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# AN ANALYSIS OF INDIA'S BILATERAL MERCHANDISE TRADE WITH SAARC

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## Abstract

The paper analyses bilateral merchandise trade concentration between India and SAARC by using Hirschman Index (HI). The study also examines whether the nature of bilateral trade is inter-industry or intra-industry by applying Trade Overlap Index (TOI). It further finds out India's intra-industry trade (IIT) with SAARC by employing Grubel and Lloyd Index (G-L) covering period from 1990-91 to 2013-14. The results confirm that the product concentration is high in India's imports from SAARC rather than its exports to SAARC. Hence, it is inferred that the trade still revolves around narrow range of products. TOI suggests that the component of intra-industry trade in the total trade is increasing. G-L Index shows IIT is growing at the annual growth rate of 7.07 percent with cement, chemicals, textiles and base metals registered remarkable growth. The segregation of HS-08 digit products as per WTO classification reveals increasing contribution of the IIT for raw materials, intermediate, consumer and capital products in the bilateral trade between India and SAARC.

*Keywords:* Bilateral trade, SAARC countries, Inter-industry trade, Intra-industry trade, Hirschman Index, Trade Overlap Index, Grubel and Lloyd Index.

*JEL Codes:* F10, F14

## 1. INTRODUCTION

World with increasing globalisation has borderless societies which include opening up of international borders for economic, financial and cultural transactions. The Regional Trading Agreements (RTAs) has become a crucial agenda for the progressive trade strategies of a country. The foreign trade and economic growth of a country are interrelated and if more countries integrate with each other the economic growth would be greater. The RTAs not only remove trade barriers but also go beyond to cover non-tariff barriers (NTBs) investments liberalization of and other open economic policies. Since 1990s, number of RTAs has tremendously increased and reached to 230 in 2004. The trade between the RTAs partners was 40 percent of total world trade in 2004 (Ghani and Din, 2006). The repeated failure of multilateral negotiations at the World Trade Organization's (WTO) ministerial meetings could be one of the reasons for increase in the large number of RTAs. South Asia is not an exception to this, the seed of RTA was sown in the year 1985, with the formation of South Asian Association for Regional Co-operation (SAARC) which includes India, Sri Lanka, Pakistan, Nepal, Bangladesh, Bhutan and Maldives. SAARC countries established South Asian Preferential Trade Agreement (SAPTA) in 1995 to encourage intra-regional trade among them. Afterwards, it was converted into South Asian Free Trade Agreement (SAFTA) in 2006. Remarkably, during the period from 1990-91 to 2013-14, India's two-way merchandise trade with SAARC increased at a Compound Annual Growth Rate (CAGR) of 16.02 percent per annum. It was just US $627.66 million in 1990-91which increased to US $19368.23million in 2013-14. In spite of this, India's exports to SAARC countries have always been hovering around 4 to 5 percent of its total world exports whereas the share of SAARC countries in India's total imports has been very negligible. The paper, therefore, assesses India's merchandise bilateral trade concentration using Hirschman Index (HI) and Intra-industry trade in the merchandise bilateral trade between India and SAARC.

The paper canvasses reciprocal trade relation between India and member of the SAARC as a group. Section Two concisely traces evolution of SAFTA and throws light on the studies which emphasized on the intra-regional trade among SAARC countries. Section Three describes methodology and data sources. Section Four deals

with India's Hirschman Index (HI), Trade Overlap Index (TOI) and Intra-Industry Trade Index (G-L) with the SAARC as a group. Section Five concludes the paper.

## 2.1 EVOLUTION OF SAARC TO SAFTA

South Asian Association for Regional Co-operation (SAARC) comprises of eight countries *viz.,* India, Bangladesh, Nepal, Sri Lanka, Pakistan, Bhutan, Maldives and Afghanistan is a new member from 3rd April, 2007 (not a member of SAFTA). Therefore, Afghanistan is not being included in this study. In the year 1985 the SAARC was established with an initiative of Bangladesh. It has seven member countries and has the objectives of peace, freedom, social justice, mutual understanding, good neighbouring relations and meaningful co-operation among countries in the region. However, integration of Asian economies was not an innovative phenomenon, they were just assaying to return to their glorious past.

After the formation of SAARC in 1985, the second step of the economic integration was the SAPTA, which was approved during Sixth Summit held in Colombo in December, 1991. An agreement of SAPTA was signed on 11th April, 1993 and came into force on 7th December, 1995 well in advance of the date specified by the Colombo Summit. The main objective of SAPTA was to increase trade and economic co-operation among the SAARC countries through strong exchange of concessions on imports from the other member countries. Four rounds of trade negotiations have concluded in SAPTA. Each round contributed to an incremental trend in the terms of product coverage and deepening of tariff over the previous round. Under SAPTA-1, 10 to 25 percent reduction in tariff was agreed upon for 226 products by all member countries. In the second (SAPTA-II) and third round (SAPTA-III) the number of products accelerated to 1868 and 3456 respectively. Under SAPTA, SAARC member countries have been given concessions on almost 4951 products. Out of these, Bhutan has been given concessions on 266 products, India on 2402, Maldives on 390, Nepal on 425, Pakistan on 685, Bangladesh on 572 and Sri Lanka on 212 products (Ahmed, 2002). Essentially, SAPTA made a distinction between the least developed *i.e.,* Bangladesh, Bhutan, Nepal, Maldives and developing countries like India, Pakistan and Sri Lanka. The negotiations under SAPTA were held on the basis of request and offer approach, where each exporting

country would come up with a country specific request list of its exportable items on which it desired to seek preferential market access. The counter country then could make an offer on products from request list which indicated the extent of tariff concessions in terms of Margin of Preference (MoP). Under special and deferential treatment, least developed countries in the group got the concessions on more number of products with deeper MoP without necessarily reciprocating equivalent concessions to the member developing country (Ratna and Sindhu, 2008).

SAPTA was envisaged as a primary step towards transition to South Asian Free Trade Area. In 1995, Council of Ministers set up an Inter Government Expert Group (IGEG), to identify needs and take some necessary steps for progressing towards the Free Trade Area (FTA). The tenth SAARC Summit decided to establish a Committee of Experts to draft a comprehensive treaty for creating FTA within the region with the aim of keeping realistic achievable targets considering the asymmetric development within the region. An agreement on SAFTA drafted by the Committee of Experts was signed during the 12$^{th}$ SAARC Summit held in Islamabad on 6$^{th}$ January, 2004 and it was expected to enter into force on 1$^{st}$ January, 2006, but because of various issues there was six months delay in the implementation of SAFTA. Ultimately, SAFTA came into force on 6$^{th}$ July, 2006.

According to the article 7 of SAFTA, under trade liberalization program, Non-Least Developed Countries would bring down tariff up to 20 percent within two years, while Least Developed Countries would cut down to 30 percent. Furthermore, in next five years, Non-Least Developed Countries would reduce tariff from 20 percent to 0 to 5 percent, Sri Lanka and other Least Developed Countries would do it in eight years. Moreover, Non-Least Developed Countries would reduce their tariffs for Least Developed Country's product to 0 to 5 percent within three years and intended a duty free area by 2016 for all the members. This agreement allowed member countries to maintain a sensitive list which was not subject to tariff reduction. The first sensitive list exchanged under SAFTA, was much larger. Hence, negotiations were held to reduce the size on the basis of request and offer approach, where each country identified its export interest items and made a request for removal of it from its sensitive list. Only three countries, namely, Bangladesh, India and Nepal maintained a separate list for Least Developed Countries and Non-Least Developed Countries. Due

to special and differential treatment Least Developed Countries could maintain longer list than Non-Least developed Countries (EXIM, 2008).

## 2.2 Literature Review:

There are various studies which examined intra-regional trade among SAARC countries some of them essayed benefits of FTA in South Asia and its implications while others extrapolated reasons for low intra SAARC regional trade.Hafiz *et al.,*(2014) highlighted India's trade relationship with SAARC as a group and with each member of the group after the formation of SAFTA. They pointed out that India's exports to SAARC region has always been below 5 percent of its total exports. Moreover, growth in exports of India has been negative since 2008-09. While imports from the region, were very negligible compared with the total imports of India. The study confirmed that India has huge bilateral trade surplus with Bangladesh, Pakistan, Sri Lanka and Nepal.

Kaur and Nanda (2010) stressed on low intra-regional SAARC trade in SAARC as compared to other regional blocks. Their study applied gravity model and revealed that among SAARC countries, export potential of India existed for Maldives, Bhutan, Pakistan and Nepal. However, the study suggested that all kinds of trade barriers should be removed in order to enhance the India's exports. Hirantha (2004) applied gravity model and pointed out that there has been a strong evidence for the trade creation in the region with no trade diversion effects as far as trade with non-member is concerned. South Asian countries rely heavily on the countries outside the region for the most of their imports. As a result of SAPTA, the intra-regional trade of SAARC countries recorded an increase in trade, at an annual growth of 8.09 percent as against 6.20 percent with the rest of the world. This increased concentration in intra-SAARC trade did not result into trade diversion with the rest of the world. Similarly, Rahaman (2004) with gravity model also proved that there was significant scope existing for trade expansion. According to him, there exist inter-country differences in production, consumption, investment behaviour, and taxation structure among SAARC countries. He emphasised mutual ignorance as a key factor for slow progress. According to the study, greater unit values realized by SAARC countries by

exporting within region than rest of the world, whereas lesser average unit cost for imports than that of rest of the world.

Mohanty (2005) rejected the hypothesis of South Asian countries competes with each other by producing and exporting similar type of products to rest of the world. He argued that SAARC region has substantial potential for intra-regional trade. This has been considered as important reason for low level of intra-SAARC trade. He estimated the export potential of the region and evidenced that intra-SAARC could be six times more than the present level.Guru-Gharana (2000) also claimed the possibilities for the trade expansion in the SAARC region with the help of macro-economic modelling for South Asian economies. His estimation is based on time series data for 22 years from 1975-1996. By using Three Stages Least Squares (3SLS) estimation technique, he inferred that all SAARC countries were dramatically benefited from regional trade expansion. Likewise, the implication of South Asian Preferential Trading Arrangement (SAFTA) for food products has been analysed by Govindan (1996). He estimated import and export intensity indices for the same and showed that there have been strong trade linkages between SAARC countries. He concluded that formation of SAFTA aimed to increase intra-regional trade and welfare maximization for all member countries of SAARC.

Waqif (1987) observed empirical data and remarked that almost all SAARC countries have possibilities to increase their respective trade with the partner countries within the SAARC region. This enabled them to accelerate autonomous and self-generating growth among the co-operating countries. The regional economic co-operation helped them to enhance their bargaining power in the international economic negotiations. This also enabled them to reduce regional political disputes arising from the economic security.

There are various studies which stressed on low level intra-regional trade in SAARC. De Silva and Lalith (2011) emphasized that limited product coverage and negative list adversely affected intra-SAARC trade. The study estimated that nearly 53 percent of total trade under SAFTA has been subject to negative list. Thus, being most populated among all regional blocs with 1.47 billion people, it remained a least integrated bloc in the world. The study also highlighted relatively protected policies

of India and its damaging effects on intra-SAARC trade. According to Weerakoon and Thennakoon (2010), higher tariff within the region neutralized all benefits of cultural affinity, common geography and advantage of common borders that India shares with other SAARC countries. Low technology and low dis-integration of production were important causes of trade diverting RTA in South Asia rather than trade creating. They spotted the actual trade coverage of preferential access as the most limiting factor. The SAPTA has a very limited impact in changing existing pattern of trade in South Asia. Moreover, comparative advantage in similar type of products such as tea and garments reduced potential for the comparative advantage driven trade.

Ali and Talukder (2010) stated that the trade relations among South Asian countries were largely driven by non-economic factors such as political environment, lack of trust, absence of friendly attitude among the member countries. All these reasons proved as functioning barriers for not achieving targeted benefits of the agreements. The study undertaken by Dua and Abbas (2010) showed SAARC's intra-regional trade was declined by 10.2 percent during 2000 to 2008. On the contrary, over the last decade the total trade between SAARC countries with rest of the world was increased by 9.47 percent. The study signalled declining importance of the intra SAARC trade and simultaneously improving trade relation with rest of the world such as EU, USA, China and UAE.

Banik and Gilbert (2008) explained how low level of income and small economies resulted into less trade opportunities in SAARC region. They stressed that in small economies low Purchasing Power Parity (PPP) led to low level of demand and less supply. Das (2007) reiterated that despite a strong incentive to create a framework for economic integration, South Asian countries faced an arduous path. Lack of enthusiasm and poor understanding of the benefits stopped them to reap advantages from the regional integration. Baysan, Panagariaya and Pitigala (2006) commented on trade diversification effects of SAFTA due to presence of high level of protection, highly restrictive sensitive list and stringent rules of origin. Moreover, they highlighted that small size of South Asian economies except India reduced the probability of most efficient supplier within the region and, henceforth, effect of FTA in South Asia would be more likely to be trade diverting. Pitigala (2005) compared

intra-regional trade of various trade blocs from their inception and found that intra-regional trade of South Asia is lower than any successful regional grouping and concluded that with such low base, South Asian countries have not been fitting into criteria for Natural Trading Partners. India, being in the centre of South Asian countries, shares its border with most of other member countries. Even so, it trade lesser with them as compared to other distant countries.

According to Mehta and Kumar (2004), many reasons were responsible for the low level of integration, were firstly, the poor ports and transport facilities. Secondly, the region is exclusively protected in the world. Thirdly, difficult business environment within the region. Fourthly, restrictive rules of origin. Fifthly, the failure of India to inculcate trust among the member countries and finally, SAFTA excludes trade in services. Harun (2004) also inferred similar reasons. In addition to this, he noticed that although many opportunities and progress in achieving regional co-operation exist, South Asia has been at a modest due to the host of economic and political factors. According to him, the reasons for the failure of SAFTA were firstly, tariff cuts were not deep enough and secondly actively traded products were kept outside the ambit of preference list. He also emphasized need for an improvement in the infrastructure and foreign capital to develop trade in SAARC region. Panagariaya (2003) opined that low level of intra-regional trade is because of autarkist's policies, absence of liberal trade policies and prominent informal trade. He argued South Asia accounted only 1 percent of the world production. It means 99 percent of production had been from outside region consisting of most efficient and competitive producers with variety of products and, hence, scope for trade diversion could be substantial in South Asia. Ahmed (2002) inferred that possible causes of low level of intra-regional trade such as similarities between member countries. Therefore, SAARC countries could not enjoy comparative advantage driven trade. Moreover, low level of income also constrained the potential for intra-regional trade.

