Chapter 11

Productive Integration of Least Developed Countries into Regional Supply Chains: The Case of South Asia

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11.1 Introduction

The use of regional supply chains in production implies the geographic dispersion of the stages of production (of goods and services) across national borders within a given region.[1] As such, these supply chains often involve a complex web of inter- and intra-firm transactions across and within national boundaries engaged in various aspects of production and marketing of a single or related range of products. (Some investigators have, perhaps more correctly, referred to them as supply networks. This web of firms is able to extract the potential benefits from variations in comparative advantage across countries and across country- or region-specific trade advantages (or sidestep trade or regulatory restrictions) to lower production costs and increase market access (Kimura and Obashi 2011). In addition, stiff competition between firms at certain stages along the production chain can serve to maintain strong downward pressure on costs (Wills and Hale 2005). However, the geographic dispersion of the production process also means that the viability of regional supply chains is predicated on the ability to transfer goods across space and national borders both quickly and inexpensively. Those requirements pose a substantial challenge to the introduction and expansion of regional supply chains in developing regions, in general, and the participation of least developed countries (LDCs), in those chains, in particular.

The infrastructural, human capital and institutional demands of this form of production has meant that, heretofore, LDCs have not typically been major participants in these supply chains. Even in East Asia, where this structure of production is most pervasive, the LDCs of the region (Cambodia, Lao PDR and Myanmar) have been the last to be integrated into the regional supply chains, and their participation, though increasing, remains constrained (UNESCAP 2007). One can reasonably conclude, from this record, that the further development of regional supply chains in South Asia, in general, and the integration of South Asian LDCs into these supply chains, in particular, would likely face significant hurdles – and that is indeed the case.

As a region, South Asia is unique in many respects. Though its regional population is large, only eight countries make up the region and half of these are LDCs. Moreover, the level of intra-regional trade is the lowest of any of the major developing regions. However, in terms of infrastructural, human capital and institutional endowments, South Asian LDCs (with the notable exception of Afghanistan) are typically better

placed than most LDCs. This suggests that the prospect of integrating these economies (again, excepting Afghanistan) into regional supply chains may be a formidable but not insuperable challenge.

In this chapter we examine the nature of the constraints likely to be faced by LDCs in attempting to integrate into regional supply chains. This is followed by an enumeration of some of the initiatives that LDCs can undertake to improve domestic and regional conditions for participation in regional (and global) supply chains. The chapter then looks more specifically at the situation and prospects for South Asia and concludes with a summary of its main findings.

11.2 Major constraints to least developed countries' participation in regional supply chains

Supply chains offer a competitive advantage only if the gains to be obtained from the spatial separation of production are large and are not exceeded by the many potential costs of linking production blocks. Cheap, instant, and reliable modes of communication between firms along the chain of production are critical for co-ordinating the production process and ensuring responsiveness to evolving conditions. Logistics services in the form of minimal transit times, safe handling of goods, reliability and security are critical for minimising cost and maximising certainty as goods move along the chain of production. To promote local firm participation in these supply chains, a country must, therefore, be able to offer the necessary physical, communication and institutional infrastructure, as well as the policy conditions that can accommodate the requisite quality of communication and logistics services. Moreover, the importance of links between multinational corporations (MNCs) and local firms in these supply chains also means that countries must be able to offer an environment that is conducive to the quick and effective initiation and execution of commercial activity.

Among the definitional attributes of LDCs, only human capital deficiencies immediately suggest potential challenges with respect to the integration of LDC firms into regional supply chains. However, LDCs are more likely to demonstrate institutional and infrastructural weaknesses, which can constrain these countries' ability to participate meaningfully in the trade and investment activities that are critical to the formation of regional supply chains. Furthermore, LDCs that are also landlocked, or small island countries, face additional (or more acute) constraints that (directly or indirectly) derive from these geographic attributes. Most impediments to trade-related activities generally, and participation in regional supply chains in particular, derive from various forms of domestic supply constraints (UNCTAD 2008), including, among others: high costs of transport and logistics; limited telecommunications infrastructure; high transaction costs of doing business; shallow and inefficient finance; weak human resources; and limited capacity to produce public goods. However, beyond these internal constraints, some aspects of the external environment, in particular, residual and implicit trade barriers, also constrain the potential participation of LDCs in regional supply chains.

11.3 Policies and programmes to improve the conditions for the operation of supply chains

The list of potential constraints enumerated above might, at first blush, suggest that the integration of LDCs (and, more particularly, South Asian LDCs) into regional supply chains may need to await significant further development. However, the experience of East Asia, with respect to the (mostly) successful integration of Cambodia, Lao PDR and Myanmar into East Asian supply chains, and the success of efforts at expanding the export manufacturing sector in Bangladesh, indicate that, by taking advantage of existing strengths, directly addressing the most binding constraints and using bridge institutions and technologies over the short and medium term, LDCs may be able to begin the process of integration into regional supply chains well before all the major constraints are ameliorated.

One of the lessons of the East Asian experience is that countries need not wait for progress on formal processes of regional trade liberalisation and economic integration – most of the programmes and policies that engender the development of regional (and global) supply chains are unilateral initiatives taken by individual countries. However, whereas formal regional agreements may largely follow, rather than lead, progress on economic integration, region-wide attempts at improving transportation links both at the level of physical infrastructure and 'soft' infrastructure (such as the simplification of cross-border procedures) can have a large effect on transportation and logistics costs in intra-regional trade.

The initiatives that can be taken will be grouped under three headings: a) transport and trade facilitation; b) resource mobilisation; and c) directed industrial policy.

11.3.1 Transport and trade facilitation

The importance of transport quality and cost in reducing the cost of linking production blocks in a supply chain are easy to recognise. However, improving the speed and cost of movement of goods can depend just as critically on trade facilitation measures. Maur (2008: 2) refers to trade facilitation as 'the sum of efforts undertaken at the national, regional and multilateral levels designed to reduce the transaction costs of trade'. Thus, improvements in transport infrastructure and trade facilitation measures should serve to enhance the movement of goods, services and investment within and across borders. In so doing, such programmes address the biggest potential weakness of supply chain-based production – its geographic spread and consequent dependence on the rapid and assured movement of goods and services across long distances. Such programmes encompass a wider range of initiatives, only some of which will be enumerated here.

