

Bhutan

Critical Development Constraints



Australian Government
Aid Program



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Country Diagnostics Studies

Bhutan

Critical Development Constraints



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Foreword



དངུལ་རྩིས་རྒྱན་ཁག།
ROYAL GOVERNMENT OF BHUTAN
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Bhutan 2020: *A Vision for Peace, Prosperity and Happiness* embodies the development philosophy of His Majesty King Jigme Singye Wangchuck and sets out directions that will enable Bhutan to execute this philosophy while at the same time retaining its commitment to its distinctive model of harmonious and balanced development. The vision, which is highlighted in Bhutan's 2010 economic development policy, seeks to bring together desirability and feasibility, signifying that, with wisdom, understanding, and foresight, the country can meet the challenges of change and modernization and bequeath to future generations a nation that every Bhutanese will be proud of. At the core of the government's aspirations lies accelerating growth and poverty reduction. These goals are realizable provided that the constraints to inclusive economic development are identified and addressed through implementation of appropriate policies in the medium and long term.

Bhutan, as the report notes, has undertaken in the last decade a number of key initiatives, which resulted in gross domestic product growth rates averaging 8.4% during 2001–2011. We hope to improve the economic performance even further with more investment in the hydropower sector to increase hydropower generation capacity to about seven times the present level by 2020. We have likewise invested in key economic infrastructure and services and social and human development, allowing us to even surpass our target of reducing the poverty headcount rate to 15% by 2013, and to achieve visible progress in meeting other Millennium Development Goal targets.

The Government of Bhutan, however, is aware of remaining challenges to turning growth more resilient and inclusive. Despite the high rates of economic growth, the growth remains narrowly based; vulnerable to sectoral shocks and cyclical swings; and unable to create adequate jobs, especially for the growing youth population. For our vision of achieving pro-poor and equitable development, we need to transform our economy into a more diversified and broad-based one—which can generate productive and decent employment opportunities for all Bhutanese. The development gaps between the districts and high inequality across income groups also remain a concern.

The report also provides insights that can help enrich development cooperation between the government and our development partners. In particular, we highly appreciate the consultative process that the study adopted to ensure that views of all the key stakeholders were taken into account in diagnosing the critical constraints of the Bhutanese economy. The government gratefully acknowledges the support of the Asian Development Bank, Australian Agency for International Development, and Japan International Cooperation Agency in the timely conduct of the study.

Lam Dorji
Secretary
Ministry of Finance

Preface

The philosophy of gross national happiness is unique to Bhutan, and has been the center of its socioeconomic policies in striving to balance the spiritual and material well-being of its citizens. Bhutan believes that it is possible to embrace the benefits of modernization without being overwhelmed by negative influences while at same time maintaining a distinct identity that is recognized and respected by the rest of the world.

Bhutan has achieved strong growth, at an annual average of 7.8% during 1981–2011, and its per capita gross domestic product has more than quintupled, from \$271 to \$1,446 during the same period. Hydropower development has been the main driver of the growth. The government’s conscious efforts to invest in socioeconomic programs have helped reduce poverty in the country. With its solid performance, Bhutan has been one of the fastest growing economies in the South Asia region and the pursuit for environmental sustainability and inclusive economic growth appears to be within reach.

Along with all these positive developments, Bhutan has recognized that it needs to continue its efforts to make growth resilient to external and internal factors. This includes stepping up its efforts to make its economic growth more inclusive and to ensure that the benefits of growth are more widely distributed.

The report—*Bhutan: Critical Development Constraints*—is timely, as the Government of Bhutan is now in the process of preparing for its eleventh Five Year Plan. Based on rigorous analysis, the report identifies the most critical constraints facing the economy and discusses policy options to assist the government in its endeavor to achieve strong, balanced, and resilient growth that is also inclusive. For Bhutan to accelerate economic growth and poverty reduction, it has to tap into new or additional drivers of growth that can exploit the country’s comparative advantage. The report also highlights potential new drivers, which can help complement Bhutan’s continuing efforts for inclusive and sustainable socioeconomic development.

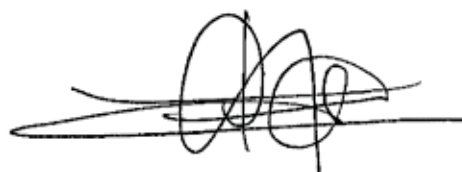
We gratefully acknowledge the financial support from the Government of Australia through the Australia–Asian Development Bank (ADB) South Asia Development Partnership Facility under the Development Partnership Program for South Asia, with additional assistance from the Japan International Cooperation Agency (JICA). The study was jointly conducted by the Government of Bhutan, ADB, and JICA. Assistant Chief Economist Cyn-Young Park, Economic Analysis and Operations Support Division, Economics and Research Department of ADB provided the oversight and overall direction for the study. The work was coordinated by Yoko Niimi and Kee-Yung Nam of ADB. Tomoki Nitta, Katsuo Matsumoto, Motoyuki Takahashi, Ayumu Ohshima, Jun Yamazaki, Yusuke Takahashi, and Daisuke Ito coordinated the research on behalf of JICA. The report was prepared by Kee-Yung Nam, Muhammad Ehsan Khan, Yoko Niimi, Gilberto M. Llanto, Maria Rowena M. Cham, and Paulo Rodelio M. Halili. The work benefitted from background papers prepared by a team of consultants comprising Tenzin Chhoeda, Lekey Dorji, Dil Maya Rai, Rohan Samarajiva, Takayuki Urade, and Bruce Winston. Peter Choynowski, Iris Claus, Utsav Kumar, and Paul Vandenberg provided valuable comments in finalizing the report. The preparation for the report was assisted by Regina Baroma, Arlene Evangelio, Amador Foronda, Maria Melissa Gregorio,

Lawrence Nelson Guevara, Ronaldo Ico, Lyndree Malang, Sharon Faye Piza, Lilibeth Poot, Mark Romaraog, Emmanuel San Andres, and Rhina Ricci Lopez-Tolentino. The report was edited by Jill Gale de Villa; layout and typesetting were by Mike Cortes.

The Government of Bhutan provided support throughout this study in numerous capacities. In particular, we thank Secretary Lam Dorji, Ministry of Finance, and Governor Daw Tenzin, Royal Monetary Authority, for their insights and guidance at every step of the study. We are also grateful for the support and feedback received from Tenzin Chezang, G.B. Chettri, Pushpalal Chhetri, Ugyen Choden, Eden Dema, Pema Dechan Dorjee, Choitsho Eudel Dorji, Nim Dorji, Rinchen Dorji, Gopal Giri, Kunzang Lhamu, Karma Lhendup, Tshewang Norbu, Tashi Pelden, Jai Narayan Pradhan, Karma Rinzin, Sonam Tashi, Sonam Tenzin, Kencho Thinley, Yangchen Tshogyel, Tandin Wangchuk, Dechen Wangdi, Kinley Wangdi, and others whose names may have been inadvertently omitted here; and from numerous agencies, including the Ministry of Finance, Royal Monetary Authority of Bhutan, National Statistics Bureau, Gross National Happiness Commission, Ministry of Economic Affairs, Ministry of Labour and Human Resources, and Ministry of Agriculture and Forests. Finally, our thanks also go to the representatives of the think tanks, development partner representatives, the districts, civil society, and private sector representative organizations that participated in the workshops, for their support and interest in the study. We at ADB look forward to continued and productive dialogue with the Government of Bhutan in pursuing an agenda of inclusive growth and sustained development in Bhutan.



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Abbreviations and Acronyms

ADB	—	Asian Development Bank
APIC	—	Agency for Promotion of Indigenous Crafts
BBEIS	—	Bangladesh Bureau of Educational Information and Statistics
BCSEA	—	Bhutan Council of Secondary Education Assessment
BDFC	—	Bhutan Development Finance Corporation
BHU	—	basic health unit
BPO	—	business process outsourcing
CERD	—	Centre for Educational Research and Development
DOA	—	Department of Agriculture
DTMP	—	district transport master plan
ECB	—	external commercial borrowings
ESCAP	—	United Nations Economic and Social Commission for Asia and the Pacific
FAO	—	Food and Agriculture Organization
FDI	—	foreign direct investment
FY	—	fiscal year
FYP	—	five year plan
GDP	—	gross domestic product
GGLS	—	group guarantee lending scheme
GNHC	—	Gross National Happiness Commission
ICT	—	information and communications technology
IDI	—	ICT Development Index
IFC	—	International Finance Corporation
IMF	—	International Monetary Fund
IT	—	information technology
ITES	—	information technology-enabled services
JICA	—	Japan International Cooperation Agency
KPO	—	knowledge process outsourcing
MOAF	—	Ministry of Agriculture and Forests
MOE	—	Ministry of Education
MLHR	—	Ministry of Labour and Human Resources
MSMEs	—	micro, small, and medium enterprises
MWHS	—	Ministry of Works and Human Settlements
NSB	—	National Statistics Bureau
Nu	—	ngultrum
O&M	—	operation and maintenance
PPP	—	public–private partnership
PRC	—	People’s Republic of China

PwC	—	PricewaterhouseCoopers
REC	—	Royal Education Council
RICB	—	Royal Insurance Corporation of Bhutan
RMA	—	Royal Monetary Authority
RNR	—	Renewable Natural Resources
RSMP	—	Road Sector Master Plan
SIL	—	small individual loans
SITC	—	Standard International Trade Classification
TCB	—	Tourism Council of Bhutan
TTI	—	technical training institute
TVET	—	technical and vocational education and training
WDI	—	World Development Indicators
WHO	—	World Health Organization

Weights and Measures

GWh	—	gigawatt-hour
ha	—	hectare
kg	—	kilogram
km	—	kilometer
km ²	—	square kilometer
kV	—	kilovolt
kW	—	kilowatt
kWh	—	kilowatt-hour
m	—	meter
mm	—	millimeter
MVA	—	megavolt-ampere
MW	—	megawatt

Highlights

Bhutan, which is situated in the eastern Himalayas, is a small, mountainous, and landlocked country between the People's Republic of China and India. Despite challenging geography and limited connectivity to the global markets, Bhutan managed to transform itself from being a closed, pastoral, and subsistence economy into a rapidly growing low middle-income country by managing its natural resource endowment and unlocking its hydropower potential. Bhutan's development performance has been guided by its philosophy of gross national happiness—of striving to balance spiritual and material advancement toward total well-being through four pillars: sustainable and equitable economic growth and development, preservation and sustainable use of the environment, preservation and promotion of cultural heritage, and good governance. Thus, Bhutan's policymakers have been aiming to achieve harmony and balance in the economic development process.

Bhutan experienced strong economic growth during 2001–2011, with its economy growing at an annual average of 8.4%. This growth has allowed the government to support poverty reduction initiatives and advance social development. Investments in various social programs enabled the government to achieve several Millennium Development Goal targets earlier than scheduled. This, however, does not mean that poverty has been eradicated. Inequality remains a significant issue across urban and rural areas in regions and districts, and has even deteriorated across income groups.

Hydropower development, which started in the mid-1980s, and the subsequent export of surplus electricity to India, have largely sustained the growth. Bhutan's economic outlook remains favorable in the medium term, but heavy dependence on capital-intensive hydropower development has tied the country's source of growth to a sector that provides only limited employment opportunities. Reliance on electricity exports to India as the major source of foreign exchange has also left the economy vulnerable to swings in India's business cycles. Sectors not based on natural resources remain largely underdeveloped except, to some extent, tourism and other services activities such as transport, storage, and communications as well as finance, insurance, real estate, and business services. The private sector remains small and faces many hurdles to contributing to future economic growth.

For Bhutan to move beyond the low middle-income paradigm, which has been earned from natural resource endowments, to achieve higher and more stable growth that is inclusive, the country's economy

needs to be transformed. The economy needs to become broad-based with more diverse growth drivers so that it can generate more productive and decent employment opportunities. Bhutan faces multiple constraints to achieving these objectives. Key constraints include (1) inadequate and poor quality infrastructure, particularly in transport and connectivity, and especially in the rural areas; (2) narrow fiscal space, particularly in the medium to long term; (3) lack of access to finance by micro, small, and medium enterprises (MSMEs); (4) presence of market failures that limit product diversification and competition; and (5) limited and unequal access to quality education (particularly secondary, tertiary, and vocational education), and labor market mismatches.

The study identifies new drivers of growth that can help Bhutan exploit its comparative advantages and diversify its economy while maintaining high rates of growth. Removing the constraints identified above is also essential for developing new drivers of growth. While the current growth engines (hydropower, tourism, and agriculture) will likely sustain Bhutan's economic growth in the short to medium term, developing new growth drivers could offer opportunities to complement and support Bhutan's pursuit of a more balanced, inclusive, and sustainable growth and socioeconomic development. The possible new drivers of growth include information and communications technology (ICT) and clean manufacturing that will engage MSMEs. To find a balance between minimum environmental impact, commercial viability, and social impact, the following manufacturing industries have been identified as of high priority for developing a clean manufacturing sector: (1) handicrafts, (2) food processing, (3) manufacture of hydropower-related parts and maintenance, and (4) manufacture of ICT-related parts. The government recognizes the need to provide an environment conducive to encouraging more private sector investment, as an essential source of growth in the future. The Tenth Five Year Plan affirms this core strategy of vitalizing industry for poverty reduction, relying heavily on how the private sector performs and delivers, within the context of empowering MSMEs for industrial expansion and employment generation.

Some policy options that may help guide the course of Bhutan's future growth are described in the following text. Encouragingly, many of them are already part of the government's development agenda.

Providing Adequate and Good Quality Access Infrastructure

Bhutan's difficult terrain poses challenges to providing adequate infrastructure and key public services throughout the country. The limited availability of infrastructure, especially in transport and connectivity, has been a major hurdle to inclusive growth, hampering the access to economic opportunities.

Bhutan needs to develop, through a consultative process, an institutional framework that effectively consolidates the roles of and capacity for strategic planning, coordination, and monitoring without centralizing the implementation and maintenance responsibilities for infrastructure facilities and services. The framework is particularly needed in the transport sector where a comprehensive assessment of capacity building is required at all levels of government, with a particular focus on the capacity to plan, design, construct, and maintain road and related infrastructure. The Road Sector Master Plan 2007–2027 urgently needs to be expanded to cover investments in new and existing roads at the national and district levels, capacity and institution building, operation and maintenance, and regulatory related matters.

To enhance connectivity, Bhutan can benefit from fast-tracking the construction and/or improvement of the high priority road projects, such as the Thimphu–Phuentsholing Highway, the Thimphu–Trashigang Highway, southern segments of the East–West Highway, and the North–South Highway. Road maintenance can be sustained by supporting the communities in constructing and maintaining farm roads through (1) designing roads and related infrastructure that are technically sound and climate resilient, (2) building capacity for construction and maintenance, and (3) supporting investment on a cost-sharing basis.

Expanding and modernizing air transport facilities would help improve passenger services and safety standards. International links with other Asian hubs and regional centers can be explored through code-share agreements with other airlines and through bilateral air transport agreements with other regional destinations to serve the increasing tourist arrivals, business travelers, and cargo services between Paro and regional destinations.

Creating a Comfortable Fiscal Space

Bhutan's fiscal policy has been generally prudent, but more fiscal space is needed to meet the growing demand for infrastructure and social spending. Together with increased debt servicing, these spending programs have become major budget items for implementing the current five year plan.

On the expenditure side, the government needs to comprehensively review all expenditures, including capital and recurrent expenditures as well as subsidies, to ascertain how to improve its allocative and operational efficiencies. Implementing a medium-term expenditure framework to include a 3-year rolling budget can realistically link resource constraints to expenditure requirements and help improve resource allocation and predictability of spending. For transparency and accountability, Bhutan may wish to consider implementing an e-procurement system and a computerized accounting system that extends to the districts and lower levels of government.

On the revenue side, implementing the Revenue Administration Management Information System would facilitate e-filing of tax returns and online payment of taxes, and strengthen revenue mobilization. The government needs to review the tax structure and consider other tax measures, such as a uniform value-added tax, to enhance domestic revenue mobilization. Implementing some form of cost recovery for some government-provided services can also help fund government operations.

Enhancing Access to Finance, Particularly by MSMEs

Access to and cost of finance continues to be a critical constraint to private investment, especially for MSMEs. MSMEs' access to credit is limited by institutional and infrastructure shortfalls.

Strengthening the credit information system to include expanded coverage of the Credit Information Bureau will address the information asymmetry problems that hamper MSMEs' access to finance. Introducing credit risk guarantee facilities for MSMEs can reduce the cost of financing for both MSMEs and financial institutions and encourage them to do more business. In parallel, various forms of microfinance lending can be explored, including associations, community and village banking, and cooperatives, to broaden the reach of microcredit facilities. The use of ICT and innovative approaches such as mobile banking technology can help extend the reach of the banking sector. Development and use of electronic payment system infrastructure can also help improve the domestic payment system and promote private sector growth.

Better management of international reserves is necessary to facilitate international trade transactions. A comfortable level of reserves in the currency used in such transactions should be maintained. Bhutan could reasonably have about 30%–35% of its reserves in the Indian rupee, given the amount of transactions the country has with India. Other reforms that have been initiated in the areas of financial deregulation and liberalization, such as entry of foreign banks, should be continued to accelerate financial development and improve the efficiency of lending institutions.

Addressing Market Failures to Encourage Product Diversification and Competition

Bhutan's export basket can be characterized as relatively sophisticated but insufficiently diversified, concentrating in only a few core products, and thus providing little opportunity to expand productive capabilities to new product categories. Market failures may discourage investment in new economic activities because entering into new lines of business will require a new set of capabilities, which are costly to acquire.

Specific policy actions are needed to address the product- or industry-specific constraints. The policy actions and a new industrial policy framework need to be formulated through regular public-private policy dialogue. Then the framework needs to be made operational and capacity to implement it built in the relevant ministries and planning bodies. It is important to be able to identify sectors that present the greatest opportunity and value for diversification, identify products under these sectors as “good strategic bets,” and attract foreign direct investment to gain a foothold and develop the capabilities necessary for these products. The government could promote technology transfer as a centerpiece of foreign investment policy. Any concessions such as tax breaks, however, should come with clear performance indicators and sunset clauses.

Improving Access to Quality Education and Addressing Labor Market Mismatch

The government has been taking several measures to improve the quality of education through constructing new schools, expanding and upgrading existing ones, decentralizing education monitoring and support services, and upgrading the qualifications and competency of teachers. Bhutan has successfully achieved universal education, but access to education remains limited and unequal particularly at the secondary and tertiary levels, and the quality of education remains an issue. The skills level of Bhutan's labor force is low, particularly among poor and rural workers. Skills shortages and labor market mismatch constrain economic growth and development of the private sector.

Improving the quality of education should start with an evaluation of the curriculum and related reforms already implemented, to determine the gaps and areas that need to be strengthened or addressed. Teacher training and development programs as well as provision of appropriate incentives can help improve the competency of teachers, which plays a large part in improving the quality of education. Reducing the schools' burden of administrative tasks can also help teachers and administrators focus on the core task of teaching.

Technical and vocational education and training for poor households and women can be expanded by increasing the annual enrollment in the technical training institutes. This may be accomplished by providing scholarships and other financial incentives. Through improved values education, better remuneration, and enhanced service conditions, technical occupations should be promoted as a valued career choice. In strengthening and modernizing the country's tertiary level and technical and vocational education and training institutions, the government can use as benchmarks reputable learning institutions in the region and the world, and establish a polytechnic university to broaden the range of courses available.

A system to link job seekers with available employment opportunities and future skills requirements should also be put in place to address the skills mismatch.

Promoting New Drivers of Growth

Developing new growth drivers would enhance chances of achieving more balanced, sustainable, and inclusive growth. Removing constraints to private investments could be critical to the successful use of new growth drivers.

Through appropriate ICT education programs, the government could promote ICT as a new driver of growth. Such education programs could include development of software for knowledge process outsourcing activities. The government could encourage firms to contribute knowledge and teaching resources and provide internship opportunities for students. In partnership with business process outsourcing (BPO) firms, the government could implement an articulated training and education program that is tailored to the BPO firms' needs. To develop the BPO industry, support infrastructure is needed and government could consider licensing one or more international gateway operators for business services, such as for leased-line services, international call termination, and outgoing international traffic. The government could also establish an information center to serve as an anchor for developing e-government services.

In developing a clean manufacturing sector, the roles of and coordination among institutions created to help develop the MSME sector should be reviewed. New markets should be explored through participation in international trade fairs and partnerships with overseas retail chains and department stores. The government could engage in international research and development consortia and partnerships to effect transfer of knowledge and technology toward developing the local manufacturing industry. The enactment of an enterprise registration bill can be pursued, streamlining the registration and licensing procedures for enterprises, and issuing periodic monitoring reports on MSMEs.

Chapter 1

Development Performance

Bhutan, located in the eastern Himalayas, is a small landlocked country between the People's Republic of China (PRC) and India. Virtually the entire country is mountainous. The southern border with India is at an elevation of about 300 meters, and the northern border with the PRC reaches over 7,500 meters.

Despite challenging geography and limited connection to the global markets, the country managed to ignite and sustain strong economic growth by unlocking its hydropower potential. Thus, hydropower has been a major engine of growth in Bhutan. The country has an estimated hydropower potential of 30,000 megawatts (MW), of which 23,760 MW has been identified as technically feasible for development (GNHC 2009). However, the country has developed 1,488 MW thus far, harnessing only about 6% of its potential.

Bhutan achieved strong growth, with its real gross domestic product (GDP) growth averaging about 7.8% during 1981–2011 (Figure 1.1).¹ During the same period, the country's per capita GDP more than quintupled, from Nu13,078 in 1981 to Nu69,577 in 2011.

A series of the government's five-year plans (FYPs) have set out the priority programs to steer the Bhutanese economy to achieve this remarkable growth (Box 1.1). Bhutan is currently implementing

its Tenth FYP (2008–2013), which has poverty reduction as its overarching goal. The Tenth FYP aims to achieve sustainable poverty reduction through strengthening the investment climate and high economic growth. The overall poverty reduction strategy will include promoting broad-based growth for employment opportunities and boosting critical sectors such as agriculture, tourism, and rural enterprises. Focused measures on private sector development are intended to channel more resources and investments for sustainable and balanced growth, employment generation, and an increased living standard for rural households.

On the back of strong growth performance, Bhutan has made significant progress in poverty reduction and human development since the 1990s as the government invested in key economic and social infrastructure and services. The country's macroeconomic management has been prudent and, with strong revenues from hydroelectricity, the government's investments in social and human development allowed for the country's visible progress toward achieving Millennium Development Goals. Bhutan has also experienced some profound changes in its political systems since the first democratic elections held in 2007. In one decade, the country moved from an absolute monarchy to a constitutional monarchy and parliamentary democracy with the adoption of its Constitution in 2008.² During the democratic

¹ The spikes in real GDP growth rates in 1987–1988, 2007, and 2010 can be attributed to the construction and start of commercial operations of hydroelectric power plants.

² The move toward democracy began in 1998 when the country's fourth monarch, King Jigme Singye Wangchuck, by a royal decree, devolved his executive powers to a Council of Ministers elected by the representatives of the National Assembly.

