

## Chapter 14

# Commodities Super-cycle: Implications for South Asia

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### 14.1 Introduction

At the beginning of this millennium, there was a significant turnaround in primary commodity prices. After two decades of low, and at times dwindling, prices, many primary commodity prices have registered a steep increase since 2002. The marked price increases began to gather pace first in 2002–03 and then in 2006–07, culminating in an all-time high peak in nominal terms in 2008 across commodities, just before the onset of the global financial crisis. The sharp increase in *nominal* prices was so marked that it has also resulted in a sharp upturn in *real* commodity prices in the first decade of the new millennium, though the scale of the increase differs among commodities and the *real* prices of agricultural commodities are still lower than the peaks previously attained during the Korean war and oil shocks of the early 1970s. This price movement has led many observers to conclude that commodities had entered into a new price *super-cycle* in the early 2000s (e.g. Kaplinsky 2010).

The soaring commodity prices hit the world economy at the time of the severe financial crisis initially triggered by the sub-prime mortgage crisis in the US against the background of global macro economic imbalances. The rapidly increasing prices of basic goods such as fuel and food had sparked off social and political disquiet and unrest across the globe in the immediate period preceding the global financial crisis. The rising fuel cost and food shortages then hit the livelihoods of the urban and rural poor in developing countries particularly hard. This extreme high volatility is an equally or even more defining feature of commodity prices to date. At the onset of the global financial crisis in mid-September 2008, commodity prices experienced almost a free fall across the board in the last quarter of that year. The fear of accelerating inflation and fuel and food shortages worldwide had been suddenly overtaken by a greater fear of global recession engulfing all economies, including those in the developing world. Subsequently, several ‘high-profile’ commodities have continued experiencing large swings and bounced back nearly to the pre-crisis peak level in 2011. As the world became concerned about the possibility of renewed food and fuel crises that could jeopardise the fragile global recovery, commodity prices experienced a marked fall again in connection with the sharp slowdown of the global economy amidst the worsening Euro Zone crisis. In 2012, emerging agricultural production data seem to indicate a forthcoming global shortage of the supply of staple food crops. A new short-term boom–bust cycle of commodity prices is already in the making.

Indeed, the recent boom–bust price cycles once again highlight the high vulnerability of commodity-dependent low-income developing countries to price shocks and their associated difficulties in managing their economies over commodity price cycles, while placing an escalating burden on countries heavily dependent on imported essential commodities. Thus, both the prospect of the persistent commodities super-cycles and the continuing extremely high price volatility will have significant implications for all developing countries, both for commodities exporters as well as commodities importers.

These concerns are of particular relevance to South Asia, a region which experienced its own historically high growth in the 2000s. The region contains both exporters and importers of several strategically important commodities. As a region, South Asia has been largely self-sufficient in basic cereals, but is emerging as a net exporter of rice and a net importer of wheat. It is also a net importer of oil seeds but a major exporter of a number of agricultural commodities such as tea, cotton and jute. Demand for metals and minerals has been rising for almost all countries in the region, while India is emerging as an important exporter of iron ore, copper and foremost petroleum products.

This chapter examines the economic implications of commodity price movements for the region. Set against this objective, it is structured as follows: Section 14.2 discusses South Asia's role in commodity trade and changing trends during the 2000s. Section 14.3 then evaluates implications of super-cycles for South Asian economies. Section 14.4 offers concluding remarks, including policy implications from analyses of commodity price cycles and some concrete policy proposals to deal effectively with commodity-related developmental problems.

## 14.2 South Asia's role in commodity trade

With the high growth rates since the 1990s as well as the environmental and demographic changes, the pattern of commodity demand and supply in South Asia has shifted dramatically. At the same time, the region's pattern reflects largely that of India, which is by far the biggest economy in South Asia and an economic driver for the region. For energy and metal commodities, both demand and supply capacities have concomitantly increased as the economies have grown. However, the region faces pressing challenges in feeding a growing population with decreasing agricultural yields and arable land per capita. Though the region was formerly more or less self-sufficient in the production of staple food commodities such as rice and wheat, it is becoming increasingly dependent on food imports. Changing dietary patterns coupled with growing income further contributes to the increasing demand of nutrition-rich food commodities besides staples.

### 14.2.1 Major features and overall trends

Clearly, India is the largest economy in the region and home to 20 per cent of the world's total population. This alone makes it a major player on global food commodity markets (World Bank 2010). However, historically, India's food commodity imports.

were relatively low compared with other densely populated regions such as East or South East Asia. India has followed a policy of self-sufficiency regarding its domestic food supply (Francis and Winters 2008). Its agricultural sector is highly subsidised in order to achieve adequate returns to farmers by providing incentives for production. Policies include minimum prices for key agricultural products as well as input subsidies for the electricity needed for irrigation, water, fertiliser and pesticides.

However, such policies have made the Indian agricultural sector the most irrigation dependent in the world, which resulted in decreasing ground water levels in many regions (*ibid.*). Water shortages have brought about new environmental challenges causing – among other factors – agricultural productivity to stagnate. Combined with increasing population growth, energy shortages and preceding urbanisation, these factors eventually turned India and the region as a whole into a net importer of some food and agricultural commodities. As there is no quick solution to the rising challenges, India's imports of staple foods and other agricultural products are likely to increase further. Moreover, with further economic growth food consumption patterns are likely to shift from staples, such as wheat and rice, towards a more balanced diet, including meat, oils, and vegetables (*ibid.*).

As a major consumer, South Asia would have some decisive impacts on world demand for wheat and sugar, and hence on prices, especially in times of significant fluctuations in domestic production due to weather and climate conditions. Since India lifted its export ban on rice in 1994, and one year later also on wheat, it became one of the largest rice producers globally and together with Pakistan it accounts for more than one-quarter of world rice exports. However, it was only during the commodity price peak in 2008 that the Indian government among others re-imposed export bans on rice and other staples (Timmer 2009; Brahmabhatt and Christiaensen 2008). Such policy decisions are seen to have major impacts on world prices. Given the increasing demand pressure from growing population and stagnating or decreasing agricultural yields, such policy interventions might occur more often in the future.

South Asia could maintain its key role in global tea, cotton, and jute trade and production. However, net exports for tea have declined steadily over the years due to growing domestic demand. For jute, net exports decreased for some time, but are increasing again. Intra-regional trade is strong in both tea and jute. Unlike jute, tea is also exported to other regions, including West Asia and to a lesser extent North America and Europe. Likewise, cotton produced in South Asia is traded within the region in order to meet regional demand. South Asia has also become a net exporter of cotton to the rest of world.

India is clearly dominating the region's overall trade patterns in minerals and metals. However, India's role in global commodity trade in this category is still relatively small, especially compared with China. The relatively low share of South Asia as a whole and India in particular in metal and mineral trade can be explained by the fact that economic reform policies promoted and commenced by the Indian government since the early 1990s have favoured services over the industrial sector (Francis and Winters 2008). In 2010, services accounted for approximately 55 per cent of India's total gross domestic product (GDP) while industry had a share of only 26 per cent.