Apart from this, large amount of informal trade existed within the SAARC region. As long as informal trade is efficient than formal trade, it always been co-exist with formal trade. Policy barriers and institutional factors gave rise to informal trade. India's informal trade with Pakistan is 10 times greater than that of formal trade and

with Sri Lanka it is two third of formal trade. Furthermore, considering the informal trade, India has almost balanced trade with Nepal (Taneja, 2004).

## 3. METHODOLOGY

For the analysis of the bilateral trade between India and SAARC countries, the study constructed three types of indices. The First, Hirschman Index (HI) for assessing the trade concentration. The Second, Trade Overlap Index (TOI) and the third one is the Grubel-Lyold Index (G-L) for measuring Intra-Industry Trade.

### 3.1 Hirschman Index (HI):

This index was first developed and used by Hirschman in his study, where the square root of the sum of squared market shares of products were calculated (Hirschman, 1945, 1964). Thus, it is popularly known as Hirschman Index (HI). It is widely used to measure the trade concentration. The HI is as follows;

$$H_j = \sqrt{\sum_{i=1}^{n}\left(x_i / X\right)^2} \times 100 \qquad \text{---------- (1)}$$

where, $H_j$ is the Hirschman Index for country j, $x_i$ is the value of exports of product i from country j (defined at the HS-08 digit classification) and X is the total export of country j. The index is multiplied by 100 and, therefore, the index ranges between 0 and 100, lower values indicates less concentrated trade structure.

### 3.2Trade Overlap Index (TOI):

Trade Overlap Index is a useful tool for calculating importance of the inter-industry trade in comparison with the intra-industry trade. Finger and Dean (1979) propounded TOI to calculate co-efficient of a country specific trade overlap.

$$TOI = \frac{2\sum_{i=1}^{n} \min(x_i, m_i)}{\sum_{i=1}^{n} (X_i + M_i)} \qquad \text{---------- (2)}$$

where, $X_i$ and $M_i$ refers to exports and imports of product i, min defines the magnitude of the total trade that overlaps. The co-efficient for TOI varies between zero to one. The closer to unity implies the more intra-industry trade, while lower value connotes, inter-industry trade has been taking place.

### 3.3Intra Industry Trade Index (IIT):

The first attempts to measure IIT dates back to Verdoorn (1960), Michaely (1962), Kojima (1964) and Balassa (1965). However, it was explicitly raised and discussed by Grubel and Lloyd in their two contributions in 1971 and 1975, hence, popularly known as, G-L index. They examined various indices and then proposed their own which was the modification of Balassa Index. According to Grubel and Lloyd (1971), the important disadvantage of previous measures was they were unable evaluate the average IIT. Conversely, G-L index measures average IIT as a percentage of the export plus import. G-L index is based on intensity of trade overlap for each product. Grubel and Lloyd (1971) define IIT as a difference between total trade and trade imbalance. Thus, in order to compare trade between industries and countries, the IIT is presented as percentage of trade. It captures both the trade imbalance and the strength of IIT. However, Grubel and Lloyd (1975) were aware about the mean is biased downward measure of their IIT if country's trade is imbalanced. Thus, they suggested that in the case of considering total trade in all commodities, adjustment must be made for the aggregated trade imbalance by calculating intra-industry trade as a proportion of total commodity export plus import trade less the trade imbalance (Grubel and Lloyd, 1971, P. 497).

The Grubel and Lloyd (1975) index of IIT is as follows;

$$GL_i = \frac{[(X_i + M_i) - |X_i - M_i|]}{(X_i + M_i)} \times 100 \quad \text{----------} \quad (3)$$

where,

$GL_i$ = Index of intra-industry trade of the $i^{th}$ industry,

$X_i$=Export of the $i^{th}$ industry,

$M_i$ =Imports of the $i^{th}$ industry

The study is based on export and import data as per HS-08 digit classification. The entire data is retrieved from India trades compiled by Centre for Monitoring Indian Economy (CMIE) published by Directorate General of Commercial Intelligence and Statistics (DGCI&S) covering the period from 1990-91 to 2013-14. The data for export is on FOB price and import is on CIF price. The TOI and G-L index are computed at HS-08 digit classification. For computation of G-L index at the chapter and section level, the weighted average of the HS-08digit level has been used. The weights are considered as the share of each product in the value of total trade. The study also segregates HS-08 digit classification of products into WTO classification.WTO Classification which essentially group products on the basis of its use. WTO categorises HS-06 digit products raw materials, intermediate, consumer, capital products and others (products which are not included in any of these). Thus, the study aggregated HS-08 digit classification of products into HS-06 digit classification. The detail list of products is available on UN-COMTRADE classification registry.

## 4. INDIA'S BILATERAL TRADE WITH SAARC

This section illustrates India's two way trade with the SAARC as a group and assesses product concentration by calculating HI. The study also tries to examine whether the bilateral trade between India and SAARC is of inter-industry or intra-industry nature. The analysis further determines India's intra-industry trade with SAARC.

### 4.1 Export of India to SAARC countries:

The merchandise bilateral trade between India and SAARC has been expanded slowly and steadily, with exceptions of the few dips. Over the years, exports from India surged from US $529.49 million in 1990-91 to US $17100.15million in 2013-14. Over the years, India's exports to SAARC recorded annual growth rate of 15.95 percent. As far as India's exports to each of the member of SAARC are concerned, exports of India to Bhutan recorded highest CAGR of 24.16 percent among the group. It was merely US $2.18 million in 1990-91, however, increased to US $356.19 million in 2013-14 (Table 1). Exports of India to Pakistan displayed a growth of 22.10 percent per annum. The adverse impact of the India-Pakistan Kargil war on Indian exports to Pakistan is evident during 1998-99 to 1999-2000. It was plumped from US $143.32 million in 1997-98 to US $105.99 million in 1998-99. In addition to this the terrorist attack on Mumbai in 2008, negatively affected India's exports to Pakistan. Exports of India to Pakistan showed a decreasing trend during 2008-09 and 2009-10. India's exports to Bangladesh have always been higher than that of the other member countries of SAARC. However, it registered a lowest CAGR of 12.42 percent which is below the growth rate of SAARC as a group. Bangladesh was a major export destination for Indian products among SAARC countries in 1990-91. Bangladesh contributed lion's share in India's exports to SAARC. Over the period, Sri-Lanka overtook this position with a record increase from US $130.02 million in 1990-91 to US $4369.44 million in 2011-12. However, in 2012-13 it reduced to US $3983.05 million again surged to US $6183.72 million in 2013-14. It can be seen from Table 1 that India's exports to all members of the SAARC exhibited a dramatic increase from the year 2007-08 onwards. The positive impact of SAFTA has been panoptic from the Table 1.

At HS-02 digit level, in the year 1990-91, major products exported to SAARC were cotton (C-52), electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers and parts and accessories of such articles (C-85) and vehicles other than railway or tramway rolling - stock, and parts and accessories thereof (C-87). These three chapters together contributed nearly 51 percent of India's exports to SAARC. After2002-03, the share of mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes (C-27) increased in the India's

export basket to SAARC. Cereal (C-10) also had larger share in India's total exports to SAARC especially during 1996-97 to 2008-09. On the other hand, over the years, the share of knitted or crocheted fabrics (C-60) in total exports to SAARC has been reduced to barely 1 percent in 2013-14 from 8.83 percent in 1990-91. The share of

**Table 1: Export of India to SAARC (1990-91 to 2013-14)**

(U.S $ million)

| Year | Bangladesh | Bhutan | Maldives | Nepal | Pakistan | Sri- Lanka | SAARC |
|---|---|---|---|---|---|---|---|
| 1990-91 | 302.90 (57.20) | 2.18 (0.41) | 5.71 (1.07) | 47.85 (9.03) | 40.83 (7.71) | 130.02 (24.55) | 529.49 (100.00) |
| 1991-92 | 325.44 (52.08) | 1.21 (0.19) | 4.88 (0.78) | 77.63 (12.42) | 40.32 (6.45) | 175.30 (28.05) | 624.78 (100.00) |
| 1992-93 | 333.16 (48.24) | 2.04 (0.29) | 7.21 (1.04) | 67.97 (9.84) | 47.26 (6.84) | 232.89 (33.72) | 690.53 (100.00) |
| 1993-94 | 428.65 (47.93) | 9.93 (1.11) | 7.93 (0.88) | 97.58 (10.91) | 63.47 (7.09) | 286.60 (32.05) | 894.16 (100.00) |
| 1994-95 | 644.85 (53.06) | 11.10 (0.91) | 15.38 (1.26) | 120.11 (9.88) | 57.25 (4.71) | 366.52 (30.16) | 1215.21 (100.00) |
| 1995-96 | 1050.56 (61.07) | 17.09 (0.99) | 15.73 (0.91) | 160.11 (9.30) | 76.94 (4.47) | 399.74 (23.23) | 1720.17 (100.00) |
| 1996-97 | 869.66 (51.15) | 22.00 (1.29) | 10.38 (0.61) | 165.86 (9.75) | 157.35 (9.25) | 474.65 (27.92) | 1699.90 (100.00) |
| 1997-98 | 787.38 (49.04) | 13.34 (0.83) | 8.76 (0.54) | 170.26 (10.60) | 143.32 (8.92) | 482.35 (30.04) | 1605.41 (100.00) |
| 1998-99 | 994.63 (59.30) | 9.55 (0.56) | 8.37 (0.49) | 122.28 (7.29) | 105.99 (6.31) | 436.34 (26.01) | 1677.16 (100.00) |
| 1999-00 | 636.05 (45.62) | 7.57 (0.54) | 7.32 (0.52) | 151.20 (10.84) | 92.93 (6.66) | 499.08 (35.79) | 1394.15 (100.00) |
| 2000-01 | 936.57 (48.48) | 1.08 (0.05) | 24.67 (1.27) | 141.08 (7.30) | 187.14 (9.68) | 641.19 (33.19) | 1931.73 (100.00) |
| 2001-02 | 1005.17 (49.45) | 7.62 (0.37) | 26.96 (1.32) | 215.10 (10.58) | 144.44 (7.10) | 633.00 (31.14) | 2032.29 (100.00) |
| 2002-03 | 1178.32 (43.16) | 39.12 (1.43) | 31.65 (1.15) | 350.96 (12.85) | 206.78 (7.57) | 922.82 (33.80) | 2729.65 (100.00) |
| 2003-04 | 1741.94 (41.96) | 89.55 (2.15) | 42.37 (1.02) | 669.81 (16.13) | 287.13 (6.91) | 1320.10 (31.80) | 4150.90 (100.00) |
| 2004-05 | 1630.45 (36.73) | 84.55 (1.90) | 47.59 (1.07) | 742.83 (16.73) | 520.84 (11.73) | 1412.60 (31.82) | 4438.86 (100.00) |
| 2005-06 | 1664.12 (30.79) | 99.15 (1.83) | 67.57 (1.25) | 859.84 (15.91) | 689.13 (12.75) | 2024.37 (37.45) | 5404.18 (100.00) |
| 2006-07 | 1626.76 (25.88) | 57.46 (0.91) | 68.68 (1.09) | 927.87 (14.76) | 1348.69 (21.46) | 2254.06 (35.87) | 6283.52 (100.00) |
| 2007-08 | 2918.29 (31.13) | 86.69 (0.92) | 89.60 (0.95) | 1506.83 (16.07) | 1945.17 (20.75) | 2826.61 (30.15) | 9373.19 (100.00) |
| 2008-09 | 2464.55 (30.58) | 110.90 (1.37) | 128.55 (1.59) | 1558.31 (19.34) | 1422.49 (17.65) | 2372.60 (29.44) | 8057.40 (100.00) |
| 2009-10 | 2425.87 (30.71) | 118.30 (1.49) | 79.83 (1.01) | 1529.49 (19.36) | 1573.72 (19.92) | 2170.35 (27.48) | 7897.56 (100.00) |
| 2010-11 | 3237.32 (28.87) | 175.89 (1.56) | 99.96 (0.89) | 2166.08 (19.31) | 2030.89 (18.11) | 3502.83 (31.23) | 11212.97 (100.00) |
| 2011-12 | 3834.55 (29.83) | 230.32 (1.79) | 124.67 (0.97) | 2738.32 (21.30) | 1553.34 (12.08) | 4369.44 (34.00) | 12850.64 (100.00) |
| 2012-13 | 5139.13 (35.13) | 232.76 (1.59) | 122.33 (0.83) | 3086.42 (21.10) | 2062.93 (14.10) | 3983.05 (27.23) | 14626.62 (100.00) |
| 2013-14 | 6183.72 (36.16) | 356.19 (2.08) | 106.28 (0.62) | 3598.39 (21.04) | 2286.37 (13.37) | 4569.20 (26.72) | 17100.15 (100.00) |
| **CAGR (%)** | **12.42** | **24.16** | **16.54** | **20.75** | **22.1** | **16.31** | **15.95** |

*Note:* Figures in parenthesis represent percentage share of each member of the SAARC in the total value of India's exports to SAARC

cotton (C-52) was highest in total exports of India to SAARC in the year 2013-14. It was followed by mineral fuels, mineral oils and products of their distillation;

bituminous substances; mineral waxes (C-27), vehicles other than railway or tramway rolling - stock, and parts and accessories thereof (C-87) and cereals (C-10) and aircraft, spacecraft and parts thereof (C-88).

After separating products on the basis of WTO classification, India was mainly exporting intermediate, capital and consumer products to the members of SAARC. Nonetheless, over the years, India's exports of capital products have been replaced by the consumer products. At HS-08 digit classification, following Table 2 and Table 3 enlist top ten products in India's exports basket to SAARC in the year 1990-91 and 2013-14 respectively. In the year 1990-91, the share of top 10 products was 30.38 percent of total exports of India to SAARC. The contribution of top 10 products dropped to 28.04 percent in 2013-14. Over the years, importance of intermediate products in top 10 products has been substituted by consumer products.

