade Statistics – Bhutan
5. Investment Opportunity Study – 2006
6. Environmental Assessment Act
7. Opportunities for Bhutan by Prof. Gunter Pauli
8. Policy Document “Vision 2020”



Annexure IV

Form 1
[See Regulation 3]
BUREAU OF INDIAN STANDARDS
Product Certification Scheme



APPLICATION FOR LICENCE TO USE THE STANDARDS MARK

Full Name of individual or firm

OFFICE	Address					Tel	<input type="text"/>
	<input type="text"/>					Fax	<input type="text"/>
	City	District	State	Country	Pin		
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Email	<input type="text"/>

FACTORY	Address					Tel	<input type="text"/>
	<input type="text"/>					Fax	<input type="text"/>
	City	District	State	Country	Pin		
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Email	<input type="text"/>

MANAGEMENT	Top Management		Technical Management	
	Name	Designation	Name	Designation
	1	<input type="text"/>	1	<input type="text"/>
	2	<input type="text"/>	2	<input type="text"/>
	3	<input type="text"/>	3	<input type="text"/>
	4	<input type="text"/>	4	<input type="text"/>
CONTACT PERSON & Tel. No.		<input type="text"/>		

CORRESPONDENCE ADDRESS Office
 Factory

SCALE Large
 Small

SECTIOR Public
 Private

This application is being made to use the BIS Standard Mark on:

PRODUCT		
	INDIAN STANDARD	GRADE / TYPE/ CLASS

IS: Part: Sec:	
----------------------	--

--

	Units of Production	Quantity	Value (Rs)
PRESENT INSTALLED CAPACITY (Production per annum)			

DETAILS OF PREVIOUS
CANCELLATION /CONVICTIONS
IF ANY UNDER BIS ACT

SEAL OF FIRM

Signature _____
Name _____
Designation _____
Date of application _____

- Important:
1. Application should be signed by CEO of the firm, or in his absence by authorised representative
 2. Applications from Foreign Manufacturers should be countersigned by Authorised Indian Representative
 3. Please inform whether you are holding BIS licence(s) for any product(s).

Annexure V

Application for Renewal of License

The Director General
Bureau of Indian Standards

Dear Sir,

I / we carrying on business at
(Full factory and office address) under the style of
(Full name of individual or firm) apply for renewal of Licence No. CM/L
_____ dated _____ granted by the Bureau under the Bureau of
Indian Standards Act, 1986, and the Rules and Regulations framed thereunder, as
amended from time to time, for a further period of one year/two years*, the terms and
conditions being the same as stipulated in my/our previous application and the
aforesaid licence, and/or such other conditions as the Bureau may stipulate.

2. Details of production of goods bearing BIS Certification Mark effected under the
licence are given overleaf duly authenticated by Chartered Accountant/ authorized
signatory of the company.

3. I/We are enclosing herewith a Bank Draft No. _____ dated _____
for Rs _____ drawn on _____ towards the
following dues:

- i) Renewal application fee of Rs. 500.00
- ii) Annual licence fee of Rs. 1,000.00 for renewal of one year or
Rs.2,000.00 for renewal of two _____ years.
- iii) Marking fee calculated on unit-rate basis (item 3.1 of the Report
overleaf).
- iv) Previous dues (as per our notice) if any.
- v) Additional annual marking fee of Rs..... as we wish the
licence to be renewed for two years.
- vi) Total amount Rs.....

4. Renewal application dated this _____ day of _____ Two
thousand and _____

Seal of Firm
Seal

Signature
Name
Designation
For and on behalf of

of the firm

*Strike out whichever is not applicable

Contd.....2.....

REPORT OF PERFORMANCE

(Period to be covered by the Report being.....to.....)

Name of Article(s)

IS No.

