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## Nepal-India Agricultural Trade: Trends, Issues and Prospects

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### Abstract

The study has assessed trends, issues and prospects of Nepal-India agricultural trade. The trade performance indicators viz. revealed comparative advantage, trade complementarity index and indicative trade potential have been estimated to understand the performance and prospects of Nepal's agricultural trade with India. The results have depicted a high comparative advantage for most of the exported agricultural items from Nepal with almost perfect complementarity in the agricultural export profiles of both India and Nepal. However, Nepal's export potential in the Indian market is not very encouraging, and in most cases the binding constraint to trade potential of Nepal is its limited export capacity and not the lack of opportunities in the Indian market.

**Key words:** Agricultural trade, comparative advantage, trade complementarity, export potential, Nepal, India

**JEL Classification:** F14, Q17

### Introduction

Today, the state of Nepal's global trade is not considered healthy. There are large gaps between imports and exports and their growth rates, leading to escalating trade deficits. Nepal has a high conglomeration of export items - only 10 export items account for 40 per cent of the total exports. In the total trade of Nepal, 68 per cent is with India, and there are surging trade imbalances due to increasing trade deficit with India. In Nepal's global trade deficit, India alone accounts for 57 per cent share.

During 2001-2009, Nepal's agricultural exports to India were more or less flat. But, during 2009-2013, Nepal's agricultural imports from India surged at a high rate of 27 per cent per annum (p.a.), while Nepal's agricultural exports to India grew at a modest rate of 8 per cent p.a. Nepal's share, or trade dependency on India is growing at a fast rate of 8 per cent p.a. in

imports and 5 per cent p.a. in exports. The concern regarding lack of product diversification in exports also applies to agricultural trade. Other concerns from the point of product development in Nepal include poor performance in value addition to primary products for exports, and weak backward and forward linkages with rest of the economy in the case of manufactured products exported.

Most writings on trade in Nepal tend to focus exclusively on 'exports', so much so that the words 'exports' and 'trade' are sometimes used interchangeably. The same could be said for the key government trade papers, such as Nepal's Trade Policies of 2009 and 2015, as well as for the 2010 Nepal Trade Integration Study (NTIS) (GoN, 2010). One finds very little information in these documents on policy perspectives on importables, or on the issue of import substitution. The specificity of present study is that it devotes a considerable space to Nepal's imports of agricultural products, especially food commodities, and

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issues related to productivity and competitiveness of Nepal in the agriculture sector.

There is a strong feeling in Nepal that the provision in the Nepal-India Trade Treaty for free trade in primary products (agriculture) on a reciprocal basis has undermined the growth of Nepal's agriculture as Nepalese products have to compete at home with the Indian farm products that benefit substantially from high levels of public support and subsidies. The provision of subsidies to the Indian agriculture, especially to the food sector, is thus seen as a 'negative factor' for Nepal, in exactly the same way as most developing countries viewed the OECD farm subsidies as being negative, as expressed for many years throughout the implementation of the WTO Agreement on Agriculture and during the negotiations of the Doha Round.

In this backdrop, this paper examines the trends in Nepal's agricultural trade, computes 'trade performance indicators' that would help in identifying the competitiveness of Nepal in export of agricultural products and portrays prospects for increasing their exports to India. The trade performance indicators include comparative advantage, trade complementarity, and export potentials.

## Data and Methodology

### Data

The data were collected from the Nepal Rastra Bank (NRB), which is also the data source for Nepal's official documents, to study trends in Nepal's agricultural trade for a long period, 1990 to 2013. These data are available for broad Standard International Trade Classification (SITC) categories. Agriculture is defined as the sum of the SITC numbers 0, 1 and 4, and the rest refer to non-agriculture sector. Detailed and disaggregated analyses at the product level were conducted using data (at 8-digit HS level) from Trade and Export Promotion Centre (TEPC) of Nepal. However, these data are available in public domain for five years only, viz. 2009 to 2013. The trade performance indicators were estimated using data on trade from the International Trade Statistics (ITS), provided by International Trade Center (ITC). The ITS provide yearly data for 220 countries and territories and for all 5300 products of the harmonized system.

## Methodology

We have analyzed three popular trade performance indicators for Nepal which included: (i) Revealed Comparative Advantage (RCA); (ii) trade complementarity between Nepal and India; and (iii) Nepal's export potential in the Indian market. The RCA provides indication on the comparative advantage or export potential at the global level for specific products, while the other two indicators are focused on trade with India. The International Trade Centre (ITC) provides manuals and software for such analyses (e.g. Helmers and Pasteels, 2006 and TradeMap software).

### Revealed Comparative Advantage

The revealed comparative advantage (RCA) is a measure of a country's relative advantage or disadvantage in a specific industry as evidenced by trade flows. The RCA, first introduced by Balassa in 1965, is mathematically estimated as:

$$RCA_{ij} = \frac{(X_{ij} / X_i)}{(X_{wj} / X_w)} \quad \dots(1)$$

where,

$RCA_{ij}$  is the revealed comparative advantage of the  $i^{\text{th}}$  country for the  $j^{\text{th}}$  commodity,

$X_{ij}$  is the  $i^{\text{th}}$  country's global exports of the commodity  $j$ ,

$X_i$  is the  $i^{\text{th}}$  country's total exports to the world,

$X_{wj}$  is the world exports of the commodity  $j$ , and

$X_w$  is the total world exports

A product for which the value of RCA index exceeds one is said to possess global comparative advantage.

### Trade Complementarity between Nepal and India

In trade literature, one popular measure used for measuring complementarity is Trade Complementarity Index (TCI). It measures the degree to which the export pattern of one country matches with import pattern of the other country. It is a type of overlap index. A high degree of complementarity indicates a favourable prospect for successful trade integration. In percentage terms, the index takes a value between 0 and 100, with

value 0 indicating no overlap and 100 indicating a perfect match in import and export patterns, i.e. perfect complementarity. The shares are calculated over trade in all goods (i.e. sum of HS 1 to 97 for the denominator). The trade complementarity index (TCI) for trade between two countries is computed as:

$$TCI = \left\{ 1 - \left[ \frac{\sum_i \left( \frac{\sum m_{id} \sum x_{is}}{\sum M_d \sum X_s} \right)}{2} \right] \right\} * 100 \quad \dots(2)$$

where,  $d$  is the importing country,  $s$  is the exporting country,  $i$  is the set of commodities,  $x$  is the commodity export flow,  $X$  is the total export flow,  $m$  is the commodity import flow, and  $M$  is the total import flow.

### Export Potential

The trade potential between two countries is assessed by comparing one country's export capacity with the other's import market size. Formally, Indicative Trade Potential (ITP) is computed as:

$$[\min(\text{EX}, \text{IM}) - \text{CT}]$$

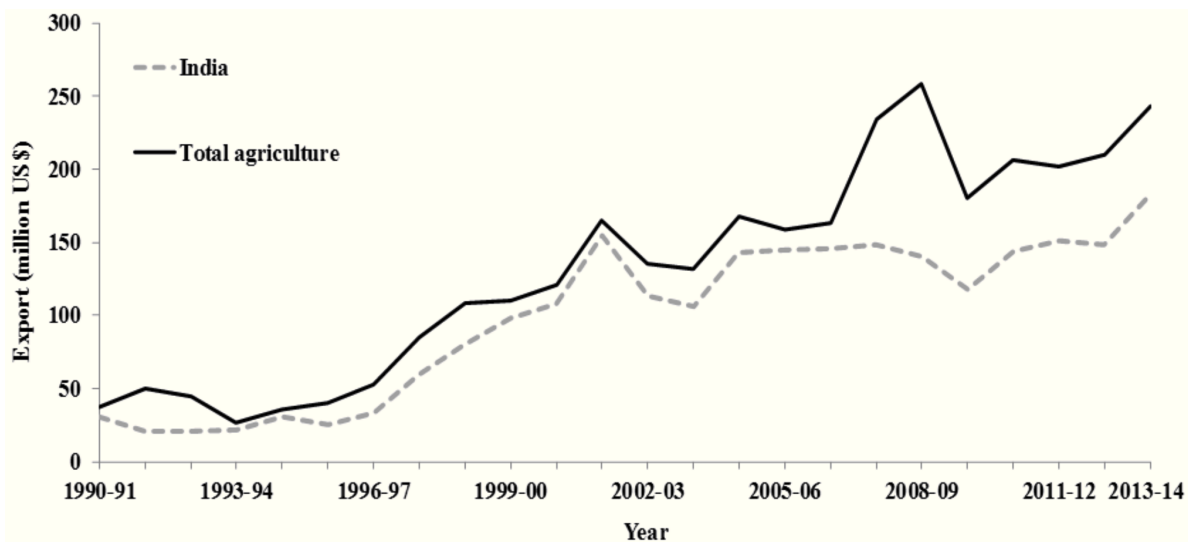
where, EX is exporting country's global export of a given product (say, Nepal's global export of ginger), IM is the import market's total imports (say, India's global import of ginger) and CT is the current trade between the two countries (say Nepal's exports to India). The function " $\min(\text{EX}, \text{IM})$ " means accepting

the lower (minimum) value between EX and IM. One assumption made here is that the importing country could 'in principle' absorb all imports from the exporter. The ITPs are best computed from highly disaggregated trade data, especially for small developing countries with heavily specialized export structure. Therefore, the results for Nepal-India trade were computed with export data at the HS 6-digit level. It is also useful to express the ITPs in relative terms (RITP) which is the ITP as a percentage of the exporting country's total global exports of the commodity in question. A low value of RITP indicates a saturated export market and hence low potential for further trade expansion.