**Table 2: Top Ten Indian Exports to SAARC, 1990-91**

| HS Codes | Description | Share (%) |
|---|---|---|
| 60029209 | Knitted or crocheted fabrics others | 9.66 |
| 07031010 | Onions fresh or chilled | 3.26 |
| 87021000 | Motor vehicles for the transport of ten or more persons, including the driver with compression-ignition internal combustion piston engine (diesel or semi-diesel) | 3.07 |
| 52081159 | Others Power loom | 2.87 |
| 14049010 | Bidi wrapper leaves (tendu) | 2.22 |
| 40112000 | New pneumatic tyres used on buses/lorries | 1.97 |
| 09042010 | Chilly | 1.95 |
| 87060009 | Other chassis | 1.94 |
| 30039090 | Other medicaments not put up in measured doses or in packing | 1.78 |
| 23040030 | Meal of soya bean, solvent extracted (defatted) variety | 1.67 |
| **Total** | | **30.38** |

**Table 3:Top Ten Indian Exports to SAARC,2013-14**

| HS Codes | Description | Share (%) |
|---|---|---|
| 27101930 | High speed diesel (hsd) | 5.84 |
| 52010015 | Indian cotton of staple length 28.5mm (1.4/32") and above but below 34.5mm | 5.55 |
| 88024000 | Aeroplanes and other aircraft, of an unladen weight exceeding 15,000 kg | 4.39 |
| 10019910 | Wheat | 2.34 |
| 27101219 | Motor Spirit: Other | 2.08 |
| 23040030 | Meal of soyabean, solvent extracted (defatted) | 2.07 |
| 72071920 | Other: Mild steel billets | 1.59 |
| 07031010 | Onions fresh or chilled | 1.42 |
| 87112029 | Motor cycle with cylinder capacity>75 bt<=250 cc | 1.38 |
| 27111900 | Other; petroleum gases and hydrocarbon | 1.36 |
| **Total** | | **28.04** |

It is apparent from Table 4 that the share of top 10 products fluctuated in both the directions; in the year 1998-99, it attained a peak reached to 43.28 percent. However, it was reduced to 23.22 percent in 1999-2000, thereafter, arrived at rock bottom of 19.05 percent in 2000-01. Afterwards, it remained within the range of 20 percent and 35 percent. To find out product concentration in India's total exports to SAARC, the HI is calculated. HI showed that the level of product concentration increased during 1990-91 to 2013-14, it altered roughly within 8 to 16 percent with an exception of 1998-99 (Figure 1).It can be seen from Table 4 that HI registered highest product concentration in 1998-99 because the share of top 10 products showed dramatic increase. In the 1998-99, the share of top 10 products surged to 43.28 percent, hence, it resulted in increasing product concentration in the exports basket of India to SAARC. The HI index reached to 23.43 percent in 1998-99. Thus, it is evidenced that exports basket of India did not show sigh of diversification and largely concentrated in few products.

**Table 4: Product Concentration in India's Export to SAARC**

| Year | % Share of Top 10 Products | HI |
|---|---|---|
| 1990-91 | 30.38 | 13.36 |
| 1991-92 | 31.93 | 12.10 |
| 1992-93 | 27.73 | 10.79 |
| 1993-94 | 28.06 | 10.68 |
| 1994-95 | 27.69 | 10.76 |
| 1995-96 | 33.81 | 15.17 |
| 1996-97 | 25.69 | 9.98 |
| 1997-98 | 25.06 | 9.93 |
| 1998-99 | 43.28 | 23.43 |
| 1999-00 | 23.22 | 9.30 |
| 2000-01 | 19.05 | 8.06 |
| 2001-02 | 20.84 | 8.89 |
| 2002-03 | 25.97 | 10.55 |
| 2003-04 | 23.20 | 9.87 |
| 2004-05 | 27.79 | 11.56 |
| 2005-06 | 28.72 | 13.81 |
| 2006-07 | 30.59 | 13.13 |
| 2007-08 | 35.06 | 15.99 |
| 2008-09 | 26.71 | 10.93 |
| 2009-10 | 29.99 | 11.82 |
| 2010-11 | 29.23 | 12.12 |
| 2011-12 | 23.67 | 9.98 |
| 2012-13 | 27.32 | 11.37 |
| 2013-14 | 28.04 | 11.41 |

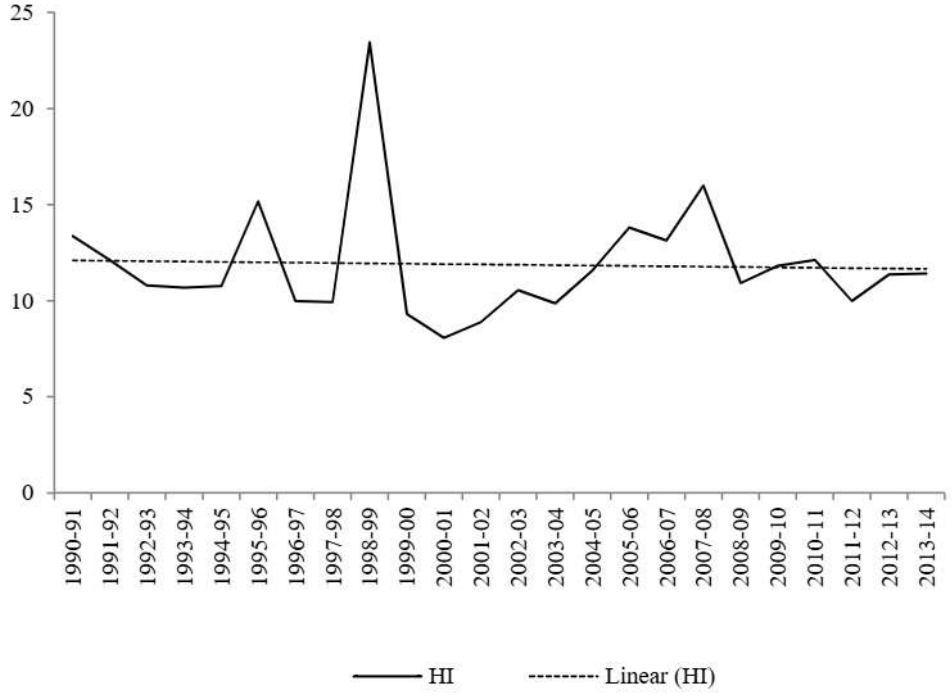



**Figure 1: Product Concentration in India's Export to SAARC**

### 4.2 Imports of India from SAARC:

India's imports from SAARC reached to US $2268.08 million in 2013-14 from merely US $98.17 million in 1990-91. Over the years, India's imports from SAARC witnessed CAGR of 16.53 percent per annum. In 1990-91, imports of India from Bhutan and Maldives were very negligible. It was just US $0.81 million and US $0.19 million respectively. However, India's imports from Bhutan and Maldives recorded an impressive annual growth of 26.13 and 25.91 percent respectively. Over the period of time, Bhutan's Share in total imports from SAARC to India has been displaying increasing trend. Imports of India from Sri Lanka increased at CAGR of 21.96 percent. It was merely US $17.57 million in 1990-91, reached to US $671.81 million in 2013-14. Initially, SAARC's imports to India was chiefly from Pakistan but due to unstable political relations with Pakistan, imports of India from Pakistan came down during the period of study. On the other hand, the predominance of Pakistan accompanied by an increase in the share of all other SAARC countries. The negative effect of Kargil war on India's imports from Pakistan can be seen more extensively during 1999-2000 to 2002-03. India's imports from Pakistan recorded a growth rate below the growth rate of SAARC as a group (Table 5).

## Table 5: Imports of India from SAARC (1990-91 to 2013-14)

(U.S $ million)

| Year | Bangladesh | Bhutan | Maldives | Nepal | Pakistan | Sri-Lanka | SAARC |
|---|---|---|---|---|---|---|---|
| 1990-91 | 17.44 (17.76) | 0.81 (0.82) | 0.19 (0.19) | 15.09 (15.37) | 47.07 (47.94) | 17.57 (17.89) | 98.17 (100.00) |
| 1991-92 | 5.75 (6.06) | 0.50 (0.52) | 0.03 (0.03) | 19.24 (20.30) | 57.70 (60.89) | 11.53 (12.16) | 94.75 (100.00) |
| 1992-93 | 7.25 (4.48) | 1.14 (0.70) | 0.09 (0.05) | 18.25 (11.29) | 121.94 (75.45) | 12.93 (8.00) | 161.60 (100.00) |
| 1993-94 | 17.86 (15.72) | 2.98 (2.62) | 0.33 (0.29) | 28.88 (25.43) | 43.53 (38.33) | 19.97 (17.58) | 113.55 (100.00) |
| 1994-95 | 38.17 (21.92) | 18.29 (10.50) | 0.23 (0.13) | 36.60 (21.01) | 52.76 (30.30) | 28.07 (16.12) | 174.12 (100.00) |
| 1995-96 | 85.99 (34.16) | 34.80 (13.82) | 0.19 (0.07) | 49.22 (19.55) | 45.19 (17.95) | 36.29 (14.41) | 251.68 (100.00) |
| 1996-97 | 62.28 (26.00) | 33.81 (14.11) | 0.17 (0.07) | 64.13 (26.78) | 36.19 (15.11) | 42.88 (17.90) | 239.46 (100.00) |
| 1997-98 | 50.87 (21.93) | 10.82 (4.66) | 0.24 (0.10) | 95.27 (41.07) | 44.50 (19.18) | 30.24 (13.03) | 231.94 (100.00) |
| 1998-99 | 62.34 (13.40) | 6.12 (1.31) | 0.05 (0.01) | 144.72 (31.11) | 214.25 (46.06) | 37.64 (8.09) | 465.12 (100.00) |
| 1999-00 | 78.14 (19.65) | 18.01 (4.53) | 0.40 (0.10) | 188.59 (47.43) | 68.20 (17.15) | 44.22 (11.12) | 397.56 (100.00) |
| 2000-01 | 80.64 (17.28) | 21.12 (4.52) | 0.19 (0.04) | 255.50 (54.75) | 64.13 (13.74) | 45.08 (9.66) | 466.66 (100.00) |
| 2001-02 | 59.29 (10.34) | 23.99 (4.18) | 0.40 (0.06) | 357.01 (62.28) | 64.95 (11.33) | 67.58 (11.78) | 573.22 (100.00) |
| 2002-03 | 62.17 (12.11) | 32.22 (6.28) | 0.33 (0.06) | 282.32 (55.03) | 44.94 (8.76) | 91.00 (17.73) | 512.98 (100.00) |
| 2003-04 | 77.68 (11.6) | 52.41 (7.83) | 0.37 (0.05) | 286.24 (42.76) | 57.69 (8.61) | 194.87 (29.11) | 669.26 (100.00) |
| 2004-05 | 59.35 (6.24) | 70.97 (7.47) | 0.61 (0.06) | 345.69 (36.39) | 94.94 (9.99) | 378.24 (39.82) | 949.80 (100.00) |
| 2005-06 | 127.01 (9.37) | 88.76 (6.55) | 1.98 (0.14) | 379.79 (28.03) | 179.53 (13.25) | 577.62 (42.63) | 1354.69 (100.00) |
| 2006-07 | 228.34 (15.51) | 141.34 (9.60) | 3.05 (0.20) | 305.77 (20.77) | 323.04 (21.94) | 470.31 (31.95) | 1471.85 (100.00) |
| 2007-08 | 257.13 (12.83) | 194.48 (9.70) | 4.15 (0.20) | 628.05 (31.35) | 287.95 (14.37) | 631.44 (31.52) | 2003.20 (100.00) |
| 2008-09 | 308.90 (18.48) | 149.80 (8.96) | 3.91 (0.23) | 491.22 (29.40) | 363.32 (21.74) | 353.59 (21.16) | 1670.74 (100.00) |
| 2009-10 | 254.23 (16.63) | 152.50 (9.97) | 3.60 (0.23) | 452.74 (29.62) | 275.18 (18.00) | 390.22 (25.53) | 1528.47 (100.00) |
| 2010-11 | 445.77 (22.01) | 201.31 (9.94) | 31.91 (1.57) | 513.27 (25.35) | 332.23 (16.41) | 500.05 (24.69) | 2024.54 (100.00) |
| 2011-12 | 582.39 (23.56) | 203.23 (8.22) | 19.20 (0.77) | 550.44 (22.26) | 399.94 (16.18) | 716.52 (28.98) | 2471.72 (100.00) |
| 2012-13 | 636.90 (25.31) | 163.90 (6.51) | 6.28 (0.24) | 543.26 (21.59) | 540.63 (21.48) | 625.20 (24.84) | 2516.17 (100.00) |
| 2013-14 | 479.89 (21.15) | 151.96 (6.69) | 3.95 (0.17) | 529.64 (23.35) | 430.84 (18.99) | 671.80 (29.61) | 2268.08 (100.00) |
| **CAGR (%)** | **18.52** | **26.13** | **25.91** | **17.90** | **11.35** | **21.96** | **16.53** |

*Note:* Figures in parenthesis represent percentage share of each member of the SAARC in the total value of imports from SAARC as a group to India

In 1990-91, imports of India from SAARC mainly consisted of edible fruit and nuts; peel of citrus fruit or melons (C-08), other vegetable textile fibres; paper yarn and woven fabrics of paper yarn (C-53) and raw hides and skins (other than furskins) and leather (C-41), comprising of nearly 49 percent of SAARC's exports to India. After 1992-93, the share of raw hides and skins (other than fur skins) and

leather (C-41) rapidly lost their importance. Compared to 1990-91, in 2013-14, edible fruit and nuts; peel of citrus fruit or melons (C-08) contributed heavily (9.87) in India's basket of imports from SAARC, followed by (C-27) and iron and steel (C-72).

As per WTO classification, initially SAARC exported raw materials and intermediate products to India which constituted about 97 percent of their exports to India. Nonetheless, it is showing the sign of diversification by adding consumer and capital products. Over the years, contribution of capital products as well as consumer products showed a moderate increment in their exports basket to India. Table 6 captures 10 largest imported products from SAARC at HS-08 digit level. In the year 1990-91, top 10 products accounted more than 51 percent of India's imports from SAARC. Among top 10 products, 5 were intermediate products and remaining were raw material products. The consumer and capital products both were totally absent from the list.