1. Brand name(s) of BIS Certified article(s)
2. Total production of the article(s) licensed for certification marking
- 2.1 Total production of the article(s) conforming to Indian Standard
3. Production covered with BIS Certification Mark and its approximate value
 - a) Quantity _____; _____
 - b) Value (Rs) _____
- 3.1 Calculation of marking fee on unit-rate basis:
 - a) Unit
 - b) Quantity covered with BIS Certification Mark
 - c) Marking fee rounded off in whole rupees as obtained by applying unit rates given in (a) on quantity given in (b)
4. Quantity not covered with BIS Certification Mark, if any, and the reasons for such non-coverage
5. Quantity and value of BIS certified goods exported
6. Names and addresses of Indigenous purchasers of BIS certified goods
7. Names and addresses of importers of BIS certified goods
8. Brief information regarding difficulties if any, experienced in operating of BIS licence.
9. Authentication by Chartered Accountant

Annexure VI

Names & Address of manufacturers of bottled water units in Bangladesh

1. **Abbas Printers**
90 Bagbari Mirpur
Dhaka – 1216
Bangladesh
Telephone: +880-2-9001991, 01711-322295
Fax: +880-2-9012547
Website: <http://www.abbasprinter.com>
2. **Agricultural Marketing Co. Ltd. (Pran)**
Property Heights, 12 R.K.
Mission Road GPO Box- 83
Dhaka – 1203 Bangladesh
Phone:+880-2-9563126, 9667482-83
Fax: +880-2-9559415
3. **Aqua Fresh Ltd.**
4/1, Hare Street, Wari
Dhaka – 1203
Bangladesh
Phone: +880-2-9564473
Fax: +880-2-8311901
4. **Milcoma Dairy Farm**
27 Sir Iqbal Road
Khulna, Bangladesh
Phone; +880-41-722777, 01711-297947
Fax:+880-41-731285
5. **Sanowara Group Of Company**
Chandgaon I/A, Arakan Road
Chittagong, Bangladesh
Telephone;+880-31-670856, 670090, 671957
Fax: +880-31-671309
6. **Techno Food Agro Ind. Ltd**
380/B, Mirpur Road (3rd Floor)
NDI 27 (Old) 16 (New) Dhanmondi
Dhaka – 1207, Bangladesh
Phone: +880-2-9120130-1
Fax: +880-2-8119062
7. **United Mineral Water & PET Ind. Ltd.**
Suite # 1001, Senakalyan Bhaban, 195 Motijheel C/A
Dhaka – 1000, Bangladesh
Phone: +880-2-7114395-99, 7164464-7
Fax: +880-2-9559848, 9566543

8. **Nazib N. Minaral Water Ind.**
Rahman Manion,161 Motijheel C/A
Dhaka – 1000, Bangladesh
Telephone: +880-2-7114268, 7122352
Fax: +880-2-8618143
9. **Everest Drinks & Dairy Products Ltd**
264/A Tejgaon I/A
Dhaka – 1208,Bangladesh
Telephone:+880-2-9884256, 8819371
Fax:+880-2-8827872
10. **Oasis Industries Ltd**
18, Lalbag, Dhaka – 1000
Bangladesh
Telephone+880-2-8827159, 9330048-9
Fax:+880-2-9345892
11. **Unique Mineral Water**
Jibon Bima Bhaban. 121,
Motijheel C/A, (3rd floor)
Dhaka – 1000 Bangladesh
Telephone:+880-2-9568470
12. **Venus International Ltd**
322,323, Alphana Plaza (2nd floor),
51, New Elephant Road
Dhaka – 1205, Bangladesh
Telephone:+880-2-8624586
13. **Water System Ltd.(Alpine Fresh)**
6,DIT Avenue (2nd floor),Motijheel C/A
Dhaka – 1000
Bangladesh
Telephone:+880-2-9552083, 7110910
14. **Paradise Drinking Water Co.,**
2/11, South Begun Bari, Tejgaon Industrial Area
Dhaka – 1208, Bangladesh
Phone; +880-2-8114765
15. **Eximp Trade Ltd**
House # 45, Road # 1/A, Block-I, Banani,
Dhaka – 1208, Bangladesh
Phone: +880-2-9882518, 8827159
Fax; +880-2-9884641

Annexure VII

Names & Addresses of Manufacturers of Bottled Water in Nepal

1. **Bottlers Nepal Ltd.**
(Manufacturing & Bottling & Sales of Soft Drinks in Nepal)
(Estd. 2035 B.S.)
Managing Director : Mr. Saumindra Bhattacharya
Balaju Industrial District, Balaju
P.O. Box 2253, Kathmandu
Phone: 977-1-4350602 / 4351871
Fax: 977-1-4350227