### Agricultural Trade between Nepal and India: Trends and Structure

#### Trends in Nepal's Agricultural Exports to India

Figure 1 showing trends in Nepal's agricultural exports to India, depicts two broad patterns – steady increases from 1990-1991 to 2001-2002 (US\$24 million to US\$155 million), and a flat trend thereafter with ups and downs. But, there are some sub-phases within this period. During 1990-1991 to 1995-1996, the exports hovered within US\$21 million to US\$33 million range, with a mean of US\$25 million, but with no upward trend. Second, exports surged by almost five-times from 1996-1997 to 2001-2002 (US\$33



Source: Based on NRB trade data.

Figure 1. Trends in Nepal's agricultural exports to India, 1990-91-2013-14 (million US\$)

million to US\$155 million at a growth rate of 28% p.a.). What are the products that explain this surge? The export of product 'Vanaspati' explains almost all the increases during this period. The only exception was the year 1999-2000 when agricultural exports increased by US\$18 million while Vanaspati exports declined. The main reason for this decline was the liberal provisions of the 1996 Treaty, with no quotas and relaxed rules of origin. The Vanaspati trade was disrupted after the revision of the Treaty in 2002.

A look at Figure 1 raises a question, what explains the slump after 2001-2002 for the next two years before recovering in 2004-2005? The agricultural exports fell by US\$41 million in 2002-2003 and by US\$7 million in 2003-2004. In both these years, the slumps in Vanaspati exports could explain almost all the changes – Vanaspati exports declined by US\$43 million in 2002-2003 and by US\$9 million in 2003-2004. The exports of other products rose modestly, and so there was some offsetting in Nepal-India trade. The recovery of agricultural exports in 2004-2005 was also largely due to Vanaspati again – while total agricultural exports rose by US\$36 million, Vanaspati exports alone increased by US\$24 million, which means that there were increases in the exports of other products also.

During the period 2004-2005 to 2012-2013, the agricultural exports of Nepal to India were essentially flat, around a mean value of US\$143 million, and when Vanaspati export collapsed, other exports increased which prevented declines in total agricultural exports.

Figure 1 also shows that after recovery in 2004-2005, the exports were largely flat within a small range of US\$143 - US\$148 million until 2012-2013, except for one marked dip in 2009-2010. The Vanaspati export continued to be prominent for some years in this phase too – its share in total agricultural exports still remained 45 per cent in 2004-2005, which fell to 22 per cent in 2007-2008 and then its role ceased almost completely. The Vanaspati exports fell by US\$11 million in 2005-2006 and again by US\$26 million in 2007-2008, and yet total agricultural exports remained stable as exports of a range of other products rose to offset the impact of declining exports of Vanaspati from Nepal. In 2007-2008, for example, the exports of cardamoms increased by US\$4 million, noodles by US\$5 million, juices by US\$5 million, tea by US\$9 million, feeds by US\$4 million as well as in a range of other products. As

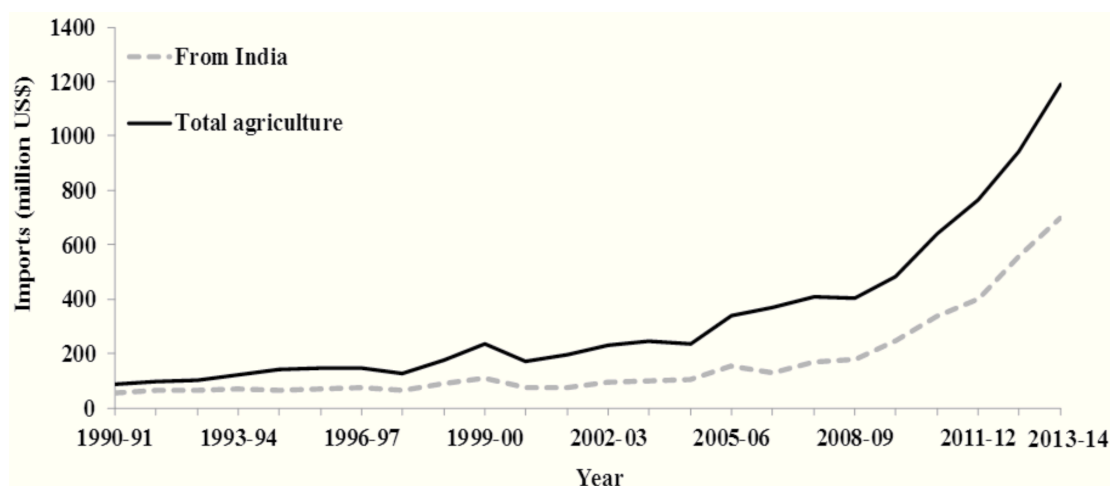
mentioned, there was a slump of US\$22 million in exports in 2009-2010 (from US\$140 to US\$118 million) and, for the first time, the usual suspect (Vanaspati) had no role to play because its exports from Nepal to India had already become negligible by 2008-2009. This slump was shared by a wide range of items including pulses, noodles, cardamom, juices, feeds, tea, etc. In trade literature, the decline in 2009 trade is usually attributed to the global financial crisis, but it is not clear if that would apply to Nepal's export to India as well.

### **Nepal's Non-agricultural Exports to India**

While agricultural exports to India peaked in 2001 and have remained essentially flat since then, the non-agricultural exports to India trended up for a longer period. From US\$18 million in 1990, the non-agricultural exports to India increased steadily for eight years and exceeded US\$100 million in 1998, with a trend growth rate of 25 per cent p.a. From 1998, the exports increased to India by four-times to reach US\$446 million by 2006-2007, again an eight-year run. After that, until 2013-2014, exports have remained flat, growing by less than 1 per cent p.a. in these six years.

### **Trends in Nepal's Agricultural Imports from India**

The escalation in agricultural imports from India is only a recent phenomenon. Figure 2 shows longer trends in Nepal's agricultural imports from India. From Figure 2, four phases can be identified in import trends from India. First, imports grew slowly but steadily during the nine-year period (1990-1999), from about US\$60 million to just over US\$100 million, with a fairly modest trend growth rate of 5.6 per cent p.a. Second, during 1999-2004, the imports from India fluctuated within a narrow range, averaging at US\$92 million, with a growth rate of only 2 per cent p.a. Third, imports started rising rapidly after 2004, growing from about US\$100 million to about US\$180 million (12% p.a.) in 2007. Fourth, the year 2008 marked the beginning of a period of surges in imports from India which continued to 2013, and most likely to 2014 and 2015 as well. In 2013, the agricultural imports from India were at four-times the level of 2008 (from US\$178 million to US\$700 million), corresponding to a trend growth rate of 27 per cent p.a. (the growth rate was still very high, 21% p.a. during 2004-2013). Thus, the escalation in imports of agricultural products from



Source: Authors' computation based on the NRB trade data.

**Figure 2. Trends in Nepal's agricultural imports from India, 1990-1991 to 2013-2014 (million US\$)**

India is only a recent phenomenon and it would be interesting to identify the products behind the surges.

