South Asian cooperation

Issues old and new

Edited by
Paras Kharel

sawtee

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First Edition	:	2018
Cover & Design	:	Bipendra Ghimire
Cover Photo	:	NASA Earth Observatory images by Joshua Stevens, using Suomi NPP VIIRS data from Miguel Román, NASA's Goddard Space Flight Center.
ISBN	:	978-9937-8504-9-0
Printing	:	City Press, Lalitpur

Views expressed in this volume are those of the authors, and do not necessarily reflect the views of SAWTEE and its member institutions, and the organizations the authors are affiliated with.

Foreword

Nepal played a pivotal role in the establishment of the South Asian Association for Regional Cooperation (SAARC) in 1985 and remains committed to the regional integration process under it. SAARC was established with the belief, among others, that economic, social and technical cooperation among the countries of South Asia would contribute significantly to national and collective self-reliance. Progress has been made in different areas of cooperation, but a lot more remains to be achieved. There is a lot to learn from successful examples of regional cooperation initiatives in other parts of the world, from Europe to Southeast Asia, where regional cooperation, including economic integration, has yielded positive and tangible benefits to the people at large.

Track II activities have contributed to regional cooperation, especially when the official process slowed down. These activities include research, advocacy and constant dialogue, complementing cooperation initiatives at the official level. The National Planning Commission (NPC), Government of Nepal, is cognizant of the importance of the Track II process in taking the regional cooperation agenda forward. Accordingly, the NPC, along with the Ministry of Commerce, partnered with South Asia Watch on Trade, Economics and Environment (SAWTEE) in organizing the Tenth South Asia Economic Summit (SAES) in Kathmandu on 14–16 November 2017. The Summit saw the participation of stakeholders from all eight South Asian countries, including par-

liamentarians, policymakers, academics, researchers, and private sector entrepreneurs.

I am pleased that SAWTEE is publishing this volume, comprising papers written by experts who also draw on the discussions at the Tenth SAES. Given the breadth of topics covered, including emerging issues, and the depth of their treatment, I believe that this book will be a valuable resource for anyone interested in regional economic cooperation issues in South Asia. The rich analyses and discussions in the book could serve as inputs to the official regional cooperation process.

Prof Dr Puspa Raj Kadel
Vice-Chairman
National Planning Commission
Government of Nepal

Preface

Five leading think tanks of South Asia joined forces in 2008 to organize a South Asia Economic Summit (SAES) in Colombo. The idea was to provide a stable, regular platform for stakeholders of the regional economic cooperation agenda to meet and discuss issues of regional concern. SAES has been held every year since then, with the five think tanks, one each from Bangladesh, India, Nepal, Pakistan and Sri Lanka, taking turns to play the host.

Having hosted the Third SAES in 2010, South Asia Watch on Trade, Economics and Environment (SAWTEE) organized the Tenth SAES in Kathmandu on 14–16 November 2017. It was a grand success, with the participation of over 100 individuals from all member states of the South Asian Association for Regional Cooperation (SAARC). Ministers, parliamentarians and top policymakers were also in attendance.

The Summit was spread over 4 plenary sessions and 14 parallel sessions, under the overall theme of *Deepening Economic Integration for Inclusive and Sustainable Development.* Apart from the state of overall economic cooperation in South Asia, the sessions covered a variety of topics, including the role of SAARC Observers, trade, investment, Sustainable Development Goals, climate change, e-trade readiness, disaster risk reduction, World Trade Organization issues, trade facilitation and connectivity, migration and remittances, intellectual property with regard to plant genetic

resources, rural economies and small and medium-sized enterprises, energy cooperation, regional value chains, and data for economic measurement.

The discussions that took place at the Tenth SAES form the bedrock of this book. In general, the chapters are revised versions of papers presented at the Summit or commissioned after the Summit.

I would like to thank the National Planning Commission (NPC) of the Government of Nepal and the Ministry of Commerce of the Government of Nepal for joining hands with SAWTEE in organizing the Tenth SAES, making it an excellent example of how government and civil society can collaborate to contribute to the regional cooperation agenda. Special thanks go to Mr Meen Bahadur Bishwakarma, the then Minister for Commerce, and Dr Swarnim Waglé, the then Vice-Chairman of NPC, for spearheading the collaboration.

I would also like to thank Mr Chandra Ghimire, Secretary, Ministry of Commerce, and Mr Rabi Shankar Sainju, Joint Secretary, Ministry of Commerce, as well as Mr Bishnu Prasad Lamsal, the then Member Secretary, NPC, and Mr Khomraj Koirala, Joint Secretary, NPC, for their unstinted cooperation. I would like to express my sincere gratitude to all the partners (see sawtee.org/saes/) for their generous support, including financial, for the event and the publication of this book. Last but not least, I would like to thank all the participants of the Summit as well as the editor and the authors.

Posh Raj Pandey, PhD
Chairman
SAWTEE

Contents

Foreword
Preface
List of tables
List of figures
List of boxes
Abbreviations and acronyms

Chapter 1
Insights into regional issues 1
Paras Kharel

Chapter 2
Saman Kelegama: A tribute to a citizen of South Asia 19
Rehman Sobhan

Chapter 3
Whither SAARC? 27
Deepak Nayyar

Chapter 4
External Observers: Game changer for SAARC? 35
Debapriya Bhattacharya

Chapter 5
Potential for intraregional investment 45
Indra Nath Mukherji

Chapter 6
Connectivity 2.0 for South Asia Economic Union 71
Prabir De

Chapter 7
Regional value chains: Pakistani perspectives 91
Vaqar Ahmed, Syed Shujaat Ahmed and Asif Javed

Chapter 8
Nuances in agriculture mechanization 111
Avinash Gupta

Chapter 9
Assessing e-trade readiness 133
Ratnakar Adhikari and Daria Shatskova

Chapter 10
Energy cooperation: Pitfalls and pathways 167
Dipak Gyawali

Chapter 11
Community-based climate change adaptation 189
Aneel Salman, Muhammad Iftikhar ul Husnain and Sarah Siddiq Aneel

Chapter 12
South Asian migration to and remittances from Gulf 215
S Irudaya Rajan

Chapter 13
Towards improved economic measurement 231
Robert Beyer and Martin Rama

Chapter 14
Data constraints in monitoring SDGs 253
Ganga Tilakaratna

About the authors 275

List of tables

Table 4.1:	List of Observer states	38
Table 4.2:	SAARC: Non-Observer partners	42
Table 5.1:	Average FDI inflows to South Asian countries (as percent of GDP, 2000–2011)	49
Table 5.2:	Sources of FDI in South Asia (as percent of total FDI inflows, 2003–2011)	50
Table 5.3:	Sectoral breakdown of FDI inflows to South Asia (2009)	51
Table 5.4:	Outward FDI flow from South Asia (US$ million, in current prices)	52
Table 5.5:	Investment facilitation: Distance to frontier (0–00)	53
Table 5.6:	Percentage of countries with moderate or heavy convertibility restrictions	54
Table 5.7:	Bilateral investment agreements in South Asia	56
Table 5.8:	Potential sectors for Indian investment to address supply constraints (2015)	62
Table 5.9:	India's intraindustry trade with South Asian countries (2015)	64
Table 5.10:	Illustrative sectors for potential Indian investment based on intraindustry trade (2015)	65
Table 5.11:	Composition of India's trade with South Asian countries (%)	66
Table 5.12:	India's intermediate goods trade with South Asian countries (US$ million)	67

Table 6.1:	Transition of South Asia connectivity	73
Table 6.2:	Corridor development policy	79
Table 7.1:	Global Competitiveness Index (2016–2018)	96
Table 7.2:	Pakistan's sectoral linkages in the region	97
Table 8.1:	Agriculture machinery, Bangladesh (1997–2006)	123
Table 8.2:	Horsepower availability in agriculture by engine size	126
Table 8.3:	Machinery/equipment in agriculture in Nepal	127
Table 9.1	Percentage of the population in South Asian LDCs that lives within the mobile network coverage	141
Table 9.2:	Bhutan's key ICT priorities 2014–2018	147
Table 9.3:	TFA ratification in South Asian EIFCountries	148
Table 9.4:	State of play of the new regulatory mandate in South Asian EIF Countries	152
Table 9.5:	Generations of regulations in South Asian EIF Countries	154
Table 12.1:	South Asian emigration: An overview	218
Table 12.2:	South-South migration stock in South Asia	219
Table 12.3:	Nationals and non-nationals in GCC countries (%)	220
Table 12.4:	Remittance inflows to South Asia and outflows from the Gulf (in US$ billion)	222
Table 13.1:	The relationship between GDP and nightlight is similar in South Asia and elsewhere	239
Table 13.2:	South Asian countries have created a large number of jobs	247
Table 14.1:	Sustainable Development Goals: Targets and indicators	256
Table 14.2:	Availability of gender-disaggregated data for selected indicators	264
Table 14.3:	Availability of location-disaggregated data for selected indicators	266
Table 14.4:	Statistical capacity in South Asia	268

List of figures

Figure 6.1:	Steps to South Asia Economic Union	77
Figure 6.2:	Moving towards economic corridor	78
Figure 7.1:	Growth, trade and taxes in South Asia	94
Figure 7.2:	South Asia applied tariff rates	95
Figure 7.3:	FDI inflow, 2016 (as % of GDP)	98
Figure 7.4:	Electricity and gas tariffs	105
Figure 9.1:	Individuals using the internet in South Asian EIF Countries, 2016	136
Figure 9.2:	Access to electricity in South Asian EIF Countries, 2014	137
Figure 9.3:	Electricity prices in South Asian EIF Countries, 2014	138
Figure 9.4:	Mobile vs fixed internet subscriptions in South Asian EIF Countries, 2016	139
Figure 9.5:	FDI flows into South Asian EIF Countries, 2006–2016	140
Figure 9.6:	Prices of fixed broadband in South Asian EIF Countries, 2017	142
Figure 9.7:	Prices of mobile broadband (500 MB) in South Asian EIF Countries, 2017	143
Figure 9.8:	Availability of internet and computers in South Asian EIF Country households, 2016	144
Figure 9.9:	Enrolment in schools in South Asian EIF Countries, 2016	145
Figure 9.10:	Availability of payment solutions in South Asian LDCs, 2016	150
Figure 9.11:	Restrictions on foreign participation/ownership in South Asian EIF Countries, 2017	153

Figure 9.12: ODA to South Asian EIF Countries, disbursements 157

Figure 11.1: Pillars of community-based adaptation and natural resource management 206

Figure 13.1: Researchers and practitioners see a gap between estimated and actual growth 237
Figure 13.2: Preliminary GDP growth rates can be revised substantially 238
Figure 13.3: Nepal's 2015 earthquakes and trade disruption had large impacts on local GDP 240
Figure 13.4: Districts with more informality were affected more by demonetization in India 241
Figure 13.5: Economists are aware of the challenges posed by the available employment data 244
Figure 13.6: Comparable employment information extracted from over 60 surveys 246
Figure 13.7: Structural transformation is slow and regular employment increases only modestly 248

Figure 14.1: Data availability for SDG indicators: South Asia 259
Figure 14.2: Data availability for SDGs by countries 260

List of boxes

Box 5.1:	Investment cooperation under SAARC: A timeline	47
Box 6.1:	Key policies	80
Box 6.2:	Key trade facilitation priorities in South Asia	81
Box 14.1:	Big data for SDGs	269
Box 14.2:	Bangladesh SDG tracker	270
Box 14.3:	Harnessing data revolution for SDGs	271

Abbreviations and acronyms

2WTS	Two-wheeled tractors
4WTs	Four-wheeled tractors
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
ASYCUDA	Automated System for Customs Data
B2C	Business-to-consumer
BBIN	Bangladesh, Bhutan, India and Nepal
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
CAREC	Central Asia Regional Economic Cooperation
CBA	Community-based adaptation
CBNRM	Community-based natural resource management
CBOs	Community-based organizations
CO2	Carbon dioxide
CPD	Centre for Policy Dialogue
CPEC	China-Pakistan Economic Corridor
CPR	Centre for Policy Research
CRS	Creditor Reporting System
CSCD	Committee for Studies on Cooperation in Development in South Asia
CSOs	Civil society organizations
DMSP	Defense Meteorological Satellite Programme
DTF	Distance to frontier
DTIS	Diagnostic trade integration study
ECE	Economic Commission for Europe

EIF	Enhanced Integrated Framework
FDI	Foreign direct investment
FY	Fiscal year
GATS	General Agreement on Trade in Services
GCC	Gulf Cooperation Council
GDP	Gross domestic product
GEP	Group of Eminent Persons
GLMM	Gulf Labour Markets and Migration
GMS	Greater Mekong Subregion
GNI	Gross national income
GoI	Government of India
GoP	Government of Pakistan
GVC	Global value chain
HDI	Human Development Index
IAEG-SDGs	Inter-Agency and Expert Group on SDG Indicators
ICT	Information and communication technology
IIT	Intraindustry trade
IPS	Institute of Policy Studies of Sri Lanka
ISI	Indian Statistical Institute
ITU	International Telecommunication Union
IWRM	Integrated Water Resources Management
IXPs	Internet Exchange Points
LDCs	Least developed countries
LMRA	Labour Market Regulatory Authority
LPI	Logistics Performance Index
MDGs	Millennium Development Goals
MNCs	Multinational companies
MoU	Memorandum of Understanding
NEA	Nepal Electricity Authority
NGOs	Non-governmental organizations
NSS	National Sample Survey
NTBs	Non-tariff barriers
NTMs	Non-tariff measures
ODA	Official development assistance
OECD	Organisation for Economic Co-operation and Development
OLS	Operational Linescan System
PDF	Project development facility
R&D	Research and development
RIS	Research and Information System for Developing Countries

RVCs	Regional value chains
SAARC	South Asian Association for Regional Cooperation
SACEPS	South Asia Centre for Policy Studies
SAD	South Asia Dialogue
SAES	South Asia Economic Summit
SAFTA	South Asian Free Trade Area
SARCO	SAARC Arbitration Council
SASEC	South Asia Subregional Economic Cooperation
SATIS	SAARC Agreement on Trade in Services
SAWTEE	South Asia Watch on Trade, Economics and Environment
SDGs	Sustainable Development Goals
SDPI	Sustainable Development Policy Institute
SEZs	Special economic zones
SITC	Standard Industrial Trade Classification
SRMTS	SAARC Regional Multimodal Transport Study
TFA	Trade Facilitation Agreement
TFAF	Trade Facilitation Agreement Facility
UAE	United Arab Emirates
UNCTAD	United Nations Conference on Trade and Development
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
VIIRS	Visible Infrared Imaging Radiometer Suite
WTO	World Trade Organization

CHAPTER 1

Insights into regional issues

Paras Kharel

South Asia remains a poorly integrated region economically even 33 years after it formally embarked on regional cooperation through the creation of the South Asian Association for Regional Cooperation (SAARC) in 1985. The regional body has been struggling to hold its annual summits as scheduled—none has been held since the 18th Summit in Kathmandu in 2014. Progress under SAARC has been held hostage chiefly to the ups and downs of bilateral relations between its two largest member states. The rise of subregional and transregional initiatives such as the Bangladesh, Bhutan, India and Nepal (BBIN) initiative or the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) should be seen partly in this context.

Yet, the relevance of SAARC remains intact. While subregional initiatives can potentially facilitate the regional cooperation process, they cannot be a substitute for the broader and more inclusive vision represented by SAARC. This came out strongly at the Tenth South Asia Economic Summit (SAES), held in Kathmandu on 14–16 November 2017. SAES is a civil society-led annual forum that seeks to keep the regional integration and cooperation agenda alive, by taking stock of the achievements thus far and identifying challenges and recommending ways to overcome them. It has been able to bring together a cross-section of stakeholders, from academics to policymakers, parliamentarians and ministers to private sector representatives and development partners, every year without fail since the first summit in 2008 in Colombo.

Those who have had a chance to sit through the first and tenth editions of the conference, a decade apart, must have noticed that some of the themes and issues discussed in the tenth edition were old topics—for example, trade, investment, connectivity, value chains, energy, migration—while others were new, or relatively new, ones—for example, the role of SAARC Observers, harnessing the potential of e-commerce, the 2030 Sustainable Development Agenda, and data for measuring economic performance as well as monitoring progress towards the Sustainable Development Goals.

Besides being extensively discussed in a session on utilizing SAARC Observers, the rise of China came up for discussion in other sessions, too. The Tenth SAES became the first to discuss the role of SAARC Observers in detail, with deliberations naturally centreing around China—a major trade and investment partner of most South Asian countries—and the potential to leverage its resources to achieve SAARC's regional integration goals. The importance of the subject is certain to grow in the coming years.

This book is a selection of insights into different aspects of regional cooperation in South Asia, generated from the Tenth SAES. Including this introductory chapter, it is spread over 14 chapters. Covering issues old and new, some give a regional treatment while others focus on individual countries or a group of countries within the region to make a regional point. The remainder of this chapter gives a summary of the rest of the book.

A tribute

Saman Kelegama, a well-known economist and a passionate advocate of the regional integration agenda in South Asia, passed away, prematurely, on 23 June 2017. The South Asia Economic Summit owes it very conception to Kelegama. In Chapter 2, Rehman Sobhan pens a tribute to Saman, the man, the economist and a "citizen of South Asia." In detailing Kelegama's contribution to the cause of creating a South Asian community, the author provides a brief history of Track II initiatives for regional economic cooperation in South Asia.

Sobhan expresses concern over governments of SAARC member states, especially the larger ones, appearing to have lost faith in SAARC and to be looking towards alternative groupings. He urges those working on the regional integration agenda to invest their "skills with the same degree of passion and commitment which Saman brought to this mission."

Future of SAARC

In Chapter 3, Deepak Nayyar ponders the future of regional cooperation in South Asia against the backdrop of the slow progress so far. He argues that the logic of regional cooperation—rooted in benefits along both the economic and political dimensions—is as strong as ever. Of the three actors, he points out, governments are often the stumbling blocks to regional cooperation, whereas the other two—markets and people—want such cooperation. He senses a possibility that once the economic benefits of cooperation become visible, governments might be compelled to stop being roadblocks. The author sees a potential in subregional and transregional initiatives to revitalize the SAARC process by having powerful demonstration effects. He calls on civil society institutions, intellectuals and citizens in South Asian countries to come together to "preserve the spirit of SAARC as an organization and the idea of South Asia as a region."

Role of Observers

Against the backdrop of the "paralysis" the official SAARC process has fallen into, Debapriya Bhattacharya asks, in Chapter 4, whether the nine Observer states in the regional body can become a game changer in terms of giving it a shot in the arm. The question is based on the fact that the Observers have significant economic and political ties with the member states. Before suggesting an answer, he explores the mandate provided to these Observers and other partner institutions, compares the same with the role of Observers in other regional bodies, and reviews the state of engagement of

SAARC Observers. While SAARC Observers are allowed limited participation in SAARC ministerial meetings and Summits, the author points out, they are permitted to make proposals on cooperation and joint venture projects with the approval of the relevant SAARC committees. A moratorium is in place since 2008 on the induction of additional Observers.

Bhattacharya discusses China's seeking a special strategic role in South Asia, including through the SAARC process, and India's wariness of the idea of any upgradation of China's status in the regional body. The 18th SAARC Summit, in 2014, decided to give a greater role to Observers of SAARC, providing for their engagement in "productive, demand-driven and objective project based cooperation in priority areas as identified by the Member States." While this could pave the way for them to become Dialogue Partners, which would allow them a much deeper and strategic engagement, the author notes that a five-year moratorium was introduced in 2015, at India's initiative, on elevating the status of Observers. Given the pace of globalization and China's expanding ties with SAARC member states, the author considers India's reluctance to allow China a greater role in the regional body to be facing challenges.

Bhattacharya identifies two hindrances to utilizing the Observers and thereby revitalizing the SAARC process. He is sceptical that the Observers will be able to play the role of a game changer when the member states themselves are far from keen on the SAARC process. He is also of the view that the current gridlock in SAARC is unlikely to allow the clarification and strengthening of modalities on utilizing the Observers—critical for them to be able to engage more productively with the regional body.

Investment

Low intraregional investment flows have long been identified as holding back greater intraregional trade. While regional economic integration initiatives under SAARC have traditionally focused on trade integration, in the last decade or so, there have been attempts

at reaching agreements on investment cooperation. Yet, the draft SAARC Agreement on Promotion and Protection of Investments has been in limbo. In Chapter 5, Indra Nath Mukherji examines the nature of intraregional investment flows, by countries of origin and destination, and the causes of low intraregional investment in South Asia. He also examines bilateral investment treaties in the region and the proposed draft SAARC Agreement on Promotion and Protection of Investments. The bilateral treaties are mostly of the vintage of the 1980s and 1990s, with no reference to sustainable development, or to dimensions of social investment such as human rights, labour, health and corporate social responsibility.

Mukherji also finds the draft SAARC investment agreement to be deficient in content and suggests a comprehensive redraft in consonance with the changes in jurisprudence and experiences gained by member states since it was drafted. As with the bilateral agreements, the draft regional agreement makes no reference to any regulatory measures aimed at social protection or sustainable development. It also adopts an asset-based definition of investment. It does not oblige a member state to extend to the investors of other member states benefits in any bilateral agreement relating to investment to which it is, or becomes, a party. Further, the clause on expropriation makes no reference to indirect appropriation.

The author then examines India's Model Bilateral Investment Treaty, released in December 2015, highlighting provisions that he believes are more in line with modern times, before briefly touching on the investment aspect of the SAARC Agreement on Trade in Services (SATIS). He observes that progress on the scheduling of commitments under SATIS has been lacklustre as offers made so far are "GATS- minus" and more restrictive than unilateral policies. He notes that services being a high-potential area for foreign investment, an early operationalization of SATIS is essential. At the bilateral level, he suggests India update its bilateral investment agreements with its South Asian neighbours in line with its model treaty. Joint Interpretive Notes, such as the one that India adopted with regard to its investment agreement with Bangladesh, giving further clarity to the interpretation of the agreement, should be

pursued with other neighbours, too. The chapter also identifies potential areas for investment cooperation in the region.

Connectivity

Transport connectivity in the region has regressed in the last seven decades. In Chapter 6, Prabir De emphasizes an efficient, secure and integrated regional transport network as a prerequisite for intraregional trade growth and, ultimately, the formation of a South Asia Economic Union. He notes that while the South Asia connectivity agenda has moved from a trans-Asian architecture in the first two decades of SAARC to sectoral and region-specific connectivity, and measures have been taken to improve transport connectivity at the national level, a common set of region-wide facilitation measures is yet to be undertaken targeting compliance with a single standard. The chapter presents the basic principles that should guide South Asia's transport connectivity over the next decade, outlining the connectivity needed to facilitate the next phase of the South Asian integration process.

Development of transport corridors and transforming them first into trade corridors and then into economic corridors at the regional level will be key milestones in the move towards an economic union. Individual countries in the region have national priorities for corridor development (which feature, for example, building rural roads and rural growth centres), De notes, but turning national-level initiatives into even a narrow regional corridor, featuring seamless trade facilitation and logistics, requires the linking of national plans and corridors. South Asian countries must, therefore, get their act together to implement a regional trade facilitation and connectivity agenda comprising regional corridors, a regional single window, regional transit, a one-stop border post and coordinated border management. The author recommends a number of actions to be taken with priority. He suggests the creation of a project development facility to facilitate the planning and implementation of cross-border connectivity projects, with a focus on high-impact regional projects.

Other suggested actions include: movement towards paperless trade and national and regional single windows, beginning with electronic submission of all trade documents; removal of regulatory burden on exports and imports and streamlining of non-tariff measures; minimizing physical inspections; national and regional trade facilitation monitoring; harmonizing documentary requirements, rules, regulations and standards; synchronizing cross-border customs; facilitating intra- and inter-regional multimodal transportation; accession to international conventions; a subregional, followed by a regional, transit regime; and engaging SAARC Observers, learning from ASEAN's efforts at utilizing its Dialogue Partners. On the research front, De identifies the need for a regional study on a connectivity strategy for an economic union with the participation of SAARC member states, Observers and international organizations.

Value chains

Participation in international production networks has seen select countries in different regions of the world achieve high economic growth. There is evidence that participation in regional value chains is a stepping stone for joining global value chains. Yet, South Asia is not only poorly integrated, overall, into global value chains; it has also failed to develop robust regional value chains (RVCs) on a substantive scale. Chapter 7, by Vaqar Ahmed, Syed Shujaat Ahmed and Asif Javed, highlights the challenges to developing RVCs in South Asia, focusing on the experience of Pakistan. It also suggests some steps to be taken to overcome them. Drawing on enterprise-level responses from entities that are already connected with global value chains, the authors are able to distinguish macro-level barriers that stunt the creation of RVCs from sector-specific ones. While some are Pakistan-specific, others have regional relevance.

A key macro-level constraint, unsurprisingly, is uncertainty in Pakistan's political relations with Bangladesh and India. Most business persons in Pakistan, as per the study, believe that the fail-

ure to hold the SAARC Summit in Pakistan in 2016, after a couple of member states boycotted it, derailed the regional cooperation process. Other macro-level barriers include: a lack of business-to-consumer channels; domestic regulatory burden that prevents small and medium-sized enterprises from becoming exporters; a lack of a foreign direct investment policy that incentivizes new entrants from the region; logistical constraints that bar, for example, Indian and Afghan manufacturers in a range of sectors from sourcing inputs from Pakistan despite the latter being the preferred source in principle; information gaps regarding special economic zones in Pakistan; weak financial intermediation; lack of business-to-business research and development linkages across South Asian countries; and uncertainty of tax and tariff regime. The sector-level barriers that the authors identify include: non-tariff barriers in manufacturing and services; low agricultural yields; high cost of electricity and gas in manufacturing; the existence of parallel informal trade channels that pose unfair competition to formal businesses; missing or inadequate trade-related infrastructure, such as cold storage; and a lack of international supplier certifications.

Upon identifying the major barriers, the chapter proceeds to suggest a few immediate steps that national governments in South Asia should take help develop regional value chains. Some are in the nature of regional initiatives; others can be taken purely at the national level. First and foremost, the stalled SAARC Summit needs to be convened. SAARC member states must liberalize their visa policies to not only enable in-person interactions among private sector representatives but also positively impact trade in services. The authors recommend, as a means of aiding agricultural value chains in the region, empowering the SAARC Food Bank to link itself with international institutions such as the International Fund for Agricultural Development. At the national level, Pakistan is advised to employ an intelligent tariff policy that would provide incentives to firms to source inputs from within the region, and back that measure up with a relaxation of non-tariff barriers. Also, a review of regulatory burden in industrial sectors is suggested, as

is streamlining the multiplicity of taxes on the same base at federal and provincial levels. A review of Pakistan's bilateral trade agreements with its South Asian neighbours is in order, incorporating provisions aimed at promoting, *inter alia,* investments and value chains. Next, helping small and medium-sized enterprises obtain international supplier certifications on affordable terms would help them integrate with RVCs. A recommended action that would be an example of leveraging other international initiatives towards advancing South Asian regional integration is fine-tuning industrial policies at the provincial level in Pakistan in order to utilize the planned special economic zones under the China-Pakistan Economic Corridor to foster trade and investment linkages with neighbouring economies such as Afghanistan, China, India and Iran. Other suggested actions are: expediting the national one-window programme to streamline the customs regime at trading points, and border-related infrastructure development projects; and an assessment of why Pakistani businesses are not optimally utilizing the existing dry ports in the country.

Agriculture mechanization

While the share of agriculture in national output is declining, the sector remains the largest employer across the region. South Asian countries differ in their experiences with mechanization, progress in which is a potent tool to shore up agricultural productivity. In Chapter 8, Avinash Gupta explores the nuances of agriculture mechanization, comparing Nepal's experiences with those of other countries, particularly Bangladesh and India.

Gupta argues that while the dominant narrative on mechanization is essentially about large farms, capital-intensive equipment and canal irrigation system, a less-highlighted, "heterodox" narrative provides evidence that there are major differences in the way countries like India and Bangladesh have progressed in mechanization. Although there are overlaps between the two strategies, recognizing the differences is crucial for Nepal and for the rest of the region to devise an effective mechanization strategy. The author

observes that if India's mechanization is largely explained by the dominant approach, made feasible by its fiscal, institutional and industrial capacity, Bangladesh's mechanization is based on small, inexpensive and multipurpose equipment, focusing on smallholder farmers. Bangladesh achieving significant mechanization with the heterodox approach despite sustained land fragmentation has especial salience for Nepal, where smallholders form the bulk of farmers, fragmentation is on the rise, rapid emigration to foreign lands for work has created labour shortages on the farm, and imports of agricultural goods are soaring. Credible policy support is identified as having contributed to Bangladesh's success.

While much of the literature on Nepal finds that mechanization is low and confined to specific geography such as the Tarai plains, the author contends, using some novel estimates from a less-discussed strand of the literature, that the prevailing narrative may be simplistic, if not erroneous. He cites suggestive evidence from Nepal that progress in rural mechanization in the hills and mountains, driven by inexpensive small equipment, has resulted in efficient agronomic practices. To devise a mechanization strategy suitable to the local context, he emphasizes the need for more research on this dimension of farm mechanization, beginning with a credible analysis of rural capital goods that does not equate mechanization with the use of large equipment.

E-trade readiness

Advancements in digital technology have seen the global e-commerce market grow by leaps and bounds, valued at nearly US$28 trillion in 2016. With the exception of India, South Asian countries are yet to harness the potential of e-commerce. In Chapter 9, Ratnakar Adhikari and Daria Shatskova observe that South Asian least developed countries (LDCs) are even further down the e-commerce ladder, but because they start from a low base they possess tremendous potential to grow and expand. The authors examine the state of readiness of four South Asian LDCs (Afghanistan, Bangladesh, Bhutan and Nepal) and a recently graduated country (the

Maldives), which are being supported by the Enhanced Integrated Framework, of the World Trade Organization. The challenges facing these countries in realizing the fully potential of e-commerce include providing internet infrastructure and affordable devices, adopting digital policies and regulations, and generating digital awareness and skills. Official development assistance to these countries for the development of the information and communication technology (ICT) sector has been extremely limited.

The authors indicate there is scope for these countries to learn from each other's experiences. An example from Bhutan shows how firm government support, including thorough the provision of resources, to the ICT sector has led to tangible, positive results. With the support of the Enhanced Integrated Framework and through its e-Infrastructure for Trade and Services Development Project, Bhutan has launched an online commodity exchange system and piloted the auctioning of potatoes. Online auctions with new grading machines are reported to have helped cut processing and payment time and ensured better prices. The authors outline four priority actions for integrating the five above-mentioned South Asian countries into the global e-commerce arena: strong national ownership; a coordinated response across government agencies, the private sector and consumer groups; providing greater incentives for students to join the science, technology, engineering and mathematics streams, and greater collaboration between the ICT industry and universities; and provision of the first ICT infrastructure investment seeds through aid for trade, coupled with coordinating development assistance across different sectors beyond ICT.

Energy trade

It is *de rigueur* in the discourse on South Asian cooperation to extol the potential benefits of regional energy cooperation, with a special focus on hydroelectricity trade. Chapter 10 begs to differ. Dipak Gyawali takes aim at what he calls the "hydrodollar fallacy" entrenched in a large section of policymakers and the thinking class:

that a country like Nepal can get rich simply by exporting hydroelectricity to its neighbours, particularly India.

At the centre of Gyawali's thesis is the argument that energy is a strategic and public good, with political and strategic considerations as important as obvious economic ones. India's 2016 guidelines allow imports of electricity only if the exporting entity has at least 51 percent Indian ownership. This, the author argues, reinforces the fact that India treats energy as a strategic commodity. For the exporting country, electricity not only allows the development of upstream areas of the national economy (i.e., survey, design, construction and maintenance capabilities) but also confers benefits to the economy downstream, helping in industrialization and job-creation. In exporting electricity, a poor country with a weak industrial base like Nepal will be exporting away the potential multiplier benefits. Further, Gyawali fears, without structural depth in various domains of the economy that is seeking to export electricity to more advanced economies and under monopsony market conditions, the terms of trade are stacked against the exporting countries, which could easily fall into the "dependencia" trap.

The author finds South Asia to be "very far from achieving any meaningful energy cooperation in the near future." For him, an appropriate starting point would be transboundary collaboration on water resources grounded in an understanding of the region's common monsoon regime and its vagaries, and eschewing the blinkered approach that treats mega storage dam projects as primarily hydroelectric projects rather than as full-fledged multipurpose ventures yielding benefits in, *inter alia,* irrigation and transportation.

Climate change

South Asian countries are among the most vulnerable to the ravages of climate change. Within them, often the poorest and the most vulnerable societies are the ones with almost no adaptive and response capacity. In Chapter 11, Aneel Salman, Muhammad If-

tikhar ul Husnain and Sarah Siddiq Aneel generate insights from community-based adaptation practices in Pakistan. They hold that three perspectives are crucial for community-based adaptation: the stakeholders, the policy, and the challenges and opportunities that lie within its implementation. The community perspective includes its direct experience with climate-related risks and how it dealt with them. The policy perspective focuses on whether planned adaptation efforts should protect a country's gross domestic product or its most vulnerable people.

Unfortunately, the poorest are neither visible in economic analysis nor always the highest priority in national policy. For the most effective climate change adaptation interventions, the authors aver, the community-level ones are critical for autonomous adaptation. Community-level implementation offers effective planned adaptation. Conversely, while community behaviour is often a big factor in maladaptation, disjunction between state policies and governance can also lead to the latter. Hence, in order to overcome implementation challenges within community-based adaptation, the authors suggest, it must be kept in mind that lack of adaptation is not just a matter of awareness and understanding, but also of competing priorities. And, they further note, since the "usual no longer works", the two sources of knowledge (local/traditional and scientific) need to be bridged.

Migration

South Asia is a major origin of international migrants as well as a major recipient of remittances. In Chapter 12, S Irudaya Rajan discusses the trends and patterns of migration flows from and remittance flows to South Asia, with a focus on the Gulf countries, a major destination and source of such flows. He then discusses the changes, including reforms, to the system of recruiting foreign workers in major destinations of the Gulf region in recent years. Restrictions on job-switching by foreign workers have been relaxed. Other protection measures for foreign workers have also been introduced. The author notes that while such reforms augur

well for South Asian migrants, measures, such as Saudization, that aim to increase the employment of locals should be factored into South Asian governments' migration-related strategies.

Economic measurement

Reliably measuring the economy, from the level and growth of gross domestic product (GDP) to trends in employment, is key to effective policymaking. In Chapter 13, Robert Beyer and Martin Rama observe that although South Asian economists and statisticians have been pioneers in the measurement of economic wellbeing, there is considerable variation in statistical capacities across countries in the region. They see considerable room for statistical improvement in all countries through more rigorous analyses of existing data coupled with new sources of data, thanks to technological innovations. Two examples are provided to illustrate the possibility of improving economic measurement.

The first is measuring GDP with the aid of nightlight data, which points to the possibility of getting an estimate of GDP performance at subnational units and over periods of less than a year. This is important in a region characterized by widespread informality of economic activities, where only two countries produce quarterly GDP estimates, and subnational estimates, where available, are generated with significant lags. The second example is with regard to measuring employment rates and job creation across South Asian countries in a comparable manner. A "standardized" employment data is created from household and labour force surveys in select South Asian countries, by applying uniform definitions. The benefit: not only do we get an idea of whether economic growth in the region has been job-creating or jobless (the finding: it has created jobs), we can also analyse how economic growth has modified the types of jobs available (the finding: regular wage employment growth has been very modest).

The authors argue that data revolution is an institutional reform agenda—rather than just a good grasp of technology—to be pursued with a statistical development strategy, brokered at a high

level and as an integral part of overall growth strategy. Because government statistical agencies are likely to be the source of reliable high-quality data—a public good—for quite sometime, their institutional and technological upgrading, while ensuring their independence, will be critical. While noting that the steps being taken for improved economic measurement such as frequent surveys, standardized definition of variables, piloting of new questionnaires and capture of responses through electronic tablets rather than paper questionnaires are important, the authors also stress the importance of other potential upgrades such as the systematic georeferencing of data and the linking of government databases.

Development data constraints

South Asian countries have embraced the 2030 Agenda for Sustainable Development. The Sustainable Development Goals (SDGs) are more comprehensive than their predecessor, the Millennium Development Goals. And the comprehensiveness implies a greater complexity in monitoring progress towards 17 goals and 169 targets, accompanied by 244 indicators. Highly disaggregated data are required, in terms of factors such as gender, age, location, race/ethnicity and disability. In Chapter 14, Ganga Tilakaratna analyses the data availability in South Asian countries for SDG indicators and suggests ways to overcome data constraints to measuring SDG progress in the region. Her analysis shows that all countries in the region lack data for more than 50 percent of the SDG indicators, with the Maldives and Afghanistan lacking data for over 60 percent of the indicators. Data availability varies considerably across the 17 goals and among the eight countries. The author also finds gaps in gender-disaggregated data in South Asia, much larger than gaps in spatially disaggregated data.

Tilakaratna notes that while official statistics will continue to be the primary source of data, it is critical to engage other stakeholders, too, for meeting the SDG data requirements. Greater coordination is needed within the government sector. The expertise of agencies that were not traditionally part of the national statis-

tics system must also be utilized. Big data is identified as an avenue worth exploring for supplementing traditional data, and this would require enlisting the participation of the private sector. The potential for regional cooperation is also highlighted. The variation in statistical capacities across South Asian countries, the author argues, indicates considerable scope for the sharing of knowledge and experiences among them. A platform for developing common standards and methodologies could be created under the aegis of SAARC. Collaborative research on data issues could yield regional solutions to SDG data challenges.

CHAPTER 2

Saman Kelegama
A tribute to a citizen of South Asia

Rehman Sobhan

It is even today difficult for me to absorb the sad reality that Saman Kelegama will not be making his quiet presence felt at the Tenth South Asia Economic Summit (SAES). Over our long years of association he was not only a respected professional colleague, but became a treasured friend. For me as for many of you here, his untimely departure remains a personal loss.

Saman will be remembered by all of us as one of the founding fathers of the SAES. He laid the groundwork by organizing the very first SAES in Colombo in 2008 which I attended with some of you present here. Since that auspicious inaugural, Saman has, to the best of my knowledge, attended every SAES across South Asia, including the second SAES convened by him in Colombo in 2013. Yet, to recollect Saman's low-key presence and understated communication skills, it would be difficult for an unknowing newcomer to the SAES process to take note of the fact that this youthful-looking, modest personality, who never raised his voice even when he spoke publicly, was the ideologue and also the man of action behind these heroic events.

I choose to contextualize Saman's memory within the SAES process because he has been my partner on our South Asian safari ever since he took over as the Executive Director of the Institute of Policy Studies of Sri Lanka (IPS) in 1994. I have been engaged in the process of conceptualizing and constructing a South Asian community since the late 1970s when Sardar Tarlok Singh, possibly the godfather of the idea of constructing a South Asian com-

munity, brought together a number of research institutions across South Asia to constitute the Committee for Studies on Cooperation in Development in South Asia (CSCD). I represented the Bangladesh Institute of Development Studies, a partner institution, on the Board of CSCD.

After doing some pioneering research on the scope and specifics of South Asian cooperation. CSCD faded away by the mid-1980s to be replaced by the South Asia Dialogue (SAD) coordinated by the Centre for Policy Research (CPR) in New Delhi, then led by Pai Panandiker. Some of us such as Godfrey Gunatillike of Marga and myself who had been active in CSCD carried forward our initial commitment to the idea of a South Asian community into SAD where we joined hands with George Verghese, Muchkund Dubey, Ibrahim Zaki from the Maldives, Mubashir Hasan from Pakistan, and Sridhar Khatri and Mohan Man Sainju from Nepal to engage civil society across the region to take forward the South Asian Association for Regional Cooperation (SAARC) process.

After Saman took over as Executive Director, IPS in 1994 became actively involved through SAD in undertaking work on South Asian economic cooperation. I first encountered Saman in various SAD meetings and was deeply impressed with the high level of professional competence of this modest young man, his quiet dependability to take on research challenges and his commitment to the mission of building a South Asian community.

Some members who were active in SAD such as Muchkund Dubey, Ibrahim Zaki and myself were invited to serve as members of a Group of Eminent Persons (GEP) constituted by the heads of state of SAARC at the Malé summit of 1997 to prepare a vision statement for SAARC laying out the roadmap towards establishing a South Asian economic community by 2020. With a view to carrying forward the GEP initiative, it was decided by some of us who were involved in SAD and later in the GEP to establish a regional think tank. In 1999 the South Asia Centre for Policy Studies (SACEPS) was set up. It was initially hosted by CPR in New Delhi, but the secretariat was then moved to the Centre for Policy Dialogue (CPD) in Dhaka. Arjun Sengupta and Syed Babar Ali from

Pakistan were elected as Co-chairs and I took over as Executive Director. The partner institutions which made up SACEPS included CPR in Delhi, CPD in Dhaka, Institute of Integrated Development Studies (IIDS) in Kathmandu, Lahore University of Management Science, Ibrahim Zaki representing the institutional persona of the Maldives state and the Marga Institute of Sri Lanka. I persuaded my colleagues who were invited to the foundation meeting at CPD to also invite Saman Kelegama to join our Board so we could draw in someone from a younger generation to join us in the task of building South Asia as he led an organization, IPS, with some of the strongest research capacity in the region. For similar reasons of enhancing SACEPS's research capacity, we subsequently invited Nagesh Kumar to join our Board, thereby drawing on the available strengths of Research and Information System for Developing Countries (RIS).

Over the next 17 years, through our various interactions at SACEPS and other South Asia-centric fora, I continued to be deeply impressed by Saman's sincere commitment to the idea of constructing a South Asian community. In his association with SACEPS and in other initiatives related to South Asia, Saman drew on his exceptional capabilities as a development economist, his organizational skills and his complete dependability to carry through any task to which he committed himself or IPS.

Among the many who joined our odyssey towards South Asia, Saman appeared to be one of the few who sustained his faith in the enterprise. He demonstrated his commitment through his diligence as a researcher, his creative ideas and research leadership whereby he built up a strong body of work identifying both the problems as well as opportunities for cooperation within the region. In the process he inspired a generation of younger colleagues, led by Dushini Weerakoon, to develop a strong research capacity on South Asian issues within IPS. Saman had also built up a strong working relation with his peers at RIS, South Asia Watch on Trade, Economics and Environment (SAWTEE) in Kathmandu, Sustainable Development Policy Institute (SDPI) in Islamabad, and CPD to carry on the tradition of keeping abreast

of the challenges facing South Asia and identifying possible solutions. Now that he has left us this present generation will miss the natural leadership provided by Saman, who not only constituted a bridge between generations but carried over some of the passion of the pioneers who committed themselves to building a South Asian community.

While all of you assembled here who constitute the institutional partnership which sustains SAES have demonstrated impressive research skills in introducing new ideas and knowledge into the South Asia dialogue, you need to invest your skills with the same degree of passion and commitment which Saman brought to this mission. This is even more important today than it was at any time during the last four decades because the very idea of a South Asian community is receding. Today the member governments of SAARC, particularly its larger members, appear to have lost faith in the regional entity which brought them together and are looking towards alternative regional groupings both within and beyond South Asia.

This move away from SAARC, in my experience, is not an altogether new phenomenon. We witnessed such a phase two decades ago when SACEPS was being born at the turn of the century. In this period civil society needed to be particularly proactive to keep the idea of South Asia alive. Then and now, this requires more than research skills projected at periodic conferences; it needs sustainable engagement. In my view, the idea of South Asia can only be kept alive if it remains embedded in your professional concerns and institutional priorities. Saman demonstrated his commitment through the untiring persistence which drove his substantive body of work on South Asian concerns.

As Executive Director of SACEPS, I personally benefitted from Saman's valuable contributions to our mission through the SACEPS Task Force he co-chaired with Muchkund Dubey on *The Implications of Building a South Asian Free Trade Area*, based on research carried out at IPS, and to the CPD-SACEPS work on *Challenging the Injustice of Poverty in South Asia.* Many of you present here, who partnered Saman in some South Asia-related project,

will remember that he was usually the first to deliver on whatever task was assigned to him or his organization. As a consequence, Saman's research contributions on South Asia, in partnership with CPD, RIS and SAWTEE, his dedicated co-editorship of the *South Asia Economic Journal* and his many individual writings on South Asia leave behind a rich legacy of work which can serve both researchers and policymakers in the region.

Saman had the good fortune to have his research leadership and skills recognized and appreciated by his own government where successive regimes drew upon his services to provide papers and guidance, over a period of two decades, to Sri Lanka's position on various economic issues related to South Asian cooperation. Among many such tasks, Saman was seconded by his government to serve on the second SAARC Commission on Poverty Alleviation which he eventually chaired. As a result, Saman has always served as a valuable link between official and civil society on South Asian issues. As a regular member of Sri Lanka's delegation to various SAARC summits, he was an important conduit for delivering policy inputs from SACEPS and perhaps SAES to the SAARC summit deliberations.