In the year 2013-14, contribution of top 10 products considerably fell to almost 30 percent. Table 7 affirms that petroleum oils and oils obtained from bituminous minerals crude (27090000) replaced jute, raw or retted (53031010) by

**Table 6: India's Top 10Imports from SAARC, 1990-91**

| HS Codes | Description | Share (%) |
|---|---|---|
| 53031010 | Jute, raw or retted | 11.50 |
| 08041030 | Dry dates hard (chhohara or kharek) | 9.61 |
| 41051902 | FinishedLeather of VegetableTannge nes | 6.57 |
| 08041020 | Dry dates soft (khayzur or wet dates) | 6.03 |
| 72045000 | Remelting scrap ingots | 5.11 |
| 48010090 | Other newsprints | 3.41 |
| 52085990 | Shirting fabrics | 2.46 |
| 41043909 | Others: leather | 2.30 |
| 53039010 | Jute cutting | 2.23 |
| 09083010 | Cardamoms large | 2.07 |
| **Total** | | **51.30** |

**Table 7: India's Top 10 Imports from SAARC, 2013-14**

| HS Codes | Description | Share (%) |
|---|---|---|
| 27090000 | Petroleum oils & oils obtained from bituminous minerals crude | 4.57 |
| 08029000 | Other : betel nuts : | 4.34 |
| 08041030 | Ordinary portland cement, dry | 4.30 |
| 72022100 | Dry dates hard (chhohara or kharek) | 4.03 |
| 22029020 | Other non-monetary unwrought forms of gold | 3.29 |
| 63051040 | Jute sacking bags | 1.98 |
| 53071010 | Yarn of jute,single | 1.97 |
| 39269080 | Polypropylene articles,n.e.s. | 1.86 |
| 88024000 | Aeroplanes & other aircraft, of an unladen weight exceeding 15000 kg | 1.81 |
| 72104100 | Corrugated products, otherwise plated/coated with zinc | 1.63 |
| **Total** | | **29.78** |

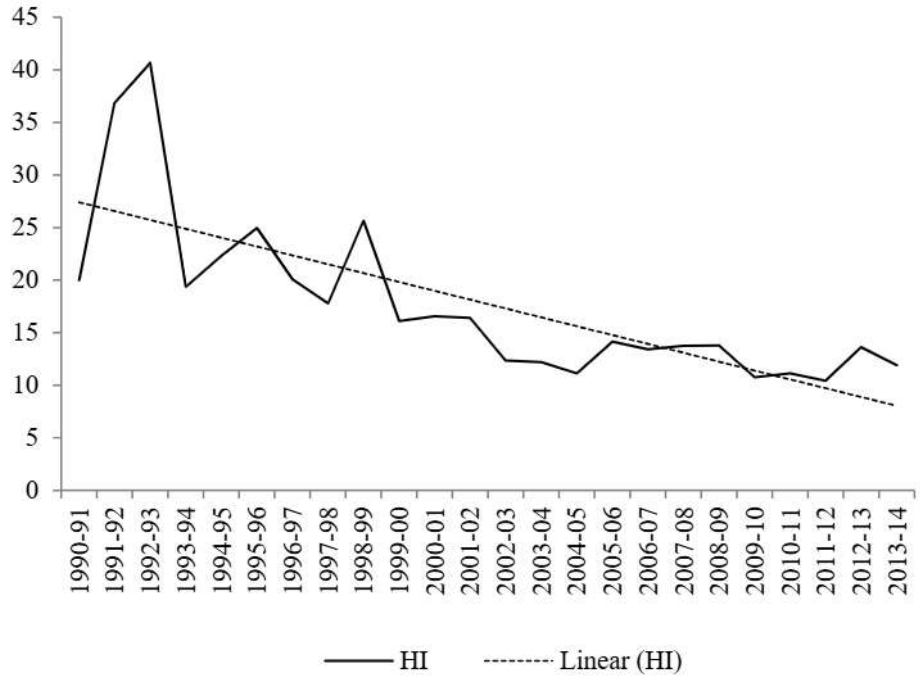
contributing largest share in the imports basket of India from the SAARC. The top 10products scattered in all types of products, however, most of them were intermediate products. Table 8 confirms that over the period of time, the share of top 10 products in India's total import from SAARC fluctuated widely reaching 74.10 percent in 1992-93 and gradually lessened to 35.79 percent in 2012-13. Table 8displays the change in the level of product concentration from 1990-91 to 2001-02, it altered roughly within 15 to 40 percent. The HI indicated high degree of product concentration during these years. The HI index is displaying a fall in concentration from 2002-03 onwards (Figure 2). The product concentration has decreased due to the increase in number of traded products. During 2002-03 to 2013-14, HI index is hovering around 11 to 14 percent.

Thus, from above scenario, it could be inferred that the product concentration is high in the India's bilateral trade with SAARC. The trade between India and

**Table 8: Product Concentration in India's Imports from SAARC**

| Year | % Share of Top 10 Products | HI |
|---|---|---|
| 1990-91 | 51.30 | 20.00 |
| 1991-92 | 60.56 | 36.84 |
| 1992-93 | 74.10 | 40.67 |
| 1993-94 | 51.36 | 19.38 |
| 1994-95 | 58.11 | 22.30 |
| 1995-96 | 57.92 | 24.97 |
| 1996-97 | 53.08 | 20.08 |
| 1997-98 | 50.05 | 17.81 |
| 1998-99 | 65.59 | 25.64 |
| 1999-00 | 40.40 | 16.11 |
| 2000-01 | 43.69 | 16.56 |
| 2001-02 | 40.33 | 16.40 |
| 2002-03 | 30.69 | 12.34 |
| 2003-04 | 26.89 | 12.21 |
| 2004-05 | 25.53 | 11.13 |
| 2005-06 | 35.06 | 14.14 |
| 2006-07 | 32.66 | 13.42 |
| 2007-08 | 33.32 | 13.76 |
| 2008-09 | 31.71 | 13.79 |
| 2009-10 | 26.54 | 10.77 |
| 2010-11 | 28.15 | 11.12 |
| 2011-12 | 24.99 | 10.43 |
| 2012-13 | 35.79 | 13.63 |
| 2013-14 | 29.78 | 11.92 |

**Figure 2: Product Concentration in India's Imports from SAARC**



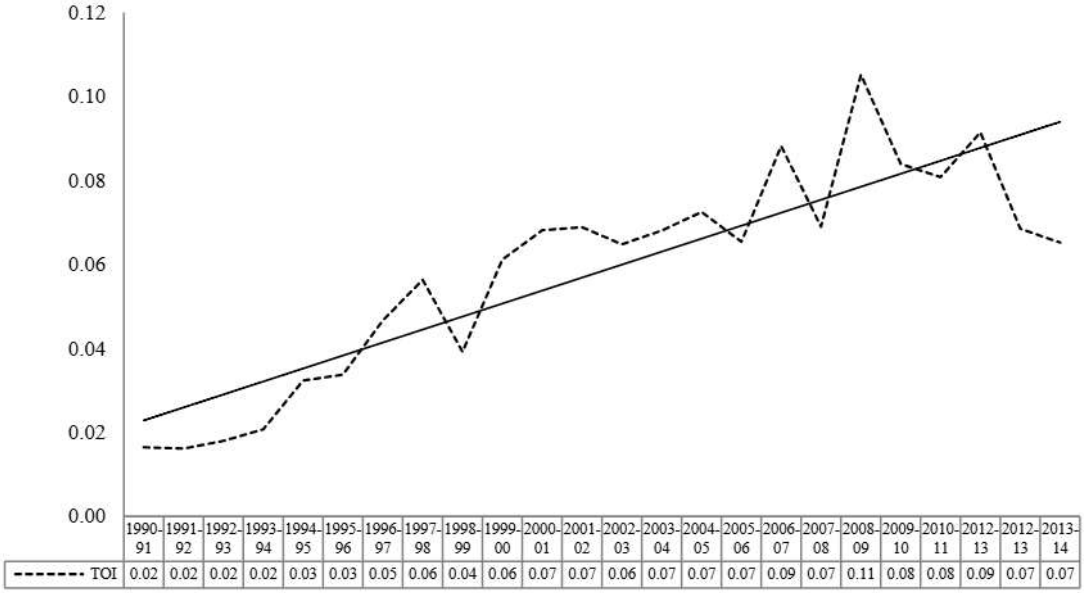

SAARC relies on narrow range of products. This is because SAARC countries excluding India are small size economies, smaller size of internal market and small scale production. Clearly the SAARC countries do not have prerequisite to cater increasing demand from India. However, a fall in HI index suggesting that product diversification is gradually increasing. However, in the initial period, exports of India to SAARC have been less concentrated than imports from SAARC. Nonetheless, the share of top 10 products is still remained invariably high in the exports of India to SAARC. Conversely, India's import from SAARC is showing sign of diversification. As compared to 1990-91, the import basket is less concentrated in 2013-14.

### 4.3Trade Overlap Index (TOI):

The TOI in Figure 3 suggested nature of trade between India and SAARC has been changed slightly over the period. The TOI between India and SAARC was merely 0.02 in 1990-91. However, it is showing a positive trend over the period of time. In the year 2008-09, TOI attained a peak reached to 0.11. Later on, it is experiencing a fall in the preceding years. The TOI between India and SAARC traced

dominance of inter-industry trade rather than intra-industry trade. The index showed an increasing trend signalling marginal change in the trading structure from inter-industry trade to intra-industry trade. This change is apparent due to improved economic performance and simultaneous liberalization programs adopted by SAARC countries. Moreover, a fall in import protection and FDI oriented environment attracted FDIs in this region. FDIs are coming in to exploit low labour cost leading to FDI driven growth in South Asia. Hence, due to large investments SAARC countries

**Figure 3: India's TOI with SAARC**




| | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-00 | 2000-01 | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2012-13 | 2012-13 | 2013-14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ------- TOI | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.05 | 0.06 | 0.04 | 0.06 | 0.07 | 0.07 | 0.06 | 0.07 | 0.07 | 0.07 | 0.09 | 0.07 | 0.11 | 0.08 | 0.08 | 0.09 | 0.07 | 0.07 |

started to enjoy benefits of economies of scale. Economies of scale decrease their average cost of production and, thereby, increased profitability of the firms. In addition to this, the growth in intra-industry trade could be attributed to geographical and historical factors such as common border and common language. India share common border and the member countries of SAARC and also has advantage of lesser language barrier with the most of them. An increase in number of products exported and imported also reflects growth in intra-industry trade. The study has calculated G-L index to find out sectors and products in which India and SAARC experienced growth in the level of intra-industry trade.

### 4.4 G-LIndex of Intra Industry Trade:

India's IIT with SAARC has displayed an increase over 24 years of the study (Table 9). India's IIT index with SAARC was merely at 1.65 percent in 1990-91 which systematically increased to 5.64 percent till 1997-98. However, it stepped down to 3.93 percent in 1998-99.This could be due to unstable atmosphere in South Asia followed by the Kargil war between India and Pakistan in 1999. Afterwards, from 2000-01 to 2007-08, the level of IIT hovered around 6 to 9 percent. It reached at the peak in 2008-09and then sharply dropped to 8.40 in 2009-10. This fall could be attributed to terrorist attacks on Mumbai which was resulted into bitter relationship between India and Pakistan. However, the IIT index surged to 9.15 percent in 2011-12. Table 9 affirms that there has been a drop in the IIT index since last two years. Nonetheless, over the period, India's intra-industry trade with SAARC increased at CAGR of 7.06 percent.

**Table 9: India's G-L Index of Intra Industry Trade with SAARC at the HS-08 Digit Level**

| Year | India's Total IIT with SAARC |
|---|---|
| 1990-91 | 1.65 |
| 1991-92 | 1.62 |
| 1992-93 | 1.81 |
| 1993-94 | 2.08 |
| 1994-95 | 3.24 |
| 1995-96 | 3.39 |
| 1996-97 | 4.67 |
| 1997-98 | 5.64 |
| 1998-99 | 3.93 |
| 1999-00 | 6.12 |
| 2000-01 | 6.82 |
| 2001-02 | 6.89 |
| 2002-03 | 6.49 |
| 2003-04 | 6.81 |
| 2004-05 | 7.26 |
| 2005-06 | 6.55 |
| 2006-07 | 8.83 |
| 2007-08 | 6.91 |
| 2008-09 | 10.52 |
| 2009-10 | 8.40 |
| 2010-11 | 8.09 |
| 2011-12 | 9.15 |
| 2012-13 | 6.79 |
| 2013-14 | 6.47 |
| **CAGR (%)** | **7.07** |

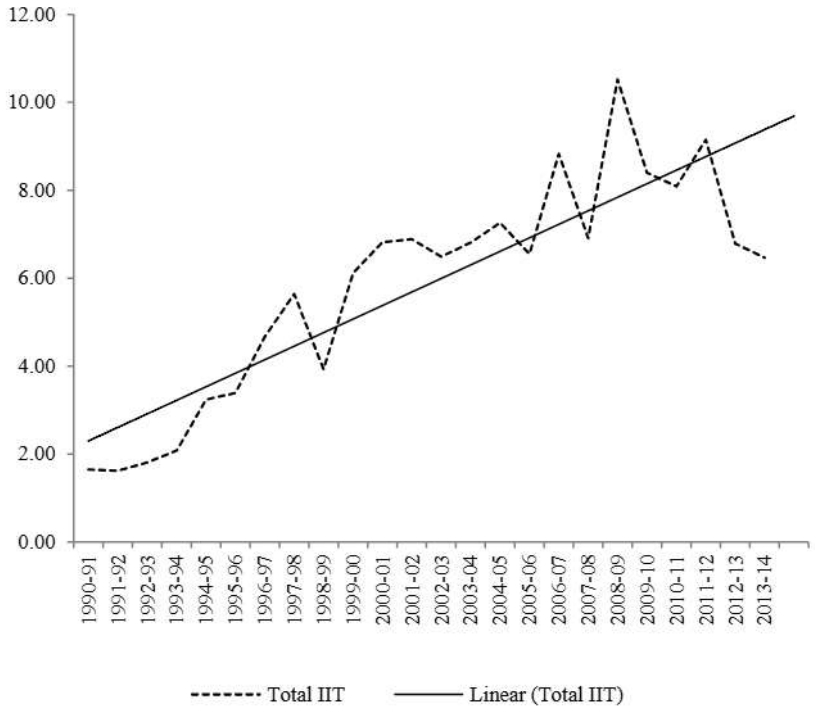



**Figure 4: India's IIT with SAARC**

Section-wise picture of the IIT index between India and SAARC portrayed that eight sections with an impressive shares in the total trade, depicted a positive growth in IIT (Annexure B, TableB1) namely, prepared food stuff, beverages (S-4), spirits vinegar mineral products (S-5), chemicals and allied products (S-6), products of plastic and rubber (S-7), rawhides and skins, leather furskin and article thereof (S-8), pulp of wood and fibrous cellulosic material (S-10), textile and products (S-11) and base metals (S-15).