This is in sharp contrast to China, where industry contributed 47 per cent of total GDP value added (World Bank, World Development Indicators 2010). Given that industrial production is a strong driver of metal demand, India's economic growth patterns partly explain the relatively minor role – relative to India's share in world GDP as well as remarkable economic growth during the 2000s – in global metal demand.

However, the increasing focus on the industrial sector (World Bank 2010; Francis and Winters 2008) coupled with India's endowments in iron ore and bauxite may change South Asia's role in mineral and metal commodity trade in future. India's steel industry is expected to grow exponentially due to the predicted rapid growth of its economy throughout the twenty-first century (Datamonitor 2011b). Similar patterns can be expected for copper ore imports as well as copper and aluminium production.

One of persistent challenges for the region's mining and metal industry is uninterrupted power supply, which is still a major concern – and not only for India (Dutta and Mukherjee 2010). Further, high tariffs and export bans in times of high world commodity prices, as a policy tool for domestic price control, could further hinder South Asia's and India's participation in global commodity trade. During the 2008 price hikes, for instance, the Indian government imposed not only restrictions on grain exports but also on cement exports, in order to maintain a smooth domestic coal supply (*ibid.*).

India is also the main driving force behind South Asia's energy commodity trading patterns. India accounted for 83 per cent of South Asian total energy commodity demand and is already the third largest consumer of coal and fourth largest consumer of oil in the world, though it is still far behind the United States and China in total energy consumption. On the production side, India accounts for approximately 1 per cent of the global production of oil, and has 0.5 per cent of proven reserves. Likewise, for gas, India accounts for 1.1 per cent of global production and 0.6 per cent of world gas reserves (Francis and Winters 2008). India, however, has significant coal deposits and accounts for 6.6 per cent of global production and 10.6 per cent of global coal reserves, making it the third largest producer of coal (behind the USA and China, which together produce 60 per cent of the world's coal) (*ibid.*).

Overall, India was the fourth largest energy consumer in 2009, after the United States, China and Russia. With increasing economic growth as well as population growth, India's energy demand is likely to increase further in future, which puts pressure on the government to provide for its growing energy needs as a fundamental input for industry, manufacturing as well as agriculture. The International Energy Agency (IEA) estimated a total increase of 116 per cent in Indian energy demand over the period from 2007 to 2030, which should be increasingly met by nuclear energy and gas as well as oil and coal (IEA 2009). Given India's low natural endowments in oil, its dependency on oil imports – already high – is likely to increase further. Also coal imports are likely to increase because of growing demand from its metal and mining industry for high quality coal. Given the country's yet untapped potential for gas production, net imports are likely to increase only slowly or even decrease once the

Indian gas industry unleashes its potential. If the economic growth prospects of the remaining South Asian economies stay strong, import dependency on coal as well as petroleum and crude oil is likely to increase for these countries.

### 14.2.2 Agricultural commodities: Grains and food

Rice, wheat and sugar make up 60 per cent of the average daily caloric intake per capita in South Asia. South Asia is the second largest rice consuming region in the world after East Asia, with rice accounting for 30 per cent of the daily caloric intake.

However, with economic growth, dietary patterns have been changing and are likely to change further in the future (Talukder 2005; Kumar et al. 2007). While rice remains an important staple food, wheat increasingly replaces sorghum, millet and pulses. Further, per capita consumption of vegetable oils, milk and butter as well as fish, meat and eggs, has increased steadily since the late 1980s, while rice and wheat remain the most important staple food commodities.

South Asia as a region is a net importer of wheat and a net exporter of rice. However, within the region, domestic demand–supply gaps, and hence trade patterns, are quite diverse. While Pakistan and India are net exporters of cereals, Bangladesh and Sri Lanka are net importers. The volatility in the volume of annual imports and exports of cereals is very high, especially for India.

South Asia is a net exporter of cereals as a whole, since it is dominated by its net exporter position in rice, while it is a net importer of wheat and a relatively small exporter in other cereals. Vegetable oils and vegetables and fruits constitute increasingly significant import bills for the region, while export earnings from fish, meat and tea have steadily increased. On the whole, import bills of wheat, and vegetables and fruits have started exceeding export earnings, so that the region has become a net importer in these commodities since the mid-2000s.

According to the food balance sheet published by FAOStat, for seven out of the eight South Asian countries, rice was among the three most important food crops produced annually. India was the second largest rice producer worldwide after China, and together with Pakistan it was the largest rice exporter of the South Asian region. India increased its domestic rice production from 50 million tonnes in 1980 to more than 100 million tonnes by the late 2000s. Bangladesh also more than doubled its rice production over the same period from 14 million tonnes to 29 million tonnes. India and Bangladesh are the two biggest South Asian rice producers. However, only since the mid-1990s has India become a net exporter of rice, exporting about 6 per cent of its total production. Bangladesh remains a net importer despite its rising production level. Pakistan's large export share in rice is a result of its lower domestic consumption of rice so that more than 50 per cent of domestic production could be exported according to FAOStat data.

According to United Nations (UN) Comtrade data, which provide detailed breakdowns by trading partners, Bangladesh, Saudi Arabia and the United Arab Emirates are the major destinations of Indian rice exports.<sup>1</sup> Other major importers of Indian rice include Nigeria, Kuwait, Iran, the United Kingdom, Nepal, Sri Lanka

and Madagascar.<sup>2</sup> For Pakistan, three major export partners, measured in trading volume, were the United Arab Emirates, Iran and Kenya for 2003–10. In terms of export values Saudi Arabia replaces Kenya as the third most important market for Pakistani rice exports, followed by Afghanistan (the fourth largest importer of Pakistani rice over the period), Oman and Qatar as well as several African countries (e.g. Cote d'Ivoire, Mozambique, South Africa and Madagascar). Indian rice exports accounted for 9.2 per cent of world rice exports (in volume) in 2010, which made it the world's fourth largest rice exporter, right after Pakistan with a share of 15.5 per cent of world exports. Indian and Pakistani rice exports were only outperformed by Thailand (33 per cent) and the United States of America (17 per cent). Hence, India and Pakistan are important rice suppliers, not only to South Asian, but also to East and South East Asian, African and Middle Eastern countries. Pakistani and Indian exports provide rice supply around the Arabian Sea and Indian Ocean, where major trading partners (except the United Kingdom) are located.

Wheat is the second most important staple food in South Asia in terms of daily caloric intake per capita. India and Pakistan are the biggest wheat producers in the region. Although production increased steadily from 40 million tonnes in 1980 to more than 100 million tonnes by the late 2000s according to FAOStat data, the region remains largely a net importer for wheat. The increase in production since the 1980s can be attributed to India's increased capacity, where wheat production almost trebled over the time period. However, South Asia as a region remains a net importer of wheat, except in 2001–03.