Saman's pioneering role in the conception and operationalization of the SAES process evolved out of his extended engagement with the idea of constructing a South Asian community. The SAES process was conceived by Saman, drawing on his association with SACEPS. In the early days of SACEPS when I was its ED, the Board had conceived the idea of initiating a SACEPS project to establish a South Asian Davos. We had imaginatively thought of locating this project on the Maldives Island of Bandos and had been assured by our Board Member, Ibrahim Zaki, then a senior Minister of the Maldives government, of the full support of his President and government for the project. A number of feasibility studies were carried out to carry the idea forward, which, at one stage, involved the Confederation of Indian Industry. Sadly, the project languished due to our inability to mobilize the enormous resources needed to underwrite a South Asian Bandos and the changing fortunes of our Maldivian partners.

It was Saman's idea to reconceptualize the idea of a South Asia Davos, on a more modest, manageable scale, where selected partner institutions would convene an annual "summit" in their respective countries, which would, as in Davos, bring together governmental leaders, senior business persons and civil society leaders from across South Asia to collectively discuss the current challenges facing the region and share ideas on how to promote greater cooperation. Saman demonstrated the doability of his more scaled-down project, which precluded the need for accumulating the large capital investment needed to construct a permanent base in Bandos for a South Asian Davos. Instead, he established that each partner institution could assume the more manageable responsibility of mobilizing resources needed to convene an annual summit. In this endeavour, he drew in as partners for the SAES project, some of the partner organizations of SACEPS such as IPS, CPD and RIS, and brought in SAWTEE and SDPI. The SAES partners were all led by capable researchers from his own generation, each backed up by well-established institutions with strong professional and organizational capability. By organizing a high-level, well-organized first summit in Colombo, Saman demonstrated that his organization could successfully implement such a herculean task. He thereby presented a challenge to each of his prospective partners to match his pioneering effort.

History notes that the SAES partners have commendably responded to Saman's challenge and we are now attending the Tenth SAES in Kathmandu. Each of the partner institutions has now managed to host two such well-attended South Asian events. All of you assembled here should take pride in the sustainability of the SAES process which began its journey in Colombo a decade ago through the commitment of Saman to take up the challenge of launching the first summit. It is only fitting that this tenth summit should serve as an epitaph on Saman's life and work. It also provides us with the occasion to pay tribute not just to his bold initiative but to his contribution to the ideas which underlie the SAES process.

It is important for all of us assembled here to ensure that the SAES process not only survives the loss of one of its most committed founders, but it can also withstand the inclement winds which threaten to capsize the SAARC process. The most enduring tribute that all of you assembled here at the Tenth SAES can pay to the memory of Saman Kelegama is to not just persevere with SAES, but to absorb more of Saman's passion and commitment towards building a South Asian community which can transcend the fluctuating fortunes of the SAARC process and continue to nurture deeper roots for sustaining cooperation within the peoples of South Asia.

This is a slightly edited version of a speech delivered by Dr Sobhan at a plenary session (16 November 2017) dedicated to the late Saman Kelegama at the Tenth South Asia Economic Summit, Kathmandu.

CHAPTER 3

Whither SAARC?

Deepak Nayyar

The past three decades have witnessed rapid economic growth in South Asian countries, which is impressive in comparison with their own performance in the past and with other developing countries in the present. Gross domestic product (GDP) growth rates since the mid-1980s provide a sharp contrast with near-stagnation in the colonial era and modest growth in the preceding four decades in South Asia, and are much higher than in other parts of the developing world, particularly Africa and Latin America. This has led to a significant reduction in absolute poverty and some improvement in the living conditions of people. But economic growth has not been transformed into meaningful development which improves the wellbeing of ordinary people. The underlying reason is the triangular relationship between growth, poverty and inequality. Rapid growth did help reduce absolute poverty in South Asia but not as much it could have, in part because the initial income distribution was unequal and in part because of rising income inequality. At the same time, economic growth did not lead to commensurate employment creation. Indeed, employment growth was slower than output growth and the gap widened over time.

Almost one fourth of the people on earth live in South Asia. But the contribution of this region to world GDP, in current prices at market exchange rates, is barely one thirtieth. It is no surprise that South Asia is home to 40–45 percent of the world's poor, depending on where we draw the poverty line. For the region as a whole, in 2011, 25 percent of its population lived below the poverty

line of PPP$1.25 per day, while 60 percent of its population lived below the poverty line of PPP$2 per day. The former are the perennial poor probably unable to reach the critical minimum even in terms of nutrition, while the latter might have been able to reach the critical minimum in terms of food and clothing plus some basic needs but not appropriate shelter or adequate healthcare and education. The people between the two poverty lines, as many as 580 million people in South Asia, were vulnerable to any shock such as a bad harvest, high inflation, job loss, or an illness in the family. But that is not all. Our social indicators of development, on health and education status, are still among the worst in the world, with the possible exception of sub-Saharan Africa. Clearly, we have miles to go in our journey if the destination is the wellbeing of our people.

Economics and politics

It is obvious that South Asia has much to learn from the rest of Asia about industrialization as an imperative, the critical importance of employment, a focus on human development, and the fundamental role of governments in transforming economies. In this quest for development, there are many things that must be done. Let me simply highlight the importance of regional cooperation as a means in the sphere of economics and an end in the realm of politics.

The logic and benefits of economic cooperation between South Asian countries are obvious enough. To begin with, almost everyone thought of economic cooperation in terms of trade. Thus, the essential idea underlining the South Asian Association for Regional Cooperation (SAARC) was a South Asian Free Trade Area, that is, free trade among countries in South Asia. It is another matter that it did not materialize in any meaningful way. The argument then was largely based on gains from trade in goods. The world has changed since then. Economic transactions extend much beyond trade to cross-border movements of services, investment, technology and people. There is, in addition, the wider political context and purpose in a subcontinent where harmony has been elusive, as contradiction and conflict have tended to surface time and again.

There is something that we can learn from Europe as well, on how to get away from political conflicts embedded in history. It is worth remembering that six countries in Western Europe, including France and Germany, signed the Treaty of Rome in 1957 just 12 years after the end of World War II to establish the European Economic Community, which went through successive stages of economic integration. The outcome was the European Union as a single market. It was a political project for peace in Europe. It was also an economic project for prosperity in Europe. Nearer home, the Association of Southeast Asian Nations (ASEAN), set up in 1967, has also made significant progress.

SAARC was established as late as 1985. It has been more than three decades since then. Yet, the progress, even in terms of minimal forms of economic cooperation, has been, at best, modest. Trade in goods, let alone services, between South Asian countries is a disproportionately small fraction of their total trade. Cross-border investments or movements of people are negligible. Of course, India and Nepal, an economic union in terms of labour mobility, are an exception. This near-absence of an economic engagement with each other provides a sharp contrast not only with Asia and the world, but also with South Asian countries themselves in their engagement with the world economy. The constraints are embedded ultimately in politics, which has turned out to be a stumbling block. The present impasse, like many before, has pushed the official SAARC process into a meltdown yet again.

There are three propositions I wish to set out and develop as ideas. First, the logic of regional cooperation. Second, the actors and the stage. And, third, the next steps that I would contemplate for our elusive quest.

Cooperation logic

The logic of regional cooperation has two dimensions: political and economic. The political benefits of cooperation are obvious. The peace dividend, or the reduced-conflict dividend, will accrue to all countries. The resources so saved will benefit people at large. At the

same time, it would provide South Asia as a region with a collective bargaining power vis-à-vis the outside world. That has been the logic of the European Union or ASEAN. In the international context, this bargaining power will come from the size of the market which is large in terms of the number of people even if not in terms of their average income levels. But the potential is enormous, as everybody everywhere in the world eyes South Asia as a market. In the multilateral context, it might help South Asia exercise influence on rules and practices in multilateral institutions. In the bilateral context, too, I believe it could help South Asia enormously, as China is seeking to influence each country separately and driving a separate but harder bargain. What is more, the connectivity across the countries in South Asia that could emerge from a political entente will have major economic spinoffs.

In the economic dimension, the logic is just as obvious. We are a region of geographical proximity and economic complementarities, which was a single market just 70 years ago, although in a much less developed world. It is this enormous potential that we could exploit, whether in trade, investment, technology or services. Such gains are not only static gains from trade. There are also dynamic gains from trade that arise from economies of scale and of time. There is also an intersection between international transactions and national connectivity, both of which can drive economic development in South Asia. For example, if you think of Bangladesh, Bhutan, Nepal, Myanmar and Northeast of India, there are enormous synergies. So, it is not just about regional cooperation between countries but it is also about regional cooperation among contiguous regions within these countries. Economic interaction will also lead to learning from each other: whether best practices or appropriate technologies. We in South Asia, even if much derided by the rest of the world, can lead the world in some domains. It could be micro credit. It could be space. It could be informational technology. And there are other possibilities. Last but not least, this is about managing negative externalities that spill over across national borders and capturing positive externalities that spill over across borders. If we think about negative externalities, it is envi-

ronmental degradation and climate change that need cooperation among us. If we think of positive externalities that could be exploited, it is about sharing river waters, it is about trade in power. The examples could be multiplied. The logic is overwhelming.

Actors

Consider next, the actors and the stage. There are three sets of actors: governments, markets and people.

Governments, more often than not, are the stumbling blocks. Their behaviour is driven often by domestic political concerns and compulsions, sometimes perceived rather than real, as governments and political parties seek to mobilize support from the people. This could be driven by conflicts and contradictions, where perceptions diverge from realities, which are often embedded in history. The divides could be religious, ethnic, linguistic, or take other different forms. But I think that governments are often driven by short-term political considerations, rather than long-term thinking. It is plausible to argue that if political parties and governments begin to think beyond the next month, the next year, or the next elections, they might see this logic more easily. Yet, there is a real problem. Any form of economic cooperation between countries requires some ceding of national sovereignty. International cooperation does need to cede some sovereign economic and political space. Understandably, there is a huge reluctance in countries that are poor. Ceding this space is seen as a loss of face and an economic loss. Potential gains are lost sight of as a distant prospect.

Markets would always seek to exploit economic complementarities reinforced by geographical proximities. It is in the logic of markets. For corporate entities or business, people are buyers, irrespective of where they live. In spite of barriers, smuggling thrives because transactors derive benefits. Hence, trade between South Asian countries is much larger than it seems to be. But it could be even more if it was not restrained by borders, barriers and restrictions.

Among the people of countries in South Asia, there are cultural similarities and linguistic intersections. Punjabi, Bangla,

Urdu and Hindi are shared languages. There are natural similarities between our people in music, arts, values, cultures and cuisines that are embedded in history. There is perhaps less diversity among people in South Asia than there is among people in Europe. It is the irony of our lives that we are so near and yet so far from each other.

In sum, even if governments are not willing or able to foster regional economic cooperation, markets and people both want such cooperation. If they are not restrained from doing so, they will find ways of doing it. Markets have the ability to circumvent rules or regulations. So do people if they wish to. Once the economic benefits of such cooperation, however fragmented, become visible, governments might have no choice but to follow in the footsteps of markets and people.

Next steps

Let me, in conclusion, reflect on the next steps in our elusive quest. In this pursuit, I cannot stress enough the importance of building blocks or baby steps. We need to strengthen subregional economic cooperation in South Asia such as the Bangladesh, Bhutan, India and Nepal (BBIN) initiative or the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC). Tangible, visible, benefits, in any dimension of these emerging arrangements would have powerful demonstration effects. It might lead, say Pakistan, to consider connectivity to West Asia, opening it up to the rest of South Asia.

There also has to be an effort from the part of business and firms to consider cross-border transactions and investment, recognizing the short-term costs but banking on the long-term benefits. Many corporate leaders whom I talk to in India are tempted by markets in South Asia, by comparative advantage, by geographical proximity, but shy away because the risks are too high or the gestation lags are too long. Given this reality, civil society institutions, intellectuals and citizens in our countries should come together to preserve the spirit of SAARC as an organization and the idea of South Asia as a region. The South Asia Economic Summit is an

example. So is SACEPS, the South Asia Centre for Policy Studies. Our objective should be to create a meeting space, to facilitate interaction between parliamentarians, policymakers, media persons and business communities, reaching out to a wider constituency of people with some commitment to the promotion of regional cooperation in South Asia.

In game-theoretic terms, there is no reason for South Asia to be locked into Prisoners' Dilemma outcomes. The choice between a situation where everybody is worse-off and a situation where everybody is better-off is obvious. Why do such cooperative solutions have to wait until the cost of non-cooperation crosses thresholds of tolerance among people? Citizens and people are conscious of the dangers implicit in pollution and environmental degradation. Do mind-sets in governments change only if there are crises such as famine or war or can they come from enlightened self-interest?

I am convinced that a better world is possible for South Asia. If this does not materialize in the next decade, at the South Asia Economic Summit ten years later, we might have to change the question in a plenary session from "Whither SAARC?" to "Why did SAARC wither away?"

This is based on a keynote speech delivered by Dr Nayyar at a plenary session (15 November 2017) at the Tenth South Asia Economic Summit, Kathmandu.

CHAPTER 4

External Observers
Game changer for SAARC?

Debapriya Bhattacharya

Softly speaking, SAARC is at an inflection point. We are all aware that the South Asian Association for Regional Cooperation (SAARC) came into existence a bit late (1985) in comparison to other similar regional cooperation initiatives. Since then, a certain level of measurable progress has been achieved in the region under the institutional set-up of SAARC. SAARC Summits have served effectively as a platform where the political leaders of the region could talk about their development challenges, share best practices and explore new opportunities for cooperation. Yet, SAARC could hardly exploit its full potential.

The SAARC process has been fraught with frequent postponement of high-level meetings and cancellation of Summits. Conflicting political interests among the member states, sometimes leading to bilateral hostilities, had been one of the key reasons behind it. Since the postponement of the 19th SAARC Summit, the whole institutional process has come into a state of paralysis. The 19th SAARC Summit, to be held in Islamabad, got cancelled in 2016, and since then, not much initiative or effort geared to revive this regional platform has been observed. More regrettably, the political situation in the region, specifically with regard to certain bilateral relations, has experienced further deterioration in the most recent years. A question that is now being often asked is: what could be a "game changer" for the restoration of the SAARC process? Is there any actor that can positively influence the resurrection of the regional initiative?

In this context and taking note of other regional experiences, it is maintained that the external Observers of SAARC may have a role to play in this regard. SAARC currently has nine accredited Observers. Further, more than a dozen international and regional organizations enjoy partnership with SAARC. These Observers have extensive and substantive economic and political ties with SAARC member countries. It would be interesting to explore to what extent these external entities are in a position to exercise their soft power to reinvigorate the cooperative undertaking in South Asia.

In view of the above, this chapter seeks to briefly explore the mandate provided by SAARC to the external entities, review their state of engagement, and assess the possibilities of these entities in reviving the SAARC process.

External Observers in SAARC

SAARC currently has nine Observer states, namely Australia, China, the European Union, Iran, Japan, the Republic of Korea, Mauritius, Myanmar and the United States of America (Table 4.1). All these came on board between 2005 and 2008, with China and Japan being the first. Iran and Myanmar were the latest inclusions in 2008.

Motivation for becoming Observer

There are two broad reasons why an extraregional country would apply for an Observer status in SAARC. First, entry as an Observer is perceived to be a means for gradual integration into the organization. In almost any multilateral cooperation entity, there is a gradual process through which more members are inducted. For example, to become a member state, the first step includes being granted an "Observer State" status and then gradually an upgradation to a "Dialogue Partner". The 10-member Association of Southeast Asian Nations (ASEAN) has assigned Dialogue Partner status to countries such as India, China and Japan with whom it later signed free trade agreements.

Table 4.1

List of Observer states

Observer state	Year of Application	Status
China	2005	2005 (13th Summit, Dhaka)
Japan	2005	2005 (13th Summit, Dhaka)
South Korea	2006	2006 (27th session of Council of Ministers, Dhaka)
United States of America	2006	2006 (27th session of Council of Ministers, Dhaka)
European Union	2006	2006 (27th session of Council of Ministers, Dhaka)
Mauritius	2006	2007 (14th Summit, New Delhi)
Australia	2006	2008 (15th Summit, Colombo)
Iran	2007	2008 (15th Summit, Colombo)
Myanmar	2008	2008 (15th Summit, Colombo)
Turkey	2012	Pending
Russia	2014	Pending

While representatives of the Observer nations are allowed to sit and speak in the inaugural and concluding sessions, they are not allowed to engage in negotiations or vote on matters discussed at the Summit. In contrast, while still not allowed voting privileges, Dialogue Partners are allowed to have much deeper economic and strategic engagement with member countries. While neither Observers nor Dialogue Partners have a full membership and cannot engage in the core discussions, they can gain headway gradually. Observer membership allows the concerned country to build relations with the member states and present its own views on various matters.

The second motivation for a country to become an Observer is to be able to monitor the evolving situation in the region as it might have some stake in the member states. These Observer states are generally global and/or regional powers, and they may have critical interest in terms of geo-political or geo-economic stability of the concerned region. The situation in the region may affect their trade, investment, finance, cross-border migration and security situation. However, these countries may not pursue higher level of membership, since they are not South Asian countries.

Role of Observers in SAARC

Procedurally, SAARC Observers are given limited participation in SAARC Council of Ministers' Meetings and other SAARC-related ministerial meetings and participation in SAARC Summits. The Observers are also permitted to make proposals regarding cooperation and joint venture projects with the approval of the relevant SAARC committees. However, they are not allowed to make any statements about areas of concern during a SAARC Meeting or Summit, but are able to circulate their position in writing. SAARC Observers may also be engaged in productive, demand-driven and objective project-based cooperation in priority areas as identified by member states. These areas include (i) communication, (ii) connectivity, (iii) agriculture, (iv) public health, (v) energy, (vi) environment, and (vii) economic cooperation. Joint Meetings of Observers and National Focal Points (Ministries of Foreign Affairs) typically finalize the projects based on proposals from member states and Observers.

One of the key outcomes of the 18th SAARC Summit held in 2014 was to give a greater role to Observers of SAARC, which would be a pathway towards Dialogue Partnership. Some of the Observer countries, including China, have been seeking greater space in the SAARC process. The Kathmandu Declaration called for engaging the Observers in "productive, demand-driven and objective project based cooperation in priority areas as identified by the Member States."

Observers in other forums

A review of the roles of Observer states in other multilateral cooperation initiatives shows that they primarily limit the Observers to two privileges: (i) access to information, and (ii) invitations to meetings. The Asia-Pacific Economic Cooperation (APEC), for example, gives its Observer members full access to documents and information related to the work of member economies, helping to track progress and provide guidance in support of APEC objectives. However, in some other multilateral platforms, Observer states can only attend meetings (except closed sessions unless with prior invitation) and cooperation activities without being conferred any formal status.

Moreover, Observers do not have the right to vote on or sponsor draft resolutions or to submit proposals or draft resolutions. Overall, the Observer states have limited roles and the positions are usually seen as the first step towards full membership. The role of Observer states in SAARC is quite similar to that accorded in other multilateral organizations. Although it is unclear how much of information is actually shared with the Observer states, SAARC appears to be clear about their specific roles and priority areas of collaboration.

External Observers in pipeline

Turkey and Russia have also applied for Observer status in SAARC—in 2012 and 2014, respectively. However, their applications remain currently pending. Since 2008, there is a moratorium on the admission of new Observers to SAARC. A moratorium on the elevation of status of the Observer states was also placed in 2015 after India persuaded SAARC to put in place a five-year moratorium on elevating the status of China and other non-member Observer countries to that of Dialogue Partners. It was Pakistan that initially made an attempt to accord a more active role to China to counter the influence of India within SAARC. Pakistan's proposal was supported by a majority of members who cited the example of

the ASEAN grouping, of which India itself is a sectoral Dialogue Partner, having been upgraded in 1996. India subsequently signed a free trade agreement in goods with ASEAN in 2009.

Incidentally, all the Observer states, following their inclusion, have attended all the Summit-level meetings. India was, however, of the view that most of the Observers at SAARC have not been active and restricted themselves to conducting a few training programmes or seminars. In its proposal for the moratorium, it suggested that for the next five years, members should monitor what Observers do and then decide if anyone's status needs to be upgraded.

Role of non-Observer partners in SAARC

Besides the Observer states, SAARC has also established partnership with several multilateral institutions which carry non-Observer status (Table 4.2). These partnerships are, however, limited to cooperation on development issues through joint studies, workshops and seminars, and exchange of information and documentation, particularly in areas where the partner specializes. For example, SAARC cooperates with the United Nations International Children's Emergency Fund (UNICEF) in implementing relevant SAARC decisions relating to children; it works with the United Nations International Drug Control Programme (UNDCP) on issues related to drug control. An exception to this "documentational" cooperation is the partnership with the United Nations Conference on Trade and Development (UNCTAD). Under this partnership, SAARC is responsible for updating information on trade control measures in the SAARC member states in exchange for being granted access to data on trade control measures prevailing in developed and developing countries.

Special interest of China

There is little doubt that China is seeking a strategic role in South Asia through the SAARC process. Even though officially China

Table 4.2

SAARC: Non-Observer partners

Non-Observer partner	Date of initiation of partnership
United Nations Conference on Trade and Development (UNCTAD)	MoU signed in 1993
United Nations International Children's Emergency Fund (UNICEF)	Cooperation agreement signed in 1993
United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)	Framework agreement for cooperation signed in 1994
Asia-Pacific Telecommunity (APT)	MoU signed in 1994
United Nations Development Programme (UNDP)	MoU signed in 1995
United Nations International Drug Control Programme (UNDCP)	MoU signed in 1995

Note: MoU—Memorandum of Understanding.

has made no proposals for its inclusion (as a member state) under SAARC, some Chinese think tanks are suggesting that China is seeking an active and strategic role in South Asia. China borders five SAARC nations and has been investing in South Asia for long. South Asia has recently witnessed a wave of Chinese investment, in, among others, roads, bridges and ports, and the energy sector. China has even surpassed a few traditional development partners from the Organisation for Economic Co-operation and Development (OECD) in terms of extending financial support. It has started organizing an annual South Asia trade fair in Kunming, a regional hub that has deep links with the region. China is also the largest trading partner for many South Asian nations, including India, and several subregional cooperation entities are under consideration.

However, China's interest goes beyond the SAARC process. In 2000, China applied to be a Dialogue Partner in the Indian Ocean Rim Association, where India, Sri Lanka and Bangladesh are members. It is a member in the Asia-Pacific Trade Agreement (APTA), where the aforementioned nations are also members. Since 2013, with the election of a new leadership, China embarked on a sweeping plan to revive its old land and maritime Silk Roads, connecting South Asia, the rest of Asia, and some parts of Europe.

It is no secret that India is wary of China's inclusion in SAARC, as these two regional giants compete for sphere of influence in the region. India has long maintained that South Asia has paramount importance for it, particularly in projecting its geo-strategic and security interests. In this connection, India has considered SAARC as a platform for addressing common regional problems of poverty, unemployment, low human development and weak economic development. India reckons that the common culture and shared aspirations of the region give it an edge in playing an exclusive role in South Asia. However, given the rapid pace of globalization coupled with the rise of China, India's opposition to China's entry in SAARC is facing challenges. Clarifying India's stand on China's entry into SAARC, it has maintained that China's request can be considered once the criteria and modalities for such association have been worked out. This was supposed to be the subject of discussion at the special session of the SAARC Standing Committee scheduled to be held in 2006. Results in this regard are yet to be seen.

Concluding remarks

A couple of observations may be offered in conclusion. The external Observers of SAARC have remained underutilized resources till date, while their potential remains quite high. To utilize their potential so as to activate the SAARC process, there seems to be a number of structural and policy-related hindrances.

First, when the primary actors of the process, i.e., the member states, remain not adequately interested in keeping the SAARC process active, how can they expect the external actors will play

a spearheading role? In other words, if the member states play a more positive role, the Observers will feel motivated to be more proactive. Thus, the external Observers may play a greater role during normal periods than in a crisis period. Accordingly, there is little opportunity for the external Observers to be a game changer.

Second, for the Observers to play a more productive role, the mandate and operational modalities of the provisions for the external entities need to be further clarified and strengthened. This may improve the dimensions, level and quality of the engagements of the Observers. However, given the prevailing gridlock (if not deadlock) in the SAARC process, such reforms cannot be expected.

CHAPTER 5

Potential for intraregional investment

Indra Nath Mukherji

Attempts at regional integration under the auspices of the South Asian Association for Regional Cooperation (SAARC) have mainly concentrated on trade integration. The main vehicle for this has been the Agreement on South Asian Free Trade Area (SAFTA). The Agreement, signed in 2004, entered into force on 1 January 2006 and its Trade Liberalization Programme commenced from 1 July 2006.

During the initial years of SAARC's functioning, not much attention was given to facilitating investment flows, whether intraregional or extraregional. It was expected that with the expansion of the regional market through trade liberalization, investments at both the levels would flow in automatically. The nexus between investment and trade was not under consideration.

Promoting intraregional investment among South Asian member states has been a slow process (Box 5.1). The Ninth Meeting of the Sub-Group on Investment and Arbitration was to be scheduled after the circulation by India of a revised Draft SAARC Agreement on Promotion and Protection of Investments. The Standing Committee, at its Forty-first Session (Kathmandu, 23–24 November 2014), urged an early finalization of the text of the Draft Agreement (SAARC Secretariat, 2014). At the time of writing, this was still pending.

The SAARC Limited Multilateral Agreement on Avoidance of Double Taxation and Mutual Administrative Assistance in Tax Matters is another step towards investment cooperation among

Box 5.1

Investment cooperation under SAARC: A timeline

The Seventh SAARC Summit (Dhaka 1993) stressed the need for extraregional foreign direct investment.

The Ninth Summit (Male 1997) stressed the need for initiating specific steps to promote and protect intraregional investment. The Summit Declaration welcomed the offer of India to host a meeting on promotion and protection of investment and that of Pakistan to host a meeting on avoidance of double taxation.

The Tenth Summit (Colombo 1998) stated that an effort to devise a multilateral investment agreement should provide scope to least developed countries to formulate specific investment policies appropriate to their stage of development.

The Eleventh Summit (Kathmandu 2002) called for an early finalization of a regionally agreed investment framework to meet the investment needs of SAARC member states.

The Fourteenth SAARC Summit (New Delhi 2007) directed that the Agreement on Promotion and Protection of Investments be finalized.

The Fifteenth Summit (Colombo 2008) directed that the Agreement on Promotion and Protection of Investments be finalized early and the SAARC Arbitration Council be operationalized.

The Sixteenth SAARC Summit (Thimphu 2010) sought to strengthen the role of the private sector through greater intraregional investment promotion efforts.

The Seventeenth Summit (Addu City 2011) proposed greater flows of financial capital and intraregional long-term investment, focusing particularly on renewable energy.

Note: Drawn from SAARC Summit Declarations and Moazzem (2013).

SAARC member states. It was signed during the Thirteenth SAARC Summit (Dhaka, 12–13 November 2005) and the amendment to its Article 16 (1) (Entry into Force) was approved by the

Thirty-Third Session of the Standing Committee (New Delhi, 31 March–1 April 2007). The Agreement entered into force on 27 December 2006, but, with the amendment, its implementation started from April 2011 as per Article 14. For exchange of information and expertise among the tax authorities of member states, it was decided that seminars/training programmes would be conducted in each SAARC member state on a rotational basis on identified topics (*ibid.*).

The Agreement for Establishment of SAARC Arbitration Council (SARCO), signed during the Thirteenth SAARC Summit (Dhaka, 12–13 November 2005), is another step in the direction of investment cooperation among SAARC member states. Five meetings of the Governing Board of SARCO have been held so far. SARCO is in the process of finalizing the panel of arbitrators. Some of its objectives are: (i) to provide a legal framework within the region for a fair and efficient settlement through conciliation and arbitration of commercial, investment and such other disputes; (ii) to promote the growth and effective functioning of national arbitration institutions within the region; (iii) to provide fair, inexpensive and expeditious arbitration in the region, and act as a coordinating agency in the SAARC dispute resolution system; and (iv) to coordinate the activities of and assist existing institutions concerned with arbitration, particularly those in the region (*ibid.*).

The SAARC Agreement on Trade in Services (SATIS) is yet another initiative to promote investment cooperation among member states. At the Sixteenth SAARC Summit, SATIS was signed. Leaders expressed the hope that this will open up new vistas of trade cooperation and further deepen the integration of the regional economies. They called for an early conclusion of negotiations on the schedules of specific commitments under the Agreement. The Agreement has been ratified by all member states, entering into force on 29 November 2012. So far, ten Meetings of the Expert Group on SATIS have been held with the Eleventh Meeting agreeing that all member states would table their final offer lists and would also finalize and adopt the Schedules of Specific Commitments (*ibid.*).

This chapter examines the nature of intraregional investment flows, by countries of origin and destination, and the causes of low intraregional investment in South Asia. It also examines bilateral investment treaties in the region and the proposed draft SAARC Agreement on Promotion and Protection of Investments. It then examines India's Model Bilateral Investment Treaty before going on to the SATIS, not to mention the potential areas for investment cooperation in the region. Finally, it draws conclusions.

Low intraregional investment

As with intraregional trade, intraregional foreign direct investment (FDI) is very low in South Asia. In fact, FDI flows into the region, regardless of source, are low. A World Bank study estimates that the weighted average FDI inflow was merely 1.63 percent of gross domestic product (GDP) during the 2000–2011 period with wide variations in the FDI/GDP intensity among the countries. While

Table 5.1

Average FDI inflows to South Asian countries
(as percent of GDP, 2000–2011)

Recipients	Percent
Afghanistan	1.48
Bangladesh	1.01
Bhutan	1.22
India	1.56
Maldives	9.43
Nepal	0.15
Pakistan	1.69
Sri Lanka	1.21
South Asia (weighted average)	1.63

Source: Gould et al. (2013).

Table 5.2

Sources of FDI in South Asia
(as percent of total FDI inflows, 2003–2011)

Recipient countries	Source countries		
	India	SAR (excl. India)	Rest of world
Afghanistan	2.72	0.97	96.31
Bangladesh	23.88	0.49	75.63
Bhutan	48.75	0	51.25
India	0	1.34	98.66
Maldives	29.35	0.05	70.6
Nepal	53.63	0.61	45.76
Pakistan	0.83	0.3	98.87
Sri Lanka	37.41	0.22	62.37

Source: Gould (2013).
Note: Table abridged by author. SAR—South Asian region.

this was as high as 9.43 percent for the Maldives, it was 0.15 percent for Nepal (Table 5.1).

Table 5.2 shows that during the 2003–2011 period, around half of the FDI received by Bangladesh and Nepal was sourced from India. According to World Bank estimates, India contributed 70 percent to intraregional FDI. However, the total intraregional FDI was just 3.7 percent of all inward FDI in South Asia (Gould, 2013).

Inflows by sectors show that in 2009 services attracted the most, followed by manufacturing. Agriculture, mining, and all other sectors attracted very little, as may be seen in Table 5.3.

Low domestic savings and investment

South Asian countries are characterized by low levels of domestic savings and investment. The gross capital formation of the region declined from 35 percent of GDP in 2005 to 29 percent in 2016.

Table 5.3

Sectoral breakdown of FDI inflows to South Asia (2009)

Sectors	Percentage distribution
Service	72
Manufacturing	22
Agriculture and mining	4
Others	2

Source: Gould (2013).

Similarly, the gross savings of the region declined from 36 percent of GDP in 2005 to 30 percent in 2016. This decline was primarily due to declines in the two largest countries in the region, namely India and Pakistan. This may be expected to adversely impact these countries' outward investment flows to South Asia.[1]

Low outward flows

Table 5.4 shows that none of the countries has substantial outward investment flows, except India. This is a consequence of low levels of capital formation and gross savings and their declining trend in some countries. Even for India, such outward investment flows have fallen sharply since 2016.

Poor facilitation

Table 5.5 shows poor investment facilitation indicators of South Asia indicating that the countries rank poorly in terms of distance-to-frontier indicators among all the regions in the world, except for Sub-Saharan Africa. Such infrastructural deficiencies restrict the flow of investment, intraregional or extraregional.

Out of 180 countries surveyed, all South Asian countries were ranked quite low in terms of ease-of-doing-business indicators.

Table 5.4

Outward FDI flow from South Asia
(US$ million, in current prices)

	2005	2007	2009	2011	2013	2015	2016
Afghanistan	2	..	0	1	1	1	-1
Bangladesh	3	21	29	13	34	46	41
Bhutan	..	..	..	..	..	..	..
India	2,985	17,234	16,058	12,456	1,679	7,572	5,120
Maldives	..	..	..	..	..	..	..
Nepal	..	..	..	..	..	..	..
Pakistan	44	98	71	35	212	25	52
Sri Lanka	38	55	20	60	65	54	237
South Asia	3,071	17,408	16,178	12,564	1,990	7,697	5,450

Source: UNCTAD (2018a).

While Nepal and Sri Lanka ranked relatively high, Afghanistan and Bangladesh were the worst performers. What is notable is that while some countries fell in the third quartile, others fell in the last quartile in terms of ranking. Again, most countries lagged behind in distance to frontier. While Afghanistan and Bangladesh were below the half-way mark, the remaining countries barely crossed it. In terms of trading across borders, only Sri Lanka and Nepal were in the second quartile, while all others fell in the fourth quartile. In a remarkable move forward, India's rank in all indicators shows a significant rise in 2018, placing it in the second quartile of ease of doing business.[2]

Further, low logistics performance, as measured by the Logistics Performance Index (LPI), of South Asia, in relation to other regions of the world, is another factor underlying low investment flows in the region, whether from within the region or beyond. The capacity of developing countries to efficiently move goods and connect manufacturers and consumers with international markets

is improving, even if slowly. Much more is needed to close the existing "performance gap" between high and low performers. Supply chains are only as good as their weakest link and sustainable improvements require complex changes in a range of policy dimensions, including infrastructure, trade facilitation and services. In 2016 the LPI score of South Asia (2.62) was the lowest among all regions in the world, except Sub-Saharan Africa.[3]

Restrictive foreign exchange regimes

The ease of converting and transferring currency is a crucial consideration for firms investing in a foreign economy. Converting and Transferring Currency data and indicators measure foreign exchange restrictions that are relevant for FDI across economies. Such measurement helps identify common policies and benchmarks the restrictiveness of foreign exchange regimes. On average,

Table 5.5

Investment facilitation: Distance to frontier (0–00)

Regions	2017	2018
East Asia & Pacific	61.73	62.7
Europe & Central Asia	70.23	71.33
Latin America & Caribbean	58.3	58.66
Middle East & North Africa	55.81	56.72
OECD high income	77.41	77.46
South Asia	52.64	53.64
Sub-Saharan Africa	49.25	50.43

Source: World Bank (2018b).
Note: Distance to frontier (DTF) is the gap between an economy's performance and the best practice and serves as a basis for ease-of-doing-business rankings. An economy's distance to frontier is reflected on a scale from 0 to 100, where 0 represents the lowest performance and 100 represents the frontier.

South Asia and Sub-Saharan Africa are the most restrictive regions (Table 5.6) (Anderson, 2013).

The primary reason for countries to impose exchange restrictions is to protect their weak balance-of-payments positions. If countries have limited foreign exchange reserves, they may try to direct the existing foreign exchange towards economic transactions considered to be vital.

While Islam et al. (2014) characterize India's and Pakistan's capital accounts as largely liberalized, the authors consider Bangladesh and Sri Lanka as partly repressed.

Until recently, India had Sri Lanka, Bangladesh and Pakistan on the negative list for inward investments. However, in 2006 and 2007, India permitted FDI flows from Sri Lanka and Bangladesh, respectively. The announcement by the Indian Government, on 1 August 2012, to allow FDI from Pakistan has given yet another fillip to the total opening of India to allow free flow of capital from all countries in the region (ICRIER, 2012).

Table 5.6

Percentage of countries with moderate or heavy convertibility restrictions

Regions	Percentage
Organisation for Economic Co-operation and Development	0
Eastern Europe and Central Asia	10
Latin America and Central Asia	14
East Asia and Pacific	18
Middle East and North Africa	38
Sub-Saharan Africa	48
South Asia	83

Source: Anderson (2013).

FDI ownership exclusion

Except health care and waste management, all other sectors have some caps on FDI participation in South Asia. In media, insurance, banking, mining, oil and gas, and agriculture and forestry, there are caps of 10 percent or more.

Country-wise data show that, while Afghanistan and Bangladesh have no caps on FDI participation, India, Pakistan and Sri Lanka have them in several sectors. India has substantial caps on insurance, agriculture and forestry, transport, telecom and media. Pakistan has caps in media, insurance and telecom, and Sri Lanka in mining, oil and gas, media and electricity.[4]

Bilateral investment agreements among South Asian countries

The international legal system that governs international investment flows consists of more than 3,000 bilateral investment treaties and other international investment agreements, such as treaties with investment provisions. In the absence of a comprehensive multilateral agreement, cross-border investment flows are governed by bilateral and regional investment treaties, or investment chapters in free trade agreements. Bilateral treaties have emerged as the primary source of international investment law to protect and promote cross-border investment flows (Singh and Ilge, 2016).

Data compiled from UNCTAD Investment Hub (April 2018) show that South Asian countries have 204 bilateral investment treaties with the world—five of them among themselves (excluding double counting). Of these, two—India-Nepal and Pakistan-Bangladesh—were signed but not implemented. The earliest such treaty in operation in the region is that between India and Sri Lanka (since 13 February 1998), followed by that between Pakistan and Sri Lanka (since 5 January 2000) and that between India and Bangladesh (since 7 July 2011). The last one was signed between India and Nepal on 21 October 2011, which remains to be implemented (UNCTAD, 2018b). Table 5.7 provides the details.

Table 5.7

Bilateral investment agreements in South Asia

Country	With world	With SACs	Signed date	In force date
Afghanistan	3	Nil	na	na
Bangladesh	30	1 (India)	09/02/09	07/07/11
Bhutan	Nil	Nil	na	na
India	83	3 (Bangladesh, Nepal, Sri Lanka)	09/02/09 with Bangladesh; 21/10/11 with Nepal; 21/01/97 with Sri Lanka	Not in force with Nepal; in force with Sri Lanka since 13/02/98; in force with Bangladesh since 07/07/11
Maldives	Nil	Nil	na	na
Nepal	6	1 (India)	21/10/11	Not in force
Pakistan	53	2 (with Bangladesh and Sri Lanka)	24/10/95 with Bangladesh; 20/12/97 with Sri Lanka	Not in force with Bangladesh; in force with Sri Lanka since 05/01/2000
Sri Lanka	29	2 (with India, Pakistan)	20/12/97 with Pakistan; 21/01/97 with India	In force with India since 13/02/98; with Pakistan since 05/01/2000
South Asia	204	5		3/5 in force

Source: Compiled from UNCTAD (2018b).
Note: Signed agreements included, whether in force or not. SACs: South Asian countries. na: not available.

An analysis of mapping exercises by UNCTAD (UNCTAD, 2018c) and content analysis of bilateral investment treaties in the region suggest that these treaties are of the vintage of the 1980s and 1990s, and quite out of sync with present times. The India-Sri Lanka, India-Bangladesh and Pakistan-Sri Lanka bilateral investment treaties make no reference to sustainable development, or

to dimensions of social investment (such as human rights, labour, health, corporate social responsibility) and do not have any flexibility to introduce new regulations. The definition of investment is "asset-based", which is very broad-based. There is no denial of benefits, even when the invested enterprise has no substantial business interest in the host country, or when controlled by a third party or by investors from countries with which the other contracting party does not have diplomatic relations.

These treaties provide national treatment and most-favoured-nation (MFN) treatment to enterprises after their establishment. The MFN treatment excludes economic integration agreements, taxation treaties and procedural issues relating to Inter State Dispute Settlement. There is no mention of any earlier or post-entry bilateral investment treaties by any contracting party. Besides, they refer to unqualified, fair and equitable treatment to investors without even reference to international law. The term "expropriation" is defined, but "indirect expropriation" is generally not mentioned, or if mentioned, not defined. No mention is made of regulatory measures or use of compulsory licences. In all regional bilaterals, there is a provision for settlement of disputes, both between investor and contracting state and between contracting states.

The India-Nepal investment treaty, which was signed later than others, but has not been implemented, is more advanced as it factors in denial of benefits under stipulated circumstances. Indirect appropriation is defined and it carves out general regulatory measures. The text admits that non-discriminatory regulatory measures by a contracting party that are designed and applied to protect legitimate public welfare objectives including the protection of health, safety and environment do not constitute expropriation or nationalization, except in rare circumstances. Similar is the case when awards of any judicial body are issued in the public interest. However, this treaty also suffers from other earlier-mentioned limitations (e.g., definition of "investment", free and equitable treatment, etc.).

Globally, the international investment agreement regime is undergoing change and the developments in India are no exception. In 2016, India served termination notices in respect of its

bilateral investment treaties with 58 countries. But it could not terminate such treaties with 25 countries, including Finland, Iceland and Bangladesh, as they had not completed their initial terms—the initial period in which a party cannot terminate the treaty.

On 12 July 2017, the Indian Union Cabinet gave its approval for the Joint Interpretative Notes on the agreement with Bangladesh. The Notes imparts clarity to the interpretation of the agreement. It includes interpretative notes to be jointly adopted for many clauses, including the definitions of investor, investment, exclusion of taxation measures, fair and equitable treatment, national treatment and MFN treatment, expropriation, essential security interests and settlement of disputes between an investor and a contracting party. Joint Interpretive Notes generally plays an important supplementary role in strengthening the investment treaty regime. With increasing disputes over investment agreements, issuing such statements can have a strong persuasive value before tribunals. Such proactive approach by states can foster a more predictable and coherent reading of treaty terms by arbitration tribunals (Weiniger and Cartwright-Finch, 2017).

Proposed SAARC investment agreement

The text of the Draft SAARC Agreement on Promotion and Protection of Investments was finalized by the Seventh Meeting of the SAARC Sub-Group on Investment and Arbitration held at the SAARC Secretariat on 29 November 2007.[5] As in South Asian bilateral investment treaties, neither the preamble to the draft nor even the text makes any reference to any regulatory measures directed at social protection or sustainable development. Again, the definition of investment is very broad: it includes "every kind of asset" (Article 1(b)). Regarding treatment of investment, the draft Agreement provides for both national and MFN treatment combined in one article (Article 4). However, the clause provides for three exceptions stating that the contracting states "shall not be obliged" to extend to investors of any other contracting state benefits (i) in any other existing or future customs union or any inter-

national agreement; (ii) in any agreement pertaining to taxation; or (iii) any bilateral agreement relating to investment to which it is, or becomes, a party. The third exclusion is not available in the texts of any regional bilateral investment agreement.

Regarding the clause on "expropriation", there is no reference to "indirect appropriation", just as in all the regional bilaterals, excluding the India-Nepal one. Thus, the draft SAARC investment agreement remains deficient in content and is far from being a model treaty. It needs to be comprehensively redrafted. The SAARC Sub-Group on Investment and Arbitration must reconsider the text in the light of the changes in jurisprudence and experiences gained by the member states in the years since it was drafted.

Indian model of bilateral investment treaty

Following economic reforms in the 1990s, India signed several bilateral investment treaties and, like most countries, it had not fully understood the consequences. In 2012, India lost an investor-state arbitration dispute to White Industries. White Industries started the proceedings under the India-Australia investment treaty and, through the MFN clause, took advantage of another, more favourable, investor protection provided in the India-Kuwait investment treaty (Mehta, 2016).

To provide greater protection to India's regulatory power, the 2003 treaty model was reviewed and a final text of a new model was released by the Finance Ministry on 28 December 2015. The new model is designed to limit protection afforded to inbound investors to prevent some of the issues that emerged in the earlier cases (V&E International, 2016).

The model adopts an "enterprise-based" definition of investment, instead of an assets-based one, thus excluding many other assets, manly intangibles such as intellectual property rights, brand name, etc. (Article 1) (GoI, 2015). This limits the coverage and scope of the definition of "investment", which was not the case in the 1993 model. Besides, the enterprise must have "real and substantial business operations." The scope of the model text excludes

a number of other measures such as taxation, state subsidies, etc. (*ibid.*, Article 2). Under the Standard of Treatment, the model does not include "fair and equitable treatment" standard, providing, instead, protection only against specified measures (*ibid.*, Article 3). Article 4 has provisions only for national treatment and does not refer to MFN. Regarding "expropriation", Article 5 states that the state cannot nationalize or expropriate an investment, or take measures having an effect equivalent to expropriation, except "for reasons of public purpose" (*ibid.*). One of the most significant departures from the 2003 model is the requirement that an investor must exhaust all local remedies (judicial and administrative), before initiating international arbitration (*ibid.*, Article 14.3(i)).

SAARC Agreement on Trade in Services

There is a linkage between the SAARC Agreement on Trade in Services (SAARC, 2010) and the flow of investment through "commercial presence" (Mode 3) when it becomes necessary to invest in the host country to provide the service. SATIS provides one of the modes of supply of services in terms of "commercial presence" (Article 22.3). Article 2 (4) of the Agreement states that negotiations for specific commitments for progressive liberalization would be based on request and offer following a positive list[6] approach. This enables contracting states to open only those sectors that meet their comfort level, or those sectors which they wish to promote but lack the requisite skills to operate. Besides, as noted earlier, most FDI inflows in South Asia have taken place in the services sector, even in the absence of any Agreement. Hence, implementation of the Agreement may be expected to create substantial payoffs.