Branch Office : Bottlers Nepal (Tarai) Ltd., Bharatpur, Chitwan
Phone: 056-520031 / 520416
Fax: 977-56-521819
2. **Gorkha Brewery Pvt. Limited**
(Manufacturing (FMCG))
(Estd. 2043 B.S.)
Managing Director : Mr. Helle Muller Petersen
Hattisar
P.O. Box 4140, Kathmandu
Phone: 4444445
Fax: 977-1-4444443
Email: info@gorkhabrewery.com.
Url: <http://www.gorkhabrewery.com>
3. **Highland Beverages (P) Ltd.**
(Mineral Water)
Chairman : Mr. Dinesh Lal Shrestha
Managing Director : Mr. Sabin Lal Shrestha
Post Box No. 7207
Ram Rukmini Sadan, Kathmandu
Phone: 4439343, 4436349, 4439349
Fax: 977-1-4419297
Email: hdpl@info.com.np.

Branch Office : POB 9282, Kathmandu
Dhaksi, Kathmandu
Phone: 4268148
Fax: 977-1-4268148
4. **Himalayan Spring Water P. Ltd.**
(Pet Bottles, Natural Spring Water)
Director : Mr. Kim Jae Woong
Director : Mr. Han Hyung Sig
Director : Mr. Lee Myung-Ku
Director : Mr. Yeo Bong Sook
P.O. Box 19639 Lalitpur

Kathmandu, Nepal
Phone: 4001034
Fax: 977-1-5573896
Email: hsw@himalayaswater.com; ylryu@himalayaswater.com.
Url:<http://www.himalayaswater.com>

5. **Himalayan Distillery Limited**
(Production and sales of spirits and bottled alcoholic)
(Estd. 2042 B. S.)
Chairman : Mrs. Magiee Shah
Managing Director : Mr. Raj Bahadur Shah
Post Box No. 423, Kathmandu
Phone: 5522010
Fax: 977-1-5538236
Email: hd@ecomail.com.np.
Url:<http://www.himalayandistillery.com/>

6. **Shree Distillery (P) Ltd.**
(Producer & Distribution of Liquors / Drinks)
Chairman / M.D. : Mr. Mathura Pd. Maskey
General Manager : Mr. Ashok Pradhan
GPO Box 13860, Kathmandu
Phone: 4416330, 4428607, 4422430, 4441195
Fax: 977-1-4419617
Email: shreeo@mos.com.np.

Factory : Arun Khola, Nawalparasi
Phone: 078-555031, 555038
Fax: 977-78-555110
Email: shreefac@vianet.com.np

7. **Sumy Distillery Pvt. Ltd.**
(Quality Liquor Production)
(Estd. 2053 B.S.)
Chairman / M.D. : Mr. Karma Ghale
P.O. Box 8975 EPC 5407
Maharajgunj, Kathmandu
Phone: 4720818, 4720849
Fax: 4720819
Email: sumy@mos.com.np.
Url:<http://www.sumy.com.np>

Branch Office : Mukundapur VDC Ward No. 9, Beldiya, Nawalparasi
Phone: 078-545121
Fax: 078-545121

8. **The Nepal Distilleries (P) Ltd.**
(Manufacturers, marketers & exporters of liquor products (Khukuri Rum))
(Estd. 2016 B. S.)
Chairman / M.D. : Mr. Aditya Konoj

Chief Executive Officer : Ms. Amit Goswami
Balaju
PO Box 45, Kathmandu
Phone: 4350725, 4350988
Fax: 977-1-4350971
Email: nepaldis2006@yahoo.com

9. **United Breweries Nepal (P) Ltd.**
(Manufacturer of Beer)
(Estd. 2022 B. S.)
Chairman : Dr. Bijaya Mallya
President : Mr. Kalyan Ganguli
General Manager : Mr. Prem Dhvaj Thapa
Lazimpat, Kathmandu
Phone: 4443072
Fax: 977-1-4443072
Email: ubnpl@vianet.com.np.

Factory : Hetauda Industrial Estate, PO Box 4, Hetauda
Phone: 057-520451, 520452
Fax: 977-57-521398
Email: ubnpl@vianet.com.np

10. **United Spirits Nepal Pvt. Ltd.**
(Production & Sale of Liquor)
(Estd. 2039)
Chairman : Dr. Vijay Mallya
General Manager : Mr. Komal Pd. Sharma
Tanki Sinwari-2
P.O. Box 2, Morang
Phone: 021-526865, 524396
Fax: 977-21-526911
Email: rajesht@mos.com.np, nlpl@bcn.com.np.