According to UN Comtrade data, Canada was the largest supplier of wheat to South Asia, followed by Russia, for 2000–10, while India was a main supplier of wheat for smaller South Asian countries. For example, more than 55 per cent of Indian wheat exports were destined for its smaller neighbours in 2008. Australia, Argentina and the United States also export wheat to the region. South Asia accounted for about 10 per cent of Canada's entire wheat exports, 12 per cent of Russia's, and 7.5 per cent of Argentina's in 2008. Although South Asia accounted for only about 3–5 per cent of world total wheat imports in 2008–10, it is important to note that demand was increasing much more rapidly than in the rest of the world, with an annual average increase in South Asia of 15–16 per cent between 2000 and 2010 compared with an annual average increase of only 2 per cent in world demand. However, demand patterns fluctuated a lot over the period.

For sugar, South Asia is one of the largest consuming regions worldwide. Sugar accounts for 7 per cent of the daily caloric intake on average in the region and is the third most important source of daily nutrition. Pakistan and India are the region's two major sugar consumers as well as producers. Sugar production in both countries has steadily increased since the 1980s from 5 million and 0.6 million tonnes to 25 million and 3.5 million tonnes of annual production in 2010 for India and Pakistan respectively. However, domestic demand increased in tandem with domestic production. Imports fluctuate heavily in order to meet demand in the face of volatile domestic production, hence the region could become a substantial net importer or net exporter of sugar, depending on domestic sugar cane harvests.

### 14.2.3 Agricultural commodities: Tropical beverages and agricultural raw materials

India and China are the world's largest tea producers with an annual average of 0.85 million tonnes of production each in the three decades since the 1980s.

India and Sri Lanka are the main producing areas. While Sri Lanka increased its annual production from 0.2 million tonnes in the early 1990s to 0.3 million tonnes in the late 2000s, India steadily increased its production from 0.35 million tonnes in 1960 to 0.95 million tonnes. However, India is also the largest tea consumer and consumption increased at an equally steady rate from 0.15 million to 0.8 million tonnes over the same time period, resulting in a relatively stable export level for Indian tea, according to FAOStat data.

In 2010, Afghanistan, Bhutan, Maldives and Pakistan were all net importers of tea, while Sri Lanka, Nepal and India were net exporters. Sri Lanka was the region's largest exporter with a share of about 60 per cent of total South Asian exports in net weight and 67 per cent of total exports in dollar value. India holds a 38 per cent and 32 per cent share in volume and value, respectively. The difference in market share measured by net weight and dollar value indicates higher prices are paid on world markets for Sri Lankan tea than for Indian tea. Pakistan was by far the largest importer in the region, followed by Afghanistan. The latter accounted for 20 per cent of South Asian net imports in 2010 according to UN Comtrade data.

The five most important export partners for India in 2010 were Russia, the United Arab Emirates, the United Kingdom, Iran and the United States. While Iran and the United Kingdom are historically important trading partners, the United States only started importing Indian tea from the late 2000s. For Sri Lanka the most important export partners are Russia, Iran, the United Arab Emirates, Syria and Turkey. Together these countries account for over 50 per cent of total Sri Lankan tea exports. Hence, Middle Eastern countries, i.e. the West Asian region, are the major destinations for South Asian tea exports.

For jute, Bangladesh and India are the main producers in the region. Their production level was on a par with each other until the late 1980s. However, since then it has diverged as production decreased slowly over time in Bangladesh, while it steadily increased in India. The region as a whole is the world's largest jute producer. Despite its large production, India is a net importer of jute, whereas Bangladesh does export a significant proportion of production, though fluctuating considerably from year to year (e.g. it exported only 20 per cent in 1994 but it went up to 80 per cent in 2007).

Total South Asian net exports, however, decreased since the 1960s until the mid-1990s to a marginal level. This decrease in net exports occurred despite a relatively stable level of jute production in Bangladesh, which fluctuated between 1 and 1.5 million tonnes per year over the entire period, and an even, steadily increasing production level of Indian jute from around 1 million tonnes in the mid-1970s to 1.8 million tonnes in 2007. However, domestic jute demand in India and Pakistan increased sharply, exceeding the growth in production. Largely owing to an increase in Bangladeshi exports, net exports from the region have started increasing again since 2004.

For cotton, the region, in particular Pakistan and India, is a major producer in the world together with China and the United States. While production of cotton lint increased in both India and Pakistan in parallel until 1983, Pakistan's production increased sharply to reach the same level as in India, and both countries produced in the range of 1.5–2.5 million tonnes until 2004. However, India trebled its cotton production during 2002–2007, outperforming Pakistan again after 2004. Pakistan and India increased their production from 0.3 million and 0.9 million tonnes in 1961 to 2.0 and 4.4 million tonnes in the late 2000s respectively, according to FAOStat data.

Since Bangladesh, India, Nepal, Pakistan and Sri Lanka all have a vibrant garment and textile industry with a huge demand for cotton lint, not much of the cotton produced is actually exported and South Asia has even become a net importer of cotton as a region since the late 1990s. In particular, Pakistan's cotton exports peaked in 1989 and have experienced a decline since then. In 2000, the country became a net importer of cotton and has remained so since then according to UN Comtrade data. Bangladesh has increased its import volume since the early 2000s. In contrast to these two countries, India has increased its net exports substantially since 2004, as its export volume peaked in 2007, and it has remained a significant net exporter since then. In 2010, India's exports were 1.5 times the volume reached in 2007. As a result, the region has been an overall net exporter of raw cotton since 2006.

#### 14.2.4 Metals and minerals

India is the only country in the region with a considerable large metal and mining industry. All other countries are net importers of aluminium, iron and steel, coal and base metals (lead, zinc, copper, nickel and tin). South Asia as a region has become a major exporter of iron ore and to a lesser extent copper since 2002 and 2005, respectively, while it is a net importer of copper ores and concentrates, which have increased substantially since 2003. It has also imported iron and steel as well as silver since then, registering a significant increase in value terms.

In 2011, India became the world's seventh largest aluminium producer, fourth largest zinc producer and fourth largest iron ore producer (US Geological Survey 2011). As of May 2012, India is among the five largest crude steel producers with 6.2 million tonnes of output, roughly 4.75 per cent of the global steel supply, after registering an annual growth of 4.24 per cent in production. This production level is similar to Russia's and only slightly lower than production in the United States (Worldsteel 2011, 2012). However, India's production is only one-tenth of China's steel output, which accounted for 47 per cent of global production (*ibid.*). Besides India, Bhutan and Nepal are also exporters of iron and steel, which accounted for 40 per cent of Bhutan's export earnings and for 12 per cent of Nepal's export earnings in 2010. Although for both countries iron and steel exports are important, they are marginal exporters in relation to world iron and steel trade.