So far, initial offer-request lists have been made by all member countries, with the exception of Afghanistan. However, progress has been lacklustre as SATIS offers are "GATS-minus" and more restrictive than unilateral policies (Chanda, 2014). SATIS provides for MFN (Article 4) and national treatment (Article 5). Article 23 on "General Exceptions" provides safeguards like those under India's model bilateral investment agreement on "public purpose".

This includes protecting public order, health and human, animal or plant life. Besides, the MFN principle is applicable only post-establishment (Article 4(2)).

Areas of investment

Sectors attracting FDI

Abdin (2015) has analysed the top ten sectors attracting FDI in South Asian countries. Textile, clothing and readymade garment are the common manufacturing sectors drawing FDI in Bangladesh, India, Sri Lanka and Pakistan. Many member states are keen to attract more FDI in these sectors, both for catering to the domestic market and for exports. Similarly, most member states have attracted FDI in telecommunications and information technology. Tourism is another sector in which Bangladesh, Bhutan, India, the Maldives, Nepal and Sri Lanka have attracted FDI.

Potential investment to address supply constraints

Table 5.8 presents potential areas for India to invest in Bangladesh, Nepal and Sri Lanka to address supply constraints there. These are the author's estimates on possible trade-investment linkages based on the exports of Bangladesh, Nepal and Sri Lanka to India and the world, and India's imports from the world in 2015. The products are at 2-digit level of aggregation under the Harmonized System of classification. Although the products are among the countries' top five in the Indian market, they are insufficient to meet the Indian demand and the world's. A transition to investment-led exports, particularly in joint ventures with Indian companies, could be the next-stage export growth in these sectors.

Potential for intraindustry trade

Intraindustry trade (IIT), linking similar industries horizontally and linking industries vertically along value chains, provides fur-

Table 5.8

Potential sectors for Indian investment to address supply constraints (2015)

Product code (HS-2)	Bangladesh Sectors	Potential sectors
53	Other vegetable textile fibres; paper yarn and woven fabric	Integrated textile industry
62	Articles of apparel and clothing accessories, not knitted or crocheted.	Integrated textile industry
63	Other made-up textile articles; sets; worn clothing	Integrated textile industry
61	Articles of apparel and clothing accessories, knitted or crocheted	Integrated textile industry
08	Edible fruit and nuts; peel of citrus fruit or melons	Food processing industry

HS code	Nepal Sectors	Potential sectors
09	Coffee, tea, mate and spices	Transferring know-how and best practices in plantation sector
72	Iron and steel	Iron and steel processing
55	Man-made staple fibres	Textile industry
20	Preparations of vegetables, fruit, nuts or other parts of plants	Food processing industry
54	Man-made filaments; strip and the like of man-made textile	Textile industry

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HS code	Sri Lanka Sectors	Potential sectors
09	Coffee, tea, mate and spices	Transferring know-how and best practices in plantation sector
08	Edible fruit and nuts; peel of citrus fruit or melons	Food processing industry
23	Residues and waste from the food industries; prepared animal fodder	Transferring waste management practices
89	Ships, boats and floating structures	Ship building industry
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television ...	Electrical machinery and music system

Source: Estimated from Trade Map Database, International Trade Centre.
Note: The descriptions of sectors under HS classification are in brief. For full citation, see Cybex Solutions Pvt. Ltd.

ther opportunities for FDI in South Asia. Such trade shows the opportunity to increase the scale of production through joint ventures to meet demand in each other's markets. Linking up with value chains means a possibility of linking up with suppliers at different stages of the production cycle. This improves efficiency and the competitiveness of end products.

Table 5.9 shows India carried out intraindustry trade in 1,201 products in 2015. Of these, 342 had an IIT index value exceeding 25 percent. Thus, considerable opportunities exist for India to have joint ventures in its neighbouring countries in the region.

Based on intraindustry trade, Table 5.10 provides an illustrative list of sectors for potential investment by India in its South Asian neighbours.

Table 5.9

India's intraindustry trade with South Asian countries (2015)

Countries	Number of matched products (IIT)	Number of products having IIT value of 25% and above
Afghanistan	22	4
Bangladesh	286	84
Bhutan	46	16
Maldives	48	10
Nepal	200	54
Pakistan	182	59
Sri Lanka	417	115
South Asia	1201	342

Source: Author's estimates from UN Comtrade database, August 2016.
Note: calculation based on 4-digit Standard Industrial Trade Classification (SITC).

Vertical integration

Trade in intermediate goods plays an important role in linking with value chains. This enables countries to participate in value chains instead of competing with each other in similar products. Instead, they can compete in each link of the value chain depending on their competitiveness.

Table 5.11 shows India's trade with South Asian countries, by basic economic categories. It shows that by far the largest component consists of intermediate goods. This clearly demonstrates the possibility of investors from both India and neighbouring countries to take part in value chains and produce more value-added products for each other's markets.

South Asian countries could jointly promote this region for better coordination in attracting FDI. Not all of them are equally competitive in each sector. For instance, in garments Sri Lanka

may attract more FDI at the high end of the market, while Bangladesh is more competitive at the lower and middle ends. In tourism also, joint packages between India and Sri Lanka would be more effective in catering to the requirements of Buddhist pilgrims. South Asia provides a variety of topography and climatic conditions. During winter, tourists may be inclined to visit coastlines, while in the summer, hills would be more alluring.

Several studies have demonstrated the possibility of increasing intraregional trade through supply chain links in two major sectors in the region: (i) textiles and clothing and (ii) food processing. In textiles and clothing, Banga and Razaaque (2014) have found significant scope for developing supply chains using production networks across the borders of South Asian countries. Many products identified as inputs in the potential supply chains can be sourced from the region, without undermining competitiveness as these inputs are globally competitive.

Table 5.10

Illustrative sectors for potential Indian investment based on intraindustry trade (2015)

Potential investment in host countries	Industries
Bangladesh	Fish processing, portland cement, integrated textile mills
Bhutan	Non-alcoholic beverages, fruit juice, floor coverings, flat rolled products of iron, animal feeds, plastics, edible nuts
Nepal	Floor coverings, flat rolled products of iron, animal feeds, plastics, edible nuts
Sri Lanka	Parts n.e.s., of machines, plastic storage containers

Source: Author's compilation.

Table 5.11

Composition of India's trade with South Asian countries (%)

Basic economic categories	Exports (US$17,198 million)	Imports (US$2,908 million)
Consumer goods	20	41
Intermediate goods	54	48
Capital goods	13	6
Others	13	5

Source: UN (2018).
Note: Based on UNSTAT classification.

A UN-ADB (2005) study identified processed food and beverages as a sector where the region's global exports and imports grew rapidly during the 2000s. Intraregional exports in this sector increased from two percent in 1990 to 23 percent in 2011. This reflects the region's growing competitiveness in agricultural products. The sector is a fertile ground for exploring potential intraregional supply chains.

Table 5.12 highlights India's trade in intermediate goods with its neighbouring countries. The figures indicate India's dominance in exports. Data reveals that possibilities for developing value chains exist in apparel, footwear, parts of vehicles and electronics. The possibilities are greater where some two-way trade exists, such as India's trade with Afghanistan, Bangladesh and Pakistan in apparel and footwear, and with Sri Lanka in vehicle parts.

Major reviews called for

Initial attempts in regional integration among South Asian countries have mainly concentrated on trade. As with trade, intraregional investment flows remain low. Low levels of domestic capi-

tal formation and outbound capital flows from the region, poor investment facilitation, restrictive foreign exchange regimes and exclusion of FDI in some sectors explain South Asia's low level of

Table 5.12

India's intermediate goods trade with South Asian countries (US$ million)

Partner countries	Intermediate goods	Export value	Import value
Afghanistan	Apparel & footwear	89.09	0.21
	Vehicles	3.46	0.04
	Electronics	1.53	0.02
Bangladesh	Apparel & footwear	1277.12	16.74
	Vehicles	139.22	2.71
	Electronics	22.86	0.50
Bhutan	Apparel & footwear	4.04	0.56
	Vehicles	0.01	0.02
	Electronics	10.51	0.00
Maldives	Apparel & footwear	0.00	0.00
	Vehicles	4.04	0.01
	Electronics	10.51	0.00
Nepal	Apparel & footwear	34.46	43.72
	Vehicles	120.50	0.00
	Electronics	8.21	0.01
Sri Lanka	Apparel & footwear	440.34	0.02
	Vehicles	4.04	22.39
	Electronics	10.33	0.00
Pakistan	Apparel & footwear	234.58	21.59
	Vehicles	0.07	0.02
	Electronics	0.22	0.49

Source: Extracted from World Bank, World Integrated Trade Solution (WITS).

intraregional investment. More favourable investment facilitation beyond the region—say, in the members of the Organisation for Economic Co-operation and Development, in Eastern Europe and in Central Asia—explain why most of the global investment flows are concentrated in those regions. This also explains why so few bilateral investment treaties are operating in the region, as compared to those elsewhere.

The draft of the SAARC Agreement on Promotion and Protection of Investments remains in limbo. In today's globalized world, trade-led investment needs to be underwritten by investment-led trade. Both need to work in tandem, which begs a favourable investment environment.

India's bilateral investment agreements with South Asian countries, based on its 2003 model, are out of sync with those that are being currently negotiated. In other words, India needs to revisit its treaty with Sri Lanka, which has been in operation for more than ten years. It should renegotiate with Nepal, which, though signed, has not been implemented. Similarly, Pakistan needs to renegotiate its treaty with Bangladesh that has not been implemented. Its agreement with Sri Lanka has been in operation for more than a decade and needs a review. Regionally, an early conclusion of SATIS is also called for, since services have a high potential for FDI. Besides, as with Bangladesh, India could initiate dialogue with its neighbours (including Pakistan) on Joint Interpretive Notes on Agreements—whether in force, or yet to be implemented.

India's investment treaty model may not serve as a SAARC template. Still, India is the major investor in this region. Some of its positive elements that bring a better balance of interests between the investor and the states may be included to improve the comfort levels of host states of the region.

Furthermore, enormous opportunities exist for investors to integrate both horizontally (via intraindustry trade) and vertically (through value chains). However, for this potential to be realized, constraints that impede the smooth flow of investments within the region must be addressed.

Notes

1 Data obtained from World Bank (2018a).
2 Based on analysis of data in World Bank (2018b).
3 Based on analysis of data in World Bank (2018c).
4 Based on analysis of data in World Bank (2018d).
5 The Draft Agreement has been obtained, on request, from the SAARC Secretariat.
6 Under a positive-list approach, only negotiated sectors are opened.

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CHAPTER 6

Connectivity 2.0 for South Asia Economic Union

Prabir De

Trade has always been at the forefront of South Asia's economic policies. However, progress has been undermined by excessive costs and lengthy time associated with the export and import of goods and services. Connectivity, therefore, emerges as central to South Asia's regional economic integration, especially while dealing with the barriers hampering progress in trading. There is no doubt that South Asia can achieve substantial productivity gains and cost reductions through improvements in transport connectivity. International experiences reveal that success in transport connectivity depends on two broad measures: first, development of transport infrastructure, primarily the cross-border type; and second, reduction of non-tariff trade costs, particularly at the border. These important measures are also seen as a way to stimulate regional integration of South Asia.[1]

A deepening of the regional integration process under the South Asian Association for Regional Cooperation (SAARC) would take it towards the formation of a common market with a customs union. This means having a common external trade policy, *ceteris paribus.* Thereafter, an economic union may emerge as a natural consequence. In other words, an efficient, secure and integrated transport network is essential to support the realization of a South Asia Economic Union.

While South Asian regional trade has grown with the support of the Agreement on South Asian Free Trade Area (SAFTA), the

required attention to regional transportation has been missing. South Asia connectivity has moved from a trans-Asian architecture, such as Asian Highway and Trans-Asian Railway, in the first two decades of SAARC. Instead, the focus is on sectoral and region-specific connectivity, such as development of corridors, border development, customs cooperation, coastal shipping, digital connectivity and the like (Table 6.1). South Asian countries have been taking measures to improve their transport connectivity at the national level. However, the region as a whole is yet to make substantial progress in the field of collective transport connectivity. Nevertheless, the benefits to be derived from comprehensive connectivity measures towards a common market are significant.

Table 6.1

Transition of South Asia connectivity

Connectivity	Focus	Agreement
1985–2005	• Road and rail connectivity • Border development	• Asian Highway • Trans-Asian Railway
2006–2011	• Corridors • Road, rail and waterways • Customs cooperation	• E-customs • SAARC Regional Multimodal Transport Study
2011–2014	• Digital connectivity • Border development • Customs cooperation	• Integrated Check Post (ICP) • Border haats • E-customs
2015–to date	• Corridors • Digital connectivity • Paperless trade • Coastal shipping and inland water transport	• BBIN Motor Vehicles Agreement • UNESCAP paperless trade agreement • India-Bangladesh Coastal Shipping Agreement (IBCSA)

Source: Author.

The purpose of this chapter is to define the broad perspective and approach that South Asia should adopt as it works to enhance its intraregional transport connectivity. South Asia Connectivity 2.0, therefore, presents the basic principles that should guide South Asia's transport connectivity over the next decade. This chapter outlines the connectivity needed to facilitate the next phase of the South Asian integration process. It also provides the rationale for moving towards an economic union, and highlights the key policy issues thereof.

Transport and economic corridors

Transport corridors are a set of routes that connect the economic centres within and across countries. They encompass several centres of economic activity. Subregional corridors connect to a regional transport system. Transport and energy infrastructure bring in investment into sectors with the potential to develop projects. Subsequently, connectivity and growth attract investments in related sectors. Thus, a transport corridor grows into an economic corridor. The economic corridor approach emphasizes the integration of infrastructure improvement with economic opportunities, such as trade and investment. It includes efforts to address social and other outcomes of increased connectivity.

The approach gained attention when the Asian Development Bank (ADB) came in to support the Greater Mekong Subregion (GMS). A major achievement of the GMS programme is exemplified by the main economic corridors—the East-West, the North-South and the Southern. The 1992 GMS Ministerial Meeting sought to focus on investments in transport, energy and telecommunications in that region. The ADB devised a set of three characteristics that typified an economic corridor:

- It covers a small geographical space straddling a transport artery, such as road, rail or canal;
- It emphasizes bilateral, rather than multilateral, initiatives focusing on strategic nodes at border crossings between two countries;

- It highlights physical planning so that infrastructure development yields positive benefits. In a national context, the concept is now increasingly used for development programmes.

An economic corridor is a public capital—a sum of transportation networks, human resources, communication facilities, energy grids and institutional infrastructure. An economic corridor can be national (for example, the Delhi-Mumbai Industrial Corridor), regional (for example, the GMS corridors), or even international (for example, submarine telecommunications cables). Trade facilitation and logistics services are the main catalysts in its development.

Srivastava (2012) argues that there are five stages in the transformation of a transport corridor into an economic corridor—Stage 1: transport corridor; Stage 2: transport and trade facilitation corridor; Stage 3: logistics corridor; Stage 4: urban development corridor; and Stage 5: economic corridor. A framework for regional corridor development is based on the extent of regionality of corridors and their area of influence or width. On this basis, four zones are demarcated with inter-zone sequencing—Zone 1: narrow national corridor; Zone 2: broad national corridor, including area development and railroads; Zone 3: narrow regional corridor, including trade facilitation and logistics; and Zone 4: broad regional corridor, including cross-border economic zones.

The development of a national corridor to a regional one, that is, the movement from Zone 2 to 3, may involve the linking of national corridors. It includes reducing barriers at national boundaries to enable moving people and goods at least cost. The growth of logistics companies has to be supported while procedures are standardized.

The private sector has a critical role in corridor development in Zone 3. And, for movement to Zone 4, regional plans for seamless integration are required and national plans have to remain well-coordinated.

There are large opportunities for trade, investment and economic growth in the region, particularly due to low regional in-

tegration. Each country in the region has national plans and priorities for corridor development, which include developing rural roads and rural growth centres. Transforming this into Zone 3 requires the linking of national plans and corridors, a process that may not have a high priority in national plans.

India is uniquely placed in South Asia, connecting most of the countries of the region that do not have contiguous borders. It also serves as a vital link between East and West Asia. There are various studies that have identified the important transport corridors in the region. They include the ADB-supported SAARC Regional Multimodal Transport Study (SRMTS), the BIMSTEC Transport Logistics Study and the Asian Land Transport Infrastructure Development project, endorsed by UNESCAP in 1992. The latter includes plans for an Asian Highway. Developing the road corridors identified by SRMTS could be a first step towards creating economic corridors in the region.

Regional connectivity

A common set of region-wide facilitation measures are yet to be undertaken targeting connectivity and compliance with a single standard. Progress in this area has been limited to individual-country initiatives undertaken mainly as a part of the national agenda (e.g., electronic customs). Figure 6.1 illustrates the steps needed to move towards a South Asia Economic Union. It warrants a common template of trade transactions in the region for the eventuality when the region will apply common external tariffs to non-members. Therefore, South Asian countries must unite to implement a regional trade facilitation and connectivity agenda which consists of regional corridors, a regional single window, regional transit and coordinated border management. These are prerequisites for a customs union and an economic union.

Coordinated border management: It is based on measures such as collocation of facilities, close cooperation between agencies, delegation of administrative authority, cross-designation of officials and effective information sharing.

Figure 6.1

Steps to South Asia Economic Union

Source: De (2015).

Regional single window: This is a digital interface that allows traders to submit all import, export and transit information required by regulatory agencies only once, via a single electronic gateway, instead of submitting essentially the same information numerous times to different government entities.

Regional transit: Goods and services move freely in compliance with certain rules and regulations in a given region.

One-stop border post: One-stop border post allows neighbouring countries to coordinate import, export and transit processes to ensure that traders are not required to duplicate regulatory formalities on both sides of the same border.

On the hardware side, South Asia needs an economic corridor involving a regional transport network. Since an economic union cannot be achieved without a monetary union, a currency arrangement is another requisite. Thus, the three pillars of an economic union in South Asia are a customs union, a monetary union and an economic corridor.

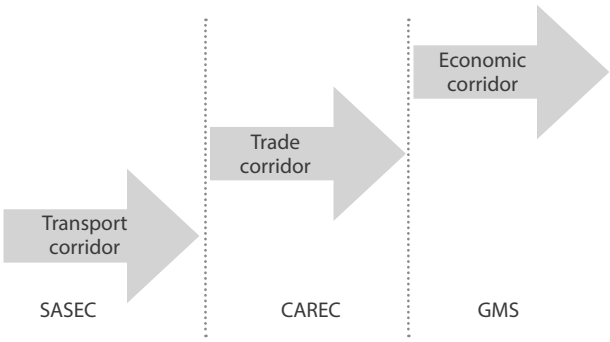
South Asia has already identified 10 regional road corridors, five regional rail corridors, two regional inland waterways corridors, 10 maritime gateways and 16 aviation gateways for implementation in Phase I (SAARC Secretariat, 2006). Besides, building regional infrastructure through economic corridors has been planned to help facilitate international and national transportation

and promote industrialization in the hinterland. The Delhi-Mumbai Industrial Corridor, a national economic corridor with regional implications, the Mekong-Ganga Economic Corridor and the India-Myanmar-Thailand Trilateral Highway are examples. The latter two are cross-border corridors linking South Asia and Southeast Asia. South Asia may have to pass through trade corridors to move to an economic corridor. The region has transport corridors. In Central Asia, these have been turned into trade corridors (ADB, 2012). A similar transformation of transport corridors into economic corridors in South Asia will depend on the volume, types and pattern of corridor trade and how it encourages a certain level of development in the areas surrounding the corridors.

Spatial planning that goes beyond national policies is needed to support the development of corridors in South Asia. Figure 6.2 illustrates the transformation of corridors in a geographic space. At the same time, the development of one area of the corridor is conditional upon the trading conditions along the entire area of the

Figure 6.2

Moving towards economic corridor



Source: Author's illustration.
Note: SASEC—South Asia Subregional Economic Cooperation; CAREC—Central Asia Regional Economic Cooperation Program; GMS— Greater Mekong Subregion.

corridor across countries. Building corridor nodes and gateways and linking the nodes along the corridor would help the region move towards an economic corridor.

Table 6.2 shows the sequencing of transformation of transport corridors into economic corridors, and the requisite policies for South Asia. The tasks are primarily three-fold: (i) developing a transport corridor, (ii) building corridor nodes, and (iii) linking corridor nodes and gateways.

Key policy priorities

South Asian regional cooperation programmes have to be much stronger than they are now to address regional infrastructure needs

Table 6.2

Corridor development policy

Stage	Corridor	Policy	Measure	Role
1	Transport corridor	Trade facilitation	• Integrated trade facilitation • Customs cooperation	• Government • Private sector
2	Trade corridor	Trade liberalization	• Border policies • Behind-the-border policies	Government
3	Economic corridor	Economic development	• Corridor value chains • Corridor township development • Cross-border investments	• Government • Private sector

Source: Adapted from ADB (2012).

and to cultivate enabling institutions and policies. The region has to undertake certain policies to support the regional trade facilitation agenda while aiming for an economic union. Box 6.1 presents key policies to be implemented for the purpose.

South Asian countries should continue to implement trade facilitation projects in the region. This will help them to streamline border transactions and improve competitiveness. Box 6.2 presents some suitable projects to be implemented in the region.

Box 6.1

Key policies

- Accept subregional, and subsequently regional, transit.
- Fast-track lane and priority of goods in transit to cross the border and move towards one-stop border post.
- Set up SAARC Single Window (pilot run of an authorized economic operator; and mutual recognition agreement).
- Simplify and harmonize trade procedures, particularly at the border.
- Introduce modern corridor management techniques in select corridors.
- Promote multimodal transportation (with rail transit, regular container trains in the region).
- Improve efficiency of border corridors (both sides of the border in integrated check post projects).
- Effective project coordination among government stakeholders.
- Strong institution (public-private interface) for trade facilitation.
- On-arrival visa, SAARC Business Travellers Card for facilitation of trade and investment, etc.
- Intermodal connectivity—Air Services Agreement (single ticket to fly between SAARC nations).
- Enforce electronic payment system.

Box 6.2

Key trade facilitation priorities in South Asia

- Reduce lengthy customs and cargo handling time at ports of Chittagong, Karachi, Kolkata and Haldia through automation and modernization.
- Faster opening of L/C accounts in banks with the help of information and communication technology (ICT) in Bangladesh and Nepal.
- Faster cargo insurance with the help of ICT, process reengineering and competition among service providers in Nepal.
- Use of ICT to obtain permits and certificates in Bhutan.
- Synchronize cross-border customs.
- Accept regional transit.
- Develop border infrastructure.
- Cross-border electronic customs transit document.
- National single window for paperless trade.
- Develop one-stop border posts.

Source: ADB-ESCAP (2014).

Develop interior infrastructure and a project development facility

All efforts at South Asian connectivity and trade facilitation will be incomplete if the backend linkages into South Asia's interior are not strengthened. Joint feasibility studies for connectivity projects may be encouraged. A project development facility (PDF) may be set up to facilitate planning and implementation of cross-border connectivity projects. Among others, this new PDF vehicle should aim at mobilizing finance to accelerate the speed of project delivery. It should focus on high-impact regional projects in energy, transport, ICT, small and medium-sized enterprises, special economic zones, education, health and water. Some of its major activities would be (i) advisory services; (ii) identification of projects through technical studies; (iii) mobilization of funding, etc. Innovative financing

should be explored along with greater financial cooperation for cross-border projects.

Paperless trade, national and regional single windows

Preparation of documents and exchange of information among various parties involved account for the largest share of the import or export process time. There are documents before the goods start moving from the factory, or before they even arrive at the port as in the case of imports. Hence, single-window facilities for submission and processing of information and documents are essential, given the importance of private sector actors in the transaction chain. Single-window facilities include enabling not only submission of information to regulatory and control agencies, but also making available relevant transaction information to both public and private actors along the transaction chain. Such "extended" national single windows are now operating in Korea and some Association of Southeast Asian Nations (ASEAN) countries. The success of ICEGATE in India also offers good lessons for other South Asian countries.

More generally, various process analyses have pointed out that there is limited use of modern ICT and a heavy reliance on paper documents throughout the import or export processes. Increased use of ICT and development of paperless trade should therefore be pursued more vigorously in South Asia. Electronic acceptance of cross-border bill of lading, or customs transit document (CTD), would certainly lead to paperless trade and effective implementation of the single window in the region. Countries should form an exclusive wing for trade facilitation. Bhutan has decided to accede to the Revised Kyoto Convention to modernize its customs.

Remove regulatory burden on exports and imports, streamline NTMs

South Asian countries must remove the regulatory burden they impose on exports and imports and streamline their non-tariff

measures (NTMs) on a priority basis. For example, Bhutan can simplify, merge and automate its Integrated Human Requirement certificate and other processes. The process requiring a Bhutanese customs inspector to travel to Burimari/Changrabanda to clear imports, which often causes delays, should also be removed. Similarly, the documentation requirements imposed by the ports of Kolkata and Haldia and customs in India on Nepal-bound cargo must become automated.

Minimum physical inspections

Inspection and testing procedures often account for a significant amount of the average transaction time. Inspections were actually found to affect the timeliness and predictability of the trade transaction process, a key factor in enabling firms to participate in international productions networks. Inspection may be required at various times, typically at the border or port for imports, but also often during the preparation of documents for exports. Inspections may be minimized through the use of appropriate risk management techniques.

While customs often have some form of risk management system in place, other regulatory agencies often do not. Building the capacity of these non-customs agencies and developing inter-agency risk management systems should be considered, along with joint (multi-agency) inspections when needed. Setting up certification programmes where the quality and other characteristics of goods can be ensured through the control of the production process at the factory, rather than for every shipment, may also be promoted as a way to reduce the need for inspections.

National and regional trade facilitation monitoring

Regulatory authorities have a limited view of the entire trade process. Often, they are only aware of their own internal efficiency—or inefficiency. Traders also have limited awareness of and information on the procedural bottlenecks. It is the intermedi-

aries that hold most of the information on the time and cost of specific procedures. Whether the inefficiencies are actually due to the intermediaries, or other parties, such as, regulatory authorities, and their impact, would need to be assessed independently, and regularly, in order to identify the priorities for reform. Governments, therefore, may consider the establishment of national trade facilitation performance monitoring mechanisms or measurement systems.

The same may also be applicable to the region as a whole. Regular and systematic conduct and update of business process analyses of import and export processes may be considered. Such analyses are the basis for the monitoring mechanism. The methodology in the World Customs Organization's Time Release Study, which focuses on a narrower set of procedures, can be helpful here. Embedding the performance measurement and monitoring function in ICT paperless systems should also be considered. These systems provide real-time information and detailed records on the time taken to move goods, including the exchange of electronic documents for all transactions. There are international examples of instruments used for the simplification of trade-related procedures which can safely be emulated by South Asia.

Harmonize documentary requirements

Different documentation is needed for exporting to different destinations along the South Asian corridors. This means confusion and delays. Besides simplification of documentary requirements, a continuous effort to align national procedures and documents with international standards and conventions is required. It is worth noting that differences in documentation stem not only from differing regulations across importing countries, but also from different requirements by individual buyers. The buyer may ask for different types of quality certificates, or require relevant information to be sent in different formats. Thus, the involvement of international private sector associations in the harmonization efforts is needed.

Synchronize cross-border customs

Customs must operate round the clock to facilitate South Asian trade. At present, there are differences even in the working hours between customs of two neighbouring countries. For example, Birgunj Customs in Nepal opens at 8 am, whereas Raxual Customs in India opens only at 10 am. A full automation and link-up between customs will reduce transaction time and cost.

Electronic submission of all trade documents

E-filing of documents can be made mandatory through legislation. Apart from a few initial hiccups, the application of modern ICT is manageable. For example, India's ICEGATE could lead South Asia from a semi-electronic to a fully electronic system. Excessive documentation will disappear in a fully electronic system.

Facilitate intra- and inter-regional multimodal transportation

Multimodal connectivity would encourage production networks in South Asia and provide substantial benefits to landlocked countries—Afghanistan, Bhutan and Nepal. It would lower the costs of access to the South Asian market. Similarly, an intermodal link between maritime and land routes should also be encouraged. Multimodal links would eventually lead to stronger and more effective industrial networks between South Asia and Southeast Asia.

Accession to international conventions

International conventions related to transport facilitate the movement of goods, especially at border crossings, by reducing procedures and formalities, and saving time. South Asian transport networks require appropriate legal frameworks to define the rights of passage for goods, people and vehicles, and to decide on permits,

licences and other measures, as well as mechanisms for consultation, and dispute settlement. Transport facilitation at the national and international levels is a prerequisite for enhancing international trade. South Asian countries must accede to international conventions on land transportation networks—road and rail.

There are seven international transport conventions which they should focus on. Originally developed under the auspices of the Economic Commission for Europe (ECE)[2], they are: the Convention on Road Traffic, 1968; the Convention on Road Signs and Signals, 1968; the Customs Convention on the International Transport of Goods under Cover of Transport International Routier (TIR) Carnets (TIR Convention), 1975; the Customs Convention on the Temporary Importation of Commercial Road Vehicles, 1956; the Customs Convention on Containers, 1972; the International Convention on the Harmonization of Frontier Controls of Goods, 1982; and the Convention on the Contract for the International Carriage of Goods by Road, 1956.[3] The Revised Kyoto Protocol, in operation since 2006, is another tool that facilitates the development of an economic corridor.[4] While some South Asian countries are members of international conventions on the intercontinental movement of vehicles, progress on other international conventions has been uneven. Afghanistan, Pakistan and India have signed some conventions. Accession to different versions of the conventions undermines facilitation objectives.

Multimodal transport, transit and logistics

Transit and trade facilitation are pivotal to economic corridors. South Asia's lack of transit agreements is a major reason for the low level of economic exchanges. South Asia must revive transportation networks and establish region-wide multimodal transport and transit to reduce transportation costs. The region should have its own regional transit arrangement. BBIN countries (Bangladesh, Bhutan, India and Nepal) have signed a Motor Vehicles Agreement. This is a step in the right direction for cross-border trans-

port and transit. South Asia should do the same for its economic corridor development. A door-to-door logistics approach should be pursued. There should be no distinction between transnational and domestic connections. Coordination among key players to achieve efficiency throughout the logistics chain is a must. Not all sides benefit equally from seamless development (e.g., India bears the cost of the road between Bangladesh and Nepal).

Harmonize rules, regulations and standards

For the infrastructure of a South Asia-wide transport network to function effectively, the necessary soft infrastructure, such as relevant rules, regulations and standards, has to be in place. Rules, regulations and standards must meet a common regional benchmark or, more preferably, an international one. Trade facilitation initiatives in the area of standards and conformance focus on addressing the differences between national laws, standards and conformity assessment procedures. These aim for a broader horizontal approach at the regional level.

Therefore, South Asian countries should harmonize national standards with international standards and develop mutual recognition arrangements among themselves. Further, to make such an agreement effective, South Asian countries need to incorporate such provisions into their national laws, regulations and standards. There is a need for a higher level of coordination among the stakeholders and agencies concerned, such as transport, customs, immigration and quarantine authorities. At the same time, the capacity of national institutions has to be enhanced for effective implementation of these agreements. There is also a need for a uniform or compatible standard for developing cross-border transport networks that is beneficial for all stakeholders. The establishment of an efficient management system and capacity building to look after the harmonization of standards would pave the way for developing regional economic corridors. This would ultimately help achieve single-stop and single-window customs offices across South Asian economic corridors.

Engage SAARC Observers

SAARC has to constructively engage its Observers in the trade facilitation project. ASEAN has set up a Connectivity Coordinating Committee to coordinate with its dialogue partners in connectivity projects. For eventualities when resources are scarce, SAARC should constitute a committee at the Secretariat to coordinate with its Observers. This will help the region to source valuable technology and capital to finance connectivity projects, technical assistance, training and capacity building, among others.

Broad facilitation agenda

The development of trade infrastructure has to be commensurate with the growth of the region. South Asia could unleash its full potential if it improved infrastructure facilities, which are at present not sufficient to meet the growing demand of the region. Failing to narrow the infrastructure gap, the region's growth and development will slow down. In other words, this also indirectly indicates high investment potentials in South Asia's roadways, railways, power and the associated components. South Asian regional cooperation should, therefore, aim to reduce both intra- and inter-regional trade facilitation gaps. The process of South Asian regional integration has to contribute to narrowing the gaps by providing resources for the development of trade infrastructure. The resource requirements for bridging these gaps are substantial, but manageable if we take a concerted approach to utilize the region's financial resources. Finally, South Asia has to enact its own connectivity and trade facilitation arrangement to take the agenda of South Asia Economic Union forward.

Connectivity and trade facilitation measures such as the simplification, harmonization and automation of procedures and documents and streamlining NTMs involve interagency coordination and collaboration. Their successful implementation requires not only political and governmental support in terms of policy directives and human and financial resources, but also an

in-depth understanding about existing business processes, including their related information flows, laws, rules and regulations. To move ahead with the connectivity agenda, South Asian countries may consider conducting a study to devise a South Asia regional connectivity strategy for regional economic union with the participation of SAARC member states, Observers and international organizations.

Notes

1 Refer to, for example, ADB et al. (2018).

2 Currently, there are 56 transport-related international legal instruments initiated by the ECE aimed at facilitating the movement of goods, people, and vehicles across international borders.

3 For details of select international conventions on transport facilitation, see UNESCAP (2007).

4 The revised Kyoto Convention promotes trade facilitation and effective controls through legal provisions that detail the application of simple yet efficient procedures. The revised Convention also contains new and obligatory rules which all Contracting Parties must accept without reservation.

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CHAPTER 7

Regional value chains

Pakistani perspectives

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Past experience from East Asia, Europe and North America demonstrates that vibrant regional value chains (RVCs) remain a key stepping stone towards becoming an active participant in global value chains (GVCs). The most obvious channel through which this happens is the increased number of avenues for exports and imports of intermediate and finished goods and services (for details, see Slany, 2017). In this context, national and regional trade policies and agreements play a key role in bringing the countries and their enterprises closer. Most preferential or free trade agreements today are designed to promote value chains.

Apart from this, foreign direct investment (FDI) in exporting industries, which also carries a technology transfer component, helps a country's integration into transnational value chains. The determinants of FDI also impact the country's progress towards integration with RVCs. For example, while distance discourages FDI, economic size, sharing of language and norms and ease of doing business encourage investment from abroad (for details, see Noguer and Canals, 2006).

A key question that the recent literature asks is: what determines access to goods and services markets abroad as trade barriers decline over time or vice versa? The stop-go cycles in trade liberalization efforts in developing and developed worlds have complicated the answer to a question which has been empirically answered in the past. The gainers and losers in the globalization

process are never easy to define through just the economic models. There is also the question of how and under what conditions being part of value chains abroad can contribute to employment generation. For example, the concept of immiserizing growth suggests that there may be instances where an economic expansion may take place even while returns to economic activity may see a decline. We have evidence from history, where increased exports in several economies were only possible by keeping wages at low levels (for details, see Kaplinsky and Readman, 2000).

An equally important concern is whether RVCs can create decent jobs. One of the targets under Goal 8, of the Sustainable Development Goals (SDGs), calls for achieving "full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value." This concern for decent jobs is important if RVCs are going to create a dent in poverty through employment linkages (Shabbir and Ahmed, 2015). While creating decent wage employment is essential, equally needed is a focus on self-employment opportunities, for which we need to understand how small and medium-sized enterprises (SMEs) fit into the overall RVC ecosystem (for details, see Schmitz, 1998).

In the case of South Asia, recent research has revealed several barriers to the creation of dynamic RVCs. These include: limited purchasing power, concentration of manufacturing in low value-added activities, non-tariff barriers, a lack of facilitation for trade in services, uncertain logistics, skill shortages and a lack of a conducive regional investment policy (for details, see Das, 2015; Ahmed et al., 2015b).

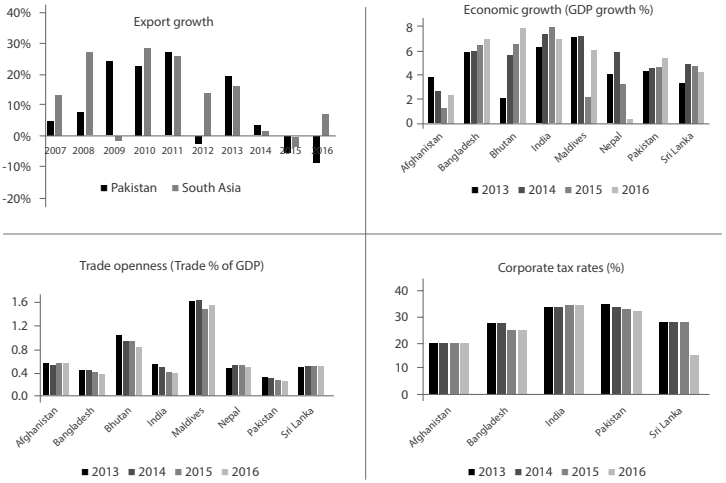
South Asia, home to one fifth of the world's population, has a less than three percent share in global trade. Intraregional trade stands at less than six percent of South Asian total trade. This is low compared to the Association of Southeast Asian Nations (ASEAN)'s intraregional trade, at 22 percent, and the European Union, at almost 60 percent. This chapter highlights the challenges to developing RVCs in South Asia, focusing on the experience of Pakistan, and suggests some steps to be taken to overcome them.

Regional situation

South Asia as a region has seen decent growth across key productive sectors. Bangladesh, Bhutan and Pakistan have seen consistent increases in their real GDP growth rates during the 2013 to 2016 period (Figure 7.1). India also saw high growth rates during the period, except for some deceleration in 2016. However, this growth has not resulted in robust export gains. In fact, overall South Asian export growth went downhill after 2010. During 2015, export growth turned negative on account of low global commodity prices, a lack of diversification in the South Asian export basket and the inability of South Asian economies to significantly bring down the cost of doing business. While some recovery was seen in

Figure 7.1

Growth, trade and taxes in South Asia



Source: World Development Indicators. The data on corporate tax rates was obtained from KPMG's country tax profiles.

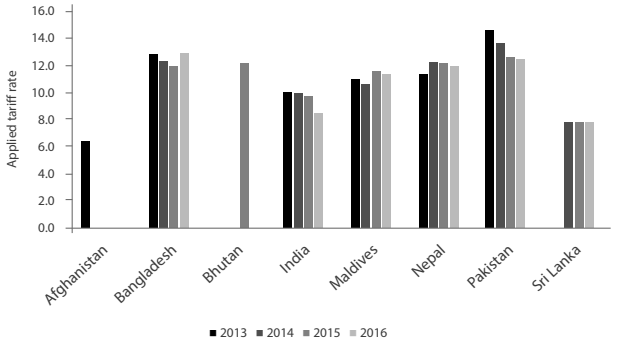
export growth during 2016, the growth rate of exports in Pakistan remained negative.

This is attributed to a significant overhaul of the tax system in Pakistan and the resulting delays in rebates owed to exporting entities, which in turn resulted in temporary reductions in their working capital (for details, see Ahmed, 2018; Javed and Ahmed, 2017; Ahmed, 2017). Pakistan was the only other economy in South Asia to consistently reduce its corporate tax rates during this period (Bangladesh being the other one). Even this measure was not enough to improve the competitiveness of exporters. With changing product certification and standards-compliance requirements, particularly in key export destinations for Pakistani exporters such as the European Union, a lot more effort is required to understand the desires of foreign buyers (Samad et al., 2015).

Despite falling applied tariff rates (Figure 7.2) in major economies, South Asia as a region saw a return of the protectionist wave. This is evident in declining levels of trade openness, measured as a ratio of total trade (exports and imports of goods and services) to gross domestic product. The decline in trade openness was par-

Figure 7.2

South Asia applied tariff rates



Source: World Development Indicators.

ticularly seen in three of the largest South Asian economies—Bangladesh, India and Pakistan. The region as a whole has not been able to bring down non-tariff barriers (for details, see Shabbir and Ahmed, 2016; Ahmed and Batool, 2017a, 2017b).

While improving its rank from 122nd to 115th in the 2017-18 Global Competitiveness Index, Pakistan was far behind its peers in South Asia (Table 7.1). The key reason was a national drive to document the economy—a painful adjustment for many businesses in the country which relied on informal vendors and other undocumented backend supply chains. The increase in tax-related documentation increased the compliance costs. The introduction of laws related to anti-money laundering also made it mandatory for transactions to be channeled through the formal finance and banking institutions. Much of the energy shortage faced by industry was alleviated by new power generation capacity, made possible by the China-Pakistan Economic Corridor (CPEC). However, the per unit cost of electricity and gas faced by commercial entities remained higher than in the peer economies.

Table 7.1

Global Competitiveness Index (2016–2018)

Countries	2016-17 Rank out of 138 countries	2017-18 Rank out of 137 countries
Bangladesh	106	95
Bhutan	97	82
India	39	40
Nepal	98	88
Pakistan	122	115
Sri Lanka	71	85

Source: World Economic Forum.

Pakistan is currently integrated with the value chains mentioned in Table 7.2. Only countries from South Asia have been presented here. China too appears because its supply chain linkages exist with all South Asian economies. This assessment, however, does not fully review the potential of Pakistan's value chain integration if trade and investment cooperation is deepened (see Das, 2015). Pakistan's sector-wise potential exists in the food processing industry (with India and Sri Lanka), spinning (with India), weaving and knitting (with India and Nepal), finished cloth-

Table 7.2

Pakistan's sectoral linkages in the region

Country	Main sectors involved	Sub-sectors
Afghanistan	Manufacturing, services	Cement, energy, manufacturing, hotels and hospitality, logistics, information and communication technology, auto parts, home appliances, pharmaceuticals, construction, hardware items, health services, and banking
Bangladesh	Manufacturing, services	Textile, locomotives, banking
China	Manufacturing, services	Textile, chemicals, services, sea food, marble and gemstone, education services, banking
India	Manufacturing	Chemicals, cement, cutlery, surgical instruments, sports goods, gypsum, bauxite, marble
Sri Lanka	Manufacturing	Sea food, fruits and vegetables

Source: Authors' own assessment.

ing (with Bangladesh, Nepal and Sri Lanka), leather (with India and Nepal) and chemicals, including pharmaceuticals (with India and Nepal).

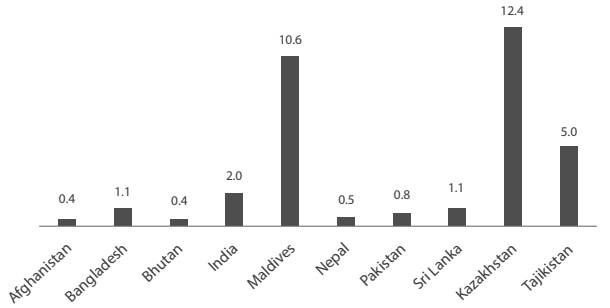
A key reason why South Asian RVCs are slow to come by is a lack of investor confidence in sourcing materials from within the region. For example, Indian or Pakistani investment in the garment sector of Bangladesh could result in higher levels of garment exports from Bangladesh to South Asia (see Kathuria and Yatawara, 2016). One needs to understand which type of FDI (e.g., vertical, horizontal, or export-oriented) can best create RVCs. This understanding is essential for South Asian economies to customize their FDI policies to lure investors from within the region (Ahmed et al., 2015a). As it stands today, a low FDI inflow as a percentage of GDP (Figure 7.3) indicates that South Asia is not a preferred destination for investors even from the rest of the world.

Methodology

This chapter follows the approach in Ahmed et al. (2015b). Starting with a two-way identification of RVCs, it first looks at the key sec-

Figure 7.3

FDI inflow, 2016 (as % of GDP)



Source: United Nations Conference on Trade and Development Statistics.

tors and activities where Central and South Asian countries stand attractive for Pakistani investors. Secondly, sectors and activities in Pakistan that may be attractive to Central and South Asian investors are identified. This process was helped by the identification provided in Table 7.2 and efforts in Das (2015) and De and Iyengar (2014).

In the next step, following the standard Delphi technique and using a brief version of the questionnaire used in Ahmed et al. (2015b), the potential and current investors in South Asia were engaged. A total of 43 investors were interviewed between January and August 2017. Most of these business persons from Pakistan are members of local Chambers of Commerce and Industry or the Pakistan Business Council. Most of the interviewees also have branch offices or investments in regions other than Central and South Asia.

A third prong of the methodology focused on engaging with actual, potential and past exporters in four provinces of Pakistan. This engagement took the form of focus group meetings held in provincial capital cities. The study team from Sustainable Development Policy Institute (SDPI) was able to host over 250 business persons in various sittings. This allowed the team to validate the responses obtained through a questionnaire-based exercise and also to document any macro-level or sector-specific barriers faced by Pakistani exporters and investors in the region.

A key source of primary information was media content analysis. Only those media discussions were selected where the correspondent had interviewed a chief executive officer of an entity which fell within the identified sectors. Mostly, sources from the print media were used.

In the last step, the interviewees and select participants from focus group discussions were approached again. They were asked to prioritize their policy recommendations and also suggest the specific institution at the federal or provincial government level in Pakistan to be entrusted with the responsibility of owning the (policy) action.