Figure 1.1. Bhutan's Per Capita Real GDP (2000 Nu, left axis) and Real GDP Growth Rate (% , right axis), 1981–2011

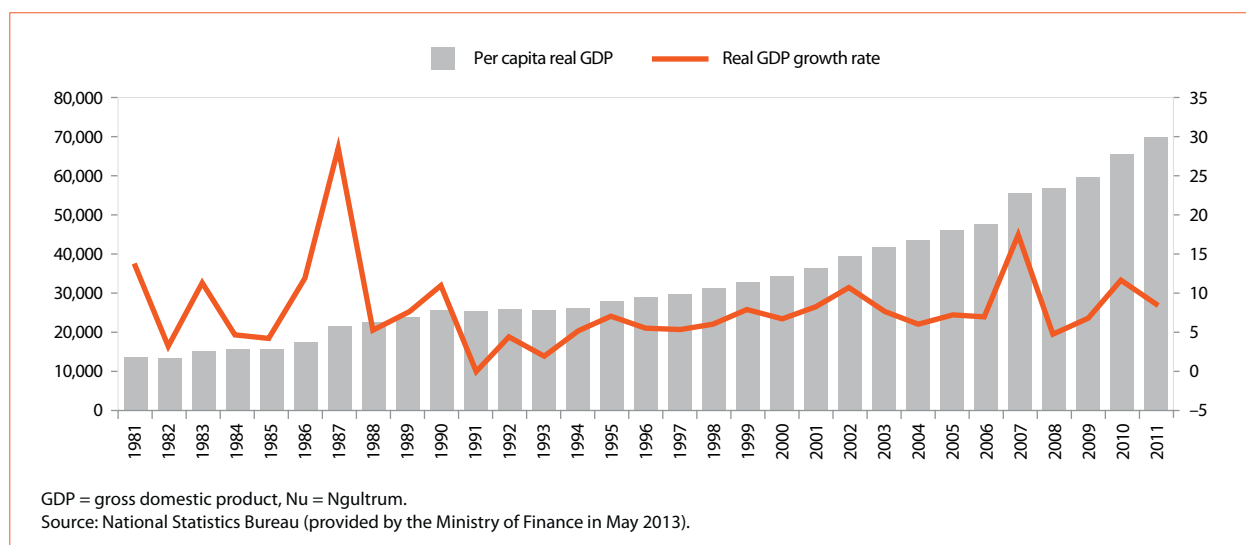


Table 1.1. Selected Socioeconomic Indicators of Bhutan

	1990	2000	2005	2010	2011
Real GDP (in 2000 Nu million)	12,150.68	19,735.78	28,879.35	45,397.51	49,260.51
GDP Growth Rate (%)	10.88	6.93	7.12	11.68	8.51
Population	484,732	580,330	634,982	696,000	708,000
Real GDP per Capita (in 2000 Nu)	25,066.78	34,007.86	45,480.59	65,226.31	69,576.99
GDP per Capita Growth Rate (%)	8.90	5.03	5.21	9.59	6.67
Poverty Incidence (%)	31.7 (2003)		23.2 (2007)		11.5 (2012)
Gini Coefficient	0.468 (2003)		0.350 (2007)		0.426 (2012)

GDP = gross domestic product, Nu = Ngultrum.

Note: Poverty incidence in this table is based on Bhutan's national poverty line. In the absence of a 2012 national poverty line as of this study, the 2007 poverty line was used to estimate the 2012 poverty incidence. Accordingly, 2012 prices were adjusted to 2007 prices for consistency. The Gini coefficient is the most commonly used measure of inequality. It varies between 0 (reflecting complete equality) and 1 (indicating complete inequality).

Source: Based on the Bhutan Living Standard Surveys (NSB 2007a, ADB and NSB 2013), and NSB data (provided by the Ministry of Finance in May 2013).

transition, the government subscribed to the principles of gross national happiness which underpins Bhutan's development objectives.³ Table 1.1 offers a brief summary of Bhutan's socioeconomic development during the last 2 decades.

³ The Government of Bhutan subscribes to the concept of gross national happiness and its four pillars: (1) promotion of sustainable and equitable socioeconomic development, (2) environmental conservation, (3) preservation and promotion of culture, and (4) establishment of good governance. These pillars are further articulated in the nine domains by which progress in Bhutan is now assessed: living standards, health, education, culture, ecological integrity, community vitality, time use, good governance, and psychological well-being.

1.1. The Bhutanese Economy

Bhutan has registered impressive growth for the last 3 decades, with annual growth rates averaging 10.2% in the 1980s, 5.1% in the 1990s, and 8.5% in the 2000s. Bhutan's per capita real GDP growth rate, which averaged 5.9% in the same 3 decades, also compares favorably with that of other South Asian economies (Figure 1.2). From a high of 7.1% in the 1980s, Bhutan's rate dipped to 4.7% in the 1990s. After 2000, the country recovered and registered a 5.9% average per capita real growth, making it the fastest growing economy in the region.

Box 1.1. Bhutan's Five-Year Plans

Steering Bhutan into remarkable growth through the years has been its series of five-year plans (FYPs). These FYPs, the first of which was implemented in 1961, give a glimpse into the high priority programs of the Government of Bhutan.

The first three FYPs (spanning 1961–1976) provided the foundation for economic development and growth by investing in economic and social infrastructure. Major efforts were focused on expanding the road network, establishing education and health infrastructure, and increasing agricultural production. The Fourth FYP (1976–1981) furthered government attention to education; forestry; and public works, which included roads and water supply. The Fifth FYP (1981–1987) identified hydropower development as a major source of revenue and driver of growth. With strengthening internal revenue generation and achieving self-reliance objectives, the government prioritized revenue generating activities in industries, forests, tourism, and power. The Sixth FYP (1987–1992) stressed the government's special concern for the rural populace through high priority programs such as rural housing, resettlement, enhancement of rural incomes, and a widespread distribution of public services and utilities. While agriculture had the highest share in the plan budget, power and trade and industry received higher shares than they had in the Fifth FYP. The Sixth FYP retained a high priority on self-reliance objectives, and renewed the commitment to human resource development and domestic resource mobilization.

The Seventh FYP (1992–1996) emphasized further the goal of self-sufficiency. The government undertook initiatives that were based on the principles of sustainability, efficiency and development of the private sector, people's participation and decentralization, human resource development, and regionally balanced development. Social services, communications, and agriculture took more than 50% of the plan budget. During this period, the government privatized many resource mobilization and service industries and corporatized agencies involved in airlines, post, financial institutions, and municipalities; established technical assistance programs for the private sector; simplified the rules and regulations for imports and exports; and liberalized the licensing system to encourage and promote free enterprise.

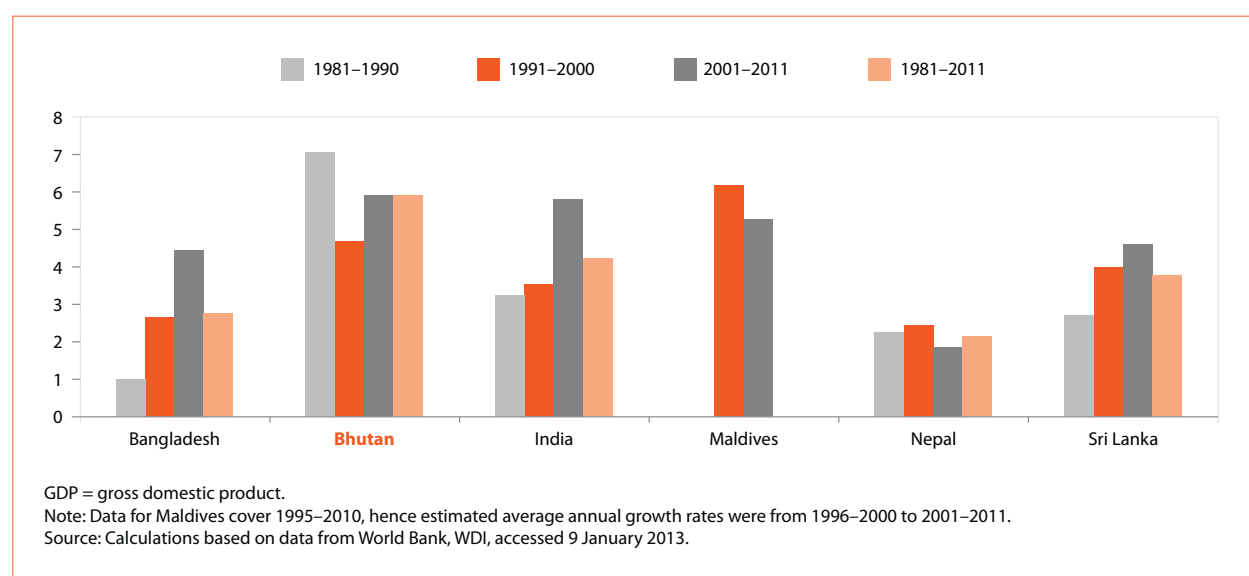
The Eighth FYP (1997–2002) was again anchored on the goal of self-reliance that largely depended on continued progress being made in human resource development and the application of technology suited to Bhutan's development needs. In this plan, "gross national happiness" was first mentioned in the context of human development. The Eighth FYP basically followed through on the framework of the Seventh FYP, with national security and preservation and promotion of cultural and traditional values as added principles. Power, social services, and roads were accorded almost 40% of the Eighth FYP budget.

To provide a long-term vision for development, the government formulated and released *Bhutan 2020: A Vision for Peace, Prosperity, and Happiness*, which sets out the national goals, broad targets, and overall policy principles for the 20 years following its release in 2000. The concept of gross national happiness was again emphasized and translated into the following objectives: human development, preservation of culture and heritage, balanced and equitable development, improved governance, and environmental conservation.

To further realize the concept of gross national happiness, the government prepared the 2004 National Poverty Reduction Strategy, which supported the Ninth FYP (2002–2007). This plan sought to (1) improve the quality of life and income, especially for the poor, by implementing rural access programs; (2) promote private sector growth; (3) strengthen governance and increase domestic revenues; (4) promote culture and environmental conservation; and (5) achieve rapid growth and transformation. Fiscal decentralization and devolution of some public services and decision-making powers to the local level were key strategies of the Ninth FYP. Policies were geared toward a liberalized and globalized economy with an enhanced participation of private sector.

The Tenth FYP (2008–2013) reaffirms the gross national happiness concept. It has poverty reduction as its overarching goal, targeting to reduce the poverty headcount rate from 23.2% in 2007 to 15.0% by 2013. The plan targets annual growth rates above 8% and emphasizes the need to (1) vitalize the economy through increased investments in hydropower, tourism, manufacturing, and information and communications technology; (2) balance regional development and manage the rapid pace of urbanization; (3) address the root causes of rural poverty; (4) invest in human capital; and (5) ensure good governance. The root causes of poverty are seen as remoteness of many populations, marginal landholdings, and lack of commercial orientation of agricultural production. These are to be redressed through rural connectivity projects, distribution of royal land to landless people, and greater commercialization of agricultural production. The government is also seeking to create employment opportunities outside of the hydropower sector for an additional 75,000 people during the Tenth FYP period.

Source: Authors.

Figure 1.2. Average Annual Growth Rate of Per Capita Real GDP, 1981–2011 (%)

Although Bhutan was not hit directly by the global financial crisis of 2008, the slowing of neighboring economies impacted Bhutan through reduced tourism receipts⁴ and the electricity sector experienced a negative growth of 2.4% in 2009 (NSB 2011b).⁵ The steel and ferro-silicon industries were also hit. The real GDP growth rate declined to 4.7% and 6.7% in 2008 and 2009, respectively. The growth, however, rebounded to 11.8% in 2010, when construction of the Punatsangchhu hydropower project started. Real GDP grew 5.6% in 2011.⁶

1.1.1. Growth by Source of Production

Bhutan continues to transform into a modern economy, with the industry and services sectors growing more rapidly than the agriculture sector. Agriculture had dominated Bhutan's output up until 1995. The development of hydro resources enabled industry to overtake agriculture's share in the economy's output. With the continued development of hydropower projects, industry's share of GDP jumped from 12% in 1981 to 44% in 2011. Industry's share rose sharply in 1987 and in 2007, reflecting the government drive for hydropower development

and related construction activities. Similarly, the expanded provision of public services and utilities in 1986–1990, the development of infrastructure (particularly in the 1990s), and the surge in tourism activities in 1992 and in the 2000s propelled the growth of the services sector. From 1981 to 2011, the services sector increased its share of GDP from 30% to 42% while agriculture's share declined from 58% to 14% (Figure 1.3).

Industry. Table 1.2 (pp. 6–7) shows that the industry sector grew the fastest, at average annual rates of 28%, 8%, and 11% in the 1980s, 1990s, and 2000s, respectively. Thus, industry has contributed more than 40% annually to GDP growth in the last 3 decades (and more than 50% in the 2000s), increasing its share of GDP from 20% in the 1980s to 42% in the 2000s. The sector's leap has largely transformed the economic landscape in Bhutan from an agriculture-based economy to one that is industry-led.

The Chhukha Hydropower Project, Bhutan's first mega power project, was commissioned for commercial operation in 1986.⁷ Since then, industry has steadily increased its GDP share. The government continued to pursue the development of hydropower in 2007, and industry has emerged as

⁴ Based on data from RMA (2012a) *Annual Report 2010–2011*, tourism receipts decreased from 4.4% of GDP in 2008 to 3.8% in 2009, and 3.5% in 2010.

⁵ According to RMA (2012a), total sales of major hydropower plants decreased by 7.5% in 2009.

⁶ Estimates based on data from World Bank, WDI, accessed January 2013.

⁷ "Commissioning" of a power plant generally signals start of its commercial operation. Commissioning involves testing and verifying power plant operations against the plant's intended rated capacity and other design specifications.

Figure 1.3. Sector Shares of GDP, 1981–2011 (%)

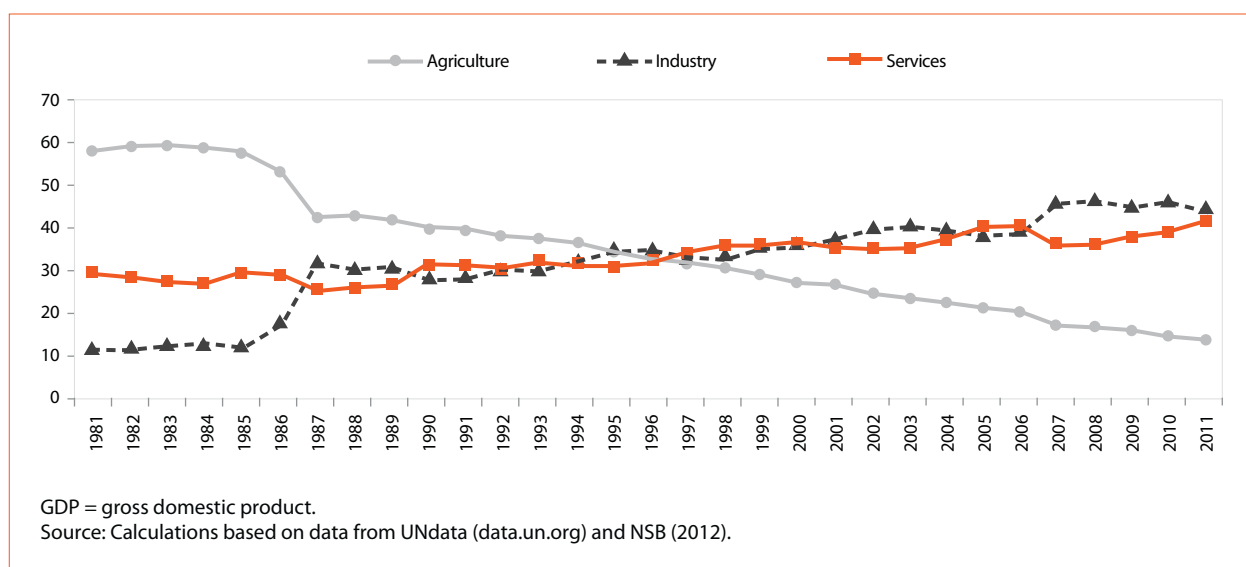
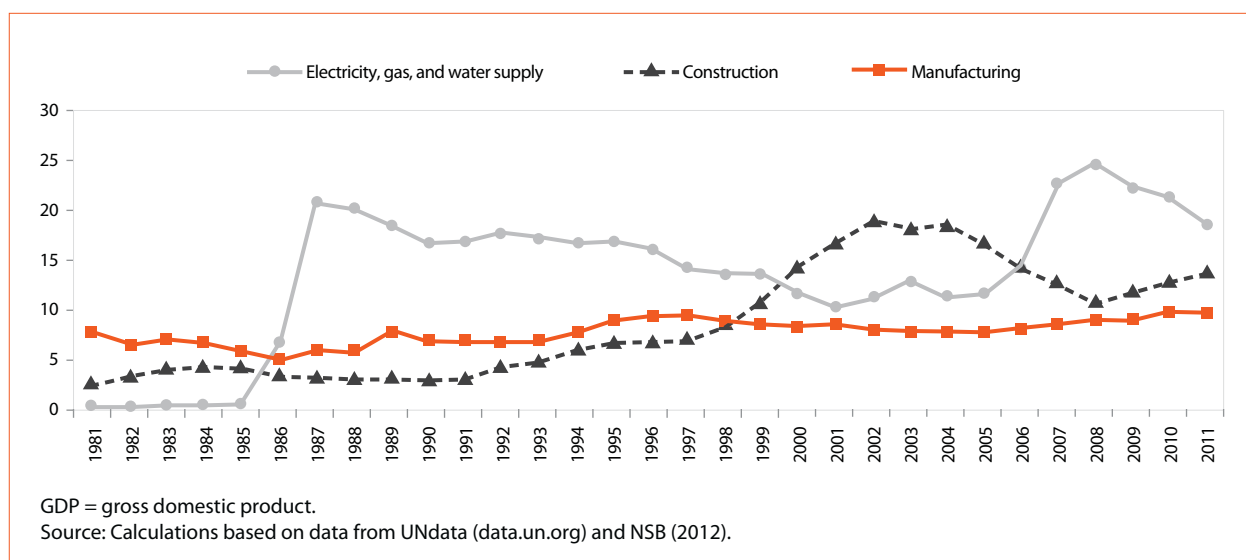


Figure 1.4. Industry's Shares of GDP, 1981–2011 (%)



a more dominant player than services. As the major growth driver, the hydropower sector constitutes about 20% of Bhutan's economy, and growth in electricity production and related construction accounted for about one-third of GDP growth in 2010 (IMF 2011).

Within the industry sector, the electricity, gas, and water supply subsector was a top contributor to GDP in the 1980s and the 2000s. The subsector registered a high growth rate of 63.5% and contributed 27.0 % to GDP growth in 1981–1990, as the Chhukha hydroelectric power plant was

commissioned for commercial operation in 1986.⁸ The subsector again registered a high growth rate, at 13.3% in 2001–2011, accounting for 16.6% of GDP and contributing 23.8% to GDP growth. The full commercial operation of the Tala hydropower project in 2007 contributed to the subsector's growth in real terms of 86.9% that year. Indeed,

⁸ The commissioning of Chhukha hydroelectric power plant in 1986 contributed to the electricity subsector's growth of more than 1,500%, resulting in the subsector's share of 7% in GDP that year (from a low of 0.5% of GDP in the previous year). In 1987, the subsector grew by 396%, increasing its share of GDP to 21%. Since then, its share of GDP has not gone below 10%.

Table 1.2. GDP by Sector and Sectoral Contribution to GDP Growth

Sectors	Amount (Nu million, constant 2000 prices)												
	1981	1985	1990	1995	2000	2003	2005	2006	2007	2008	2009	2010	2011
Agriculture	2,917	3,610	4,735	4,834	5,289	5,854	6,043	6,196	6,246	6,291	6,458	6,478	6,578
Industry	586	760	3,301	4,880	6,950	10,031	10,621	11,560	16,263	17,249	17,871	20,115	20,931
Mining and Quarrying	44	98	124	281	315	402	447	531	650	780	726	788	979
Manufacturing	393	371	826	1,258	1,619	1,967	2,214	2,469	3,087	3,349	3,580	4,302	4,616
Electricity, Gas, and Water Supply	16	31	1,983	2,394	2,255	3,213	3,259	4,312	8,061	9,110	8,893	9,389	8,872
Construction	134	260	368	948	2,761	4,449	4,701	4,248	4,466	4,010	4,672	5,635	6,464
Services	1,489	1,835	3,721	4,323	7,072	8,786	11,176	12,087	12,820	13,420	15,200	17,045	19,638
Wholesale and Retail Trade	432	398	424	497	882	1,378	1,878	1,901	1,976	1,993	2,116	2,540	3,028
Hotel and Restaurant	11	17	19	70	88	129	186	246	264	384	335	348	491
Transport, Storage, and Communications	258	386	796	1,184	1,800	2,007	2,661	2,857	3,083	3,247	3,547	3,942	4,790
Financial Intermediation	63	105	205	336	761	1,080	1,846	2,285	2,505	2,645	2,824	3,109	3,912
Real Estate	133	228	331	416	631	691	708	720	772	783	814	832	894
Business Services	0	0	0	0	0	0	0	0	5	20	24	32	35
Public Administration	0	0	0	0	1,779	2,412	2,618	2,574	2,561	2,640	3,179	3,602	3,485
Community, Social, and Personal Services	592	702	1,945	1,820	1,035	975	1,134	1,338	1,476	1,521	2,171	2,445	2,794
Other Services	0	0	0	0	96	114	144	166	178	187	191	195	210
GDP	4,992	6,205	11,756	14,037	19,312	24,671	27,840	29,843	35,330	36,960	39,530	43,638	47,148

– = data not available, GDP = gross domestic product, Nu = ngultrum.
Source: Estimates based on data of UNdata (data.un.org) and NSB (2012).

the subsector has claimed the largest share of GDP among the industry subsectors since 2007, with an annual average of 22.1% for 2007–2011 (Figure 1.4, p. 5).

Bhutan's hydropower generation capacity is projected to rise further, for example with the planned Dagachu hydropower project adding 126 MW by 2014. The government's Tenth FYP also emphasized further development of hydropower resources for export as a core part of Bhutan's economic development strategy (Box 1.1). The government plans to increase the sector's contribution to GDP from 17.6% in 2010 to over

30% by 2013, and to add 10,000 MW capacity by 2020. Hydropower development and construction will likely remain the fastest growing sectors of the economy in the foreseeable time horizon.

The construction subsector, on the other hand, grew rapidly in the 1990s, at 22.3%, contributing about 32% to GDP growth during that period. Construction then grew moderately during 2001–2011, at 8.0% annually. Still, it registered an average share of 15.0% in GDP in the same period, the second highest in the industry sector and third across all subsectors, as it contributed about 13% to GDP growth during that period. But growth

Average Annual Growth (%)			Average Annual Share in GDP (%)			Average Annual Contribution to GDP Growth (%)		
1981–1990	1991–2000	2001–2011	1981–1990	1991–2000	2001–2011	1981–1990	1991–2000	2001–2011
5.54	1.11	2.00	51.76	34.02	20.07	27.05	7.34	4.63
27.79	7.73	10.54	20.03	32.77	42.08	41.35	48.31	50.22
16.90	9.78	10.86	1.34	1.78	1.79	1.34	2.53	2.38
17.83	6.96	9.99	6.61	8.20	8.68	9.13	10.50	10.77
63.53	1.30	13.26	8.59	15.57	16.60	26.98	3.61	23.77
15.98	22.32	8.04	3.49	7.23	15.01	3.90	31.68	13.30
10.14	6.63	9.73	28.20	33.21	37.86	31.60	44.35	45.14
1.06	7.59	11.86	5.83	3.95	5.81	0.58	6.06	7.71
6.75	16.38	16.90	0.21	0.43	0.74	0.13	0.91	1.45
13.50	8.50	9.31	5.75	8.76	9.08	7.83	13.29	10.74
16.63	14.03	16.05	1.62	2.62	6.22	2.20	7.36	11.32
9.31	6.65	3.22	3.03	2.95	2.35	2.68	3.97	0.94
–	–	–	–	–	0.02	0.00	0.00	0.13
–	–	6.30	–	0.92	8.60	0.00	23.55	6.13
12.12	(6.12)	9.45	11.77	13.53	4.54	18.17	-12.05	6.32
–	–	7.33	–	0.05	0.49	0.00	1.27	0.41
10.17	5.09	8.45	100.00	100.00	100.00	100.00	100.00	100.00

of construction had been erratic in 2001–2011—peaking in 2001 and 2002. It grew more than 25% in those 2 years (with the continuing construction of the Tala hydropower plant),⁹ slowed in the following year, and then contracted for 3 years (2005, 2006, 2008). The subsector then rebounded strongly, growing by 16.5% in 2009, 20.6% in 2010 and 14.7% in 2011. High growth in 2009–2011 was mainly due to construction activities of mega hydropower projects such as the 1,200 MW Punatsangchhu I, the

1,020 MW Punatsangchhu II in Wangdue Phodrang, and the 720 MW Mangdechhu in Trongsa.¹⁰ This growth momentum is expected to continue and drive the overall growth of the economy for the next few years. Together, electricity and construction subsectors accounted for almost 34% of GDP in 2007–2011.

The steady growth of the manufacturing subsector during 2005–2011 also contributed

⁹ The construction subsector grew by 27%, 41%, and 40% in 1998, 1999, and 2000, respectively, coinciding with the construction of Tala hydropower plant.

¹⁰ NSB. Statistical Yearbooks of Bhutan for 2010 and 2011.

to industry's large share of GDP. During the last decade, it contributed 11% to GDP growth and accounted for an almost 9% share of GDP. However, growth in this sector was rather narrowly based in the cement, chemicals, food, wood-based, and metals industries.¹¹

Services. The services sector also exhibited strong performance in the last 3 decades. Services made a substantial contribution to GDP growth, especially in the 1990s, during which it contributed 44% to GDP growth. Services grew at annual rates of 10%, 7%, and 10% in the 1980s, 1990s, and 2000s, respectively, thereby increasing its share in GDP from 28% in the 1980s to almost 38% in the 2000s (Table 1.2).