India's IIT with SAARC for prepared food stuff, beverages (S-4) exhibited an increasing trend. This upward contribution in the level of IIT is assigned to preparations of cereals, flour, starch or milk; pastry cooks' products (C-19) and miscellaneous edible preparations (C-21). The IIT for these chapters grew at CAGR of 3.72 percent and 2.55 percent respectively (Annexure B, Table B2). This increase in the percentage of IIT is associated with rising India's IIT with Nepal for the products such as uncooked pasta, not stuffed or otherwise prepared: other (19021900), sweet biscuits; waffles and wafers: sweet biscuits (19053100), other toasted products (19059090) and other food preparations (21069099). Spirits vinegar mineral products (S-5) is one of the sections which has augmented the component of intra-industry within SAARC's total trade with India which enabled it to display relatively higher growth at 15.57 percent for the 24 years that covered in the study. This is mainly because of an increase in India's bilateral trade for other: ordinary portland cement, dry (25232910) other: portland pozzolana cement (25232930) with Bangladesh, Bhutan and Pakistan. India experiences remarkable growth in the two-way trade with these countries in the last seven years of the study. Products of plastic and rubber (S-7) experienced very high growth in IIT at a compound annual growth of 16.67 percent. The imports of India from Nepal for the product such as tube pipe and hoses of polymers of ethylene: other (39172190) and sacks and bags (including cones): of polymers of ethylene (39232100) actuated the growth in IIT for plastics and articles thereof (C-39). Since, Sri Lanka is the 7$^{th}$ largest exporter of natural rubber, India's imports from Sri Lanka of natural rubber in other forms: smoked sheet (40012100) and gloves, mittens and mitts: surgical (40151100) inspired growth in level of the IIT with SAARC. Rawhides and skins, leather fur skin and article thereof (S-8) is yet another section which escalated the level of IIT with CAGR of 12.57 percent (Annexure B, Table B1).This growth in IIT has been motivated by India's increasing

imports from Bangladesh and Pakistan for the products such as whole hides and skins: other (41071900) other, including sides: other (41079900) other, including sides: leather further prepared after tanning or crusting, including parchment-dressed leather, of sheep or lamp, without wool on, whether or not split (41120000) and other, including sides: of goats (41131000). The index of IIT in the case of pulp of wood and fibrous cellulosic material (S-10), experienced a significant increase from merely 0.94 percent in 1990-91 to 7.31 percent in 2013-14, displaying annual growth of 11.95 percent. It was essentially carried by increase in bilateral trade between India and SAARC for paper and paperboard; articles of paper pulp, of paper or of paperboard (C-48) and printed books, newspaper, pictures and other products of the printing industry; manuscripts, typescripts and plans (C-49). India's bilateral trade with Sri Lanka for the product such as cartons, boxes and cases, of corrugated paper or paperboard: boxes (48191010) cartons, boxes and cases, of corrugated paper or paperboard: other (48191090), folding cartons, boxes and cases, of non-corrugated paper and paperboard: sacks and bags, having a base of a width of 40 cm or more (48193000), printed: paper tags (48211010) printed: labels (48211020), printed: other (48211090) has been intra-industry in nature. Moreover, printed books, newspaper, pictures and other products of the printing industry; manuscripts, typescripts and plans (C-49) aided growth in India's IIT with SAARC. It recorded annual growth of 12.60 percent (Annexure B, Table B2). Two-way trade is visible for single sheets, whether or not folded: printed books (49011010) and other: printed matter (49119990) especially from Pakistan, Sri Lanka and Bangladesh.

Apart from this, one of the traditional sectors of Indus valley civilization is textile and products (S-11). It also contributed largely in growth of India's IIT with SAARC. Its intra-industry trade increased from merely 0.21 percent in 1990-91 percent to 9.27 in 2013-14 (Annexure B, TableB1). Growth in IIT in this section has been motivated mainly because of cotton (C-52) and man-made staple fibres (C-55). Conversely, wadding, felt and non-woven, special yarns (C-56) recorded a negative trend; IIT for which reduced from 46.06 percent in 1990-91 to 13.71 percent in 2013-14 (Annexure B, Table B2). India and Pakistan have tropical wet climate which is an essential requirement for the production of cotton. India's exports and imports with Pakistan for the products such as Indian cotton: cotton, other than Indian, of all staple lengths(52010020),single yarn of uncombed fibres measuring 714.29 decitex or more

(not exceeding 14 metric number): other (52051190),plain weave, weighing more than 100 g/m2: other (52083290), plain weave: other weighing more than 200 g/m2: other (52093190) 3-thread or 4-thread twill, including cross twill: other(52093290), other fabrics: other (52093990), plain weave: other (52094190) and olain weave: denim (52094200) displayed considerable increase over the years of study. Apart from this, Bangladesh due to its natural fertile soil the largest producer of raw jute in South Asia. India's imports of jute products from Bangladesh such as jute and other textile bast fibres, raw or retted: jute, raw or retted (53031010) and woven fabric of jute containing 100% by weight of jute: sacking fabrics (53101013). This resulted in the IIT growth for this section. Initially, there was no intra-industry trade visible for the chapters such as carpets and other textile floor coverings (C-57),special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery (C-58), impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use (C-59), knitted or crocheted fabrics (C-60), articles of apparel and clothing accessories, knitted or crocheted (C-61) and articles of apparel and clothing accessories, not knitted or crocheted (C-62). However, from the period 2000-01 to 2013-14, these chapters showed remarkable increase in the level of IIT (Annexure B, Table B2). This is due to increase in FDI in textile and garment industry in the Bangladesh, Sri Lanka and Pakistan (Jayasuriya, Weerakoon and Srinivasan, 2001).

Other Sections such as chemicals and allied products (S-6) and wood and articles thereof (S-9) have registered augmenting IIT with the SAARC. India's level of intra-industry trade for chemicals and allied products (S-6) recorded annual growth of about 6.25 percent. Wood and articles thereof (S-9) exhibited growth of 1.89 percent per annum. Besides this, articles of stones, cement, plaster and ceramic products (S-13), machinery and mechanical appliances (S-16), optional musical, cinematographic, medical instruments (S-18) and miscellaneous manufacturing articles (S-20) motivated the level of IIT after 1993-94. The IIT index for articles of stones, cement, plaster and ceramic products (S-13) escalated from 0.11 percent in 1994-95 to 19.59 percent in 2013-14. Similarly, for machinery and mechanical appliances (S-16) the contribution of IIT intensified from 0.60 percent in 1993-94 to 3.57 percent in 2013-14. Optional musical, cinematographic, medical instruments (S-18) also showcased a similar trend IIT index which spiked from 1.00 percent in 1993-

94 to10.31 percent in 2013-14. Likewise, IIT for miscellaneous manufacturing articles (S-20) increased from 2.69 percent in 1993-94 to 12.31 percent in 2013-14.

In contrast, the contribution of IIT of the vegetable products (S-2) has been decreasing. It confirmed negative growth rate of CAGR (-) 5.02 percent. This fall is attributed to reduction in imports of coffee, tea, mate and spices (C-09) and oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants (C-12) from SAARC countries. It has been observed that over the years, imports of India especially from Sri Lanka for the products such as pepper neither crushed nor ground: light black pepper (09041120), cloves extracted (09070010), cloves not extracted (09070020) have displayed a sharp decline. Similarly, India's import of cardamoms: large (amomum) (09083010) from Bhutan and Nepal also showed a similar trend. India's import of ginger: fresh (09101010) from Nepal also experienced a fall from US $7.31million to merely US $0.83 million. A fall in level of IIT for these products resulted into negative growth of 5.84 percent in the IIT of coffee, tea, mate and spices (C-9) (Annexure B, Table B2). Moreover, India's IIT with SAARC for oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants (C-12) also registered a negative CAGR of (-) 6.11 percent due sudden drop in the imports from Nepal and Pakistan in the imports basket of SAARC particularly for the products such as leaves, powder, flowers and pods: pyrethrum (12119026) and bark, husk, and rind other (12119039).

The attempt is made to examine India's IIT with SAARC on the basis of different categories of products according WTO Classification. WTO classification is based on use of the products, thus, portrays a clear picture about growth of IIT into different categories of products. This classification groups all the products into four categories *viz.,* (1) Raw materials(2) Intermediate products(3)Consumer products and (4)Capital goods. Products which are not included in any of these categories considered in the other. It is evident from Table 10 that India's IIT with SAARC for raw material products has been depicting a wavering trend throughout the period of the study. The IIT index for the raw materials witnessed a positive growth rate of 5.06 percent during covered period of study. In case of raw material products the IIT index increased from merely 1.72 percent in 1990-91 to 11.53 percent in 2005-06. Thereafter, it experienced a fall however, it managed to attend a peak in 2008-09.

**Table 10: India's IIT with SAARC as per WTO Classification**

| Year | Raw material | Intermediate products | Consumer products | Capital products | Other |
|---|---|---|---|---|---|
| 1990-91 | 1.72 | 1.69 | 7.17 | 0.16 | 3.03 |
| 1991-92 | 2.54 | 1.70 | 3.81 | 0.75 | 8.89 |
| 1992-93 | 3.16 | 1.73 | 5.17 | 0.60 | 9.65 |
| 1993-94 | 2.78 | 1.55 | 7.17 | 0.55 | 16.84 |
| 1994-95 | 3.35 | 2.84 | 9.17 | 0.92 | 10.64 |
| 1995-96 | 4.02 | 3.66 | 5.20 | 1.34 | 14.64 |
| 1996-97 | 6.01 | 4.68 | 9.00 | 1.16 | 16.06 |
| 1997-98 | 6.60 | 6.89 | 8.41 | 1.45 | 8.54 |
| 1998-99 | 7.80 | 5.36 | 4.28 | 1.35 | 13.12 |
| 1999-00 | 5.55 | 6.93 | 11.91 | 2.30 | 18.95 |
| 2000-01 | 5.21 | 7.41 | 13.54 | 3.20 | 23.99 |
| 2001-02 | 4.05 | 8.15 | 13.55 | 3.09 | 11.67 |
| 2002-03 | 4.12 | 9.91 | 7.97 | 2.87 | 11.60 |
| 2003-04 | 4.16 | 9.77 | 8.40 | 5.30 | 12.29 |
| 2004-05 | 7.35 | 10.95 | 8.42 | 4.54 | 19.94 |
| 2005-06 | 6.26 | 11.57 | 7.15 | 5.89 | 10.11 |
| 2006-07 | 6.39 | 10.93 | 14.45 | 5.70 | 12.37 |
| 2007-08 | 5.97 | 11.75 | 8.89 | 4.27 | 13.98 |
| 2008-09 | 11.53 | 9.88 | 16.96 | 4.22 | 10.73 |
| 2009-10 | 6.87 | 11.82 | 11.71 | 3.32 | 12.11 |
| 2010-11 | 7.41 | 9.62 | 12.06 | 5.70 | 10.09 |
| 2011-12 | 10.30 | 11.08 | 12.03 | 9.97 | 18.59 |
| 2012-13 | 7.34 | 7.56 | 11.03 | 4.10 | 15.37 |
| 2013-14 | 6.04 | 6.85 | 11.87 | 4.95 | 9.03 |
| **CAGR (%)** | **5.06** | **8.48** | **3.65** | **13.13** | **1.60** |

However, the level of IIT for raw materials displayed a drop in since last five years of the study. Over the years, the growth in IIT with SAARC for intermediate products managed to display annual growth of 8.48 percent. In short, over the period of time,the level of IIT for intermediate products witnessed an increasing trend. Intermediate products which essentially include inorganic chemical (C-28), organic chemical (C-29), cotton (C-52), man-made filaments (C-54), iron and Steel (C-72) and articles of iron and steel (C-73) etc. Sri Lanka, Bangladesh and Pakistan experienced an increase in the FDI in these sectors which increased the intra-industry trade with India. The index of IIT in the case of consumer products increased at annual rate of 3.65 percent. India's IIT with SAARC for the consumer products was merely 7.17 percent in 1990-91. Nevertheless, it exhibited an increase reaching to 13.55 in 2001-02. Thereafter, it depicted a fall between 2002-03 and 2005-06 (Table 10). In the year 2006-07, the level of IIT witnessed a sudden boost due to an increase in exports and imports of consumer products in India's bilateral trade with SAARC. India's IIT index with SAARC for capital products augmented at the annual growth rate of 13.13 percent. The share of capital goods in the India's bilateral trade basket of SAARC was negligible in the initial five years covered in the study. It was less than 1

percent from 1990-91 to 1994-95. The IIT index remained within the range of 1 to 6 percent from 1995-96 to 2013-14 with an exception of 2011-12, in which it was reached to 9.97 percent. Products which are not included in any of the category are classified in the other products. The IIT for the other products increased at CAGR of 1.60 percent per annum over the period of time.

Examination of India's intra-industry trade with SAARC clearly indicates increasing trend although the rate of increase has been moderate. Few chapters witnessed a steady rise in the level of IIT. Some of them such as edible fruit and nuts; peel of citrus fruit or melons (C-8), vegetable plaiting materials; vegetable products not elsewhere specified (C-14), salt; sulphur; earths and stone; plastering materials (C-25), tanning or dyeing extracts; tannins and their derivatives; (C-32), plastics and articles thereof (C-39), rubber and articles thereof (C-40), raw hides and skins (other than fur skins) and leather (C-41), printed books, newspaper, pictures and other products of the printing industry; manuscripts, typescripts and plans (C-49) and cotton (C-52) have managed to increase their intra-industry trade in the total bilateral trade. The finding suggested that India's intra-industry trade with SAARC for raw materials, intermediate, consumer and capital products have been increasing over the period of time. This increase in IIT is associated with the higher level of industrialisation in the region and opening up of opportunities for scale economies.

## 6. CONCLUSIONS

Though India's two-way trade with SAARC has exhibited an increase, SAARC's contribution in India's total exports grew at a rate of merely 0.16 percent whereas its share in India's total imports has always remained less than one percent except for a few years. However, there has been a compositional change in bilateral trade structure. In case of India's exports to SAARC, predominance of intermediate products has been replaced by consumer products. As far as imports from SAARC as a group are concerned, it revealed more compositional change than Indian exports. Imports basket from SAARC shows an increase in consumer products replacing the importance of primary products. Moreover, increase in the share of capital products has also been recorded in the imports of India from SAARC. The results confirm that over the years, there has been growth in the intra-industry trade. The growth in IIT is

visible in all categories of the products. Industrialisation, FDI and opening up of opportunities for scale economies played important role in increasing intra-industry trade between India and SAARC. Even so, the amount of FDI into SAARC countries is minimal due to their restrictive attitude towards it. South Asian countries were not seen as attractive investment destinations.

Considering the size, industrial base and geographical location of the country, the success of SAFTA exclusively depends on India. However, India has been slightly reluctant to play a lead role. Even so, India has changed its stand point and given more concessions on maximum number of products to SAARC countries. India's bilateral trade flow with each of member country of SAARC except Pakistan has been governed by separate bilateral trade treaty because it provides better market access to India rather than SAFTA. In the recent summit Indian Prime Minister Narendra Modi emphasised on building infrastructural propjets to enhance connectivity and trade. SAFTA's performance is below the expectations because regional development gap. Thus, more Intra-SAARC investment flows are needed to encourage trade and thereby, growth in intra-industry trade.