The iron and steel industry is India's most lucrative metal and mining sector with total revenue of US\$78.5 billion in 2010, which was about 74 per cent of the sector's overall value (Datamonitor 2011a, 2011b). With growing production capacity, India steadily increased its exports of iron and steel from 1.2 million tonnes in 1990 to

7.2 million tonnes in 2006. Since 2006, India's exports of iron and steel suffered a decline and its exports were 3.7 million tonnes in 2010. This significant reduction in export volume can largely be attributable to the impact of the price fall across commodity classes in the last quarter of 2008, which hit the Indian steel industry hard (Datamonitor 2011b). However, world price in iron and steel bounced back thereafter, so that although the volume of total exports decreased by 45 per cent for 2008–10, the export value in US\$ decreased by only 15 per cent. Despite its growing iron and steel industry and exporting capacity, India remains a net importer of this product, with net imports steadily increasing since 2002, reflecting its fast-growing domestic demand. Besides India, Pakistan, Bangladesh, and Sri Lanka also account for some of the region's iron and steel imports. However, India contributes by far the largest share. Therefore, the region as a whole is a net importer of iron and steel, with net imports between 2 and 4 million tonnes of annual imports for 1990–2002. Mainly driven by India, total imports have steadily increased since 2002 to 18.7 million tonnes in 2010, resulting in 13.4 million tonnes of net imports in the same year. If we exclude India from the South Asian aggregate, net imports peaked in 2007 with 6.6 million tonnes and since then have been on a declining trend. Unlike iron and steel products, India was a net exporter of iron ore, earning export revenue of US\$6 billion in 2010 with its rich deposits.

India is also well endowed with bauxite – the raw material for aluminium production – ranking as the fifth largest producer of aluminium in the world. Net exports of bauxite (aluminium ore) increased until 2007 and since then have been on a decline as a result of rising domestic consumption. Although Indian bauxite is of high quality and its reserves are estimated to account for five per cent of the world's total deposits, production is still less than 10 per cent of China's (Dutta and Mukherjee 2010). However, India's production has been increasing, emerging as an important producer of primary aluminium. It already accounted for 4 per cent of global primary aluminium production in 2010 (European Aluminium Association 2010).

However, the region as a whole is a net importer of aluminium and articles thereof, reaching more than US\$1 billion in total value of net imports in 2010, with India accounting for the largest import share despite having its own domestic aluminium industry. Given that the main end-use markets for aluminium are construction and transportation, demand for aluminium is expected to increase further (EAA 2010).

Turning to copper, India is also a major producer, ranking as the fifth largest copper smelter, accounting for about 4 per cent of the world's copper smelter production after China (24 per cent), Japan (22 per cent), Chile (10 per cent), and Russia (5 per cent) in 2010 (ICSG 2010).<sup>3</sup> Although India has a relatively large smelting industry, its natural endowments of copper ores and concentrates are relatively low. Hence, India is a large net importer of copper ores and concentrates, amounting to an import bill of US\$ 4.6 billion. India was the third largest importer in 2009 after only China and Japan (*ibid.*).

Since other South Asian countries account for copper imports and exports only marginally, South Asia's trading patterns mainly reflect Indian imports and

exports. The region became a net exporter of copper and copper articles in 2002. Simultaneously, net imports of copper ores and concentrates increased dramatically. From 2005 to 2006 net imports more than trebled from 0.75 million tonnes to 2.4 million tonnes and have stabilised since then at an annual level of about 2 million tonnes of net imports.

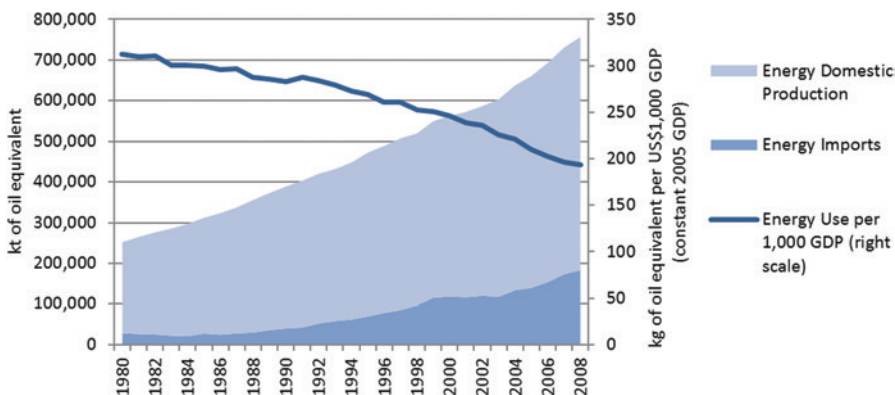
### 14.2.5 Energy commodities

Energy consumption in South Asia has risen as well as economic growth. Although efficiency of energy use increased steadily with a decrease of one-third in the ratio of energy use per US\$1,000 GDP between 1980 and 2008, absolute energy consumption increased by almost 300 per cent between 1970 and 2008. The increasing regional demand could not be fully matched by increasing levels of domestic energy production. Hence, South Asia as a region became more dependent on energy commodity imports (Figure 14.1).

This development is accompanied by changing patterns in the composition of sources for electricity production. In the 1970s, hydropower and coal had an equal share in energy production. Since then the percentage share of hydropower in total energy production has decreased by 30 percentage points, while the importance of coal and also natural gas has increased (Figure 14.2).

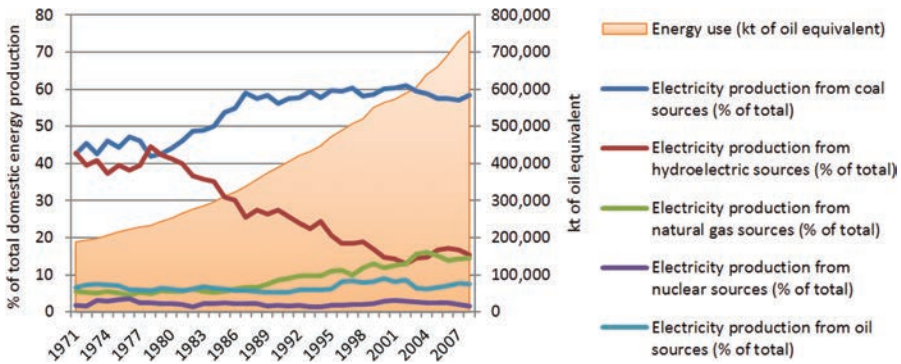
However, this pattern is dominated by India's energy production and consumption, by far the largest energy consumer. India was even the fourth largest energy consumer in the world after the United States, China and Russia in 2009 (IEA 2009). The composition of sources for energy production as well as dependence on energy commodity imports of the other countries in the region differs quite substantially. For South Asian countries other than India, the share of biofuels and waste in domestic energy production is much larger, accounting for the largest source of overall energy production, though with a declining share. This large share of biofuels and waste reflects still insufficient energy provision at household levels, and many – especially

**Figure 14.1 South Asian domestic energy production, imports and energy efficiency (1980–2008)**



Source: World Bank (2011), World Development Indicators

**Figure 14.2 Sources for domestic energy production and domestic energy use in South Asia (annually, 1971–2008)**



**Note:** Due to data constraints Afghanistan, Bhutan and Maldives are not included in the aggregation.

**Source:** World Bank (2011), World Development Indicators

rural – households rely on traditional sources such as biofuels and fuel wood for daily heating and cooking (Srivastava and Misra 2007). Further, the decline in the share of biofuels and waste as an energy source in total energy production is accompanied by a rising importance of natural gas. This development is probably driven by the trend in Bangladesh, which relies on natural gas for almost 90 per cent of its energy source. Coal, however, does account for a very minor share in energy production in countries other than India.