Tourism helped spur the development of the services sector, including hotels, restaurants, transport, and communications, particularly after the tourism industry was privatized in 1991 (Dorj 2001).¹² While Bhutan pursued a high-value, low-impact approach to tourism, the number of tourists increased from 2,106 (resulting in \$2.3 million in tourism revenues) in 1991, to 27,196 (providing \$35.0 million tourism revenues) in 2010.¹³ This also promoted related developments in telecommunications and transport.¹⁴ Thus, the transport and communications subsector contributed 13% to GDP growth in the 1990s, and about 11% in the 2000s.

¹¹ NSB. Statistical Yearbook of Bhutan 2011.

¹² The government has adopted a policy of "high-value–low-volume/impact" tourism since the 1970s. The Bhutan Tourism Corporation, which organized the tours and operated the transport services and nearly all the accommodation facilities. Prior to that, all tourists were considered as guests of the Bhutan Tourism Corporation, which organized the tours and operated the transport services, and nearly all the accommodation facilities.

¹³ Calculations based on data from Dorji (2001) and NSB (2010).

¹⁴ Bhutan's first satellite international link was established in 1990 with the installation of the Earth satellite station and an international gateway switch in Thimphu. By March 1999, all 20 district headquarters had access to telecommunications services. Bhutan Post increased its types of services to include international express mail, domestic express mail, fax mail, fax money order, post overnight courier, and the Bhutan Post Express Passengers services. Currently, there are 125 postal services, each catering to 5,175 Bhutanese people on average. The country established the first television network and started Internet Services in June 1999. Paro International Airport was inaugurated in April 1999. Progress continued in the 2000s with the launch of cellular mobile (B Mobile) services in November 2003. The Bhutan Telecom Authority has now connected all 20 districts (*dzhongkhags*) by cellular services (NSB. Statistical Yearbook of Bhutan 2007).

The community, social, and personal services category¹⁵ is also a major contributor to the services sector, increasing in real terms by 43% in 2009 then slowing to 14% in 2011, with social services being viewed with importance in the last decade. Due to increased expenditure on compensation of employees and other related allowances, public administration grew by 17% on average in 2009 and 2010. Together, these two subsectors grew by about 8%, contributing about 12% to GDP growth and resulting in a share of about 13% of GDP in 2001–2011.

Agriculture. Meanwhile, agriculture's contribution to growth declined considerably, from about 27% in the 1980s to about 5% in the 2000s. In the 1980s, agriculture accounted for more than half of the country's GDP, at 52%. But both industry and services outperformed agriculture during the last 2 decades. Growth in agriculture decelerated from 6% in the 1980s to 1% in the 1990s and 2% in the 2000s. Agriculture's share in GDP has declined from 52% in the 1980s to 20% in the 2000s (Table 1.2). Nevertheless, agriculture will continue to be an important source of production for Bhutan, largely dominated by crops, followed by livestock.

Compared with other South Asian economies, Bhutan's current sectoral composition of GDP is unique. While the other economies in the South Asian region were dominated by the services sector in 2001–2011, industry was Bhutan's largest sector (dominated by hydropower and construction) in terms of its share in GDP, at 42% (Figure 1.5). And the manufacturing subsector accounts for only over a fifth of Bhutan's industry sector, the lowest in the region, while in Bangladesh, India, and Sri Lanka, manufacturing accounts for more than 50% of the industry sector.

1.1.2. Growth by Expenditure Components

Figure 1.6 shows the transformation of the Bhutanese economy on the expenditure side. The share of household consumption in total GDP decreased from almost 75% in 1981 to 43% in 2011 as the other expenditure components, particularly gross capital formation and government spending, grew faster. Construction activities related to

¹⁵ These include social security, education, health, and environmental protection services.

Figure 1.5. Average Shares of Major Production Sectors in GDP, 2001–2011 (%)

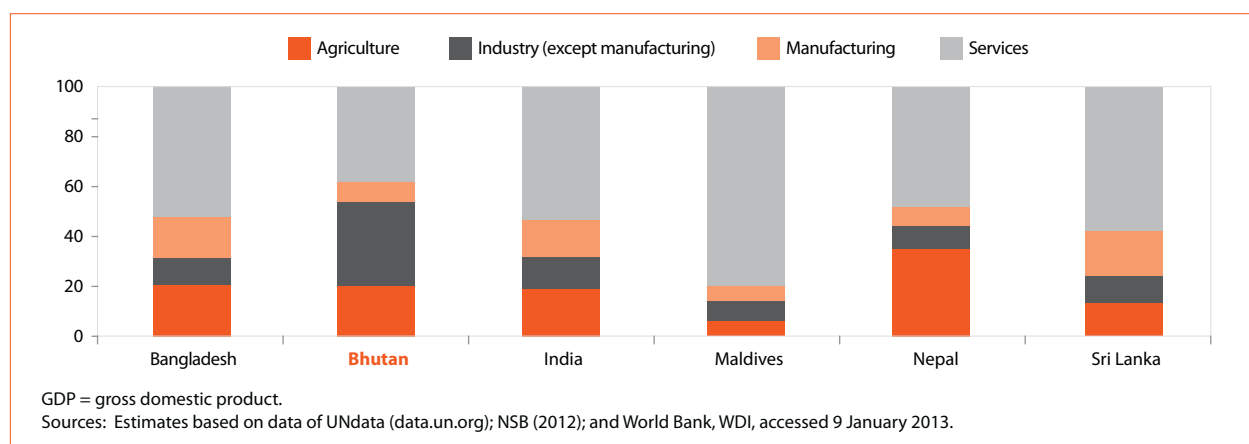
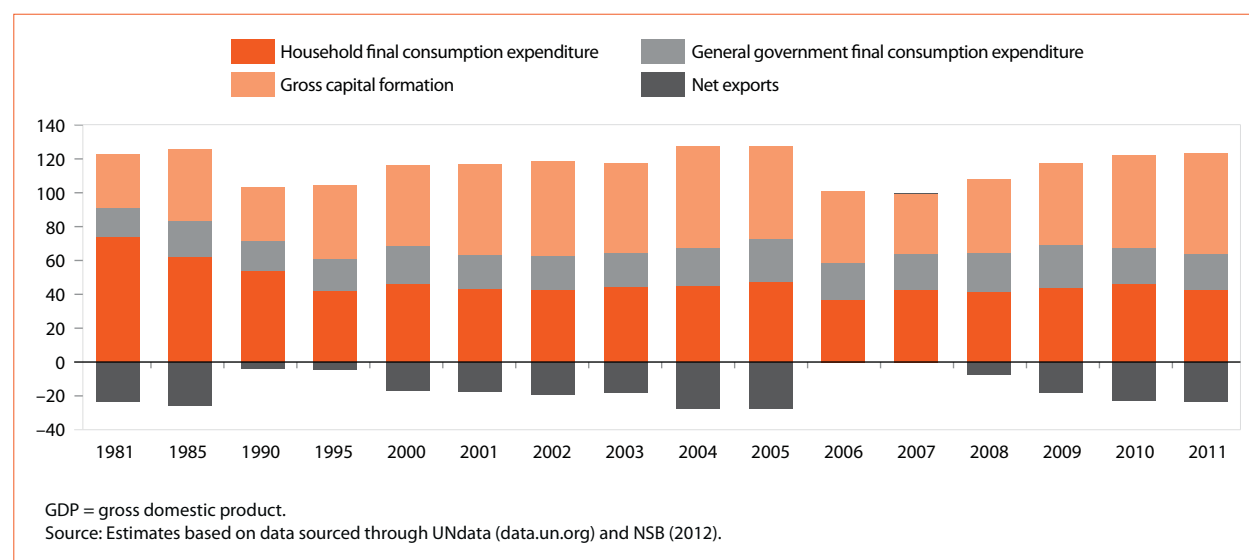


Figure 1.6. GDP by Expenditure Component, 1981–2011 (%)



hydropower development contributed to rapid growth in investment in the 1980s and 1990s, increasing the share of investment in GDP over time. The share of government spending in GDP also increased steadily, from 17% in 1981 to 21% in 2011. With persistent trade deficits, net exports continue to contribute negatively to GDP growth.

Household Consumption. Domestic household consumption registered a strong growth of 7.0% in the 2000s following moderate expansions of 4.8% in the 1980s and 3.5% in the 1990s. With its dominant share in GDP, the growth of household consumption contributed 41%, 44%, and 38% to GDP growth in the 1980s, the 1990s, and the 2000s, respectively (Table 1.3). Table 1.4 further illustrates

that household expenditure on services increased,¹⁶ reflecting a better quality of life associated with higher income, while their consumption on nondurable and durable goods declined modestly. Bhutanese households still spend a relatively large share of their consumption (46% of total household consumption during 2001–2011) on nondurable goods such as food and nonalcoholic beverages; clothing and footwear; and alcoholic beverages, tobacco, and narcotics. Expenditure on durable goods (housing, water, electricity, gas, and other fuels; and furnishings, household equipment, and routine home maintenance) comprises about 31% of total household consumption.

¹⁶ Services include transport, restaurants and hotels, health, communications, education, and recreation and culture.

Table 1.3. Average Shares of Expenditure Components in GDP and their Contribution to GDP Growth (%)

Period	Consumption			Government			Investment			Net Exports			
	Ave. Growth Rate	Share of GDP	Cont. to GDP Growth	Ave. Growth Rate	Share of GDP	Cont. to GDP Growth	Ave. Growth Rate	Share of GDP	Cont. to GDP Growth	Exports Growth Rate	Imports Growth Rate	Share of GDP	Cont. to GDP Growth
1981–1990	4.8	65.2	40.7	5.2	16.6	13.9	8.2	35.8	35.0	18.4	8.4	-17.6	10.4
1991–2000	3.5	54.5	44.3	7.3	19.9	35.5	9.3	41.0	90.6	5.2	10.3	-15.4	-70.4
2001–2011	7.0	43.6	37.9	7.5	22.0	19.2	10.0	50.8	64.3	11.9	10.1	-16.3	-21.4

Ave. = average, Cont. = contribution, GDP = gross domestic product.

Source: Estimates based on Bhutan's data from UNdata (data.un.org) and NSB (2012).

Table 1.4. Share of Goods and Services in Total Household Consumption, 2001–2011

Type	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Ave.
Non-Durable Goods	53.3	49.1	44.3	43.5	43.7	43.6	44.6	45.3	45.3	45.3	45.3	45.7
Durable Goods	31.4	31.8	31.5	32.1	32.3	32.5	29.5	29.9	29.9	29.9	29.9	31.0
Services	8.3	10.9	14.9	15.0	14.6	14.4	18.2	17.3	17.3	17.3	17.3	15.1
Miscellaneous	7.0	8.1	9.3	9.4	9.4	9.4	7.7	7.5	7.5	7.5	7.5	8.2

Source: Estimates based on data from UNdata (data.un.org) and NSB (2012).

Table 1.5. Government Expenditures by Function, 2008–2011 (% of total)

Sectors	Current Expenditure				Capital Expenditure			
	2008	2009	2010	2011	2008	2009	2010	2011
Social Services	30.2	32.5	35.0	35.3	16.2	19.7	19.3	20.6
Health	9.9	10.2	10.6	10.5	6.9	8.1	6.1	5.0
Education	20.3	22.3	24.4	24.8	9.3	11.6	13.2	15.6
Economic Services	17.1	16.4	16.8	16.4	33.5	37.3	50.5	52.8
Agriculture	10.4	10.3	10.7	10.2	7.1	11.5	13.3	15.9
Mining, manufacturing, and industries	1.3	1.0	1.1	1.2	0.6	0.7	0.5	0.4
Transport and communications	3.5	3.1	3.1	3.0	20.5	17.4	28.7	22.9
Energy	0.4	0.4	0.4	0.4	4.1	6.0	6.0	10.6
Other economic services	1.5	1.6	1.5	1.7	1.2	1.8	2.1	3.0
Public Order and Safety Services	6.7	7.4	6.8	7.7	0.8	3.3	3.3	3.3
Religion and Culture Services	3.3	4.5	4.0	3.7	2.3	2.8	3.4	4.3
Housing and Public Amenities	2.5	2.7	2.6	2.1	6.1	6.1	6.6	5.2
General Public Services	40.2	36.5	34.8	34.8	41.1	30.9	16.8	13.8
General public service	22.5	20.8	17.4	18.6	23.6	30.9	12.0	9.8
National debt services	17.7	15.7	17.4	16.3	17.2	-	4.7	4.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: In terms of government capital expenditures (which contribute to the investment component of GDP), about 40% went to economic services in 2008–2010, more than 50% of which went to transport and communications services. These capital expenditures only account for government budget outlay; thus, the construction activities for hydropower projects that are mostly financed by India are not accounted for in Table 1.5 as they are considered off-budget.

Sources: Ministry of Finance (various years).

Government Consumption. The growth of government consumption has been accelerating through the last 3 decades, increasing its share in GDP from 17% in the 1980s to 22% in the 2000s. Government consumption contributed 14%, 36%, and 20% to GDP growth, respectively, in the same

periods (Table 1.3). The share of government spending on social services (health and education) has increased steadily, accounting for more than one-third of total government consumption in 2011 and demonstrating the government priority accorded to human development (Table 1.5).

Figure 1.7. Bhutan's Electricity Exports, 2005–2010 (\$ million)

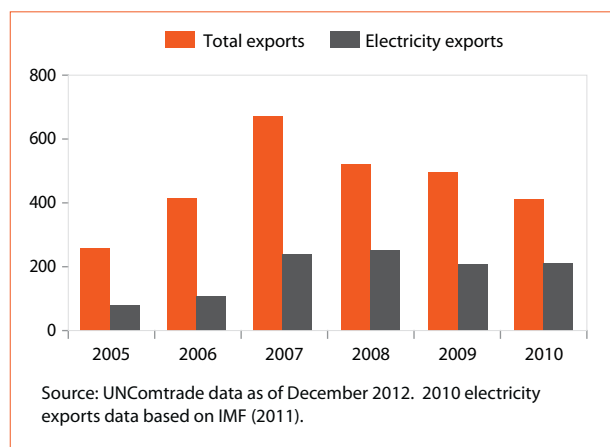
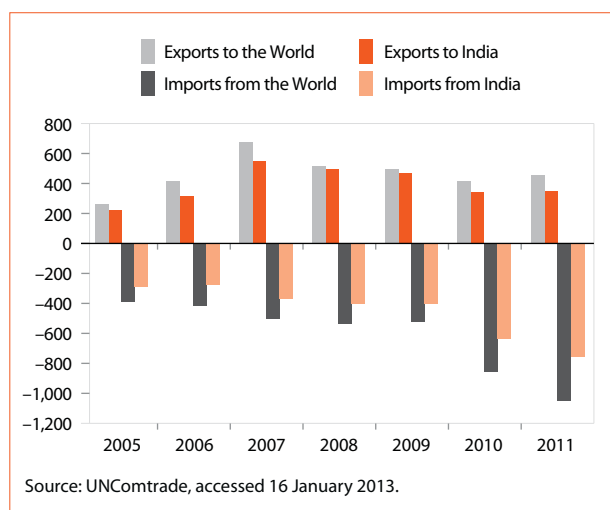


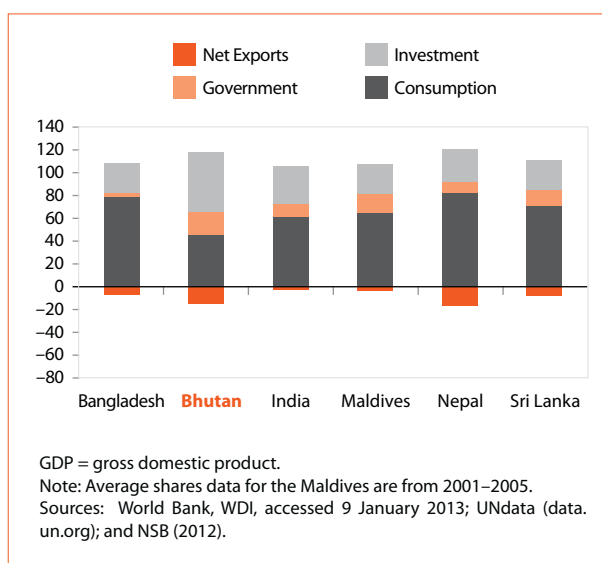
Figure 1.8. Bhutan's Exports and Imports, 2005–2011 (\$ million)



Investment. Investment exhibited strong growth through the decades, buoyed by construction activities particularly for hydropower projects. Investment contributed 35% to GDP growth in the 1980s, 91% in the 1990s, and 64% in the 2000s, thus increasing its share in GDP from 36% in the 1980s to 51% in the 2000s (Table 1.3).

Net Exports. Through negative growth, net exports continue to subtract from GDP on the expenditure side. The development of hydropower projects starting in the 1980s boosted hydropower exports to India—for example, with an export surge in 1987 following the commercial operation of Chhukha hydroelectric power plant in 1986. Exports increased over time, driven by exports of hydropower and metal products, but imports have been rising as well, driven by increased investment

Figure 1.9. Average Shares of Major Expenditure Components in GDP, 2001–2011 (%)



in equipment and capital as well as infrastructure. Total imports of goods are largely dominated by four main groups of products: (1) machinery and transport equipment, which includes machinery for excavation and construction and maintenance of hydropower plants, with an annual average share of 29% of total imports; (2) manufactured goods (primarily iron and steel and textile products), with a share of 24% per annum; (3) mineral fuels, lubricants, and related materials, with share of 16% yearly; and (4) rice, which dominated the food groups with an annual average share of 10% of total imports per annum.¹⁷ Conversely, hydropower has become the most important export, accounting for 39.2% of total exports in 2005–2010 (Figure 1.7). Apart from concentration on hydro exports, trade has been mainly with India. In 2005–2011, more than four-fifths of total exports went to India, and more than three-fifths of imports came from India (Figure 1.8).

The expenditure pattern of the Bhutanese economy exhibits distinctive features (Figure 1.9). Among Southeast Asian economies, Bhutan has the lowest share of private consumption in GDP, while the shares of government consumption and investment in GDP are the highest. This reflects the rapid industrialization of the Bhutanese economy, driven mainly by investment in hydropower development and government support for social

¹⁷ Based on 2005–2011 data from UN Comtrade, accessed 16 January 2013.

infrastructure. Net exports are negative in all South Asian economies, with Bhutan having the second largest trade deficit after Nepal.

1.2. Trends in Poverty and Inequality

Bhutan has made impressive progress in poverty reduction and welfare improvement on the back of strong economic growth and the government efforts to boost rural development and build social infrastructure. The Sixth FYP (1987–1992) prioritized projects for the rural populace and the Seventh (1992–1996) and Eighth (1997–2002) FYPs focused on developing human resources through investing in social infrastructure, including hospitals, schools, administrative buildings, and sewage facilities (as well as roads and power substations).¹⁸ In the 2000s, the government incorporated the concept of gross national happiness in the subsequent FYPs and the national poverty reduction strategy, which emphasizes socioeconomic development, preservation of culture and the environment, and good governance.

The poverty incidence fell from 26% in 2003 to 10% in 2007 using the \$1.25-a-day poverty line reference. This double-digit decline is also observed in the \$2-a-day poverty line. Bhutan's poverty reduction rate from 2003 to 2007 was the highest in South Asia, and its poverty incidence was the second lowest (Table 1.6).

Estimates using the national poverty line show a more modest decline relative to the figures estimated using \$1.25- and \$2-a-day poverty lines.¹⁹ Poverty incidence decreased by about 12 percentage points between 2007 and 2012, or an annual average decline of at least 2 percentage points. The rate of poverty reduction even breached the government's target under the Tenth FYP. This is significant and comparable to the recent performance of other

developing countries in Asia, such as the PRC and Viet Nam.²⁰

Although a downward trend is clear in the aggregate estimates, subnational estimates either across spatial boundaries or between socioeconomic subgroups show a varied picture. Figure 1.10 reports the poverty incidence for urban and rural areas separately. In the absolute number of the poor, the rural area had a larger reduction given the high initial levels. The majority of the poor in Bhutan (about 97% in 2012) are in the rural area. Similarly, the percentage of poverty reduction was much greater in the rural area (the decline was about 48%) than in the urban area (about 29%) from 2007 to 2012.

The poverty estimates at the geographical or communal level exhibit similar trends (Figures 1.10 and 1.11). While poverty declined in both urban and rural areas between 2007 and 2012, the reduction rate was greater in rural areas than urban areas in all regions but the central region, where the poverty reduction rate was greater in urban areas. Improvement in poverty reduction was most prominent in the rural area of the eastern region, where the poverty incidence dropped by about 20 percentage points, or by 51%. Increasing trade activity near the Indian border may have contributed to this. Nevertheless, the eastern region still has the highest poverty incidence in Bhutan's rural areas. The more populous western region also has a relatively high share of total poverty despite the generally low poverty incidence within the region. More than 45% of the total population lives in the western region, but the region accounts for only about 30% of total population in poverty. In contrast, the eastern region's population share is only 28%, but its share in total poverty is relatively large at about 40% (Table 1.7).

Poverty incidence and its changes over time also vary significantly among districts (Table 1.7). Districts where economic centers are located have the lowest poverty incidences. Gasa, Paro, and

¹⁸ The government spent Nu2,816 million on social services during the Seventh FYP, or about 7% of GDP (IMF Government Financial Statistics, accessed January 2013).

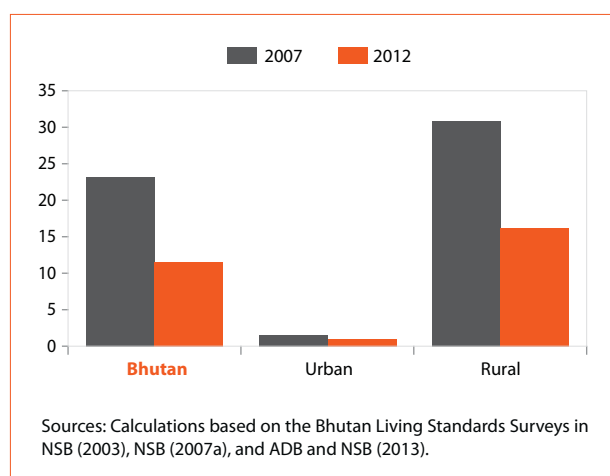
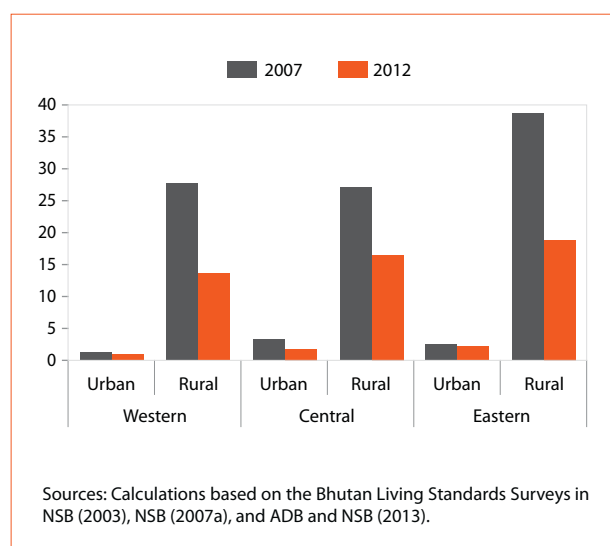
¹⁹ These estimates come with some caveats. In the absence of a 2012 national poverty line as of this study, the 2007 poverty line was used in estimating poverty incidence using 2012 Bhutan Living Standards Survey data. Accordingly, 2012 prices were adjusted to 2007 prices for consistency.

²⁰ Poverty incidence in the PRC declined from 28% (2002) to 13% (2008) using the \$1.25-a-day poverty line, from 51% (2002) to 30% (2008) using the \$2-a-day poverty line, and from 5% (1998) to 3% (2004) using the national poverty line. Poverty incidence in Viet Nam declined from 28% (2004) to 17% (2008) using the \$1.25-a-day poverty line, from 57% (2004) to 43% (2008) using the \$2-a-day poverty line, and from 20% (2004) to 15% (2008) using the national poverty line.