City Office : P.O. Box 1882, Kamaladi, Kathmandu
Phone: 4223342, 4224252
Fax: +977-1-4226290

11. **Varun Beverages (Nepal) P Ltd.**
(Manufacturer of Soft Drinks & Beer)
(Estd. 2042 B. S.)
Chairman / M.D. : Mr. Ravi Jaipuriya
Director : Mr. Sard Garg
Sinamangal, Koteswar
PO Box 2968, Kathmandu
Phone: 6630966, 6630909
Fax: 977-1-6630584
Email: pcnpl@mail.com.np

Annexure VIII

Names & Addresses of stockist and dealers in target Indian markets

(a) Mineral Water- EVIAN, Himalayan Catch

1. Mr Sujan Saha(Proprietor)
M/s Trishna Beverages
3/79, NR Jadavpur Viveknagar Tricon Park,
Vivek Nagar, Santoshpur,
Kolkata – 700075
Ph: +(91)-33-66039245, +(91)-9836574006
2. **M/s L N Enterprises**
5/99, Water Pump, Kaikhali, DAS Para
Kolkata Airport, Kolkata-700052
Phone: 91-9830313653, 9830007645
3. Mr Navin Singhanian
M/s Riddhi Industries
23a,1ST Flr, Opp Coal India,
N S RD,, kolkata GPO,
Kolkata – 700001
Phone: +(91)-(33)-22313396
+(91)-9830118658
+(91)-(33)-22300128
4. **M/s Flow Link**
27c, Near Lancedown Market, Bakulbagan Row,
Bhowanipur, Kolkata-700025
Phone: 91- 33-66346561
5. **M/s Mount Everest Mineral Water**
C/0 Tata Tea Ltd., Eishop Lefrory Road
Kolkata-700020
6. **M/s S Enterprise**
91, Near South City Mall,
Jodhpur Garden, Kolkata

Bisleri

7. **M/s Orient Beverages LTD**
Nh 6,Mumbai Highway,
Salap More,Howrah,
Makardah, Howrah – 711409
Phone; +(91)-(33)-26538735, 26536412, 32575836

8. **M/s Pine Cask Beverages India Pvt Ltd**
A/148, Lake Gardens,
Kolkata – 700045
Phone +(91)-(33)-24229111
9. **M/s B C D Trading ENT**
1/1b, Prince Gulam MD Shah RD,
Kolkata – 700032
Phone; +(91)-(33)-32982916, +(91)-9831747632
10. **Mr Navin Singhania**
M/s Riddhi Industries
23a,1ST Flr, Opp Coal India,
N S RD,, kolkata g p o,
Kolkata – 700001
Phone: +(91)-(33)-22313396, +(91)-(33)-22300128 +
(91)-9830118658
11. **N S Enterprise**
20b, Near Scottish College, Goabagan Street,
Beadon St. Kolkata-700006
12. **Nandi Enterprise**
Balaram Bose Ghat, 52/3 Harish Chatterjee Street
Ground Floor, Rashbehari Avenue,
Kolkata-700026
13. **P N Enterprise**
Balaram Bose Ghat, 52/3 Harish Chatterjee Street
Ground Floor, Rashbehari Avenue,
Kolkata-700026
14. **Surekha Projects Pvt limited**
Sethi Trust Bldg, Unit 2, 8th Floor,
SBI Gmch Branch,
Compount, Bhanagarh, Guwahati-781005

Kinley

15. Mr. Hulas Todi
M/s Metropolis (The Complete Family Mart) in New Alipur
99 Block-B, New Alipore Opp Calcutta Mint,
N R Avenue, New Alipur,
Kolkata – 700053
Phone; +(91)-(33)-24458471, 24458472,
24458473, 24458474, +(91)-9830616476

16. Mr Surjya Banerjee
M/s Swaraj Distributors
A 30, Purba Diganta,
Kolkata – 700075
17. Mr Uttam Mukherjee(Proprietor),MS Ruma Mukherjee
M/s Fortune Enterprise
6, Near Nagar Bazar Auto Stand,
Rastra Guru Avenue, DUM DUM,
Kolkata – 700028