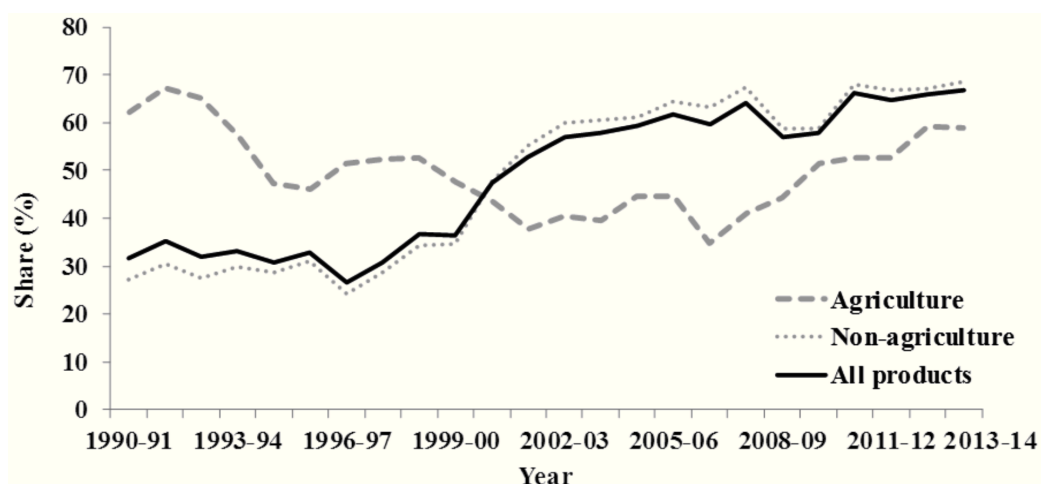
A question now arises how can this escalation in Nepal's imports from India be explained? It is unlikely that the Nepal-India trade agreement, or Nepal's WTO membership in 2004, could have triggered such sharp changes in import trends in such short periods. One most likely explanation would be the economic constraints that Nepal had been facing since the early-2000s, with disruptions in farm production and industry, while demand for food has been surging due to increasing disposable incomes from remittances. The product level data for 2009-2013, reviewed later, could provide some clarifications. As regards to non-agricultural products, although their imports from India

increased sharply in the recent 4-5 years, the escalation has remained modest (14% p.a. during 2008-2013).

### Trade Dependency and Trade Balance

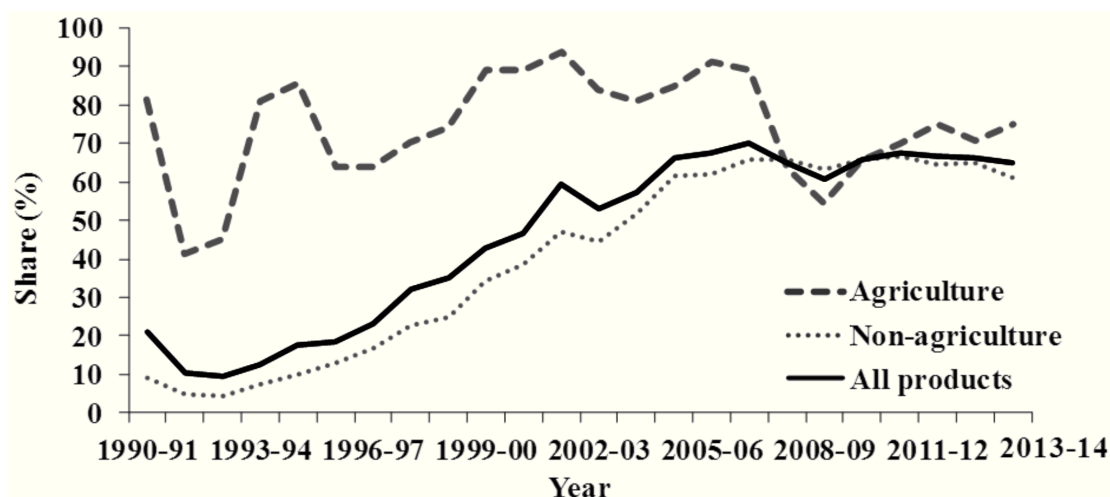
#### Trade Dependency: India's Share in Agricultural Trade of Nepal

Nepal's agricultural trade dependency on the Indian market has been higher for exports than for imports; and this dependency has shown a rising trend during the recent years. Figures 3a and 3b show that India's share in Nepal's agricultural exports has fluctuated markedly, between 40 and 80 per cent in the early-1990s to 91 per cent by the end of that decade, falling to 55 per cent in 2005 and steadily rising during



Source: Authors' computation based on the NRB data.

**Figure 3a. India's share in imports of Nepal, 1990-2013**



Source: Authors' computation based on the NRB data.

Figure 3b. India's share in exports of Nepal, 1990-2013

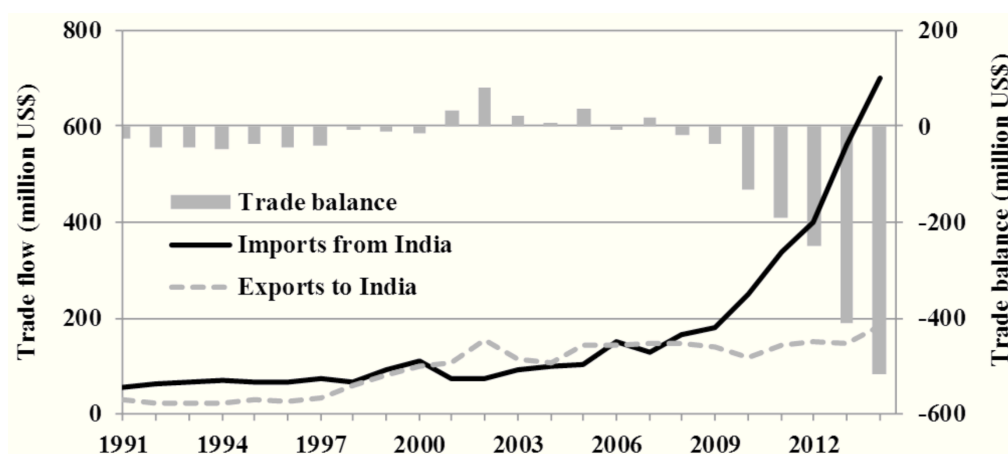
the past 5-6 years to reach 75 per cent in 2013-14. The trend growth rate during 1990-1991 to 2001-2002 was 4.2 per cent p.a. In contrast, the share for non-agricultural exports increased sharply from early-1990s until 2006-2007 (with a very high growth rate of 17 per cent p.a.), after which the trend has been flat or slightly negative. Reflecting the larger weight of non-agriculture, India's share in Nepal's total exports evolved in a similar manner as in non-agriculture (13% p.a. growth during 1990-2006 and -0.2% p.a. during 2006-2013).

In agricultural imports, India's share was about 63 per cent in the early-1990s, which fell to around 40 per cent in early-2000s, but increased steadily to about

60 per cent in recent years. Thus, overall, the trend growth rate was negative at 3.3 per cent p.a. during 1990-2006 and positive at 7.2 per cent p.a. during 2006-2013.

#### Agricultural and Non-agricultural Trade Balance

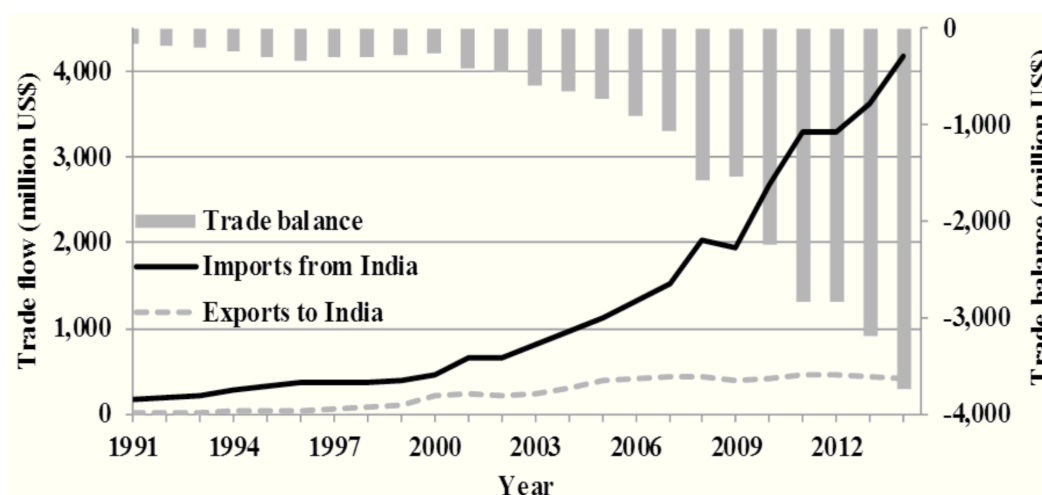
Figures 4a and 4b depict the trends in trade balance between Nepal and India for agricultural and non-agricultural products, respectively. For agricultural trade, the surging deficits with India are the recent phenomenon. It was only during 2009-2013 that the agricultural imports from India grew very fast, at the rate of 27 per cent p.a., which was more than three-times the growth rate for agricultural exports of Nepal



Source: Authors' computation based on the NRB data used in this section

Figure 4a. Trends in agricultural trade balance of Nepal with India, 1990-1991 to 2013-2014 (in million US\$)





Source: Authors' computation, based on the NRB data used in this section

**Figure 4b. Trends in non-agricultural trade balance of Nepal with India, 1990-1991 to 2013-2014 (in million US\$)**

to India. As for non-agricultural trade, Nepal's trade balance has always been in the red. The deficits began to grow steadily from around 2002 and surged since 2010.