Table 1.6. Poverty Incidence using Poverty Lines for South Asian Countries (%)

Country	National Poverty Line		\$1.25-a-Day Poverty Line		\$2-a-Day Poverty Line	
	Previous	Latest	Previous	Latest	Previous	Latest
Bangladesh	40.0 (2005)	31.5 (2010)	50.5 (2005)	43.3 (2010)	80.3 (2005)	76.5 (2010)
Bhutan	23.2 (2007)	11.5 (2012)	26.2 (2003)	10.2 (2007)	49.5 (2003)	29.8 (2007)
India	37.2 (2005)	29.8 (2010)	41.6 (2005)	32.7 (2010)	75.6 (2005)	68.7 (2010)
Nepal	30.9 (2004)	25.2 (2011)	53.1 (2003)	24.8 (2010)	77.3 (2003)	57.3 (2010)
Pakistan	23.9 (2005)	22.3 (2006)	22.6 (2006)	21.0 (2008)	61.0 (2006)	60.2 (2008)
Sri Lanka	15.2 (2007)	8.9 (2010)	14.0 (2002)	7.0 (2007)	39.7 (2002)	29.1 (2007)

Sources: World Bank, WDI, accessed 9 January 2013; Bhutan Living Standards Surveys cited in NSB (2007a) and ADB and NSB (2013) for estimates under the national poverty line of Bhutan. In the absence of 2012 national poverty line as of this study, the 2007 poverty line was used. Accordingly, 2012 prices were adjusted to 2007 prices for consistency.

Figure 1.10. Urban and Rural Poverty, 2007 and 2012 (%)**Figure 1.11. Poverty Incidence by Region, 2007 and 2012 (%)****Table 1.7. Poverty Incidence by District, 2003, 2007, and 2012 (%)**

Region and District	2007	2012	Population Share (2012)	Share in Total Poverty (2012)
Western Region	17.1	7.6	45.5	30.09
Chhukha	20.3	6.4	9.4	5.24
Gasa	4.1	0.0	0.5	0.00
Haa	13.2	2.6	1.5	0.34
Paro	3.9	0.5	5.4	0.22
Punakha	15.6	7.3	3.8	2.39
Samtse	46.8	26.1	9.4	21.33
Thimphu	2.4	0.4	15.5	0.57
Central Region	22.8	13.4	26.1	30.38
Bumthang	10.9	4.3	2.3	0.85
Dagana	31.1	23.0	3.3	6.63
Sarpang	19.4	4.2	5.9	2.17
Trongsa	22.2	16.7	2.3	3.31
Tsirang	13.9	14.5	3.3	4.12
Wangdue Phodrang	15.8	12.8	5.8	6.47
Zhemgang	52.9	24.2	3.3	6.84
Eastern Region	33.5	16.0	28.4	39.53
Lhuentse	43.0	35.9	2.4	7.59
Mongar	44.4	16.5	6.5	9.35
Pemagatshel	26.2	12.4	3.8	4.11
Samdrup Jongkhar	38.0	16.1	5.4	7.47
Trashigang	29.3	13.2	7.5	8.60
Trashiyangtse	14.3	10.0	2.8	2.41

Source: Calculations based on the Bhutan Living Standards Surveys in NSB (2007) and ADB and NSB (2013).

Thimphu districts, which are the capital and main commercial centers in the country, had poverty incidences below 1% in 2012. Notably, these centers are all in Bhutan's western region. Paro, Thimphu, and Haa districts had the largest declines in poverty, by about 88%, 82%, and 80%, respectively, between 2007 and 2012. Pockets of poverty are still evident and are found in remote and isolated districts. Samtse in the western region accounts for about a fifth of total poverty in the country: about a quarter of the district's population is poor. Other districts with high poverty incidences are Dagana and Zhemgang in the central region and Lhuentse in the eastern region. Similarly, a study using 2007 Bhutan Living Standards Survey data found that poverty is mainly a rural phenomenon.²¹

A more detailed characterization of poverty can be made through household survey data. Table 1.8 reports poverty incidence by the characteristics of household heads. A relatively large proportion of Bhutan's households have female heads—about 29% of all households in 2012. The majority of these women have migrant spouses working in other districts. The rest are widows (about 18% of the households headed by females) and divorced or separated women (9% of such households). Households headed by males have fared better than those headed by females, as the former showed greater poverty reduction than the latter from 2007 to 2012.

Household heads' education attainments appear to be an important factor in poverty reduction. Table 1.8 shows that a vast majority of household heads, about 64%, have had no formal education and they accounted for about 91% of households in poverty. Poverty incidence decreases exponentially as the level of education increases. Poverty incidence is significantly lower among households headed by people with secondary or higher education.

Table 1.8. Poverty Incidence by Household Head's Gender, Education, and Employment, 2007 and 2012 (%)

Characteristic	2007	2012	Population Share (2012)	Share in Total Poverty (2012)
Sex				
Male	24.2	10.8	71.4	67.2
Female	20.9	13.2	28.6	32.8
Educational Attainment				
None	29.5	16.3	64.1	90.6
Primary	15.6	6.3	14.0	7.6
Secondary	1.3	1.6	11.6	1.6
Higher secondary	0.5	0.2	5.7	0.1
Tertiary	0.0	0.2	4.6	0.1
Sector of Employment				
Unemployed	30.6	16.4	17.5	24.9
Agriculture	32.4	18.1	43.7	68.6
Industry	8.1	7.6	1.2	0.8
Services	5.6	1.8	37.7	5.8

Source: Calculations based on the Bhutan Living Standards Surveys in NSB (2007) and ADB and NSB (2013).

Poverty is also influenced by household heads' employment status and the employment sector. Households whose heads are employed in agriculture or are unemployed accounted for more than 93% of total poverty. Poverty incidence among households whose heads are employed in industry or services is generally low. Households whose heads are employed in services also showed the largest proportional decline in poverty (by about 69%) between 2007 and 2012, followed by households whose heads are engaged in agriculture (by about 44%).

The distribution of incomes across quintile groups deteriorated between 2007 and 2012, increasing inequality. Figure 1.12 shows that the expenditure share²² of the richest quintile increased from 45.1% in 2007 to 50.0% in 2012. In contrast, the share of the bottom quintiles decreased, though marginally, from 6.7% to 6.2%, during the same period. The expenditure shares of the second, third, and fourth quintiles likewise decreased. Overall,

²¹ The study by Santos and Ura (2008) estimated multidimensional poverty in Bhutan by applying the methodology by Alkire and Foster (2007) using the 2007 Bhutan Living Standard Survey data (NSB 2007). Five dimensions are considered for estimations in both rural and urban areas (income, education, room availability, access to electricity, and access to drinking water) and two additional dimensions are considered for estimates in rural areas only (access to roads and land ownership). In rural areas, the study found that poverty in education, electricity, room availability, income, and access to roads contribute in similar shares to overall multidimensional poverty, while poverty in land ownership and water have relatively smaller contributions to overall multidimensional poverty.

²² Income distribution is measured here by examining the expenditure shares.

income distribution remains highly unequal with strong growth having little impact on the poorest quintile. As the richest quintile captures 50% of total income, the top two quintiles garner more than two-thirds of total incomes in the country.

Income inequality is also severe between urban and rural areas. Mehta (2007) found that the average monthly per capita income in urban areas is almost 4.5 times that in rural areas. Mehta noted that income inequality was higher in the urban areas than in the rural areas (with 0.58 Gini coefficient compared with the rural areas' 0.36). The study noted that the pattern of owning productive assets (81% of the productive assets were concentrated in the urban areas) can explain income disparities across districts, backed by the pattern of bank loan disbursements being skewed toward the more progressive districts.

The high inequality observed is comparable to that in other South Asian countries. Table 1.9 presents inequality indicators across South Asian economies. Bhutan ranks the highest.

1.3. Conclusion

Bhutan has made rapid socioeconomic progress in the last 3 decades despite its difficult terrain and widely dispersed population. Its strong growth performance, even in the midst of the 2008 global financial crisis, indicates that, with continued good management, Bhutan is on its way to being an upper middle-income economy. Bhutan's development performance has been guided by its philosophy of gross national happiness—of striving to balance spiritual and material advancement through four pillars: sustainable and equitable economic growth and development, preservation and sustainable use of the environment, preservation and promotion of cultural heritage, and good governance. Detailed policies and government interventions to support its development were based on a series of FYPs and their firm implementation.

Hydropower development, which started in the mid-1980s, and the subsequent export of surplus electricity to India have largely sustained the growth Bhutan has achieved over the years and fundamentally transformed the structure of Bhutan's economy. However, the country's economic growth has become dependent on the

Figure 1.12. Expenditure Shares by Quintile, 2007 and 2012 (%)

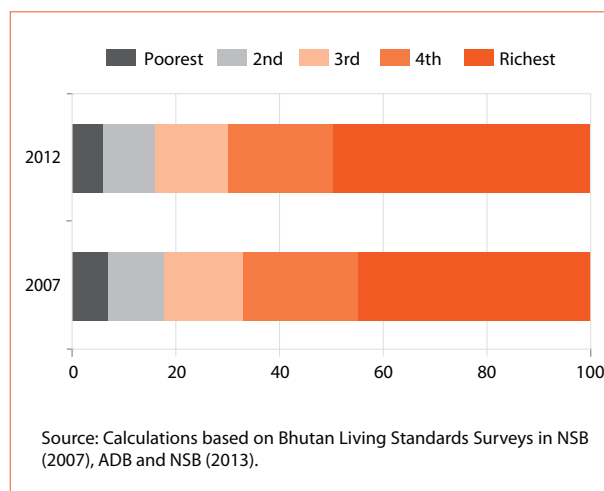


Table 1.9. Inequality in South Asian Countries (%)

Country	Year	Gini	Share of Top 20%	Share of Bottom 20%
Bangladesh	2010	32.1	41.4	8.9
Bhutan	2012	42.6	50.0	6.2
India	2005	33.4	42.4	8.6
Maldives	2004	37.4	44.2	6.5
Nepal	2010	32.8	41.5	8.3
Pakistan	2008	30.0	40.0	9.6
Sri Lanka	2007	40.3	47.8	6.9

Sources: World Bank, WDI, accessed 9 January 2013; ADB and NSB (2013).

hydropower project cycle and related construction. Other sectors remain relatively underdeveloped except to some extent services (tourism and other services activities such as transport, storage, and communications; as well as finance, insurance, real estate, and business services). Although agriculture continues to employ nearly 60% of the labor force, the sector's share of and contribution to total output have been overtaken by industry and services since 1997.

Bhutan's relatively strong growth helped reduce poverty and advance social development. The government's investments in social and human development allowed it to meet a number of its Millennium Development Goal targets earlier than scheduled. However, Bhutan's poverty and inequality indicators remain high, especially in remote and isolated districts across its three main regions. A majority of the poor still reside

in the rural areas, where opportunities for employment outside agriculture are limited. Delivery of social services to remote and isolated districts is limited and costly, which also contributes to the high level of inequality.

Bhutan's economic outlook remains favorable in the medium term. However, its narrow economic base leaves its economy vulnerable to cyclical swings in certain sectors. For example, economic growth slows when there is no new construction or additional production in the power subsector. The growth is not being led by productivity improvements in some core sectors or new investments in other private subsectors. The private sector remains small and faces many hurdles to providing sources for future economic growth. In this regard, the government has recognized the need to provide an environment that encourages more private sector investment, as an essential source of growth in the future. The Tenth FYP affirmed this core strategy of vitalizing industry for poverty reduction by relying heavily on how the private sector performs and delivers, and by empowering micro, small, and medium enterprises for industrial expansion and employment generation.

Sustaining Bhutan's currently sound growth momentum could also be constrained by the country's vulnerability to changes in the external environment, particularly in India's economy because major investment depends on Indian funding and the Indian market. The challenge is to understand the constraints to diversifying investments that can lead to a more broad-based growth.

This study proceeds with two interrelated objectives in support of the government's goal of poverty reduction through sustainable development and inclusive growth. The first is to identify and prioritize the critical constraints to medium- to long-term economic growth, equitable development, and poverty reduction in Bhutan. The second is to provide recommendations that policymakers can consider in addressing the constraints and as input for the formulation of the Eleventh FYP.

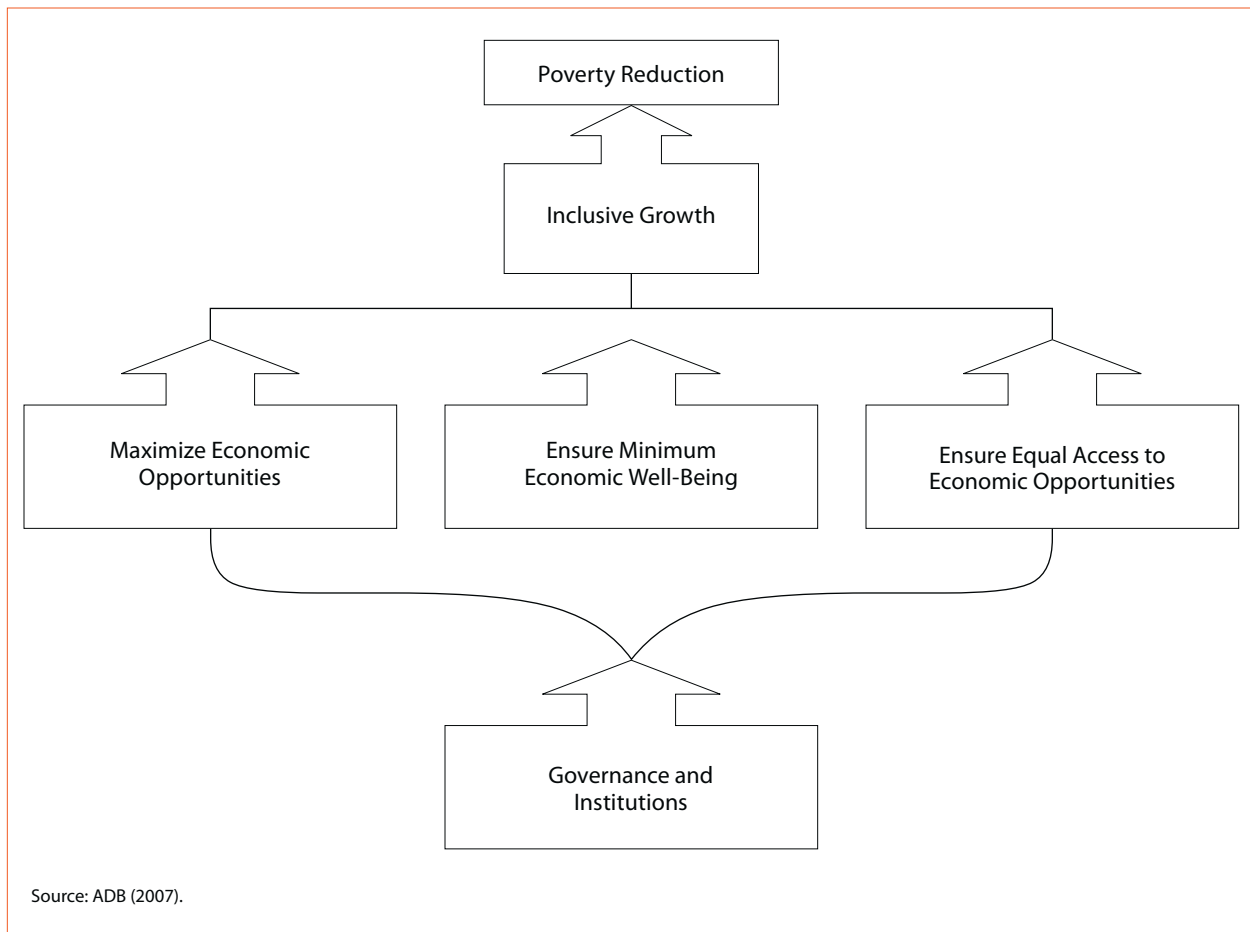
The study is organized as follows. Chapters 2 and 3 identify and discuss the critical constraints to growth and to reducing poverty and inequality.

The growth diagnostics focus on social return to investment, private appropriability, and cost of finance. The poverty and inequality diagnostics examine employment opportunities, human capabilities, access to infrastructure and productive assets, and provision of adequate safety nets. In consultation with the government, Chapter 4 identifies potential drivers of new growth: hydropower, agriculture, information technology, micro and small cottage industries, and tourism. Chapter 5 summarizes the findings and discusses policy implications for sustaining the economic gains and promoting a more equitable sharing of the gains from growth.

Appendix A. Methodology

The study's framework is based on the inclusive growth concept presented in Figure A.1. Inclusive growth is growth that not only generates economic opportunities, but also ensures equal access to them by all members of a society. Growth is considered to be inclusive only when it allows all members of a society to participate in, contribute to, and benefit from the growth process on an equal basis regardless of their individual circumstances (Ali and Son 2007). Hence, a development strategy based on the inclusive growth concept is anchored on three policy pillars: (1) create and expand economic opportunities through high and sustained growth, (2) ensure equal access to opportunities for all members of a society through social inclusion, and (3) provide adequate social safety nets to ensure minimum economic well-being. All three policy pillars need to be supported by good governance and institutions (Zhuang 2008). Several requirements need to be met in order to satisfy each of the three pillars of the inclusive growth strategy.

Thus, the study attempts to diagnose the constraints that may be curtailing efforts to generate high, sustained, and broad-based growth to create jobs and opportunities, and to make the growth inclusive. To this end, the study employs the growth diagnostics framework (as presented in Chapter 2) to diagnose constraints to growth, and the poverty and inequality reduction diagnostics framework (as presented in Chapter 3) to diagnose factors that may be limiting the pace of poverty reduction and inclusiveness of the economic growth.

Figure A.1. Inclusive Growth Concept

Chapter 2

Critical Constraints to Bhutan's Growth

Bhutan's fast economic growth has been driven largely by strong investment associated with development of hydropower. Bhutan investment rates (measured in terms of its gross capital formation or investment inclusive of depreciation as a percentage of gross domestic product [GDP]) have been the highest (except in 2007) among South Asian countries (Figure 2.1).

In Bhutan, gross domestic capital formation (GDCF) has been well over 30% of GDP since the 1980s (Figure 2.2). Hydropower projects require substantial outlays and accounted for more than 35% of the total investments in 2010.

Bhutan started constructing mini and micro hydroelectric power plants in the 1960s; the first mini hydroelectric plant was commissioned in Jushina, Thimphu in 1967. The first major hydroelectric project in Chhukha was developed based on a bilateral agreement in 1974 between Bhutan and India to meet Bhutan's domestic power demand and export its excess electricity to India. Construction of the Chhukha hydroelectric power plant started in 1979 and it was commissioned in 1986. Construction of more than a dozen off-grid micro and mini hydropower plants continued during the 1980s and 1990s to supply power to remote villages and hamlets near national highways. During 1997–2004, two medium-sized hydropower

Figure 2.1. Investment Rates in South Asia, 1990–2011 (% of GDP)

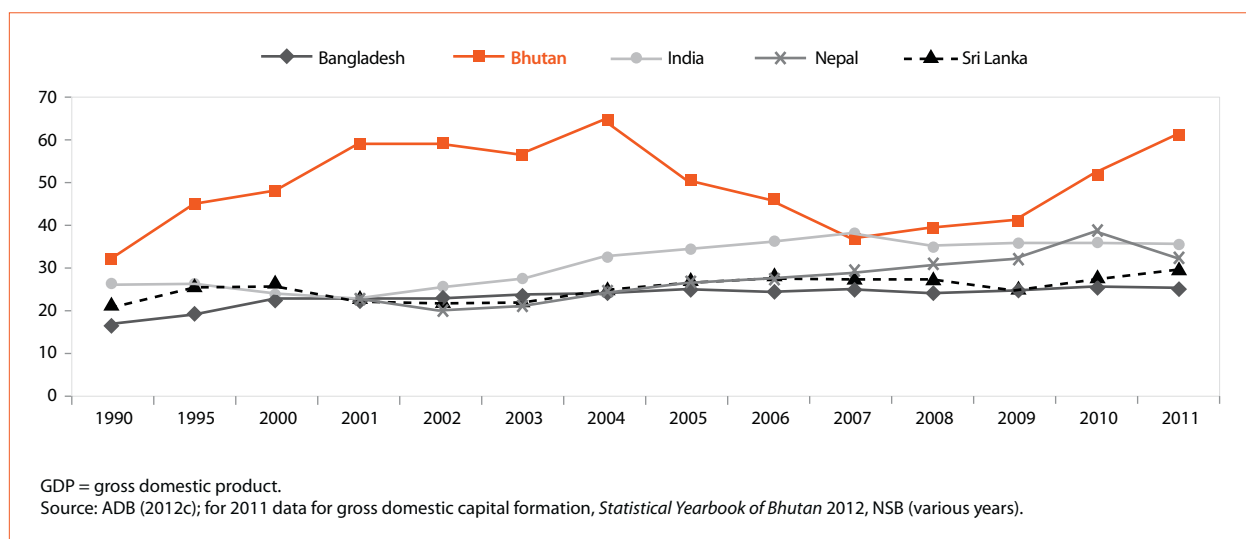
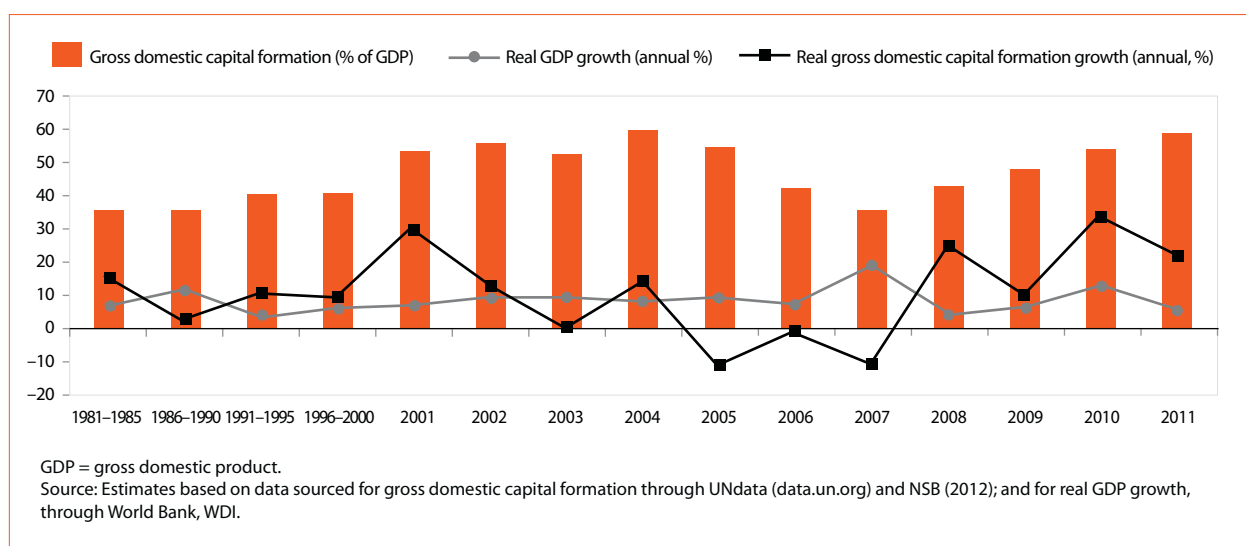


Figure 2.2. Bhutan's GDP and Investment Growth, 1981–2011 (%)



projects (the Kurichu project and the Basochu hydropower project) were commissioned. Several mega hydropower projects are coming on stream as well. Construction of the Tala hydroelectric project of 1,020 megawatt (MW) installed capacity started in 1997 and it was commissioned in 2006. Construction of the Punatsangchhu hydropower project in Wangdue Phodrang, the Mangdechhu project in Trongsa, and the Dagachhu project in Dagana started during 2008–2011.

Hydropower projects, by their very nature, require a sizeable investment up front with long gestation periods. As a result, Bhutan experiences episodes of lumpy investment. For example, prior to the commissioning of Chhukha, the average share of GDCF in GDP from 1981–1986 was 37%. After Chhukha was commissioned, the share of GDCF in GDP decreased to 34% during 1987–1991. GDCF rebounded afterwards, peaking at 60% in 2004 and then stabilized at about 42% of GDP during 2007–2009, before increasing again to 55% in 2010 and 59% in 2011 on account of the Punatsangchhu, Mangdechhu, and Dagachhu hydropower projects.