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# Annexure A

**Table A1: Trade Classification**

(Two Digit HS Classification)

| Section | Chapter | Description |
|---|---|---|
| S-01 | **(01-05)** | **Live Animals; Animal Products** |
| | C-01 | Live animals |
| | C-02 | Meat and edible meat offal |
| | C-03 | Fish and crustaceans, molluscs and other aquatic invertebrates |
| | C-04 | Dairy produce; bird's eggs; natural honey; edible products of animal origin |
| | C-05 | Products of animal origin, not elsewhere specified or included |
| S-02 | **(06-14)** | **Vegetable Products** |
| | C-06 | Live trees and other plants; bulbs, roots and the like |
| | C-07 | Edible vegetables and certain roots and tubers |
| | C-08 | Edible fruit and nuts; peel of citrus fruit or melons |
| | C-09 | Coffee, tea, mate and spices |
| | C-10 | Cereals |
| | C-11 | Products of the milling industry; malt; starches |
| | C-12 | Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; |
| | C-13 | Lac; gums, resins and other vegetable saps and extracts |
| | C-14 | Vegetable plaiting materials; vegetable products not elsewhere specified |
| S-03 | | **Animal and Vegetable Fats and Oils and their Coverage Products** |
| | C-15 | Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes |
| S-04 | **(16-24)** | **Prepared Foodstuff, Beverages, Spirits Vinegar. Tobacco and Manufactured Tobacco Substitutes** |
| | C-16 | Preparation of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates |
| | C-17 | Sugars and sugar confectionery |
| | C-18 | Cocoa and cocoa preparations |
| | C-19 | Preparations of cereals, flour, starch or milk; pastry cooks' products |
| | C-20 | Preparations of vegetables, fruit, nuts or other parts of plants |
| | C-21 | Miscellaneous edible preparations |
| | C-22 | Beverages, spirits and vinegar |
| | C-23 | Residues and waste from the food industries; prepared animal fodder |
| | C-24 | Tobacco and manufactured tobacco substitutes |
| S-05 | **(25-27)** | **Mineral Products** |
| | C-25 | Salt; sulphur; earths and stone; plastering materials |
| | C-26 | Ores, slag and ash |
| | C-27 | Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes |
| S-06 | **(28-38)** | **Products of Chemicals and allied Industries** |
| | C-28 | Inorganic chemicals |
| | C-29 | Organic chemicals |
| | C-30 | Pharmaceutical products |
| | C-31 | Fertilisers |
| | C-32 | Tanning or dyeing extracts; tannins and their derivatives; |
| | C-33 | Essential oils and resinoids; perfumery, cosmetic or toilet preparations |
| | C-34 | Soap organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, |
| | C-35 | Albuminoidal substances; modified starches; glues; enzymes |
| | C-36 | Explosives; pyrotechnic products; matches; pyrotechnic alloys; certain combustible preparations |

To be contd ...

Contd ...

| | | |
|---|---|---|
| | C-37 | Photographic or cinematographic goods |
| | C-38 | Miscellaneous chemical products |
| **S-07** | **(39-40)** | **Products of Plastic and Rubber and articles thereof** |
| | C-39 | Plastics and articles thereof |
| | C-40 | Rubber and articles thereof |
| **S-08** | **(41-43)** | **Raw Hides and Skins, Leather Fur skin and article thereof** |
| | C-41 | Raw hides and skins (other than fur skins) and leather |
| | C-42 | Articles of leather; saddlery and harness, travel goods, handbags and similar containers |
| | C-43 | Fur skins and artificial fur, manufactures thereof |
| **S-09** | **(44-46)** | **Wood and articles thereof** |
| | C-44 | Wood and articles of wood; wood charcoal |
| | C-45 | Cork and articles of cork |
| | C-46 | Manufactures of straw, of esparto or of other plaiting materials; |
| **S-10** | **(47-49)** | **Pulp of Wood and Fibrous Cellulosic Material** |
| | C-47 | Pulp of wood or of other fibrous cellulosic material; recovered |
| | C-48 | Paper and paperboard; articles of paper pulp, of paper or of paperboard |
| | C-49 | Printed books, newspaper, pictures and other products of the printing industry; manuscripts, typescripts and plans |
| **S-11** | **(50-63)** | **Textile and Textile Articles** |
| | C-50 | Silk |
| | C-51 | Wool, fine or coarse animal hair; horsehair yarn and woven fabric |
| | C-52 | Cotton |
| | C-53 | Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn |
| | C-54 | Filaments man-made |
| | C-55 | Man-made staple fibres |
| | C-56 | Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof |
| | C-57 | Carpets and other textile floor coverings |
| | C-58 | Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery |
| | C-59 | Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use |
| | C-60 | Knitted or crocheted fabrics |
| | C-61 | Articles of apparel and clothing accessories, knitted or crocheted |
| | C-62 | Articles of apparel and clothing accessories, not knitted or crocheted |
| | C-63 | Other made up textile articles; sets; worn clothing and worn textile articles; rags |
| **S-12** | **(64-67)** | **Footwear and Umbrellas etc** |
| | C-64 | Footwear, gaiters and the like; parts of such articles |
| | C-65 | Headgear and parts thereof |
| | C-66 | Umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding crops and parts thereof |
| | C-67 | Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles of human hair |
| **S-13** | **(68-70)** | **Articles of Stones, Cement, Plaster and Ceramic Products** |
| | C-68 | Articles of stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware |
| | C-69 | Ceramic products |
| | C-70 | Glass and glassware |
| **S-14** | | **Natural and Cultured Pearls Precious and Semi-Precious Stones** |
| | C-71 | Natural or cultured pearls, precious or semi-precious stones, precious metal, metals clad with precious metal and articles thereof; imitation jewellery; coin |
| **S-15** | **(72-83)** | **Base Metals** |
| | C-72 | Iron and steel |
| | C-73 | Articles of iron or steel |

To be contd

Contd ...

| | | |
|---|---|---|
| | C-74 | Copper and articles thereof |
| | C-75 | Nickel and articles thereof |
| | C-76 | Aluminium and articles thereof |
| | C-78 | Lead and articles thereof |
| | C-79 | Zinc and articles thereof |
| | C-80 | Tin and articles thereof |
| | C-81 | Other base metals; cermet; articles thereof |
| | C-82 | Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal |
| | C-83 | Miscellaneous articles of base metal |
| **S-16** | **(84-85)** | **Machinery and Mechanical Appliances** |
| | C-84 | Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof |
| | C-85 | Electrical machinery and equipment and parts thereof; sound recorders and reproducers |
| **S-17** | **(86-89)** | **Vehicles and Aircraft, Vessels and Other Transport Equipment** |
| | C-86 | Railway or tramway locomotives, rolling-stock and parts thereof |
| | C-87 | Vehicles other than railway or tramway rolling - stock |
| | C-88 | Aircraft, spacecraft and parts thereof |
| | C-89 | Ships, boats and floating structures |
| **S-18** | **(90-92)** | **Optical, musical, Cinematographic, Medical Instruments** |
| | **C-90** | Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof. |
| | **C-91** | Clocks and watches and parts thereof. |
| | **C-92** | Musical instruments; parts and accessories of such articles. |
| **S-19** | | **Arms and ammunition; parts and accessories thereof** |
| | C-93 | Arms and ammunition; parts and accessories thereof |
| **S-20** | **(94-96)** | **Miscellaneous Manufacturing Articles** |
| | C-94 | Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishing; lamps and lighting fittings, not elsewhere specified |
| | C-95 | Toys, games and sports requisites; parts and accessories thereof |
| | C-96 | Miscellaneous manufactured articles |
| **S-21** | | **Works of Arts Antiques and Pieces** |
| | C-97 | Works of art, collectors' pieces and antiques |
| | C-98 | Project goods |

# Annexure B

## Table B1: Index of India's IIT with SAARC and its CAGR for Sections (Weighted Average of the HS-08Digit)

| Section | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-00 | 2000-01 | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | CAGR % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.00 | 0.99 | 0.00 | 0.98 | 4.16 | 0.21 | 0.52 | 0.70 | 1.96 | 0.44 | 0.49 | 2.61 | 6.71 | 9.81 | 7.64 | 3.54 | 4.60 | 3.50 | 5.93 | 3.36 | 3.95 | 7.07 | 7.07 | 6.43 | **NA** |
| 2 | 8.40 | 6.25 | 11.00 | 11.51 | 11.22 | 4.81 | 12.51 | 6.06 | 4.21 | 10.34 | 9.59 | 9.13 | 7.07 | 5.13 | 4.76 | 7.06 | 4.02 | 2.58 | 3.84 | 3.40 | 4.80 | 4.75 | 4.75 | 1.88 | **-5.02** |
| 3 | 0.00 | 1.25 | 0.00 | 0.00 | 1.45 | 2.84 | 4.71 | 0.57 | 0.21 | 1.61 | 2.26 | 0.53 | 0.35 | 3.25 | 2.11 | 1.07 | 2.46 | 2.60 | 7.81 | 6.03 | 4.72 | 1.80 | 1.80 | 1.18 | **NA** |
| 4 | 1.19 | 1.17 | 0.27 | 0.83 | 14.13 | 3.61 | 1.60 | 20.46 | 2.05 | 7.43 | 8.61 | 9.88 | 4.10 | 5.52 | 7.79 | 6.03 | 2.23 | 4.19 | 6.29 | 7.80 | 4.40 | 4.73 | 4.73 | 7.59 | **7.42** |
| 5 | 1.83 | 0.34 | 0.25 | 0.49 | 0.88 | 1.80 | 1.20 | 1.43 | 1.25 | 1.22 | 0.74 | 0.89 | 3.51 | 1.34 | 0.77 | 0.61 | 17.47 | 9.26 | 20.95 | 10.90 | 14.81 | 9.29 | 9.29 | 8.53 | **15.57** |
| 6 | 1.11 | 0.37 | 2.07 | 0.53 | 0.97 | 5.27 | 8.27 | 8.16 | 4.86 | 4.96 | 5.84 | 7.19 | 6.85 | 5.27 | 5.54 | 6.24 | 3.88 | 3.20 | 3.17 | 6.49 | 4.58 | 6.80 | 6.80 | 3.86 | **6.25** |
| 7 | 0.52 | 0.51 | 0.51 | 0.44 | 1.11 | 5.86 | 7.98 | 8.73 | 16.43 | 23.17 | 22.41 | 19.30 | 13.83 | 19.57 | 21.87 | 17.09 | 17.13 | 18.25 | 19.84 | 19.66 | 19.50 | 18.04 | 18.04 | 15.08 | **16.67** |
| 8 | 2.48 | 4.66 | 2.45 | 3.72 | 3.65 | 2.02 | 4.77 | 5.22 | 8.73 | 10.22 | 15.41 | 19.52 | 17.56 | 17.94 | 25.20 | 16.95 | 16.64 | 31.73 | 19.14 | 16.65 | 20.49 | 29.43 | 29.43 | 33.35 | **12.57** |
| 9 | 5.71 | 7.87 | 6.19 | 5.76 | 2.19 | 7.89 | 4.79 | 4.25 | 4.21 | 8.74 | 4.29 | 7.10 | 7.67 | 2.97 | 8.06 | 8.30 | 2.66 | 6.84 | 8.67 | 6.56 | 7.21 | 8.25 | 8.25 | 7.76 | **1.89** |
| 10 | 0.94 | 0.54 | 0.75 | 1.78 | 1.14 | 1.68 | 1.16 | 2.86 | 9.45 | 8.11 | 9.96 | 7.66 | 7.59 | 8.73 | 9.32 | 8.54 | 5.23 | 8.33 | 9.87 | 11.80 | 7.96 | 9.09 | 9.09 | 7.35 | **11.95** |
| 11 | 0.21 | 1.10 | 1.04 | 1.53 | 2.26 | 2.64 | 3.31 | 4.80 | 3.72 | 4.43 | 6.66 | 7.40 | 7.68 | 9.83 | 11.83 | 9.82 | 9.87 | 8.28 | 12.33 | 9.18 | 7.63 | 12.12 | 12.12 | 9.27 | **12.68** |
| 12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.65 | 22.30 | 23.13 | 11.70 | 8.84 | 7.35 | 27.29 | 23.03 | 15.17 | 25.78 | 10.06 | 9.17 | 13.99 | 16.58 | 14.77 | 14.77 | 16.06 | **NA** |
| 13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.23 | 1.55 | 1.08 | 1.48 | 2.29 | 2.54 | 4.62 | 4.21 | 12.26 | 11.16 | 10.88 | 16.90 | 17.17 | 26.51 | 35.99 | 34.83 | 24.28 | 24.28 | 19.59 | **NA** |
| 14 | 0.00 | 17.78 | 58.23 | 0.70 | 1.54 | 4.15 | 0.57 | 9.05 | 1.68 | 10.42 | 18.23 | 0.00 | 3.85 | 35.67 | 48.00 | 62.04 | 45.47 | 5.84 | 9.24 | 7.96 | 23.34 | 12.69 | 12.69 | 7.29 | **NA** |
| 15 | 0.55 | 0.19 | 0.15 | 0.44 | 1.04 | 0.81 | 1.78 | 2.85 | 6.39 | 7.53 | 8.41 | 8.12 | 10.65 | 10.73 | 11.58 | 10.30 | 9.91 | 10.34 | 10.13 | 11.03 | 7.26 | 10.16 | 10.16 | 6.24 | **17.00** |
| 16 | 0.00 | 0.08 | 0.00 | 0.60 | 1.09 | 2.13 | 1.30 | 1.65 | 2.13 | 3.28 | 4.14 | 3.60 | 5.03 | 6.99 | 9.41 | 10.55 | 10.78 | 8.33 | 6.22 | 6.17 | 6.85 | 11.07 | 11.07 | 3.57 | **NA** |
| 17 | 0.00 | 0.00 | 0.03 | 0.08 | 0.53 | 0.01 | 0.04 | 0.25 | 0.10 | 0.06 | 0.14 | 0.04 | 0.27 | 0.10 | 0.19 | 0.37 | 0.34 | 0.63 | 0.71 | 0.90 | 3.02 | 6.52 | 6.52 | 3.61 | **NA** |
| 18 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.71 | 2.76 | 1.78 | 2.13 | 2.80 | 6.74 | 7.11 | 7.81 | 13.87 | 11.27 | 12.93 | 12.13 | 12.85 | 11.87 | 8.80 | 13.68 | 18.26 | 18.26 | 10.31 | **NA** |
| 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | **NA** |
| 20 | 0.00 | 0.00 | 0.00 | 2.69 | 0.00 | 0.00 | 1.02 | 1.68 | 1.85 | 1.72 | 6.52 | 10.63 | 9.59 | 12.41 | 10.28 | 16.05 | 13.87 | 17.30 | 16.30 | 17.31 | 16.12 | 13.46 | 13.46 | 12.31 | **NA** |
| 21 | 5.08 | 8.31 | 12.21 | 3.11 | 15.63 | 30.53 | 18.00 | 2.74 | 4.08 | 10.03 | 10.55 | 2.09 | 4.37 | 6.81 | 21.06 | 5.48 | 7.18 | 8.88 | 17.06 | 7.40 | 2.64 | 16.43 | 7.26 | 7.78 | **-0.12** |