South Asia as a region does have only minor oil reserves, and hence up to 80 per cent of crude oil demand is supplied by imports. As India is relatively well endowed with coal reserves, the share of imports in domestic coal demand is relatively low, though following an increasing trend. This is largely due to the Indian iron and steel industry's demand for high-quality coal. For other South Asian countries, coal has to be largely imported so that the share of imports in total needs has increased from about 50 per cent in 2000 up to almost 75 per cent in 2009, driven largely by demand from Pakistan and Bangladesh where coal consumption more than doubled over the same period (Remme et al. 2011). Driven by demand from India and Bangladesh, the import share of natural gas has also increased over the last decade to about 30 per cent of total domestic gas consumption (Corbeau 2010).

South Asia as a region is a net importer of almost all energy commodities but oil products, for which it turned into a net exporter in 2006 as a result of India's growing oil refining capacity. With 21 refineries reported in 2011 (Ministry of Petroleum and Natural Gas (MPNG) 2011a, 2011b), India is self-sufficient in refining capacity for domestic consumption and became a net exporter of petroleum products, especially to its neighbouring countries (EIA 2010). However, the industry remains highly dependent on imports of its key input factor, crude oil. In 2011, India ranked fourth in global petroleum consumption. If India is excluded from the South Asian aggregate, the region remains a significant net importer of crude oil<sup>4</sup> as well as refined oil products.<sup>5</sup>

Nepal almost entirely produces energy from hydropower stations. Sri Lanka followed hydropower electricity production until the mid 1990s. Since then the use of oil has increased and reached an equal share with hydropower. Bangladesh relies heavily on natural gas as a source of energy production, while Pakistan relies on hydropower, natural gas, and oil as energy sources with each accounting for an equal share. Overall, oil has become an increasingly important energy source since the early 1980s.

Not only the composition of energy sources but also the import dependency varies across countries. Sri Lanka has the largest import dependency with an import share of about 45 per cent of its overall energy sources. It imports its entire demand for oil products, crude oil and coal. Only energy from biofuels and waste as well as hydropower are domestically produced. Nepal has the lowest import dependency with about 12 per cent, because of its low level of domestic energy supply (the lowest in the region) and its heavy reliance on biofuels and waste for energy production. Only coal as an additional source of energy has to be imported from India. Bangladesh, on the other hand, is rich in natural gas reserves, which satisfy more than half of its energy demand already, while the share of traditional sources (biofuels and waste) for households' energy consumption has steadily declined. For India and Pakistan the import share in domestic energy consumption is 25 per cent, which is still low in a world comparison. Indian energy imports almost entirely comprise crude oil imports (although the significance of natural gas and coal imports are on the rise). In contrast, Pakistan satisfies its increasing energy demand largely with natural gas. Domestic natural gas reserves are for the time being sufficient to meet domestic demand, resulting in low import dependency in this regard. However, crude oil and coal, which accounted for 12 per cent and 5 per cent of energy sources respectively in 2009, have to be imported for up to 70 per cent of its needs.

## 14.3 Implications of the super-cycle for South Asia

### 14.3.1 Balance of payments implications from the commodity price boom of 2002–08

South Asia as a region can be a net exporter or net importer depending on the commodity in question. Hence, in terms of balance of payments management, it can be either a winner or a loser from commodity price hikes as observed for 2002–08. For example, while South Asia as net exporter of some agricultural commodities as well as metals and minerals has gained in export revenues from the price rise over the latest commodity price boom, an increase in import bills, especially paying for higher energy costs, has exceeded any additional gains from the price boom between 2002 and 2008. Table 14.1 presents our estimates of gains/losses from price movements for selected commodity groups. These are calculated as the sums of annual differences between net export values actually recorded and hypothetical values if prices stayed at levels observed in 2002.

According to this estimation, South Asia as a region earned extra revenues from the price hike of rice, amounting to US\$7.1 billion. Since export bans imposed to prevent

**Table 14.1 Net changes in import bill/export earnings due to the price increases of 2002–08 (in US\$ millions)**

Type	Commodity	South Asia	South Asia (ex. India)
<b>Food commodities</b>	Rice	7,144.24	3,672.49
	Wheat	-3,027.36	-2,451.37
	Edible oil	-5,213.97	-3,071.72
	Tea	1,305.58	1,196.60
<b>Agricultural raw materials</b>	Cotton	63.17	500.32
	Jute	299.96	-108.95
<b>Metals and minerals</b>	Iron ore	16,414.13	-128.36
	Iron and steel	-6,671.58	-2,840.81
	Aluminium ore	322.39	-0.11
	Aluminium	-6,286.62	-1,909.47
	Copper ore	-10,743.35	1.43
	Copper	5,045.24	-27.24
<b>Energy commodities</b>	Coal	-13,818.81	-848.09
	Natural gas	-3,337.71	-422.20
	Crude oil	-170,388.41	-15,937.49
	Refined oil products	19,392.93	-11,846.90

**Note:** UN Comtrade classification (HS digits as reported): rice 10.06; wheat 10.01; edible oil 15; tea 0902; cotton 52.01; jute 53.03,53.07,53.10; iron ore 26.01; iron and steel and articles thereof 72; aluminium ore 26.06; aluminium and articles thereof 76; copper ore 26.03; copper and articles thereof 74; coal 27.01; natural gas 27.11; crude oil 27.09; refined oil products in 27.10.

**Source:** UN Comtrade (author's calculation)

shortages and to control domestic food prices did limit the traded volume, the extra revenues could have been higher if these measures were not taken. However, it is important to note here that the food security programmes implemented to ensure affordability of staples resulted in an increasing fiscal burden with rising prices. Further, the increase in global wheat prices coupled with rising demand for wheat imports resulted in US\$1.6 billion additional costs for wheat imports in 2008 alone. Should world prices have remained constant at the 2002 level, South Asia's import bill for wheat would have been less by US\$3 billion over the time period of 2002–08.