Bhutan's growth prospect for the next 10 years will likely be underpinned by further development of its ample hydropower resources. Several projects, mostly financed by India, are scheduled to be completed and commissioned for operation during

2013–2018.¹ When commissioned, the plants will quadruple Bhutan's hydropower generating capacity, from the existing 1,480 MW (RMA 2011a).²

Heavy reliance on one major sector and industry and one dominant economic partner for trade and labor, however, makes Bhutan vulnerable to sectoral and external shocks (ADB 2010a). Industrial development, other than the hydropower sector, has been limited, and an economic downturn in India or changes in the quality of the relationship between the two countries would have a major influence on the Bhutanese economy (ADB 2010b).

Thus, there is a strong need for Bhutan to broaden its industrial base and diversify economic activity by facilitating private sector development as the engine of growth and by modernizing the economy. A Royal Monetary Authority (RMA) report recognized making the private sector play a more pivotal role in the economy as an important

¹ These include the Dagachhu hydropower project, which is scheduled to be completed and commissioned by April 2014, the Punatsangchhu I hydropower project, by November 2016, and the Punatsangchhu II and Mangdechhu hydropower projects by December 2017 and September 2017, respectively.

² Bhutan's hydropower potential is estimated at 30,000 MW, of which 23,760 MW has been estimated as being technologically and economically feasible. At present, a little over 1,480 MW or about 5% of that potential has been harnessed (RMA 2011a).

development challenge (RMA 2004).³ Although private sector development was the focus of Bhutan's Sixth Five Year Plan (FYP), for 1987–1992, during which the government privatized the tourism industry, transport services, and road infrastructure and maintenance, and divested a significant portion of its holdings in state enterprises, private sector activity remains limited (Bertelsmann Stiftung 2010, UN 2006). The micro, small, and medium enterprises (MSMEs), which comprise as much as 98% of the private sector, continue to be engaged in low-value and low-productivity investments such as handicrafts and incense, which contribute very little to Bhutan's total exports, do not contribute significantly to the national economy, and thus typify the lack of diversification of its economic activities (Bertelsmann Stiftung 2010). On a positive note, however, a World Bank (2010b) report on Bhutan's investment climate hints at a better outlook for the private sector. Medium-sized firms in Bhutan saw sales increase by 36% and employment by 25% between 2006 and 2008. Large firms of 100 or more workers registered the fastest increases in sales and employment.⁴

Efforts have been made to encourage private investment and participation. One such effort is an active government divestiture program for privatizing many major state enterprises. Privatization covers outright sale, partial minority ownership, management contracting, lease management, commercialization, and corporatization. Six public enterprises have been brought under the policy of corporatization, which means they no longer receive grants or subsidies from the government: Kuensel Corporation, Bhutan Broadcasting Services Corporation, Bhutan Telecom Corporation, Bhutan Post, Forestry Development Corporation, and Bhutan Power Corporation; and 11 other public enterprises were fully privatized or divested by 2004 (Pankaj 2004).

³ In the *Annual Report (2009–2010)*, the RMA noted “in the last decade, however, liberalizing public sector enterprises, and government incentives in the form of tax and tariff exemptions, have not yet resulted in the desired effect of boosting growth of the private sector with regard to overall GDP, diversification of revenue, or employment generation” (RMA 2004).

⁴ A few large firms—such as Penden Cement Authority Ltd., the Bhutan Board Products Ltd., Bhutan Carbide and Chemicals Ltd., the Bhutan Ferro Alloys Ltd., and Bhutan Agro Industries, Ltd.—comprise the manufacturing industry. A number of small manufacturing firms concentrate on food processing activities and microenterprises play a prominent role in forest-based and agro-based activities (Billetteoft 2010). The sector also covers small unregistered activities such as weaving, wall hangings (*thanka*), paintings, and clay works (RMA 2012a).

Bhutan's economy, while growing, also faces limited options for creating jobs. Economic growth is driven by the power sector, but neither it nor associated power-intensive industries create adequate jobs (World Bank 2004a). Employment generation in the public sector is also limited (World Bank 2004a). Government sector employment recorded an annual average growth of 6.3% during 2003–2010 (NSB various years), but is not sufficient to accommodate the large number of secondary school graduates entering the labor market. Further development of the private sector is essential to provide jobs for the growing labor force and to make growth more inclusive.⁵ Hence, it is critical to promote private sector investments to modernize and improve Bhutan's productive capacity.

While Bhutan's investment rate is expected to remain high and may increase further, most of the investments are likely to continue to go into hydropower. The challenge is thus to promote private sector investment in other sectors that will help diversify the industrial base, create job opportunities, and promote inclusive growth. The diagnostics tree presented in Box 2.1 lays out the approach followed in this chapter to examine the constraints to inclusive growth.

2.1. Cost of Finance

The cost of borrowing in Bhutan is high relative to that in comparator countries. Its real domestic interest rate has been 7.9% while that in the rest of South Asia's has ranged from 1.4% to 5.3% in 2011 (Figure 2.3). Bhutan's real domestic interest rate was particularly high in the 2000s, ranging from 7.6% to 11.6%.

Access to and cost of finance continues to be a critical constraint to private investment, especially to MSMEs.

While larger corporate investors do not seem to face constraints on funding, MSMEs have difficulty accessing finance. This is shown in two successive surveys, the first by the World Bank and International Finance Corporation (IFC) in

⁵ In its *Annual Report (2003–2004)*, the RMA observed that “in the last decade, however, liberalizing public sector enterprises, and government incentives in the form of tax and tariff exemptions, have not yet resulted in the desired effect of boosting growth of the private sector with regard to overall GDP, diversification of revenue, or employment generation” (RMA 2004).

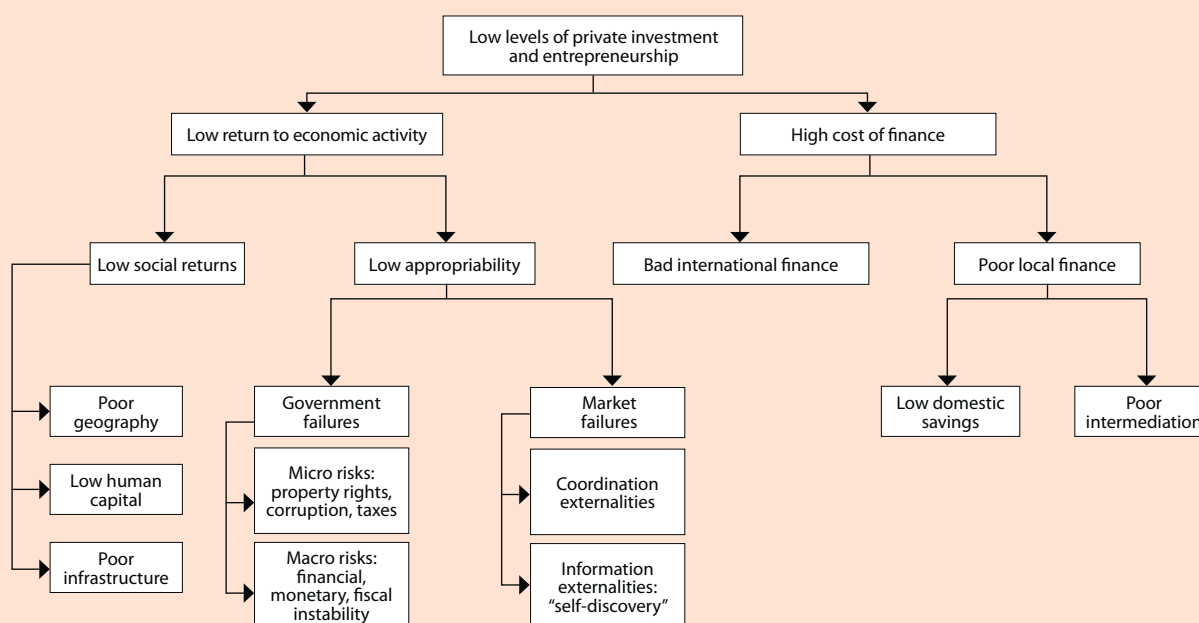
Box 2.1. Growth Diagnostics Framework

The diagnostics approach applied in this study broadly follows the growth diagnostics framework developed by Hausmann, Rodrik, and Velasco (2005). The growth diagnostics approach provides a consistent framework for identifying the most critical or binding constraints to growth and for discerning the priorities and sequence of policies required to ignite and sustain growth. The tool is an approach to economic reforms by identifying the most critical constraints to growth and prioritizing the reform agenda. This differs from the traditional approach of providing a “laundry list” of policies, as implied by the Washington consensus. Instead, the growth diagnostics approach recognizes that the economic and political environment differs a great deal among developing countries. There is no “one-size fits-all” solution to development problems and, therefore, the ordering of policy priorities contingent on country-specific circumstances is critically important. Further, countries at an early stage of development may not have adequate capacity to implement a wide array of policy reforms at the same time. With the diagnostics approach, reforms can start with easing a few critical areas that truly constrain growth. The approach thus offers a practical tool for policymakers and development planners to use in formulating country-specific growth strategies. The application of growth diagnostics is one of the efforts in the search for a new approach to growth strategy after the Washington consensus was questioned.

The growth diagnostics approach starts with a set of proximate determinants of growth, investigates which of these pose the greatest impediments or are the most critical constraints to higher growth, and figures out specific distortions behind the impediments. The point of departure of the inquiry is a standard endogenous growth model in which growth depends on the social return to accumulation, private appropriability of this social return, and the cost of financing. Each of these three broad determinants of growth is in turn a function of many other factors, which can be presented in a problem tree (Box Figure 2.1.1).

The problem tree provides a framework for diagnosing critical constraints to growth. The diagnosis starts by asking what keeps the level of private investment and entrepreneurship low. Is it low social return to investment, inadequate private appropriability of the social return, or high cost of financing? If it is low social return, is that due to insufficient levels of complementary factors of production—in particular, human capital, technical know-how, and/or infrastructure? If the impediment is poor private appropriability, is it due to macro vulnerability, high taxation, poor property rights and contract enforcement, labor–capital conflicts, information and learning externalities, and/or coordination failures? If high cost of finance is the problem, is it due to low domestic savings, poor intermediation in the domestic financial markets, or poor integration with external financial markets?

Box Figure 2.1.1 Growth Diagnostics Framework



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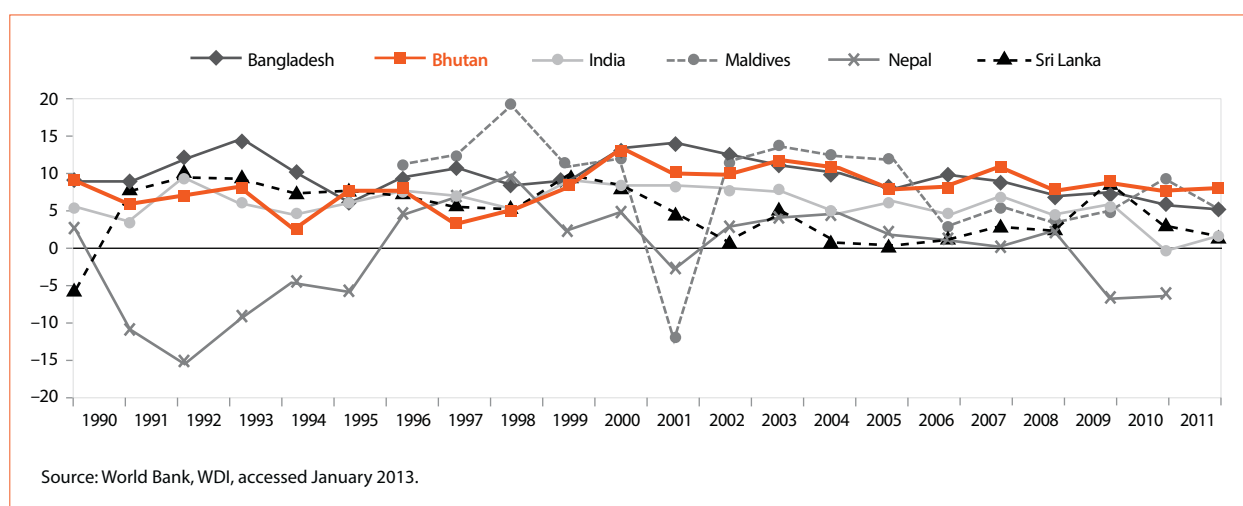
Box 2.1. *continued*

At each node of the problem tree, the diagnosis looks for signals that would help answer the question. The two types of diagnostic signals that one can look for are price signals and nonprice signals. Examples of price signals are returns to education, interest rates, and cost of transport. For example, if education is undersupplied, returns to skills/education would be high and unemployment of skilled people would be low. If investment is constrained by savings, interest rates would be high and growth would respond to changes in available savings (for example, inflows of foreign resources). If poor transport link is a serious constraint, bottlenecks and high private costs of transport would be evident.

The use of nonprice signals is based on the idea that when a constraint binds, the result is activities designed to get around it. For example, high taxation could lead to “high informality” (e.g., underreporting of income, resulting in lower tax revenues); poor legal institutions could result in high demand for informal mechanisms of conflict resolution and contract enforcement; and poor financial intermediation could lead to internalization of finance through business groups. Cross-country and cross-period benchmarking and results of business surveys are useful means to gauge whether particular diagnostic evidence signals a binding constraint for the country concerned.

Sources: Hausmann, Rodrik, and Velasco (2005); Authors.

Figure 2.3. Real Domestic Interest Rates (%)



2009, and the second by the World Bank (2010b). Rurally based microentrepreneurs and farmers, in particular, consider loan requirements to be insurmountable and have to contend with the high cost of informal loans.

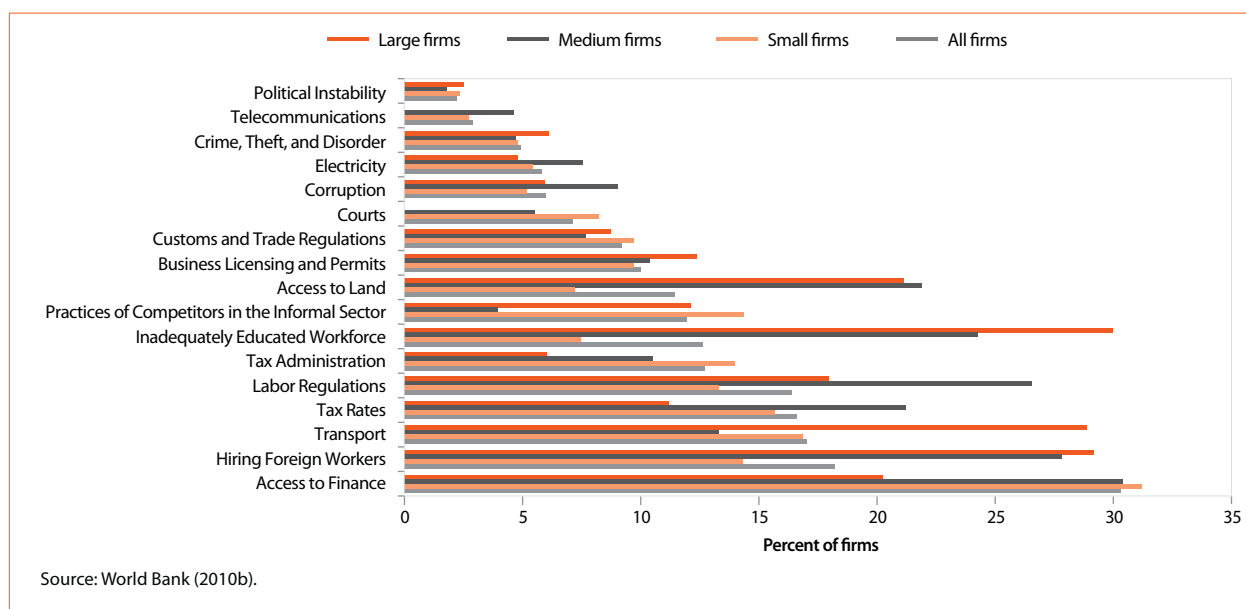
Of the 224 firms that responded to the World Bank and IFC Enterprise Survey, 21.7% of MSMEs claimed that access to finance is a critical constraint. Of firms (small- and medium-sized) surveyed by the World Bank Investment Climate Assessment, 30.3% had the same response (Figure 2.4). MSMEs make up the bulk of Bhutanese private firms.

Small-scale borrowers find the principal requirement for traditional collateral to be a major hurdle. Bhutan's collateral-based banking system typically relies on mortgages of titled real

property or machinery and equipment to secure a loan. Under a collateral-based banking system, a borrower may not be able to get a loan despite the availability of special financing schemes. Personal assets are the most frequently used collateral in Bhutan, followed by machinery and equipment, and land and buildings; accounts receivable and inventories are not widely used (World Bank 2010b). Other obstacles include procedures and document requirements such as the submission of a business registration or license, and information that typical farmers and microentrepreneurs have difficulty providing.

Thus, farmers and rurally based enterprises put up with the high cost of informal loans. Informal money lenders, forming about 30% of the credit market, have become the source of loans for buying

Figure 2.4. Constraints Identified by Firms, 2010



agriculture inputs and coping with emergencies, such as sickness, death, and crop failure.⁶ They charge nominal interest rates ranging from 5% to 10% per month.⁷

The government has recognized that collateral-based commercial bank loans will not be able to respond to the MSMEs' credit demands. It has, therefore, mandated the Bhutan Development Finance Corporation (BDFC)⁸ to engage in micro, small, and rural agriculture lending. Box 2.2 provides information on the BDFC's financial products and their corresponding interest rates. Although the BDFC has been operating since 1988 as the main agricultural credit institution, it has not been able to substantially meet the financing requirements of its intended borrowers.⁹ Agriculture engages about 70% of Bhutan's population, but the BDFC provides credit to less than 20% of the sector's 86,250 families. Its share in the country's total financial

Box 2.2. Bhutan Development Finance Corporation's Interest Rates and Financial Products

As of early 2013, the Bhutan Development and Finance Corporation (BDFC) was the country's only financial institution mandated to provide agriculture loans and microfinance loans. The BDFC provides rural credit to farmers at 10%–13% interest rates per annum. It has 22 branches and 3 regional offices.^a The BDFC has three agricultural loan products: the Group Guarantee Lending Scheme (GGLS), Small Individual Loan (SIL), and Commercial Agricultural Loan.

The Group Guarantee Lending Scheme (GGLS). An adaptation of the Grameen^b microcredit model, the GGLS is designed especially for small-scale farmers and microentrepreneurs. No collateral is required and the maximum loan size was originally Nu50,000 (or about \$925), which was later increased to Nu100,000 (\$1,850). In practice, the actual loan size is very small, at Nu5,000 (\$93). A solidarity group of 3–7 members is formed and the loan is disbursed with each group member providing a loan guarantee. Clients must deposit Nu50 (\$0.93) per month as compulsory savings and 5% of every loan is retained and deposited in a compulsory savings account. The client can also participate in a voluntary savings account and other schemes.

continued on next page

⁶ The monastic institutions that had substantial revenue collections of their own also lend money, grains, and dairy produce to creditworthy individuals or families. However, the informal moneylenders provide the bulk of loans in the rural areas.

⁷ Per RMA, this is based on the Bhutan financial inclusion survey of household financial practices and strategies conducted through focus group discussion by the World Bank in 2012.

⁸ A Royal Charter established the BDFC on 31 January 1988 to provide agricultural credit in the agriculture and rural areas. Under the Financial Services Act, the RMA has the legal authority to mandate financial institutions to do priority sector lending (RMA 2011b).

⁹ The BDFC operates under the Company Registration Act 2000 and Financial Institution Act 1992 (Pathak 2010).

Box 2.2. *continued*

Under the GGLS scheme, 1,356 groups were formed from 1999 to 2003, with a total loan disbursement of Nu4.2 million (\$77,778) and total savings of Nu1.4 million (\$25,925) in the same period. The GGLS product has not been performing as expected in Bhutan. This could be due to the wide dispersal of the country's small population, inadequate social mobilization, greater importance given to the mortgage, and lack of a specialized unit to administer the GGLS. The BDFC has recently initiated testing a joint liability model under group guarantee in five of its branches.

Small Individual Loan. The BDFC provides SILs of less than Nu100,000 (\$1,850), with interest rates of 12%–14% per annum. The BDFC requires land or a house as collateral. The amount of the loan is equivalent to the value of the mortgaged property. Loan terms and maturity vary with the purpose of the loan. For example, a loan for potato has a 1-year maturity but a loan for an apple orchard can be repaid in 3 years with quarterly installments.

If a borrower achieves a “good performance” status, meaning the loan taken is fully paid back, the borrower is eligible for commercial agriculture loans with the same interest rate. The SIL has the largest share of the BDFC agriculture credit and microfinance program.

Commercial Agricultural Loan. This product was designed primarily for commercial farmers and clients who have graduated from the SIL category. The loan amount is 1.5 times larger than the value of the mortgaged property. Loans are below Nu100,000 (\$1,850) and the interest rate ranges from 13% to 15% per annum.

Mobile Banking. This is not a separate product but a technique the BDFC uses to deliver financial services directly to households. BDFC staff members collect loan application forms, loan installments, and savings at a fixed venue on a fixed monthly date. This does not entail the use of cellular mobile phone in banking.

Note: The exchange rate used here is \$1:Nu54.

^a BDFC. <http://www.adfiap.org/members/BDFC/BDFC.htm>, accessed 14 January 2013.

^b Muhammad Yunus introduced the Grameen lending technique to provide microcredit to poor women in Bangladesh in 1976. Under the Grameen Bank lending technique, small credit amounts are given to identified groups of low-income (poor) borrowers without requiring collateral, or fulfillment of any legal instrument. The group loan is secured by a group guarantee, that is, a joint liability scheme (which was later dispensed with). Currently, the Grameen Bank has 8.35 million borrowers, 97% of which are women. Its loan recovery rate is reported at 97%.

Source: Pathak (2010).

assets was about less than 3% as of December 2008 (Pathak 2010). The BDFC offers a limited range of financial products to its target clientele. While availability of special finance schemes may be a good start, it does not necessarily guarantee better credit accessibility.

The rest of this section examines the factors influencing the cost and access of finance and whether they are a constraint to boosting private sector investment.

Gross domestic savings remain inadequate to support the growth of investments, pushing up the cost of borrowing.

Bhutan generally has favorable levels of gross domestic savings compared with those of its South Asian comparators (Figure 2.5). However, Bhutan's gross domestic savings started to dip as the country began to feel the impact of the global financial crisis in 2008, plummeting to about 16.1% in the same year. Bhutan started to recover in 2009 and 2010, but was still below the pre-crisis level.

A comparison of Bhutan's savings and investment rates indicates that the investment rate outstrips the domestic savings rate. Bhutan's domestic savings comprised only 33.7% of GDP while investment was 52.3% in 2010 (Figure 2.6). A major share of these investments is intended for the hydropower sector, the majority of which has been undertaken by the government.¹⁰ Increased government spending may have some crowding out effect on private investment as well, given the limited domestic funding sources. Low domestic savings vis-à-vis high investment demand could push up the level of interest rates, putting upward pressure on the cost of borrowing faced by private firms.

Inefficient domestic financial intermediation contributes to the high cost of borrowing for private firms.

A good indicator for assessing the efficiency of the banking sector is the spread between lending and deposit rates. The wider the spread, the more

¹⁰ Bhutan's Economic Development Policy document acknowledges that “economic growth is largely financed by external aid,” and that “the biggest impetus to the economic growth is still provided by foreign aid and large-scale hydropower projects” (GNHC 2010: 1, 3).