Findings: Macro-level issues preventing integration into RVCs

Uncertainty of political relations

This was termed a key barrier to more certain business with the major economies of South Asia. Most business persons believed that the decisions by Bangladesh and India not to participate in the South Asian Association for Regional Cooperation (SAARC) Summit scheduled to be held in Pakistan in 2016 derailed the overall process of engagement in the region. This happened at a time when several SAARC member countries were meeting with Pakistan at the bilateral level. Such meeting included recent visits to Islamabad by the Sri Lankan president, the foreign minister of the Maldives and the army chief of Nepal, and the Pakistani prime minister's visit to Afghanistan. They cited worried voices from within India about the likelihood of the country's future diplomatic moves in the region being seen as a "hindrance to development of the region" (see Kakar, 2018; Hanif, 2018).

Lack of business-to-consumer (B2C) channels

Due to challenges in connecting with South Asian consumers through physical or virtual means, it has been difficult for businesses to reach out to them. This is particularly so for those in the region dealing in consumer goods with high frequency consumption. This has also prevented regional growth of e-commerce initiatives. Other parts of the world have promoted five types of online B2C models: direct selling, online intermediaries, advertising based B2C, community-based marketing and fee-based arrangements.

Domestic regulatory burden not allowing SMEs to become exporting entities

There has been no national-level regulatory impact assessment recently. After the 18th Amendment, provincial governments have

passed laws related to revenue, the environment, labour and municipal development—all of which impact the business environment. Several potential exporters highlighted the waste of a significant number of man hours working to comply with overlapping federal and provincial regulations. This in turn results in higher transaction costs, especially for SMEs.

Under a weak competition regime, such businesses also fear that going international and aiming to become a part of RVCs could mean further regulation, a key barrier to entry and exit. Having transparent and easy-to-follow regulations also helps other indicators under the cost-of-doing-business framework, i.e., contract enforcement, dealing with permits and licences. Some industries which face long-term price freeze (e.g., in agriculture, pharmaceuticals, vanaspati, etc.) also remain a no-go area for foreign investors.

Lack of FDI policy that incentivizes new entrants from the region

While sector-specific efforts have been carried out to address this point, there is no overarching FDI policy to attract new entrants in sectors with the largest future growth potential. A right step in the direction was the new auto policy in Pakistan, which now provides a one-off exemption to the import of plant and machinery from import duties, and concessionary import tariffs on parts for five years.

Perhaps such policies that favour new entrants and create competition are required for other manufacturing sectors in Pakistan as well. For example, for a very long time, Pakistan has been trying to convince smartphone companies to not just sell, but also produce in a country that has the sixth largest population in the world. However, this has not happened, primarily due to a lack of quality-assured supply of components in the local market.

Another example is the pharmaceutical sector, where several multinational companies (MNCs) are allowed to operate in Pakistan. They bring their intermediate ingredients not from their home country but from India. Such a process, while denying Pakistan gains from MNCs' research and development, or transfer of

technology, also prevents local Indian and Pakistani firms from collaborating in horizontal or vertical value chains.

Logistics constraints

During the study team's meeting, as part of a Track II initiative, in Kathmandu during October 2017, Indian counterparts revealed that in the chemical sector, they would prefer sourcing specific items from Pakistan. However, they were apprehensive if it could increase supply (as and when demand increased) and ensure timeliness and proper storage during dwell and travel. Similar constraints were also seen in the case of another Track II meeting, attended by this team in Kabul in April 2017. Manufacturers in plastics, furniture, wood, paper and paper board all seemed to be of the opinion that Pakistan is a preferred market for sourcing inputs and intermediate items in these industries. However, they complained about the long wait time at Torkhum and, in some cases, Chaman Post as well. The unannounced closure of the Torkhum border point in the past had also prompted them to rethink the reliability of supplies from Pakistan. The other difficulties identified by Afghan manufacturers included a lack of information regarding potential suppliers, weak online connectivity with vendors, dilapidated transport networks inside Afghanistan and a lack of insurance facilities.

Information gaps regarding special economic zones (SEZs)

Exporters said that in the next phase of CPEC, nine SEZs are due to be established in several parts of Pakistan. Similarly, two corridors of Central Asia Regional Economic Cooperation (CAREC) would also pass through Pakistan. However, until now there is no mapping available as to what specific items each SEZ can supply to the neighbouring countries. At the time of writing this chapter, only brief information regarding Rashakai Economic Zone was available, suggesting that the entities that ultimately come here can supply

marble, furniture, electrical products, pharmaceuticals, sugar, tobacco and beverages to Afghanistan and Central Asian economies.

Weak financial intermediation

Formal financial linkages between South Asian countries are no more a barrier to trade and investment because such linkages are possible through intermediary financial institutions, perhaps based out of a third country. However, most respondents viewed that the presence of the other country's banking sector (in the form of a branch or representative office) brings greater confidence in building investment relations with that country's traders and investors. Within the region, Pakistan, until now, has only maintained active bank branches in Afghanistan and China.

Lack of business-to-business R&D linkages

A key element in vertical RVC creation is cooperation in research and development (R&D). Until now, this has only happened at a very small scale. The example of Hamdard Laboratories in Bangladesh, India and Pakistan is a rare example. The lab is backed by the owner's family presence across South Asia (see Mitra, 2013). To take such efforts forward, the 2012 meeting of the Commerce Ministers of India and Pakistan had established the Pakistan-India Joint Business Forum, which comprised 15 business persons from each side. The forum had set up task forces to focus on areas of cooperation related to agriculture, auto, engineering, textile, pharmaceutical and energy sectors. The recommendations of this forum, however, require uptake by both governments, which seems unlikely in the present political situation.

Uncertainty of tax and tariff regime

Pakistan has seen significant changes to its tax, particularly customs, code in the past five years. There is widespread literature saying that foreign investors usually pursue a destination where their

prospective cash flows can be locked for a certain time period. In the last couple of years, the country has seen the imposition of para-tariffs, beyond the standard tariffs. These have increased the cost of doing business in several sectors, some of which have moved the court. The government is considering a reduction in the number of items on which regulatory duties were imposed during 2016-17.

Findings: Sector-specific issues preventing integration into RVCs

Non-tariff barriers (NTBs) in manufacturing

Pakistan's potential value chain linkages with SAARC economies exist in sectors such as cement, energy, processed food and beverages, pharmaceuticals, construction and hardware items, locomotives, marble and gemstones, sea food and fruits and vegetables. Most of these sectors face high levels of NTBs in the region. Over time, the list of NTBs has expanded and the imposition of such measures is usually not anticipated, resulting in production losses.

NTBs in services sectors

NTBs are also seen in services sectors. Pakistan has potential value chain linkages in health services, banking, education, and information and communication services. A key hurdle to trade in these services is the barrier to the movement of persons. In health services trade, for example, the barrier makes timely travel uncertain for specialized medical professionals and also their clients, i.e., patients who may require physical travel (see Manzoor et al., 2017).

Low yields in agriculture

There are vast opportunities in agricultural RVCs if the region is able to demonstrate or ascertain better yields in major crops (e.g., wheat, rice, cotton and sugar cane), fruits and vegetables. In Pakistan, low yields have been a result of reduced soil fertility, a lack of

high quality and climate-resistant seeds, lacklustre use of technology at planting and harvesting stages, and low levels of the desired nutrients in fertilizers.

High cost of electricity and gas in manufacturing

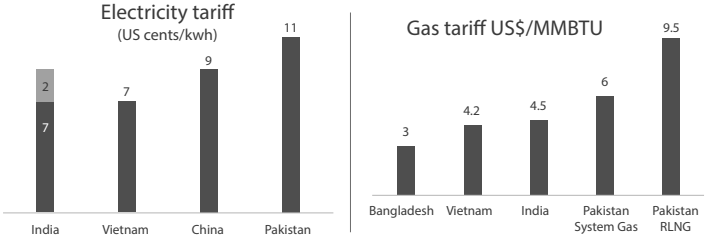
The government has reported an addition of 11,000 MW of electricity during the past four years. This has been primarily a result of investments under CPEC. However, exporting entities report that despite reduced energy stoppages, the per unit cost of electricity and gas has not come down. Figure 7.4 shows tariffs in Pakistan and a few comparator countries. This is concerning at a time when global oil prices are already being predicted to increase. As Pakistan also relies on imported energy supplies, the overall burden of rising energy costs could discourage future investment.

Existence of parallel informal trade channels

The appetite for deeper cooperation in value chains diminishes if the final product can reach the destination through informal trad-

Figure 7.4

Electricity and gas tariffs



Source: APTMA (2017).

Note: Indian state governments are giving subsidies ranging from 1 US cent to 2 US cents per unit. Electricity tariff for Xingjian province of China is further subsidized to 6 cents per unit. MMBTU is one million British Thermal Units.

ing channels. There is no need to pay the customs-related and other tax payments in such channels. Formal enterprises end up facing unfair competition. Several countries in the region have taken measures to prevent informal and illegal trade, including smuggling. Informal trade has been documented in potential RVC sectors, e.g., textile, pharmaceuticals, automobiles, cosmetics, jewellery, paper and paper items, crockery, herbal items, tobacco, fruits and vegetables (see Ahmed et al., 2015c).

Missing trade-related infrastructure

The promotion of RVCs, particularly in agriculture and livestock, requires careful handling during transportation, distribution and delivery, and adherence to set standards. Weak trade-related infrastructure, particularly at border points, has discouraged businesses in several sectors. For example, Pakistani meat and meat product exporters say that this was a priority sector in Pakistan's Strategic Trade Policy Framework (2015–2018). The vision was devised to benefit from Pakistan's proximity to leading global beef importers, including Central Asia, Russia, China and Iran.

However, lack of supportive infrastructure is holding the sector back. Cold storage facilities at airports do not comply with proper hygienic requirements. The national carrier, Pakistan International Airlines, lacks an ability to handle perishable items like meat. The quarantine fee faced by exporters in the sector is high, especially given that several countries in the region, including India, had waived the fee during 2016. This sector in Pakistan is also being hurt by smuggled meat from Afghanistan and Iran, which the government has now promised to check.

Lack of international supplier certifications

To become part of RVCs most sectors now require supplier and product certifications issued by globally accredited regulators. An inability to do so results in Pakistan being limited to exporting to developing countries with less-than-optimal certification require-

ments. Three issues require the public and private sector's response here. First, SMEs may not be able to afford the certification costs, particularly if they need to obtain it from an advanced country's accrediting body. Second, local regulators in Pakistan, approaching which may be more economical for SMEs, lack qualifications to become globally accredited. Third, government support to private enterprises in obtaining certifications from abroad has been limited to select sectors.

Conclusion

This chapter has drawn on enterprise-level responses from entities that are already connected with GVCs. It has discussed various impediments to the pursuit of Pakistani enterprises wishing to integrate with the region through trade and investment value chains. It has distinguished macro-level barriers that stunt the creation of RVCs from sector-specific ones.

National governments in SAARC are required to take a few immediate steps to provide greater confidence to those businesses in South Asia that may wish to integrate with the region. First, there has to be an effort to bring the SAARC process back on track. All member states should make a sincere effort to help the SAARC Secretariat to convene the stalled summit of heads of states, which has not happened since Bangladesh and India refused to participate in the 2016 meeting scheduled to be hosted by Pakistan.

Second, to ensure physical interaction among private sector representatives, it is proposed that all SAARC member countries liberalize their visa policies. This will also have a positive spillover effect on trade in services.

Third, at a national level, Pakistan needs to use its tariff policy intelligently so that industries have the incentive to import inputs from within South Asia. However, tariff policy alone may not be the answer here. A relaxation in NTBs will also be required.

Fourth, to make Pakistani businesses more competitive and attractive for conducting business with the region, it is important to review the regulatory burden on industrial sub-sectors. It is pro-

posed that an economy-wide and sectoral regulatory impact assessment be conducted by the Ministry of Finance in Islamabad. Pakistan will also need to streamline the issue of multiplicity of taxes on the same source of income and profit at federal and provincial levels. Completing the ongoing tax reform can also bring down the cost of doing business across all sectors.

Fifth, taking a regional approach to food security in South Asia can help the case of agricultural RVCs. In this regard, the SAARC Food Bank Board may be empowered to link the bank to international institutions such as the International Fund for Agricultural Development. This will also help in securing the budget for sustainable operations of the SAARC Food Bank (see also Pant, 2012).

Sixth, Pakistan should review its bilateral preferential and free trade agreements with regional economies. Any revision of these agreements should incorporate clauses that promote investment value chains, FDI and trade in services.

Seventh, the next five-year strategic trade policy framework of Pakistan, planned to be finalized during 2018, should help SMEs in getting international supplier certifications on affordable terms. This will open new markets for Pakistani SMEs and help them integrate with RVCs.

Eighth, provincial industrial policies need to focus on how Pakistan's planned SEZs (under the CPEC programme) can be linked through trade and investment linkages with their neighboring economies, e.g., Afghanistan, China, India and Iran.

Finally, the Federal Board of Revenue will need to expedite the National One Window Programme to streamline the customs regime at trading points. Besides this, all border-related trade infrastructure development projects under the auspices of institutions such as the Ministry of Communications, the National Highway Authority and the National Logistics Cell need to be expedited as well. A critical inquiry is also needed to determine why Pakistani businesses are not making optimal use of existing dry ports in the country.

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CHAPTER 8

Nuances in agriculture mechanization

Avinash Gupta

Much research has observed that agriculture mechanization in Nepal is lacklustre, confined largely to the Tarai plains, and is constrained by land fragmentation, difficult terrain, poor credit access and lack of investments. However, a careful study of the experiences of other countries within South and Southeast Asia reveals several nuances of policy significance. While for most studies, mechanization is essentially about large farms, capital-intensive equipment and canal irrigation systems, a small number of works show that there are major differences in the way countries like India and Bangladesh have progressed on mechanization. This is not to rule out overlaps in the mechanization strategies of the two countries, but there are significant differences, and, by implication, the outcomes are also varied.

This review chapter provides evidences that, for political and ideological reasons, mechanization is used interchangeably with large farms, canal irrigation systems and capital-intensive large equipment (e.g., four-wheel tractors, combines).[1] According to this strand of research, it is dynamics like fragmentation and poor infrastructure that slow down mechanization-related progress and hence any subsequent improvement in agriculture. This may be called the dominant agriculture development paradigm (dominant because corporations and multilaterals hold such positions). India's mechanization pattern, for example, in its very successful and transformative Green Revolution, has remained closer to the dominant paradigm and it is mostly the large- and medium-scale

farmers—accounting for a rather large share of India's overall arable land—that have benefitted from the Green Revolution.

Nepal's context appears a patently different one. Among other things, it is characterized by its small proportion of arable land, minimal fiscal capacity (for example, to subsidize four-wheel tractor purchase) and predominantly smallholder farming. None of this can be wished away in the medium term. While transformative long-term solutions to development may not be forthcoming, incremental gains can indeed be made. Often, incremental gains, a function of credible technological, organizational and institutional experiments and learning, are the ones anchoring transformative policies.

Mechanization, and as a result better agronomic practices addressing drudgery, labour shortage, intensity and the synchronization issue, offers a window for such incremental gains. Indeed, very rudimentary operations, such as the usage of chest-mounted spreaders, have resulted in greater profits and yields. They have reduced unpredictability in profits. Mechanization involving large farms and large capital-intensive machines appears a less suitable design in Nepal's context. It is, for example, because of the landholdings and the investment (or subsidy) capabilities. Still, specific learning certainly cannot be ruled out. As evidenced, mechanization, currently low, needs to be speeded up. For that, major technological, organizational and institutional learning and experiments are required.

The Bangladesh case, like Vietnam's, is driven largely by small, low-cost and multi-purpose equipment, such as two-wheeled tractors and low-lift pumps. This appears to be a more feasible strategy in Nepal's context and can potentially offer major technological and institutional learning. The development outcomes of mechanization driven by the use of largely small, inexpensive and multipurpose machines and implements have been dramatic. Bangladesh's agriculture is possibly the most mechanized in the region with, for example, 80 percent of land preparation mechanized. Despite sustained land fragmentation, its rice productivity has risen. Though passing references are made by a lot of research about small imple-

ments, such as two-wheeled tractors (2WTs), rapidly penetrating Nepal, there is no credible estimate of the stock of rural capital goods. This chapter contends that credible assessments of some developments and practices must not be ignored as it results in a distorted picture, essentially bad scholarship, invariably harms credible policymaking, and hence hurts progress in mechanization.

Agricultural transformation in Nepal

"Prosperity" aspirations

Proclamations and exhortations around building a "prosperous" society aside, the prospects of achieving rapid inclusive growth and development look bleak, if not entirely unforeseeable. Indeed, by implication, prosperity of any sort means reasonable, sustained incomes. This requires jobs. However, Nepal's dismal performance in job creation, a function of developmental structural transformation and not merely gross domestic product (GDP) growth[2], means the "prosperous" Nepal achievement will be no mean feat. Consider this: over six in ten in the labour force are in agriculture[3], while the sector accounts for under 30 percent of the GDP. Going by GDP and employment share, Nepal is the most agrarian country in the region. Low productivity in agriculture means not just vulnerable livelihoods, but a massive underproduction of food commodities like rice.

Financing rice imports via remittance transfers, which finance over 80 percent of the overall trade deficit, may not be a sustainable strategy, although remittance transfers have arguably been the single biggest contributor to rather resilient consumption capabilities and social development. Among the top five imports, rice yields, at roughly three tons per hectare (ha, hereon), are below what most regional peers (Uprety, 2011) produce. The picture is not very different for overall cereal yields: Nepal is behind most regional peers (Park et al., 2018). The manufacturing sector, on the other hand, considered critical for sustained growth and development[4] as well as job creation, has the lowest GDP share in South Asia.

Focal interdependencies

Although a dynamic construct, Nepal's economic structure is not developmental and is not geared to provide dynamism, partly because there are major circular and cumulative interdependencies among sectors (Andreoni, 2013). Classical development economists provide insights into such interdependencies—when agriculture sector workers with near-zero incremental productivity get absorbed into technologically superior sectors such as manufacturing, this triggers not just sector-specific, but overall, dynamism (Lewis, 1954).[5] On the other hand, agricultural improvements are critical for overall dynamism, including in driving manufacturing. This is due to the availability of surplus labour, raw materials and demand for industrial products. The interdependencies outlined go beyond the "industry" vs "agriculture" trade-off-type ideas, where it is argued that comparative advantage (rather, static comparative advantage) of developing countries lies in agriculture.[6]

As we will see in later sections, agricultural transformation cannot be achieved without incremental gains in manufacturing capabilities, which significantly impact societal learning capabilities regarding technology and organization.[7] Historically, agricultural improvements have occurred alongside incremental gains in manufacturing capabilities, which have further provided dynamism via mechanisms such as mechanization. Indeed, in almost all structural transformation cases from England[8] to Japan and even to China, recently, rapid improvements in agriculture preceded industrialization-driven growth. Institutional experiments in China such as the town-village enterprises[9] resulted in major development outcomes—poverty declined from 50 percent in 1980 to under 10 percent in the early-2000s (World Bank, 2008).

In India, the Green Revolution, between 1967 and 1986, led to an output expansion of 50 percent, while poverty declined by 20 percent (*ibid.*). Robust provisioning of inputs (e.g., improved seed varieties, pesticides), mechanization in farm operations via usage of equipment such as four-wheel tractors (4WTs, hereon) and ir-

rigation (via machines like pumps) drove India's Green Revolution (Andreoni, 2011). The agricultural transformation cases are a result of credibly coordinated technological, organizational and institutional learning and experiments, rather than "prerequisites of development"-type supply-side explanations such as that infrastructure or investment leads to development.

Other salient features of Nepali agriculture

Nepal is endowed with rich agroecology—fertile plains, river basins, rugged mid-hills and steep mountains having climates ranging from subtropical to warm-temperate to alpine to arctic. The latest estimation puts arable land at roughly 30 percent (IFAD, 2017). A third of it has year-round irrigation; about 50 percent has some form of irrigation (Gauchan et al., 2017). There are a significant number of landless tenants and absentee landlords. While average landholding is under 0.7 ha, fragmentation is widespread—on average three parcels per landholding (*ibid.*). Almost 90 percent of the landholdings are less than two hectares and account for nearly 75 percent of the arable land. Five percent of the landholdings, sized more than five hectares, account for the rest (IFAD, 2017). Within agricultural GDP, foodcrops, livestock, horticulture and forestry contribute, 40, 30, 20 and 10 percent, respectively.[10] Application of inputs, such as chemical fertilizer, continues to be, on average, below the figure achieved by regional peers—for example, the application rate of nitrogen is 40 percent of that in India's Bihar State (Park et al., 2018). This author's surveys found that access to inputs has improved, largely because its makes business-sense for traders.[11] However, most inputs are sourced in gray markets and, hence, the quality and other aspects go unregulated (*ibid.*).

Rising urbanization and rapid outmigration—among the most discussed themes—have resulted in labour shortages, shrinking cultivation, land abandonment and, consequently, declining food production. The evidence reviewed here presents useful insights and has strong, though not straightforward, links

to mechanization. A study by the World Bank (2016) observes that the area cultivated has not expanded, but rising prices and productivity improvements have resulted in increased agricultural incomes in some hill and mountain districts, like Manang and Baglung. Surprisingly, rising prices have not enabled "rational" farmers to expand the cultivated area. Gauchan et al. (2017) cite Central Bureau of Statistics figures showing that the net cultivated area has, in fact, shrunk by 10 percent between 2001 and 2010. District-specific case studies, such as one focused on the Parbat hills, report an abandonment rate of 37 percent. They show that abandoning less arable land is rather common in the hills (Paudel et al., 2014). Predictably, abandonment got exacerbated due to outmigration (*ibid.*).

Another case study in the western mid-hills provides evidence that labour scarcity has been common during the peak season, where successful institutional experiments such as joint labour contribution during planting and harvesting (called *perma*) served as a credible coping mechanism (Bauer et al., 2013). Rapid outmigration has rendered such institutional mechanisms largely ineffective (*ibid.*). Baudron et al. (2015) posit that migration has not just resulted in worker scarcity; even the quality of labour has declined, given the disproportionate male exodus. In the shrinking arable land, rapid urbanization remains a major dynamic and has led to conversion of arable land into other uses. Potentially useful policies like land classification remain under the carpet.

All in all, Nepal's agriculture has been stagnant and is marked by low productivity, poor infrastructure (farm access roads, irrigation, storage), minimal mechanization (the subject we deal with in the section below), a financial system poorly geared to serve the productive sector learning processes, and questionable extension provisioning. However, there are pockets of modest gains.[12] Consider the yields in vegetables and fruits, which compare well in the region and have been attributed largely to the diverse agroecology.[13] Both fruits and vegetables are considered sectors of high returns and greater labour intensity. However, even in these sectors, there is unpredictability in the prices that farmers get.

Mechanization: Rationale and evidence

Why mechanize

Roughly 500 million family farms produce 80 percent of the world's food in volume. Their production capabilities hinge on, among other things, how effectively and efficiently land, water and nutrients are used (Sims et al., 2017). As we have seen in the previous section, Nepal, like most populous developing country settings, is predominantly a smallholder-dominated system. Mechanization, as we will see here, is critical to farming and plays a significant role in addressing rural poverty, labour shortages, hunger, food supply and sustainable intensification (*ibid.*). A credible spread of mechanization aids structural transformation through various mechanisms, such as the market for instruments, and, hence, incentivizes manufacturing.[14] In farm-sector value chains—dairying, milling, packaging and extraction—mechanization occupies a major role.

Agricultural production entails broadly two independent processes: the biological course and the agricultural works like plowing, planting and irrigation.[15] Agricultural works are performed through capabilities embedded in humans, animals and instruments—mechanical and non-mechanical—like engines, water-pumps, power-tillers, seed-planters, sprayers and tractors. Well-coordinated and synchronized operations, via usage of instrument, animals and humans, result in efficiency, accuracy, multitasking, intensity and, the most important of all, reduction in drudgery. While agroecology is a given, agricultural work transforms the environment. Mechanization is significantly about farm-power, where instruments complement animal and human power. Indeed, smallholders in developing countries are severely power-constrained. For example, in developing regions like Africa and South Asia, over 60 percent of farm power comes from sources like animals and humans (Yahaya, 2017). From simple hand-implements to motorized equipment, mechanization enhances efficient use of resources—both farm inputs and labour—through greater intensity, precision and timeliness and synchronization of

farm operations (Andreoni, 2011). The quality of farm operations (intensity, precision and timeliness, and synchronization)—row-planting, optimal plant population, seed and fertilizer application and replacement, and efficient utilization of soil moisture during the planting window—impacts yields significantly (Yahaya, 2017).

While several traditional practices, when complemented with improvements, yield better outcomes, the others are plain harmful. Consider the use of the hand-hoe that causes permanent and structural damage to the soil by creating impermeable plough-plans at the depth of penetration (Sims et al., 2017). Mechanization has a circular and cumulative interdependence. Hence, manufacturing capabilities will determine, to a significant measure, the mechanization dynamics (Andreoni, 2011). Indeed, any green revolution like transformation of agriculture has taken credible technological and institutional learning, experiments and configurations. Among these was a sizable degree of rural mechanization (use of tractors and irrigation provisioning) (*ibid.*). Given a specific environment, agriculture depends sizably on the quality of farm operations. Mechanization—not just the implements and equipment but credible capabilities to use, maintain and manufacture them—entails robust technological, organizational and institutional learning. It is instrumental in agricultural improvements.

The evidence

The Agriculture Development Strategy, 2014 observes that low mechanization rates are among the principal causes of Nepal's weak performance in agriculture. Indeed, most literature[16] makes similar observations. The literature also shows that mechanization is largely confined to a specific geography—the Tarai plains—because of the terrain. A 2012 study by Nepal Agricultural Research Council (NARC) estimates that over 75 percent of the overall available farm-power comes from human and animals, whereas the 25 percent derived from mechanical sources is almost entirely confined to the Tarai (Shrestha, 2012). The study finds that even in the Tarai, animals and only rudimentary implements like iron

plough are common. Due to difficult terrains and poor infrastructure, mechanization is non-existent and largely unfeasible in other geographies (*ibid*.). World Bank (2016) posits that mechanization rates are low, and that most mechanization is restricted to the Tarai. It goes on to postulate that there is no indication that difficult terrains—hills and mountains—are making progress on rural mechanization.

There is, however, some evidence to the contrary. Takeshima et al. (2015), in their analysis of mechanization patterns, use the Nepal Living Standard Surveys and take tractor usage as a proxy for mechanization. In terms of area ploughed by tractor, they find that Nepal fares poorly when compared to countries like Vietnam: 20 percent in Nepal compared to over 70 percent (2010 figures) elsewhere. However, they also find that tractor usage in Nepal has increased from five percent of total farm households in 1995 to over 20 percent in 2010, while less than one percent own tractors, suggesting functional hiring mechanisms. The Tarai area, which Takeshima et al. (2015) argue is the most mechanized and where mechanization progress is much faster than in other parts of the country, has a tractor usage rate of about 46 percent (2010); up from eight percent in 1995 (*ibid*.).

Heavy outmigration has altered Nepal's social, economic and political landscape dramatically and, perhaps, even irreversibly. Both outmigration and urbanization-driven abandonment of agriculture in recent decades have exacerbated labour scarcity. This has a major relationship with mechanization dynamics (Baudron et al., 2015). Mechanization supplements and complements labour and addresses labour shortages,[17] but has this happened in Nepal? Recent Nepal-specific evidence on outmigration- labour shortage-farm-land abandonment-mechanization relationship provides interesting insights. It appears that a mere reduction in labour will not drive up mechanization rates. Credible, evidence-backed context-suitable policy support will be required for that. Multiple studies have found that arable land has not expanded, but rather shrunk, though prices of agricultural commodities have risen (or held-up).[18] In a case study examining mechanization patterns in

rice production, Uprety (2011) finds that mechanization (along with the system of rice intensification) was a compulsion due to labour deficiency. Since labour costs in rice production make up roughly 50 percent of the production cost, the overall production cost dropped 25 percent, whereas profits rose 36 percent following mechanization. Joshi et al. (2012), on the other hand, suggest that it is the poor progress in cutting drudgery and lack of hope in agriculture that has driven outmigration and farmland abandonment. Exploring an entirely different direction, Bhandari and Ghimire (2016) theorize that more mechanization (again the proxy being usage of tractor) pushes up the probability of a typical farm household towards adopting migration (as in Chitwan) by roughly 25 percent.

Intricacies in mechanization knowledge

Mechanization suitability

In assessing mechanization, most research takes large capital-intensive equipment like 4WTs, combine harvesters, high-powered pumps and threshers as proxies. Mrema and Kienzle (2018) call 4WTs the unsung heroes in Europe. The other common position is that fragmentation and smallholder-dominated systems are unsuitable for rapid mechanization. Fragmentation and smallholder farms are believed to disincentivize investments in improvements (World Bank, 2016). Indeed, the dominant agriculture development paradigm promoted by multilaterals is about canal irrigation systems, large equipment and large equipment-led heavily mechanized large farms—all associated with modernity (Biggs and Justice, 2016).

India's Green Revolution-like improvements adopted similar mechanization and technology strategies, perhaps because there are large farms where roughly five percent of the farmers own a disproportionately high share of arable land.[19] While transformative in many measures, India's green revolution is not without criticisms. They are blamed for environmental degradations such as

depletion of ground water and salinity, subsidy-driven wasteful use of inputs and energy, unequal benefits as it is the large and medium farmers who mostly benefit, widening regional disparities and creating dependence on seeds outside of the farmer ecosystem.[20]

Certainly, the dominant ideas in agriculture improvements, extremely demanding in resource terms and significantly wasteful, may be "feasible" for some contexts. Large equipment are a critical component in the dominant mechanization strategy. However, they appear not just unsuitable for small farms but are also extremely capital intensive amid minimal resource capacity. For Nepal, such strategy does not appear sustainable and context-suitable. On the other hand, it appears safe to conclude that smallholder farming and smallholders cannot be wished away unless major developmental structural transformation, one that creates reasonable jobs, takes place. That smallholder farms and farmers cannot be wished away comes without much "technical" thinking. But this is no good news for the ones dependent on smallholder farming for livelihood because on the question of whether it can be a reasonable livelihood source, the evidence is stacked against it (Collier and Dercon, 2014).

Hence, alternative mechanization practices need to be identified and credibly learnt. Credible learning is a much more complex and potent idea than "transfer of technology"-type notions (Khan, 2013). Towards an alternative design, the mechanization patterns of countries like Vietnam and Bangladesh, both smallholder contexts, are useful sources of learning.

Suitable mechanization designs[21]

Much of the literature on agricultural improvements is influenced by the dominant agriculture development paradigm. It makes no reference to small, low-cost, multipurpose equipment-driven mechanization in countries like Vietnam, Thailand and Bangladesh (Biggs and Justice, 2015). The mechanization strategy adopted by these Southeast Asian countries and Bangladesh has been different from India's. This is perhaps due to compulsion brought about by their

resource crunch and the dominance of smallholders (*ibid*.). The low-cost machines and implements—2WTs, low-lift pumps, shallow tubewells and riverboats—have resulted in efficient land preparation, careful water management and post-harvest operations such as transportation. Several of these small equipment were developed in close partnership with farmers (Biggs and Justice, 2016).

Bangladesh has had a rather different agriculture mechanization strategy within the South Asian region, for example, compared to India. Prior to independence, canal-based irrigation systems irrigated roughly half of the arable land. Farmers used swing-buckets and other mostly manual instruments in the other half (Soni et al., 2010). Owing to credible post-independence policy support, mechanization speeded up (Table 8.1). Policy interventions included lifting of a ban on cheap Chinese equipment (2WTs and pumps), and duty and tax reliefs.

While the Japanese introduced 2WTs in Bangladesh in the 1970s, it did not gain traction immediately. By the 1980s, low-cost and better quality Chinese 2WTs had penetrated rapidly (Biggs and Justice, 2015). Not just 2WTs, even the number of tractors grew 40-fold. The number of shallow tubewells (powered by low-cost, low-powered Chinese pumps), mini-tillers, low-lift pumps and manually operated weeders and sprayers (a million sprayers in Bangladesh) all grew at an even faster rate (Ou et al., 2010). Much

Table 8.1

Agriculture machinery, Bangladesh (1997–2006)

Machinery type	1977	2006
Tractors	300	12,500
Power-tiller	200	300,000
Shallow tubewell	3,045	1,182,525
Low-lift pump	28,361	119,135

Source: Soni and Ou (2010).

of the manually operated implements are made locally, while most mechanical instruments are largely imported. Robust mechanization has resulted in efficient use of water and mechanized land preparation. This may have been a factor in the 2.5-fold rise in the value of agricultural commodities produced between 1980 and 2000 (*ibid.*). Baudron et al. (2015) note that land preparation is by far the most demanding activity in rain-fed conditions. The elimination of soil inversion makes 2WTs viable within the region's specificities. Bangladesh has arguably the most mechanized farm sector today. Eighty percent of its land preparation and tillage operations are mechanized. The rate is greater than India's, where it is roughly 50 percent (Biggs and Justice, 2015).

Though India is a much bigger country, Bangladesh has a greater number of 2WTs than India (India: 300,000, Bangladesh: 500,000; Biggs and Justice, 2016). Baudron et al. (2015) observe that despite the 80 percent usage rates, ownership is only a fraction of it (one in thirty users), again suggesting functional renting mechanisms. The flourishing demand for 2WTs has also opened business opportunities for the private sector. This has resulted in robust supply chains and intense competition (*ibid.*). The small inexpensive equipment is employed not just in farm operations but also in post-harvest activities like transportation. In smallholder developing countries, the farm-to-collection hub distance constitutes a small portion of the overall distance that a typical commodity travels in the supply chain but takes a disproportionately high share of overall transportation costs (*ibid.*). Employing 2WT in transportation has significantly cut transportation costs while losses have been minimized in transporting goods to the collection point/market.

Highlighting the Bangladesh case is not to suggest transplantation of its strategy. The purpose is to highlight the idea that, for mechanization to progress, a context-suitable strategy must take shape. There will have to be a credible analysis of the context—agroecology (parcel size, workers), socio-economic context, infrastructure, scaling-up potential of the prioritized equipment, the repair, spares and maintenance potential, and the manufacturing potential. While the Bangladesh strategy is a potential source

of learning, there will have to be Nepal-specific adjustments and tweaks. Overall, the Bangladesh (and Vietnam or Thailand) strategy of small, inexpensive, multipurpose device-driven mechanization looks like a much relevant source of learning for Nepal.

Mechanization in Nepal

Nepal started importing 4WTs in the 1960s. Interestingly, the late 1960s and the 1970s were also a period when some small agricultural equipment were being tested. Somehow, the tests did not produce results then. It was only in the 1980s when the first 2WTs came to Nepal. Japanese aid programmes brought in 2,000 2WTs back then. Their use was initially confined to Kathmandu and Pokhara and the surrounding areas (Biggs and Justice, 2015). Most recent estimates suggest that there are 12,000 2WTs, mostly in and around Kathmandu, Pokhara and other well-connected valleys. They are being used for transport, tillage operations and threshing, among other activities (*ibid*.). Beginning in the early 2000s, there has been a rapid penetration by 2WTs and mini-tillers (*ibid*.). Apart from this these estimates (Biggs and Justice, 2015), there is not much data on 2WT penetration. The hypothesis is that the penetration intensified in the 2000s. Nepal has less than five percent of the 2WTs that Bangladesh has (Table 8.2), while Nepal has twice the number of 4WTs that Bangladesh has. More research is needed to credibly compare the two contexts.

Regarding the kind of agricultural equipment used, Gauchan et al. (2017) cite a 2013 Central Bureau of Statistics estimate (Table 8.3). It appears that the most widely used agricultural equipment are iron-ploughs, tractors, power tillers, pumping sets, sprayers and threshers.

They also suggest that the usage of 2WTs, power tillers, low-power pumpsets, and small-scale irrigation pumps has increased rapidly. This is more so in non-traditional farm activities such as horticulture, poultry and animal feed. Interestingly, non-traditional areas like vegetables and livestock have also been registering the fastest growth in recent years (IFAD, 2017). The same study notes

Table 8.2

Horsepower availability in agriculture by engine size

	Nepal			Bangladesh		
Energy source	No. of units	Total HP	% of HP	No. of units	Total HP	% of HP
2WTs*	12,000	168,000	10%	400,000	5,600,000	46%
4WTs**	30,000	900,000	53%	15,000	460,000	4%
Shallow tube well pump (diesel)***	120,000	600,000	36%	1,200,000	6,000,000	49%
Pump sets (electric)****	10,000	20,000	1%	100,000	200,000	1%
Total HP		1,688,000	100%		12,260,000	100%

Source: Reproduced from Biggs and Justice (2016).

Notes: Estimates of the numbers of power sources (and their HP ratings) used primarily in agriculture and processing uses, including groundwater irrigation pumps. These do not, for example, include the many engines used in Bangladesh to power riverboats, rice mills, processing, etc., although these are a vital part of Bangladesh's agriculture sector and rural economy.

HP: horse power.

**Average of 14 HP per 2WT.*

***Average of 30 HP per 4WT.*

****Diesel/petrol irrigation pumpsets, average 5 HP. 5-10% of pumpsets are petrol/kerosene.*

*****Electric irrigation pumpsets average 2 HP.*

that small-scale threshers and tillage equipment are widely available to buy. Shrestha (2012) observes that nearly all mechanical power is concentrated in the Tarai, while equipment like 2WTs, power tillers, hand sprayers, paddy shellers and grinders are used by valleys connected to road-heads. The same study observes that 2WTs are used both in farm operations and transportation and that they have been "revolutionary" for the valleys.

Mechanization is fundamentally about improved agronomic practices like managing soil fertility. Simple, small and low-cost implements can improve outcomes substantially. Park et al. (2018),

in a randomized control trial, experimented with a small equipment—a chest-mounted spreader—in Rupandehi (west Nepal) to tackle, mainly, the (i) problem of drudgery and inefficiency in hand-application of inputs in wheat cultivation; and (ii) late sowing, which negatively impacts yields. A major inefficiency in hand-application was non-uniformity in input application, which resulted in yield variability in the same field. For non-users, variability as well as inappropriate mix of inputs like seed and fertilizer resulted in losses in yield and unpredictability in returns. The method produced efficient outcomes with greater seed density and proper uniform application. This led to greater strength of the relationship between seed and fertilizer. Each plant was having access to fertilizer. Users derived greater yield and profit with greater predictability. Even when the control group used more fertilizer, the output did not respond proportionately. The treatment group

Table 8.3

Machinery/equipment in agriculture in Nepal

Machinery/ equipment used	No. of households	Households (%)
Iron ploughs	1,073,441	28.02
Tractor & power tillers	920,371	24.03
Thresher	803,154	20.96
Pumping sets	548,203	14.31
Sprayers	574,014	14.98
Shallow tube wells	367,744	9.56
Deep tube wells	159,725	4.17
Treadle pump (*dhiki*)	79,145	2.06
Animal drawn cart	334,978	8.74
Other Equipment	290,084	7.57

Source: CBS (2013), in Gauchan et al. (2017).

results show greater labour efficiency. Users need not have much experience to operate the equipment.

Context-specific paradigm

Despite numerous observations and a few estimates that there has been a rise in small equipment-led mechanization in Nepal, there is no credible analysis on penetration, usage and impact. On the other hand, much of the existing knowledge on mechanization patterns in Nepal, largely based on the dominant agriculture development paradigm, focuses only on a specific kind of mechanization—one that is about large farms, canal-based irrigation and large capital-intensive equipment. This is largely because of political and ideological reasons. It is the dominant strand because it is the position of corporations and multilaterals. For this dominant strand of research, mechanization is low and largely confined to the Tarai, requiring major investments and improvements in infrastructure.

Indeed, small and inexpensive equipment-led mechanization may well be making rapid inroads in addressing labour shortages. Cases corroborate the same, but not in much detail. Some of the evidence reviewed here suggests that many accounts and estimates of mechanization may be simplistic, if not erroneous. This is hardly a helpful position to be in if a credible mechanization strategy is to be forged. A possible way forward to come up with credible policy interventions in promoting suitable mechanization is to have a credible analysis of the stock of rural capital goods. This chapter has attempted to invigorate discussions on the issue. Given the need for agriculture improvements in not just Nepal but also in other South Asian countries, including Bangladesh, India and Pakistan, the intricacies highlighted here should be relevant to policymaking.

Notes

[1] This chapter has benefited from discussions at a session on rural economy, supported by Winrock International, at the Tenth South Asia Economic Summit, and a seminar at South Asia Watch on Trade, Economics and Environment conducted by Dr Stephen Biggs and Scott Justice.

[2] Jobless growth is a major phenomenon with few exceptions like China. India, though having consistently registered a 6 percent-plus growth, has an employment creation rate of 0.1 percent recently (EB, 2018).

[3] ILO (2017) figures from 2008 Labour Force Survey.

[4] Szirmai and Verspagen (2015); Khan (2013).

[5] See Thirlwall (1983) for how manufacturing triggers overall growth—the so-called Kaldor growth laws.

[6] The *World Development Report, 2008 (Agriculture for Development)* buttresses this position.

[7] Andreoni (2013).

[8] Wood (2002).

[9] See Cao and Birchenall (2013).

[10] MoF (2013), in Gauchan and Shrestha (2017).

[11] For IFAD (2017).

[12] World Bank (2016).

[13] IFAD (2017).

[14] See Andreoni (2013) for a detailed discussion on the processes.

[15] See Andreoni (2011), from which I draw heavily in this section.

[16] World Bank (2016); Uprety (2011); Gauchan and Shrestha (2017); Takeshima (2017); Shrestha (2012).

[17] OECD/ICRIER (2018) shows how labour shortages in states like Punjab have led to mechanization.

[18] World Bank (2016); Gauchan and Shrestha (2017).

[19] OECD/ICRIER (2018).

[20] See Mdee et al. (2018) for a critical assessment of the Green Revolution.

[21] I borrow significantly from Dr Stephen Biggs's work on rural mechanization.

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CHAPTER 9

Assessing e-trade readiness

Ratnakar Adhikari and Daria Shatskova

Digital technology has, among other things, propelled economic and social transformation in recent decades, making it possible to access information on every possible topic, communicate with people across the globe and conduct economic transactions at the speed of light. One indicator in the economic sphere is the growing popularity of e-commerce—valued at US$27.7 trillion in 2016, of which business-to-consumer (B2C) e-commerce accounts for US$3.8 trillion (WTO, 2018).

The benefits of e-commerce are currently reaped by developed countries and advanced developing countries with China accounting for US$672 billion of the e-commerce market. China's market is higher than the combined total of the remaining top six e-commerce markets (the United States, the United Kingdom, Japan, Germany, France and South Korea).[1] While only three—all East Asian—countries (China, Japan and South Korea) feature among the top ten e-commerce markets, e-commerce is expected to contribute to 53.6 percent of the incremental trade volume between 2014 and 2020 in Asia (ITC, 2018).

Barring India, South Asian countries are yet to fully harness the potential of e-commerce unleashed by digital revolution. South Asian least developed countries (LDCs) are even further down the e-commerce ladder, although starting from a low base they possess tremendous potential to grow and expand.

Digital transformation is the foundation for any serious engagement in e-commerce, although the LDCs are yet to harness

its true potential. World leaders have sought to shore up the LDCs' participation in such a transformation process through the Sustainable Development Goals (SDGs), specifically SDG 9.C, which calls for providing universal and affordable access to the internet in the LDCs by 2020.[2] This follows from commitments under the Istanbul Programme of Action for Least Developed Countries,[3] although there is no such comparable commitment on the e-commerce front.

As far as the LDCs are concerned, affordable access to the internet is a necessary condition for integrating the LDCs into the e-commerce space but certainly not a sufficient condition. There are a host of economic, social, technological, policy, finance and skills-related issues that impede the prospects of the LDCs in general and South Asian LDCs in particular to harness their digital trade potential.

The point of departure for this chapter is the recognition that that e-commerce is a force for good, particularly for South Asian LDCs, who have so far remained at the margin of mainstream global trade. Therefore, it is an imperative that these countries become ready to embrace and take advantage of e-commerce opportunities.

Accordingly, the objective of the chapter—admittedly narrow tailored—is to look at the state of readiness of four South Asian LDCs (Afghanistan, Bangladesh, Bhutan and Nepal) and a recently graduated country (the Maldives), which are being supported by the Enhanced Integrated Framework (EIF) (collectively referred to as "South Asian EIF Countries"), highlighting key challenges and offering some reflections on the way forward.

Ongoing work on e-trade readiness spearheaded by the United Nations Conference on Trade and Development (UNCTAD) together with the EIF in these countries; deliberations at the Tenth South Asia Economic Summit at a session on the same theme (15 November 2017); and extant literature on the subject, including data published by international organizations and recent reporting from countries, form the methodological foundation of this contribution.[4]

The rest of the chapter is structured as follows. The second section presents the state of play in terms of inclusiveness, which is a key driver of the growth of e-commerce in the South Asian EIF Countries, and key challenges. The third section discusses the opportunities and potential for these countries. The final section draws some conclusions and presents a way forward.