Phone +(91)-(33)-69525345+(91)-9874491816
18. Mr Raja Roy
M/s MAA Tara Enterprises
AD 48, Near Kestopur, Prafulla Kanan,
Kolkata – 700101
Phone; +(91)-9748192599, 9163998715
19. Mr Nibir Joarder(Sales Manager),Mr Raja Sen (Area Sales Manager)
Crystal Spring A Unit Of Diamond Beverages
P 43 ,, Near Ginzira Bazar, Taratala Road, Brace Bridge, Kolkata - 700088
Phone: +(91)-(33)-39878200, 39878286, 39878289
+(91)-9830924804, 9830910093
20. **Shyamal Ram**
185, Chakarborty Para,
Near Kasba New Market,
Rajdanga Main Road Kolkata
Phone: 91-33-66347581
21. **M/s S Enterprise**
91, Near South City Mall,
Jodhpur Garden, Kolkata
Miscellaneous brands
22. Ms Sumita Dey
M/s Greenage Food Products Ltd
3,3rd Flr, Nr Peerless Bhavan, Dacres Ln,
Kolkata – 700069
Phone: +(91)-9331245603
23. Mr Surjya
M/s Banerjee Enterprise
23a473,Block K, D H Road,
New Alipur, Kolkata - 700053
Phone: +(91)-(33)-24003989, +(91)-9830271159

24. **Mr Rakesh Singh** -(sales Manager),**Mr Nabin Goenka**(Director)
M/s Bells Canadian Water PVT LTD
25, Marshall House, Room No 476, Strand Road,
Kolkata – 700001
- Phone +(91)-(33) 22314217, 25264166
+(91)-9830994217, 9830016950, 9830142452
25. **Mr Moloy Bhusan Sarkar,Mr Indranil Sarkar**
M/s Friends Enterprise
AF-314,, Kestopur,, Rabindrapally,Talbagan,,
Krishnapur, Kolkata - 700102
Phone: +(91)-9007366582
26. **BN Industries Pvt.T Ltd**
KamakhyaUmananda,
A T Road, Guwahati, Assam
27. **MA Kamakhya Agency**
Janpriya Market, Paltanbazar,
Guwahati, Assam
28. **Ashish Enterprise**
M S Road, Fancybazar, Guwahati, Assam
Mr Sujan Saha(Proprietor)

Names & Addresses of Plant & Machine Suppliers

(a). Filtration plant and bottle filling and packaging plant

- 1. Neel Hydrotech -**
1992, UdhavSadan,
Madiwale Colony, SadashivPeth
Pune, Maharashtra - 411 030,
India
Phone: +(91)-(20)-24476611
Fax: +(91)-(20)-24476611
Mobile / Cell Phone: +(91)-9850586055
Website: <http://www.neelhydrotech.com/packaged-drinking.html>
- 2. Raindrops Water Technologies, Ahmedabad-**
No. 144, 145, Pushpack Industrial Estate,
G. I. D. C. Phase - 1, Vatva,
Ahmedabad, Gujarat - 382 440, India
Send Enquiry
Phone: +(91)-(79)-25895047/40083090
Mobile: +(91)-9824317428/9687617428
Website: <http://www.waterfiltrationplants.com/>
- 3. Marcuras Water Treatment (India) Pvt. Ltd.**
W-194 B, 'S' Block,
MIDC Bhosari, Pune,
Maharashtra - 411 026, India
Send Enquiry
Phone: +(91)-(20)-65110102/65110103/65110104/65110107
Mobile / Cell Phone: +(91)-9823082268
Website: <http://www.marcuras.com/customised-ro-plants.html>
- 4. Sunman Engineering, Inc.**
C- 3163, 2nd Floor,
Greenfield Colony, Shopping Complex,
Faridabad, Haryana - 121 003, India
Send Enquiry
Phone: +(91)-(129)-2512497 Fax: +(91)-(129)-2512497
Mobile / Cell Phone: +(91)-9811510453
Website: <http://www.sunmaninc.com/>
- 5. Eco-Chem Laboratories Private Limited-**
No. 5 & 6, S-9, Second Floor,
Swathi Enclave, Amman Koil Street,
Vadapalani, Chennai,
Tamil Nadu - 600 026, India
Send Enquiry
Phone: +(91)-(44)-42134272/65661267 Fax: +(91)-(44)-42134391