Figure 2.5. Gross Domestic Savings of South Asia, 1985–2010 (% of GDP)

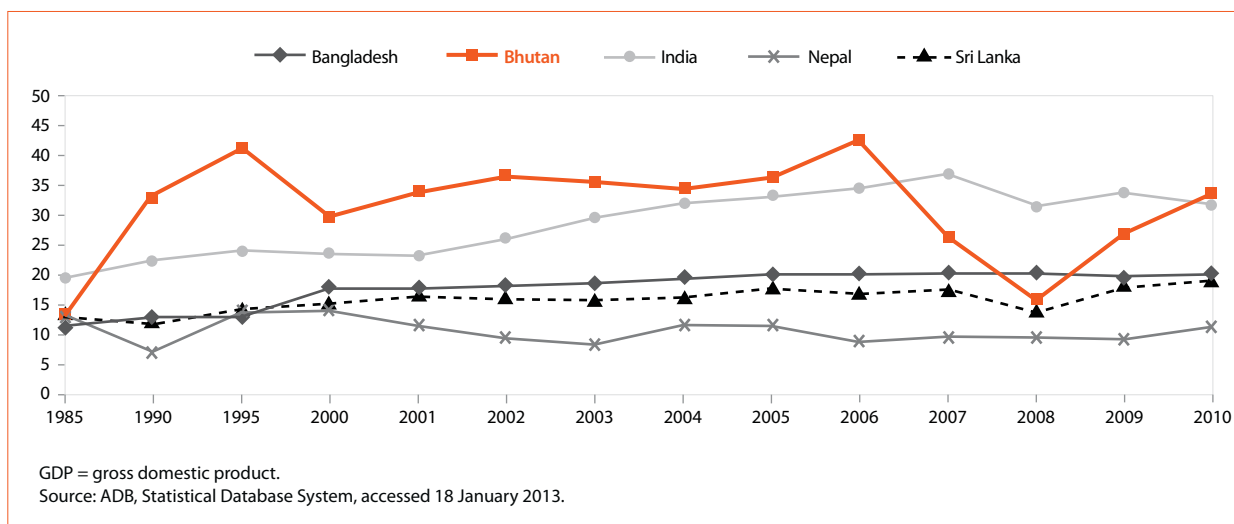


Figure 2.6. Bhutan's Savings and Investment Rates (% of GDP)

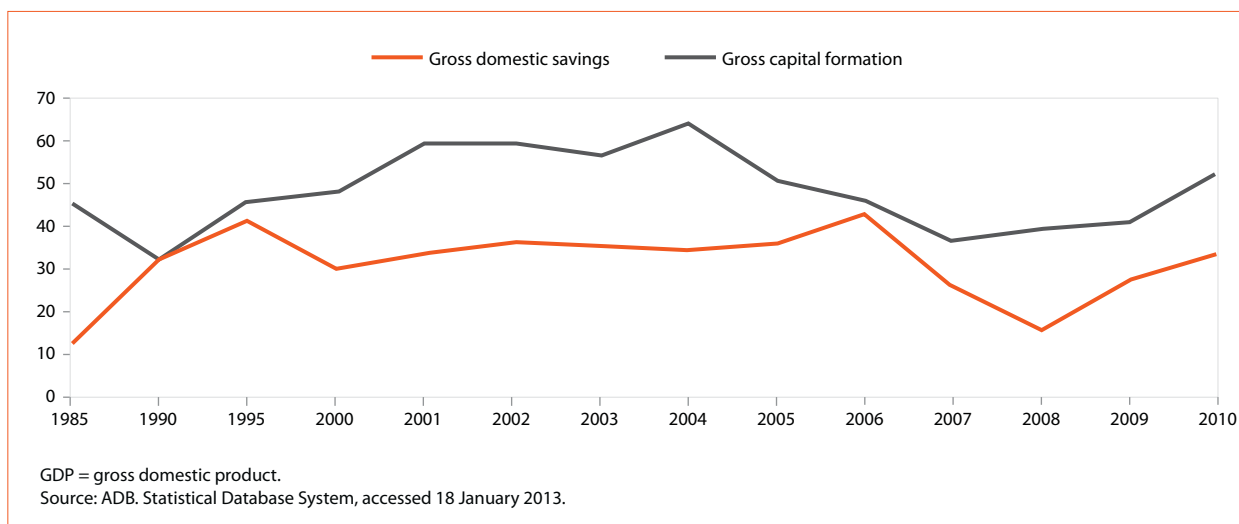
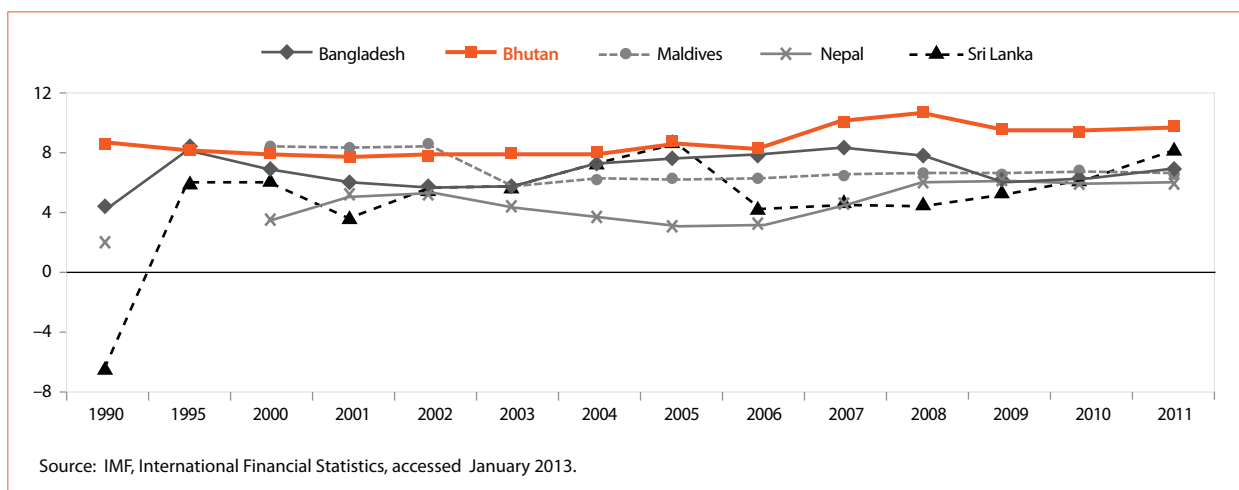


Figure 2.7. Spread between Lending and Deposit Rates, South Asia (%)



inefficient is the financial intermediation, implying a higher cost of borrowing and thus impeding private investment. The spread between lending and savings rates in Bhutan has been generally stable (Figure 2.7, p. 25) and, except in 2001 and 2005, has been higher than the interest rate spreads in the rest of the region. The interest rate spreads in Bhutan have narrowed a little in recent years, from 10.5% in 2008 to 9.5% in 2011, on account of stronger savings mobilization and pressure to reduce lending rates in view of more competition.

Since 1999, the RMA has fully liberalized the interest rates for both deposits and loans, to promote more competition and improve the interplay of market forces. This has allowed financial institutions to determine their own deposit and lending rates. However, the effect of the deregulation of interest rates in 1999 has been dubious. Apart from the slight improvements of the spread, both deposits and lending rates remain sticky and lending rates are significantly higher than deposit rates, suggesting the lack of competition or even collusion among the banks. The RMA noted that “such stickiness in the interest rates may be impervious to growth, inflation, and overall liquidity conditions of the economy” (RMA 2011b). Five domestic banks are operating—(1) Bank of Bhutan Ltd., (2) Bhutan Development Bank Ltd., (3) Bhutan National Bank Ltd., (4) Druk PNB Ltd., and (5) T-Bank Ltd. The last two began operations only in 2010. Although the new banks are likely to make the credit market more competitive and may help bring down the spreads, the Bhutanese credit market remains a lender’s market where lenders can charge whatever rates the market can bear.

Recent financial reforms aimed at strengthening the financial system and promoting competition and efficiency in the banking sector.

Bhutan’s financial sector has undergone several reforms since the enactment of the RMA Act in 1982 and its amendment in 2010. The most recent and significant financial reforms include the Financial Services Act of 2011, which empowers the RMA to deal with financial innovations to meet the diverse financial needs of the private sector and the general public. Box 2.3 provides developments in the financial sector reforms in Bhutan. The RMA collaborated with financial institutions to lower bank charges for financial transactions. The RMA’s issuance in 2010 of commercial banking licenses

Box 2.3. Financial Sector Reforms in Bhutan

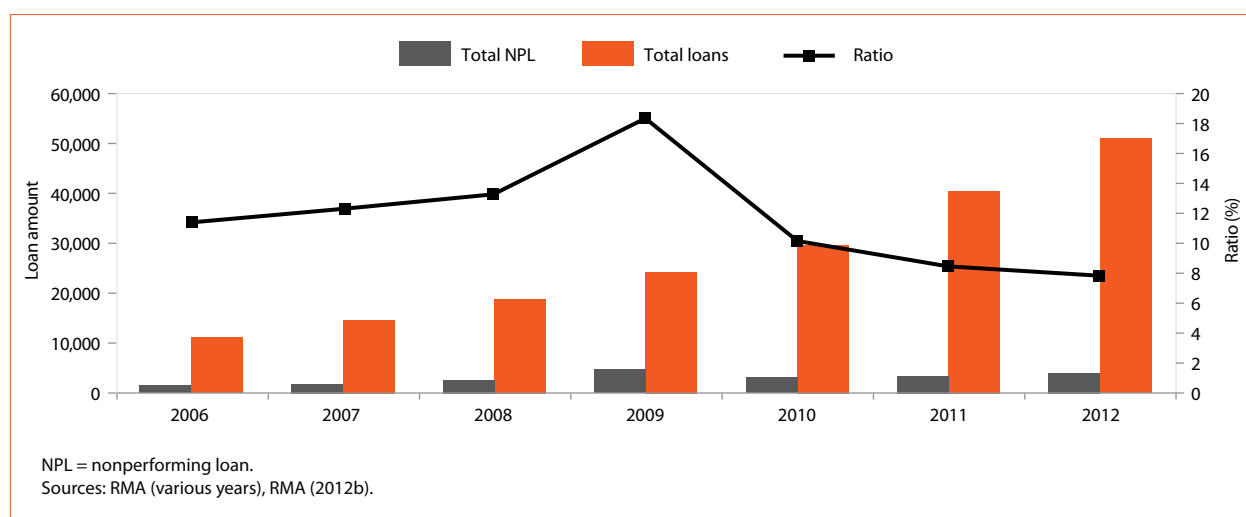
Following the enactment of the Financial Services Act of 2011, the Royal Monetary Authority (RMA) initiated drafting several regulations related to the financial sector. The first set of regulations was aimed at financial service providers related to insurance and securities businesses, such as fund management companies, insurance brokers, securities brokers, and investment advisers. The second set of regulations was related to corporate governance applicable to all financial institutions, any other licensees licensed by the RMA, and all companies listed on the Royal Securities Exchange of Bhutan Limited.

Other key regulations that the RMA has drafted to strengthen the financial system and make it more inclusive include Microfinance Regulations, E-Money Issuers Regulations, Agent Regulations, Fund Management Regulations, Anti-Money Laundering Regulations, and the establishment of a fund management company and a re-insurance company in Bhutan (RMA 2011a). The RMA has also adopted the twin strategy of creating a better financial architecture and promoting financial education and training to make the financial system more efficient and dynamic (RMA 2012c). Other major financial reforms prior to 2012 include (1) the issuance of regulations for branchless banking, (2) delegation of the release of foreign exchange for current transactions to commercial banks, (3) launching of Bhutan’s credit information bureau, (4) implementation of the National Electronic Fund Transfer System and Bhutan Financial Switch System, (5) introduction of base rates for financial institutions, (6) promotion of financial literacy, and (7) drafting of a financial inclusion policy for Bhutan.

In 2012, major financial reforms initiated include (1) implementation of the RMA Short Term Liquidity Adjustment Window Facility to provide short-term liquidity to banks that are deficient in liquidity; (2) issuance of the Circular on Foreign Currency explicitly stating the Indian rupees’ status as a foreign currency to address the growing external imbalances with India; (3) for the stock exchange, implementation of an integrated system that enables online trading; provides real-time market information for investors; and consists of an automated trading system, an electronic depository system, a clearing and settlement system, a broker back-office system, an initial public offering engine, and a market surveillance system; (4) installation of a software system to monitor trade flows; (5) establishment of a training institute for banking and finance; and (6) establishment of a central registry to encourage secured transactions and ease collateral requirements for loans.

Sources: RMA (2011a, 2012a, 2012c).

Figure 2.8. Nonperforming Loans of Financial Institutions (Nu million)



to the two new banks (Druk PNB and T-Bank) introduced more competition into the emerging Bhutan financial system.

Bhutan's financial institutions exhibited relatively strong resilience as they managed to render robust performance amid the global economic slowdown. During 2009–2011, the capital-to-assets ratio of Bhutan's banks hovered above 9% on average, which is above the minimum standard (8%) set by the Bank for International Settlements. The soundness indicators of the banking sector also improved as domestic banks enhanced their techniques for loan screening, loan recovery, and portfolio management. The nonperforming loan ratio (Figure 2.8) declined from 18.3% in 2009 to 7.8% in 2012 (RMA 2012a, 2012b). RMA reforms and new regulations appear to have contributed to the improved risk management and banking resilience.

Despite the visible increase in domestic credit during 2008 and 2010, as a percentage of GDP, domestic credit remains low compared with that in other countries in the region.

Bhutan's domestic credit increased significantly during 2009–2011, rising to an average 40.7% of GDP, up from 12.8% during 2001–2008. Prior to 2001, the share of domestic credit in GDP was very low, averaging 4.8% during 1983–2000. The overall growth in private sector credit has been due to the expansion of loans for building and construction (which make up 24% of the commercial banks' loan portfolio), followed by personal and other

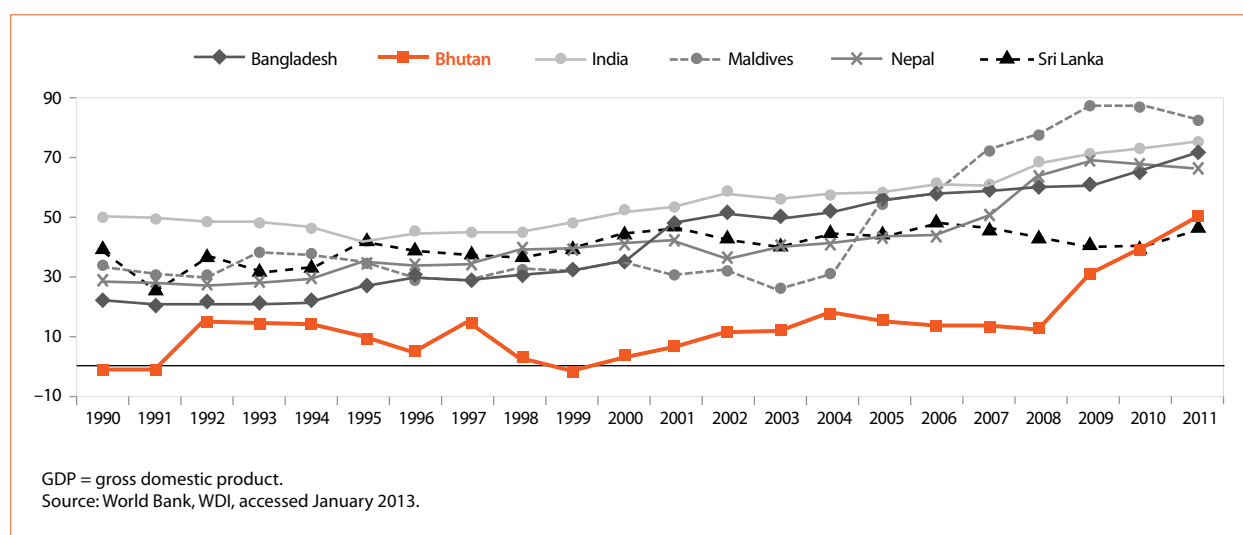
loans (19%), manufacturing (19%), and trade and commerce (15%), with the rest allocated to other sectors (RMA 2012a). Domestic banks continue to provide loans to manufacturing firms, mainly to several export-oriented firms, which have sound cash flows. In 2011, the loan portfolio of commercial banks shows that the bulk of credit expansion is due to lending to the building and construction sectors, for personal (consumer) loans, and to big manufacturing firms (RMA 2012a).

Despite the significant increase during 2008–2011, domestic credit as a percentage of GDP in Bhutan remains one of the lowest among the regional economies (Figure 2.9). In 2011, Bhutan's domestic credit was recorded at 49.2% of GDP, next to Sri Lanka (46.2%).

The relatively low level of domestic credit partly reflects poor financial intermediation. Banks are the chief source of financing in Bhutan, as there are very few alternative financing instruments and access to international finance is negligible. Recognizing such drawbacks, the Tenth FYP identifies broadening and deepening of the financial sector as a key development challenge.

Access to credit is a critical constraint to small-scale borrowers. Small-scale borrowers, such as MSMEs, farmers, and other rurally based borrowers, find it difficult to obtain formal loans. Impediments include procedural and documentary requirements and submission of acceptable collateral. Hence, the small-scale borrowers lose out to the more established and larger corporations, which are the banks' preferred clients. The World

Figure 2.9. Domestic Credit Provided by the Banking Sector, South Asia (% of GDP)



Bank and IFC (2009) Enterprise Survey reports that 37% of Bhutan's surveyed firms had not applied for a loan in 2008 although they needed one. Of these firms, 17% did not apply because they considered application procedures too complex and difficult to understand.

The BDFC, which was set up in 1988 to assist micro, small, and rural agriculture lending, comprises but a small part of Bhutan's financial system and has not been able to grow as fast as other financial institutions. At the end of June 2008, the BDFC held 8.0% of the financial sector's assets and 12.8% of the loan portfolio, amounting to Nu33.5 billion (\$770 million) and Nu19.02 billion (\$437 million), respectively.¹¹ Although the BDFC alone has 99.2% of total investment in agriculture, the share of agriculture in the total investment of financial institutions remains only about 2%. The sectoral distribution of all financial institutions' investment portfolios (Pathak 2010) indicates that the largest share of the credit continues to go into building and construction (41%), followed by personal and other loans (27%), manufacturing (22%), trade and commerce (8%), and agriculture (with the lowest share, at 2%).

MSMEs' access to credit is limited by institutional and infrastructure shortfalls.

In addition to overall credit availability, limited access to credit may also stem from lending

institutions' conservative approach to financial intermediation and weak capacities, such as a lack of familiarity with effective loan recovery techniques, insufficiently trained staff, a limited number of appropriate financial products and services, and structural concerns such as difficult geography and wide dispersal of the population. In Bhutan, financial institutions' ability to assess borrower's credit worthiness may also be constrained by inadequate institutional support for credit information. In general, banks' willingness to lend depends on the quality of information that is accessible to them and their ability to understand and manage risks in the credit markets. Limited credit information about small-scale borrowers contributes to the low level and high costs of credit available to them, as financial institutions are conservative in lending to the small-scale borrowers and charge higher interest rates to compensate for the lack of information and perceived riskiness of borrowers who may lack a credit history. To address this, the RMA launched Bhutan's first credit information bureau in September 2009.

The difficult mountainous terrain and poor connectivity in rural areas also contribute to high overhead and transaction costs and lead to a high cost of borrowing and poor credit accessibility in remote areas. In 2011, Bhutan had only 2.19 commercial bank branches per 1,000 square kilometers.¹² Understandably, most commercial banks (as well as pension funds and insurance

¹¹ Using the 2008 exchange rate of Nu43.50:\$1, based on World Bank, WDI.

¹² Based on the International Monetary Fund's Financial Access Survey database, accessed February 2013.

companies) are concentrated in urban areas with commercial and industrial borrowers as their main clientele. In contrast, the BDFC, which is mandated by the government to finance agriculture and other priority sectors, is confronted with geographic challenges that hamper its efforts to reach its target clientele. The cost of lending is lower for the larger banks operating in urban areas than for the BDFC.

To serve a remote clientele, the BDFC and other banks need to improve their operating and administrative capacities, come up with innovative financial products and services, and develop more effective outreach techniques, such as mobile banking technology. The RMA has suggested that financial institutions dealing with all sectors synchronize their policies and coordinate to improve access to finance. Improved coordination of the agricultural credit institutions with the government's renewable natural resources sectors in all districts has great potential to enhance the profitability and viability of agricultural financing activities.¹³

Access to international financial markets is emerging, but is still limited.

Commercial borrowing outside Bhutan was previously mainly limited to borrowing from India to finance hydropower projects. Despite growing demand for investment funds in Bhutan, domestic credit to the private sector has declined by 9.9% to \$14.6 million in 2009 from 2008, and by another 12.3% to \$12.8 million in 2010 (RMA 2011c).

Due to limited credit availability in Bhutan, more borrowing for domestic investment needs has come from external than from domestic sources. To meet the growing credit demand and provide more opportunities for private sector development, the Bhutan Ministry of Finance allowed external commercial borrowings (ECBs) by the private sector in April 2010. The ECB guidelines, however, impose some limitations on such borrowing, including (1) ECBs will not be guaranteed by the Government of Bhutan; (2) financial institutions, unincorporated companies, individuals, trusts, nongovernment organizations, and cooperatives cannot avail of ECBs; and (3) ECBs cannot be used for investing in the capital market, acquiring a company, investing in real

estate, acquiring land, providing working capital, repaying domestic loans, and meeting other general corporate purposes.

In summary, the cost of finance is a constraint. The real interest rates in Bhutan are higher than those in other countries in the region and this impedes private sector activity. Moreover, access to international markets for external commercial borrowing is limited while regulations and guidelines on external commercial borrowing are extensive. This, combined with the fact that Bhutan has only five domestic commercial banks, makes the country a lender's market that can prefer to lend to large, exported-oriented manufacturing firms. Such a market severely limits the availability of credit for MSMEs, which account for 98% of the private sector. This impinges on the ability of the private sector to venture and diversify into new economic activities. Access to and the high cost of finance is thus a critical constraint facing Bhutan's efforts to promote private investment outside hydropower.

2.2. Social Returns to Investments

Low levels of private investment and economic vibrancy may be attributed to inadequate returns to economic activity. These returns are determined by the social returns (benefits to society) to investment, discussed in this section, and by the rate of private appropriability of returns, which is discussed in the following section. The social returns are influenced by the provision of key supporting inputs that enhance the productivity of private investment. Key supporting public investments include those in human capital, infrastructure, and other public services. They provide businesses with a productive workforce, efficient transport, low-cost and reliable energy, and effective telecommunications, among other things.

Bhutan's social returns to investment are on par with those in Nepal but below those of its other South Asian neighbors, although Bhutan's social returns have improved in the last 2 decades (Figure 2.10). There are several possible reasons for this, including low public investment or public investments that are poorly directed and therefore provide weak support to private investment. The following subsections examine these issues in relation to human capital and infrastructure.

¹³ The renewable natural resources sectors comprise agriculture, livestock, and forestry (RMA 2011b).

Figure 2.10. Social Returns to Investments (%)

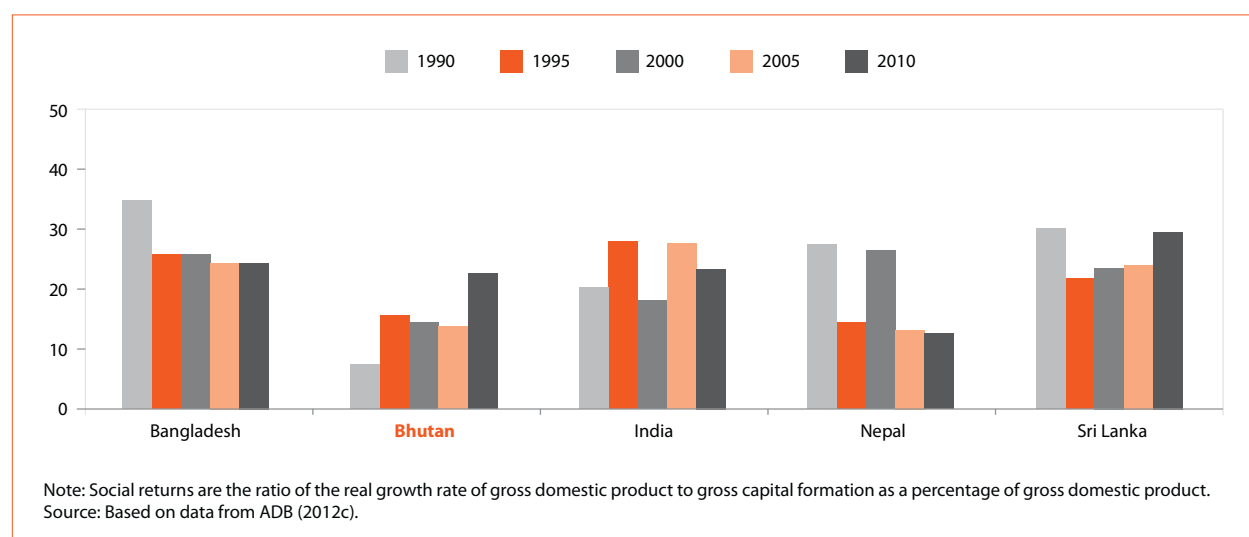
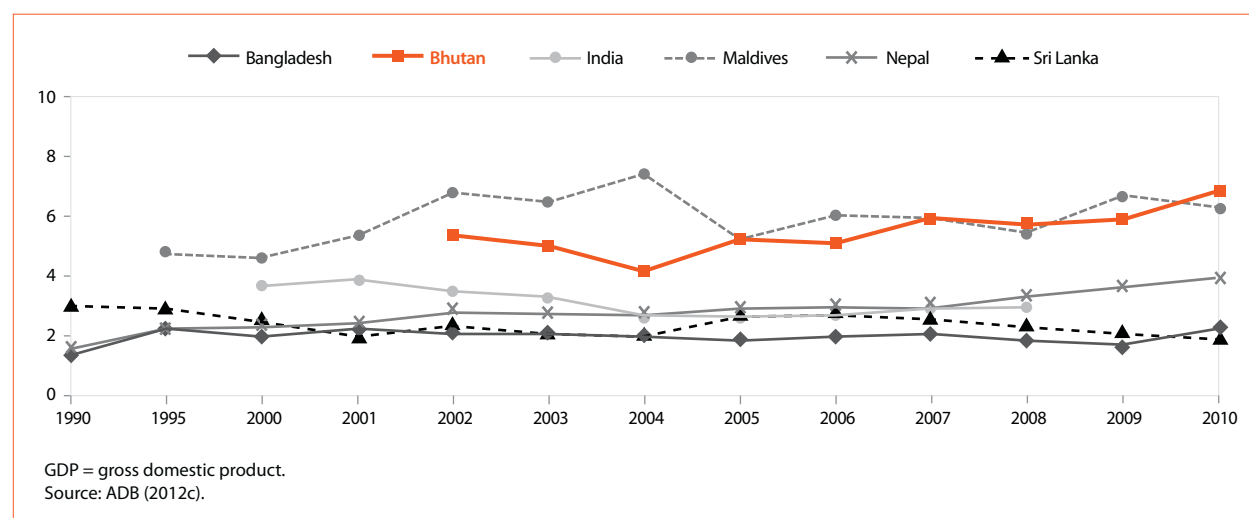


Figure 2.11. Expenditure on Education (% of GDP)



2.2.1. Human Capital

Investment in human capital is high, but the quality of the learning environment is weak.