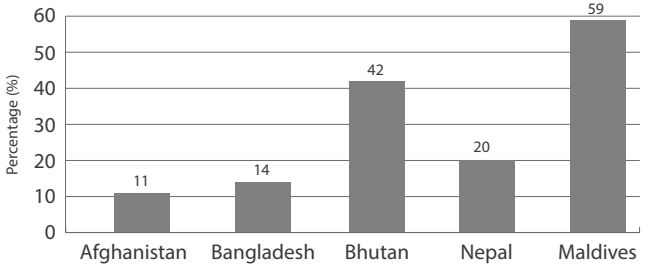
Inclusiveness as a driver for e-commerce growth

Several EIF Countries in South Asia have experienced a positive internet uptake. Key examples are Bhutan and the Maldives, where almost half of the population is online. However, the situation is not homogeneous: only one in five people is online in Nepal, and in Afghanistan and Bangladesh, the proportion drops to one in ten (Figure 9.1).

The main factors influencing internet penetration are: availability and affordability of internet infrastructure; development of digital skills; and quality-related services, including payment solutions and logistics.

Figure 9.1

Individuals using the internet in South Asian EIF Countries, 2016



Source: ITU (2017a).

Availability and affordability: What does it take to browse?

Investments in internet infrastructure

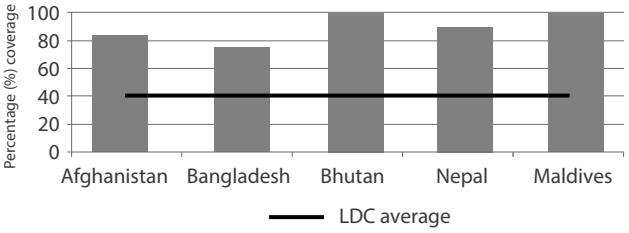
Understanding the state of internet infrastructure is key to discussions around internet availability. Internet infrastructure is closely tied to the status of electricity—not only how accessible and affordable it is, but also the reliability of supply. On average, South Asian LDCs have greater access to cheap electricity as compared to other LDCs. Bhutan, the Maldives and Nepal have the best electricity coverage as a percentage of population, at 100 percent, 100 percent and 90 percent, respectively. In contrast, access in Bangladesh is just above 75 percent (Figure 9.2).

In terms of pricing, the most competitive electricity rates are in Bhutan and the Maldives, while there are moderately competitive rates in Bangladesh and Nepal. Although electricity prices in Afghanistan are the highest in the region, all the South Asian EIF Countries have lower prices as compared to the LDC average, which is 20 US cents per kilowatt hour (Figure 9.3).

Internet uptake is another important indicator to measure the state of internet infrastructure and investment made in this area.

Figure 9.2

Access to electricity in South Asian EIF Countries, 2014



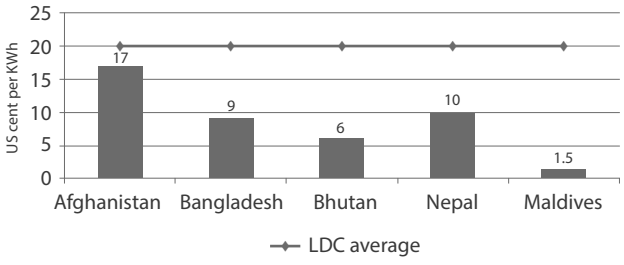
Source: World Bank, https://data.worldbank.org/indicator.

The International Telecommunication Union (ITU) measures internet uptake with fixed and mobile internet subscriptions (Figure 9.4). While mobile coverage of all the South Asian EIF Countries has been satisfactory, the fixed-line internet access is highly desirable for executing e-commerce transactions, as it allows for faster internet speed. However, it also requires greater upfront investment, including a costly installation to connect to submarine fibre optic cables. This poses a significant challenge to the landlocked South Asian LDCs, which would require an additional installation of terrestrial cable networks.

Select EIF Countries in South Asia have made considerable progress in the installation of fixed broadband. In Bangladesh, Bhutan and the Maldives, fixed-broadband subscriptions are 1 percent above the LDC average. In the Maldives, it is close to 5 percent. The reason for the higher coverage of both fixed-line and broadband subscription in the Maldives has to do with its locational advantage; the percentage of people connected to other infrastructures; and proactive efforts to enhance investment in this sector by the private sector. For example, Ooredoo—a Doha-based multinational telecommunications company that has been operating in the Maldives since 2005—has been investing in expanding

Figure 9.3

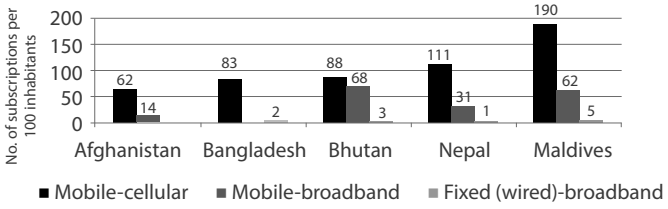
Electricity prices in South Asian EIF Countries, 2014



Source: World Bank, https://data.worldbank.org/indicator.

Figure 9.4

Mobile vs fixed internet subscriptions in South Asian EIF Countries, 2016



Source: ITU (2017a).

its "SuperNet" fibre-optic broadband service to various atolls of the country.[5] This is not the case in Afghanistan and Nepal, two countries that lag behind their regional comparators, in part due to their difficult geographical terrains, their landlockedness and the size of their relatively dispersed population.

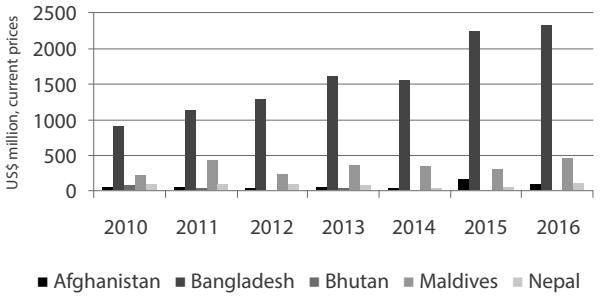
Another reason is limited investment in the fixed-line infrastructure. While sector-disaggregated data are scarce (Mbise et al., 2018), the overall investment trend shows that within the South Asian EIF Countries, foreign direct investment (FDI) flows are still very limited and vary extensively from country to country (Figure 9.5). Despite an 8 percent drop in FDI in 2017 (UNCTAD, 2018), Bangladesh remains among the top recipients in absolute terms, and the Maldives tops the list if presented as a percentage of gross domestic product (GDP) with the FDI flows accounting for 12 percent of the Maldivian GDP in 2016.

Given the limited coverage of fixed broadband, most of the LDCs rely on mobile connections. To access mobile internet, residents need to live within areas covered by at least a 2.5G radius or higher (mobile communications technology that enables mobile service providers to supply wireless data services, including mobile internet).

Bangladesh, Bhutan and Nepal have been making considerable strides in providing mobile connectivity to their people, well

Figure 9.5

FDI flows into South Asian EIF Countries, 2006–2016



Source: UNCTAD (2018).

above the LDC average. Close to 100 percent of their populations live within the 2G radius, and these countries have successfully deployed 3G networks to over 80 percent of their people. Similarly, they have piloted the deployment of the 4G signal (Table 9.1).

While the Maldives has taken a step further, deploying the 4G+ network to all local islands and resorts in 2017[6], the situation in Afghanistan is more challenging. So far, only 40 percent of its population lives within the 3G signal, and very few are covered by 4G.

Continued investments in fixed broadband and incentives for increasing greater mobile network coverage can help ensure that even those living in the most remote areas have access to mobile coverage. While efforts made by several South Asian EIF Countries are laudable, regional cooperation also plays an important role in boosting internet infrastructure development. Development partners, such as the Asian Development Bank, have been working with Bangladesh, Bhutan, India and Nepal to support the availability of affordable broadband internet connections, thereby improving the flow of information, services and ideas.[11]

Table 9.1

Percentage of the population in South Asian LDCs that lives within the mobile network coverage

	2G	3G	4G[7]
LDC average	88	50	32 LDCs have deployed 4G, mostly in urban areas
Afghanistan	89	40	Kanul, Heart and Baghlan[8]
Bangladesh	99	90	65
Bhutan	98	80	40[9]
Nepal	92	90	Kathmandu Valley, Pokhara, Lahan and Dhangadhi[10]

Source: ITU (2017a).
Note: Data for the Maldives are not available.

Internet prices

While internet infrastructure is key to enhancing connectivity, internet pricing is equally important for ensuring the affordability of the service. Wide disparity is reflected in fixed broadband prices among the South Asian EIF Countries. The prices are relatively low in Bangladesh and the Maldives—two countries that have direct access to the submarine cable network.[12]

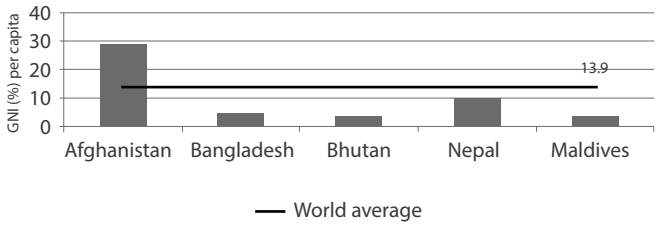
Although prices in landlocked Bhutan are also very low, there are several factors responsible for that, including relatively high gross national income (GNI) per capita to which prices are compared as well as the effective implementation of broadband policies. For example, Bhutan effectively implemented its National Broadband Master Plan, which enabled the laying of a 3,300 kilometre fibre optic network that extends all the way to the Indian border, thereby linking Bhutan to the submarine cables (ITU, 2018). In addition, this network is leased to the telecommunications operators free of charge.

Bhutan and the Maldives are also making significant progress in ensuring mobile affordability. These countries offer internet prices of 1 percent of GNI per capita for 500 MB, thereby meeting the new "1 for 2" target of the Alliance for Affordable Internet—1 GB of mobile broadband for 2 percent or less of monthly GNI per capita (Figure 9.6). Together with Bangladesh, mobile internet prices in Bhutan and the Maldives are well below the world's average of 3.7 percent. However, high mobile broadband prices pose a significant challenge to Afghanistan's and Nepal's efforts to enhance their internet connectivity (Figure 9.7).

Another factor that influences internet pricing as well as speed is the availability of Internet Exchange Points (IXPs)—physical locations where internet traffic is exchanged between internet service provider networks. Their main function is to keep internet traffic local. If there are no IXPs in a country, internet traffic may need to travel as far as Europe, thereby increasing time and cost. So far, only two South Asian LDCs have established such points: Bangladesh Internet Exchange in Dhaka and Nepal Internet Exchange in Kathmandu. Competition among internet providers and the existence of sufficient in-country information technology (IT) skills are two key considerations before establishing IXPs.

Figure 9.6

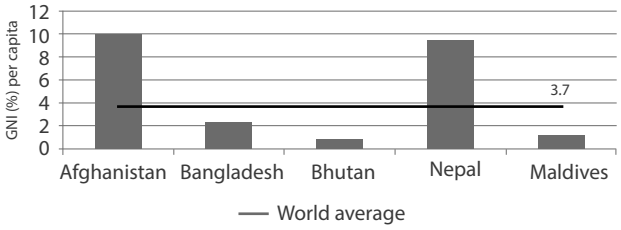
Prices of fixed broadband in South Asian EIF Countries, 2017



Source: ITU (2017a).

Figure 9.7

Prices of mobile broadband (500 MB) in South Asian EIF Countries, 2017



Source: ITU (2017a).

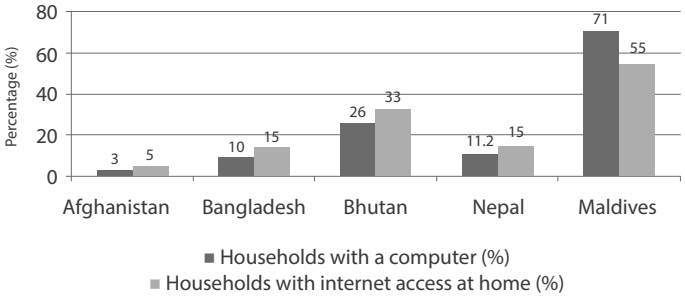
Finally, availability and affordability of internet-ready devices can play a significant role in increasing internet uptake in South Asian LDCs.

A gradual increase in mobile internet subscriptions reflects the increasing adoption of smartphones. In 2017, every second mobile phone was a smartphone in the Asia-Pacific region. By 2025, three fourths of all the mobile phones in the region will be smartphones (GSM Association (GSMA), 2018). Since it is not possible to obtain country-specific data, it is difficult to indicate figures for the South Asian EIF Countries.

Having affordable computers is essential for people and businesses to engage in more complex internet transactions, as well as for the overall organic growth of the digital economy and related services. While over 70 percent of the people in the Maldives have a computer at home—well above the world average of 46.6 percent—this is not the case in other South Asian EIF Countries. In Afghanistan, only 3 percent of households have a computer at home, and the figure barely reaches double-digits in Bangladesh and Nepal (Figure 9.8). Despite the limited availability of computers, consumers still prefer to make online transactions using a desktop or a laptop. For example, in Bangladesh, mobile and tablet transactions account for 26 percent of transactions and 3 percent of sales.[13]

Figure 9.8

Availability of internet and computers in South Asian EIF Country households, 2016



Source: ITU (2017a).

Ensuring greater access to more affordable devices can boost the digital economy, thereby creating new opportunities for digital trade (WTO, 2017). Lowering import tariffs on IT products, among other things, can help ensure the availability of affordable devices for consumers. The expansion of the World Trade Organization (WTO) Information Technology Agreement in 2015 to over 200 new high-tech products offers new opportunities for importers of IT goods. The Agreement covers 97 percent of world trade in IT products. However, the LDCs are yet to sign on to the Agreement to reap its full benefits. Afghanistan is the only LDC committed to joining the Information Technology Agreement of 1996 as part of its WTO accession commitments (OECD/WTO, 2017).

Digital competencies

Age, gender, education and socio-economic status influence people's ability to engage with digital technology. While it is a positive indication that 30 percent of 15–24-year-olds living in the LDCs are online, the challenge is to connect the remaining 70 percent of the population, including the elderly (ITU, 2017a). A growing

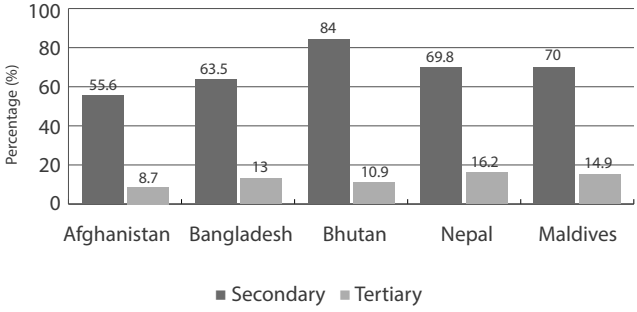
digital divide based on socio-economic status and gender is a cause for concern as much in the LDCs as elsewhere.

Education policies with digital dimensions can help bridge this gap in the LDCs, including providing incentives for the excluded groups to study Science, Technology, Engineering and Mathematics (STEM) disciplines and eventually pursue careers in the IT field. Providing digital literacy to the adult population, which has missed out on education opportunities, could also be helpful in expanding the pool of digitally competent individuals. Government efforts to boost the digital competencies of citizens, along with investments in strong institutions, can bolster innovation by blending traditional and innovative approaches.

The latest data show that, on average, every second student in the South Asian EIF Countries is enrolled in secondary-level education. In Bhutan, the secondary education rate is 84 percent, which is partly due to the country spending one quarter of its budget on education, resulting in 100 percent primary school enrolment (ITU, 2018). However, its tertiary enrolment rates are lower than those of other South Asian EIF Countries. The highest rates

Figure 9.9

Enrolment in schools in South Asian EIF Countries, 2016



Source: ITU (2017a).

of tertiary education enrolment are in Nepal (16 percent) and the Maldives (15 percent) (Figure 9.9).

School enrolment is only implicitly correlated with the uptake of the kind of skills needed to participate in the digital economy. Anticipating needs for new skills is becoming increasing important, as 35 percent of the skills demanded by the job market will change by 2020 (ITC, 2018). While emphasizing the increasing education-job mismatch where formal education does not provide the necessary skills and competencies, Jong-Wha (2018) stresses the importance of primary education, lifelong learning, and non-cognitive "soft" skills, including critical thinking, creativity, collaboration, and communication to be able to compete better in the age of automation and digitization.

Atchoarena et al. (2017), in a UNESCO report, also identified complementarity and interconnectedness of skills, knowledge, work habits and character as digital competencies, which can be split into three broad categories: (i) basic functional—access to digital technologies; (ii) generic—meaningful engagement with digital technologies; and (iii) high level—coding and programming.

Most South Asian LDCs have adopted specific education plans to increase the uptake of information and communication technology (ICT), focusing mostly on the first two categories. For example, Bhutan's Education ICT Master Plan (2014–2018) is based on three pillars: iAble, iBuild, and iConnect (Table 9.2).

Similarly, Nepal's ICT Education Master Plan (2013-2017) focuses on expanding equitable access to education, enhancing the quality of education, reducing the digital divide and improving the service delivery system in education (Government of Nepal, 2013).

The key digital strategy for Bangladesh—Digital Bangladesh 2021—also embodies ICT for education purposes. A special programme, "Access to Information", or "a2i", has enabled nearly 300,000 teachers to receive digital skills training through this first-ever in-country portal.[14]

Engaging different stakeholders, including non-governmental players, development partners and the private sector can help in-

crease the coverage of digital competencies. Bringing the domestic IT industry on board in order to improve employment opportunities for recently graduated programmers can help raise interest in high-level IT skills among young people.

For example, in Bhutan and Nepal, every year, 300 and 5,000 recent graduates, respectively, do not have employment opportunities in the national e-commerce industry due to skills mismatch. Therefore, it is important for the industry and academic institutions to work together in developing curricula based on the needs of the industry and provide internship opportunities for students, so that they can join the job market in their home countries after completing their studies.

Digital skills and internet access and use are essential elements for calculating the ICT Development Index (ITU, 2017a). In 2017, out of 176 countries, the Maldives was the top performer among South Asian EIF Countries, reaching the upper-middle

Table 9.2

Bhutan's key ICT priorities 2014–2018

iAble	iBuild	iConnect
• ICT capacity development for educators • ICT capacity development for students • ICT capacity development for learning support	• Promotion of educational interactive materials and software • Pervasive use of elearning in educational institutions	• Computerization programme • Expansion of management information systems, administration and communications systems • Establishment of distributed learning support infrastructure • Establishment of governance and programme management framework

Source: Bhutan Education ICT Master Plan 2014– 2018 (Government of Bhutan, 2014).

quartile, with a ranking of 85, followed by Bhutan and Nepal in the lower-middle quartile, with rankings of 121 and 140, respectively. Bangladesh and Afghanistan were among the 44 least connected countries, ranked 147 and 159, respectively.

Beyond ICT: logistics and payments

In addition to infrastructure, affordability and skills, swift logistics and electronic payments are two vital vessels for harnessing the potential of e-commerce.

The year 2017 marked a major milestone for streamlining customs procedures and cutting red tape with the entry into force of the WTO Trade Facilitation Agreement (TFA). Once fully implemented, this can cut trade costs by up to 14 percent worldwide (WTO, 2015). The TFA also opened new possibilities on how it will be put into practice. Now, it is possible for developing countries and the LDCs to request technical assistance to fully implement the Agreement.

In South Asia, so far, only two LDCs have made notifications in order to benefit from the targeted technical assistance (Table 9.3). While the implementation rate of TFA commitments in South Asian LDCs in general has been just over 20 percent, it is encouraging to see an over 50 percent implementation rate with capaci-

Table 9.3

TFA ratification in South Asian EIF Countries

WTO member[15]	Ratification	Notification
Afghanistan	Yes	Yes
Bangladesh	Yes	Yes
Nepal	Yes	No
Maldives	No	No

Source: WTO TFAF (2018).

ty-building support (WTO Trade Facilitation Agreement Facility (TFAF), 2018).

In a broader context of trade facilitation reforms, the investments of the EIF have enabled the Maldives to switch to modern customs clearance and full automation through the Automated System for Customs Data (ASYCUDA) World across all of its customs sites, resulting in a 50 percent reduction in customs clearance time.

In addition, the signing of the Memorandum of Understanding between the Post and Customs Offices of the Maldives on information sharing enabled the Post to inform the Customs on upcoming e-commerce consignments. For clearance purposes, the Customs is using the President's Decree on duty exemption for goods imported for personal use and by passengers (WCO, 2017).

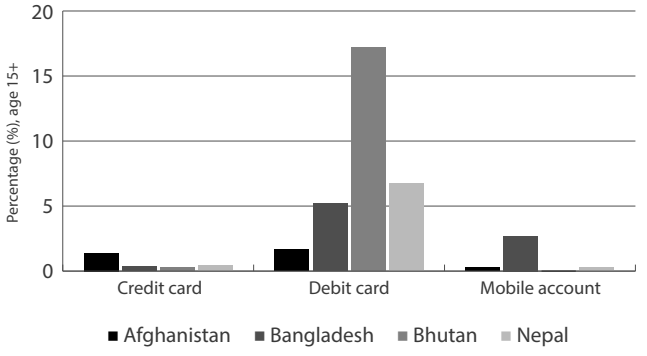
At the same time, the EIF is currently working closely with the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) to support a number of Asian LDCs—including a few from South Asia—to implement the UNESCAP-sponsored agreement on paperless trade.

The lack of availability of payment solutions is a major stumbling block for the South Asian LDCs. Data show that while debit card ownership is greater when compared to credit cards or mobile accounts, the percentage is still very low—17 percent in Bhutan and 7 percent in Nepal. In Bangladesh and Afghanistan, the percentage is below 5 percent (Figure 9.10). Usage rates are even lower, barely reaching 1 percent. One exception is Bhutan, where 10 percent of the population uses debit cards for payments.

Due to the absence of credible payment systems on which e-commerce consumers can rely, cash on delivery is the preferred mode of payment in many South Asian EIF Countries, including more than 85 percent of e-commerce users in Nepal (UNCTAD, 2017b) and 90 percent in Bangladesh.[16] Although this may have roots in the cultural settings of these countries, including a strong preference for cash payment, there are other factors that equally contribute to such a situation: fear of fraud, a lack of incentive for small and medium-sized enterprises to have themselves registered

Figure 9.10

Availability of payment solutions in South Asian LDCs, 2016



Source: World Bank, https://data.worldbank.org/indicator.
Note: Data for Maldives are not available.

with relevant authorities and a lack of facilitating regulatory environment (see, for example, UNCTAD, 2017b).

The e-trade readiness assessment of Bhutan identifies modest progress with the launch of the e-payment gateway by the Bank of Bhutan Limited, whereby an instantaneous connection is now available between users and their bank via website (UNCTAD, 2017a). Similarly, Bangladesh Bank enabled online transactions in 2009 followed by online purchase and sale of goods and services using international credit cards in 2013 (Choudhury, 2018).

However, the situation in Nepal highlights the urgency of payment-related reforms to boost e-commerce development. Kaymu estimates show that online credit card payments represent 2 percent of all transactions, while payment solutions such as eSewa and IMEpay are at 13 percent (UNCTAD, 2017b). Foreign currency controls and difficulties in opening dollar accounts hamper online sales and purchases in foreign currencies, thereby limiting online transactions to the domestic market (*ibid.*).

Digital opportunities for South Asian EIF Countries

The availability and the affordability of internet connection and internet-ready devices in South Asian EIF Countries offer great opportunities to businesses worldwide in view of these countries' geographical situation, market size and growing population. Some companies are already stepping in. For example, Alibaba's recent takeover of Daraz owned by Rocket Internet can have a major boost in promoting e-commerce in South Asia. In addition to its operations in Pakistan and Sri Lanka, the doors are now open for Alibaba in Bangladesh, Myanmar and Nepal.[17]

However, the overall e-commerce situation in South Asian EIF Countries remains challenging. According to the UNCTAD B2C E-commerce Index[18], the top performer among South Asian EIF Countries, Bhutan, scores only 100 out of 144 places, well below the 54th position of the overall Asian average. While Bangladesh and Nepal are only three and eight points away, Afghanistan stands at the 132nd position.[19]

Based on the evidence presented in the previous section of this chapter, it is clear that there are three crucial areas that require political will, coordination and commitment for the ICT sector in South Asian EIF Countries to expand: availability and affordability; digital competencies; and logistics and payments. We now highlight some quick wins in digital reforms.

Regulatory environment: moving towards fifth-generation regulations

There are currently five generations of ICT regulations, ranging from G1 (regulated public monopolies) to G5 (collaborative regulations), measured by the ITC Regulatory Tracker through four key components: regulatory authority, regulatory mandate, regulatory regime and competition framework.

Today, all South Asian EIF Countries have a dedicated telecom/ICT regulatory authority. However, Bangladesh is the only

South Asian LDC with an independent competition authority, which is crucial for promoting internet penetration. Although Nepal enacted its competition legislation way back in 2007, due to the absence of an independent competition authority, among other things, a competitive market environment does not exist in many sectors.

In terms of regulatory mandate, South Asian EIF Countries are well advanced in ensuring an independent authority for service quality monitoring to support consumers with access to information, licensing, pricing, frequency allocation and universal service.

Greater convergence among the authorities responsible for broadcasting internet would lead to higher efficiency, and this would enable countries to further enhance IT systems in line with international best practices, including establishing a regulatory authority. While almost all South Asian EIF Countries have set up a regulatory authority for broadcasting radio/TV, with the exception of Nepal, a regulatory authority for internet content exists in Afghanistan, Bangladesh and Nepal; for broadcasting content in Bangladesh and Nepal; and for IT in the Maldives (Table 9.4).

Table 9.4

State of play of the new regulatory mandate in South Asian EIF Countries

	Broadcasting radio/TV	Broadcasting content	Internet content	IT
Afghanistan	√		√	
Bangladesh	√	√	√	
Bhutan	√	√		
Maldives	√			√
Nepal			√	

Source: ITU (2017b).
Note: √ – Regulatory Authority, blank – Sector Ministry/Other Ministry/Government.

Most of the South Asian EIF Countries score very well in the ICT Regulatory Tracker on consumer relations, including for the availability of comparative tariff information and handling of consumer complaints. This reflects a commitment to greater transparency. However, this is not always the case for cross-border e-commerce transactions.

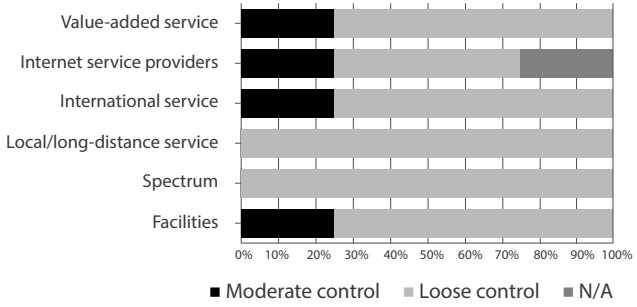
As for regulatory regimes, all South Asian EIF Countries have adopted national plans that include broadband internet, thereby reinforcing coordination between infrastructure deployment and related regulatory services. In the long run, this contributes to greater levels of internet penetration and competition.

Open and licence-free market entry is available only in Bangladesh and Afghanistan, with publicly available interconnection prices. Unified licensing requirements are available in Bhutan and the Maldives.

With respect to restrictions on foreign participation and ownership, all South Asian LDCs have opted for greater liberalization

Figure 9.11

Restrictions on foreign participation/ownership in South Asian EIF Countries, 2017



Source: ITU (2017b).
Note: Loose control: "no restriction" or "controlling interest"; moderate control: "50%" or "minority interest"; full control: "no foreign ownership allowed".

(Figure 9.11), thereby opening the doors for the expansion and development of the telecommunications sector and the transfer of technology and knowledge. In addition, welcoming the private e-commerce operators into the market can facilitate the expansion of e-commerce.

The overview of the competition framework in South Asian LDCs shows that while monopolies have been dismantled in many sectors, the transition to a fully competitive market is still in progress. Either state-owned or partially privatized main fixed-line operators exist in all the South Asian EIF Countries.

As a result, according to the ICT Regulatory Tracker, South Asian EIF Countries fall within the second and third generations of regulations (Table 9.5). This shows that, while there has been some progress, there are a number of areas where additional reforms can help.

In parallel with the development of the ICT regulations, several South Asian LDCs have already established legal and regulatory frameworks that could help boost e-commerce, including consumer protection, data protection, cybercrime prevention and electronic transactions. Bhutan is the only South Asian LDC that has established a legal framework for all four pillars. Bangladesh

Table 9.5

Generations of regulations in South Asian EIF Countries

G2	Opening markets. Partial liberalization and privatization	Bhutan, Nepal, Maldives
G3	Enabling investment, innovation and access. Stimulating competition in service and content delivery and consumer protection	Afghanistan, Bangladesh

Source: ITU (2017b).

and Nepal have established three of the pillars. However, data protection legislation in Bangladesh and consumer protection legislation when purchasing online in Nepal are yet to be enabled. In Afghanistan, only a draft legislation on electronic transactions is currently available.

Evidence-based analysis as a springboard for digital reforms

The increasing number of digital priority reforms in trade-related analytical work reflects the growing importance of digital connectivity. The diagnostic trade integration studies (DTISs)—major blueprints for reforms and trade-related interventions in the LDCs—follow this trend. The recent DTISs in South Asia, including those in Afghanistan (2012), Bangladesh (2016) and Bhutan (2012), incorporate ICT in dedicated chapters.[20] Nepal's DTIS (2016) covers digital connectivity in the context of information technology as one of several priority sectors with export potential.[21] The previous generation of DTISs, including one in the Maldives (2006), covers ICT as a cross-cutting issue.[22] The ICT-specific priorities of DTISs in South Asian LDCs are summarized in Annex A.

In order to provide more targeted and detailed digital analysis, UNCTAD, with the support of the EIF and others, has started publishing analytical studies in this area called Rapid E-Trade Readiness Assessments in the LDCs. These studies look at the challenges and opportunities that the LDCs are facing in reaching online global markets and provide recommendations in order to enable these countries to take advantage of e-commerce opportunities. Such assessments have been undertaken in two South Asian LDCs—Bhutan and Nepal—and a third one for Bangladesh is currently under way.

While it is still too early to make a full comparative analysis of e-trade readiness of all the LDCs in South Asia, there are several common recommendations that emerge from the assessments of Bhutan and Nepal:

- Ensuring internet connectivity in remote areas at affordable cost;
- Formulating forward-looking ICT legislation and ensuring legislative coherence;
- Developing an e-commerce strategy;
- Putting in place better policies and making investments in generating and utilizing IT skills;
- Speeding up the digitalization of customs procedures, including address localization;
- Setting up and upgrading e-payment gateways; and
- Supporting micro, small and medium-sized enterprises with access to finance through training, swifter registration and innovative products.

Annex B provides a comparative summary of the recommendations from the assessments of Bhutan and Nepal.

Role of Aid for Trade (AfT)

Governments of the LDCs together with the private sector are at the frontline of allocating significant resources for the development of telecommunications and the ICT sector in general and harnessing the potential of e-commerce in particular. However, there is a considerable role for international support, including through official development assistance (ODA) and AfT.

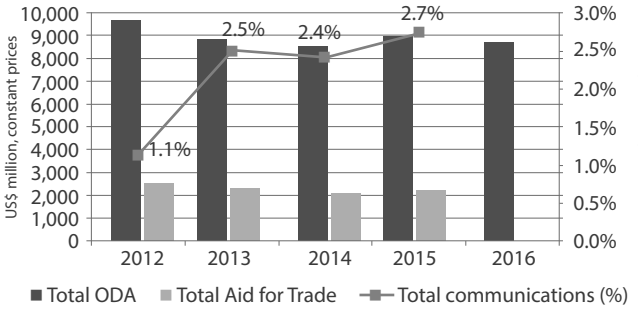
At present, there is a gap in commitment, such as the one made in Goal 8.A of the 2030 Agenda for Sustainable Development[23] and its actual implementation: even more so, this is visible in the ICT sector. Out of the US$342.3 billion disbursed as AfT between 2006 and 2016, only US$6.6 billion went to ICT connectivity, with one quarter going to the LDCs (Mbise et al., 2018).

In South Asian EIF countries the portion of AfT dedicated to ICT connectivity—which includes communications policy, telecommunications, technological research, and ICT—is just above 2 percent (Figure 9.12).

While South-South partners are becoming increasingly important players in development cooperation, they do not report to

Figure 9.12

ODA to South Asian EIF Countries, disbursements



Source: OECD (2018).

the OECD Creditor Reporting System (CRS) which makes it difficult to estimate the full extent of AfT. Similarly, most private sector support is not reported in the OECD CRS (Mbise et al., 2018).

Considering the importance of the ICT sector and the potential contribution it can make to help the LDCs achieve economic transformation, AfT development partners, including bilateral donors, may have to explore the possibility of prioritizing this sector in their AfT investment plans.

South Asian LDCs account for one fifth of all AfT disbursements going to the LDCs, mostly due to the amount dedicated to the top AfT recipients. For example, in the past five years, Bangladesh (33 percent) and Afghanistan (52 percent) on average accounted for 85 percent of the total AfT to South Asian EIF Countries.

As the only AfT partnership exclusively designed to support the integration of the world's poorest countries into the multilateral trading system, the EIF serves as a catalyst for trade development in the LDCs. The EIF partnership helps the LDCs identify key priority reform agendas; build strong institutional coordina-

tion; and make seed investments, catalyzing development funding to address the countries' most pressing priorities in relation to trade development.

On a global scale, the EIF has invested over US$220 million in the world's 51 poorest countries across Africa, the Americas, the Pacific and Asia, with over US$17 million going to South Asian EIF Countries. The demand-driven nature of EIF investments reflects the differences in the country-specific investment portfolios.

For example, Bhutan, an LDC on the verge of graduating from the LDC category, has made a tremendous progress in the domain of ICT development through the formulation of appropriate policies and strategies through EIF support. Further, cognizant of the potential of ICT for trade development, the Royal Government of Bhutan has identified digital connectivity as a key priority in the DTIS carried out with support from the EIF. Bhutan is a clear example of how pivotal government support is for the development of a buoyant ICT sector, although support from international organizations can be instrumental.

Bhutan is currently focused on ensuring that a reliable ICT system—including both hardware and software—supports the country's integration into the global economy. With the support of the EIF and through its e-Infrastructure for Trade and Services Development Project, Bhutan has already launched an online commodity exchange system and piloted the auctioning of potatoes, one of the top ten Bhutanese exports, and is currently planning to scale this up.

Now, Bhutanese farmers are selling their products faster and more efficiently. Online auctions with new grading machines have helped cut processing and payment time to one day and ensured a better price in comparison to conventional auctions. Focusing on improving efficiency in upstream components of the process has brought greater returns to farmers—an extra 3 Ngultrum for each kilogram, or US$330 per truck load. The Government of Bhutan now intends to scale up this initiative with additional government funding, thereby enabling more farmers to participate and by including new commodities, such as cardamom, in the online exchange system.

The case story of Bhutan, with strong country ownership across the government and its commitment to provide national resources, shows that leadership for change should come from the country itself. If this process is championed by a government agency, chances of success are even higher.

Conclusion

South Asian EIF Countries are yet to realize their full potential in accessing global markets through e-commerce. The challenges are many. They range from ensuring internet infrastructure and affordable devices, to adopting digital policies and regulations, to overall digital awareness and skills.

Based on the evidence presented in this chapter, four key priority actions can bolster the integration of South Asian EIF Countries into the global e-commerce space.

First, strong national ownership is a key to undertaking necessary reforms and making investments in e-commerce development. Reforms may range from liberalizing the telecommunications services sector, to putting in place a robust competition policy, to reducing tariffs on the import of ICT products, such as computers, tablets and smartphones. Examples from countries such as Bhutan and the Maldives provide evidence of how strong national ownership and political will can contribute to enhancing national e-commerce capabilities.

Second, a coordinated response across different government agencies working hand in hand with the private sector and consumer groups is vital for ensuring the organic transformation to a truly digital economy. The experiences of adopting e-payment solutions and undertaking trade facilitation reforms for easing e-commerce transactions are two clear examples.

Third, digital skills are at the heart of digital integration. Since most of the countries studied have limited human capital endowed with digital skills, it is important to create incentives for more students, particularly girls, to join the STEM streams. It is equally important to foster greater collaboration between the ICT indus-

try on the one hand and universities and institutes on the other to enhance employability of graduates in the STEM disciplines in general and the ICT discipline in particular.

Finally, development partners can help provide the first ICT infrastructure investment seeds, which can take root and grow, supported by private investment. While official development assistance to the South Asian EIF Countries for the development of the ICT sector has been extremely limited, coordinating development assistance across different sectors beyond ICT, diversifying the development finance basket and bringing economic infrastructure into the mix will create new synergies between small-scale targeted evidence-based development interventions, thereby helping to achieve the broader objective of developing e-commerce with a view to achieving economic transformation.

The authors thank Ms Youlia Lozanova (International Telecommunication Union—ITU) for providing the data from the ITU information and communication technologies regulatory tracker.

Notes

1 https://www.business.com/articles/10-of-the-largest-ecommerce-markets-in-the-world-b/ (accessed 4 September 2018).

2 SDG 9.C: "Significantly increase access to information and communications technology and strive to provide universal and affordable access to the internet in least developed countries by 2020".

3 "Significantly increase access to telecommunication services and strive to provide 100% access to the internet by 2020."

4 In order to facilitate valid comparison between countries, country-specific data is presented based on the datasets available from different international organizations. Although international data are based on the data collected from national sources, they might differ due to timing and sources of national reporting.

5 For instance, it has recently expanded services to Villingili, one of the inhabited islands of Gaafu Alif Atoll. "Ooredoo expands FTTH network to Villingili," *TeleGeography*, https://www.telegeography.com/products/commsupdate/lists/country/maldives/, accessed 16 May 2018.

6 "Ooredoo completes 4G network expansion to the entire Maldives," *vnews*, http://vnews.mv/76797, accessed 3 May 2018.

[7] The download speed for 1 Gbps with a 4G signal is 12 times faster than with 3G (ITU, 2018).

[8] "AWCC rolls out LTE to Herat and Baghlan," *TeleGeography*, https://www.telegeography.com/products/commsupdate/articles/2017/12/06/awcc-rolls-out-lte-to-herat-and-baghlan/, accessed 16 May 2018.

[9] For the deployment of the 4G network, Bhutan is the only LDC in South Asia that has allocated a 700/800 MHz-band spectrum, thereby moving from analogue to digital broadcasting (ITU, 2018).

[10] "Ncell extends LTE network to reach 21 cities," *TeleGeography*, https://www.telegeography.com/products/commsupdate/articles/2018/01/09/ncell-extends-lte-network-to-reach-21-cities/ , accessed 16 May 2018.

[11] Regional: South Asia Subregional Economic Cooperation (SASEC) Information Highway Project (Bangladesh, Bhutan, India, Nepal), https://www.adb.org/projects/40054-013/main#project-overview, accessed 3 May 2018.

[12] Bangladesh–SeaMeWe-5, Maldives–WARF Submarine Cable and Nationwide Submarine Cable Ooredoo.

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[19] No data available for the Maldives.

[20] See World Bank (2012), Kathuria and Malouche (2016), and Government of Bhutan (2012).

[21] See Government of Nepal (2016).

[22] See Maldives (2016).

[23] SDG 8.a commits to increase AfT support for developing countries, particularly the LDCs, including through the EIF.

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Annexes

Annex A
ICT priorities of the DTIS/DTIS updates in South Asia

Afghanistan, 2012	Reform licensing to enable greater competition. The Afghan Telecom Regulatory Agency (ATRA) should focus on implementing the Ministry's open access policy. ATRA regulations will implement the policy and ensure that access to the internet backbone remains non-discriminatory, transparent and cost-based.
Bangladesh, 2016	Install two additional international submarine cables to ensure minimal redundancy in case of failure of one of the three existing cables.
Bhutan, 2012	Continue to develop a state-of-the-art broadband infrastructure (fibre optic and others): - To complete the fibre optic network in Bhutan and connect the network to all communities and their community centres. - To continue to secure several redundant fibre optic connections to the main internet backbone with Indian telecommunications service providers. - To continue to seek Quality of Service (QoS) guarantees for backbone data services from Bhutan as well as from Indian service providers. - To continue to track market developments in ICT infrastructure and related innovations. - Immediate priority: to ensure connectivity and QoS, essential for IT-enabled Services operations that require real-time Voice-over-Internet-Protocol connections. Connect all communities to the internet to promote greater community participation and to enhance the capacity of all communities to become self-sufficient: - Complete building and connecting of community centres in each group of villages (called Gewogs). - Focus specifically on the 45 Gewogs for which funding is not available. Undertake a study of the demand for telecommunications services (or use results of universal access market studies if available). Develop a community access business plan based on a demand study and resulting marketing plan. Seek to integrate this with activities that promote using the internet for marketing local skills and resources, especially for local businesses, such as crafts and community-based tourism. Create a legal and policy environment that enables e-commerce and ICT-enabled business: - Modernize and strengthen the ICT and media law and regulatory framework by redrafting the Media Act of 2006. Nurture Bhutanese entrepreneurs in the ICT sector: - Develop the Bhutan Innovation and Technology Centre and the Thimphu TechPark Private Limited. - Establish collaboration linkages with the Education City.
Nepal, 2016	Lower the cost of bandwidth. Provide incentives to attract investment in the IT sector. Improve the labour market for the IT sector and increase the supply of trained staff.
Maldives, 2006	Increase the use of ICT systems to support ongoing business development activities.

Annex B
Comparative summary of recommendations from the e-trade readiness assessments of Bhutan and Nepal

	Bhutan	Nepal
e-Commerce strategy	Develop a national e-commerce strategy	Develop a national e-commerce strategy
ICT infrastructure and services	Conduct a data centre investment attractiveness assessment	Invest in fibre optic backbone networks in the more remote areas, while keeping charges for use at bay
Trade logistics and trade facilitation	Support the Bhutan Post in addressing localization projects outside of Thimphu	– Ensure increased digitalization of customs procedures – Improve the address system
Payment solutions	Implement an e-payment gateway	– Upgrade the financial system to ensure access to cashless payments for international e-commerce – Priorities: mobile banking, internet banking and credit and debit cards
Legal and regulatory framework	Review ICT-related regulations in different sectors	Formulate forward-looking laws to improve users' confidence in online transactions and to update existing ICT-related laws
Skills	Set up an ICT academy	Increase employment opportunities for ICT graduates through greater cooperation between tertiary education institutions and the ICT industry
Access to financing	Develop a training programme on preparing business plans and accounting books to gain access to finance	Facilitate the registration of micro-, small- and medium-sized enterprises and develop innovative products

CHAPTER 10

Energy cooperation

Pitfalls and pathways

Dipak Gyawali

Cooperation in trade among South Asian countries is not healthy by any measure in any sector, beset as cross-border trade is with rent-seeking red-tape and many other barriers.[1] The field of energy trade, which is just a subset within that overall context, is beset with many other seemingly intractable issues as well that go to the heart of governance of this sector both between and within Nepal and India. Trade may be treated as an "obvious good" by its advocates: the more people trade, more wealth exchanges hands and is put to better productive use by the participating parties, thus increasing the overall value of briskly trading economies. However, trade is rarely conducted in that ideal space called a "free market" between free and equal agents with full information at their disposal. Indeed, information itself is a strategically held item with the party holding it ending up as the bigger beneficiary and the party lacking that critical resource getting the short end of the deal. The same misfortune befalls parties with lesser technological skills or legal and institutional backstopping means: more trade does not necessarily bring more development, but can bring about significant amounts of crippling dependency and mal-development.

There are three counter-intuitive concepts that will be used in this essay to tease out the problems of energy trade (specifically Nepali hydroelectricity) within the South Asian context. They force us to rethink what we mean by a technology such as electricity and its transmission, how it has come to be in our culture

and what are the purposed ends to which it is harnessed. Too often our political discourse has remained stuck in what may be called the "hydro-dollar fallacy", the idea that Nepal has "immense hydro potential second only to Brazil" which can be harnessed and the electricity exported to earn the equivalent of "petro-dollars" similar to the sheiks of Araby and to live in comfort happily ever after. Actually, electricity is a "strategic good" that allows the development of upstream (i.e., survey, design, construction and maintenance capabilities) and downstream (through use of electricity in commerce and manufacture) areas of the national economy, which will be forfeited if exported across the border. Indeed, it has been estimated that the assessment of Nepal's potential demand for electricity is low because only the current "suppressed" demand scenario is considered: if Nepal were to displace fossil-fuel-based liquefied petroleum gas from its kitchens as well as diesel and petroleum from its transport sector by home-grown hydropower, the current demand would not be some 1,300 MW only but anywhere between 3,000 and 6,000 MW (Shrestha et al., 2018; N-CANSA, 2018). These counter-intuitive concepts are important in that they allow us to examine the underlying technical and political-economic contradictions behind this fallacy that began to dominate public discourse since the early 1970s, and which are in dire need of rethinking if the chronic impasses in water resources cooperation of the past decades are to be overcome.