- *Improvement in physical infrastructure* – An adequate road or rail infrastructure is an imperative for reducing transit time, direct cost and maintaining quality in production. An insufficient or poor quality road or rail network means that transit times are long, delivery is unreliable and quality may be difficult to guarantee. Ports and cargo-handling facilities are also an important part of that infrastructure

since poor quality or low efficiency of these facilities impose additional costs, time and uncertainty on the movement of goods (Brooks 2008).

- *Accelerating customs and logistics procedures* – Reduced transit time leads eventually to lower production costs. Extended procedures at border crossings or transport junctures increase the amount of time it takes for goods to move between production blocks and add to the uncertainty of the timing of such movements. Supply chains that use the just-in-time approach to inventory management are particularly vulnerable to uncertainty in the movement of goods between production blocks. Accelerating customs and logistics procedures reduces the effect of spatial dispersion and opens up larger areas to participation in supply chains. Djankov et al. (2010) found that an extra day of transit time reduced trade volumes by 1 per cent.

- *Improved power grid infrastructure* – Though the power grid infrastructure may not be an integral part of the transportation network it is important for reducing interruptions that hinder trade, particularly at transportation nodes such as ports (ADB 2001). The efficient operation of ports and other transportation notes is predicated on the assured provision of electricity for both the movement and storage of goods.

- *Investment in telecommunication infrastructure* – Cheap and reliable communication networks are a necessary part of ensuring that the correct goods are shipped at the correct time between production nodes in a supply chain. Therefore, reducing the transaction costs of trade also means improving the means of communication within and across national borders. This is also an area where the presence of large externalities suggests significant rewards for regional co-operation (Brooks 2008).

- *Enhancing regional economic co-operation* – Harmonisation of regulations and procedures, along with lower tariffs, are some of the outcomes of regional trading arrangements that are a critical part of reducing transit cost and time across borders (UNCTAD 2008). Movement along this front will certainly enhance the potential for the expansion of supply chains but, as was noted earlier, progress need not await formal regional institutional arrangement and can be made long before these agreements are enforced. A loose arrangement, which concentrates on the provision of regional public and quasi-public goods may offer more immediate rewards than the development of more formal institutions aimed at increased trade and regional integration. The experience of the Greater Mekong Subregion (GMS) (see Box 11.1) is a clear illustration of this as well as the importance of transport and trade facilitation.

11.3.2 Resource mobilisation

The development and expansion of regional supply chains, like the initiation or expansion of other forms of production, requires the development and/or expansion of new firms and the capital investments that this implies. Sources of invested capital can either be internal or external. For LDCs the main source of external investment

Box 11.1 The Greater Mekong Subregion: Intra-regional transportation and trade facilitation initiatives

The GMS refers to the five countries (Cambodia, Lao PDR, Myanmar, Thailand and Vietnam) and two Chinese provinces (Yunnan and Guangxi Zhuang) that occupy the drainage basin of the Mekong River. The basin covers a land area of 795,000 square km and is home to a population of 326 million people (ADB 2012). Four of the five core countries of the GMS are the CLMV countries (Cambodia, Lao PDR, Myanmar and Vietnam) – considered the economic laggards of the ASEAN group. In fact, three of them are LDCs. The GMS countries sought assistance from the Asian Development Bank (ADB) to develop a programme that enhanced the connection within that subregion, improved competitiveness and fostered a greater sense of community. The result was the GMS Economic Programme of 1992. Among the nine priority areas slated for action were improving transportation infrastructure, and enhancing transport and trade facilitation.

Notably, the GMS Programme did not attempt formal *institutional integration* of the subregion. The institutional framework that ensures programme implementation is rather loose. At the policy level the programme is guided by a ministerial conference and implementation of programmes and projects are overseen by sector-specific forums or working groups (Duval 2008). The GMS Programme, instead, emphasised *market integration* with significance attached to provision of public and quasi-public goods to increase 'connectivity, competitiveness and a sense of community' (Menon and Melendez 2011).

In 1995, the GMS adopted the Transportation Master Plan which identified priority transport links that could generate immediate improvements in transportation infrastructure, thereby reducing travel time and costs. These included three major road construction projects: the North–South Economic Corridor (NSEC); the East–West Economic Corridor (EWEC); and the Southern Economic Corridor (SEC). An additional six corridors were added to the plan in 2007 (Stone and Strutt 2009). To improve transportation and trade facilitation the countries entered into a cross-border transportation agreement (CBTA) in 2003 to 'facilitate the cross-border movement of goods, vehicles, and people between and among [the member countries]' by reducing border crossing formalities; exchanging commercial traffic rights; establishing transit traffic regimes, and setting common standards and requirements for road vehicles and cross-border traffic (Stone and Strutt 2009).

An examination of the impact of the NSEC found that, between 2000 and 2006, shipping costs between Bankok (Thailand) and Kunming (China) were reduced by 27–33 per cent (depending on the route taken) and parallel transit times were reduced by 32–40 per cent (Banomyong 2007). The EWAC was found to have reduced travel time between Dansavahn (Lao PDR) and Kahnthabouly (in

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Vietnam) by 75 per cent (from twelve to three hours) (Luanglatbandith 2007). The SEC was similarly found to have reduced transit times and transportation cost (Phyrum et al. 2007). These gains from improvements in transport infrastructure together with ongoing progress in trade facilitation measures (under the CBLT) was estimated to have generated at least a 40 per cent increase in intra-regional trade by 2006 (Stone and Strutt 2009).

capital is foreign direct investment (FDI). Internal sources are mainly allocated through the banking sector (and, sometimes, the government budget). We briefly examine some of the most salient issues in both respects.

- *Foreign direct investment* – LDCs do not have a very good record of attracting FDI into areas other than natural resource exploitation. It is important that countries define (and emphasise) their comparative advantages and provide the necessary information to potential investors with regard to those advantages. Furthermore, expensive incentives such as tax holidays, tax reductions and grants do not have a particularly good record of success, yet come with a high relative cost to poorer countries. In fact, emphasis on lowering the transaction cost of doing business and assuring the rules of engagement may be a more effective way of attracting external investment (UNESCAP 2007).