#### **Nepal's Exports to India – Disaggregated Analysis at the Product Level**

This sub-section discusses the structure of Nepal's agricultural exports to India based on the disaggregated data available for five years, 2009 to 2013, from the TEPC. Table 1 presents the summary statistics for 15 top-ranking products exported by Nepal to India.<sup>1</sup> These 15 products together accounted for 97 per cent of Nepal's total agricultural exports to India during 2011-2013. This clearly shows a very narrow product-range concentration as rest of the 6-digit tariff lines with non-zero exports, numbering between 100 and 124 for various years, make up to only 3 per cent of the total agricultural exports of Nepal to India.

The seventh column in Table 1 shows the India's share in Nepal's total exports. It reveals that during 2009-2013 the share of India was 77 per cent for the top 15 agricultural products, 25 per cent for the remaining products and 72 per cent for all agricultural exports. India's share in Nepal's export was 100 per cent for six products (cardamoms, fruit juices, betel nuts, ginger, and bovine animal); 99 per cent for three

products (forest/vegetative products, oil cakes, fixed vegetable fats and oils); 91 per cent for one product (black tea); 22-67 per cent for four products (noodles, plants and parts of plants, brans and feed, and dalmott, papad); and less than 10 per cent for one product (lentils). Note that for lentils, one of the top export products of Nepal, India's share was only 3 per cent.

A perusal to Table 1 reveals that just two products - cardamom and fruit juices - accounted for 50 per cent of all agricultural exports of Nepal to India during 2011-2013, six products accounted for 80 per cent share and nine products accounted for 90 per cent share of all exports. The last three columns in Table 1 show trend growth rates for the period 2009-2013 for value, volume and price of exports. For the aggregates, trend growth rates in value of export were 9 per cent p.a. for the top 15 products, 4 per cent for the rest of the agricultural products and 8 per cent for all agricultural products. This 8 per cent p.a. growth in exports of Nepal contrasts with 27 per cent p.a. growth rate for agricultural imports from India, which is an indication that Nepal's export performance has been weak in relative terms. We next discuss the performance of major individual products exported by Nepal to India.

#### **Cardamoms (rank 1, export value: US\$41.4 million)**

— The cardamom exports declined from about 10,000 tonnes in 2009 to just over 5,000 tonnes in 2013 (trend

<sup>1</sup> Some products have been aggregated in view of their similarity, e.g. various juices (HS20), oilcakes and brans/feeds (both from HS 23).



Table 1. Nepal's agricultural exports to India, top 15 products, 2009-2013

S No.	HS	Product	Exports to India, 2011-2013 average		Share of India in Nepal's total exports (%)	Growth rate of Nepal's exports to India, 2009-2013		
			Value million US\$	Share, %		Value (% p.a.)	Volume (% p.a.)	Price (% p.a.)
1	090830	Cardamoms	41.4	26	100	26	-10	36
2	2009	Fruit juices - total	39.3	24	100	14	11	3
3	090240	Black tea	18.2	11	91	5	4	1
4	140490	Forest/vegetative products	9.8	6	99	-22	2	-25
5	080290	Betel nuts	9.5	6	100	-5	-18	14
6	091010	Ginger	8.7	5	100	17	12	6
7	2304/5/6	Oilcakes	7.9	5	99	0.0	-2	2
8	190219	Noodles	5.1	3	67	-17	-11	-6
9	121190	Plants and parts of plants	4.8	3	38	2	-8	9
10	010290	Bovine animal buffalo)	3.2	2	100	73	93	-20
11	151590	Fixed vegetable fats and oil	2.4	1.5	99	-6	-8	3
12	2302	Brans and feeds	2.3	1.4	51	-13	-17	3
13	040590	Fats/oils from milk	1.7	1.0	100	4	-4	7
14	210690	Dalmott, papad, pachak, etc.	1.0	0.6	22	-44	-30	-13
15	071340	Lentils	0.8	0.5	3	-70	-43	-27
Sum of top 15 products			156	97	77	9	-	-
Sum of rest of agriculture			5	3	25	-4	-	-
All agriculture (HS 1-24)			162	100	72	8	-	-

Note: Some products have been aggregated in view of their close similarity, e.g. juices, oilcakes and brans/feeds. India's share in total exports is based on value, not volume.

Source: Authors, based on TEPC data.

rate of decline being 11 per cent p.a.), although there was more than doubling of the value of exports in these five years (from US\$20 million to US\$48 million, a growth rate of 26% p.a.) as export prices surged by 36 per cent p.a. Given that Nepal is a large exporter of cardamoms in the world, it seems that the surge in cardamom prices reflects a situation where Nepal, despite being a major producer, was simply not able to supply the rapid increases in demand for the product.

**Fruit Juices (rank 2, export value: US\$39.3 million)**

— Four types of juices accounted for almost 97 per cent of all juices exported – about 50 per cent mixture of juices, about 25 per cent frozen orange juice, and about 12 per cent each apple juice and pineapple juice. Taken together, fruit juices (HS2009) also happen to be among the two products with the fastest export growth in volume terms (11% p.a.), the other being ginger. The fruit juice industry is also distinct in the sense there was a strong investment-trade linkage, with investment by the Indian industry being the main reason for its development and impressive export performance.

**Black Tea (rank 3, export value: US\$18.2 million)**

— Nepal's exports of black tea to India have almost been stagnant, growing from 9,000 tonnes in 2009 to 10,560 tonnes in 2013 (trend growth rate being 4 per cent p.a.). Tea exports also suffered from almost a flat trend in export prices. As a result, export growth in value terms was similar to the volume growth (US\$16 million to US\$20 million in five years).

**Forest/vegetative products (rank 4, export value: US\$9.8 million)**

— As with HS 121190 (see below), products under HS 140490 include various forest-based products used as herbs and medicines. In 2013, in the total export of forest/vegetative products to India, *Khayaar* accounted for 50 per cent, followed by *Kattha* (40%) and *Rudraksha* (4%). Other products in smaller amounts were skins of *Argel*, *Soapnut* and *Amriso* (broom). In 2012, about 98 per cent share of the total forest products was of *Khayaar* and 2 per cent was of *Rudraksha*. During 2009-2013, these exports in volume terms barely increased, growing at the rate of 2 per cent only, but as export prices collapsed, the value of exports declined by 22 per cent p.a. There is, however,

a widely shared view that a significant amount of these products might have been exported to India 'informally' and so actual growth in exports could be higher.

**Betel nuts (rank 5, export value: US\$9.5 million)**

— Nepal's fifth-ranked export product to India has attracted controversies, with claims from the Indian side that most of the betel nuts exported to India is third country imports deflected to India. Tariff differential is the main reason. The TEPC data show that exports of betel nuts had a declining trend during 2009-2013, with a negative growth rate of 18 per cent p.a. in volume, but only 5 per cent p.a. in value, due to strong uptrends in export prices. Indeed, India's imports of betel nuts from the world have been growing at a high rate of 40 per cent p.a. in value terms, with Nepal's export share in the total betel nuts imports of India being about 20 per cent.