In recent years, Bhutan has sought to strengthen human capital by expanding education provision. The first 11 years of education, from primary through lower and middle secondary school, are free, and access to higher secondary and tertiary education is free for students who meet stated academic grades (Sherab 2009). The government operates 81 primary and 238 secondary schools, supplemented by 24 private and 261 community schools. At the tertiary level, Bhutan has 1 university, 7 vocational schools, and 747 nonformal centers of learning (Bertelsmann Stiftung 2010).

Bhutan's expenditure on education, at 6.7% of GDP, was the highest rate in the region in 2010 (Figure 2.11). Under the Tenth FYP, education, health, and human resource development account for more than a quarter of the total plan budget. In addition, training and capacity building programs are provided by ministries, local governments, and district and block administrations. Bilateral and multilateral partners augment the government's budget with investments and targeted programs. Much of the expansion in education is recent and it may take some years for the government's education efforts to take full effect. The increased focus on education has raised enrollment rates. Net primary school enrollment increased from 61% to 88% in the

Box 2.4. Quality of Education in Bhutan

The following points characterize education in Bhutan:

- The overall level of performance of most students is low, just above a passing grade.
- Many students do not possess the minimum expected competencies in core subjects at their grade level.
- A majority of students are unable to understand core concepts and apply knowledge to real life situations.
- Outcomes between schools vary. Students in private schools perform best and those in community primary schools perform worst.
- Graduates lack basic analytical and communications skills and the attitudes needed as entry-level professionals.
- Teaching consists mostly of teachers instructing students in the textbook content without enabling them to comprehend and demonstrate their learning.
- Teacher-led “chalk-and-talk,” lack of proper instructional resources, and lack of real measurement of learning are observed in most classrooms.
- Schools lack good quality processes for developing teachers’ capacity, the autonomy and resources to initiate academic improvement, and the essential physical infrastructure to support learning.
- The support systems for schools need considerable strengthening in areas of teacher preparation, curriculum standards and resources, and incentives for quality.

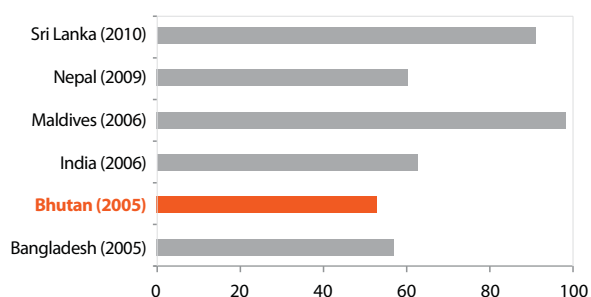
Source: CERD (2009).

decade to 2011. Net secondary enrollment rose by an even greater magnitude, from 22% to 54% during the same period (World Bank, WDI).

Despite the increased expenditure, the quality of education remains low. A recent assessment by the Royal Education Council (REC) noted a wide gap between the current and the desired state in quality of education outcomes and processes (REC and Educational Initiatives 2008). Students perform below expectations of their grade level in both basic and advanced academic skills and lack basic communication and analytical skills. Box 2.4 summarizes the report’s finding. As an outcome

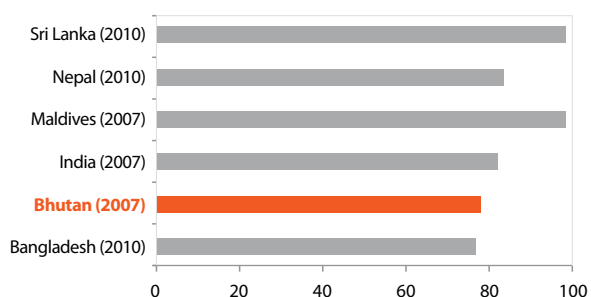
Figure 2.12. Literacy Rates

a. Adult Literacy Rate (% of population 15+)



Source: World Bank, WDI, accessed January 2013.

b. Youth Literacy Rate (% of population 15-24)



Source: ADB, Statistical Database System, accessed January 2013.

of the quality problem and a legacy of under provision, Bhutan has the lowest adult literacy rate and second lowest youth literacy rate in South Asia (Figure 2.12).

The Bhutan Council of Secondary Education Assessment traces the root cause of the quality problem to the foundation of education—the primary level. Gaps in achievement prevail in the key areas of language and mathematics. Despite considerable investment in curriculum reform and teacher training, mean scores in literacy among grade 6 pupils, for example, improved only marginally in recent years (BCSEA 2011).¹⁴

The quality issue is also directly linked to the competency and morale of teachers. An REC study confirmed that teachers are deficient in subject knowledge and in pedagogy (Table 2.1). In the Annual Status of Student Learning, the REC reported

¹⁴ From 2003 to 2011, the score increased from 26.00 to 26.81 out of 50.00.

for grades 4, 6, and 8 that the level of learning in Bhutan was lower than average international levels (REC and Educational Initiatives 2008). However, Bhutan's students' level of learning was higher than that of students in Indian government schools, but lower than that in private schools.¹⁵

The REC found evidence of better outcomes, higher quality practices, and innovative initiatives in pockets within Bhutan. Some private and government schools demonstrated better student performance, better instructional leadership by the principal, and improved teaching practices than was the case in other schools (CERD 2009). While this augurs well for the country, such improved performance needs to become the norm in most, if not all, learning institutions in the country.

Bhutan's labor force lacks the education and skills the market requires.

The legacy of inadequate education translates into low human capital among the workforce. About 64% of workers during 2009–2011 had not completed primary education (Table 2.2). They largely consist of workers in agriculture and forestry, which account for almost 60% of the total workforce (MLHR various years).

The lack of skilled workers is a significant constraint for businesses. About 11% of firms surveyed by the World Bank and IFC considered the country's inadequately educated workforce a major constraint to their operations. This was the third most important constraint after access to finance and tax rates (World Bank and IFC 2009). A government survey put the figure slightly higher, at 13% (Figure 2.13). Another survey found 30% of large and 24% of medium firms consider skills a constraint, with 10% of firms considering it the biggest obstacle they face (World Bank 2010b).

Even the educated youth, who comprise the majority of the unemployed, lack the employable skills, knowledge, or aptitude required by the labor market (Billetoft 2010). A trained workforce is needed for enterprises to be competitive. Reforms to the education system are needed, therefore, to develop a curriculum relevant to meeting the skills required by the private sector (World Bank 2010b).

¹⁵ Assessment Survey Evaluation Research Center, www.asercenter.org

Table 2.1. Findings from Teachers Needs Assessment for Preprimary through Grade 4

Areas	Issues
General	Teachers harbor misconceptions that are being passed on to students.
	Teachers are attuned more to mechanical learning and less to teaching for genuine understanding.
Language	Teachers are able to retrieve explicitly stated facts, but fail to make connections among them.
Math	Teachers understand numbers, but are weak in algebra and understanding the topics and teaching tools.

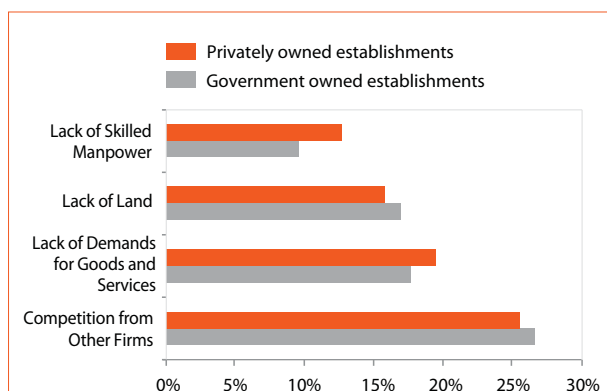
Source: REC, Educational Initiatives, and Ministry of Education (2009).

Table 2.2. Education Level of Employees, 2009–2011 ('000)

Level of Education Completed	2009	2010	2011
None	206	202	206
Primary	34	35	33
Junior High	15	16	16
High	21	24	26
Higher Secondary	12	14	18
Some Undergraduate	0.3	1.0	0.6
Bachelors	5	8	10
Masters and Above	2	2	2
Nonformal	12	12	9
Monastic	6	7	4
Total	312	321	324

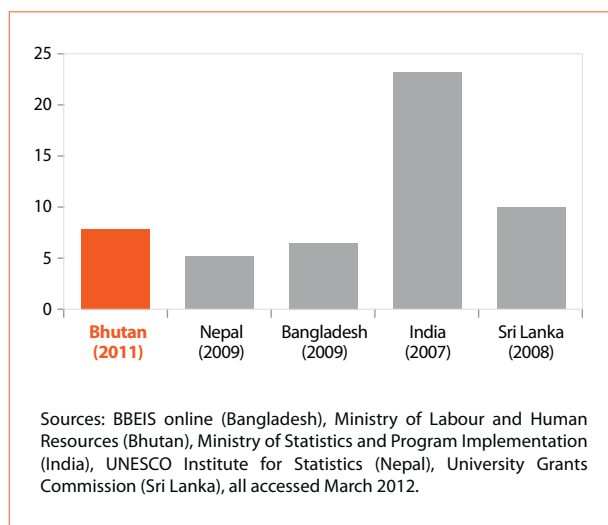
Sources: NSB (various years).

Figure 2.13. Perceived Reasons Hampering the Growth of Business



Source: MLHR (2010).

**Figure 2.14. Engineering Graduates
(% of total graduates)**



The share of people with high-level skills falls short of the level required for a modern economy.

The skills shortage is not confined to lower technical skills but extends to professions in engineering, medicine, nursing, and teaching. For example, Bhutan currently faces an acute shortage of civil engineers. Only 8% of all graduates in 2011 had an engineering degree (Figure 2.14). According to the Tenth FYP, each district is to have three doctors but only half the districts achieved this target in 2011.¹⁶ The shortage of engineering and medical graduates is due to the limited pool of candidates qualifying to study in these programs. This underlines the problem of quality in primary and secondary education.

To address the skills gap, the country has established several technical schools. A school for construction was set up in the 1960s followed by six technical training institutes in 2003, providing courses in masonry, carpentry, plumbing, and electrical skills. Recently, courses in heavy vehicle driving and electronics were introduced. In addition, two institutes were established to teach traditional craft and art skills.¹⁷ In a 42-year period, 1970–2011, technical training institutes trained only 4,161 technicians. Given that over 24,000

¹⁶ Bhutan has 20 administrative and judicial districts (*dzhongkhags*). The next lower level is a group of villages (*geogs*).

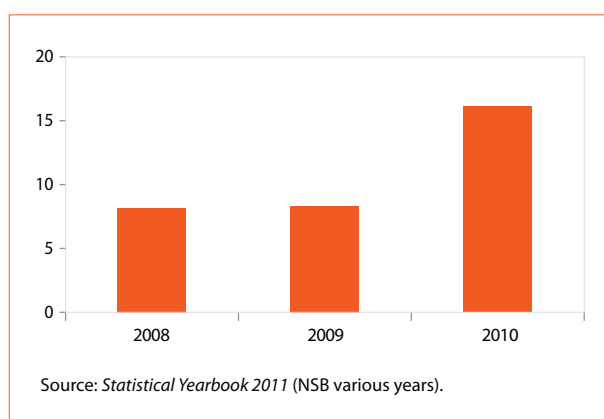
¹⁷ The institutes teach the 13 traditional arts and crafts—the *zorig chusum*.

Table 2.3. Total Technicians Trained

Source	Period	No.
Graduates from the Royal Technical Institute	1970–2002	1,484
Graduates from Technical Training Institutes	2003–2011	2,677
Total Graduates	1970–2011	4,161
Expatriate Technicians	as of March 2012	24,823
Skills Gap		about 90%

Source: Administrative records (MLHR).

**Figure 2.15. Share of Foreign Workers in
Total Employment (%)**



expatriate technicians are currently employed in the country, the domestic skills gap remains enormous (Table 2.3).

Skilled workers come mainly from India and Nepal and their share in the workforce is rising—doubling from 8% to 16% between 2009 and 2010 (Figure 2.15). A recent survey found that foreign workers accounted for a fifth or more of all workers in half of the surveyed enterprises (World Bank 2010b). A fifth of the firms surveyed indicated difficulty accessing foreign workers as a major or severe obstacle to their operations. The required use of third-party agents, licensed by the government, to hire unskilled foreign workers is costly and cumbersome.

The Bhutan Labor Market Study prepared by the REC in 2009 reiterated the shortage of skilled workers as a major concern. The shortage could intensify by 2020 (REC 2009). The construction and power generation industries may face a 15% shortage of vocationally trained technicians and, if the preference of technical training institute

graduates for white-collar jobs continues, the scarcity may worsen.

To address these multiple concerns, Bhutan's Vision 2020 and the Tenth FYP recognized the need for human capital investment. The government undertakes these plans based on its experience that the development of human capital resulted in substantial progress toward meeting Bhutan's targets under the Millennium Development Goals and contributed to its realization of gross national happiness.

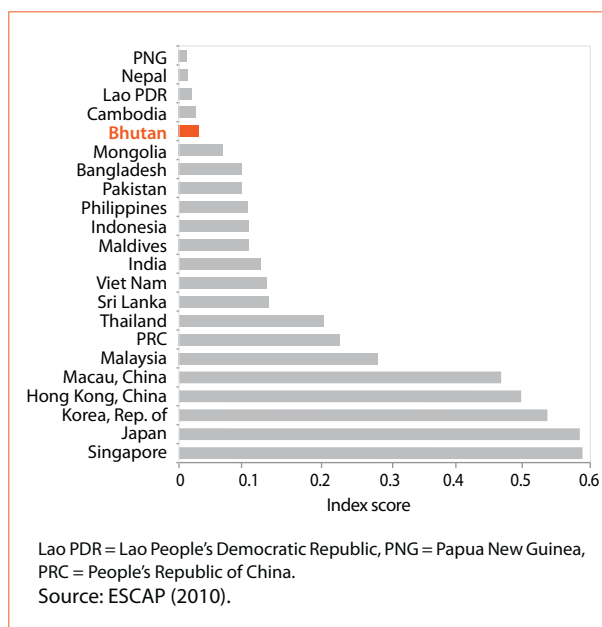
Attempts to foster economic diversification by moving toward a more knowledge-driven economy can be gleaned from the Thimphu Technology Park and Education City projects (ADB 2011a). To improve access to education, vocational and education institutes operating outside the main cities are accorded income tax holidays for up to 15 years. Exemptions from sales tax and customs duty are provided for school conveyances, text books, stationery, furniture and fixtures, and education-related construction materials. If international support is available, the government provides funding for selected students to study abroad, usually for advanced degrees. Middle-class children are increasingly sent to study in India and Thailand with the cost borne by their families (Bertelsmann Stiftung 2010).

In summary, inadequate human capital development is a constraint. Despite efforts to improve enrollment rates at primary and secondary levels, a majority of the labor force remains illiterate. Skills gaps persist despite efforts to improve technical training; the shortage of trained workers hampers businesses. Together, these concerns present a binding constraint on private sector investment and inhibit diversification of the industrial base.

2.2.2. Infrastructure

The 2010 Economic and Social Survey of Asia and the Pacific (ESCAP 2010) noted that Bhutan has one of the Asia and Pacific region's lowest infrastructure composite scores, at 0.03 (Figure 2.16). The infrastructure composite score is a measure capturing aspects of transport infrastructure (road, railway, and air transport density); information and communications technology infrastructure (telephone and internet density); energy availability (intensity of energy use); and banking infrastructure (density of bank branches). Bhutan ranks above

Figure 2.16. Infrastructure Composite Scores in Asia, 2007



its closest neighbor, Nepal, with which it shares similar topography.

On the positive side, recent investment climate and enterprise surveys¹⁸ did not consider access to power, water, and telecommunications services in Bhutan to be a major constraint, given that such access is relatively better than in other countries in the region. However, the 2010 Investment Climate Assessment pointed to road transport as a major infrastructure problem due to losses arising from land transport difficulties, as indicated by 40% of all surveyed firms and 70% of the large firms surveyed. This is consistent with the findings of the World Bank and IFC Enterprise Survey, which indicates that Bhutan is relatively better off by regional and world standards with regard to delivery of power, water, and telecommunications services (Table 2.4). The results of these surveys indicate that provision of infrastructure is better in areas where businesses are located than in other areas, such as rural and remote regions where large proportions of the population live.

Transport Networks

Geographic isolation is a major cause of poverty and underdevelopment in Bhutan.

¹⁸ World Bank (2010b) and World Bank and IFC (2009).

Table 2.4. Infrastructure Indicators

Infrastructure	Bhutan	Region	All Countries
Power Outages (# per month)	0.8	33.9	7.0
Outage duration (hours per outage)	2.4	4.1	4.9
Value Lost Due to Power Outages (% of sales)	4.3	10.1	5.0
If Generator Used, Electricity from Generator (%)	5.9	24.7	21.1
Time to Obtain an Electrical Connection (days from application for connection)	14.8	42.6	34.3
Average Incidents of Water Insufficiency (# per month)	2.7	2.8	1.4
Shortages duration (hours per event)	2.9	7.6	12.3
Time to Obtain a Water Connection (days)	22.1	64.2	32.4
Delay in Obtaining a Telephone Landline Connection (days)	6.1	31.2	22.3

Source: World Bank and IFC (2009).

Bhutan's access to international markets is limited because of the need for transit facilities through neighboring countries, which increases the cost of transport. Research has shown that landlocked countries tend to trade less than other countries with similar characteristics because of limited opportunities to expand into new activities. High transport costs also reduce the competitiveness of Bhutan's exports. A large segment of the rural population has limited access to markets and key social services because of the harsh topography and the limited reach of the domestic transport system. This constrains the delivery of public services as well as private sector growth; access remains a problem in remote areas (World Bank 2010b).

The World Bank's Logistic Performance Index gives Bhutan a low rank in terms of overall logistics performance—107 of 155 countries—and in terms of the quality of trade and transport-related infrastructure (Table 2.5), where it is ranked 117 (World Bank 2012). Bhutan's infrastructure ranking is the second lowest in South Asia, next to Nepal. Bhutan's trade passes through land border crossing posts shared with India. The major highway linking Bhutan to India goes through Phuentsholing and a few border towns. Trade with Bangladesh, India, Nepal, and third countries passes through the

Table 2.5. Logistics Performance Index Rankings (of 155 countries)

Country	Overall LPI Rank	Infrastructure Rank
India	46	56
Sri Lanka	81	89
Maldives	104	93
Bhutan	107	117
Nepal	151	149

LPI = logistics performance index.

Note: Bangladesh is not included in the 2012 LPI Report.

Source: World Bank (2012).

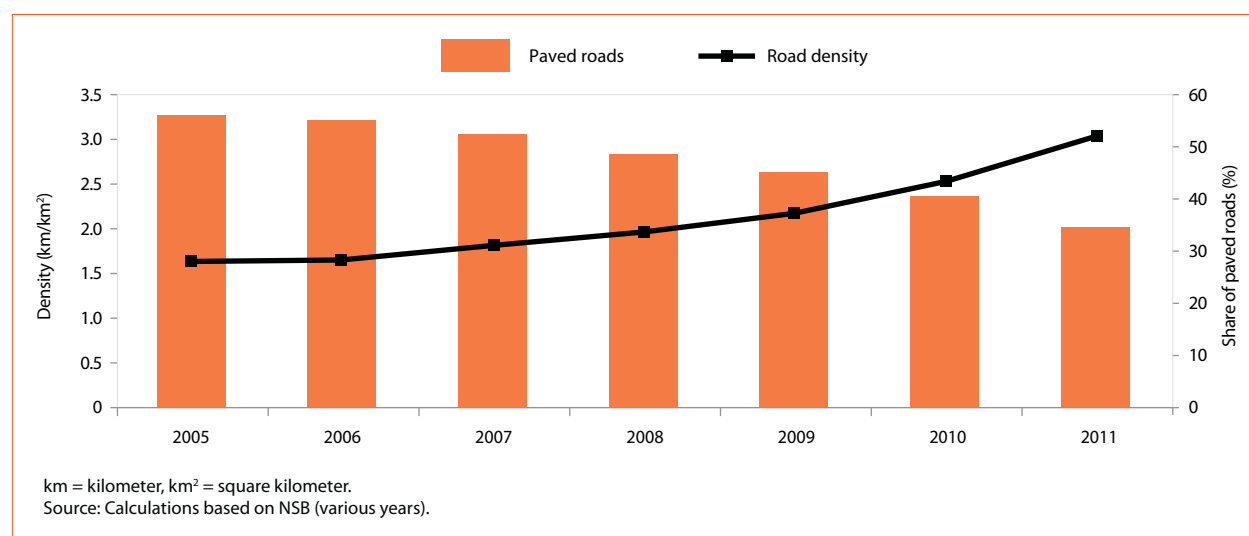
main border crossing posts in the south: Gelephu, Nganglam, Phuentsholing, Samdrup Jongkhar, and Samtse. This indicates the critical importance of the road network in Bhutan, which typically is a series of north–south highways originating from the southern border crossing posts and connecting to population centers in the hills. In the south, east–west connections are generally made through India due to the difficult terrain and long travel times within Bhutan (ADB 2011b).

India is Bhutan's largest trade partner, accounting for more than 80% of trade value. Nearly all trade is conducted by road to or through India, except for small volumes of air freight. All exports to and imports from third countries transit through Kolkata/Haldia Port, reaching Bhutan through Phuentsholing (ADB 2011b). Bhutan has no land link with the People's Republic of China (PRC). The main issues that inhibit trade expansion include excessive delays at ports, inefficiencies at land border crossings, limits on the routes allowed for transit cargo, and limits on the use of the landlocked country's own transport companies. Improving transport networks will lead Bhutan to better connect rural areas with domestic markets and will establish better and stronger trading opportunities with other countries in the region.

Road Networks. Bhutan's rural road network remains limited in terms of both connectivity and coverage—40% of the population had no road access as of 2007 (Donnges, Edmonds, and Johannessen 2007). Approximately 21% of Bhutanese rural households have to walk for 1–4 hours to the nearest all-season road and another 21% have to spend more than half a day.¹⁹ People in about 37% of

¹⁹ World Bank. Bhutan Transport Sector-Challenges. <http://go.worldbank.org/WYC3V28GA0>

Figure 2.17. Road Density and Provision of Paved Roads



the most vulnerable village groups (*geogs*)²⁰ believe that improved access to roads would reduce their food insecurity.²¹ Only 152 of the 205 village groups are served by motorable roads (GNHC 2011b). Mule transport, a major means of transport in village groups not connected by roads, costs about \$3 per ton-kilometer (km) compared with \$0.1 per ton-km by motorized vehicle on a road.