  With respect to regional supply chains, much of the production expansion is likely to come from the expansion of firms within the region (from more advanced economies in the region to LDCs). Therefore, particular attention needs to be paid to the factors that encourage the flow of intra-regional FDI. In that regard, regional economic arrangements and other efforts at economic integration may pay particular dividends (UNESCAP 2007; Kumar 2007). Box 11.2 on the experience of Vietnam speaks directly to those factors.

- *Domestic resource mobilisation* – In the environment of shallow finance that is typical of LDCs, firm financing can be a challenge. As noted earlier, the formal financial system (largely commercial banks and near banks) is designed to serve the needs of large established firms. The informal sector and microcredit organisations typically serve the need of microenterprises. The entrepreneurial middle, consisting of SMEs, are typically left unserved – starved of both long- and short-term credit.

  For firms engaged in production for export, the instruments most successfully employed for directing short-term credit to these firms have been various forms of trade credit. Instruments include pre-shipment guarantees, export production guarantees and post-shipment guarantees. Both public sector and external concessional resources have been used to leverage bank financing for these schemes. Yet to be tried, but potentially feasible for supply chains, is inter-firm trade credit. Larger or better-financed firms may be able to provide trade credit to lower financed firms within their network if given the right incentives, such as tax

Box 11.2 Attracting FDI: The Vietnam experience

Vietnam began its transition from a centrally planned economy to a market economy (the *Doi Moi* period) in 1986. This liberalisation and reconstruction was implemented through a series of laws aimed at formally recognising the right to private and foreign ownership of property as well as the right to conduct business. These included The Land Law in 1987 (with revisions in 1993 and 1999), a Bankruptcy Law (in 1993), laws that liberalised the financial sector, and a law on foreign investment (1987) (Bui 2009). One of the responses to this new 'opening up' was a spectacular increase in foreign direct investment (FDI). It rose from nearly zero in 1989 to 12 per cent of GDP in 1994 (Figure 11.B1). Investors perceived potential large and untapped markets in this country of over 66 million people and a cheap but relatively well-educated labour force that could be used to produce goods for export. In addition, Vietnam was the beneficiary of heightened investor interest in Asia during that period as well increasing intra-regional investment flows (Freeman 2002). However, little of this inward flow of finance was directed at supply chain-based production. Most of this early investment took the form of joint ventures with state-owned enterprises aimed at producing goods for the local market or direct production for export (Leung 2010).

That euphoric period came to a halt with the Asian Financial Crisis in 1997. However, that crisis may have merely accentuated a decline that was already in progress. The difficulties of doing business in Vietnam were becoming more apparent and there were fears that reforms were stalled (Freeman 2002). FDI did not disappear altogether but its level (relative to GDP) had fallen to 3.4 per cent by 2002 (from 9.6 per cent in 1997). Thereafter, while the rest of South East Asia recovered its previous levels of FDI, Vietnam's FDI levels continued to stagnate until 2006 (Figure 11.B1).

The second wave of reforms began at the turn of the century with the revision of the Law on Foreign Investment, and new Enterprise Law (2001). This was followed by a Second Enterprise Law (2005) and a Common Investment Law (2006). The purpose of these laws was to further even the playing field for the private and state sectors and local and foreign firms (Leung 2010). Though these initiatives result in a marked increase in the rate registration of new businesses, they did not have an effect on the rate of FDI flows (Figure 11.B1). It was Vietnam's accession to the WTO which appeared to revive FDI flows. Membership of the WTO may have been seen as a guarantee that Vietnam would 'play by the rules,' thus 'locking in' reforms and a promise of further market liberalisation as Vietnam moved to meet WTO requirements. The increase in FDI that followed was rapid and was, by and large, maintained through the global economic crisis of 2008–2010 (Figure 11.B1).

Unlike the previous wave of FDI, much of this new wave was directed at supply chain-based production. This can be seen in several attributes of the new inflows. Seventy per cent of the new FDI was concentrated in industry (Bui 2009). An

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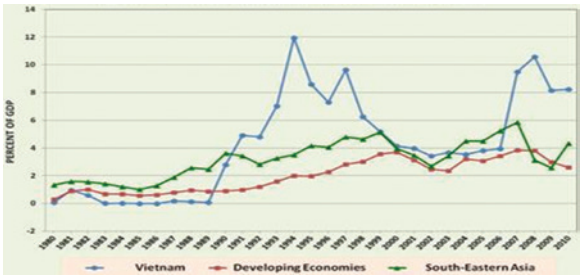
Figure 11.B1 FDI in Vietnam in absolute and relative terms



Source: UNCTAD STAT

increasing number of firms became involved in labour-intensive manufacturing, such as garments, footwear and furniture, and intermediate good imports from China increased sharply (Lueng 2010). The shift to more supply chain-based production was partly engendered by the fact that new laws allowed multinational enterprises to acquire more than 30 per cent of domestic enterprises (as opposed to the joint ventures of the previous wave) and non-labour production and transit costs such as electricity, transportation and telephone were reduced as these sectors (formally monopolised by state-owned enterprises) were opened up to competition (Leung 2010).

concessions, insurance or limited guarantees.[4] This may have the added benefit of making production within supply chains more attractive to nascent firms.

Long-term credit has been an even greater challenge. The use of development banks (or similar public or quasi-public agencies) has been one of the means of providing long-term credit to SMEs. However, novel approaches that seek to change the incentive structure in order to overcome the risk aversion of commercial banks have the advantage of avoiding the added administrative and organisational costs of specialised public agencies. Also, such approaches can use public sector resources (as well as external concessional aid) to leverage domestic bank credit. (Box 11.3 describes a novel and, by and large, successful attempt to improve the financing of SMEs.)

- *Aid for Trade* – the Aid for Trade rubric was developed (at the 2005 WTO ministerial meeting in Hong Kong) precisely to address developing country needs for assistance in trade-related development and adjustment challenges. More precisely, it was meant to help developing countries expand supply-side capacity and trade-related infrastructure to increase potential benefits from WTO agreements (WTO 2005).[5] Among the six recommended areas of emphasis suggested by the resulting Aid for Trade Task Force, two are of particular relevance to supply chain development and maintenance. These are:
    - *Trade development* – support for: building institutions to support business activity, public–private sector networking, development of e-commerce, and trade finance.