**Oilcakes (HS 2306, rank 7, export value: US\$7.9 million) and brans/feeds (HS 2302, rank 12, export value: US\$2.3 million)**

— There are about 20 tariff lines at the 6-digit level under HS 23, which include various oilcakes as well as feeds, brans, etc. (aggregated into two sub-groups in Table 1 - oilcakes and brans/feeds). India's share in Nepal's total exports of oilcakes is 99 per cent, but this is only 51 per cent for the other HS23 products. Given that Nepal is largely deficit in cereals and oilseeds – as shown also by rapid increases in imports -and that the domestic meat industry is growing rapidly, the prominence of these products in Nepal's export basket is surprising. During 2009-2013, the exports of oil-cakes by Nepal to India have essentially been flat, while the growth rate for the rest of the HS23 products has been about -13 per cent p.a. in value and -17 per cent p.a. in volume terms (from 34,000 tonnes in 2009 to 14,000 tonnes in 2013). This shrinkage, however, is consistent with the economic fundamentals that Nepal should be importing, and not exporting, these products.

**Noodles (rank 8, export value: US\$5.1 million)<sup>2</sup>**

— India's share in Nepal's total exports of noodles was 67 per cent in value terms but 81 per cent in volume terms during 2011-2013. During 2009-2013, the exports to India declined at the rate of -11 per cent p.a. in volume and -17 per cent in value terms.

<sup>2</sup> Export data were recorded for HS 190219 (uncooked pasta) and HS 190230 (pasta) – the former was about 97 per cent of the total value except for 2009 when its share was about 60 per cent.

**Medicinal plants<sup>3</sup> HS 121190 (rank 9, export value: US\$4.8 million)** — Nepal is known for producing a wide range of medicinal plants and aromatic herbs (numbering over 700), especially in the mountainous regions. These products enjoy increasing demand in both domestic and international markets. India accounted for only 38 per cent of their total exports, worth US\$13 million during 2011-2013. There is also a perception that significant volumes of these products are exported ‘informally’ to India. Therefore, the official data could be under-estimation of the actual exports to India. HS 121190 also includes the famed *Yarchagumba* (HS 12119010) whose share in this product group was about 14 per cent in 2009-2013.<sup>4</sup>

**Lentils (rank 3<sup>rd</sup> in global farm exports but only 15<sup>th</sup> to India)** — The value of total exports of lentils was US\$28 million in 2011-2013 (but was as high as US\$61 million in 2009-2010). India’s share was only 3 per cent of the total exports. The data showed a sharp decline in Nepal’s exports to India in both volume and value terms. This comes as somewhat surprising because production data showed a growth rate of 12 per cent p.a. during 2009-2013, with surges from 2010 (and even better, almost all growth was due to yield).

**Bovine (buffalo) meat** — Nepal’s export of bovine (buffalo) meat is a recent phenomenon. The total exports to world were merely of US\$0.1 million and US\$0.3 million in 2009 and 2010, respectively, but rose to US\$3.5 million in 2011, and to US\$7.7 million in 2012. Of the total, the exports to India were 30 per cent in 2011, 56 per cent in 2012 and 67 per cent in 2013. Although there are six 6-digit HS lines for bovine meat, 80 per cent of the total during 2009-2013 has been of frozen boneless (HS 02030), followed by 7 per cent for frozen other cuts (HS 020220), 6 per cent for frozen carcasses and half-carcasses (HS 020210), and 5 per cent for fresh boneless (HS 020130). During

2009-2013, Nepal exported bovine meat to eight countries of which it was only 1 per cent to India. Starting from a low base, the growth rate during 2009-2013 has been phenomenal, 105 per cent per annum in volume, 121 per cent in value and 16 per cent in export price. Note that bovine exports from India have been growing rapidly, but it is not clear if Nepal’s industry and exports are linked in some way to those to the Indian industry and trade. This is worth exploring as there could be some synergy for further growth for Nepal in bovine meat export.

### **Nepal’s Imports from India – Disaggregated Analysis at Product Level**

This sub-section presents an assessment for imports of Nepal from India, based on the same disaggregated data from the TEPC. Table 2 shows different statistics at the 4-digit level of the HS, but the following discussions also utilize trade data at the finer product level where needed. First, the aggregates show that during 2009-2013, the agricultural imports by Nepal grew very fast, at the rate of 27 per cent p.a., which is over three-times the 8 per cent growth rate for agricultural exports to India. Second, imports are highly product-concentrated, with rice alone accounting for 20 per cent, and five HS-4 products making 50 per cent of the total import of Nepal. And third, import growth rates in Nepal are positive, and fairly high, for 13 of the 15 top ranking products in Table 2 in value terms and for 11 products in volume terms.

**Cereals (total imports US\$184 million in 2011-2013, 96 per cent from India)** — Cereals include rice (64% of the total value), maize (27%), wheat and its flour (7%) and other cereals (2%). The data show phenomenal increase in cereal imports of Nepal during 2009-2013, from US\$30 million in 2009 to US\$242 million in 2013.<sup>5</sup> These trend growth rates are among

<sup>3</sup> The full product description for HS 121190 is “Plants and parts of plants (including seeds and fruits) of a kind used primarily in perfumery in pharmacy or for insecticidal or similar purposes”. This includes a wide range of products, with the typical list including Amala, Atis, Chiraito, Dalchini, Gucchi, Jatamansi, Jhyau, Kutki, Pipla, Ritha, Sugandhawal, and Timur. A table in an ITC study shows the following as the top five traded species based on the royalty collected: Rittha (*Sapindus mukorossi*) 34 per cent of total, timur (*Zanthoxylum armatum*) 22 per cent, Lichen (*Parmelia* spp.) 20 per cent, Pawan ko bokra (*Persea* spp.) 18 per cent and Chiraito (*Swertia chirayita*) 7 per cent.

<sup>4</sup> The studies on medicinal plants also discuss a related product category, *essential oils* (HS 330129), which is outside the HS 1-24 agricultural chapters. The total value of exports of the essential oils was fairly low, \$0.7 million, during 2011-13.

<sup>5</sup> The data on wheat imports (HS1001) look somewhat suspecting – imports were negligible during 2009-2012, averaging \$0.43 million only but \$23 million in 2013 (from about 2,000 tonnes to 89,000 tonnes). Could it be that Nepal instead imported only wheat flour? The data on wheat flour imports do not support this view, i.e. it is unlikely that wheat flour was imported heavily during 2009-2012 and wheat grain in 2013.

Table 2. Nepal's agricultural imports from India, top products, 2009-2013

S No.	HS 4	Product name	Imports from India, 2011-2013			India's share in total imports of Nepal (%)	Growth rates of imports from India, 2009-2013		
			Value million US\$	Share, %	Volume (Tonnes)		Value (% p.a.)	Volume (% p.a.)	Price (% p.a.)
1	1006	Rice	112.3	20	3,79,491	96	56	45	11
2	1201/05/07	Oilseeds	65.5	11	1,12,042	80	36	25	11
3	1005	Maize	49.1	9	2,05,514	96	46	26	20
4	2304/05/06	Oilcakes	45.7	8	89,490	100	20	5	15
5	0701	Potatoes	28.9	5	1,74,229	100	40	35	5
6	2401	Tobacco unmanufactured	22.9	4	7,277	100	-1	-7	6
7	1901	Malt extract, food preparations of flour, meal, Starch or malt extract	16.6	3	4,208	89	16	4	12
8	0703	Onions and garlic	15.7	3	73,108	80	24	11	13
9	1905	Bread, biscuits, wafers, Cakes	14.7	3	9,986	84	22	-48	70
10	23 others	Feeds/brans/residues	13.1	2	18,706	58	25	10	16
11	2106	Food preparations	12.1	2	4,244	32	11	7	3
12	0104	Live sheep/goats	11.9	2	675	100	33	18	15
13	0713	Dried vegetables, shelled	11.4	2	22,894	29	-9	-21	12
14	0909	Cumin, coriander	10.6	2	10,136	99	22	-6	28
15	1704	Sugar confectionery	10.3	2	4,375	80	32	24	8
16	1701	Cane or beet sugar	9.3	2	20,050	61	-5	-9	4
17	1001	Wheat and meslin	8.1	1	31,625	100	177	139	38
18	08	Rest of the HS 08 fruits	6.8	1	54,926	73	49	55	-6
19	1806	Chocolate and chocolate prep.	6.4	1	1,400	67	13	4	9
20	0904	Peppers	6.0	1	6,238	40	21	1	20
21	0402	Milk and cream	5.0	1	1,202	74	-15	-24	10
22	2207	Ethyl alcohol/other spirits	4.7	1	5,795	100	22	22	0
23	0301	Live fish	4.5	1	6,665	100	45	36	9

Contd...