As tea prices also followed a rising trend, India and Sri Lanka as net exporters of tea gained extra revenues from the price increase, earning together an additional US\$1.3 billion between 2002 and 2008. As the cotton price increase was much less compared with other commodity groups, extra export revenues earned by India and Pakistan as net exporters from the price increase were marginal, at just over US\$63 million, while Bangladesh, Nepal and Sri Lanka, as net importers of cotton lint, had to pay a higher price for imported raw materials for their garment industry.

Turning to metals and minerals, India's gains from its iron ore exports as a result of the price increase are estimated to be about US\$16.4 billion over the period of 2002 and 2008. However, South Asia had to pay an additional US\$6.7 billion for imports of iron and steel and US\$6.3 billion for aluminium imports for sustaining

their booming construction sector and other industrial activities. India's estimated additional bill of US\$10.7 billion for copper ore imports exceeds its copper industry's extra export revenues of US\$5 billion from copper-processed products.

However, it is energy commodity imports, especially crude oil imports, that caused a massive trade deficit from the price hike observed in 2002–08, as the region increasingly depends on crude oil as a source for its overall energy supply. According to our estimate, the increase in world oil prices from 2002 to the price peak in 2008 added US\$170 billion to the crude oil import bill for all countries in the region as net importers. However, for refined oil products, South Asian countries other than India are net importers, while India is now a net exporter of oil products, having developed a large oil-refining industry. While India earned an additional US\$31.2 billion due to the price rise in oil refined products over the period 2002–08, the import bill for the remaining South Asian nations increased substantially by US\$11.8 billion. As demand for coal increased steadily in the entire region the coal price increase added an additional import bill of US\$13.8 billion for South Asia as a whole and US\$13 billion for India alone. Thus, increasing global energy prices, especially fuel prices, together with the region's rising demand for energy commodities resulted in a huge trade deficit recorded since 2003 according to World Bank data. In 2011, the trade deficit of the entire region reached more than US\$200 billion, of which more than US\$100 billion resulted from fuel imports.

### 14.3.2 Food security

There are two dimensions of food security which have to be considered: first availability or self-sufficiency on the aggregate level (quantity dimension), and second affordability on the individual level (price dimension) (Talukder 2005). The former aspect concerns agricultural productivity and reliance on food imports as well as on the diversification of its import partners, while the latter deals with issues related to food prices as well as their impacts on overall inflation and hence on household real income.

South Asia, as the most densely populated region in the world, has to feed one-fifth of the world's population with only 3.3 per cent of the world's land area (Rasul 2010).<sup>6</sup> While major progress has been made in raising agricultural productivity the extent of productivity gains varies widely among South Asian countries. Nepal could increase cereal yield per hectare by only 28.7 per cent over the time period 1960–2010, but Pakistan could more than treble its yields over the same time. Bangladesh, India, and Maldives could all more than double their yields. However, the pace of productivity growth has slowed down or even declined recently for major food grains in Bangladesh, India, Pakistan and Nepal. For small countries such as Maldives, Nepal and Bhutan, and those which are frequently exposed to flooding and other natural disasters or have experienced periods of political unrest, conflicts and even war, such as Afghanistan, agricultural yields were extremely volatile, imposing severe threats to food security in terms of availability and self-sufficiency.

Further, increasing urbanisation, population growth, soil degradation and flooding have caused the amount of arable land per person to decrease substantially over the

same period. Whilst green revolution technologies have surely increased agricultural productivity to a remarkable degree in many South Asian countries, these technologies have also affected water, land and the environment (Rasul 2010). India has one of the most irrigation-dependent agricultures. Since the production of two major staple crops of the region, rice and wheat, is extremely water intensive, this development is worrisome (*ibid.*). The decreasing groundwater level makes irrigation more and more costly and energy intensive, which results in ever-higher levels of inputs needed, i.e. fertilisers and costly irrigation methods, to reach the same level of production, hence leading to lower profits for farmers even in times of high world prices.

Additionally, the region is estimated to be hardest hit by the impact of climate change for cereal production (von Braun 2007). This is reflected in, *inter alia*, extreme flooding in increasing frequency (Dorosh et al. 2010). For example, Pakistan experienced floods in July 2010, which left huge damage to agricultural crops and livestock, especially sugar cane, rice, vegetables, cotton and maize (wheat was less affected, as it is cultivated in the winter season) (*ibid.*).

Furthermore, it is important to emphasise that food production is failing to keep pace with population growth in the South Asian region. World Bank data show that arable land per person declined with population growth for all South Asian countries over time. Additionally, total arable land has decreased since the 1980s, due to urbanisation and environmental challenges.

Furthermore, those small economies with a heavy reliance on food imports are highly vulnerable to global price shocks as well as trade disruptions. Table 14.2 shows the import share in overall domestic supply of some of the region's essential staples as measured in daily caloric intake per person in 2007. While Pakistan, India and also Nepal are less dependent on food imports (with the exception of vegetable oils), Bangladesh, Sri Lanka and especially Maldives are heavily dependent on imports to meet their domestic food demand.

Afghanistan, as a war-torn country, though not included in Table 14.2 due to data unavailability, is known to be highly dependent on food imports, mainly wheat from Pakistan (Chabot and Dorosh 2007). Milling products make up for 4 per cent of Afghanistan's total import value already (Comtrade, Country Snapshot

**Table 14.2 Import dependency for food commodities in 2007 (in percentage of imports in total domestic supply)**

	Cereals (total)	Rice	Wheat	Sugar	Vegetable oils	Milk	Pulses
<b>Bangladesh</b>	11	2	79	87	90	11	67
<b>India</b>	1	0	3	0	40	0	17
<b>Maldives</b>	100	95	100	100	100	100	100
<b>Nepal</b>	5	9	0	10	81	1	4
<b>Pakistan</b>	1	0	1	16	65	1	30
<b>Sri Lanka</b>	38	5	100	95	100	77	89

**Source:** FAO (2007), Food Balance Sheet: selected countries (author's calculation)

2010). Although relatively self-sufficient in rice production, Nepal remains a food-deficit country and hence dependent on imports from India to smooth domestic consumption (Sanogo and Amadou 2010). The entire region is highly dependent on imports of vegetable and edible oil, which accounts for a substantial part of per capita daily caloric intake. Pakistan and Bangladesh are the biggest importers of this commodity, with edible oil imports accounting for 5 and 9 per cent of their entire import bills in 2010 respectively (Comtrade, Country Snapshot 2010).

While South Asia's strong economic growth has translated into some decline in poverty and improvement in human development, the region is still home to most of the developing world's poor, having the largest number of malnourished people in the world (World Bank 2010). With these pressing challenges, food security in terms of affordability, besides availability, is a major concern in all South Asian countries. Economies of the entire region were badly affected by the international price movements such as the food price hike observed in 2008. In particular, due to strong intra-regional trade in food and agricultural commodities, price policies taken by a few major countries at that time, that is export restrictions imposed by India and Pakistan, resulted in large spillovers into neighbouring countries with higher food prices in Bangladesh, Afghanistan, Nepal, and other South Asian countries (Dorosh 2008; Sanogo and Amadou 2010).