- *Building trade related infrastructure* – providing financial and technical assistance for the construction of roads, ports, rail, etc. (at both the national and regional level) as well as support for programmes aimed at improving trade facilitation (WTO 2006).
- Given the limited resource availability that is typical of the LDC context, the ability to access (additional) bilateral and multilateral resources specifically aimed at engendering and supporting trade can prove to be a critical element in improving countries' ability to develop and implement programmes aimed at lowering trade transaction costs in general and encouraging the development of supply chain production in particular.

The GMS endeavours (discussed in Box 11.1) and Cambodia's successful branding of its garment industry (discussed in Box 11.4) are both examples of successful Aid for Trade endeavours. In the case of the GMS, the participating countries have successfully directed external assistance toward the reduction in transportation and logistics costs by improving the quality of the physical infrastructure as well as the 'soft' infrastructure related to trade facilitation (WTO and OECD 2011). In the case of the Cambodia garment industry, aid was used to facilitate a public–private network that allowed the government, on the one hand, to negotiate increased access to the US market and, on the other, to successfully engage the private sector in developing and implementing a programme aimed at guaranteeing adherence to international labour standards (ODI 2009; WTO and OECD 2011).

Box 11.3 Small and medium enterprise financing in Bangladesh

Since the 1980s, both the government of Bangladesh and the central bank, the Bangladesh Bank, have taken a number of initiatives to provide financial assistance to SMEs. These programmes include setting up of a bank, namely the Bank for Small Industries and Commerce (BASIC), in 1988, requiring commercial banks to reserve five per cent of the total loan portfolio for SME financing, and special interest and credit guarantee scheme (Jesmin 2009). Despite all these arrangements, availability of institutional credit for the SME sector still remained grossly inadequate.

In 2004 Bangladesh Bank set up a BDT 10 billion (approximately US$160 million) refinancing scheme for credit to SMEs. According to this programme, participating institutions paid a five per cent interest rate to Bangladesh Bank but were free to choose the lending rate of interest to enterprises. This removed a large part of the risk involved in such lending and allowed the lending institutions to move away from the collateral-based lending approach that had restricted the flow of credit to those enterprises. The International Development Association (IDA) added a further US$10 million to the scheme and the Asian Development Bank (ADB) added a further US$30 million. As of 2011, 43 banks and non-bank financial institutions had used that facility to lend out approximately US$278 million to over 21,000 SMEs (Bangladesh Bank 2011).

Box 11.4 The garment Industry in Cambodia: The advantage of reputation

The development of the garment industry in the mid-1990s was initially motivated by the desire of garment manufacturers in China and other Asian countries to overcome the restrictions of the Multifibre Arrangement (MFA). Exports from these countries were constrained by the quota restriction of the MFA and they sought further access to developed country markets by exporting garments out of countries like Cambodia for whom quota constraints were not yet binding. This advantage was further enhanced when Cambodia signed the Cambodia Bilateral Textile Agreement with the United States of America in 1999. That agreement linked quota access to the US market to garment factory compliance with international labour standards, to be verified directly by International Labour Organization (ILO) monitoring. Within Cambodia, the government, in collaboration with the garment producers and the ILO, developed the Better Factories Programme along with capacity building initiatives to monitor compliance with labour standards and assist factories in meeting and maintaining those standards (ODI 2009). Cambodia was thus able to earn a reputation among buyers as a location of socially responsible garment production (Sotharith 2011). In short, Cambodia guaranteed that the trademark 'made in Cambodia' was equivalent to a guarantee that garments were not produced under 'sweatshop' conditions. Between 1995 and 2005 the number of garment factories in Cambodia increased from 20 to 247 and employment in the industry increased from 18,700 to 283,900 (Ngov 2011).

With the end of the MFA on 1 January 2005, most analyses of the global garment market suggested that Cambodia, with the loss of the particular advantage offered by most favoured nation MFN quotas, would struggle to compete with the larger low-cost producers like China and India and likely lose market share (Nordas 2004). However, contrary to those predictions, garment production in Cambodia continued to expand after the end of MFA quotas until the onset of the global economic crisis (in 2008). Export increased from US$2.2 billion in 2004 to US$2.9 billion in 2007. The number of factories increased from 247 in 2005 to 292 in 2007, and employment increased, from 283,900 to 335,000 in the same period (Ngov 2011). Given that Cambodia did not experience a significant decrease in cost, it is very likely that it was able to continue to expand garment production and exports because of its ability to trade on its reputation.

11.3.3 Directed industrial policy

The limited institutional, financial, and human resources (as well as administrative capacity) of most LDCs governments does not make broad-based industrial policy a practical option for these countries (UNCTAD 2008). However, policies aimed at reducing or side-stepping specific constraints are well within the capability of all

LDCs and are part of the efforts to improve the operational environment for supply chain-based production. These include:

- *The use of geographically or institutionally constrained programmes* – While economy-wide liberalisation, and immediate improvements in physical and economic infrastructure may be infeasible for most LDCs, it may well be possible to offer these advantages within a confined geographical space. Export processing zones (EPZs) and export oriented unit (EOU) schemes, for example, allow countries to offer nearly idealised environments for production and trade (in terms of simplified rules, adequate physical infrastructure (for EPZ) and minimal taxes and tariff rates) well before the general economy has the capacity to offer a significantly improved environment for production and trade (UNCTAD 2008; USAID 2005). As Box 11.4 indicates, Cambodia was not only able to use its EPZs to offer to lower transaction costs for firms well below what it could offer these advantages on an economy-wide basis; the country was also able to enhance its comparative advantage beyond cheap labour by attaching socially desirable attributes to its products.
- *Targeted improvements in the business climate* – As the Rwandan experience (Box 11.5) demonstrates, an LDC can, and should attempt to, make significant improvements to the business climate by targeting specific laws and regulations and developing organisations that advance both the needs of the private sector for clarity and speed (in the determination and execution of administrative protocols) and the general society's need for a functional and coherent commercial code that protects the public trust.