Power trade rethinking

The first concept is the idea behind what may be called "terms of trade" in a more expanded sense between trading countries as described by the eminent historian Stavrianos (1981) in his book *Global Rift.* Covering not the history of a country or a region, but instead looking at *the process of Third Worldization,* he first describes the uniqueness of capitalism's rise in world history at the western end of the Eurasian peninsula around 1,500AD, and nowhere else, not in India or China that were technically more advanced and economically more prosperous. It produced a society

such as never existed anywhere before and which currently engulfs the entire globe. The factors he identifies are: the lack of a centralizing empire after the collapse of Roman rule that prevented extraction of economic surplus to be frittered away in prestige projects of rulers (such as the Taj Mahal); Black Death and the shortage of labour that encouraged technological precociousness with labour-saving devices; a Protestant Reform that allowed reification of labour and simplicity over conspicuous consumption (and hence basic democracy with no slave holding as well as accumulation of savings); and a loosening of the stranglehold of the Church allowing free scientific thinking, including loosening of anti-usury beliefs and laws to allow for collecting interests on borrowed money. It was the first time any society had allowed money to be allowed to work and make a profit for itself through borrowing and interests; and one must keep in mind how certain Islamic societies still prevent direct interest-taking through the idea of "Islamic banking".

With this "democratization of capital" also came, for the first time, the idea of the Joint Stock Company with limited liabilities: it allowed for bold, large and risky enterprises to be undertaken not just by richly endowed monarchs and dukes but also a collection of small traders pooling their savings, earning dividends from their investments but not liable beyond their immediate investments. While Columbus's expedition to the Americas might have been financed by Spanish kings and queens, the expeditions of the East India Company or the Dutch East India Company were joint stock trading ventures that ended up far more efficient in owning vast swathes of South and Southeast Asia. Stavrianos extends these key institutional innovations first, to introduce the novel phenomenon of "trade in necessities" which arose with capitalism as opposed to "trade in luxuries" which has existed since time immemorial. He then uses them to explain Third Worldization as the situation where countries without commensurate instruments of developed capitalism end up as suppliers of raw material that is processed in core countries for value addition and shipped back to periphery countries as necessities, locking such countries into a neo-colonial *dependencia situation.* Since 1,500AD, all regions of

the world—East Europe, North America, Africa, Latin America and Asia—had these misfortunes visited upon them: the only exception to avoid such a fate was Japan which merits a separate chapter in *Global Rift*.

The second idea is that of Arthur's (2008) on the meaning of technology and how that defines an economy and its structure within which the flow of goods and services takes place. Arguing for an "-ology" of technology (much like evolutionary biology) and examining its "technology-ness," he, like Stavrianos, sees it as "what separates us from the Middle Ages, indeed even from how we lived 50000 or more years ago." Arthur defines technology in three different (and intertwined) ways. Technology-singular such as a steam engine is a *means to fulfil a human purpose* which comes about with a new concept developed by modifying its internal parts. Technology-plural such as electronics is *an assemblage of practices and components* which develops by changing both its parts and practices. Technology-general is the *entire collection of devices and engineering practices available to a culture* which originates from the capture of a natural phenomenon or several such phenomena, and builds up organically with new elements forming by combination from old ones. It is this endless series of recursive combinatorial possibilities that carries within it not just the seeds of its own destruction (obsolescence) but also that of new evolutionary potential (innovation).

In Arthur's framing of its "technology-ness," two concepts are significant to explain the role of technology in an economy: *domain and structural deepening*. Domains are clusters of individual technologies that share a common theory or a family of natural effects with natural toolboxes of common building blocks (such as structural engineering or genetics or radio communications). An individual technology does a job and achieves a particular purpose: a domain (technology-plural), however, does no job but merely exists as a toolbox of useful components to be drawn from. The difference has been likened to a computer program that runs a particular device versus the programming language that can write that and other programs.

As individual technologies are pushed to maximum performance, they reach the natural limits of the tools that have harnessed that particular phenomenon. This problem is overcome by searching for and finding more efficient tools that harness a different phenomenon but can do the same job, which often have to come from some other domain. An old example is the *re-domaining* from waterwheels to steam technology to provide greater power to factories. It is this process that has led to rapid economic development. The point to keep in mind is that an economy is only as strong as its command, not over a technology-individual, but over the domain of that technology. Given the dynamic nature of modern global economy, according to Arthur, modern technology is not just a collection of more or less independent means of production but one in which command over the underlying technological grammar allows for the creation of new and more efficient functions in the economy, including for fresh new purposes, through re-domaining.

The idea behind *structural deepening* is one of fractal complexity of technological systems: an obsidian knife of primitive humans is a simple technology allowing the skinning of a hunted antelope; a modern aircraft carrier comprising a giant ship that floats on water to carry supersonic aircraft that fly in the sky is a very complex technology with technical parts that have sub-parts each of which in turn has other sub-parts to depths of several layers. The same is true of a hydroelectric or nuclear power plant, with each sub-technology having evolved from different domains.

A modern power system relies not only on the civil engineering of a diversion structure or the mechanical engineering of turbines but also fibre optics and information technology that tells the plant when to produce and how much to produce plus an entire specialized management system that ropes in banks, insurance companies and courts of law, each with their own technological grammar. While such complex systems have built-in redundancies to cover for a sub-part failure, the point, for our purpose, is that only an economy that has command over the structural depth of a modern complex technology can truly benefit from its use.

Weakness on this front leaves it at the mercy of those, as Stavrianos discussed above would have described it, at the unfortunate end of its "terms of trade" in necessities. When the largest storage dam in Nepal, the 60MW Kulekhani-1, had its penstock washed away during the cloudburst in the monsoon of 1993, its repair and replacement could not be done by mechanical workshops in Nepal: the Nepal Electricity Authority (NEA) lacked the expertise to even assess the damage and had to refer to the Japanese consultant who originally designed it (at great cost) and bring in foreign contractors to complete the repair job. NEA (and Nepal) lacked structural depth in its overall technological capacity.

The third counter-intuitive idea is that of the social construction of different types of goods and how amenable (or not) they are to trade. Economists talk of preferences for different bundles of goods and how the price mechanism in a free and competitive market will bring about equilibrium. What they do not ask is where preferences come from and why people do not always prefer a bigger bundle of goods to a smaller one.[2] This conundrum, and alternative answers, are explored by Cultural Theory (or the theory of plural rationalities) with the ideas in social anthropology propounded by Douglas (1992), Douglas and Isherwood (1979) and also Thompson (2003) and Gyawali and Thompson (2016). To quote Douglas (1992),

> The way that demand for goods is treated within economic theory blocks their curiosity about how wants are created… In economics the implicit assumption is that the origin of wants is to be found inside the individual's physical and psychical conditions. In anthropology, the implicit assumption is that wants are defined and standardized in social interaction… This latter view makes a better start for thinking about wants because it integrates the choices of the individual agent within a model of the whole economy, whereas economics leaves the choices unexplained except in regards to price.

Cultural Theory provides a remedy by showing that "individual wants are standardized by the same process that establish social solidarity." Using what are called two discriminators—whether there is strong group affinity or not, and whether individuals subscribe to pre-ordained rules or not—Cultural Theory comes up with a permutation of four social solidarities or ways of organizing: *hierarchism* (strong group cohesion, strong upholding of prescribed rules), *egalitarianism communards* (strong group cohesion, but weak on prescribed rules), *individualism* (weak on both) and the *fatalism* of the conscripted (weak on group, but strong on ascribed rules imposed upon them). Each of these four styles of organizing upholds an accompanying pattern of shared beliefs and values (or *cultural* biases and myths of nature) that is common to them, including very different perceptions of risk, i.e., risk-managing, risk-minimizing, risk-taking and risk-absorbing.

More importantly for our discussion, they subscribe to four different views of what economic goods are. In a remarkable parallel with the Cultural Theory approach described by Thompson (2003), Karl Polanyi (1944) has described three forms of economic interactions: *exchange*, which mirrors Cultural Theory's market individualism, prefers to see nature as providing *private goods* that can be traded for profit; *reciprocity* of civic egalitarian activism sees what nature provides as *common pool goods* equally available to all, including future generations; and *redistribution* through taxation and other such means of bureaucratic hierarchism is what leads to *public goods* that need to be regulated and graded for use as per rank and evaluated need. Fatalism of voters and consumers is regarded as passive because it does not cognize and strategize but is strategized upon by the other three active social solidarities; and what they see are *club goods*—goods that they are excluded from consuming because they do not belong to the club. Thompson (2017) expands this fourfold typology of goods by expanding the economists' understanding of all goods being in the *transient* category (value declining over time) until they become *rubbish*: the apparently valueless latter, however, resurrects itself in some distant future into an immensely valuable *durable* category as an-

tique! Among the many examples he cites is that of old "rat-infested slums" of London suddenly becoming "our glorious Victorian heritage" worth millions of pounds.

This fourfold typology builds on previous research—particularly regarding the dualism of hierarchy and markets—but opens up relatively unexplored but important avenues of cultural expression, specifically fatalism and egalitarianism. Cultural Theory bridges the old and the new in organizational studies by opting for a three- (or four- if passive fatalism is included) legged policy instead of the previous attempts at one- (pure authoritarianism) or two-legged (bureaucratic socialism and free market individualism, i.e., public-private partnership) ones. The important implication of this way of looking at goods, whether they be bags of rice or electricity from hydroelectric dams, is that these four different types of goods (upheld by the four different social solidarities) are not all equally amenable to trading to the same degree. Private goods can be exchanged easily when buyers and sellers agree between themselves with little else standing in the way. Public goods can also be traded but with difficulty and only with adherence to strict rules and regulations that have to reflect the social and political mood. Common pool goods such as those with environmental, strategic or national pride values, on the other hand, cannot be traded because they carry significance and meaning that cannot be transferred or alienated.

What these three counter-intuitive examples do is to nudge us to rethink energy trade. Is the item proposed to be traded a strategic necessity where the terms of trade are stacked against one of the trading partners under monopsonist conditions leading to debilitating *dependencia* conditions? Does the economy proposing to deal with this resource as tradable goods have sufficient structural depth with its concomitant technologies and sub-technologies? And finally, is energy (especially hydroelectric power with its environmental and social issues associated with water) a private good, public good or common pool good—or some mix of all three categories—that requires management approaches that severely curtail the capacity to trade with it?

So far, we have deconstructed the meaning of "tradable goods": we need to proceed with deconstructing the concept of "transboundary" before we move to address what energy trade and governance can mean in South Asia, especially in the Ganga Basin between Nepal, India and Bangladesh.

Clarifying transboundary

Defining the transboundary realm of South Asia can be a difficult exercise in grappling with fuzziness, especially when one is forced to shed a purely nation-centric approach as one must. The nation-state, a European Westphalian concept, is not the only container of rich social interactions in this part of the globe: they come in a variety of social configurations ranging from family clans to ethnic and regional groupings to religious, linguistic and cultural ties that spread far and wide. And they very much determine how individuals look at the world and react to it, much more deeply than just how national laws and international treaties/conventions say national citizens should. In the broadest sense, South Asia covers the Indic civilizational entity, which is much of everything south of the Hindukush-Himalaya. It extends from Afghanistan all the way down to the western flanks of the Anamite Cordillera in Cambodia. This is where the linguistic and cultural commonalities, the stuff that defines communication and natural behaviour, abound; and this is where history has overlapped and constantly shifted internal boundaries as different rulers have vied with each other to hold sway over its geography.

Another feature that unifies South Asia as a concept is its meteorology: the region is mostly dependent on the summer monsoon for much of its water, a unique weather pattern of global wind circulation which does not recognize national and administrative boundaries but affects the entire region in a more or less common manner. While its north-west end may get some winter precipitation from the westerlies as does its very southern tip from the trade winds, the monsoon rains from June to September define its liveability as a semi-arid zone. What happens with this precipita-

tion depends very much where it happens, how fast it happens and during what temperature and humidity regime it happens. With its origins in the Indian Ocean and the Bay of Bengal, this moisture movement that also gets additional feeding with evapotranspiration from forest and agriculture lands along this semi-arid zone—called the "flying rivers"—carries enormous volumes of water much greater than that of our rivers (Creed and Noordwijk, 2018). That being the source of all our waters and indeed of all life and economic activities, it is surprising how very little effort South Asian countries have spent to understand its nature and vagaries. One would have thought that transboundary collaboration would have started from this meteorological input point; but a failure to do so means that cooperation in river flow allocations has remained in an impasse. This is especially so when collaboration on understanding our common monsoon regime and its vagaries would have been a win-win proposition for all countries concerned; but limiting cooperation to water allocation in our rivers subjected to semi-arid conditions is a lose-win proposition: what I get you don't and vice versa.

While much of the precipitation drains off as flood waters, an amount depending upon the topography and geology seeps into the underground and is stored as groundwater that is the primary lifeblood of much of South Asia for the dry months between October and May. Indeed, the water flow during this period of the year in its rivers is nothing but groundwater backflow. In that sense, South Asian rivers are, during the dry, non-monsoon months, nothing but leaking outflow of the massive groundwater tank of the region, which was traditionally exploited through stone wells and hand-lifted buckets. With the wide-scale proliferation of modern deep-boring wells and electric or diesel pumps since the latter half of the 20th Century, groundwater depletion has become a serious problem all over South Asia, so much so that even NASA satellites that monitor gravity strength of the planet are able to record this over-pumping (Mukunth, 2015). This basic problem of depleting river flow especially in the dry season, not so much from climate change (where forecasts predict increased flow due to increased precipita-

tion probabilities) but from unregulated extraction of groundwater and declining groundwater table, has to be kept in mind as we discuss transboundary rivers as they will affect the energy output and viability of transboundary energy agreements, especially with Himalayan hydropower.

Another aspect of defining transboundary concerns of South Asia is to ask how many types of boundaries are there that are crossed. Rivers crossing international, subnational or administrative boundaries is the obvious conventional focus, but even here we have to examine the hitherto not seriously acknowledged flow of subterranean groundwater which can differ from the flow direction of the river crossing the boundary and affect its volume. However, when it comes to water (and energy), there are many other boundaries that also get crossed, and which have implications for their development. When these concerns began to surface with the rise of environmental and social activism, it was realized that hydropower could not just be a matter to be decided on civil, electrical and economic grounds. The concept of Integrated Water Resources Management (IWRM) was advanced in the 1980s as the interlinkages between technological interventions and social milieu became apparent with the rise of environmental and social concerns as well as the emergence of some intractable conflicts. The need for multiple expertise addressing this complexity meant that planners and implementers of water and energy projects had to constantly cross disciplinary boundaries, something that large bureaucracies in their silos are very reluctant to do.[3]

IWRM was subsequently critiqued for two primary reasons: it failed to answer who does the integrating and how, i.e., to ask the tough political questions, and was limited to merely procedural inputs to hierarchism (Gyawali et al., 2006; Allan, 2003). In Cultural Theory terms, the voices that were missing at the policy table were still the civic activist egalitarian and market individualistic ones. To remedy this lacuna, a new and broader concept is currently being advanced, that of the nexus approach (Allouche et al., 2014; Gyawali, 2015). The advantage of this approach over IWRM is that it broadens the interconnected sectors beyond just water to water,

energy, food, etc. While this increases the complexity much more, it also makes it more realistic in that the happenings within one sector have serious ramifications in another and that must be dealt with, not ignored. The implication of shifting to this broader approach is that hitherto ignored economic benefits and costs, such as with Nepal's 60 MW Kulekhani-1 hydroelectric project, which generates, besides electricity, significant benefits in irrigation, water supply, fisheries and inland navigation, can be brought within planning and management purview (Gyawali, 2015).

Water and energy (and within Nepal's hydropower context they are intertwined) are not really subjects but the focal points where many subjects—indeed one might say all the subjects taught in a university, ranging from hard science (atmospheric physics) to soft literature—intersect. While natural sciences describing these complex resources such as meteorology, geology and soil science, civil and electrical engineering may seem "natural," the fact that the conclusions they reach have implications for individuals and the societies in varied forms they are part of puts serious question marks on the applicability and usefulness of natural sciences alone. This basic fact makes them difficult to address: even within a country, harnessing naturally flowing water becomes a complicated business with ramifications for other sectors, often with social, legal and environmental concerns.

The matter is made more intractable when these concerns are managed in different departments, as practicality and specialist needs dictate they must, in the form of silos that do not link up with each other. In Nepal's case, for instance, rarely has Nepal government's agriculture department talked with its irrigation department. Throwing transboundary implications and concerns into this complexity only exacerbates the problem, and does not make finding solutions any easier. Regarding the social sciences of water, the conventional approach has been limited to economics, often of project finance, merely feeding the formulation of legal construction contracts. It is only in recent years, with the rise of environmentalism, that other social sciences such as sociology, anthropology, ethnography and political science have

been allowed to address policymaking in the water resources sector, howsoever grudgingly.

Thus, transboundary has come to mean not just the countries of South Asia but also their different subnational constituents, the different social sciences that have to be brought to address varied concerns as well as the expanding geography where these concerns express themselves, from subecologies to the mega meteorological hydro-ecology. So far, over much of second half of the 20th Century and much of the 21st, transboundary collaboration on water and energy has been limited to the state-to-state, hierarchic realms which have often been notorious for filtering out other social and ecological concerns.

Transboundary governance conundrums

With these views expanding our range of concerns as regards transboundary resource trade and governance, we can take the examples of any of the proposed hydroelectric projects in Nepal and see serious transboundary implications: the perennially discussed 4,000+ MW Kosi High Dam, the 10,800 MW Karnali Chisapani, the 6,480 MW Pancheshwar under the Mahakali Treaty, the export-oriented 900 MW Upper Karnali or the resurrected Arun-3, or even the current "within Nepal" projects such as the 750 MW West Seti or the 1,200 MW Budhi Gandaki. In light of the fuzziness of the transboundary concept—the fact that different resources cross dissimilar types of boundaries for diverse purposes carrying sundry values even when crossing a national border, let alone an international border—what are the transboundary issues, and what approach should be taken to resolve them?

As mentioned earlier, Nepal has approached its water resources development primarily as one of harnessing its hydropower potential and exporting the electricity to India while in India, Bihar's priority is flood control and Uttar Pradesh's is irrigation. Nepal's first transboundary agreement with the lower riparian was in the late 1920s with the Sarada Treaty with British India. Valued by the Nepali state at the time was land and forest; hence

the agreement was entered into that saw Nepal allowing its border land to be used to build the Sarada barrage by swapping the dam site land with an equivalent forest area elsewhere. Nepal was allowed to withdraw up to 1,000 cusecs of water (depending upon the season) for irrigation while India withdrew almost the entire river with a canal capacity of 12,000 cusecs. Even for the meagre portion it was allocated, Nepal began harnessing it only half a century later in the 1970s.

The issue flared up in the late 1980s (by which time Nepal's exposure and expertise on matters related to water and energy had increased dramatically) when India unilaterally built the Tanakpur barrage mostly within the territory it had swapped with Nepal earlier but requiring the use of additional Nepali land to complete the left afflux bund (Gyawali and Dixit, 1999). A subsequent treaty was entered into in 1996 called the Mahakali Treaty which subsumed Tanakpur and Sarada under it and envisaged building a 6,480 MW Pancheshwar high dam with significant water storage upstream. However, this treaty has remained in an impasse these last 22 years without agreement on the overall basic project features. The opposition to the treaty even in 1996 cantered around the fact that the Nepali constitution of 1990 had a provision in Article 126 which required a parliamentary ratification of resource-sharing treaties, with a simple majority if it was not of a "serious, long-term and encompassing" nature and with a two-thirds majority if it was. This provision has been included *in toto* in the new constitution of 2015, but it has been violated in the case of some hydroelectric project development agreements such as West Seti, Upper Karnali, Arun-3, Budhi Gandaki and others, with Indian, Chinese and some international partners. An attempt to bring clarity to this constitutional provision by defining the trigger criteria for invoking the two-thirds provision of the constitution has remained in limbo since 2003 (Gyawali, 2009).

The basic problem lies in both sides treating Pancheshwar as well as Karnali Chisapani, Kosi High and other such mega storage dam projects as primarily hydroelectric projects instead of as full-fledged multipurpose ventures with the value of stored water a

public good perhaps (to some social solidarities) even more valuable than electricity. After all, electricity can be generated from many sources but the parched fields of Uttar Pradesh and Nepal's Tarai can only be irrigated with water. These initially brushed-aside facts and values evaluating those facts, with India insisting on rights over the stored water as prior rights[4], have caused serious and so far unbridged differences in assessing what are the benefits that can be shared and who bears how much of the costs of development. Multipurpose high dam projects in the Himalaya provide stored water (not naturally flowing water which has 10 to 20 times difference in variability between the monsoon and dry season flows), which provides the following benefits:

- Irrigation in the dry season to hundreds of thousands of additional hectares of land;
- Flood control that lops off the peak flood where there is exponentially more damage;
- Fresh water fisheries (the small Kulekhani-1 reservoir currently provides protein supplement to diet as well as livelihood to some 307 families who lost their land to submergence);
- Navigation, not just in the reservoir area between villages in opposite banks but also downstream to the main stem Ganga river[5];
- Tourism and satellite city development along the reservoir rim;
- Seasonal and daily peaking power to electric grids that is more valuable than base flow power because only peak power is capable of stabilizing the grid during a surge in demand.

There are a couple of points that need to be kept in mind with this list of multipurpose benefits, along with the counter-intuitive ideas we explored earlier. First, many of these benefits such as flood control and tourism potential are public goods; some such as navigation having inter-generational implications and hence requiring to be treated additionally as common pool goods. With them are also associated costs, especially social from resettlement

and rehabilitation requirements as well as environmental from permanent submergence and alienation of valuable forest, pasture and agriculture lands. Markets are poorly qualified to deal with such goods with no clear ownership rights and values that cannot be quantified in monetary terms. If such projects are thought of only as single-purpose hydroelectric projects and the entire cost of development of the dam and other structures are loaded onto the electricity sector alone, the sector will not be cost effective while other sectors (and their beneficiaries) will become free-riders. It is difficult to assess the costs and benefits (and their "stake-losers" and "stake-winners") within a country: when these benefits and costs have to be additionally shared between countries, the difficulties become much more intractable. In Nepal, the only institutional mechanism with the potential to address such multipurpose problems is the Water and Energy Commission with representations from all relevant ministries having to deal with water and energy. However, national-scale policymakers have never really utilized its potential except in the early days of its founding in the 1980s (Gyawali, 2013).

Even with electricity alone, problems are not that simple. As previously discussed, the hydroelectric projects that produce the electricity in Nepal are only partially public goods: more often than not, they are public and sometimes common pool goods fiercely defended as such by the social solidarities that prize them, often leading to long delays and costly impasse. Attempts to find equitable solutions for people affected by dams in Nepal have been many, some of them quite innovative. Nepal has a strong tradition of community-led development with community forestry, irrigation and water supply leading since long. Riding on these previous successes, community electricity was introduced in 2003 and currently has more than half a million households electrified and managed by village groups.[6] What is interesting with these groups is that when conflicts arise between users or between developers and villagers, they seem to be able to resolve them without recourse to expensive litigation in the formal court system but rather sort them out through more informal tradition-

al means. They have also developed local skills in matters electrical using this new-found technology to invest in cottage and small-scale industries even among women groups, giving their societies what Arthur mentioned above would have described as better structural depth.[7] Another innovation has been giving local villages where dams are to be built shares in the hydroelectric projects. While there are cases of over-exuberance and unreasonable expectations of profit (IFC, 2018), the mechanism has certainly mediated to some extent between parties promoting private goods and those seeing the resource in question as either public or common pool goods.

In India, electricity is not a private good: a recent study by Pillai and Prasain (2018) clearly mentions that the government of India, through its winter 2016 guidelines, considers electricity a strategic commodity and not a development input, i.e., a public and thus not a private good that markets can manage. Furthermore, it would only import power from countries such as Nepal if the exporting entity had more than 51 percent Indian ownership. To assuage Bhutan, Nepal and Bangladesh, official Indian response is that any entity other than those having majority Indian shareholding can also export power to India on a "case to case basis", thus making electricity not just a purely public good whose fate is decided by bureaucratic hierarchism but also one that has a Damocles sword hanging over any entity hoping to deal with it as a private, marketable product. Moreover, the report also describes how, after decades of shortages, massive addition of thermal capacity has created a surplus in the Indian grid which is expected to last between coming five to ten years if power planning were to be arrested and frozen at current levels. This completely demolishes any hope of countries such as Nepal who for decades falsely hoped to benefit from selling electricity to India. It also justifies the arguments made by Nepali macroeconomists such as Thapa (1997) who argued that, if Nepal had some six billion dollars (the then cost of building the 10,800 MW Karnali Chisapani project), why would it take some 10 years of investing to build the dam, export the electricity and then invest the profits that came from it for other

development works such as roads, hospitals and schools? Why not take that money and right away invest in such required national development tasks and save a whole decade?

The arguments presented above call into serious question the entire discourse on regional trade in energy. First, energy is a strategic and public good not really amenable to management through the market's pricing mechanism: the decisions behind it are very much political with economics used as a justificatory dressing up *post hoc.* Second, countries in the region have differing levels of structural depth with electrical technologies. Indeed, in a proper economic sense, the benefits of electricity are in the upstream and downstream ends of the economic process—upstream in the capacity to repair and maintain and indeed even manufacture particular components; and downstream in factories, commercial establishments, hospitals, etc. using the electricity to increase their productivity and provide meaningful jobs to their citizens. Third, without such structural depth in various domains of the economy, including in the software side of banking, laws, insurance, research establishments, etc., the terms of trade will be stacked against countries exporting electricity as a raw material to more advanced countries and they would very well fall into the *dependencia* trap. South Asia is very far from achieving any meaningful energy cooperation in the near future.

Notes

[1] As an example, at a seminar on "Cross-border inland waterways: Exploring new avenues of connectivity" on 1 October 2018 in Kathmandu, jointly organized by Asian Institute of Diplomacy and International Affairs (AIDIA) and the Indian Embassy in Kathmandu, the CEO of a freight forwarding company and other participants described how, although the actual transport time from Kolkata to Birganj might be about 14 days, there was on average an additional three weeks of arbitrarily imposed administrative hassles (including rent-seeking) at Kolkata port and Raxaul, bringing the total to more than five weeks and increasing transshipment costs significantly. In contrast, at the test run from Tianjin in China to Rasuwagadhi north of Kathmandu, containers took only 12 days to get to Nepal.

[2] Answers lie in Cultural Theory's social construction of wants with examples

of altruism and "even if the price of pork comes down dramatically, you will not find many Pakistanis buying it."

[3] One of the few South Asian initiatives to come to grips with the problems of interdisciplinary integration was through a research project of SaciWATERs: "Crossing Boundaries." Efforts to deepen IWRM can be found in: http://www.saciwaters.org/CB/resources/CB_Broucher.pdf and http://www.saciwaters.org/CB/home/index.html.

[4] India's initial position was that any water that Nepal did not use would be India's to use from the Pancheshwar storage (Nepal, after all, is water rich and (irrigable) land poor while India is just the reverse); and that India's Lower Sarada Command had prior usage rights to the water since all the canal networks had been built. Nepal's position was that it was not possible for India to have prior rights on (stored) water that has never existed and has thus never been used just by building canals that have remained either dry or severely under-utilized ever since.

[5] India's passing of the National Waterways Act in 2016 declaring 111 rivers in India, including the Ganga and the Brahmaputra, has suddenly placed new value on stored water in the Himalaya: navigation is not possible on the Ganga without augmentation of the flow, possible only with storage dams in the Nepal and Uttarakhand Himalaya. See Gyawali (2016).

[6] One of the benefits of "communitizing" their village distribution system is the lower bulk rate they pay to the national grid and to the Nepal Electricity Authority (NEA) that manages the grid. Also, theft in community-managed systems is practically zero because of the structural double accounting system (bulk metering at the grid end managed by the NEA and retail metering done by the community groups themselves. See http://naceun.org.np/ .

[7] In a remittance economy, most men folks are away in cities or abroad and women have to manage the village households. As a result they have to manage their distribution system as well, training their own women electricians. See https://thebulletin.org/roundtable/expanding-energy-access-improving-womens-lives/.

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CHAPTER 11

Community-based climate change adaptation

Aneel Salman, Muhammad Iftikhar ul Husnain and Sarah Siddiq Aneel

Climate is one of the primary determinants of agricultural productivity. Therefore, climate change and food availability are directly interlinked (Ludi, 2009). Temperature could be negatively or positively related to agriculture value addition (Husnain et al., 2018). Climate change may also initiate the vicious cycle of infectious diseases making affected populations more vulnerable to health risks (Schmidhuber and Tubiello, 2007). A 2°C rise in temperature could lead to a four to five percent reduction in annual income per capita for many countries, primarily due to their dependence on agriculture (Stern, 2007; Nordhaus, 2008). With the galloping population growth, "even small climate shocks can cause irreversible losses and tip a large number of people into destitution" (World Bank, 2009, p. 44).

Not surprisingly, however, governments have poverty alleviation as their most important priority in development planning, rather than environmental governance, since Human Development Index rankings for many of these countries remain dismal. Adaptation to climate change, especially for emerging economies is, therefore, challenging and requires not just national responses, but also collective ones. A key to a sound climate change adaptation strategy lies in strengthening local institutions and community-based adaptation (CBA) initiatives and defining their functions. The functions include information gathering and its dissemination, resource allocation and mobilization, capacity building, application of modern technology (telecommunications and alterna-

tive energy), leadership development and social networking. This enhances the capacity to manage climate-sensitive assets and natural resources, and increases the resilience of communities (World Bank, 2009; Agrawal, 2008).

The learning acquired from global CBA projects and initiatives makes it clear that foreign organizations (which include non-governmental organizations (NGOs) and international NGOs) need to win community trust, first and foremost. They must have first-hand knowledge about indigenous community capacities and past/present coping practices before introducing new technologies, ideas or practices. Women's, marginalized groups' and even children's roles need to be recognized, and they must be seen as potential change agents for building community resilience against climate vulnerability. Finally, adaptation initiatives (whether local, regional or national) are about learning-by-doing. For sustainable and climate-resilient development, especially in South Asia, adaptation measures should focus on strengthening adaptive capacity of the poor and the marginalized; investment in knowledge sharing; regional cooperation; institutional and technical capacity building; and protecting ecological services.

Global climate change challenges

In 2010-11, Maplecroft—a global risk analysis company—highlighted the "extreme risk" 16 countries, out of 170 surveyed, would be facing from climate change over the next three decades (Maplecroft, 2010). This Vulnerability Index ranked countries like Bangladesh (1st), India (2nd), Nepal (4th), the Philippines (6th), Vietnam (13th), Thailand (14th) and Pakistan (16th) as extreme-risk countries along with Africa (with 12/25 countries most at risk). High levels of poverty, population growth, degradation of natural resources, droughts, dependence on agriculture, floods from heavy rainfall and rising sea levels increase the burden on states leading to greater impoverishment (Jodha et al., 2012; Singh et al., 2011). These make developing and emerging economies especially vulnerable and less resilient to climate change and human-made/natural disasters.

Contrary to a popular misconception, sea-level rise will not only inundate heavily populated coastlines and delta systems, but will also impact arable regions. This, in turn could lead to salinity in agricultural lands and drinking water sources, causing food insecurity, water shortages and water-borne diseases with both aquaculture industry and farming communities severely affected. Climate scenarios predict that islands like the Maldives, parts of Sri Lanka and Bangladesh could vanish in extreme coastal storms. Water shortages in the north of Pakistan and sea-level rise along the coasts of Pakistan and Bangladesh could result in millions of environmental refugees flooding major inland cities. This will make climate change both an inter- and intra-regional security threat (Nelson et al., 2010; Alam, 2009).

As mentioned earlier, environmental health risks will accelerate with climate change as water shortages become more acute, forcing more environmental refugees to flock to urban hubs. The WHO (2012) estimates that global warming since the 1970s had caused over 140,000 excess deaths annually by 2004. Husnain et al. (2017) report "that temperature and different measures of mortality are strongly and positively linked. However, females are more vulnerable to temperature [increases] than males. The vulnerability of females to temperature increases further as the age decreases. This shows that infants, particularly females, are more vulnerable to rising temperature as the coefficient on temperature has [a] larger magnitude in female mortality regressions."

An increase of 3–4°C in the average temperature would result in a 100 percent increase in the reproduction rate of dengue virus and meningitis due to droughts (World Bank, 2010). Carbon emissions are positively associated with the number of infant deaths (Husnain et al., 2016). Climate-sensitive diseases such as malaria, diarrhoea, cholera, rift valley fever, typhoid, chagas disease, schistosomiasis, river blindness, sleeping sickness and cataract blindness are also projected to increase with changes in temperature (WHO, 2012, 2008; World Bank, 2010), along with indirect risks of increased malnutrition due to food insecurity. The effects of climate change, whether environmental, economic or social, are a

threat to the resilience of communities, especially for those directly dependent on ecosystems for their livelihoods, shelter, food security and access to basic services like water, sanitation and energy. Significant steps toward climate change mitigation are unlikely to have a major impact, unless the world's largest emitters, the United States and China, take the lead.

Community-based adaptation: Global best practices

"Eighty five percent of all priority projects as identified by the NAPAs (National Adaptation Programmes of Action) pay little to no attention to local institutions" (Agrawal et al., 2009).

The role of grassroots institutions achieving development goals under climate constraints has received much attention from development scholars, policy makers and government agencies (Agrawal, 2008; Jütting, 2003). Several studies also show a positive impact of local-level, community-based institutions on natural resource management (Ostrom, 1990; Mazzucato and Niemeijer, 2000).

Institutions are required to structure social interactions. These are the rules humans use to facilitate their repetitive and structured situations at multiple levels of analysis (Ostrom, 2005, 2008; North, 2005). In order to overcome the myriad challenges posed by climate change as well as to bridge policy and implementation gaps, participation of affected individuals in decision making regarding natural resources is critical for sustainable development (Ostrom, 1990). Citizens' participation and their empowerment at the local level is a prerequisite for sustainable communities (Deb, 2009).

The effects of climate change will be felt, first, at the household (and individual) level. Dealing with these effects requires a variety of policy approaches, not just mitigation. These include technological innovations, empowering local communities with the tools and information they need to adapt and setting up mechanisms to provide relief to those suffering from the effects of climate change. According to Reid and Huq (2007), the contemporary discourse

about adaptation to climate change increasingly recognizes adaptation as a critical, inductive and autonomous process. The process evolves at the micro level through existing coping strategies of the most vulnerable and at-risk communities and individuals. It builds on bottom-up solutions. "Adaptation strategies do not have to start from scratch: People have been managing (or failing to manage) climate hazards for centuries" (Prowse and Scott, 2008, p. 45). It is from this recognition of the importance of adaptation that the relatively nascent, bottom-up concept of CBA was born.

> CBA begins by identifying the communities in the developing world that are most vulnerable to climate change. These are generally very poor, depend on natural resources and occupy areas already prone to shocks such as floods or droughts. Once a community's vulnerability has been established, the process of engagement with the communities can begin using the best available science on climate change impacts (Reid and Huq, 2007).

CBA is, therefore, a participatory approach (Sekine et al., 2009). It not only harvests local knowledge and coping techniques, but also explores new adaptive measures (Prowse and Scott, 2008) and advocates adaptive decision making (Bharwani et al., 2005). For example, small and medium-sized farmers in Thailand are reducing rice cultivation during the dry season, and going for more drought-sensitive crops instead, to find additional income. Bigger farmers are growing more crops near water sources and building farm ponds to supplement water needs (Bantilan et al., 2013).

Bangladesh

Unnayan Onneshan, Gono Unnayan Kendra, Gono Kalyan Sangstha and Shariatpur Development Society are implementing a programme titled "Regenerative Agriculture and Sustainable Livelihoods for Vulnerable Ecosystems" (RESOLVE). Some of their CBA initiatives are discussed below.

Sandbar cropping

In Bangladesh, floods not only "destroy homes, villages and livelihoods, but also leave a crippling legacy when the water subsides" (Practical Action, n.d.). Silted sand plains (sandbars) appear during the dry season due to a decline in water flow. However, a thin layer of silt which is part of the sandbars can be used for cultivation (*ibid*.) of crops such as potatoes, chilli, onion, garlic, millet, tobacco and maize.

> Sandbars with coarse sand as a main component remained unused previously due to infertility and lack of water-retaining capability. In this type of sandbar, pit cultivation technology is being practised by simply digging holes in these sandy residues and filling them with manure and compost. In this agricultural practice, farmers make several pits, one cubic metre each, in their sandy land after flood waters recede from the river basin making it dry from mid-October to November. Ten to 15 kg compost/cow dung is mixed with the pit soil and left for 15 days. Next, four to six seeds are planted in each pit and the pit is filled with water. After germination, two to three healthy seedlings are kept in each pit and the rest uprooted. The pits are then covered with straw mulch to conserve moisture. Farmers soak the pits two to three times a week with water carried in pitchers or buckets. When the seedlings are 25–30 days old, quick compost is applied at a rate of one kg/pit and by 60–65 days, it is reapplied at the same rate. After that, the compost is mixed well with the soil and irrigated immediately (Anik, 2012, pp. 5–6).

Floating gardens

Baira, commonly recognized as floating gardens, are an ancient practice of the southern floodplains of Bangladesh. Floating platforms or rafts are made using aquatic plants such as water hya-

cinth. On these rafts, vegetables and other crops like red amaranth, Indian spinach, coriander leaves, cauliflower, cabbage, tomato, lady-finger, cucumber, bitter gourd, bottle gourd, snake gourd, ash gourd, sweet pumpkin, bean, radish, eggplant, potato, chilli, onion, garlic, turmeric and mustard are cultivated. They survive during flood and water-logging periods. "This floating vegetable garden can provide multiple benefits in terms of food, nutrition and employment. It is an efficient adaptation strategy, which reduces vulnerability of people living in low lying areas" (Anik, n.d.).

Hanging vegetable cultivation

Developed by Bangladesh's south-western communities, hanging gardens aid in vegetable cultivation in water-logged situations. An earthen platform is set over a triangular bamboo frame which is filled with fertile surface soil, cow dung and fertilizers. "The platform is placed in areas where water inundation takes place and endured for five to six months and where most of the places go under four to five feet of water daily. Usually, the platform is raised five to six feet (1.52m–1.83 m) above the ground. Main cultivable crops are hyacinth bean, sweet gourd, bottle gourd, wax gourd, ribbed gourd, cucumber and Indian spinach" (Anik, n.d.).

India

The forest-dependent, vulnerable tribal women of Bhil tribe have been coping with droughts using CBA strategies. According to Agarwal (2001), tribal women, in particular, suffer from the greatest impact of poverty, droughts and land alienation. This is especially the case with the Bhil women, where male household members are forced to migrate for work during recurring droughts. This leaves women to manage internal and external household activities (Bose, 2010).

Following a severe drought in 2008 and 2009, Bhil men were forced to migrate for daily wage employment for several months during drought seasons. Since droughts are getting extended to

longer periods and due to forest degradation, women have started to work collectively to tackle the tasks they face. This includes challenges arising from climate variability and local government and village forest institutions. The latter are gender insensitive and exclude women from decision making. One particular adaptation strategy has been the formulation of informal women's committees. The committees revitalize traditional and scientific strategies to cope with droughts by introducing horticulture on farmlands, and kitchen gardens and sowing drought-resistant millets (Bose, 2010).

In another village, women built community grain storage facilities to help extremely poor households. During the drought season, they negotiated with the district tribal development office for the ability to market *jatropha* seeds. With strong networking links, the tribal women were able to get the market price by eliminating the "middle man" altogether. Collective selling results in higher prices. The profits are then distributed according to each woman's seed production.

Mozambique

In the province of Zambezia, Mozambique, a community-based carbon project is being implemented since 2008. It is a forestry sink project aimed at benefitting poor small farmers which would be managed locally, following the country's decentralization policy. The project draws on the experiences of payment for ecosystem services schemes, including voluntary carbon markets. It has designed a payment scheme, which will keep the costs involved to a minimum in contracting, monitoring carbon, transferring payments to individual farmers and enforcing contracts (Chishakwe et al., 2012).

Pakistan's climate change challenges

Pakistan is located not only in a geo-politically strategic and volatile zone (Breyman and Salman, 2010) but also in a sensitive geo-

graphical area (GoP, 2010), and is vulnerable to climate variability. The country's climate diversity matches its scenery in variability. It has cold winters and hot summers in the north and a mild climate in the south moderated by the influence of the Arabian Sea. The central parts have extremely hot summers with temperatures rising to 45°C (113°F), followed by very cold winters, with temperatures often falling below freezing. There is very little rainfall, ranging from less than 250 millimeters to more than 1,250 millimeters (9.8–49.2 in), mostly brought by the unreliable monsoon winds during the late summer.

Greenhouse gas emissions, temperature and precipitation

Pakistan's mean temperature during 1901–2000 shows an average 0.6°C rise. It recorded an increase of 0.35°C since 1960 (average of 0.08°C per decade), especially during the October–December months. Since 1960, incidences of hot days and nights have increased annually, and those of cold days and nights have decreased. "The average number of 'hot' days per year in Pakistan has increased by 20 (an additional 5.5 percent of days)—(while) average number of 'hot' nights per year increased by 23 (an additional 6.4 percent of nights) between 1960 and 2003. The average number of 'cold' days per year has decreased by 9.7 (2.7 percent of days) and 'cold' nights per year has decreased by 13 (3.6 percent of days) between 1960 and 2003" (McSweeney, 2008, pp.1–2).

According to various World Bank figures (World Bank, 2010), Pakistan's per capita CO2 emissions from fossil fuel burning, cement manufacture and gas flaring, from 1990 to 2006, have shown an increasing trend, at 0.6, 0.8 and 0.9 metric tons, respectively. Cumulative emissions during 1850–2005 are calculated at 2.4 metric tons (billions). Its total greenhouse gas emissions were 181.7 million tons of CO2 equivalent (GoP, 2003) in 1994. In 2008, it increased to 309.4 million tons (GoP, 2010). In a doubled CO2 scenario of climate change, Pakistan is likely to have longer warm spells (Islam et al., 2009).

Agriculture

Higher temperatures lead to low agricultural output and a contraction of industrial output and aggregate investment in poor countries, thus leading to increased political instability (Dell et al., 2008). Given Pakistan's dependence on agriculture and the nature of its irrigation system, climate change is likely to cause an overall reduction in agricultural productivity and yields. Wheat production is likely to go down by six to nine percent in sub-humid, semi-arid, and arid areas if temperatures rise by 1°C (Sultana and Ali, 2006).

Agriculture is the mainstay of Pakistan's economy. The sector has a 21.8 percent share in gross domestic product (GDP) and employs 44.7 percent of the country's workforce (GoP, 2009). Most of the people living in rural areas (65.9 percent) are directly or indirectly linked with agriculture for their livelihood. The frequent fluctuations in the agriculture sector's performance, between 2000 and 2013, were mainly blamed on climate variability and extreme weather conditions the country went through during those years. However, the poor performance could also be attributed to data manipulations by the various governments in power.

Natural resources, ecosystems and biodiversity

The livelihoods of more than 60 percent of Pakistan's rural population depend on natural resources—forests, rangelands, fisheries and biodiversity. Forests are the natural climate change "mitigators" that trap and store large amounts of CO2. In spite of the implementation of legislation and policies, such as forest management plans, the area covered by the country's mature/old-growth forests has declined, covering only 4.8 percent of the country's land mass. Land degradation in Pakistan is also visible in the form of soil degradation, rangeland degradation, declining soil productivity and deforestation.

Coastal areas are particularly vulnerable. Rising sea surface temperatures and atmospheric water vapour are likely to cause an

increase in tropical hurricane intensity and rainfall. Overfishing and polluted waters are contributing to the reduction of productivity of marine and inland fisheries, as well as posing direct health threats to local fishing communities and their livelihoods (Salman, 2011a). Fishery, as a sub-sector of agriculture, plays a significant role in the national economy and contributes to the food security of the country. It reduces the pressure on demand for mutton, beef and poultry. It contributes, on an average, about 0.3 percent to the total GDP and 1.3 percent to agriculture. Unfortunately, as admitted in the latest government report on climate change (GoP, 2010), the fishery sector has largely remained neglected.

Fresh water quantity and quality

The drinking water for much of India and Pakistan comes from the Himalayan, Karakoram and Hindu Kush glaciers that are already beginning to melt from warmer temperatures (Jianchu et al., 2009). An analysis of the potential impacts of climate change on the Indus River basin concludes that the total annual run-off from the upper basin is likely to increase by 11 to 16 percent. It estimates that, although increased run-off could be advantageous for water supply and hydropower production, it could aggravate problems of flooding, water logging and salinity in the upper basin. Climate models indicate that this melting will accelerate in the coming years with unknown but severe consequences for drinking water, agricultural irrigation and human health. There would be ecological chaos due to accelerated melting of the Himalayas (LEAD, 2008).

Pakistan's water resources are not evenly distributed and are often not located where there is the greatest demand. Water management problems pose a difficult challenge for the country. There is unequal access and distribution (less water is available for Sindh and Balochistan Provinces than for Punjab and poor farmers). A growing population, urbanization, progressive industrialization and increased demand for drinking water and sanitation and storage capacity add to those challenges. Now, climate risk makes them all the more complex. Pakistan was water-abundant in the

past. Now, it is a water-stressed country, by 1,300 cubic metres per capita.