Table 2 *contd.*

24	0801	Brazil nuts, cashew, coconuts	4.5	1	6,344	91	20	18	2
25	21069010	Dalmott, papad, bhujia, etc.	4.4	1	2,850	95	1	7	-6
26	21069040	Conc. non-alcoholic soft drinks	4.2	1	241	16	6	-8	14
27	1211	Plants and parts of plants	4.1	1	1,767	96	72	24	48
28	0805	Citrus fruit, fresh or dried	4.0	1	18,381	100	64	59	5
29	0808	Apples, pears fresh	4.0	1	10,592	27	83	69	14
30	2208	Spirits, liqueurs,	3.8	1	251	36	1	-5	5
31	0401	Milk and cream, not concentrated nor sweetened	3.3	1	7,021	100	215	250	-35
32	1008	Other cereals	3.2	1	20,465	100	38	17	21
33	1101	Wheat flour	3.2	1	10,160	100	111	124	-13
34	2008	Preserved fruits	3.1	1	3,511	83	-13	-21	8
35	15	Edible oils	1.7	0.3	1,276	0.8	-74	-43	31
		Sum of the above 35 lines	535	94	-	77	27	-	-
		Sum of the rest agri. lines	35	6	-	12	21	-	-
		All agriculture (HS 1 to 24)	570	100	-	56	27	-	-

*Note:* The per cent shares have been computed over all agricultural exports (sum of HS 1-24). Growth rates are per annum (p.a.) and computed from log-linear trend lines.

*Source:* Authors' computations based on TEPC data.

the highest for products with significant imports, e.g. in volume terms 45 per cent p.a. for rice, 26 per cent p.a. for maize, 121 per cent p.a. for wheat and its flour, and 39 per cent p.a. for all cereals. The growth rates in value terms were higher by 15-30 percentage points because import prices also surged during this period. These trends clearly show that Nepal is facing serious imbalances between domestic demand and supply of cereals. Cereals also constitute the main product for surges in food import bills. The data show that cereals (with 64% being rice) alone accounted for between 35 per cent and 68 per cent of the annual increase in agricultural import bills from India in various years during 2009-2013 (with an average of 50% during 2011-2013).

**Oilseeds (HS 12, import value: US\$66 million in 2011-13)** — Oilseeds ranked second among top imported products after cereals, with all three oilseeds – soybeans (48% of the total), mustard (26%) and rape/colza (26%) – individually appearing among the top 10 imported products from India at the HS-4 level. As with cereals, there has been a surge in the import of oilseeds also, growing at the rate of 25 per cent p.a. in volume and 36 per cent p.a. in value terms. The growth rate was highest for soybeans, followed by mustard (70% p.a. and 50% p.a., respectively in volume terms). During 2011-2013, India's share in total import of Nepal was 96 per cent for soybeans, 85 per cent for mustard and 59 per cent for rape/colza.

**Edible oils (HS 15, import value: US\$213 million)** — Edible oils are Nepal's top imported agricultural products in which India's share is only 1 per cent, most likely because India has put a ban on the export of edible oils. During 2011-2013, among the edible oils, soybean oil accounted for 64 per cent of the total in value terms, followed by palm oil at 23 per cent and sun/safflower at 12 per cent. Note also that Nepal imports only small volumes of rape/mustard oil but imports large quantities of their seeds for processing in the country. The imports of edible oils as a whole increased at the rate of 4 per cent p.a. in volume and 12 per cent in value terms during 2009-2013. Among the oils, import trends were strong for soybean (9% p.a. in volume terms) and sun/safflower (11% p.a.), but negative for palm oil (-7% p.a.).

**Oilcakes and feeds (HS 23)** — These products, in eight 4-digit HS lines, accounted for 10 per cent of all

agricultural imports from India, worth US\$59 million during 2011-2013. Some 78 per cent of their total imports was of oilcakes (almost all soybean cake), all sourced from India, while the rest 22 per cent included animal feeds, brans, feed residues, etc., with India's share of 58 per cent. During 2009-2013, the imports of oilcakes grew at the rate of 20 per cent in value and 5 per cent p.a. in volume terms, indicating sharp increases in import prices. The import trend of feeds from India was also strong, 10 per cent p.a. in volume and 25 per cent p.a. in value terms, indicating surging prices.

**Vegetables (HS 07)** — Between 2009 and 2013, Nepal's total imports of vegetables almost doubled, from US\$59 million in 2009 to US\$115 million in 2013, with India's share of 65 per cent. *Potatoes* alone accounted for 49 per cent of the total imports, followed by onions and garlic (26%), various dried vegetables (19%) and other vegetables (6%). During 2009-2013, the growth rate in potato imports was significantly high at 35 per cent in volume and 40 per cent p.a. in value terms. It is somewhat ironic that Nepal imports potatoes in such large volumes given that potato is one of the priority products being earnestly promoted by the Government of Nepal for the past 3-4 decades in the mid-hills and mountain regions in particular.

Nepal's total imports of *onions and garlic* (HS 0703) were of US\$20 million during 2011-2013, 80 per cent of which was from India. Of the total imports, 78 per cent was of onions – mostly from India and 22 per cent was of garlic, 82 per cent of which was mainly from China. During 2009-2013, the imports of onions from India grew at the rate of 12 per cent in volume and 25 per cent in value terms, indicating a large rise in onion prices in India. Such wide fluctuations tend to support a view or complaint by India that a good part of the garlic imported into Nepal is deflected to India.

**Dried vegetables (HS0713)** — The third important product under HS07, include several items, in which about 75 per cent was accounted for by dried peas, chickpeas and dried leguminous vegetables with all three with similar shares, followed by lentils with 15 per cent share. The imports of dried vegetables by Nepal have grown fairly strongly during 2009-2013.

**Fruits and nuts (HS 08, rank 8<sup>th</sup>, import value: US\$22 million)** — The code HS 08 includes many



tariff lines, about 10 at 4-digit level, but about 50 at HS-6 level. Five products make up 80 per cent of total HS08 imports from India: cashew nuts (21% of total), citrus fruits (19%), apples (18%), other nuts (13%) and grapes (9%). During 2009-2013, import growth rates have been very high, even in volume terms, e.g. 59 per cent p.a. for citrus, 69 per cent p.a. for apples, 60 per cent p.a. for grapes, 101 per cent p.a. for bananas and 52 per cent p.a. for other nuts (HS 0802). As with potatoes, the apples, citrus and several other fruits have substantial potential for production and import substitution in Nepal. But, this does not seem to be happening. Beside these, mangoes and grapes are other fruits imported in significant amounts, with strong growth trends. Indeed, all these fruits appear prominently in fruit shops in Kathmandu -what may not be apparent to consumers is that Nepal imports these fruits heavily and their imports are surging.

**Miscellaneous edible preparations (HS 21)** — Nepal imported HS 21 products worth of US\$47 million in 2011-2013, but only 37 per cent from India (US\$18 million). It includes a diverse range of prepared foods with 69 per cent being of code HS2106. In the TEPC data, it was not clear what products were covered under HS2106, but looks like that the main products were concentrates used for producing fruit juices, as well as popular snacks such as *dalmott* and *papad*, *pan masala*, *pachak* and also *kurkure*. The growth rate in imports of these products has been 7 per cent p.a. in volume terms, and 11 per cent in value terms.

**Live sheep/goats (HS 0104)** — A large numbers of live animals are imported by Nepal every year from India. The trade data for 2011-2013 show a total import value of US\$14 million, of which US\$12 million was for live sheep/goats and close to US\$2 million for buffaloes. The US\$2 million worth of live buffaloes, however, seems to be on the lower side as the general perception is that buffaloes are imported into Nepal in large numbers. Imports of live sheep/goat have increased sharply during 2009-2013, by 18 per cent p.a. in volume and 33 per cent in value terms.

## Trade Performance, Comparative Advantage and Export Potential of Nepal in Indian Market

### Revealed Comparative Advantage

We estimated revealed comparative advantages (RCAs) for Nepal's top 23 products exported to the world. The results show that during 2011-2013 the average RCA<sup>6</sup> values exceeded one for all the 23 products. This was also the case for the year 2013; only in 2009 there were three products with RCAs below one (bovine meat, live animal and feeds). The RCAs are high for most products, exceeding 100 for 11 of the 23 products and only in four cases they are below 10. Moreover, 9 of the 10 top export products have RCA values of 100 or more (Table 3). A recent study for Nepal by Salike and Lu (2015) has also found comparable values of the RCAs for the products covered in Table 3.