Mobile / Cell Phone: +(91)-9791165532/9840755598

Website: <http://www.water-treatmentplant.com/>

6. Shivsu Canadian Clear International Ltd-

Address: No. 149, Poonamallee High Road,

Kilpauk, Chennai,

Tamil Nadu - 600 010, India

Send Enquiry

Phone: +(91)-(44)-28362461/28362469

Fax: +(91)-(44)-28362470

Mobile / Cell Phone: +(91)-9841076307

Website: <http://www.indiamart.com/shivsu/>

7. NovatechEnviro Systems Private Limited-

13, Shakti Nagar,

Dahisar East, Mumbai,

Maharashtra - 400 068, India

Phone: +(91)-(22)-28481118

Fax: +(91)-(22)-28481056

Mobile / Cell Phone: +(91)-9821314621/9820187775

Website: <http://www.novatechenviro.in/>

8. Aqua Ion Exchange Systems, Coimbatore-

No. 20, Old No. 3,

Dhanalakshmi Nagar, 100 Feet,

New Scheme Road, New Sidhapudur,

Coimbatore, Tamil Nadu - 641 044, India

Phone: +(91)-(422)-6456082/6548282

Fax: +(91)-(422)-4388781

Mobile / Cell Phone: +(91)-9843091913

Website: <http://www.aquaionexchange.com/>

9. Unistar Aquatech Private Limited-

First Floor, Jaina Complex,

3-A, Veer Savarkar Block,

Shakarpur, VikasMarg, Delhi,

Delhi - 110 092, India

Phone: +(91)-(11)-22464644

Mobile / Cell Phone: +(91)-9811701883/9212151883

Website: <http://www.unistaraquatech.com/>

10. Neel Techno Sales & Services

Sales Office S. No. 51 / 1 / 19,

Tanaji Nawle Industrial Estate,

Narhe Road, Narhe,

Behind Abhiruchi Off Sinhagad Road,

Pune, Maharashtra - 411 041, India

Mobile / Cell Phone: +(91)-9850068396/9922231196

Website: <http://www.indiamart.com/neeltechnosales/>

- 11. Sundex Process Eng. Pvt. Ltd.**
201- 202 Omex Chambers,
RajarshreeShahuMaharajMarg,
Andheri East, Mumbai,
Maharashtra - 400 069, India
Phone: +(91)-(22)-26820336/26822415
Fax: +(91)-(22)-26824830
Mobile / Cell Phone: +(91)-9870271007
Website: <http://www.solventextractionplant.com/mineral-water-plants.html>
- 12. Environmental Products (India) Pvt Ltd.**
Mr.R. S. Nair (Managing Director)
160/3 Rajani House, Opp. Don Bosco High School, L.T.Road,
Borivili (W) Mumbai -400091
Tel: +91 22 28333601
Fax: + 91 22 28331506
Email: epipl@mtnl.net.in
Website: www.epipl.com
- 13. Zen Engineering**
Mr Ramesh Nakhwa
5, Om Anand Ind. Est., Raghunath Nagar,
Thane [West], 400 604 - Maharashtra, India
Tel: 91-22-25836712,
Fax: 91-22-25837431
E-mail : zenengineering@vsnl.net,
Website: www.zenengineering.net
- 14. Gujarat Ion Exchange and Chemicals Ltd.**
Mr.Vyomesh Patel (Managing Director)
T-14, Balaji Centre, Drive-In-Road,Opp. Gurukul,
Memnagar, Ahmedabad -52
Tel: +91-79-27461006
Fax: +91-79-27411006,
Email: info@giecl.com

(b). PET bottle / PP cap manufacturing plant

- 15. Maruti Machines Pvt. Ltd.**
B-24, Ambica Ind. Estate, Ambica Nagar, Odhav,
Ahmedabad
Gujarat-382415
Telephone: 91-079-22975760, 00919879798821
Fax: 91-079-22874026