Box 11.5 Rwanda: Removing impediments to commerce

Although a densely-populated and landlocked LDC, Rwanda has become one of the easiest places in Africa, and indeed the world, to engage in business activity. According to the 2014 rankings based on the Ease of Doing Business Index published by the International Finance Corporation, Rwanda placed 32nd out of 189 countries and 2nd in the Sub-Saharan African region, behind only Mauritius (World Bank 2013). What makes Rwanda a favourable place for investors?

Following the genocide in 1994, the immediate priorities for the Rwandan Government were to restore peace, resettle displaced people, and promote national reconciliation. Thus, the first phase of reform from 1995 to 1997 mainly focused on reviving economic activities, restoring macroeconomic stability and budget management (Government of Rwanda 2001). However, in the second phase of economic reform (1998–2003), Rwanda focused on promoting private industry, along with macroeconomic reforms and trade liberalisation. The measures taken included: simplifying business licensing requirements and revising the labour code to remove restrictions on the movement of labour. During the same period, the government established the Rwanda Investment

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and Exports Promotion Agency (RIEPA) to facilitate private investment and business activities. One of the most significant achievements of the government during the late 1990s was to implement the Investment Promotion Act in 1998, which established a one-stop centre to promote private investment, exports, and enterprise development. In April 2000, the government-run Chamber of Commerce was abolished in favour of the Rwanda Private Sector Foundation (comprising of various private sector organisations) to represent private sectors interests (Government of Rwanda 2001).

Since 2004, Rwanda has undertaken a number of initiatives to improve its position in the Doing Business Index ranking list. In 2005, the law reform commission was established to review the existing business laws and recommend efficiency. A new company law was passed to simplify business start-up and strengthen minority shareholder protections. Additionally, two new laws were implemented to facilitate business. The first law allowed for the securing of lending using a wider range of assets as collateral. The second law made out-of-court enforcement of movable collateral available to provide creditors with absolute priority bankruptcy proceeding (*Business Times Magazine* 2009). In 2007, the Government of Rwanda established the Rwanda Commercial Registration Agency to reduce administrative hassle. During the same year, the cabinet directed RIEPA to co-ordinate the regulatory reforms and improve Rwanda's ranking in the Doing Business Index. A new Doing Business Unit was also established in December 2007 to support the national steering committee on doing business. In August 2008, the Rwanda Development Board was established by bringing together all the government agencies responsible for business registration, investment promotion, environmental clearances, privatisation and specialist agencies that support the priority sectors of information and communication technology (ICT) and tourism as well as SMEs and human capacity development in the private sector.

Rwanda jumped ten positions in the Doing Business Database index from 2008 to 2009 and the 2010 Doing Business Report recognised Rwanda as the top reforming country in the world.

11.4 South Asian least developed countries in context

11.4.1 Country-level profiles

The constraints listed above would seem to suggest that LDCs, in general, face significant hurdles in trying to integrate into regional supply chains. However, even among LDCs, these constraints are neither universal nor immutable. Many LDCs demonstrate profiles that indicate that they have either overcome some of these constraints (quite profoundly in some cases) or were always exceptional in particular areas. In general, South Asian LDCs are advantaged relative to the LDC group. With respect to many (though not all) of these attributes, they tend to cluster near the

lower end of the spectrum (in terms of the magnitude of the constraints) or have demonstrated rapid improvement in recent years. This suggests that the impediments to rapid integration of these countries into regional supply chains may be lower than it would be in other regions. However, in terms of precursors and preconditions, this region has both negatives and positives with which to contend. On the negative side, its record of intra-regional trade is poor. It is structurally less differentiated than East Asia, and faces significant historic and political challenges to regional co-operation. On the positive side, all of the countries in the region, including the LDCs (with the notable exception of Afghanistan) have already developed some capacity in export manufacturing (particularly in the garment industry), the region is proximal with East Asia and, crucially, formal institutions of regional economic integration do not appear to be critical to the development of regional supply chains. Below, we discuss some of the structural attributes of the South Asian LDCs and how they compare with other LDCs.

Relative to the LDC average, South Asia does not perform particularly well in terms of transportation costs, transit speeds, and the quality of logistics services, in general. However, this is, in large part, a reflection of the landlocked status of three of the four South Asian LDCs. Across all the criteria examined in Table 11.1, Bangladesh performs above the LDC average, in terms of transportation cost, and better than Senegal (which recorded the best logistics performance of all LDCs). Among the landlocked countries, Afghanistan, not unexpectedly, performs below the LDC average in all criteria examined, but Bhutan and Nepal both face cheaper transportation costs than Uganda (also landlocked but relatively high-performing), though they did not perform comparably in terms of logistics services and time to market.

Table 11.1 Measures of transportation and logistics efficiency: South Asia and others

Country name	Overall Logistics Performance Index: (1=low, 5=high)	Cost to export (US$ per container)	Cost to import (US$ per container)	Time to export (days)	Time to import (days)
Afghanistan	2.2	3,545	3,830	74	77
Bangladesh	2.7	965	1,370	25	31
Bhutan	2.4	2,230	2,805	38	38
India	3.1	1,095	1,070	16	20
Maldives	2.4	1,550	1,526	21	22
Nepal	2.2	1,960	2,095	41	35
Pakistan	2.5	660	705	21	18
Sri Lanka	2.3	715	745	21	19
Benin	2.8	1,049	1,496	30	32
Senegal	2.9	1,098	1,740	11	14
Uganda	2.8	2,880	3,015	37	34
LDCs	2.4	1,825	2,262	33	37

Source: World Development Indicators (World Bank)

In terms of the availability and cost of communication, the picture for South Asian LDCs is mixed. Only Bhutan has a better connection density than the LDC average and Bangladesh is, surprisingly, very far below the average (Table 11.2). However, countries in the South Asian region appear to be making significant progress in terms of reducing communication costs. As Table 11.3 shows, three of the top ten countries, in terms of the rate of price reduction for telecommunications services, are from South Asia and two of them (Bhutan and Bangladesh) are LDCs. Therefore, though connectivity, and particularly broadband connectivity, still remains well below the rate of other regions, such as East Asia, progress on the price front is encouraging.