### Trade Complementarity between Nepal and India

Table 4 shows the estimated values of trade complementarity index (TCI) – the numbers in part (a) are computed by taking Nepal as exporter and India as importer, and the numbers in part (b) are with India as exporter and Nepal as importer. For agricultural trade, it shows that the export profiles of both India and Nepal match almost perfectly with each other, with average TCIs of 87 per cent and 90 per cent, respectively during 2009-2013. This means that there are excellent trade prospects for both countries in agriculture. However, the situation with trade in non-agriculture is different, with Nepal's export profile matching poorly with India's import profile (TCI of 16% during 2009-2013, but with India's export profile matching fairly well with Nepal's import profile, with a TCI of 40 per cent). Table 4 also shows that there has been a little change in the TCI values during the past five years. The same is the case with non-agricultural trade with Nepal as an exporter but the TCI values show improvements for India as an exporter.

<sup>6</sup> As an explanation, the RCA value of 2,207 for cardamoms during 2011-2013 comes from the following numbers. For 2011-2013, the numerator of the RCA index is 0.046, which is equal to 41.6/895 (value of Nepal's cardamom export over Nepal's total export). The denominator is 0.00002, or 386 over 18,334,367 (world exports of cardamoms/world total exports). These numbers also reveal why the RCAs could be so high in some cases. In this case, the numerator is large because the share of cardamoms in Nepal's total exports is very high as exports are highly concentrated among a small number of products while global cardamom trade is only a tiny share of the total global trade.

**Table 3. Estimates of the revealed comparative advantage (RCA) indices for Nepal's top 23 export products (trade values for 2011-2013 average)**

S.N.	HS-6	Product	Nepal's exports to world		Nepal's imports from world		RCA index	
			Average 2011-2013 (US\$ million)	Growth rate (% p.a.)	Average 2011-2013 (US\$ million)	Growth rate (% p.a.)	2009	Average 2011-2013
1	090830	Cardamoms	41.6	26	386	-5	766	3,328
2	071340	Lentils	27.8	-29	1,598	1	620	212
3	200990	Juices (mixtures)	20.7	43	1,678	6	129	295
4	090240	Black tea	20.0	6	3,713	6	86	116
5	121190	Plants and parts of plants	12.7	8	2,370	15	110	80
6	140490	Forest/vegetative products	9.9	-22	461	8	628	302
7	080290	Betel nuts	9.6	-5	1,366	9	77	275
8	200911	Frozen orange juice	9.4	29	2,018	12	79	100
9	091010	Ginger	8.7	17	316	-40	222	1,696
10	190219	Noodles	7.6	-9	3,911	8	51	35
11	230641	Oil-cake/residues of rape	7.1	25	2,477	21	28	43
12	200971	Apple juice	4.6	29	495	10	152	196
13	020230	Meat, bovine frozen/boneless	5.8	121	18,066	15	0.1	6
14	210690	Food preparations	4.5	19	29,375	10	3	4
16	200941	Pineapple juice	3.6	30	220	9	190	332
17	010290	Bovine animal (buffalo)	3.2	73	3,491	-39	1.0	59
18	151590	Edible oils	2.4	-6	1,246	13	48	35
19	040590	Fats/oils from milk	1.7	4	1,926	12	17	17
20	110100	Wheat flour	1.4	-10	5,363	9	6	3
21	230240	Brans/cereals residues	1.3	8	229	9	114	116
22	230910	Feeds (dog/cat)	1.3	75	10,569	8	0.2	3
23	230230	Wheat bran	1.2	-11	1,107	24	64	25
Total - top 23 products			206	6	92,381	8	-	-
Total exports (HS 1-97)			895	1.4	183,34,367	10	-	-

*Note:* The average RCA value for 2011-2013 can be computed with the data in the table, by dividing the first ratio (Nepal's export of a commodity/Nepal's all total exports) by the second ratio (world export of a commodity/world total exports).

*Source:* Authors' computations based on TEPC data for Nepal's exports and ITC TradeMap data for world exports.

**Table 4. Trade complementarity between Nepal and India, 2009-2013 (TCI index)**

Products	Trade Complementarity Index (TCI)						Growth rate per cent p.a.
	2009	2010	2011	2012	2013	Avg. 2011-13	
<b>(a) Nepal's export complementarity with India's imports</b>							
Agriculture (HS 1 - 24)	85	87	88	85	87	87	0.4
Non-agriculture (HS 25 - 97)	18	16	15	17	18	16	0.3
<b>(b) India's export complementarity with Nepal's imports</b>							
Agriculture (HS 1-24)	91	92	91	90	89	90	-0.8
Non-agriculture (HS 1-24)	35	36	38	40	43	40	4.8

Source: Authors' computation based on ITC TradeMap data.

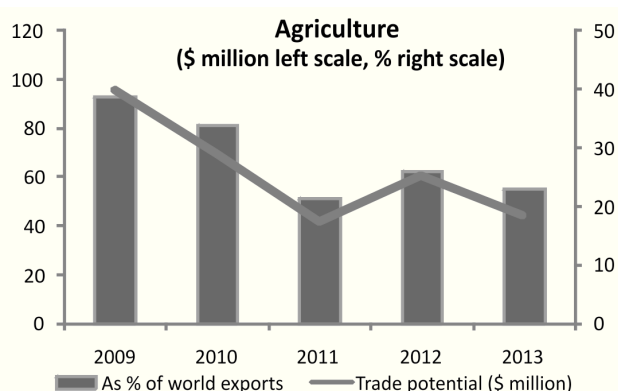
### Nepal's Export Potentials in Indian Market

Figures 5a, 5b and 5c show the trends in trade potentials during 2009-2013 for the aggregates of agriculture, non-agriculture and all goods while Table 5 presents the statistics on ITF and RTIF for Nepal's top 22 products exported to the world (the 22 products together make up 95 per cent of all agricultural exports). The average value of Nepal's ITP in India during 2011-2013 is US\$144 million for all goods (HS 1 to 97), US\$49 million for agriculture and US\$96 million for non-agriculture goods. Figure 5a shows a steady decline in agricultural ITF, a 50 per cent reduction in just five years, from US\$95 million in 2009 to US\$45 million in 2013 (equivalent to a decline of 17% p.a.). There was also a sharp decline in the RITP (by 13% p.a.). Further analysis of the data shows that the ITPs fell partly (about 20%) due to a decline in Nepal's world

exports but mostly (about 80%) due to shrinking of trade potentials in India. So, overall, the trend in export potential has been discouraging for Nepal.

For non-agriculture products (HS 25-97), the ITP increased for one year in 2010 (by US\$98 million) but remained flat for the remaining three years (with a growth rate of 4.9% p.a. during 2009 to 2013). As Nepal's exports did not grow during this period (growth rate of merely 0.4% p.a.), the entire growth in the ITP was due to the increase in India's total global imports. Lastly, for all goods (HS 1 to 97), the trends were negative for both the ITP (- 4.4% p.a.) and RITP (- 3.8% p.a.). As the share of agriculture in the total ITP is about 33 per cent, the result for all exports is influenced largely by the performance in the non-agricultural exports.

Table 5 shows trade potential for Nepal's top 22 agricultural products exported to the world, which accounted for 95 per cent of Nepal's total agricultural exports during 2011-2013. These 22 products accounted for 93 per cent of the estimated ITP of US\$49 million for all agriculture during 2011-2013. The data also show a very high concentration of trade potential, with just one product (lentils) accounting for 54 per cent of the total agricultural ITP; 3 products with 75 per cent share of the total ITP (lentils, medicinal plants and food preparations) and 7 products with a share of 90 per cent (the other four products being tobacco extracts, brans/feeds, tea and wheat flour). It also shows that 6 of Nepal's top 10 export products have zero, or virtually zero, ITP in India, which include cardamoms, fruit juices, forest/vegetative products, ginger, oil cakes, etc.