- 16. Shivasu Canadian Clear International Ltd.**
149 Poonamallee High Road, Kilpauk
Chennai Tamil Nadu
Telephone- 91-044-28362461 - 69-71
Fax; 91-044-28362470
- 17. Shreeji Shrink Systems**
G-201 / 202, Kailas Industrial Complex, Off. L. B. S. Marg, Parksite, Vikhroli
Mumbai, Maharashtra
Telephone; 91-022-25180378, 25180388, 4011388
Fax: 91-22-25180398
- 18. San Plastics**
Light Industrial Area Plot 5 / 6 Shed 1 Sector 10b
Gandhidham
Gujarat
Phone; 91-2836-224140, 9687 222222
- 19. Esemplast**
Mr.K.K.Choudhry
77/10, GIDC Estate, Ph I Vatva,
Ahmedabad -382445
Tel: +91 79 25834092
Mobile: +91141 9314504111
Email: contact@esemplast.com
Website: www.esemplast.com
- 20. Ferromatik Milacron India Limited**
Northern Region Office: 209/29, Link Road Lajpat Nagar-III,
New Delhi-110 024
Tel: +9111 29839102, 29839188,
Fax: +9111 29832065
Email: ferromatic@eth.net
Website: www.milacronindia.com
- 21. Artek Enterprises Pvt Ltd**
45, Deepak Building, 13, Nehru Place,
New Delhi-110019
Tel: +9111 41618378-79
- 22. Esar Machinery**
Mr.K.K.Choudhry
52, Ph II, Opp Vatva Railway Station,GIDC Vatva,
Ahmedabad - 382445
Tel: +9179 25832029,
Mobile: +91141 9314504111
Fax: +9179 25894125

- 23 Artek Enterprises Pvt. Ltd. (Ranasons)**
Mr.Kishore Mengnani
505 Madhuban Building, 55 Nehru Place,New Delhi-110 019
Tel: +9111-51618378 / 79, 26484672-73
Fax: +9111-26216934
E-mail: arteke@vsnl.com

C. Manufacturer / Suppliers of PET preforms and bottle caps

PET Preforms

- 24. Surat Bottling Co. Pvt. Ltd.**
Mr.Shurid Mody(Managing Director)
Plot No.118, Aram Nagar II,Versova Road, Machalimar,Andheri (W),
Mumbai400061
Tel: +9122 26305668, 9
Fax: +9122 26301811
Mob: +91-9820098634
Email: contact@rivapet.com
www.rivapet.com
- 25 Sunrise Containers Ltd. (SUNPET)**
M/s. Rosy Almeida, 405, Acme Industrial Park, Off. I.B.Patel Rd
Goregaon (E) Mumbai - 400063 India
Tel: +91 - 22 - 26861701
Fax: +91 - 22 - 26862714
E-mail:contact@sunrisecontainers.com
<http://www.sunrisecontainers.com>
- 26. Salos Resources (M) Sdn Bhd**
No.26 & 28 Jalan PM 6, Kawasan Perindustrian Merdeka,
75350, Melaka, Malaysia.
Tel: +606-3173880 3173893 3173829
Fax: +606-3173872
E-Mail:salos@streamyx.com
- 27. Sri Balaji Pet Polymers,**
21-7-801/2/3, 1st Floor, Silver Oak Plaza,
Ghansi Bazar, Hyderabad,
Andhra Pradesh - 500 002, India
Phone: +(91)-(40)-65700019/64555269
Mobile / Cell Phone: +(91)-9848155262
- 28. Suruchi Industries,**
104, Prakash Chambers 6,
Netaji Subhash Marg, Darya Ganj,
New Delhi, Delhi - 110 002 , India
Phone: +(91)-(11)-23262246 Fax: +(91)-(11)-23262246
Mobile / Cell Phone: +(91)-9873435222/9816071333