Table 11.2 Internet connection: South Asia and other LDCs

Country name	Fixed broadband subscriptions per 100 inhabitants	Fixed internet subscriptions per 100 inhabitants
	(Latest data from 2006–10)	
Afghanistan	0.0	0.0
Bangladesh	0.1	0.0
Bhutan	1.4	1.2
India	1.5	0.9
Maldives	5.3	4.8
Nepal	0.4	0.2
Pakistan	1.9	0.3
Sri Lanka	1.4	1.1
Tuvalu	8.2	3.3
Dejbouti	1.3	0.9
Yemen	2.4	0.4
LDCs	0.7	0.2

Source: ITU Database

Table 11.3 Decrease in ICT price basket (top ten economies)

Country	ICT price basket 2008	ICT price basket 2010	Percentage change 2008–10 (%)	Value change 2008–10
Azerbaijan	9.9	1.8	**81.7**	–8.1
Bhutan	14.7	3.6	**75.4**	–11.1
Sri Lanka	7.3	2.4	**67.4**	–4.9
Bangladesh	36.4	12.6	**65.2**	–23.7
Venezuela	4.3	1.6	**62.9**	–2.7
Guyana	17.7	8.5	**51.6**	–9.1
Uganda	61.8	30.2	**51.1**	–31.6
Austria	1.1	0.6	**50.4**	–0.6
Moldova	10.8	5.4	**49.8**	–5.4
Tanzania	57.0	31.4	**44.9**	–25.6

Source: International Telecommunication Union (ITU)

As Table 11.4 shows, some LDCs, in various regions, have managed to reduce the number and cost of (electrical) power outages as well as the value lost due to these outages to levels comparable with those of some industrialised developing countries. This clearly suggests that unreliable utility provision is not something the LDCs have to live with. However, only Bhutan, in South Asia, has indicators that suggest just a modest number of electrical outages (and, therefore, a modest loss of value as a result). South Asian countries (non-LDCs included) do not have a very good record of electricity provision and the LDCs of the region (excepting Bhutan) have a particularly poor record. This is definitely an area is which rapid progress is desirable.

In terms of the transaction costs of doing business (as summarised in the Ease of Doing Business Index), South Asian LDCs (with the exception of conflict-ridden Afghanistan) rank above the LDC average (Table 11.5). With respect to the specific transaction costs of registering a business; the number of procedures involved; and the time required to complete the process, all four South Asian LDCs (including Afghanistan) perform at or above the LDC average. In fact, their registration procedures are simpler than those of both India and Sri Lanka – countries that are perceived as being significantly more economically advanced. In terms of the time required to resolve insolvency, however, only Afghanistan (among the LDCs) performs better the LDC average. In any case, there is still a great deal of room for improvement, given that Rwanda, another LDC, demonstrates significantly better performance than any South Asian LDCs has been able to achieve across all criteria (see Box 11.5).

With the exception of Afghanistan, South Asian LDCs appear to outperform non-LDCs in the region in terms of financial depth (at least that of the banking sector) and, though evidence is limited, the efficiency of financial intermediation (as

Table 11.4 South Asia and others: Effect of electrical power outages

Country name	Number of power outages in a typical month (firm level)	Value lost due to electrical outages (% of sales)
	(Latest data for 2006–10)	
Afghanistan	20.3	6.5
Bangladesh	101.6	10.6
Bhutan	3.1	4.3
India		6.6
Maldives		
Nepal	52.0	27.0
Pakistan	33.9	9.2
Sri Lanka		
Eretria	3.0	0.2
Vanuatu	2.3	1.2
Mozambique	3.0	2.4
Lao PDR	1.5	4.3

Source: World Development Indicators (World Bank)

Table 11.5 Comparative transaction costs of doing business

Country name	Ease of Doing Business index (1=most business-friendly)	Cost of business start-up procedures (% of gross national income per capita)	Start-up procedures to register a business (number)	Time required to start a business (days)	Time to resolve insolvency (years)
Afghanistan	160	25.8	4	7	2
Bangladesh	122	30.6	7	19	4
Bhutan	142	7.2	8	36	
India	132	46.8	12	29	7
Maldives	79	8.9	5	9	1.5
Nepal	107	37.4	7	29	5
Pakistan	105	11.2	10	21	2.8
Sri Lanka	89	4.7	4	35	1.7
Rwanda	45	4.7	2	3	3
Samoa	60	9.7	4	9	2.5
LDCs	143	88.9	8	36	3.7

Source: World Development Indicators (World Bank)

measured by the spread between lending and deposit rates) is at least comparable to that of the non-LDCs in the region (Table 11.6). South Asian LDCs also compare favourably with the better performing LDCs outside the region. The overall level of financial depth and quality of intermediation of LDCs, in general, and South Asia, in particular, would need to improve substantially to accommodate the needs of SMEs in the context of supply chains, but at least one LDC in the region appears to have explicitly taken up this challenge (see Box 11.3).

In terms of their ability to offer a literate and skilled work force, South Asian LDCs (except for Afghanistan) are well behind India, Maldives and Sri Lanka but have better profiles than Pakistan (Table 11.7). The youth literacy rate and the level of enrolment at the secondary and tertiary level suggest that potential investors in these economies can have a reasonable expectation of a relatively literate population with a significant proportion with secondary education. Enrolment in tertiary education still remains low in South Asian LDCs, but the levels are still above the LDC average.

With respect to governance capability, South Asia presents a mixed bag relative to other LDCs when compared in terms of government effectiveness, quality of regulations and the rule of law (Table 11.8). Not unexpectedly, Afghanistan performs very poorly (well below the LDC average) on all measures. In terms of government effectiveness, only Bhutan performs above the LDC average. In terms of quality of regulations, Bangladesh and Nepal are above the LDC average and, in terms of evidence of the rule of law, Bangladesh and Bhutan are above the LDC average (the latter strongly so). In short, with the exception of Afghanistan, the performance of

Table 11.6 Indicators of financial depth and quality of intermediation

Country name	Broad money (% of GDP)	Domestic credit to private sector (% of GDP)	Interest rate spread (lending minus deposit rate, %)
Afghanistan	28.6	10.5	
Bangladesh	61.5	47.1	5.9
Bhutan	69.6	43.3	
India	69.6	49.0	
Maldives	60.9	64.6	6.3
Nepal	71.3	55.6	4.4
Pakistan	38.5	21.5	5.9
Sri Lanka	34.8	26.6	3.3
Mozambique	36.6	25.8	6.6
Samoa	49.9	45.0	8.0
Tonga	44.9	42.0	7.5
Vanuatu	87.4	65.8	