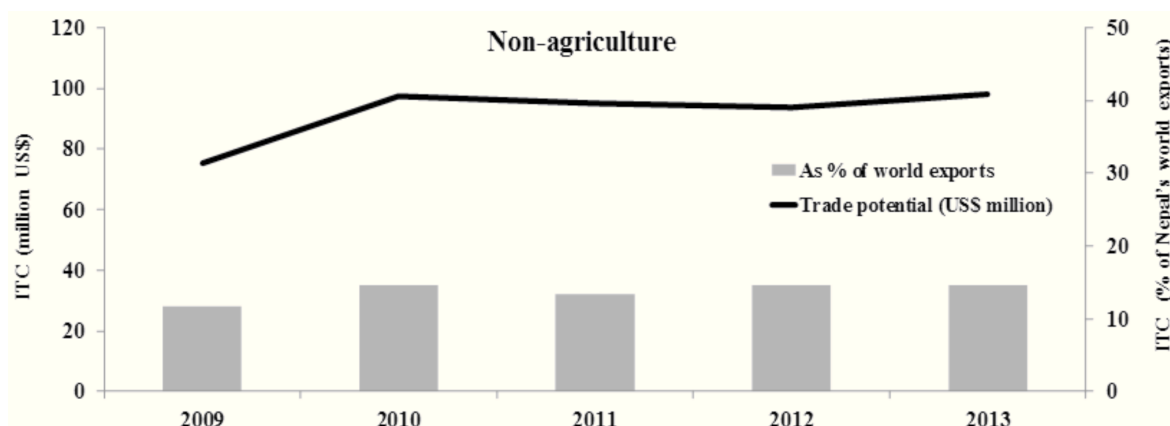
Source: Authors' computations based on calculations from ITC trade data

**Figure 5a. Recent trends in Nepal's indicative trade potential (ITP) in the Indian market for agricultural commodities**

**Table 5. Nepal's trade potentials in the Indian market for Nepal's top 22 global export products (results for 2011-2013 average values)**

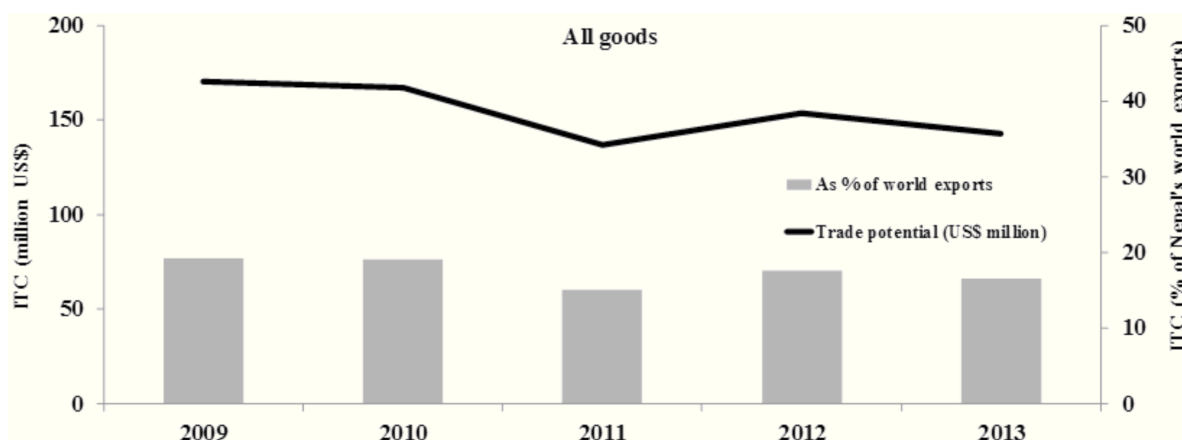
Sl.N.	HS-6	Product	Nepal's exports to world		Nepal's exports to India	India's imports from world	Trade potential (ITP)	Relative ITP
			US\$ million	%		US\$ million		
1	071340	Lentils	26.9	13.0	0.8	255.4	26.1	97
2	090830	Cardamoms	31.9	15.4	31.8	31.8	0.0	0
3	200990	Juice mixtures	20.7	9.9	20.6	20.6	0.0	0
4	090240	Black tea	19.9	9.6	17.5	42.1	2.3	12
5	121190	Medicinal plants	11.8	5.7	4.7	47.2	7.0	60
6	080290	Betel nuts	10.0	4.8	10.0	85.3	0.0	0
7	140490	Forest/vegetative products	9.7	4.7	9.6	9.6	0.0	0
8	200911	Orange juice	9.4	4.5	9.4	9.4	0.0	0
9	190219	Noodles/pasta	7.8	3.7	5.0	5.6	0.6	8
10	2306	Oil-cakes	7.8	3.8	7.8	19.0	0.0	0
11	091010	Ginger	6.4	3.1	6.3	15.3	0.0	0
12	020230	Bovine meats	5.9	2.8	0.0	0.0	0.0	0
13	200971	Apple juice	4.6	2.2	4.6	4.6	0.0	0
14	210690	Food preparations	4.3	2.1	1.0	71.7	3.4	77
15	240399	Tobacco extracts/essences	4.0	1.9	0.0	4.6	2.8	70
16	200941	Pineapple juice	3.6	1.7	3.6	3.6	0.0	0
17	010290	Live animals (bovine)	2.4	1.2	2.4	2.4	0.0	0
18	151590	Vegetable fats & oils	2.4	1.2	2.4	15.7	0.0	1
19	040590	Fats/oils from milk	1.6	0.8	1.6	9.4	0.0	0
20	110100	Wheat/meslin flour	1.3	0.6	0.0	1.5	0.9	68
21	2302/09	Brans and feeds	4.1	2.0	2.1	230.9	2.0	48
22	200950	Tomato juice	0.8	0.4	0.8	0.8	0.0	0
Sum of above 22 products			197	95	142	887	45	23
Rest of agriculture			10	5	5	15,894	4	34
All agriculture products (HS 1 - 24)			208	100	147	16,781	49	23
Non-agriculture products (HS 25-97)			673	-	450	4,49,362	96	14
All products (HS 1 - 97)			880	-	598	4,66,143	144	16
Sum of top 5 juices (HS20)			39	19	39.0	39.0	0.0	0

Source: Authors, based on trade data from TEPC for Nepal and ITC for India.



Source: Authors' computations based on calculations from ITC trade data

**Figure 5b. Recent trends in Nepal's indicative trade potential (ITP) in the Indian market for non-agricultural commodities**



Source: Authors' computations based on calculations from ITC trade data.

**Figure 5c. Recent trends in Nepal's indicative trade potential (ITC) in the Indian market for all commodities**

## Concluding Remarks

The state of Nepal's agricultural trade is not healthy; the imbalance between agricultural imports and exports continued to worsen during 2009-2013, leading to surges in trade deficits with India; this outcome is unprecedented and points to a grossly inadequate supply-side response in the face of surging demand for foods and agricultural raw materials in Nepal.

Agricultural exports of Nepal have essentially been flat since 2000, worsened from modest and a steady growth during the 1990s. In contrast, agricultural imports from India have been surging since 2008, with imports in 2013 being four-times the level in 2008.

The impact on agricultural trade deficits with India was dramatic – the deficits increased by 28-times between 2007-2008 and 2013-2014 (from US\$19 million in 2007-2008 to US\$517 million in 2013-2014). In contrast, Nepal had surpluses for 6 of the 7 years prior to 2007-2008. Nepal's dependency on the Indian market has also been rising during this period. Overall, these trends are unprecedented and point towards something going wrong.

Food products account for about 85 per cent of the total import bill of Nepal and explain almost all the changes in the import bills between 2009 and 2013. Most of these foods, notably rice, edible oils, oilseeds, maize, onions, potatoes and vegetables, are basic

foodstuffs with almost inelastic demand. All these foods are considered to have good production potential in Nepal. Clearly, supply response has simply been inadequate to meet the surging demand, and only an agricultural revolution, such as that envisaged in Nepal's new Agricultural Development Strategy, or a collapse of consumer demand – highly unlikely – would curb the surging trade deficits.

The results of *trade complementarity index* (TCI), have shown that agricultural export profiles of both India and Nepal match almost perfectly, with average TCI of about 88 per cent, indicating excellent prospects for trade in agriculture for both countries. For non-agricultural products, in contrast, Nepal's export profile matches poorly with India's import profile but India's export profile matches fairly well with Nepal's import profile. The TCIs have neither worsened nor improved during 2009-2013.

The results of *Indicative Trade Potential* (ITP) has shown that Nepal's export potential in the Indian market is not encouraging. Not only the estimated ITP for the Indian market was fairly small (US\$49 million for agriculture during 2011-2013) but also that the ITPs have declined steadily and markedly during this period. The trade potential has been found to be highly concentrated, with just one product (lentils) accounting for 54 per cent of the total agricultural ITP and just three products claiming 75 per cent of the total ITP (lentils, medicinal plants and food preparations). In most cases, the binding constraint to trade potential

has been Nepal's export capacity and not the Indian market.

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