Further, higher prices for fuels and fertiliser squeezed profits for farmers, as discussed earlier. In countries such as India, where the agricultural sector is highly subsidised for ensuring farmers' profitability as well as food affordability for consumers, rising input costs through oil, fertiliser and energy as well as high food prices impose a dual fiscal burden. However, government intervention in food markets for preventing major famine is widely practised in other South Asian countries. Price hikes, as witnessed in 2007–08, hence pose a severe challenge to governments' fiscal positions (Dorosh 2001). For many of the smaller economies, where the government's fiscal space is low, food subsidies are not an option and global price movements hit the poorest of the population directly. Additionally, these economies are exposed to a real threat to food security by policy measures taken in times of scarcity by their larger neighbours like India and Pakistan. Bangladeshi food grain imports, for instance, rose steeply again at the time of rising prices in 2011 as the government sought to build large stocks, despite the high prices prevailing then (Asian Development Bank (ADB) 2012).

We should note that in this region an only slight increase in food prices could throw many under the poverty line and cause a turn back to less nutrition-rich food staples with accompanying health problems (ADB 2012). High and increasing import dependency would make many South Asian countries most vulnerable to global food price movements.

### 14.3.3 Energy security

South Asia's energy consumption per capita is the lowest in the world, but energy intensity is relatively high, though slowly decreasing (Srivastava and Misra 2007). It is true that many rural households are still relying on traditional sources such as biomass and fuel wood for everyday energy needs (heating and cooking). Bhutan,

for instance, has the highest per capita fuel wood consumption in the world and 54 per cent of Indian rural households do not have access to a electricity connection yet (*ibid.*). Providing a better and secure energy supply for the vast majority of the region's population remains a major challenge. Further, unreliable power supply is a major bottleneck for industrial sectors of South Asian countries. It is estimated that Bangladesh loses US\$1 billion annually from power supply shortages or interruptions. This results in a 0.5 per cent reduction in the country's annual GDP growth (*ibid.*). Likewise, for the Pakistani economy the lack of energy supply is a major bottleneck for its development and it is seen as the main cause for its stagnating industrial and manufacturing sector and sluggish growth performances (ADB 2012).

Given the economic importance of energy prices, many countries subsidise their energy sector highly. Hence, rising prices for energy commodities put increasing pressure on a government's budget. For Bangladesh, a report by the Asian Development Bank (ADB 2012) predicted a further increase in spending on subsidies from 2.2 per cent to 3.4 per cent of GDP in 2012. The foreign exchange reserves needed to pay for the fuel import bills are also becoming scarce for the state-owned Bangladeshi Petroleum Co-operation. With a probable increase in fuel imports by more than half in 2013, this foreign exchange has to be borrowed elsewhere in order to satisfy domestic demand. Likewise, in Pakistan, despite increases in tariffs and fuel price adjustments to global prices, customer tariffs remain below the level needed for cost recovery, and hence require government subsidies to keep the system operating (ADB 2012). Nepal also experiences pressure on its foreign currency reserves resulting from an increasing energy import bill (Srivastava and Misra 2007).

The import dependency of South Asian countries – foremost India – is likely to increase further in the future given the region's economic growth and rising needs from the construction and transportation sector as well as industry (IEA 2009). Given the high dependency of the smaller countries on only a very few trade partners for energy commodity imports, disruption and shortages in those countries put an additional threat on energy security. Further, steadily increasing oil imports together with rising oil prices put a burden on foreign currency reserves, lead to widening external deficits, rising inflation, and threaten the region's energy security.

#### 14.3.4 Macroeconomic effects of commodity price rise

Global commodity prices in nominal terms reached an all time high in 2007 to mid-2008. For South Asia, this commodity price shock had major effects on macro economic conditions, resulting in: i) large terms-of-trade losses, ii) widening external deficits, iii) loss of foreign reserves and iv) higher inflation.

World Bank (2010) reports that terms of trade losses cumulative to May 2008 were about 9 per cent of GDP for South Asian countries on average, and this was the greatest among all developing regions. Further, the balance of payments is under strain from high commodity prices, including increased oil imports for power generation, and weakened exports. Rising subsidy costs for power supply (mainly for fuel) have also intensified fiscal pressures (ADB 2012). The external deficits widened for almost all countries except Nepal and Bangladesh over the commodity price peak due to larger

import bills causing substantial trade deficits. Pakistan's current account deficit as a ratio to GDP reached 9.6 per cent in 2008. Sri Lanka had a similar magnitude of deficit, while Maldives registered a 35 per cent ratio to GDP deficit in 2008. India's current account deficits have widened since 2005, reaching a level of 2.5 per cent as a ratio to GDP in 2008 and after a short decline increased further to more than 2.9 per cent in 2010.

Given the persistently high commodity prices and elevated volatility, South Asian countries face strong inflationary pressure. Core inflation is rising not only with food prices but also with fuel prices. India's food price inflation followed global price movements with a lag and reached an 11-year high at almost 20 per cent (year-on-year inflation rate) by the end of 2009. For rice, sugar, pulses and oil seeds – all major staples and basic food products in South Asia – the price hike was evident (World Bank 2010). As a result of its close link with its neighbouring countries in food and agricultural commodity trade, food inflation in India is spilling over to Bangladesh, Bhutan, Nepal and Sri Lanka (*ibid.*). This is especially pronounced for Nepal and Bhutan, as their currencies are pegged with the Indian Rupee and bilateral trade dependency is extremely high. Especially for smaller countries with a high dependency on imports in their domestic food supply, such as Afghanistan, Bangladesh, Bhutan, Maldives and Sri Lanka, food price inflation was significantly higher than non-food inflation at the time of the price hike in 2008 and their inflation rates closely followed world food prices.

In mid-2008, Bhutan's inflation rate peaked at 12.5 per cent, food price inflation in Maldives reached almost 30 per cent, while for Sri Lanka food inflation peaked at 40.2 per cent. Although less dependent on food imports than its smaller neighbours, for Pakistan the pass-through rate of world food prices to domestic prices was also high. Food price inflation there peaked at 34.1 per cent in mid-2008. India acted to counteract food inflation in 2007–08 by significant policy interventions such as export bans and subsidies, though inflation of fuel and energy prices could not be prevented.

While high food and agricultural commodity prices might be thought to be beneficial for farmers, poor households even in rural areas of South Asia are net buyers of food and hence strongly affected by rising food prices (World Bank 2010). Further, although producer prices were increasing, producer profits were squeezed by higher input costs. Rising input prices offset any gains in producer prices, not only for the agricultural but also for the industrial sector (Datamonitor 2011a). For example, price volatility on global markets for essential input factors like coal is an increasing burden for industry (Dutta and Mukherjee 2010). Steelmakers broke a 40-year tradition of annual pricing in favour of adopting a contract system based on a quarterly index of iron ore and coking coal prices (Datamonitor 2011b). This is probably the industry's reaction to increasing price risk induced by high price volatility. This would leave, especially steelmakers, vulnerable to significant price risk (*ibid.*).