- 29. Siddarth Plast**
21-7-801/2/3, 1st Floor, Silver Oak Plaza,
Ghansi Bazar, Hyderabad,
Andhra Pradesh - 500 002, India
Phone: +(91)-(40)-65700019/64555269
Mobile / Cell Phone: +(91)-9848155262
- 30. Real Engineering Works**
A - 17, Mahadev Industrial Estate,
Cellulose Mill Compound, Near Canal, C. T. M. Ramol Road,
Ahmedabad, Gujarat - 380 001, India
Phone: +(91)-(79)-65441737/25851737 Fax: +(91)-(79)-25851737
Mobile / Cell Phone: +(91)-9879590257/9879506257
- 31. Maheshwari Polymers**
No. F-31, Udyog Kunj, Industrial Area,
Hapur By-Pass Road, NH-24, Ghaziabad,
Uttar Pradesh - 201 302, India
Phone: +(91)-(120)-2761086/2761088/6522629
Fax: +(91)-(120)-2761087
Mobile / Cell Phone: +(91)-9811327509/9810113343
- 32. Southern Polypet Private Limited,**
Door No. 46, SIDCO Industrial Estate,
Thirumazhisai, Chennai,
Tamil Nadu - 600124, India
Phone: +(91)-(44)-26811123/26811227
Mobile / Cell Phone: +(91)-9841001912/9551050342
- 33. Manilai Pack Private Limited,**
Chandanmani Opposite Kalupur Chakla Post Office,
Tankshal Road, Kalupur, Ahmedabad,
Gujarat - 380 001, India
Phone: +(91)-(79)-22138922/22130109 Fax: +(91)-(79)-
22170067/22170067
Mobile / Cell Phone: +(91)-9825018746
- 34. A One Plast, Bangalore**
NO. 41, NAGAWARA MAIN ROAD, K. G. HALLI, Bangalore - 560045,
Karnataka, India
Phone: 91-80-25461900, +919449710000
- 35. Vishal Beverages Private Ltd**
No. 43 - A, Laxmibai Nagar, Industrial Estate,
Kila Maidan, Indore,
Madhya Pradesh - 452 006, India
Phone: +(91)-(731)-2412229/2610665 Fax: +(91)-(731)-2411069
Mobile / Cell Phone: +(91)-9993562164

- 36. Master Pet Industries**
Mr. Vivek Patel (Partnership)
K1 - 26/1, G.I.D.C. Kadi, Nr. Somani Ceramic
Kadi, Gujarat - 382 715, India
Email: masterpetind@yahoo.com
Phone: +(91)-(2764)-241415, +(91)-9327911517/ 9327912117
- 37. Simplex Chemopack Pvt.Ltd**
N-1, Hingna Road,
MIDC Industrial Estate,
Nagpur, Maharashtra - 440 016, India
Phone: +(91)-(7104)-237802/237602 Fax: +(91)-(7104)-232593
Mobile / Cell Phone: +(91)-9823221119/9545432000
- 38. Alpha Pet**
S - 1010, Belgium Square,
Ring Road, Surat, Gujarat - 395 003, India
Phone: +(91)-(261)-2422666
Mobile / Cell Phone: +(91)-9327552138
- 39. Crystal polymers**
B-228/1, 5th Main, Peenya 2nd Stage,
Peenya Industrial Area, Bangalore,
Karnataka, 560058, INDIA
Fax - 91-22-28737073
Telephone - 91-80-42111260, Mobile - +919620663000
- 40. Empire Plastics,**
No. 8/3 - B, Gurudas Dutta Garden Lane,
Kolkata, West Bengal - 700 067,
Phone: +(91)-(33)-22103905 Fax: +(91)-(33)-22103564
Mobile / Cell Phone: +(91)-9748626510
- 41. Manjushree TechnoPack Limited**
No. 60 - E & F, Bommasandra Industrial Area,
Hosur Road, Bengaluru,
Karnataka - 560 099, India
Phone: +(91)-(80)-43436200/43436100 Fax: +(91)-(80)-27832245
Mobile / Cell Phone: +(91)-9611131541/9980085241

Bottle caps

- 42. Plenco Closures Pvt. Ltd.**
Mr. Sanjay Singh
72, Raja Industrial Estate, P. K. Road, Mulund (West) Mumbai - 400 080
India.
Tel: +91 22 2567 1718+91 22 2562 8017
Fax: +91 22 2564 5457
Email: sales@plencoindia.com

ABBREVIATIONS USED IN THE REPORT

RGOB	–	Royal Government of Bhutan
MOEA	–	Ministry of Economic Affairs
IDRG	–	International Development Resource Group Consultancy Services
BIS	–	Bureau of Indian Standards
IS	–	Indian Standards
TDS	–	Total Dissolved Solids
WHO	–	World Health Organization
PET	–	Poly-ethylene Ter-phthalate
FDA	–	Food & Drug Administration
UNICEF	–	United Nations International Children Emergency Fund
TOR	–	Terms of Reference
SWOT	–	Strength, Weakness, Opportunity & Threat
STQM	–	Standard Testing Quality & Metrology
BPM	–	Bottles Per Minute
BCCI	–	Bhutan Chamber of Commerce and Industry
DGCIS	–	Director General Commercial Intelligence Services
SKU	–	Stock Keeping Unit