Climate change adaptation practices in Pakistan

The case of Shigar Valley

Shigar Valley lies on the right bank of Indus River in Central Karakoram and is known for its architectural monuments like khanqas, mosques and forts. The town of Shigar alone has more than 20 important historical sites. Every household has about 10 to 15 kanals of land and most of the irrigated land is used as cropland. Salman (2011; 2011b) analyzed climate change impacts in the area over the 1989–2009 period. Accordingly, the community perceived the climate of Shigar to be changing greatly over the past 20 years affecting the natural environment, lifestyle and livelihoods of the local population. He reported that the Valley has recorded changes in winter temperature and precipitation (rain and snow), and unusual weather patterns.

While changes in precipitation and temperature have a slow onset, they often lead to long-term losses in agriculture, biodiversity and livelihoods (UNFCCC, 2007). Therefore, it is imperative to recognize, document and understand past environmental changes, in comparison to present experiences, in order to deal with and plan for climate variability. Shigar does not face any immediate water availability issues for irrigation and domestic use. Still, community-managed and -owned water filtration plants have been set up by a local NGO. Due to the rise in population and subsequent escalation in demand for clean water, localized rainwater harvesting and surface water storage are also being encouraged (Salman, 2011, 2011b).

The case of Keti Bunder

Keti Bunder is part of the Thatta District in Pakistan's Sindh Province, located 200 km southeast of Karachi. The entire area faces a number of severe socio-ecological problems and the resulting loss

of livelihood opportunities. Until a few decades ago, the people of Keti Bunder had multiple options for economic subsistence. A decline in fresh water sources forced a major change in occupation, from agriculture and livestock to fishing. Due to inadequate alternate employment opportunities, the pressure on fisheries resources is intense. The demise of fisheries would directly affect the livelihoods of everyone in Keti Bunder. The direct economic effect of the loss of fresh water has been the complete loss of the agricultural sector. Indirect effects are: an increased incidence of water-borne diseases, a lack of fresh drinking water and the disappearance of several fresh-water fish species.

How are the communities in Keti Bunder responding to and coping with their changing environment and its socio-economic impacts? Findings by Salman (2012; 2011a) and Gowdy and Salman (2011) indicate that local traditional institutions are being revived and revitalized by non-government actors working extensively, with the participation of the communities, in Keti Bunder. Communities are practising different adaptation measures like storage of water, food, medicine, livestock; communal pooling including mangrove re-plantation, information gathering, disaster-safe infrastructure development and diversification. Mobility is temporary. Households, with relatives or contacts in urban areas, do tend to migrate. Exchange, however, is the least applied strategy due to limited infrastructure and administrative issues like absence of banks and insurance companies.

Keti Bunder residents have also established a Farmer Field School, where Integrated Pest Management (using farmyard manure and lanterns to kill insects) is practiced on a small piece of land. The farmers trained here go on to train other farmers in their villages. This is aimed at re-vitalizing interest in growing vegetables on cultivable barren land. While an NGO provided technical expertise and vegetable seeds for this initiative, farmers themselves pay for their time voluntarily.

The role of NGOs in spreading awareness about ecological conservation in Keti Bunder, as well as supporting CBA, cannot be understated. The local government has managed to set up only

three community-based organizations (CBOs)/village organizations on paper with limited impact on community empowerment, while civil society organizations have formed several on a self-help basis with strong community involvement. The locally managed informal institutions are being trained to take up activities like mangrove conservation/plantation collectively to stop mangrove logging and cattle grazing. They also carry out skill development to diversify employment opportunities and improve the management of their livelihoods.

The case of Muzaffargarh District

Muzaffargarh District is one of the oldest districts in Punjab. Sugarcane, rice, wheat and cotton are grown as its major crops, while pomegranates, mangoes and dates are the major fruits. April to September is hot summer. It also has a significantly cold winter from mid-November to early February. The region has a moderate monsoon. Its annual rainfall was 21mm in 2010. In 2011 and 2013, however, rains caused severe damage as the area is located between Chenab and Indus Rivers. According to newspaper reports, more than 165 villages of tehsil Alipur and tehsil Jatoi were flooded, destroying standing cotton, pulses and rice crops in August 2013.

Under its Climate Leadership for Effective Adaptation and Resilience project, LEAD Pakistan facilitated and trained local communities and CBOs to work together with local government officials. The collaboration aimed to develop on-ground Local Adaptation Plans for Action for the district. In December 2013, LEAD conducted Vulnerability Assessment and community-based Focused Group Discussions in the area. It identified "unpredictable monsoons, rise in salinity due to lack of proper drainage system and its harmful impact on crop yields" as the single most important, local and approachable issue for Muzaffargarh District (LEAD, 2013). Partner organizations and community members also identified "rehabilitation/construction of salinity drains and plantation on banks" as the most affordable and realistic solution at the local level.

Mainstreaming community-based adaptation in Pakistan

Mainstreaming means

> …to consider and address risks emanating from natural hazards in medium-term strategic development frameworks, in legislation and institutional structures, in sectoral strategies and policies, in budgetary processes, in the design and implementation of individual projects and in monitoring and evaluating all the above (Benson et al., 2007, p. 6).

Mainstreaming has been applied to poverty alleviation/reduction as well as gender issues. It is certainly not an easy process since it cuts across both sectoral and institutional barriers. However, it is "the most effective way to scale up adaptation across the Asia and Pacific region" (Davis, 2013). Mainstreaming of adaptation and development planning are at multiple levels, including national, sectoral and local levels. "Applying a climate lens to plans and policies can help climate-proof investments and identify key adaptation needs" (*ibid.*).

Many of the initiatives and CBA projects mentioned here were either in pilot stages or had only been in place for a few years. They are overly dependent on either external donor funding or non-state actors. Therefore, a wider uptake and up-scaling of CBA into policy planning needs to have:

- An enabling institutional policy environment;
- Respect for traditional knowledge and institutions;
- The right set of incentives and costs for communities;
- A cooperative regional environment.

An enabling institutional policy environment

An enabling environment is

> ... a set of interrelated conditions—such as legal, organizational, fiscal, informational, political, and cultural—

that impact on the capacity of development actors such as CSOs to engage in development processes in a sustained and effective manner (Thindwa, 2001).

Successful implementation of CBA requires:

- Supportive policies and streamlined institutions;
- Identifying synergies between key approaches and sectors/piggy backing;
- Mainstreaming at local level;
- Understanding ecological value of biodiversity and ecosystems.

Supportive policies and streamlined institutions

From the cases shared, it is clear that national policies, laws and institutional arrangements should not hinder or harm the achievement of CBA; they should rather strengthen community resilience and protect ecosystems from the future impacts of climate change. For example, in the case of Keti Bunder in Pakistan, Salman (2011a) explains how Pakistan's deep-sea fishing policy, formulated in 1982, has seen frequent changes due to the problem of dual jurisdiction. Another example of state policy disjunction in Keti Bunder is that in 1995 the provincial government explicitly banned fine-meshed nylon-based *katra* and *gujjo* nets due to their adverse ecological impacts. However, the ban is almost never implemented, resulting in over-harvesting and depletion of fish stocks and biodiversity (Salman, 2011a).

Identifying synergies between key approaches and sectors

Community-based natural resource management (CBNRM) and disaster risk reduction have a longer history, dating back several decades. There is a huge body of case studies and literature. In contrast, CBA is a relatively nascent yet promising area of climate change adaptation. It has fewer documented activities and pro-

grammes to its credit and "less established definitions and concepts" (Chishakwe et al., 2012). Figure 11.1 highlights the central pillars of CBA and CBNRM, and how the processes embedded within them overlap each other.

The climate challenges standing in Pakistan's way are going to affect its irrigation and water resources as indicated earlier. Hence, the water and agriculture sector should also be prioritized for mainstreaming adaptation. Countries like India and Bangladesh are adopting integrated water resources management (IWRM), which could facilitate adaptation planning through participatory processes at the river basin level. The National Climate Change Policy of Pakistan has proposed promoting integrated watershed management, including ecological conservation practices in uphill watersheds (GoP, 2011). This recommendation must not merely remain confined to paper, given the complexity of flooding at Muzaffaragh District in Pakistan.

Figure 11.1

Pillars of community-based adaptation and natural resource management

Source: Chishakwe et al. (2012).

Mainstreaming at local level

Adaptation can be driven by national-level policies and strategies, but it also needs to be tailored to local needs and conditions. That means, mainstreaming adaptation in local government planning and policies. The benefits are clear: local officials have the best view of conditions on the ground and local-level processes can more easily engage vulnerable populations. However, there are major obstacles in addressing climate needs at the local level, e.g., the case of India. Knowledge (or awareness, even empathy) of climate issues is limited both at national and lower levels (as in Shigar Valley, Pakistan). Building the capacity of communities strengthens social capital by "creating strong bonds among members i.e., making them resilient and safe from disasters" (Kuhlicke and Steinführer, 2010). Mainstreaming can, therefore, be achieved by promoting social assimilation and political involvement (*ibid.*).

Understanding value of biodiversity

Evidence suggests that biologically diverse ecosystems are more resilient to environmental shocks than less diverse ones (Tilman and Downing, 1994), although the relationship between resilience and biodiversity is complicated (Robinson, 1992). If a system loses its resilience it can quickly and irreversibly flip to another state (Walker et al., 2004). Furthermore, it is impossible to tell ahead of time what the loss of a species will do to the system. In general, removing keystone species from an ecosystem will have significant (and non-marginal) effects. For example, Brock and Kelt (2004) removed kangaroo rats from a plot of land in southwest United States and the result was a significant increase in plant cover, and significant declines in bare ground and seed predation.

Traditional knowledge and institutions

Pakistan's traditional informal institutions are social and political power structures. They have their origin in the pre-colonial, pre-

independence institutions like Village Communities, which are now part of the country's grass-roots, local systems of governance (Ghaus-Pasha, 2005).

Local knowledge and capacities exist in Shigar and Keti Bunder (Pakistan). They should be used to complement more centralized and "expert" planning. If vulnerability to change induced by climate variations is to be reduced and the sustainability and improvement of the livelihoods of poor people are to be achieved, there needs to be an understanding of how the poor and vulnerable sustain their livelihoods. In addition to this, a knowledge base needs to be created on the role of CBA in livelihood activities and the scope for adaptation actions that reduce vulnerabilities and increase the resilience of poor people.

The right set of incentives and costs for communities

According to Chishakwe et al. (2012), incentives that motivate communities to act in a particular manner (e.g., conserve and promote mangrove regeneration) are not necessarily financial or quantifiable. It is usually when the "value" of an incentive measure is associated with a particular community need that people weigh the benefits of conserving the resource against the costs incurred. For CBA projects, incentives are critical to motivate communities to implement adaptation actions. However, because the benefits of adaptation are only realized in the long term, the specific nature of incentive measures required to motivate communities in the short term becomes particularly important.

A cooperative regional environment

For sustainable and climate-resilient development in South Asia, adaptation measures should, therefore, focus on the poor; include investment in knowledge sharing; extend to regional (as well as international) cooperation; carry out institutional and technical capacity building; and protect environmental services (World Bank,

2009; M.E.A., 2005). The adoption of the Thimphu Statement on Climate Change by the South Asian Association for Regional Co-operation (SAARC) countries in Bhutan, in April 2010, was a step in the right direction (SAARC, 2010).

Local problem, local solution

Adaptation to climatic variation has occurred for centuries, but anthropogenic climate change poses a challenge of a greater magnitude than ever known before (IPCC, 2007). Adaptive responses take place through adjustments in physical, ecological and human systems to reduce vulnerability or enhance resilience in response to expected changes. Resilience can be defined as "the capacity of linked social-ecological systems to absorb recurrent disturbances such as hurricanes and floods so as to retain essential structures, processes and feedbacks" (Adger et al., 2005). This adaptive capacity is unevenly distributed and those who are poor and marginalized are most at risk, often being the most dependent on natural resources for their livelihoods. In response to environmental risks, the common CBA responses are mobility, storage, diversification, communal pooling and exchange (Agrawal, 2008).

The impact of climate change is diverse and its effects vary in different ecosystems. Consequently, there can be no one-size-fits-all approach in formulating a climate risk management strategy (Agrawal, 2008). The proposed strategy needs to fit local risks and conditions. At the institutional level, local governments play a critical role in the development and implementation of policies and measures to address climate change. However, not only do issues of expertise and awareness loom large, but also, as our cases illustrate, actions by the government and institutions are often either contradictory or outright inequitable or unjust towards the marginalized communities. Approaches that emphasize a bottom-up approach and that recognize rural coping strategies and indigenous knowledge must be understood and documented, since these will add to local adaptive capacities.

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CHAPTER 12

South Asian migration to and remittances from Gulf

S Irudaya Rajan

South Asia has been rapidly emerging as the migration hub of the world. The percentage of South Asian migrant workers (Afghanistan, Bangladesh, Bhutan, Nepal, India, the Maldives, Pakistan and Sri Lanka) in the international migrant stock increased from 13.33 percent in 2005 to 15.13 percent in 2015 (United Nations, 2015). A majority of them ended up in Gulf Cooperation Council (GCC) countries for employment. This South Asian-Gulf migration corridor is seemingly one of the largest in the world, but considerably under-researched (Rajan, 2016, 2017a, 2017b; Chowdhury and Rajan, 2018).

The estimated annual outflow of migrant workers from the five major South Asian labour-intensive countries—India, Pakistan, Bangladesh, Nepal and Sri Lanka—accounted for 2.5 million. India is registered as the largest among them (ILO, 2015). Their contribution through remittances to their respective economies is not to be underestimated (Kumar and Rajan, 2014; Singh and Rajan, 2015). For instance, the global inflow of remittance reached US$591 billion in 2014. South Asia received some 115 billion, accounting for 20 percent of the total (World Bank, 2015). Nearly 96 percent and 94 percent of total migrant workers from India and Pakistan, respectively, journey to the GCC countries (ILO, 2015).

Globally, the number of South Asian emigrants was estimated to be 37 million in 2015 (United Nations, 2015), compared to 24 million in 1990. Where does this migration take place? About eight million of these emigrants travel to developed countries, while the

remaining 29 million move to developing countries. South Asian migrants travel globally and also within the South Asian domain. The number of South Asian emigrants increased from 24 million in 1990 to 25 million in 2005, with an addition of just one million over 15 years (Table 12.1). On the other hand, statistics show an increase of about eight million in five years between 2005 and 2010 with an additional four million in the next five years. The relatively slow increase in the latter five years is partly attributed to the impact of a global crisis in migration trends (Rajan and Joseph, 2013; Rajan, 2012; Rajan and Narayana, 2012).

Intraregional migration

Work on South-South migration is rather limited (Ratha and Shaw, 2007). It is essential to examine the latest situation in this context. Afghan emigrants were found only in Pakistan in 2015, while India has also become home to some refugees from Afghanistan in recent years (see Table 12.2).

Sri Lankans are found in almost all countries in South Asia, the highest receiver being India. India also accommodates Sri Lankan refugees (Valatheeswaran and Rajan, 2011; Rajan, 2016). Pakistanis are largely concentrated in India and Afghanistan. Some 578 people were found in Sri Lanka. The Maldivians are further reaching out to three countries of South Asia—Bangladesh, India and Sri Lanka. Their highest numbers are in Bangladesh and India. Meanwhile, Nepal shares an open border with India, making the presence of Nepali migrants the highest in the country. Some other Asian countries such as Bangladesh, Bhutan, Pakistan and Sri Lanka also accommodate the Nepalis. Like Afghans, Bangladeshis are also moving to India and Nepal. India had previously accommodated refugees from Bangladesh, while undocumented emigrants do remain a constant concern. Bhutanese are also found in larger numbers in India, while Bangladesh, Nepal, Pakistan and Maldives attract a few. The Indian presence, on the other hand, is evident in all countries of South Asia, with very large numbers in Bangladesh, Pakistan, Nepal and Sri Lanka.

Table 12.1

South Asian emigration: An overview

Destination region	South Asian emigration			
	1990	2005	2010	2015
World	23, 887, 147	25, 489, 138	32, 960, 646	36, 873, 169
Developed	2, 209, 367	5, 222, 196	6, 870, 077	7, 809, 774
Developing	21, 677, 780	20, 266, 942	26, 090, 569	29, 063, 395
Africa	46, 995	86, 686	116, 692	141, 074
Asia	21, 626, 509	20, 211, 922	26, 005, 820	28, 951, 809
Central Asia	9, 598	13, 374	9, 643	8, 380
Eastern Asia	45, 503	127, 619	153, 687	184, 017
Southeastern Asia	192, 825	727, 614	1, 123, 843	1, 213, 447
Southern Asia	16, 940, 167	11, 807, 620	12, 286, 404	12, 030, 714
Western Asia	4, 438, 416	7, 535, 695	12, 432, 243	15, 515, 251
Bahrain	108, 202	261, 408	428, 097	470, 027
Iraq	945	1, 210	1, 222	1, 226
Kuwait	671, 008	846, 311	1, 185, 982	1, 786, 324
Oman	252, 266	546, 840	678, 438	1, 446, 537
Qatar	41, 403	357, 364	956, 258	1, 146, 588
Saudi Arabia	2, 487, 058	3, 272, 541	4, 244, 943	5, 131, 003
United Arab Emirates	819, 653	2, 141, 000	4, 800, 910	5, 434, 865
Europe	1, 241, 182	2, 284, 487	2, 978, 536	3, 291, 208
Latin America and the Caribbean	7, 541	11, 948	14, 706	16, 801
Northern America	833, 461	2, 558, 689	3, 221, 072	3, 720, 512
Oceania	131, 459	335, 406	623, 820	751, 765

Source: United Nations (2015).

Migration to Gulf

In 2016, the Gulf Labour Markets and Migration (GLMM) network provided a significant amount of statistical information, indicating

Table 12.2

South-South migration stock in South Asia

Country of origin	Years	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Afghanistan	1995	0						8,107	
	2015	0						348,369	
Bangladesh	1995		0		13,339		9,670		
	2015		0		34,431		39,059		
Bhutan	1995		24	0	20,841		334	10	15
	2015		52	0	44,732		717	22	33
India	1995	14,159	4,375,155	11,088	0	1,810	518,212	1,921,278	281,720
	2015	8,086	3,171,022	6,647	0	199	542,947	1,106,212	155,195
Maldives	1995		1,623		951	0		79	4,289
	2015		53,565		22,120	0		167	9,448
Nepal	1995		500	16,805	369,370		0	2,371	78
	2015		233	28,740	446,491		0	1,268	46
Pakistan	1995	3,276,673			2,916,548			0	889
	2015	1,618,687			2,000,908			0	578
Sri Lanka	1995		7	2	39,329	17	4	173	0
	2015	128	653	227	10,460	1,364	334	803	0

Source: United Nations (2015).

Table 12.3

Nationals and non-nationals in GCC countries (%)

Years	1970–75	1985	1995	2001/02	2010–16
Bahrain					
Nationals	82.47	63.5	61.8	60.0	47.98
Non-nationals	17.53	36.5	38.2	40.0	52.02
Kuwait					
Nationals	30.94	27.7	36.1	37.0	30.65
Non-nationals	69.06	72.3	63.9	63.0	69.35
Oman					
Nationals	91.61	81.6	72.7	74.0	54.59
Non-nationals	8.39	18.4	27.3	26.0	45.41
Qatar					
Nationals	40.53	47.7	29.6	28.0	10.11
Non-nationals	59.47	52.3	70.4	72.0	89.89
Saudi Arabia					
Nationals	88.71	69.3	67.9	70.0	67.28
Non-nationals	11.29	30.7	32.1	30.0	32.72
UAE					
Nationals	36.13	36.2	25.1	20.0	11.47
Non-nationals	63.87	63.8	74.9	80.0	88.53
GCC					
Nationals	79.42	63.5	61.4	61.5	51.01
Non-nationals	20.58	36.5	38.6	38.5	48.99

Source: GLMM (2016).

that about 50 million people were enumerated in GCC countries in and around 2015 (GLMM, 2016). Saudi Arabia accounted for 30 million in mid-2014. Interestingly, the share of the national popu-

lation in the total population of the GCC region was 51.9 percent. Non-nationals accounted for 48.1 percent (Table 12.3). The United Arab Emirates (UAE) registered 88.5 percent of non-nationals in its total population, followed by Qatar (85.7 percent) and Kuwait (69.2 percent).

It is among the non-nationals that South Asians form the highest numbers. Indians undoubtedly lead in the non-national community statistics of the Gulf region (Rajan, 2018). If we look at the share of the labour force among non-nationals, it accounts for more than the total population as non-nationals are brought in to fill the labour supply gap. De Bel-Air (2015) further notes that foreign nationals recorded 88.5 percent of the country's total population in the UAE. Most of the people belonged to Asian countries, particularly India. Foreigners also collectively share 96 percent of Dubai's employed population, particularly the Asians (86.9 percent).

Remittance

The World Bank estimated the global inflow of remittances to be US$575 billion in 2016. According to the Bank's data, the South Asia Region witnessed an estimated decline of 6.4 percent in 2016 (World Bank, 2018). India, the largest remittance-receiving country worldwide, had an 8.9 percent decline, receiving around US$62.7 billion. Generally, migration has become a key issue in policymaking for many countries, depending on the employment situation and the state of their national economy. South Asian nations' administrative perspective is seemingly supportive, reflecting their view that migrant outflow reduces poverty and unemployment and increases foreign exchange (Ahn, 2004).

The money that the migrants send home is important not only to their families, but also helps cater to their home country's balance-of-payments needs. Remittances constitute a significant proportion of the gross domestic product as well as foreign exchange receipts (Rajan and Narayana, 2012) for developing regions like South Asia. South Asia as a recipient has registered a higher growth

Table 12.4

Remittance inflows to South Asia and outflows from the Gulf (in US$ billion)

South Asia	Inflow	Gulf	Outflow
Afghanistan	0.3	Bahrain	Not available
Bangladesh	13.7	Kuwait	15.28
Bhutan	0.0	Oman	10.27
India	62.7	Qatar	11.98
Maldives	0.0	Saudi Arabia	37.84
Nepal	6.3	UAE	Not available
Pakistan	19.8		
Sri Lanka	7.3		
South Asia	110.1	GCC	75.37

Source: World Bank (2018).

rate in remittance flows compared to other regions such as East Asia and the Pacific. Around 20 percent of the world remittance had ended up in South Asia by 2015. It accounted for US$0.43 billion in 1970, increased dramatically to US$5.3 billion in 1980, US$10.2 billion in 1995 and continued to grow to reach US$110 billion in 2016.

Outflow from the Gulf was US$75.37 billion (Table 12.4). The highest outflow is generated in Saudi Arabia, followed by the UAE and Kuwait. The highest inflow is recorded by India, followed by Pakistan and Bangladesh. So far, it has remained a win-win situation for both South Asia and the Gulf (Rajan, 2017b), although there are concerns in Gulf countries about their dependence on foreign labour and remittance outflows.

Trends in GCC countries

With immigration having played a vital role in the population growth rate of the GCC countries, it is crucial that we examine

net migration—the difference between the number of immigrants (entering the country) and emigrants (leaving the country) within each country, as estimated over a period of five years (Rajan, 2018). The UAE had recorded 245,000 migrants by 1972. The number increased steadily to reach the highest among the GCC group, at 3,493,000 in 2007. It declined after the global financial crisis that had a significant impact on Dubai (Narayana and Abraham, 2012). Similar trends can be observed in net migration in most Gulf countries after 2007.

Since 1997, Saudi Arabia has witnessed a relative increase in net migrants, thereby housing the second highest number of migrants, after the UAE. It emerged as a major destination after the global financial crisis (Kumar and Rajan, 2014; Rajan, 2016). The crisis considerably influenced the migration patterns and decision-making of emigrants heading to the Gulf region. Oman recorded a negative growth rate of migrants because of the depletion of its oil reserves. The country instead started promoting agriculture and tourism, the gas sector and other non-oil industries in order to balance its economic growth.

According to the GLMM database, amnesty declarations are suggestive of a humane response of the host-country governments to deal with the persistent problem of irregular migration (GLMM, 2016). However, the amnesty programme likely simply scratches the surface of the problem (Rajan and Joseph, 2017). While it is clear that a large number of people residing in the Gulf are affected by irregularities, it remains rather difficult to assess the percentage of those who actually avail themselves of these amnesties.

There has been some progress in the GCC countries with regard to increasing youth employment in a productive and sustained manner. The recent experience of the GCC countries clearly demonstrates that effectively addressing the youth employment agenda requires more than just budgetary capacity and economic growth. The fast economic growth of the GCC countries in the past decades has been supported by a rise in oil prices. This has enabled generous employment opportunities and accumulation of considerable wealth. A significant portion of these gains has

been translated into extensive investments in education and infrastructure projects and the diversification of the GCC economies. Nationals were absorbed into a social contract committed to offering comfortable, well-remunerated jobs in the public sector. Giving citizens entitlement to oil wealth, without promoting the productive use of the national labour resources, resulted in low labour force participation rates among GCC nationals, not to mention a substantial proportion of non-working dependents per employed person.

World Bank (2018) forecasts that the GCC growth will gradually pick up from 1.3 percent in 2017 to 2.6 percent in 2019. The first edition of the Gulf Economic Monitor, released half-yearly by the World Bank, speculates that although overall growth will remain weighed down by oil production cuts, growth in the non-oil sector will have bottomed out. Oil prices are expected to stabilize close to current levels. With the slowing pace of fiscal austerity and with major reforms planned in the region, spending and investment in the non-oil sector are expected to gradually rise. While regional fiscal and current account balances are expected to improve, they are unlikely to return to pre-2014 double-digit surpluses. The contribution from net exports to growth is expected to remain rather minor over the medium term.

Nationalization of labour

Initially, a large number of migrants to the Gulf came from Arab-speaking countries. They ranged from unskilled and semi-skilled labour to highly qualified professionals and specialists. They got gradually replaced by South Asian labour in the early 1980s, due to some political reasons. Asians were also considerably less expensive to employ, more efficient and obedient and manageable. They were also willing to migrate without their families. The Arab migrants, on the other hand, brought their families along with them and settled in the Gulf permanently. In Saudi Arabia, most of the taxi drivers are from Pakistan. Construction workers in the Gulf are mostly from India, followed by Pakistan, Bangladesh and

Nepal. These tendencies were perceived as potential threats to the growth of the Gulf countries.

There have also been negative perceptions about workers based on their nationality. Such perceptions have a significant impact on labour market trends. For instance, no new workers from Bangladesh have been permitted to work in Kuwait since 2006 and the UAE since 2012. Pakistani workers have not been allowed to work in Kuwait since 2011 (ILO, 2015).

There have also been concerns over the treatment meted out to workers by their employers. The issue has even attracted international attention. Given the increasing scrutiny on the issue of "migrant" rights, maintaining domestic requirements without drawing international censure requires the GCC leadership to show dexterity and skill. This is because importing non-national workers to meet domestic labour needs has both pros and cons. According to the 2014 report of Human Rights Watch, migrant workers, who comprised around 90 percent of the private workforce, continued to face exploitation and abuse. They remained tied to employers under the *kafala* sponsorship system that denies collective bargaining rights. Furthermore, trade unions remained banned and migrant workers who engaged in strikes faced deportation and a one-year ban on returning to the UAE. The effect of this is that the GCC countries, including Bahrain, Kuwait and Qatar, have been trying to improve their current system of sponsorship (Dito, 2007).

Kuwait has proposed a system of self-sponsorship, whereby those holding university degrees may find it possible to sponsor themselves. This enables them to switch jobs despite being non-nationals (Janardan, 2011). It also reconfigured the *kafala* system by granting workers the option of changing their place of employment without having to lose their visa status. Still, in 2013 and 2014, a number of high-profile scandals broke out, where senior officials in the Ministry of Labour, including a ruling family member, were found to be acting as large-scale brokers for hundreds of thousands of work visas to be issued to migrants. This black market was made possible by the sponsorship system itself (Hertog, 2014). The government has also considered forming special state organizations to

oversee labour imports and act as their sponsor. It has announced plans to directly import workers for its own contracting and construction projects to prevent free-visa deals.

In 2003, Oman adopted a legislation making it illegal for sponsors to send their workers to other places of employment. However, in 2009, Bahrain omitted one of the more restrictive practices of the sponsorship system, by enacting a mobility law allowing migrants to change employers without requiring the approval or consent of their sponsors.

Bahrain also abolished the sponsorship system, thus allowing workers to move from one job to another. The reform, as in Oman, has increased wages for expatriates and the competitiveness of its national labour. Bahrain was the only GCC country in which professional wages rose above inflation in 2008. It also enforced a one percent income tax for national unemployment assistance and insurance scheme. The scheme allowed unemployed university graduates to be paid a stipend of 120–150 Bahrain Dirham, in return for attending training courses (Hertog, 2014).

The major policy adoptions by Bahrain to check irregular migration are:

- Alien Immigration and Residence Act of 1965. This is the main section of legislation governing the entry, exit and residence of foreign nationals in Bahrain. With respect to the issue of irregular migration, the Act criminalizes clandestine entry and residence of foreign nationals without a valid visa.
- Law No. 19 of 2006 regulating the Labour Market. This law catered to the formation of the Labour Market Regulatory Authority (LMRA) authorizing it with many regulatory prerogatives that were hitherto invested in the Ministry of Labour. It mandated LMRA to manage any or all issues related to foreign workers active within the labour market. It includes the issuance of work permits and collection of fees and fines.
- Law No. 36 of 2012 as the Labour Law for the Private Sector. This law replaced the labour code of 1976, thus setting

out the legal conditions with regard to the employer-employee relationship. The law was welcomed as a progressive piece of legislation for extending protection to domestic maids for the first time. It prolonged the maternity leave for female employees, although certain provisions relating to collective labour negotiations and strikes were a matter of concern.

Saudi Arabia was the first GCC country to start experimenting with employment rules. Known as Saudization, it is said to have started in the late 1940s, but that was not properly implemented. A renewed push was given to the existing quota system in 1995. This resulted in a five percent increase in the employment share of Saudis in all companies employing more than 20.

Saudization is a new method to assess the accurate number of locals employed in private companies and changes to incentive packages. In order to facilitate the escalation of nationalization, the Saudi government classified Saudi companies of the private sector into four categories, i.e., platinum, green, yellow and red. Platinum or green companies indicate that they have high Saudization rates. Conversely, yellow or red means that the company has a low Saudization rate. The number of Saudi employees is calculated based on the number of Saudi employee insurers with the General Organization for Social Insurance in the past three months.

Saudi Arabia has emerged as the central laboratory of labour market reforms in the GCC region. While *nitaqat* quotas are more in line with actual sector-specific employment patterns, they also further an attempt to prescribe specified employment quotas to individual firms. This generates uneven costs and, thereby, efficiency losses across businesses. It leads to a larger burden on the management, opening the way for evasion and phantom employment (Hertog, 2014).

The UAE's main historical tool of labour market nationalization has been quotas. The Dubai Strategic Development Plan (1999–2000) aimed to increase the share of nationals in the emirates' labour force from one to seven percent, particularly in the private sector (Hussain, 2011). There was further focus on the fi-

nancial sector with the target of a 30 percent increase in nationalization (Hertog, 2014).

In January 2011, the UAE issued a new set of rules determining the specifics of the conditions in which employees can switch jobs, such as:

- End of employment contracts;
- A minimum of two years of work with the employer;
- Violations on the employer's end;
- Shift towards high-skilled jobs with wages set above certain pre-determined levels;

The effect was a relaxation of the sponsorship system.

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CHAPTER 13

Towards improved economic measurement

Robert Beyer and Martin Rama

Credible measurement of economic activity is critically important to inform decision making. For example, reliable quantification of a country's output is needed to assess its living standards, to identify the growth challenges it faces and to fine-tune its macroeconomic management. Similarly, credible employment numbers are required to judge whether economic growth is creating jobs at a sufficiently rapid pace, to understand where job creation and destruction are taking place and to assess whether the created jobs match people's aspirations.

More generally, good economic decisions and policies are only possible with good statistics (Bernanke, 2012). Reassuringly, much progress has been made over time in refining concepts and improving statistical tools, making economic data more meaningful and precise. This is true both for data on economic activity and for employment data.

Gross domestic product (GDP)—defined as the value of all final goods and services produced within the country during a given period, net of the value of inputs—is the most standard measure of economic activity. The origins of GDP measurement can be traced back to the aftermath of the Great Depression, when it became clear that economic management had to be improved. One of its pioneers was Simon Kuznets, who in 1971 was awarded the Nobel Prize in Economics for his contributions to national accounts. Over the years, the criteria and data sources used to measure GDP have improved steadily. New survey instruments, increased reli-

ance on administrative data and enhanced computing capacity have greatly contributed to the improvement.

The employment rate—defined as the share of working age people who are actually working—is another important indicator. In advanced economies, the focus is often on the unemployment rate, the share of people who want to work and do not have a job. Employment and unemployment rates, together with the GDP growth rate and the inflation rate, are among the main indicators of the health of an economy. For decades, statisticians have forged consensus on the merits of different reference periods to assess what a person's employment status is, or on how employment and unemployment should be defined (World Bank, 2012). High-frequency labour force surveys have become the norm in many countries.

Needless to say, measurement is always bound to be approximate. It is certainly weaker in developing countries, where government capacity is low and a large fraction of economic activity is informal, thus escaping scrutiny by the authorities.

In most of the developing world, GDP data tends to be produced on an annual basis at best and its disaggregation by province or state—not to mention district—is uncommon. Unemployment rates may not be very meaningful when people are often too poor to remain idle, and employment rates are difficult to measure when nine-to-five jobs with a paycheck at the end of the month are the exception more than the norm. In some cases, weak governance also makes official statistics vulnerable to politically motivated interference. All of this is especially unfortunate, as developing countries are arguably the ones in most need of sound economic policies that are solidly anchored in reliable empirical evidence.

South Asian countries are not an exception in this respect. Despite considerable variation in statistical capacity across countries, the reliability of GDP figures often comes into question, whereas the extent of job creation tends to be anyone's guess. This is despite the fact that economists and statisticians from the region had been pioneers in the measurement of wellbeing.

However, more rigorous analyses of existing data, together with new sources of data made available by technological innovations, offer much room for statistical improvement. This chapter illustrates the possibilities through the discussion of two examples related to the measurement of GDP and employment rates in select South Asian countries. In doing so, it makes the case that strengthening economic measurement—more broadly, statistical systems—is one of the most important priorities developing countries face.

Once at the forefront

Little known to many today, South Asians were true pioneers in economic measurement. From the 1960s to the 1980s, distinguished economists and statisticians from the region were at the forefront of statistical development and the adoption of new metrics. Instruments and indicators widely used today are connected to South Asia to a much greater extent than is generally recognized. Indeed, the priority given these days to the fight against poverty and, more broadly, the improvement of living standards could be easily taken for granted. But it was not always this way. A few South Asians were instrumental in articulating this agenda and developing the measurement tools needed to make it operational. Two names stand out in this respect.

Mahbub ul Haq (1934–1988) was a Pakistani economist. He studied at Cambridge University—where he developed a lifelong friendship with Indian economist Amartya Sen, a Nobel Prize winner—and subsequently at Yale and Harvard Universities. In the 1960s, while still in his 20s, he was appointed the Chief Economist of Pakistan. He had a keen interest in the distribution of income and wealth, conducting research on how two dozen family groups had come to dominate Pakistan's economy.

In the 1970s, ul Haq was the Chief Economic Adviser to Robert McNamara, the President of the World Bank at the time. There he influenced the World Bank's development philosophy for several decades to come. Ul Haq helped convince McNamara

that development should focus on raising living standards and that poverty alleviation could be a cause, rather than a consequence, of economic development. This view was embraced by McNamara in 1973 in his watershed "Nairobi address."

In 1988, after having served as Finance Minister of Pakistan, ul Haq worked with the United Nations Development Programme, where he led the establishment of the Human Development Report. In the process, he articulated the now-popular Human Development Index (HDI), a measure of economic and social development that combines monetary and non-monetary dimensions of wellbeing. The HDI is arguably the precursor of modern Multidimensional Poverty Indices.

Prasandra Chandra Mahalanobis (1893–1972) was an Indian scientist and statistician. Born in what is now Bangladesh, he pursued his undergraduate courses in Calcutta and went to study further at the University of London. In 1932, together with two other university professors, he founded the Indian Statistical Institute (ISI), registered as a non-profit learned society. Following India's independence, ISI was declared as an institute of national importance, with the rank of a university. At ISI, Mahalanobis conducted pioneering studies in anthropometry, examining the role of caste in stunting. In the process, he developed a new multidimensional distance metric, commonly known as the Mahalanobis Distance.

His best-known contribution was the development of the modern household survey approach. Mahalanobis was keen to produce a credible snapshot of living standards at the district level at a time when many Indian districts did not even have a road connecting them. In the words of Angus Deaton, another Nobel Prize-winner, India became "the motherland of household surveys." The approach developed by Mahalanobis was subsequently scaled up by the World Bank, under the Living Standards Measurement Project. It did not take long to realize that surveys of this sort could provide the basis for reliable poverty measurement.

These distinguished South Asians shaped the notion that living standards could be credibly measured even in poor countries with very large informal sectors. Their approaches influenced

statistical development for several decades. It can only be hoped that a new generation of South Asian economists and statisticians will play a similar role now, when new technologies and the availability of big data have paved the way to revamping economic measurement.

Better measurement of GDP

Properly measuring GDP is particularly challenging in developing countries. With pervasive informality, many final goods and services, as well as many inputs, are beyond the oversight of statistical agencies. Even in the formal sector, businesses and individuals understate their earnings to avoid taxation and regulation. Since not all economic activity can be precisely captured, GDP data is necessarily based on estimations and extrapolations. National accounts revisions, aimed at strengthening GDP estimates, can change GDP growth stories dramatically. It is the data gaps, inconsistencies and revisions that nurture skepticism about official GDP growth figures.

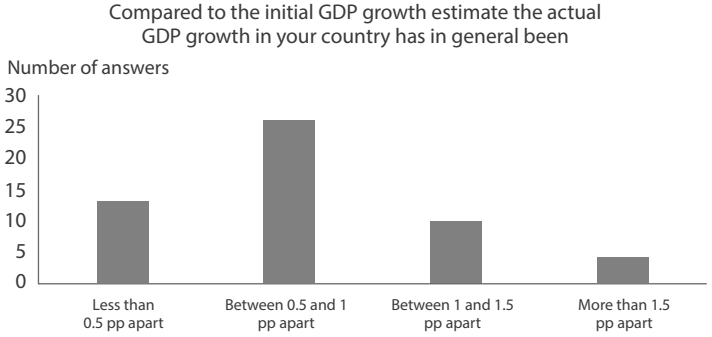
Temporal or spatial disaggregation of GDP is infrequent and, when available, it is rarely timely. Only two countries in South Asia—namely India and Sri Lanka—produce quarterly GDP estimates, making it difficult to identify trend breaks. Subnational estimates, when they exist, are made available after substantial delays. In some countries, these subnational estimates do not add up to national figures.

South Asian researchers and practitioners are aware of these measurement challenges. Respondents to a survey conducted in 2017 saw a sizeable gap between GDP estimates and reality. Half of them declared that they expected actual GDP growth to be between half a percentage point and one percentage point different from first estimates. And, one third believed that the gap was even larger than that (Figure 13.1).

Regardless of what the real growth rate is, final figures are often quite different from preliminary estimates. India has a better statistical infrastructure than many other countries in the region,

Figure 13.1

Researchers and practitioners see a gap between estimated and actual growth



Source: World Bank (2017).
Note: pp—percentage points.

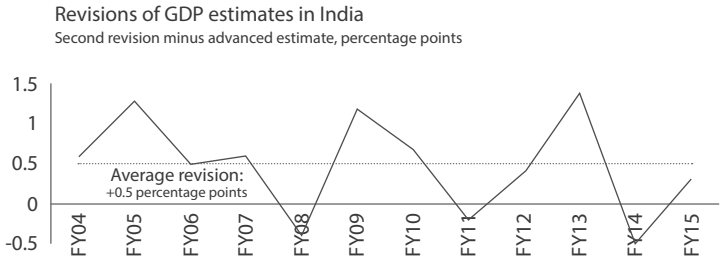
but even there, the first GDP growth estimate has on average been revised upward by 0.5 percentage points. The average absolute correction (positive or negative) since FY2004 has been 0.7 percentage points (Figure 13.2).

New technologies offer an opportunity to improve on this state of affairs. Luminosity observed from outer space can be expected to be correlated with the intensity of economic activity on the earth. Measures of economic activity based on night-time light (or nightlight for short) have important advantages over surveys and censuses. These measures capture economic activity regardless of whether it is formal or informal. They do so with a very high level of spatial granularity and they are available nearly in real time. Importantly, nightlight data is cheap to acquire and is not subject to political interference.

Nightlight data at the global level is a by-product of the Defense Meteorological Satellite Programme (DMSP), a meteorological initiative of the US Department of Defence. Data collected by six DMSP satellites for years 1992 to 2013 has been made publicly

Figure 13.2

Preliminary GDP growth rates can be revised substantially



Source: Sapre and Sengupta (2017).

available on an annual basis. The design of the Operational Linescan System (OLS) sensor onboard DMSP has not changed significantly since 1979. Given sensor aging, new satellite deployments also aim at ensuring data collection continuity.

The release of DMSP-OLS nightlight data was discontinued in 2013. A new data product, the Visible Infrared Imaging Radiometer Suite (VIIRS), became available then. The new data has a monthly frequency. It also has features that were not available in DMSP-OLS, especially in relation to the over-saturation of nightlight data at bright core centers. The data available publicly is still raw. Some temporary lights and background noise remain. Therefore, some preliminary work to "clean" the VIIRS data is needed before it can be used (World Bank, 2017).

The intensity of nightlight has been shown to be as good a proxy, at the global level, for economic activity as officially measured GDP (Henderson et al., 2012). The relationship between the two is similar for South Asian countries (Table 13.1). The correlation between nightlight intensity and official GDP is especially strong in manufacturing and services sectors. But it is insignificant in the case of agriculture (World Bank, 2017).

The relationship between nightlight intensity and GDP has been shown to hold even at the subnational level (Bhandari and Roychowdhury, 2011). This insight has been exploited to generate a range of subnational economic indicators, which are not readily available otherwise (Ebener et al., 2005; Ghosh et al., 2010b; Sutton et al., 2007). The relationship also holds in South Asia, allowing monthly measures of economic activity to be generated at the district level (World Bank, 2017).

Changes in economic activity derived from changes in nightlight intensity provide valuable insights into recent economic episodes whose assessment has so far been blurred by a lack of data.

An example is the GDP impact of the two major shocks experienced by Nepal in 2015, namely the major earthquakes of April

Table 13.1

The relationship between GDP and nightlight is similar in South Asia and elsewhere

	World	World without South Asia	South Asian countries
	ln(GDP)	ln(GDP)	ln(GDP)
	(1)	(2)	(3)
ln(lights/area)	0.267***	0.266***	0.248***
	(0.0303)	(0.0314)	(0.0491)
Observations	3,966	3809	157
Number of countries	187	179	8
(within country) R^2	0.788	0.782	0.971

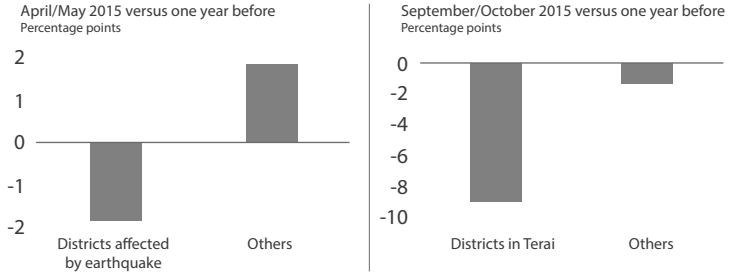
Source: World Bank (2017).

Note: The following regression is estimated: $ln(GDP_{i,t}) = a+b_i+c_t+\delta\, ln(light_{i,t})+\varepsilon_{i,t}$, where $ln(GDP_{i,t})$ is the natural logarithm of GDP of country i in year t measured in constant local currency, $ln(light_{i,t})$ is the natural logarithm of lights per km², b_i is a country fixed effect and c_t is a year fixed effect. Robust standard errors, clustered by country, are in parentheses.

**** p<0.01 .*

Figure 13.3

Nepal's 2015 earthquakes and trade disruption had large impacts on local GDP



Source: World Bank (2017).
Note: Monthly predicted GDP is distributed across districts according to the special approach outlined in World Bank (2018). The rates reported are the median growth rates among districts.

and May, and the trade disruption with India between August and November. Data on nightlight intensity reveals that the impact of the earthquakes was substantial at the local level, mainly affecting poor districts, but not significant at the aggregate level. On the other hand, the trade disruption with India had a large impact at the aggregate level, hitting the affected districts in the Tarai the most, even though the effects were short-lived (Figure 13.3). These findings cast doubts on the very large decline in GDP growth rates reported by official statistics (World Bank, 2017).

Another episode that has attracted much commentary in recent times is demonetization—a policy intervention that withdrew large amounts of currency from circulation in India—in November 2016. The demonetization experiment has been blamed for the growth deceleration India experienced in 2017, but data on nightlight intensity suggests that its impact was more muted than is generally believed. At the aggregate level, its effect on GDP was modest and vanished after a couple of months. On the other hand,

nightlight-based measures of economic activity at the local level provide evidence that districts with fewer formal wage earners, lower banking access and that were more rural performed much worse after demonetization (Figure 13.4).