Source: World Development Indicators (World Bank)

Table 11.7 South Asia: some education indicators

Country name	Literacy rate, youth total (15–24 yrs, %)	School enrolment, secondary (% gross)	School enrolment, tertiary (% gross)
Afghanistan		45.5	3.3
Bangladesh	75.5	49.3	10.6
Bhutan		70.1	8.8
India	81.1	60.2	16.2
Maldives	99.3		
Nepal	82.0	43.5	
Pakistan	71.1	34.2	5.4
Sri Lanka	98.0	26.6	15.5
LDCs	73.9[a]	35.7	5.7

Note: [a]Average across 36 countries, most recent year from 2006–2011.
Source: World Development Indicators (World Bank)

Table 11.8 Performance of South Asian LDCs in terms of government capability

Country	Percentile rank in terms of:		
	Government effectiveness	Quality of regulations	Rule of law
Afghanistan	3.3	2.9	0.5
Bangladesh	16.7	23.3	27.8
Bhutan	64.8	13.8	59.4
Nepal	18.1	23.8	17.9
LDC Average	21.8	22.1	25.3

Source: Worldwide Governance Indicators (World Bank)

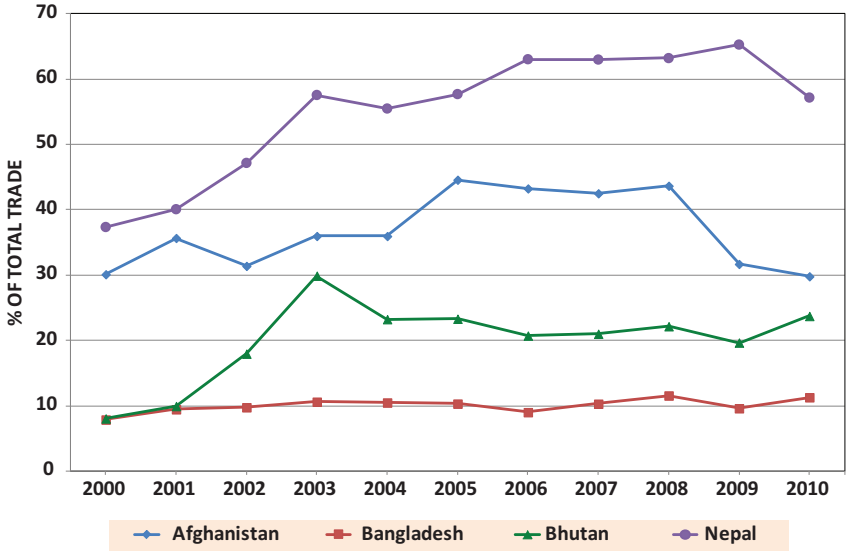
these countries is uneven across measures of governance – suggesting that (except for Afghanistan) the region's LDCs are, more or less, typical.

11.4.2 A regional profile

The current trading profile and degree of structural differentiation does not necessarily make South Asia an obvious region for the operation of regional supply chains. Intra-regional trade is not only very low, it is lower in South Asia than any other developing region. Moreover, intra-South Asian trade does not appear to be growing relative to regional output. Even an upward revision to accommodate the large amount of unrecorded intra-regional trade (a consequence of the persistent high tariffs and long stretches of unpatrolled borders) would not likely change that picture substantively (Srinivasan 2002). Intra-regional trade accounts for a higher than (regional) average proportion of the total trade of landlocked Afghanistan and Nepal, and even Bhutan (which is also landlocked) has very limited trade with its regional neighbours and Bangladesh, has even less (Figure 11.1). The development of supply chains in the region will have to overcome the extra-regional trade biases that these figures suggest.

In terms of productive structure, South Asia shows limited structural differentiation across countries compared, for instance, to East Asia. As Table A11.1 indicates, the importance of manufacturing (in total output) and of high technology exports (as a proportion of total exports) vary much more widely across East Asian nations than across South Asian nations. In fact, even relatively industrialised India exports a lower proportion of high-technology goods than unindustrialized Mongolia. It is, therefore, not obvious that the chain of production that stretches from design and invention in South Korea and Japan to labour-intensive assembly in Lao PDR or Cambodia (with intermediate steps in other East Asian countries) is immediately

Figure 11.1 South Asian LDCs and intra-regional trade



Source: Direction of Trade Statistics (IMF)

reproducible in South Asia. However, this may be balanced by the fact that the export of manufactured goods is already dominant for all but two of the South Asian countries. Thus, while limited differentiation may mean that, in the immediate term at least, regional supply chains might need to be less differentiated than most Asian supply chains (or only part of the production chain can be located in this region), the prevalence of manufactured product in regional exports also means that some basic infrastructure for the production of manufactured goods already exists in South Asia. Countries such as Bangladesh, Nepal, and Pakistan may be able to host, simultaneously, both labour-intensive assembly-type activities and more technically demanding intermediate activity across different supply chains, while India may be able to straddle all but the most technically demanding aspects of the production process. In short, it is unlikely that South Asia will replicate the 'flying geese' model in the classic sense, so famously attributed to East Asian industrial development.

For South Asia, there are at least two alternative (origins and) configurations for regional supply chains, and they are not mutually exclusive. One possible configuration would be South Asian integration into larger Asian supply chains. To some extent this is already happening. Japan and Asian newly industrialised countries (NICs) already invest in South Asian countries. South Asian LDCs may offer location advantages at least comparable to those offered by the CMLV countries, while others, such as India, may have comparable location advantages to the ASEAN four (Indonesia, Malaysia, Philippines and Thailand). Another configuration could be a closer regional integration in which South Asian countries try to develop forward and backward linkages across the region within (and across) existing industries. A study of the textiles and clothing (T&C) sector in South Asia, as presented in chapter 5 of this volume shows: (1) that there is substantial potential for forward and backward linkages in the textile and garment industries in the region; and (2) that given that some countries appear to specialise in the production of garments (Bangladesh and Sri Lanka) while others seem to specialise in the production of textiles (Pakistan), there is some potential for country specialisation in various aspects of the production of clothing from the production of raw materials (cotton and silk) to ready-to-wear apparel. It might be noted further that the establishment of regional supply chains within a well-established industry may make it easier to develop additional supply chains in other industries because it would likely involve lower initial costs to establish service links than would be the case for new industries while producing opportunities for static and dynamic economies of scale (in transport and logistics) for other industries (once these links are established).