Especially for smaller South Asian economies, highly dependent on commodity imports, the pass-through rate of global commodity prices to domestic prices is high. Such high inflation rates disproportionately affect poor and vulnerable non-poor

households (World Bank 2010). Safety net programmes and food and energy subsidies are costly, imposing an increasing fiscal burden, putting high pressure on the countries' balance of payments and causing depletion of foreign reserves.

#### 14.4 Concluding remarks

South Asia's share in global commodity trade is still much smaller than its neighbouring regions such as East or South East Asia. Further, while several countries of the region other than India, such as Bangladesh, Bhutan, Sri Lanka and Pakistan, are significant players in global trade of food and agricultural commodities, trade in mineral and metals as well as in fuels and energy commodities is dominated by India alone. South Asia's trading in commodities are conducted with East, South East and West Asia as well as Sub-Saharan Africa more than with advanced economies such as those in North America or Europe. Furthermore, since intra-regional trade contributes to a large share of overall commodity trade in South Asia, many smaller countries in the region are heavily dependent on commodity imports and exports from India or Pakistan. Overall, given that India is by far the biggest economy in the region, it serves as an important supplier as well as market for commodity imports and exports of its neighbouring countries. At the same time, India's own reliance on its neighbouring countries for exports and imports is low, and therefore it has engaged more in trade with countries outside the South Asian region. Hence, the region's overall pattern in commodity trade with the outside world reflects largely that of India.

With the high economic growth rates as well as the environmental and demographic changes, the pattern of commodity demand and supply of South Asia has shifted dramatically. Smaller countries in the region have become heavily dependent on these larger economies' supply capacity. Hence, India's decision to re-impose export bans on rice and other staples during the commodity price peak in 2008 had major impacts on the prices and availabilities of staple foods in these smaller economies as well as on world prices of these commodities.

The high price volatility of commodity prices has posed a significant threat to the region's security of strategic commodities such as food and fuels as well as to macro economic stability. High levels and extreme volatility of commodity prices would impose severe constraints on the region's aspiration for accelerating industrialisation and sustaining economic growth, as well as its ambition to provide access to foods as basic human rights to a growing population and to achieve significant poverty reduction. Smaller countries in the region are subject to much higher vulnerability to price shocks as their pass-through rate of import prices to domestic inflation is high. They are also highly vulnerable to trade policies adopted by their larger neighbours, as their dependence on intra-regional trade for supply of basic commodities is very high. Since only a slight increase in food prices could throw both the urban and rural poor under the poverty line, high and increasing import dependency would make many South Asian countries most vulnerable to global food price movements.

With the sharp swings and continued high volatility of commodity prices affecting the course of the global economy in the new millennium, 'commodities and development'

are back on the international policy agenda. The 'revival' of interest in this topic could potentially make an important difference to the plight of low-income developing countries, especially because the commodity-related development challenges facing these countries were eclipsed by the dominant 'free trade and globalisation' agenda in international policy discussions throughout the 1980s and 1990s. At this historical juncture, we should remind ourselves that formulating appropriate policies to address the 'commodity' issues for development would require an in-depth understanding of the nature and sources of the structural vulnerability of these developing countries when they are exposed to shocks originating in world commodity markets, as either exporters or importers.

With this perspective in mind, at the country level, effective commodity sector specific development strategies should be built around realistic and practically feasible goals. These goals should be set with the overall objective of reducing the degree of exposure to shocks as well as building resilience at micro and macro levels through persistent and innovative investment in productive capacity. Hence, any commodity sector-specific interventions should be incorporated into a country's overall development strategy in improving agricultural productivity, poverty reduction and sustainability of its growth and development path. Furthermore, to be effective in fast-changing commodity markets, policy-makers would need to undertake continuous assessments and filtering of available intervention instruments in relation to prior-agreed indicators of commodity-related vulnerability with its negative feedback loop identified in a country-specific context.

We should bear in mind that market-based solutions and instruments do not necessarily provide fragile countries and fragmented producers with workable solutions to improve their competitiveness in commodity production and trade with reduced risks of exposure to huge shocks from price volatility. Greater attention should be paid to building the resilience of commodity producers and consumers through rigorous investment in sustained productivity growth and institutional capability for creating an economic base for advancing social development goals. Given South Asia's high degree of intra-regional trade in commodities, it is also important to achieve much more coherence and co-ordination in policy responses to commodity price shocks within the region.

Further, it is important to note that the continued extreme volatility of commodity prices has become a major source of instability to the world economy. The highly unstable commodity prices have also had profound impacts on the course of economic development of commodity exporting and importing developing countries alike. The instability originating from world commodity exchanges has added considerable strains and setbacks to progress in socio-economic development in low-income developing countries worldwide. The sharp price rise of strategic commodities, such as grains and fuels, hit particularly hard poor countries heavily dependent on imports of these commodities.

Because the problems associated with excessive volatility of commodity prices and the resulting income instability has global dimension and implications, there is a

strong case for coherent global policies and actions. As examined and discussed in details in Nissanke (2010, 2012), the global community should seriously consider establishing two new global facilities to address commodity-related development issues collectively: (a) innovative stabilisation schemes through *virtual* intervention to reduce large swings of commodity prices, well in excess of what could be explained in demand-supply fundamentals of individual commodities and standard macroeconomic variables; and (b) a new compensatory financing facility such as a state-contingent compensating facility as a basis for counter-cyclical macro economic demand management to mitigate the negative impacts of income instability associated with exogenous shocks such as large price swings of strategic commodities. The South Asia region could form a consensus to adopt such global measures on addressing the impacts of commodities super-cycles.

## Notes

- 1 Bangladesh is the second largest when it comes to imports per kg and the United Arab Emirates when it comes to import values in US\$.
- 2 In order to assess the importance of each trading partner, total annual exports per trading partner were aggregated over the time period 2000 to 2010 and then ordered by their share.
- 3 Smelting is the pyro-metallurgical process used to produce copper metal (International Copper Supply Group 2010).
- 4 International Energy Agency definition: Crude oil comprises crude oil, natural gas liquids, refinery feedstocks, and additives as well as other hydrocarbons.
- 5 International Energy Agency definition: Oil products comprise refinery gas, ethane, liquefied petroleum gas, aviation gasoline, motor gasoline, jet fuels, kerosene, gas/diesel oil, fuel oil, naphtha, white spirit, lubricants, bitumen, paraffin waxes, petroleum coke and other oil products. The exceptions to this are those finished products which are classified as refinery feedstocks.
- 6 Naturally, the relevant share to consider here is not the world's total land area as Rasul (2010) used, but the arable land area.

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