*Note*: For description of sections please refer Annexure A, Table A1

## Table B2: Index of India's IIT with SAARC and its CAGR for Chapters (Weighted Average of the HS-08Digit)

| Chapter | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-00 | 2000-01 | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | CAGR % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.00 | 5.36 | 0.00 | 4.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.82 | 8.33 | 5.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | NA |
| 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | NA |
| 3 | 0.00 | 0.00 | 0.00 | 0.00 | 9.78 | 0.00 | 0.00 | 0.00 | 2.08 | 0.00 | 0.10 | 1.98 | 10.85 | 8.17 | 23.51 | 8.64 | 6.73 | 8.46 | 9.14 | 5.05 | 5.63 | 9.56 | 14.14 | 13.21 | NA |
| 4 | 0.00 | 0.00 | 0.00 | 0.00 | 1.46 | 1.55 | 6.80 | 2.13 | 1.47 | 1.70 | 1.31 | 3.56 | 4.46 | 13.50 | 0.87 | 2.16 | 9.78 | 2.23 | 3.83 | 2.64 | 1.55 | 1.81 | 0.00 | 1.08 | NA |
| 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8.89 | 3.88 | 2.08 | 0.00 | 0.00 | 0.00 | 0.00 | 2.60 | 3.77 | 2.99 | 1.82 | 3.23 | 1.22 | 18.98 | 5.96 | 0.72 | 4.69 | NA |
| 6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 12.50 | 0.00 | 19.35 | 5.13 | 21.74 | 17.39 | 20.69 | NA |
| 7 | 0.00 | 0.00 | 0.00 | 8.79 | 30.65 | 27.49 | 36.97 | 5.78 | 31.42 | 19.86 | 17.45 | 23.99 | 24.18 | 16.55 | 11.15 | 13.10 | 5.66 | 0.20 | 0.17 | 0.31 | 1.80 | 0.54 | 0.41 | 0.52 | NA |
| 8 | 0.09 | 0.10 | 0.25 | 0.64 | 1.01 | 2.32 | 0.42 | 0.44 | 0.35 | 1.05 | 0.72 | 2.24 | 3.32 | 4.15 | 3.50 | 3.07 | 1.39 | 2.76 | 3.48 | 1.82 | 2.64 | 4.30 | 3.70 | 2.93 | 14.28 |
| 9 | 27.95 | 13.69 | 38.76 | 36.48 | 23.85 | 21.27 | 28.78 | 29.60 | 19.22 | 20.86 | 16.04 | 11.93 | 12.62 | 11.17 | 13.12 | 11.98 | 9.28 | 12.48 | 9.93 | 8.43 | 10.87 | 12.17 | 2.72 | 17.96 | -5.84 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | 0.00 | 0.07 | 0.48 | 0.24 | 0.00 | 0.21 | 0.12 | 0.03 | 0.04 | 0.04 | 0.03 | 0.05 | 0.17 | 0.24 | 0.23 | 0.05 | 0.03 | 0.01 | NA |
| 11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.67 | 29.84 | 2.90 | 33.07 | 13.33 | 7.01 | 4.93 | 0.00 | 10.86 | 26.36 | 12.12 | 1.33 | 0.85 | 3.80 | 1.17 | 0.13 | 1.94 | 1.61 | 3.16 | NA |
| 12 | 18.00 | 28.21 | 20.11 | 14.38 | 24.09 | 17.57 | 35.71 | 19.82 | 15.64 | 20.06 | 39.10 | 26.51 | 12.08 | 7.99 | 15.30 | 11.44 | 8.71 | 8.80 | 12.07 | 8.93 | 6.48 | 6.05 | 7.14 | 5.28 | -6.11 |
| 13 | 9.68 | 18.60 | 3.96 | 2.48 | 7.66 | 3.00 | 1.65 | 6.06 | 5.33 | 2.29 | 3.38 | 4.74 | 6.64 | 10.38 | 2.99 | 9.62 | 1.03 | 5.79 | 10.98 | 3.68 | 9.41 | 9.87 | 5.11 | 5.58 | 0.57 |
| 14 | 0.33 | 0.94 | 0.39 | 0.58 | 0.96 | 3.60 | 2.01 | 2.99 | 4.80 | 4.85 | 3.65 | 6.05 | 2.98 | 4.50 | 7.05 | 7.79 | 2.20 | 5.48 | 25.15 | 19.05 | 24.59 | 22.41 | 25.39 | 25.39 | 18.34 |
| 15 | 0.00 | 1.25 | 0.00 | 0.00 | 1.45 | 2.84 | 4.71 | 0.57 | 0.21 | 1.61 | 2.26 | 0.53 | 0.35 | 3.25 | 2.11 | 1.07 | 2.46 | 2.60 | 7.81 | 6.03 | 4.72 | 1.80 | 1.18 | 4.85 | NA |
| 16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | NA |
| 17 | 0.00 | 0.00 | 0.15 | 0.21 | 34.24 | 7.53 | 0.43 | 45.06 | 0.99 | 3.57 | 7.27 | 9.22 | 1.06 | 1.73 | 5.28 | 3.95 | 0.44 | 0.37 | 0.42 | 7.09 | 0.11 | 0.42 | 4.60 | 10.64 | NA |
| 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.53 | 12.50 | 5.62 | 11.38 | 8.25 | 0.00 | 7.02 | 4.35 | 2.94 | 6.15 | 3.31 | 8.58 | 3.97 | 3.64 | 1.06 | 1.55 | 3.97 | NA |
| 19 | 5.64 | 4.31 | 2.01 | 6.79 | 6.73 | 11.68 | 18.82 | 18.09 | 15.18 | 16.55 | 14.95 | 9.44 | 6.86 | 16.36 | 9.93 | 9.11 | 12.86 | 12.57 | 11.78 | 9.47 | 12.74 | 15.70 | 16.31 | 10.70 | 3.72 |
| 20 | 0.00 | 0.00 | 0.00 | 0.00 | 4.92 | 3.59 | 13.51 | 4.49 | 13.50 | 7.00 | 11.64 | 3.39 | 3.93 | 25.89 | 16.17 | 20.96 | 10.65 | 13.69 | 23.89 | 19.63 | 22.58 | 18.73 | 17.41 | 19.56 | NA |
| 21 | 10.53 | 5.41 | 6.15 | 21.95 | 11.32 | 8.21 | 38.46 | 18.79 | 1.74 | 51.79 | 4.83 | 3.22 | 2.69 | 15.02 | 15.81 | 17.66 | 11.58 | 23.41 | 20.06 | 31.82 | 11.99 | 17.64 | 16.11 | 8.25 | 2.55 |
| 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.56 | 0.00 | 13.43 | 43.79 | 85.35 | 51.67 | 78.63 | 52.42 | 19.62 | 19.57 | 8.93 | 6.05 | 9.03 | 8.76 | 9.92 | 3.84 | 5.36 | 5.90 | 6.43 | NA |
| 23 | 0.77 | 1.70 | 0.00 | 0.12 | 0.32 | 0.20 | 0.27 | 0.82 | 1.57 | 2.91 | 6.84 | 8.67 | 4.94 | 4.27 | 6.47 | 5.87 | 5.01 | 6.77 | 10.06 | 7.04 | 8.60 | 6.37 | 8.08 | 10.19 | NA |
| 24 | 0.00 | 1.11 | 0.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.74 | 5.54 | 5.32 | 2.11 | 0.00 | 0.00 | 0.00 | 0.53 | 0.70 | 0.00 | 2.48 | 0.09 | 0.25 | 0.67 | 0.35 | 1.53 | NA |
| 25 | 1.24 | 0.72 | 0.66 | 0.30 | 1.02 | 2.65 | 1.47 | 1.79 | 2.33 | 1.86 | 0.91 | 1.00 | 1.96 | 6.15 | 4.34 | 6.88 | 12.46 | 42.78 | 31.50 | 42.96 | 46.73 | 34.51 | 28.11 | 25.11 | 22.57 |
| 26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.79 | 2.09 | 0.68 | 1.18 | 1.45 | 1.02 | 0.40 | 7.06 | 2.23 | 8.08 | 1.35 | NA |

To be Continued...

Contd...

| Chapter | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-00 | 2000-01 | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | CAGR % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | 6.97 | 0.25 | 0.07 | 1.09 | 0.78 | 0.54 | 0.73 | 0.97 | 0.44 | 0.70 | 0.58 | 0.89 | 4.04 | 0.32 | 0.07 | 0.00 | 18.57 | 6.82 | 20.40 | 3.88 | 9.60 | 4.35 | 5.20 | 3.18 | NA |
| 28 | 0.45 | 0.27 | 0.00 | 2.52 | 0.68 | 0.04 | 0.00 | 1.54 | 3.09 | 2.60 | 3.99 | 3.93 | 1.41 | 0.86 | 1.05 | 0.65 | 2.58 | 3.13 | 2.52 | 18.37 | 18.97 | 12.42 | 14.19 | 8.98 | NA |
| 29 | 0.00 | 0.00 | 1.57 | 0.00 | 4.20 | 0.53 | 0.54 | 0.57 | 1.85 | 0.70 | 0.72 | 2.52 | 0.88 | 0.50 | 1.48 | 4.81 | 1.02 | 0.84 | 0.51 | 3.60 | 0.53 | 2.97 | 0.32 | 0.36 | NA |
| 30 | 0.17 | 0.00 | 0.06 | 0.09 | 0.16 | 9.09 | 15.68 | 14.20 | 5.97 | 3.30 | 4.63 | 5.08 | 8.58 | 5.31 | 7.81 | 5.86 | 4.54 | 6.58 | 4.56 | 5.00 | 3.98 | 6.75 | 4.03 | 4.72 | NA |
| 31 | 0.00 | 0.00 | 40.91 | 0.00 | 0.00 | 4.45 | 6.53 | 25.73 | 0.00 | 0.00 | 0.00 | 63.64 | 0.00 | 0.00 | 8.01 | 21.45 | 0.12 | 0.00 | 2.53 | 34.92 | 1.74 | 51.49 | 0.19 | 0.00 | NA |
| 32 | 3.95 | 2.32 | 2.34 | 0.38 | 1.16 | 3.07 | 2.10 | 3.25 | 3.34 | 11.67 | 13.15 | 11.98 | 5.76 | 6.71 | 12.21 | 10.64 | 9.24 | 5.82 | 5.13 | 6.42 | 5.64 | 7.57 | 3.22 | 3.21 | 5.76 |
| 33 | 2.02 | 0.00 | 1.35 | 3.84 | 0.68 | 7.38 | 19.57 | 10.03 | 13.87 | 10.63 | 15.30 | 11.92 | 15.97 | 26.19 | 16.52 | 19.88 | 6.77 | 7.16 | 13.04 | 9.82 | 6.94 | 3.12 | 1.84 | 1.00 | NA |
| 34 | 0.00 | 0.00 | 1.80 | 0.00 | 10.30 | 31.00 | 17.90 | 5.07 | 2.48 | 9.01 | 6.07 | 11.85 | 19.01 | 25.15 | 29.34 | 27.66 | 31.40 | 15.53 | 7.31 | 7.84 | 6.37 | 8.00 | 7.04 | 5.08 | NA |
| 35 | 0.00 | 0.00 | 0.00 | 6.78 | 0.00 | 0.00 | 0.00 | 22.86 | 21.78 | 2.80 | 6.02 | 20.65 | 7.97 | 5.99 | 9.66 | 5.80 | 5.76 | 8.60 | 5.20 | 3.28 | 2.35 | 2.60 | 1.27 | 0.81 | NA |
| 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | NA |
| 37 | 0.00 | 0.00 | 0.00 | 4.44 | 0.00 | 5.88 | 0.00 | 5.56 | 0.00 | 3.88 | 2.94 | 5.37 | 1.22 | 7.72 | 10.39 | 9.35 | 12.36 | 1.46 | 4.69 | 1.20 | 0.00 | 2.46 | 0.00 | 0.00 | NA |
| 38 | 0.00 | 0.00 | 2.58 | 1.03 | 0.34 | 0.56 | 0.85 | 1.90 | 2.82 | 1.67 | 2.80 | 1.77 | 4.49 | 4.55 | 4.24 | 2.44 | 4.71 | 4.88 | 4.15 | 4.71 | 3.00 | 4.43 | 3.13 | 3.03 | NA |
| 39 | 2.50 | 3.21 | 2.11 | 1.21 | 1.59 | 2.36 | 3.60 | 11.82 | 29.19 | 37.49 | 31.75 | 24.34 | 18.23 | 26.89 | 20.27 | 18.79 | 14.37 | 16.06 | 18.79 | 18.08 | 14.55 | 14.89 | 11.93 | 10.28 | 9.76 |
| 40 | 0.00 | 0.00 | 0.29 | 0.27 | 0.72 | 7.43 | 10.03 | 6.36 | 5.72 | 5.50 | 4.71 | 7.83 | 4.71 | 9.25 | 25.21 | 13.81 | 23.32 | 22.32 | 21.63 | 22.13 | 28.00 | 23.07 | 21.61 | 16.34 | NA |
| 41 | 2.50 | 4.75 | 2.73 | 3.79 | 3.83 | 2.09 | 5.15 | 5.89 | 10.41 | 11.57 | 17.71 | 22.40 | 19.31 | 23.31 | 33.68 | 23.34 | 20.15 | 33.61 | 20.07 | 17.77 | 21.10 | 30.37 | 35.91 | 38.94 | 12.77 |
| 42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.98 | 2.60 | 4.00 | 4.35 | 4.21 | 4.36 | 7.14 | 1.08 | 0.00 | 1.99 | 5.88 | 5.02 | 10.70 | 19.66 | 7.69 | 7.43 | NA |
| 43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | NA |
| 44 | 5.85 | 7.91 | 6.22 | 5.77 | 2.20 | 7.94 | 4.81 | 4.31 | 4.35 | 9.02 | 4.14 | 7.29 | 7.86 | 2.92 | 8.03 | 8.34 | 2.71 | 6.95 | 8.80 | 6.74 | 7.26 | 8.30 | 7.77 | 10.32 | 1.89 |
| 45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.09 | 16.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | NA |
| 46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 17.39 | 0.00 | 0.00 | 7.69 | 10.00 | 0.00 | 0.00 | 0.00 | 18.18 | 0.00 | 0.00 | 0.00 | 25.00 | 0.00 | NA |
| 47 | 9.52 | 0.00 | 2.90 | 32.43 | 14.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.24 | 1.20 | 1.07 | 2.34 | 0.58 | 0.37 | 0.00 | 1.33 | 0.00 | 0.64 | 0.10 | 0.08 | 0.16 | 0.07 | NA |
| 48 | 0.40 | 0.37 | 0.00 | 0.50 | 0.43 | 0.93 | 0.95 | 3.35 | 12.69 | 9.89 | 11.86 | 7.30 | 8.43 | 10.69 | 11.74 | 11.05 | 5.68 | 8.98 | 9.13 | 11.47 | 7.32 | 8.31 | 8.41 | 8.41 | NA |
| 49 | 1.71 | 1.08 | 2.35 | 2.49 | 1.94 | 5.99 | 2.22 | 2.36 | 5.16 | 5.16 | 4.64 | 12.43 | 3.72 | 3.79 | 4.79 | 2.60 | 6.47 | 10.05 | 18.01 | 19.39 | 17.08 | 17.87 | 7.57 | 7.10 | 12.60 |
| 50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 16.00 | 0.00 | 0.00 | 17.33 | 47.73 | 30.56 | 15.58 | 6.32 | 45.61 | 37.74 | 42.94 | 15.09 | 29.90 | 19.86 | 4.80 | 13.73 | 19.91 | 36.67 | 7.61 | NA |
| 51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 0.00 | 0.00 | 1.07 | 5.29 | 5.48 | 0.56 | 2.78 | 6.51 | 0.55 | 0.00 | 0.00 | 0.28 | 0.20 | NA |
| 52 | 0.02 | 0.65 | 0.53 | 0.60 | 0.62 | 0.47 | 0.22 | 0.16 | 0.51 | 0.39 | 1.30 | 2.35 | 1.68 | 3.42 | 8.28 | 8.99 | 8.89 | 4.65 | 10.53 | 7.36 | 2.66 | 7.57 | 5.48 | 4.03 | 20.32 |
| 53 | 0.00 | 0.68 | 21.62 | 2.55 | 1.84 | 4.15 | 8.30 | 21.76 | 14.40 | 8.51 | 14.83 | 10.55 | 8.57 | 9.69 | 17.31 | 12.21 | 4.76 | 23.42 | 29.84 | 30.05 | 33.44 | 18.94 | 22.58 | 32.52 | NA |