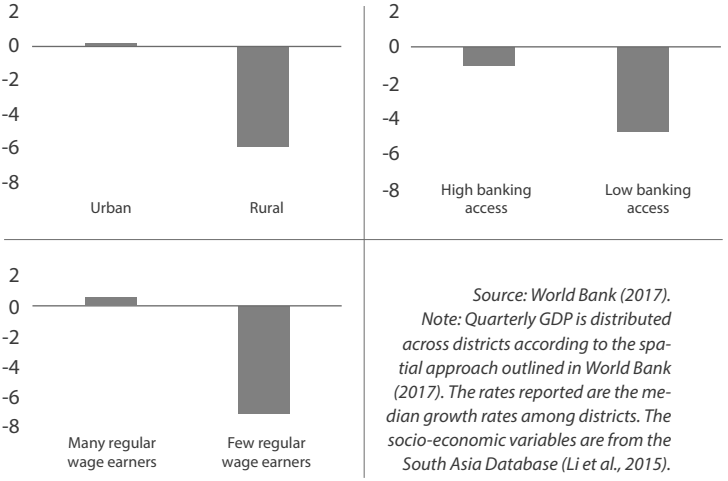
Nightlight data has been employed to address other development issues, including in South Asia. For example, Ghosh et al. (2010a) focus on the size of the informal economy. By comparing economic activity as captured by nightlight data with official GDP estimates, they conclude that India's informal economy and remittances are much larger than is generally acknowledged.

Nightlight intensity has also been used to study long-term growth. In India, nightlight data from 2000 to 2010 provides evi-

Figure 13.4

Districts with more informality were affected more by demonetization in India

Changes in GDP growth in 2016/2017 Q3 vs 2015/2016 Q3
Percentage points



Source: World Bank (2017).
Note: Quarterly GDP is distributed across districts according to the spatial approach outlined in World Bank (2017). The rates reported are the median growth rates among districts. The socio-economic variables are from the South Asia Database (Li et al., 2015).

dence of both absolute and conditional convergence among rural areas (Chanda and Kabiraj, 2016). Nightlight data also suggests that there is convergence at the district and state level (Tewari and Godfrey, 2016). This is in contrast with findings based on GDP data, according to which there is divergence or, at best, neither convergence nor divergence.

Using nightlight data, it also appears that the growth of secondary cities has been more conducive to poverty reduction than that of large metropolitan areas (Gibson et al., 2017). And, in Pakistan, there are signs of convergence, albeit slow, between the richest and poorest provinces of the country (Mahmood et al., 2017).

Nightlight intensity is strongly correlated not only with GDP, but also with several other socio-economic indicators. Proville et al. (2017), for example, uncover a clear relationship with electricity consumption and with carbon dioxide emissions, followed by a somewhat weaker relationship with population, methane emissions, and poverty. Nightlight intensity has consequently been used to estimate electrification rates at local levels (Min, 2011). Based on this approach, it has been suggested that close to half of the rural population of South Asia lacks access to electricity (Doll and Pachauri, 2010). Intermittent nightlight of a specific location has provided a proxy for unreliable access to electricity, thus allowing the estimation of how the quality of power supply affects living standards (Min et al., 2017).

Around the world, the use of nightlight data is common in studies dealing with urbanization dynamics. In India, significant changes in urban population have been observed in Tamil Nadu, Kerala and Punjab (Pandey et al., 2013). While the loss of agricultural land to urban expansion has been slow, it appears that it has steadily accelerated over time (Pandey and Seto, 2015). There is also evidence of increasing nightlight intensity along the peripheries of major Indian cities (Chand et al., 2009). The growing importance of the urban fringe may explain why measures of urbanization based on nightlight intensity are quite different from those relying on administrative definitions or on land classification by type of use (Ellis and Roberts, 2015; Galdo et al., 2017).

Improving the measurement of employment

Job creation is one of the main concerns of politicians and policymakers around the world. If anything, the concern is more pronounced in South Asia, where very large numbers of young people are reaching working age every year. However, discussions on the relationship between economic growth and job creation in South Asia are muddled by data gaps and inconsistencies. Employment figures are seldom available with high frequency. Labour indicators differ in subtle but important ways across statistical instruments. Population censuses, economic censuses, household surveys and labour force surveys often define employment in different ways.

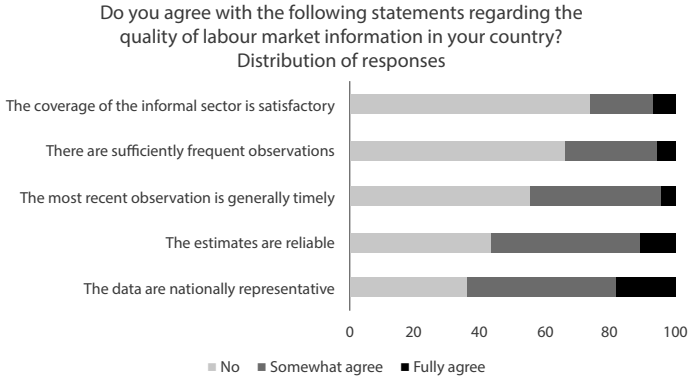
The implications of the gaps between definitions are amplified in economies where self-employment and casual work are the norm. A nine-to-five job, with a written contract and benefits attached to it, is easy to recognize. But relatively few jobs match this description in South Asia. In many cases, it is thus difficult to tell whether people are working, are unemployed, or are out of the labor force and the answers vary depending on the statistical instrument considered. The difficulty in measuring employment is exacerbated for women, as they tend to engage even more than men in activities falling in the gray area between work, unemployment and inactivity.

Economists in South Asia agree that the quality of the available employment data makes it difficult to credibly assess the labour market situation in their countries. In a recent survey, unsatisfactory coverage of the informal sector and infrequent observations are named as the most important limitations of available data. More than half of the respondents were also concerned about the timeliness of data, and 40 percent about the reliability of estimates (Figure 13.5).

Comparable employment figures across countries, and over time, are needed to benchmark employment rates and assess their trends, or to evaluate whether the relationship between economic growth and job creation is the same. Comparable employment figures can be constructed out of primary data from exist-

Figure 13.5

Economists are aware of the challenges posed by the available employment data



Source: World Bank (2018).

ing population censuses, economic censuses, household surveys and labour force surveys (World Bank, 2018). Indeed, since 2001, close to 100 such censuses and surveys have been conducted in the region.

Sri Lanka and Pakistan have the most frequent and easily accessible household and labour force surveys. Sri Lanka runs the Household Income and Expenditure Survey every three years. It has an annual Labour Force Survey which provides national and quarterly data. Similarly, Pakistan has been carrying out the Pakistan Social and Living Standards Measurement (PSLM) survey and the Household Integrated Economic Survey on alternate years since 2004-05.

In India, labour market information is collected every five years by the National Sample Survey (NSS) using a separate employment-unemployment module. In the intervening years, basic employment information is gathered together with the household consumer expenditure module. The quinquennial surveys

have large samples and are referred to as the "thick rounds." The intervening surveys are known as the "thin rounds" because of their relatively smaller sample size. Overall, data is less frequent in India. The most recent data point is the "thick round" that NSS conducted in 2011-12. The annual Periodic Labor Force Survey, which was started in 2017, aims to fill this gap by providing frequent and timely labor market data that is nationally and regionally representative.

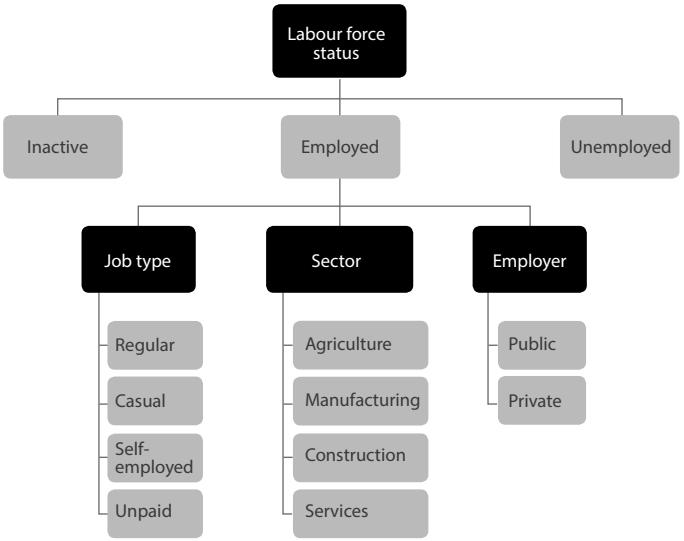
World Bank (2018) assembled a new dataset, built out of primary data from all these sources, classifying each respondent as employed, unemployed or inactive, relying on internationally agreed definitions, matched as closely as possible to the questionnaire of each census or survey. Employed individuals were further classified based on the nature of their activity. Three breakdowns were considered: by type of job (regular, casual, self-employed and unpaid), by sector of activity (agriculture, manufacturing, construction and services) and by institutional sector (private or public). The procedure used for the construction of this employment database allowed the generation of information at a relatively high frequency (Figure 13.6).

In many of the surveys used in this exercise, it was possible to attribute individual observations to specific quarters. This is because the month when a respondent was interviewed is recorded in most of the household and labour force surveys. Individual observations can thus be mapped to quarters, allowing for the generation of quarterly employment data, in addition to annual estimates. However, this approach is only sensible if interviews are spread across space and over time in a relatively even way.

Needless to say, quarterly employment rates constructed in this way are "noisy", or with potentially large measurement error. The same is true for Bangladesh and Pakistan's quarterly GDP series, obtained by interpolating annual GDP data based on quarterly industrial production. Despite the noise, a positive short-term correlation between the growth of employment rates and GDP growth emerges across much of the region. In size, the correlation is comparable to estimates in advanced economies (World Bank, 2018).

Figure 13.6

Comparable employment information extracted from over 60 surveys



Source: World Bank (2018).

In the longer term, job creation can be summarized under the form of an "elasticity", or percentage change in employment per percentage point of GDP growth. Depending on whether the mean or the median of the distribution of estimates is considered, the elasticity of employment to GDP varies between 0.2 and 0.3 (Table 13.2). This shows that economic growth is not jobless in South Asia, contrary to the widely shared opinion.

The "standardized" employment data also allows analysis of how economic growth has modified the types of jobs available in South Asia. From a sectoral point of view, it appears that structural transformation has been slow in many countries. Perhaps more disturbingly, the growth in regular wage employment has been

extremely modest across the region (Figure 13.7). Regular wage jobs are generally seen as better jobs, compared to farming, self-employment or casual work.

Towards stronger statistical systems

The analyses above show that refining basic economic indicators can be done at a relatively low cost. Nightlight data captures informal economic activity; it is available at high levels of spatial disaggregation; it can be obtained in almost real time; it is relatively cheap to acquire; and it is not subject to politically motivated interference. The same can be said of other forms of big data—from land classification to cell-phone traffic. New technologies also provide an opportunity to strengthen the measurement of other economic indicators. For example, insightful price indices have been developed by "scraping" the internet. These indices cover a very large number of products and points of sale; they can be updated daily and they are cheap to maintain.

Table 13.2

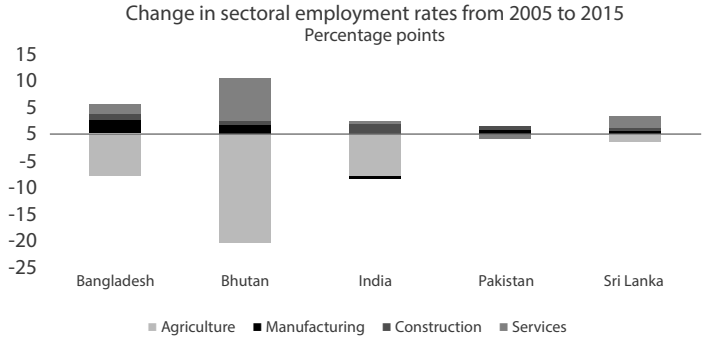
South Asian countries have created a large number of jobs

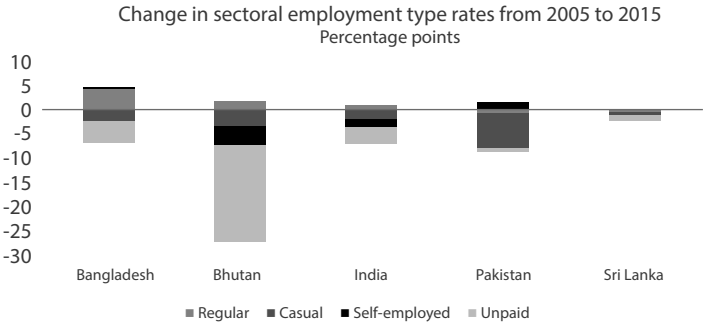
	South Asia	Bangladesh	India	Pakistan	Sri Lanka
	Elasticity	Jobs created by one percentage point of growth (in thousands)			
25th percentile	0.10	90	400	310	5
Median	0.20	100	540	360	8
75th percentile	0.60	120	730	410	16
Mean	0.34	130	540	360	11
Long run	0.19	110	750	200	9

Source: World Bank (2018).

Figure 13.7

Structural transformation is slow and regular employment increases only modestly





Source: World Bank (2018).

However, the "data revolution" under way requires more than just a good grasp of technology: it is, above all, an institutional reform agenda. Despite substantial efforts to ensure comparability across countries, employment data in South Asia remains "noisy" and is not frequent enough. Unfortunately, big data may not be of much help in this respect. Employment definitions and classifications that are better aligned with the international practice would

be a more important priority. And, except for Pakistan and Sri Lanka, employment information should be generated more frequently. India's recent initiative in this respect is highly welcome. It can only be hoped that the frequency of data points will increase in other South Asian countries as well.

Statistical agencies are a much more central part of the service delivery machinery than is generally acknowledged. The availability of high-quality data, which can be easily accessed without impinging on privacy or breaching confidentiality, is an extremely valuable public good. Tech-savvy private sector players are also an important part of the data architecture of a country. They help push the frontier with their innovations and develop new products for subsets of customers who can afford them. However, for reliable high-quality data, as a public good, it is likely that statistical agencies will still be the source for the foreseeable future. In other words, the "data revolution" requires their institutional and technological upgrading, so that they can play this role effectively.

There is a long tradition of economic measurement based on censuses and surveys and South Asian economists and statisticians were at the forefront of this approach. Of late, efforts to modernize statistical systems have mostly emphasized a deepening of this model: more frequent surveys, standardized definition of variables, piloting of new questionnaires, capturing of responses through electronic tablets rather than paper questionnaires. The example provided above, regarding the difficulty of obtaining good employment data in South Asia, confirms that these efforts are indeed important.

However, there has generally been less emphasis on other potential upgrades, including the systematic geo-referencing of data, or the linking of government databases. It is as if new rooms are being piled up on top of an old building to accommodate new functions, rather than a new modern building being designed with updated functions as the organizing principle.

In developing countries, the upgrade of statistical agencies has often been approached in an "extractive mode", rather than with a reform mindset. Quite often, a donor or an international organiza-

tion is interested in a specific metric. A trust fund is mobilized to cover the cost. And, a new survey is conducted. The Sustainable Development Goals, with their long list of policy-relevant indicators, represent an important step forward as they implicitly benchmark the statistical systems in terms of what they are expected to deliver. In other development areas, the international community has been more ambitious. Entire programmes have been designed to help developing countries liberalize international trade, unbundle infrastructure sectors, or revamp their social security systems. These programmes combine policy dialogue, technical assistance and sizeable financial resources under the form of a long-term engagement. But such programs have been the exception more than the rule, especially when it comes to statistical upgrading.

Building trust in citizens towards reliable and precise official statistics is an integral part of the development agenda. This requires a clear strategy. The first step is upstream—enshrining the technical independence of statistical agencies and clarifying their reporting lines to the rest of the government. Also upstream is where the adoption of rules striking the right balance between access to information and the protection of privacy takes place. Then comes the statistical development strategy of the country, a compact that needs to be brokered at a high level—as an integral part of the country's overall growth strategy. The next step concerns business process engineering, designing an institutional form that brings together the multiple sources of data available, including big data, in a way that ensures their alignment with the strategy. Technology is the final step in this chain; a very important step, but not the driver of the process. Strengthening statistical systems should be a priority for South Asia.

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CHAPTER 14

Data constraints in monitoring SDGs

Ganga Tilakaratna

World leaders pledged their commitment to the 2030 Agenda and Sustainable Development Goals (SDGs) in 2015, upon reaching the deadline of the Millennium Development Goals (MDGs). Under the universally agreed development agenda of the MDGs the world made significant progress in areas such as reducing extreme poverty and improving the provision of healthcare and education services. South Asia, in particular, made considerable achievements in halving extreme poverty, ensuring universal primary enrolment, primary completion and achieving gender parity in primary education (UNDP, 2015).

However, the dividends of this progress have been unequally distributed across the world, as evinced by the existence of marginalized and left-behind groups. The SDG framework, which is both a continuation and an improvement of the MDG agenda, however, presents a more holistic view of development and underlines the adoption of a more inclusive approach. Compared to the eight MDGs, with its incumbent 18 targets and 48 indicators, the SDG framework is considerably more ambitious. It has 169 targets and 244 indicators attached to 17 goals.

The quality of data fed into an effective and appropriate monitoring and evaluation mechanism is vital for the achievement of a long-term goal-based framework, such as the SDGs. Furthermore, the SDG framework calls for data to be highly disaggregated, as a step towards ensuring that all vulnerable and marginalized groups are reflected when taking stock of the achievements and

progress. To meet the high-quality, disaggregated data requirement for monitoring the SDG implementation, there is a need for South Asian countries to fine-tune and improve their data collection systems.

This chapter analyses the data availability among South Asian countries regarding SDG indicators and how to overcome data constraints to measuring SDG progress in the region. To do so, first, it discusses the importance of data for the SDG framework. Next, it takes stock of current data availability for SDG indicators among the eight South Asian countries. Then it discusses the availability of disaggregated data for SDGs. The analysis of data availability is followed by a discussion of how South Asia could address its data gaps. The possible avenues for cooperation, collaboration and knowledge-sharing among the countries in the region are discussed before concluding.

SDGs' data emphasis

The extensive and comprehensive development agenda presented by the SDG framework necessitates an appropriate monitoring and evaluation mechanism. This helps identify the current status and gaps as well as the way forward, especially in terms of pin-pointing national priorities.

Compared to the previous global development agenda—the MDGs—the data requirement for SDGs is significantly higher. The number of SDG indicators is around five times higher than the MDG indicators. In addition, data-related expectations for SDGs are higher than in the case of MDGs. In fact, the MDG agenda is criticized for its failure to become a real-time management tool, given the time-delays associated with MDG data: this has been ascribed to the fact that data and metrics were a mere after-thought during the inception of the MDGs (Schmidt-Traub, 2014).

In contrast, the SDGs assign substantial emphasis to data and monitoring, going so far as to include increasing the availability of high-quality, timely, reliable and appropriately disaggregated data

as an SDG target (17.18). Under this, three indicators are allocated to monitor the availability of data, national statistical legislation and national statistical plan.

The 17 SDGs are monitored using 244 indicators that keep track of 169 targets (Table 14.1). Interestingly, the highest number of targets and indicators are associated with SDG 17, which

Table 14.1

Sustainable Development Goals: Targets and indicators

Goal	No. of Targets	No. of Indicators
Goal 01: No poverty End poverty in all its forms everywhere	07	14
Goal 02: Zero hunger End hunger, achieve food security and improved nutrition and promote sustainable agriculture	08	13
Goal 03: Good health and wellbeing Ensure healthy lives and promote wellbeing for all at all ages	13	27
Goal 04: Quality education Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	10	11
Goal 05: Gender equality Achieve gender equality and empower all women and girls	09	15
Goal 06: Clean water and sanitation Ensure availability and sustainable management of water and sanitation for all	08	11
Goal 07: Affordable and clean energy Ensure access to affordable, reliable, sustainable and modern energy for all	05	06

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Goal 08: Decent work and economic growth Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	12	17
Goal 09: Industry, innovation and infrastructure Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	08	12
Goal 10: Reduced inequalities Reduce inequality within and among countries	10	11
Goal 11: Sustainable cities and communities Make cities and human settlements inclusive, safe, resilient and sustainable	10	15
Goal 12: Responsible consumption and production Ensure sustainable consumption and production patterns	11	13
Goal 13: Climate action Take urgent action to combat climate change and its impacts	05	07
Goal 14: Life below water Conserve and sustainably use the oceans, seas and marine resources for sustainable development	10	10
Goal 15: Life on land Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	12	14
Goal 16: Peace, justice and strong institutions Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	12	23
Goal 17: Partnerships for the goals Strengthen the means of implementation and revitalize the global partnership for sustainable development	19	25
Total	169	244

Source: IAEG-SDGs (2017).

focuses on the means of implementing the other SDGs. These goals present an overarching development framework, which emphasizes the necessary links between the three pillars of sustainable development, i.e., social, environmental and economic pillars. The 2030 Agenda recognizes the inter-linkages among these three dimensions and the need for cohesive action to achieve social and economic development as well as environmental sustainability. These linkages further increase the complexity of the nature of data required to monitor the SDGs. In addition, the underlying principle of "leaving no one behind" has necessitated the need for disaggregated data, especially in terms of measuring the social and economic dimensions of the SDG framework.

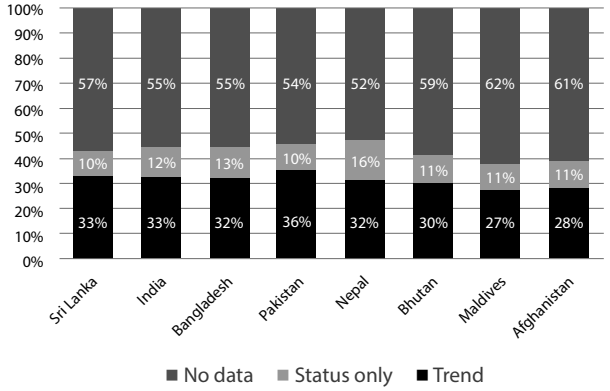
Data availability for SDGs

Let us carry out a detailed analysis of data availability for SDGs among the eight South Asian countries. In order to ensure the stock-taking exercise is equal between the countries, this chapter evaluates the data availability based on SDG Indicators Global Database maintained by United Nations Statistics Division.[1] However, it should be pointed out here that the internal/domestic data availability of these countries could be higher than in the global database. The data availability discourse in this chapter examines whether for each indicator a country has "status only" data, "trend" data, or "no data" for the 2000 to 2017 period. "Status only" data means that a country has only one data point for a given indicator during the given time period, while "trend" data means that a country has at least two data points.[2]

Analysis shows somewhat similar trends across the region, with all eight countries having at least one data point for around 40–50 percent of SDG indicators and trend data for about one third of the indicators. The Maldives records the highest data deficiency with no data for 62 percent of the indicators, followed closely by Afghanistan (61 percent). Nepal reports the least SDG data deficiency, with no data for 52 percent of the indicators, followed closely by Pakistan (Figure 14.1). A detailed analysis of the levels

Figure 14.1

Data availability for SDG indicators: South Asia



Source: Author's calculations based on the Global SDG Indicators Database (https://unstats.un.org/sdgs/indicators/database/).

of data availability for each of the 17 SDGs for these countries is provided by Figure 14.2.

In the case of SDG 1 (No poverty), Sri Lanka, Pakistan, Nepal and Bhutan have data for 43 percent of the indicators. Out of these, Sri Lanka, Pakistan and Bhutan have trend data for all the available indicators while Nepal has only one data point (status only) for 21 percent of the SDG 1 indicators. India, Bangladesh and Afghanistan are comparatively more data deficient for SDG 1, with no data for about 70 percent of the indicators.

Interestingly, five countries in the region—Sri Lanka, India, Bangladesh, Pakistan and Afghanistan—are currently capable of reporting trend data for about half of the SDG 2 (Zero hunger) indicators. Bhutan appears to be the country with the least availability of data for this goal, with no data for 54 percent of the indicators.

Almost every country has at least one point of data for 70 percent or more of the indicators for SDG 3 (Good health and wellbe-

ing) with trend data available for over 50 percent of the indicators. Even in the case of the only exception, the Maldives, data availability is only slightly less, with trend data present for 48 percent of the indicators.

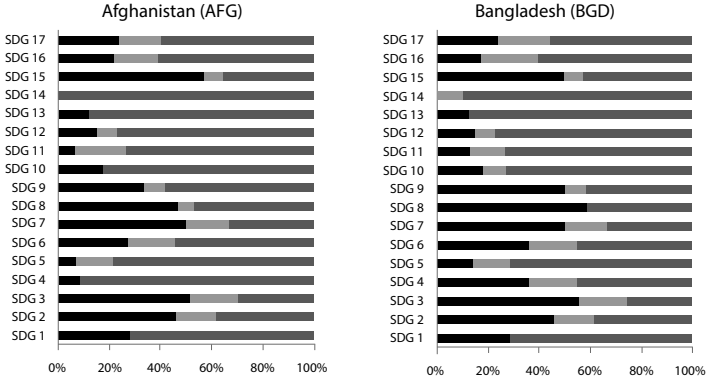
SDG 4 (Quality education), on the other hand, appears to be among the more data-deficient goals in the region. Except for Nepal and Bangladesh, where at least one data point is present for 55 percent of the indicators, all other countries have 45 percent or less of the data requirement under the goal. In fact, in the case of Afghanistan, data is available only for 9 percent of the indicators.

It is important to note that SDG 5 (Gender equality), which represents a cross-cutting theme significant for the achievement of the 2030 Agenda, is an area where the South Asian region appears to be lagging behind in terms of data. Most countries have no data for more than 70 percent of SDG 5 indicators.

The situation is somewhat more favourable in the case of SDG 6 (Water and sanitation), with a majority of the countries having at least one data point for 55 percent of the indicators. In the case of SDG 7 (Clean energy), all eight countries in the region have at least

Figure 14.2

Data availability for SDGs by countries



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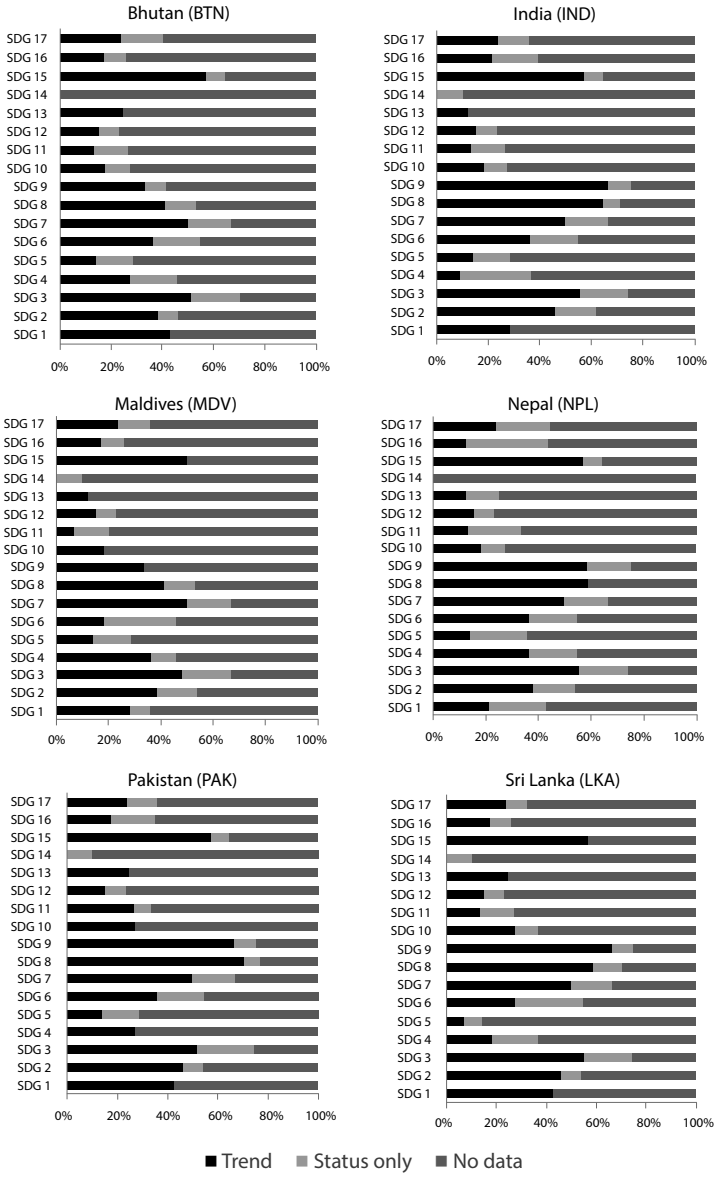

Source: Author's calculations based on the Global SDG Indicators Database (https://unstats.un.org/sdgs/indicators/database/).

one data point for 67 percent of the indicators. SDG 8 (Decent work and economic growth) is another goal for which South Asia's data availability is comparatively more favourable. All countries have at least one data point for over 50 percent of the indicators, Sri Lanka, India and Pakistan having trend data for over 30 percent of the indicators. Similarly, in the case of SDG 9 (Industry, innovation, and infrastructure), a majority of the countries (except for Bhutan, the Maldives and Afghanistan) have data for over 50 percent of the indicators, with Sri Lanka, India, Pakistan, and Nepal being currently capable of fulfilling 75 percent of the data requirement.

SDGs 10 (Reduced inequalities), 11 (Sustainable cities and communities) and 12 (Responsible consumption and production) are among the goals for which data availability is considerably low across South Asia. All countries, except Sri Lanka, have no data for over 73 percent of the SDG 10 indicators. Sri Lanka has no data for 64 percent. In the case of SDG 11, all countries have no data for 67 percent or more indicators. All countries have no data for 77 percent of indicators under SDG 12.

SDG 13 (Climate action) is another significant theme of the SDG Agenda for which data availability is low across the region. All countries have no data for 75 percent or more indicators under this goal.

SDG 14 (Life below water) can be identified as the goal with the least data availability in South Asia. Understandably, landlocked countries—Afghanistan, Bhutan and Nepal—have zero data availability under this goal. However, even in the small island nations (Sri Lanka and the Maldives) as well as the other South Asian countries with access to marine resources (i.e., India, Pakistan and Bangladesh) are currently meeting only 10 percent of the data requirement, with only one data point. In contrast, all countries are meeting 50 percent or above data requirement under SDG 15 (Life on land).

In the case of SDG 16 (Peace, justice and strong institutions), the South Asian data availability for at least one data point ranges from 25 percent to 43 percent, with the highest data availability reported from Nepal and the lowest from Sri Lanka, Bhutan and

the Maldives. Although SDG 17 is significant in terms of promoting the implementation of the 2030 Agenda, data availability for this goal in South Asia is somewhat low, ranging from 32 percent to 44 percent.

Availability of disaggregated data

The SDG framework underlines the principle of "leaving no one behind." As such, the SDG indicator framework is designed to capture and monitor the situation of not only the nation as a whole, but also of various sub-segments of a country via disaggregated data. Many indicators explicitly require data disaggregation at the levels of gender, age-group, employment status, location, race and ethnicity, disability and migrant status.

Table 14.2 provides an overview of South Asia's availability of data disaggregated by gender, a key cross-cutting theme of the 2030 Agenda. This includes a list of SDG indicators, where gender-disaggregated data is specifically required as per the global indicator framework, developed by the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs), as well as other indicators (marked by *) for which at least one data point of gender-disaggregated data is available

As shown in Table 14.2, there are considerable gaps in gender-disaggregated data in South Asia. In particular, such data is lacking across South Asian countries for many indicators related to SDG 1 (no poverty), SDG 10 (reduced inequality), SDG 11 (sustainable cities and communities) and SDG 16 (Peace and justice) for which gender-disaggregated data is specifically required.

Moreover, as discussed earlier, SDG 5 (Gender equality) indicates considerable data deficiency across all South Asian countries, with around 70 percent of the indicators lacking the required data. For example, of the 14 indicators related to SDG 5, only four seem to have the required data for the majority of South Asian countries. These include Indicator 5.2.1 (Proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence), Indicator

Table 14.2

Availability of gender-disaggregated data for selected indicators

Indicator		AFG	BGD	BTN	IND	MDV	NPL	PAK	LKA
1.1.1	International poverty line	√	√	√	√	√	√	√	√
1.2.1	National poverty line								
1.2.2	Multidimensional poverty								
1.3.1	Social protection floors/systems								
1.4.2	Land rights								
2.3.2	Agricultural income								
3.3.1	HIV infections	√	√	√	√		√	√	√
3.4.1	Mortality rate of cardiovascular disease, cancer, diabetes or chronic respiratory disease*	√	√	√	√	√	√	√	√
3.4.2	Suicide mortality rate*	√	√	√	√	√	√	√	√
3.9.1	Mortality rate from air pollution*	√							
3.9.2	Mortality rate from unsafe water and sanitation*	√							
3.9.3	Mortality rate from unintentional poisoning*	√	√	√	√	√	√	√	√
3.a.1	Tobacco use*		√	√	√	√	√	√	√
4.1.1	Reading and mathematics proficiency of children and young people								
4.2.1	Learning and wellbeing of children under 5								
4.2.2	Organized learning before primary entry age		√			√	√		
4.3.1	Formal, non-formal education and training								

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4.6.1	Literacy and numeracy skills								√
4.c.1	Organized teacher training*		√	√	√	√	√	√	√
5.4.1	Unpaid domestic and care work			√				√	
5.a.1	Agricultural land ownership								
5.b.1	Ownership of a mobile phone								
8.3.1	Informal employment				√			√	√
8.5.1	Hourly earnings of employees							√	
8.5.2	Unemployment rate	√	√	√	√	√	√	√	√
8.6.1	Youth not in education, employment or training*		√		√	√	√	√	√
8.7.1	Child labour	√	√	√	√	√	√	√	√
8.8.1	Occupational injuries								
10.2.1	Median income								
11.2.1	Access to public transport								
11.7.2	Victim of harassment								
16.1.1	Intentional homicides								
16.1.2	Conflict-related deaths								
16.2.2	Human trafficking								
16.2.3	Young women/men experiencing sexual violence				√		√		
16.7.1	Participation in public institutions								
16.7.2	Belief in inclusive decision-making								
16.10.1	Violence against media, unionists and human rights activists*	√	√		√		√	√	
Total		10	12	10	13	10	13	14	12

Source: Author's calculations based on the Global SDG Indicators Database (https://unstats.un.org/sdgs/indicators/database/).
*Note: * Indicators which do not specifically require gender-disaggregated data according to the global SDG indicator framework developed by the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs).*

Table 14.3

Availability of location-disaggregated data for selected indicators

Indicator		AFG	BGD	BTN	IND	MDV	NPL	PAK	LKA
1.1.1	International poverty line								
1.2.1	National poverty line*	√	√	√	√	√	√	√	√
1.3.1	Social protection floors/systems								
5.4.1	Unpaid domestic and care work								
6.1.1	Access to safe water*		√	√	√		√	√	√
6.2.1	Access to sanitation*	√	√	√	√	√	√	√	√
7.1.1	Access to electricity*	√	√	√	√	√	√	√	√
11.6.2	Air quality*	√	√	√	√		√	√	√
Total		4	5	5	5	3	5	5	5

Source: Author's calculations based on the Global SDG Indicators Database (https://unstats.un.org/sdgs/indicators/database/).

*Note: * Indicators which do not specifically require location-disaggregated data according to the global SDG indicator framework developed by the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs).*

5.3.1 (Proportion of women aged 20–24 years who were married or in a union before age 15 and before age 18), Indicator 5.5.1 (Proportion of seats held by women in (i) national parliaments and (ii) local governments), and Indicator 5.5.2 (Proportion of women in managerial positions).

In addition to gender-disaggregated data, spatially disaggregated data is key to addressing regional disparities and ensuring inclusiveness according to the 2030 Agenda. Table 14.3 provides an overview of the availability of location-disaggregated data for South Asian countries based on Global SDG Indicators Database. The gaps appear less, compared to the gender-disaggregated data. For example, spatial data related to national poverty lines and access to basic services like, safe water, sanitation and electricity is available for almost all countries in the region. This is because of the periodical household-level national surveys conducted by these countries, covering these socio-economic aspects.

In order to identify vulnerable groups and to ensure that no one is left behind, the availability of data disaggregated by age, ethnicity as well as disability is important. Although such information could be computed from the household surveys, many countries do not have readily available disaggregated data regarding persons with disability, ethnic groups, etc.

Addressing data gaps and constraints

The foregoing analysis reveals significant SDG data gaps among South Asian nations, especially in key areas such as education, gender equality and climate action. The monitoring of these can be key to formulating evidenced-based polices aimed at inclusive development, which can be further fine-tuned with disaggregated data. Table 14.4 overviews the statistical capacity of national statistical systems of South Asian countries. The capacity is based on the assessment of three dimensions, i.e. methodology, periodicity and timeliness, and source data. India ranks highest in terms of overall statistical capacity, followed by Sri Lanka. Afghanistan and the Maldives rank the lowest in the region.

Collaborative action is demanded by the 2030 Agenda, including in SDG data collection. Official statistics, produced by government entities, will continue to be the primary source of data. However, it is essential to engage other stakeholders in order to meet the comprehensive data requirements of SDGs. Even within government entities, there needs to be higher levels of coordination and involvement of agencies that were not traditionally part of the national statistics system. Their expertise will be needed to collect data on specialized indicators, for example, when collecting data on highly technical indicators in the environmental sector.

In terms of involving non-state stakeholders in data collection, one avenue that South Asia can explore is "big data" (Box 14.1) as a supplement to traditional statistics. Private sector com-

Table 14.4

Statistical capacity in South Asia

Country	Methodology assessment of statistical capacity (scale 0–100)	Periodicity and timeliness assessment of statistical capacity (scale 0–100)	Source data assessment of statistical capacity (scale 0–100)	Statistical capacity score (Overall average)
South Asia	65	89	68	74
Afghanistan	40	73	40	51
Bangladesh	50	90	70	70
Bhutan	50	77	70	66
India	100	93	80	91
Maldives	60	57	40	52
Nepal	50	90	80	73
Sri Lanka	80	90	80	83

Source: World Bank (2017).

Box 14.1

Big data for SDGs

Big data is a source of up-to-date, real time information that has been recognized for its potential to support the monitoring of the SDGs via enhanced timeliness and relevance. Big data is expected to improve countries' ability to meet the need for highly disaggregated data for more effective, evidence-based policymaking and has the capacity to make the data cycle match the decision cycle.

However, the usage of big data is associated with many challenges. There are legislative issues concerning access to data. There are privacy issues with regard to managing the public trust. Big data is further associated with financial issues in terms of maintenance and storage of colossal volumes of data. Especially in the case of a developing region such as South Asia, there are significant methodological issues as well as a need for better knowledge and expertise on dealing with big data.

panies are now producing massive volumes of information as a by-product of electronic transactions and records. In addition, new technology has made it far easier for individuals and groups to produce valuable new information. They can employ social media to quickly assemble masses around an event or an idea. Increasing access to and popularity of the internet around the world is causing this flow of data to grow very swiftly. Governments need to explore the potential of such new but non-traditional avenues that can complement official statistics to provide a more dynamic picture. Such collaborative data collection needs all data producers to replace outdated and dissimilar computer systems and work more closely together to adopt standards for efficient data exchange (UNDP, 2015).

Data collection should lead to data presentation in such a manner that all users can access and visualize the data in a user-friendly and convenient manner. The ideal platform for this is via

Box 14.2

Bangladesh SDG tracker

The SDG Tracker of Bangladesh is an online data repository for monitoring the implementation of SDGs, available at http://www.sdg.gov.bd. The two major components of the SDG Tracker are SDG Portal and Dashboard. SDG Portal aims at enabling all stakeholders to track the annual progress of each target and compare it visually against performance thresholds. The resulting dashboard highlights areas where greater focus will be required in achieving the 2030 Agenda. This is an interactive tool which allows the user to view data at the national or the sub-national level and even provides for comparison among indicators.

Source: World Bank (2017).

online databases and other electronic formats that allow the extraction of information based on users' queries (*ibid.*). A good regional example is Bangladesh's SDG Tracker (Box 14.2).

This discussion is related to the need to encourage active data users, which is a key step in harnessing the data revolution for SDGs (Box 14.3). Government entities and politicians must use data when making resource allocation decisions. Other institutions investigating specific groups or issues need to be able to manipulate the available data as necessary. The media and advocacy groups can use data to inform the public. As such, it is important to improve statistical literacy. This involves improving awareness on the nature and quality of data available as well as education on the skills to analyse and interpret data (UNDP, 2015).

Increasing the credibility of statistics is also essential to encourage active data users. It is of utmost importance to ensure that official statistics are free from political interference. Official statistics producers must aim at building a reputation for unbiased reporting through transparent actions and adherence to professional codes and international standards. A key step towards this would

be to publish the "metadata" that details exactly how the statistics were produced (*ibid.*).

Improving the multi-stakeholder recognition and usage of data is an effective way to mobilize domestic funding (*ibid.*). A country which is cognizant of the need for high-quality, disaggregated data to guide an effective development agenda could more easily bring together all relevant stakeholders in improving its data collection systems.

South Asia needs to further explore the potential of regional organizations such as SAARC in strengthening regional coopera-

Box 14.3

Harnessing data revolution for SDGs

Data revolution can be defined as an "explosion in the volume of data, the speed with which data is produced, the number of producers of data, the dissemination of data and the range of things on which there is data, coming from new technologies such as mobile phones and the 'internet of things' and from other sources, such as qualitative data, citizen-generated data and perceptions data." This is accompanied by a growing demand for data from all parts of society.

The data revolution for SDGs refers to the integration of such new data to produce high-quality, timely and relevant information to nurture and monitor sustainable development. This is expected to ultimately result in more empowered people, better policies, better decisions and greater participation and accountability and eventuating better outcomes for people and the planet.

In order to mobilize the data revolution for SDGs, it is necessary to develop a global consensus on principles and standards so that the disparate worlds of public, private and civil society data and statistics providers can be brought together to build trust and confidence among data users.

Source: IEAG (2014).

tion for improving statistical capacity. This could further provide a platform to develop common standards and methodologies at the regional level. Given that statistical capacities vary across the eight South Asian countries (as shown in Table 14.4), there is much scope for sharing knowledge and experience among them. South Asian countries could build regional-level databases and other data related infrastructure. Moreover, they can engage in collaborative research on data-related issues and come up with regional solutions to overcome their data constraints regarding SDGs. There are opportunities for technological cooperation among South Asian nations.

Conclusions

Given the large number of targets and indicators associated with the 17 goals, the data requirement for SDGs is significantly higher than what was required to achieve the MDGs. Moreover, the SDG framework calls for highly disaggregated data, particularly in terms of gender, age, location, race, ethnicity and disability, in order to ensure that no one is left behind. The three pillars of sustainable development—i.e., social, economic and environment and their inter-linkages—and the 17 SDGs further increase the complexity of the nature of data required for monitoring.

The preceding analysis, based on the Global SDG indicator database, shows that all countries in the region lack data for more than 50 percent of the SDG indicators, with the Maldives and Afghanistan lacking data for over 60 percent of the indicators. A detailed analysis of the levels of data availability in South Asian countries for each of the 17 SDGs has revealed that the availability of data varies considerably across the 17 goals and among the eight countries.

The availability for SDG 3 on Good Health and Wellbeing is comparably more favourable. All eight countries have data for over 70 percent of the indicators. SDG 7 (Clean water) and SDG 8 (Decent work and economic growth) are the other SDGs that show relatively favourable data availability.

On the other hand, SDGs 10 (Reduced inequalities), SDG 11 (Sustainable cities and communities), SDG 12 (Responsible consumption and production), SDG 13 (climate action) and SDG 14 (Life below water) are among those for which data availability is considerably low across South Asia. It is important to note that SDG 5 (Gender equality), which represents a cross-cutting theme in the SDG framework, also lags behind in terms of data availability. Most South Asian countries lack data for over 70 percent of the indicators of the above SDGs.

An analysis of availability of disaggregated data for SDGs reveals considerable gaps in gender-disaggregated data in South Asia. However, the gaps related to spatially disaggregated data appear to be smaller, compared to the gender-disaggregated data.

Given these data gaps, it is important to improve the availability of high-quality, timely, reliable and appropriately disaggregated data for SDGs. This requires improving the statistical capacity of these countries as well as strengthening partnerships among various stakeholders. There is much scope among these countries for strengthening regional cooperation on improving statistical capacity and sharing their knowledge and experience among themselves.

Notes

[1] UN Statistical Division, Global SDG Indicators Database, https://unstats.un.org/sdgs/indicators/database/.

[2] The methodology adopted was based on UNESCAP (2017).

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South Asian cooperation: Issues old and new

South Asia Watch on Trade, Economics and Environment (SAWTEE) is a regional network that operates through its secretariat in Kathmandu and member institutions from five South Asian countries, namely Bangladesh, India, Nepal, Pakistan and Sri Lanka. Its activities span research, advocacy and capacity building. Its vision is to ensure fair, equitable, inclusive and sustainable growth and development in South Asia (www.sawtee.org).