Though one can identify dominant countries in all regions (either in terms of economic or population size), South Asia is unique even in that regard. The size of India, in relation to its neighbours in South Asia, is much greater than the relative size of any other country (including China) in its region (Table 11.9). This makes the Indian economy, its trade and investment policies, and its political stance even more critical to the economic fortunes of the region. The fact that India is the most industrialised of the South Asian countries serves only to magnify its relative economic and political influence. This actual and potential regional hegemonic weight has (and is likely to continue to do so) complicated efforts at regional co-operation, since other

Table 11.9 Relative dominance of regional powers

Region (largest country)	Income (% or regional total)	Population (% of regional total)
East Asia and Pacific (China)	36.5	60.8
Eastern Europe and Central Asia (Russia)	7.4	15.9
Latin America and the Caribbean (Brazil)	40.8	33.1
Middle East and North Africa (Saudi Arabia)	17.6	
Middle East and North Africa (Egypt)		21.2
South Asia (India)	82.6	75.0

Source: World Development Indicators (World Bank).

countries in the region may be overly sensitive to any set of institutions or policies that are seen to add to India's already dominant position. This may be a large part of the reason South Asia has been slow in constructing formal institutions aimed at regional economic integration. The SAFTA was not signed until 2004 and the planned achievement to a zero tariff regime for non-LDC countries was not expected to occur until 2012 (SAARC 2004). Moreover, despite the signing of the trade agreement, actual implementation has been held hostage to politics. Pakistan did not accord India with most favoured nation (MFN) status – a fundamental requirement of the trade agreement – until 2011. However, based on the East Asian experience, it would appear that formal agreements are not critical to supply chain expansion. Therefore, much progress may be possible with unilateral and informal arrangements that aim to ease the movement of firms as well as goods and services.

11.5 Conclusion

This chapter began by providing an assessment of the challenges and constraints facing LDCs wishing to integrate into regional supply chains. We then looked more specifically at South Asian LDCs in terms of how they compared to other LDCs, and then examined the prospect of supply chain development in the South Asian region.

In general, this chapter finds that the LDCs of South Asia (with the notable exception of Afghanistan) are relatively well appointed when compared to other LDCs. They are already engaged in significant levels of manufacturing for export, have reasonably well educated populations (in LDC terms), and have rapidly falling telecommunications costs. However, the transaction costs of doing business in the LDCs of this region remain high, its governance indicators are uneven, and the region is structurally quite different from East Asia – the region most noted for the development of supply chains. Also, progress on regional trade and economic integration has been slow and the potential hyper-dominance of India may make further progress less attractive than it might have been. However, the East Asian experience suggests that most of the accomplishments needed to engender the development of regional supply chains can be accomplished either as unilateral policy initiatives by individual countries or as the product of relatively informal arrangements to produce regional public and quasi-public goods. Moreover, instigating the links between spatially separate activities may be the most difficult part of supply chain development and, in that

area, South Asia may have an advantage. There are already opportunities to develop forward and backward linkages within and across existing industries that are region-wide. Success will likely require complementary policies in improving transport and logistics services across the region, attracting intra-regional and extra-regional FDI, improving financing to allow greater participation of local SMEs, and improving the local transaction costs of doing business across regional LDCs in particular and the region in general. These are significant challenges that will likely require external assistance (through Aid for Trade and other initiatives) but the experiences of other LDC and low-income countries suggest that these are achievable objectives.

The limited differentiation of South Asia and, in particular, the absence of a developed knowledge-based economy in its midst, may mean that the top-down development of supply chain linkages that occurred in East Asia is unlikely in South Asia. However, South Asia may be able to use its proximity to East Asia to develop South Asian regional branches of larger Asia-wide or global supply chains. Current FDI flows from Japan and the Asian NICs into South Asia suggest that, to some extent, this may be occurring already.

Notes

1 Of course, such supply chains can also be (and often are) global, linking countries across several world regions.
2 Logistics, in this context, refers to 'the part of the supply chain process that plans, implements, and controls the efficient, effective flow and storage of goods, services, and related information from the point of origin to the point of consumption, in order to meet consumers' requirements' (de Souza et al. 2007).
3 Density is measured with respect to the combined number of mobile and landline phones. All of the increase has been with respect to the former, since the latter remained stagnant relative to 2001.
4 Inter-firm financing through trade credit was a very important tool in the early industrialisation of Japan.
5 Compensation for the loss of trade preferences and the loss of revenue from the adoption of more liberalised trade regimes were also considerations (ODI 2009).

Appendix 11.1

Table A11.1 Profile of manufactured exports in South and East Asia

	Manufacturing value added (% of GDP)	Manufactured exports (% of merchandise exports)	High-technology exports (% of manufactured exports)
South Asia			
Afghanistan	13.1	19.6	
Bangladesh	17.9	88.3	1.2
Bhutan	8.4	69.5	0.1
India	14.2	63.8	7.2
Maldives	3.8	0.1	0.0
Nepal	6.6	72.3	0.6
Pakistan	16.8	74.1	1.7
Sri Lanka	18.0	66.5	1.0

(*continued*)

Table A11.1 Profile of manufactured exports in South and East Asia (Continued)

	Manufacturing value added (% of GDP)	Manufactured exports (% of merchandise exports)	High-technology exports (% of manufactured exports)
East Asia			
Cambodia	15.6	96.1	0.1
China	29.6	93.6	27.5
Indonesia	24.8	37.5	11.4
Japan	18.1	89.0	18.0
Korea, Rep. of	30.6	89.0	28.7
Lao PDR	7.6		
Malaysia	26.1	67.2	44.5
Mongolia	7.3	5.6	7.4
Myanmar	19.5		
Philippines	21.4	85.8	67.8
Singapore	22.2	73.1	49.9
Thailand	35.6	75.3	24.0
Vietnam	19.7	60.1	6.2

Source: World Development Indicators (World Bank)

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