To be Continued...

| Chapter | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-00 | 2000-01 | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | CAGR % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 54 | 0.00 | 0.20 | 2.01 | 11.79 | 20.37 | 7.92 | 8.74 | 13.42 | 11.66 | 13.65 | 16.44 | 16.68 | 19.53 | 20.55 | 17.27 | 8.46 | 10.38 | 11.67 | 5.77 | 3.68 | 5.16 | 16.26 | 5.30 | 2.81 | NA |
| 55 | 3.87 | 7.11 | 1.82 | 9.70 | 16.11 | 31.57 | 41.00 | 41.25 | 11.45 | 22.20 | 28.36 | 26.58 | 20.34 | 27.32 | 18.03 | 10.76 | 9.06 | 18.98 | 20.67 | 19.02 | 20.07 | 8.52 | 10.14 | 9.38 | 1.87 |
| 56 | 47.06 | 17.12 | 10.85 | 9.93 | 14.77 | 8.77 | 3.49 | 0.58 | 1.53 | 1.87 | 28.11 | 8.86 | 5.71 | 9.79 | 5.48 | 2.73 | 4.63 | 6.44 | 14.72 | 10.69 | 6.71 | 6.70 | 6.99 | 13.71 | -1.29 |
| 57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.63 | 4.44 | 2.53 | 5.00 | 2.85 | 5.02 | 2.63 | 23.94 | 10.81 | 3.10 | 21.62 | 4.23 | 37.74 | 10.84 | 2.09 | 13.27 | 11.69 | 23.73 | NA |
| 58 | 0.00 | 4.88 | 0.00 | 16.67 | 0.00 | 0.00 | 0.00 | 2.31 | 3.45 | 1.98 | 3.96 | 5.57 | 12.04 | 15.42 | 19.52 | 31.22 | 40.26 | 37.43 | 34.72 | 45.87 | 61.74 | 59.76 | 61.84 | 53.67 | NA |
| 59 | 0.00 | 0.00 | 0.00 | 0.00 | 2.17 | 0.00 | 0.00 | 0.00 | 9.09 | 3.35 | 2.69 | 3.35 | 4.48 | 5.49 | 6.58 | 3.30 | 2.33 | 3.29 | 17.50 | 23.55 | 23.87 | 20.64 | 7.50 | 1.88 | NA |
| 60 | 0.00 | 0.35 | 0.00 | 0.18 | 0.09 | 0.23 | 1.34 | 0.00 | 0.92 | 9.88 | 2.26 | 17.60 | 21.50 | 10.98 | 23.15 | 14.22 | 16.12 | 17.33 | 17.57 | 10.51 | 12.15 | 25.85 | 23.16 | 25.47 | NA |
| 61 | 0.00 | 0.00 | 0.00 | 3.96 | 0.00 | 0.00 | 0.00 | 0.00 | 1.27 | 4.31 | 5.27 | 2.93 | 9.70 | 4.08 | 7.59 | 8.36 | 12.84 | 20.70 | 27.44 | 28.82 | 40.73 | 42.36 | 44.97 | 37.20 | NA |
| 62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.29 | 1.07 | 2.74 | 9.48 | 12.29 | 11.06 | 28.10 | 16.19 | 15.38 | 25.31 | 31.67 | 32.17 | 34.61 | 29.62 | 30.24 | 28.04 | 25.80 | NA |
| 63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.04 | 9.30 | 9.04 | 1.80 | 1.48 | 5.06 | 4.20 | 6.36 | 8.80 | 11.34 | 6.35 | 6.88 | 7.11 | 4.71 | 3.01 | 4.53 | 7.37 | 6.34 | 6.86 | NA |
| 64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 23.57 | 24.22 | 12.86 | 9.35 | 10.87 | 28.72 | 27.25 | 21.94 | 31.38 | 9.72 | 10.01 | 14.68 | 16.42 | 13.28 | 15.89 | 11.93 | NA |
| 65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 30.00 | 11.32 | 2.73 | 6.67 | 25.45 | 5.56 | 7.27 | 16.67 | 32.50 | 12.50 | 9.09 | NA |
| 66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.90 | 3.57 | 2.60 | 0.00 | 3.64 | 10.71 | 15.38 | 21.54 | 21.95 | 38.10 | 2.04 | NA |
| 67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 25.00 | 0.00 | 15.38 | 13.79 | 22.22 | 0.00 | 50.00 | 0.00 | 20.00 | 0.00 | 15.38 | NA |
| 68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.74 | 1.36 | 2.62 | 0.76 | 0.62 | 5.45 | 3.54 | 5.87 | 8.66 | 22.45 | 13.68 | 9.37 | 7.02 | 10.22 | 14.33 | 11.15 | 12.91 | 13.97 | 10.88 | 17.44 | NA |
| 69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.31 | 2.46 | 2.48 | 2.53 | 1.31 | 4.09 | 5.63 | 17.52 | 20.55 | 20.45 | 26.05 | 16.17 | 13.25 | 13.84 | 18.28 | 10.71 | 3.63 | 2.77 | NA |
| 70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.56 | 1.38 | 0.00 | 2.86 | 4.07 | 1.22 | 1.54 | 1.16 | 5.13 | 30.26 | 25.70 | 44.80 | 59.79 | 64.46 | 46.88 | 40.92 | 34.33 | NA |
| 71 | 0.00 | 17.78 | 58.23 | 0.70 | 1.54 | 4.15 | 0.57 | 9.05 | 1.68 | 10.42 | 18.23 | 0.00 | 3.85 | 35.67 | 48.00 | 62.04 | 45.47 | 5.84 | 9.24 | 7.96 | 23.34 | 12.69 | 7.29 | 7.35 | NA |
| 72 | 0.49 | 0.00 | 0.00 | 0.04 | 0.80 | 0.48 | 1.21 | 1.28 | 5.45 | 3.64 | 3.82 | 3.54 | 7.65 | 6.90 | 7.06 | 10.41 | 8.98 | 7.33 | 7.84 | 9.66 | 7.54 | 6.92 | 4.92 | 3.81 | NA |
| 73 | 1.95 | 0.86 | 0.37 | 0.31 | 1.95 | 2.33 | 2.57 | 5.24 | 5.10 | 15.59 | 14.98 | 16.90 | 15.26 | 11.65 | 11.16 | 12.73 | 25.93 | 21.00 | 19.02 | 11.43 | 5.86 | 13.87 | 4.96 | 5.16 | 12.61 |
| 74 | 0.00 | 0.00 | 0.00 | 7.87 | 0.59 | 0.55 | 1.12 | 0.00 | 7.42 | 11.02 | 11.80 | 9.63 | 22.93 | 20.04 | 9.41 | 6.76 | 6.23 | 8.63 | 16.23 | 21.33 | 9.15 | 20.99 | 9.84 | 21.08 | NA |
| 75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.84 | 5.41 | 0.00 | 1.35 | 0.00 | 0.00 | NA |
| 76 | 0.00 | 0.00 | 0.00 | 1.22 | 1.57 | 0.60 | 3.55 | 8.17 | 13.15 | 11.89 | 8.47 | 5.17 | 8.29 | 11.67 | 30.64 | 12.82 | 2.59 | 3.01 | 3.57 | 5.18 | 2.82 | 5.07 | 1.87 | 5.22 | NA |
| 78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 29.63 | 9.43 | 8.93 | 50.68 | 70.50 | 40.85 | 47.81 | 36.33 | 33.58 | 26.55 | 17.00 | 21.22 | 37.66 | 58.88 | NA |
| 79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.90 | 0.00 | 13.33 | 0.00 | 11.76 | 3.88 | 4.64 | 1.18 | 24.45 | 4.05 | 9.02 | 2.50 | 1.29 | 0.47 | 15.69 | 25.63 | 6.10 | NA |
| 80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.33 | 7.29 | 0.79 | 6.38 | 20.51 | 30.49 | 6.50 | 10.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | NA |
| 81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.17 | 1.17 | 0.00 | 0.00 | NA |

To be Continued...

| Chapter | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-00 | 2000-01 | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | CAGR % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 82 | 0.00 | 0.00 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.57 | 0.49 | 0.77 | 0.58 | 3.59 | 0.34 | 1.44 | 3.13 | 6.73 | 9.94 | 11.53 | 6.77 | 12.56 | 8.58 | 3.81 | 5.03 | NA |
| 83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.81 | 0.00 | 0.00 | 0.00 | 1.07 | 4.42 | 0.00 | 1.26 | 6.78 | 2.60 | 4.97 | 4.26 | 1.81 | 1.75 | 2.32 | 6.56 | 6.28 | 3.06 | 4.39 | NA |
| 84 | 0.00 | 0.00 | 0.00 | 0.20 | 0.81 | 0.93 | 1.58 | 1.90 | 2.05 | 2.44 | 3.72 | 3.26 | 5.08 | 6.05 | 7.35 | 7.74 | 7.86 | 5.40 | 4.44 | 4.52 | 5.51 | 8.84 | 4.51 | 9.45 | NA |
| 85 | 0.00 | 0.33 | 0.00 | 1.42 | 1.63 | 4.56 | 0.71 | 1.16 | 2.30 | 4.55 | 5.06 | 4.19 | 4.97 | 8.37 | 12.36 | 13.92 | 13.73 | 12.10 | 8.97 | 8.41 | 8.89 | 14.37 | 0.24 | 0.07 | NA |
| 86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.07 | 0.33 | 0.00 | 1.33 | 0.00 | 27.59 | 6.21 | 0.00 | 0.11 | 0.05 | 0.95 | 1.71 | NA |
| 87 | 0.00 | 0.00 | 0.03 | 0.08 | 0.54 | 0.01 | 0.04 | 0.26 | 0.02 | 0.04 | 0.11 | 0.03 | 0.09 | 0.10 | 0.06 | 0.34 | 0.36 | 0.63 | 0.81 | 1.02 | 0.43 | 1.02 | 0.00 | 8.55 | NA |
| 88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 76.92 | 11.11 | 40.00 | 22.22 | 54.84 | 0.00 | 16.78 | 10.34 | 9.52 | 30.46 | 1.02 | 2.79 | 2.24 | 31.31 | 19.54 | 0.23 | NA |
| 89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.14 | 0.00 | 0.00 | 0.00 | 0.38 | 0.00 | 0.33 | 0.02 | 0.00 | 17.40 | 33.98 | 10.81 | 10.18 | NA |
| 90 | 0.00 | 0.00 | 0.00 | 1.04 | 0.00 | 0.75 | 3.11 | 1.90 | 2.26 | 2.99 | 6.93 | 7.29 | 8.09 | 14.52 | 11.48 | 13.61 | 13.31 | 14.21 | 12.69 | 9.38 | 14.57 | 18.71 | 0.00 | 0.00 | NA |
| 91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.70 | 0.00 | 0.00 | 0.00 | 4.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.84 | 0.00 | 0.00 | NA |
| 92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.20 | 0.00 | 0.00 | 0.00 | NA |
| 93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 18.86 | 20.57 | NA |
| 94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.60 | 1.46 | 1.19 | 0.00 | 9.55 | 17.59 | 19.97 | 20.34 | 13.44 | 13.65 | 16.27 | 21.25 | 26.46 | 22.26 | 24.12 | 22.25 | 29.58 | 32.69 | NA |
| 95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.25 | 3.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.41 | 39.73 | 25.35 | 37.60 | 26.67 | 29.78 | 21.30 | 30.27 | 6.88 | 6.43 | NA |
| 96 | 0.00 | 0.00 | 0.00 | 5.83 | 0.00 | 0.00 | 0.00 | 2.25 | 1.70 | 2.92 | 5.84 | 6.67 | 4.42 | 8.30 | 8.94 | 12.09 | 8.25 | 9.36 | 7.32 | 12.07 | 9.83 | 5.40 | 34.06 | 14.55 | NA |
| 97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.84 | 2.89 | 5.85 | 26.34 | 9.02 | 3.00 | 8.92 | 13.74 | 33.93 | 7.97 | 0.22 | NA |
| 98 | 0.00 | 0.00 | 0.00 | 0.00 | 2.78 | 24.60 | 0.13 | 0.00 | 0.22 | 1.37 | 10.42 | 40.45 | 0.00 | 0.29 | 12.08 | 9.37 | 3.92 | 0.00 | 2.74 | 8.33 | 4.90 | 37.36 | 5.62 | 15.09 | NA |
| 99 | 16.27 | 22.83 | 14.61 | 4.69 | 19.52 | 33.03 | 47.54 | 7.25 | 12.78 | 13.73 | 10.61 | 1.43 | 4.76 | 8.04 | 27.21 | 4.68 | 5.55 | 9.29 | 19.13 | 7.36 | 2.46 | 14.35 | 3.81 | 5.03 | -3.75 |

*Note*: For description of chapters please refer Annexure A, Table A1

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