Bhutan's Road Sector Master Plan (RSMP) outlines the sector's programs and projects up to the year 2027. The RSMP focuses on strategic connectivity through construction of trunk routes and includes expansion and maintenance of national highways, district roads, and feeder roads. However, this will be addressed in the Eleventh FYP. Meanwhile, road density has been increasing since 2005 due to construction of farm roads. While road density was only about 1.6 km per square kilometer of arable and disposable land in 2005,²² the density had almost doubled (increased by about 90%) by 2011. The additional roads, however, are mostly unpaved. The proportion of paved roads declined by 22 percentage points during 2005–2011 (Figure 2.17) because of the rapid increase in unpaved roads (Figure 2.18).

The proportion of farm roads, which connect farmland areas and villages to an existing road of equal or higher classification, increased significantly from 9% to 39% during 2005–2011 (Figure 2.18). The share of district roads also increased, albeit modestly, from 10% to 13%, during the same period. Figure 2.19 shows the acceleration of farm road density in recent years, with the steepest rise during 2010–2011.

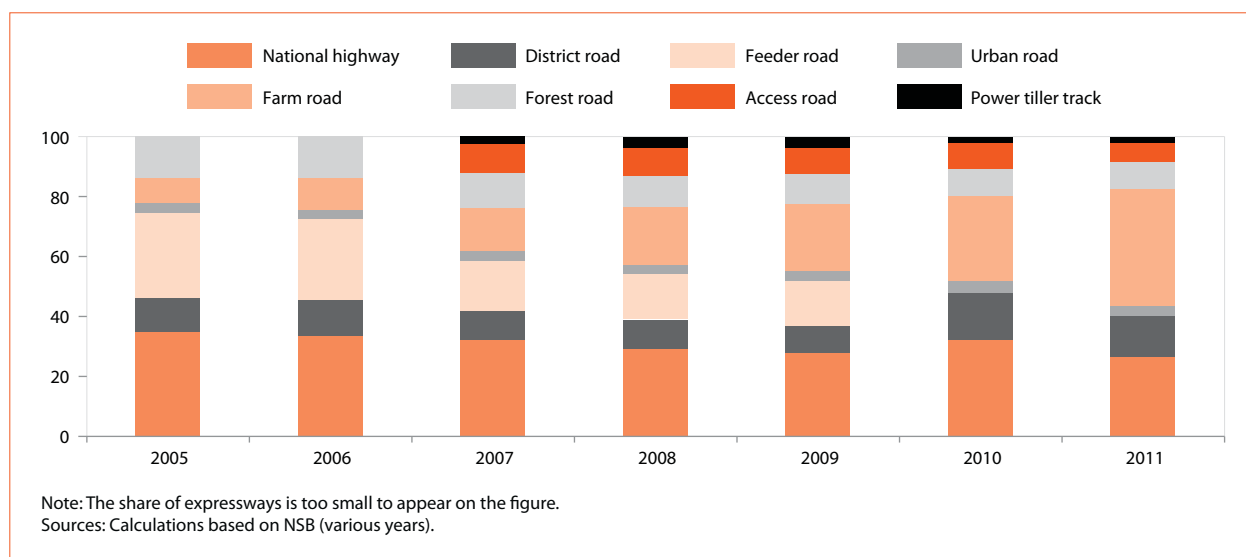
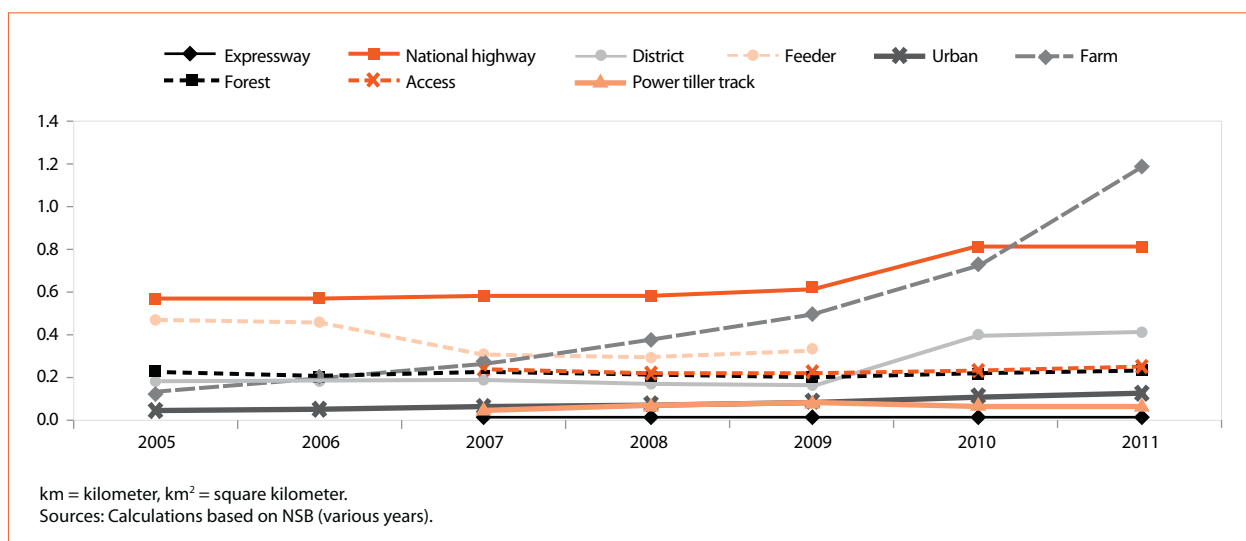
Highways in Bhutan are generally long and narrow with sharp curves and steep gradients. They are usually built following land contours with a minimum number of bridges because of the difficult topography, resource constraints, and a conservative environment policy. Bhutan has 272 bridges, of which 158 are permanent and 114 are temporary. The total length of all bridges is 8,125 meters (m), including 3,564 m of temporary Bailey suspension bridges. The highways are susceptible to landslides and heavy snowfall and, thus, to accidents. Landslides and snowfall can block critical roads, affecting economic activity and the welfare of households and businesses (MWHs 2010).

The provision of road services, whether construction of new roads or rehabilitation of existing ones, to desired standards and serviceability is extremely difficult and costly. Bhutan ranked the highest among selected Asian economies in 2007 in budget for maintenance and rehabilitation of roads (Figure 2.20), at about 38% of gross national product (Donnges, Edmonds, and Johannessen 2007). However, much more needs to be done.

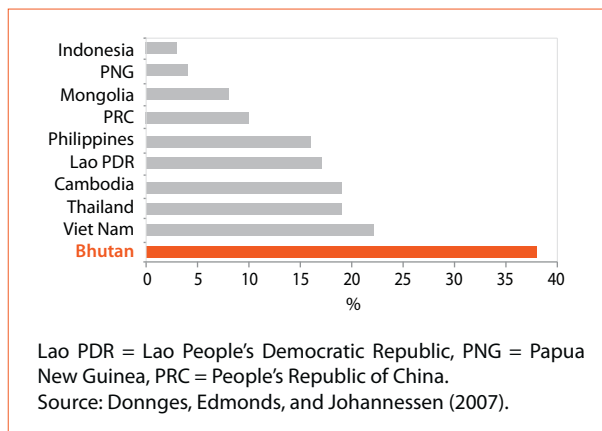
²⁰ A geog refers to a group of villages in Bhutan. Geogs form a geographic administrative unit below districts (*dzhongkhags*).

²¹ Ministry of Agriculture and World Food Programme (2005).

²² Arable and disposable land includes meadows, agricultural land, and settlement areas, and accounts for only 7% of Bhutan's total land area of 3.84 million hectares.

Figure 2.18. Provision of Roads by Type (%)**Figure 2.19. Road Density by Type of Road (km/km²)**

Air Transport. Bhutan's air transport facilities are basic. Bhutan has only one international airport. It is at Paro, in a deep valley at about 2,200m above sea level and surrounded by hills rising to about 4,800m. The approach into Paro is entirely visual as the airport lacks instrument landing facilities. Therefore, operations are limited to daylight hours and can be disrupted frequently by adverse weather conditions (ADB 2011b). During the winter months until mid-May, high velocity winds disrupt flight operations in Paro in the afternoons. These limitations have impacted the commercial viability of airlines. Drukair is the leading provider of international travel in and out of Bhutan. The number of passengers Drukair carries declined by 2.1% to 119,105 in 2008 from

Figure 2.20. Maintenance Budgets as Percentage of Gross National Product

the previous year,²³ and by another 0.9% to 118,084 in 2009. The declined passenger flow in 2008–2009 reflects in part a decline in the number of tourists visiting Bhutan in 2009 as the country felt the spillover effects from the global financial crisis. However, the decline was primarily caused by sharp drops in a few areas of operation (for example, between Delhi and Kathmandu and between Bangkok and Kolkata). The number of Drukair passengers then increased to 132,615 (up by 12.3%) in 2010 and to 166,264 (up by another 25.4%) in 2011.

To increase air traffic across Bhutan, domestic airstrips with basic facilities have been developed. Two new domestic airports with 1,200 m runways (suitable for small to medium turboprop aircraft) are operating at Yongphulla (Trashigang) and Bathbalathang (Bumthang). One more domestic airport was inaugurated at Gelephu in October 2012. In 2011, the government licensed Tashi Air to provide air services. However, Tashi Air temporarily suspended its domestic operations starting 2012 due to poor market conditions and low traffic volume leading to financial losses.

Bhutan's safety and navigation equipment and structures for air transport are inadequate. Airport terminal capacity and related infrastructure can barely accommodate the increasing traffic during peak tourist seasons. The number of international passengers is expected to increase considerably in both the short and longer term, resulting in increasing pressure on the airport facilities at Paro. In addition to the physical improvements needed at the airport, the number of flights operating needs increasing through both higher frequencies on existing routes and the introduction of new destinations and carriers (ADB 2011b).

Electricity Infrastructure

As of 2009, Bhutan had a total installed capacity of about 1,488 MW from hydropower sources. This represents only about 5% of the country's total estimated 30,000 MW of hydropower potential, or 6% of the 23,760 MW identified as technically feasible (GNHC 2009). The government plans to increase hydropower generation capacity to 10,000 MW, about seven times the present level, by 2020.

The abundance of hydropower allows Bhutan to meet its current domestic demand for electricity and export excess energy to India, generating substantial revenues. From 2001 to 2006, Bhutan generated an annual average of 2,200 MW of electricity. With the operation of Punatsangchhu and Tala hydropower plants, supply capacity increased by 180% in 2008 and, by 2010, the country's electricity generation capacity was about 7,000 MW (Figure 2.21). Several hydropower projects are currently in the pipeline to further increase Bhutan's production of energy for domestic use and export.

As of March 2013, Bhutan achieved an overall electrification ratio of 90% (on-grid and off-grid). The government aims to achieve full electrification by end of 2013 (GNHC 2011b). The cost of expanding distribution networks to rural areas is high because of difficult terrain and low population densities. Substantial additional investment in network expansion is necessary to enhance the accessibility of rural communities, in particular to power from proposed hydropower projects.

Electricity generation in Bhutan depends heavily on rainfall during the monsoon, winter snowfall, and on glacier-fed streams. Shortage of power becomes a concern during dry winter months since all the current hydropower plants are of run-of-the-river type, and may require importation of electricity from India until the new hydropower plants are commissioned. Therefore, the sources of generation need to be diversified, including development of reservoir schemes, to compensate for the seasonal limitations.

As shown in Table 2.6, Bhutan charges the lowest domestic electricity tariff rates in Asia, at only Nu0.85–Nu2.41 (\$0.016–\$0.044²⁴) per kilowatt-hour (kWh). This is despite the regular increases in tariff rates since 2003. The rates are significantly below the average cost of supply, estimated at Nu1.74–Nu4.21 (\$0.03–\$0.08) per kWh. About 90% of Bhutan's electricity exports are sold to India at Nu1.98–Nu2.0 per kWh.

The government subsidies to domestic consumers are provided through the pricing of the royalty energy (i.e., royalty energy is priced lower for domestic consumption). For the fiscal years (FYs) 2010/11–2012/13, the government allocated

²³ In 2008, Drukair slashed its flight frequency on several routes during the lean season to deal with the increased cost of aviation turbine fuel in FY2007/08 (Dendup 2008).

²⁴ Conversion is based on Nu1 = \$0.183, the exchange rate as of 10 November 2012.

Figure 2.21. Electricity Generated

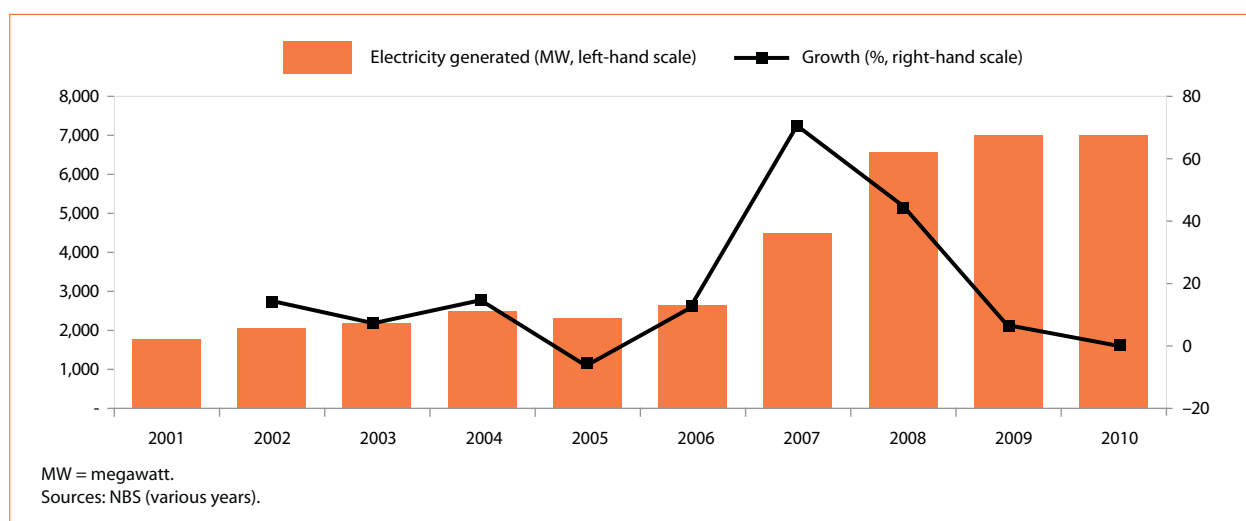


Table 2.6. Bhutan's Electricity Tariff Structure, August 2010 to June 2013

		Aug 2010/ June 2011	Aug 2011/ June 2012	Aug 2012/ July 2013
Unit Slab		(Nu/kWh except as noted)		
Low Voltage	0–100 kWh	0.85	0.85	0.85
	101–300 kWh	1.47	1.54	1.62
	300+ kWh	1.94	2.04	2.14
	Bulk	1.94	2.04	2.14
Medium Voltage	Energy Charge	1.63	1.71	1.79
	Demand Charge	95 Nu/kW	105 Nu/kW	115 Nu/kW
High Voltage	Energy Charge	1.51	1.54	105
	Demand Charge	85 Nu/kW	105 Nu/kW	105 Nu/kW
Wheeling		0.111	0.111	0.111

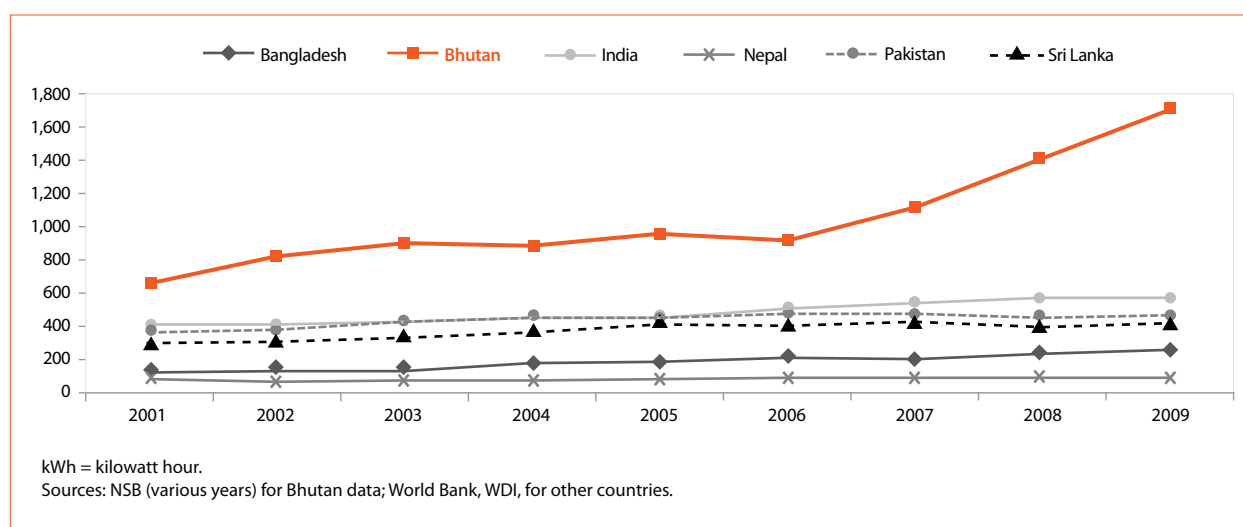
kW = kilowatt, kWh = kilowatt-hour, Nu = ngultrum.
Source: Bhutan Electricity Authority (2010).

annual subsidies of Nu944 million to low-voltage consumers and Nu122 million to medium-voltage consumers. High-voltage consumers received a Nu94 million subsidy in 2010 but, beginning in July 2011, high-voltage consumers were charged the full cost of supply. There is no subsidy for urban and industrial consumers.

Because of low tariff rates and accessibility to electricity, Bhutan's electricity consumption per capita is the highest in South Asia (Figure 2.22). Electricity consumption per capita grew by an average of 11% annually from 2002 to 2009, and is expected to accelerate with the planned increase in the electrification rate.

Telecommunications

Compared with other South Asian countries, Bhutan was relatively late in developing its information and communications technology. The country's first telephone network was established in 1963, the first television network and internet services were provided starting in 1999, and cellular phone services were launched in 2003. As of 2010, Bhutan had about 26,300 fixed telephone lines, 8,675 fixed broadband internet users, and 394,300 mobile phone subscribers. As of 2013, all 205 of the village groups had cellular network coverage and by the end of March 2013 all villages in the groups will have been covered (Thinley 2013).

Figure 2.22. Electricity Consumption Per Capita (kWh)

Telecommunications has been accorded high priority in Bhutan's development plans. The state-owned Bhutan Telecom is the leading provider of mobile and internet services. With the entry of the privately-owned Tashi Cell, the market for mobile services may become more competitive, leading to improved services and possibly lower costs for the consumers. In the 2010 Investment Climate Assessment, only 2.9% of all firms surveyed (2.7% of small firms and 4.6% of medium-sized firms) considered telecommunications as a constraint (World Bank 2010b).

Irrigation

Although Bhutan has a large potential for hydropower development because of its abundant hydropower resources, the potential for irrigation is limited as most rivers are deeply incised into the landscape. The importance of irrigation cannot be ignored as paddy crops such as rice and cereals need a steady supply of water. Bhutan's irrigated area has increased considerably from about 9,000 hectares in 1962 to 40,000 hectares in 1998. As of January 2011, the country had 1,496 irrigation schemes, with a total length of 3,762 km (Table 2.7).

Since 1992, irrigation in Bhutan has been governed by a national irrigation policy. The policy focuses mainly on the management aspects of irrigation, particularly on the importance of strengthening local organizations and organizing water user associations. Public expenditure and development assistance have been limited, however, for further development of the sector. If land use is not managed properly, changing land use patterns

Table 2.7. Irrigation Schemes: Number and Length as of January 2011

District	Irrigation Schemes (#)	Total Length (km)
Bumthang	29	54.03
Chhukha	60	140.53
Dagana	59	130.27
Gasa	16	41.50
Haa	13	27.93
Lhuentse	67	245.65
Mongar	67	161.28
Paro	131	374.07
Pemagatshel	12	25.35
Punakha	105	341.08
Samdrup Jongkhar	42	102.54
Samtse	19	53.11
Sarpang	282	380.70
Thimphu	40	132.30
Trashiyangtse	41	107.47
Trashigang	46	117.25
Trongsa	88	283.60
Tsirang	220	452.73
Wangdue Phodrang	115	499.27
Zhemgang	44	91.82
Total	1,496	3,762.47

km = kilometer.

Source: Ministry of Agriculture and Forests (various years).

brought about by Bhutan's development may diminish productive land area and decrease yields.

Infrastructure, especially connectivity, remains a critical constraint to growth and inclusiveness. Infrastructure, such as power, water, and telecommunications, is relatively well-developed in urban areas; however, in the rural and remote areas, the provision of power, water, and telecommunications services still needs enhancement. Better transport networks, in particular roads, are needed in urban and rural areas for promoting economic and social development through accessibility and by enhancing trade. This may include developing a land link with the PRC and expanding the capacity of Bhutan's airports. To promote economic and social development of rural and remote areas, the power transmission and distribution networks need to be expanded and the irrigation systems strengthened.

2.3. Appropriability of Returns to Investments

Several policies have been promulgated and changed since the new government was established in 2008. The Economic Development Policy 2010, Fiscal Incentives 2010, and Foreign Direct Investment Policy 2010 contain the fiscal and economic packages that promise private sector growth, numerous employment opportunities, and national economic self-reliance (Ministry of Economic Affairs 2010, Ministry of Finance 2010). The Economic Development Policy 2010, in particular, aims to diversify the economy, generate

employment opportunities, promote exports and entrepreneurship, and enhance economic self-reliance. It also emphasizes sustainable development so that economic growth is not achieved at the cost of environmental degradation. These policies were promulgated with the objective of establishing the legal and regulatory framework that can ensure the private sector that its investments will generate adequate returns despite risks that emanate from government and or market failures.

2.3.1. Macroeconomic Risks

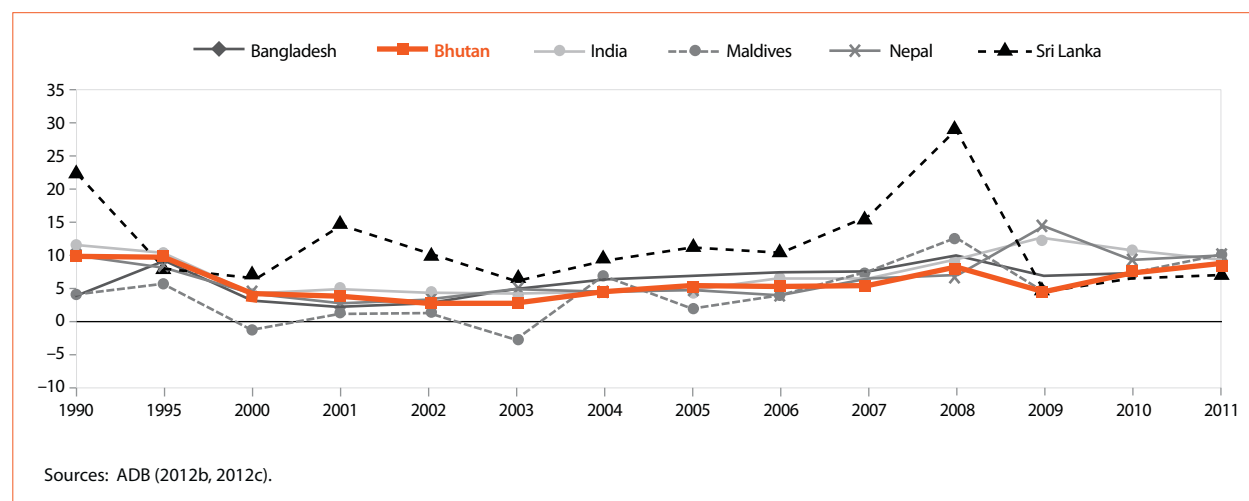
Bhutan's macroeconomic management has been basically sound with relatively low inflation and a modest fiscal position, but persistent current account deficits and fast-rising public debts are emerging as important constraints to the medium-term outlook.

Inflation has been kept at manageable levels, but the lack of monetary control could be a concern.

Bhutan has been able to keep generally low and stable inflation rates—among the lowest in South Asia. Since 2000, inflation rates, measured in terms of the growth of its consumer price index, have generally stayed at manageable levels, below 8%. Inflation, however, increased in 2008 at 8.3% and in 2011 at 8.9%, mainly due to increases in the prices of food, clothing, footwear, and transport (Figure 2.23).

The RMA has been entrusted with the responsibility of conducting monetary policy by the RMA Act 1982. However, the RMA has very

Figure 2.23. Inflation (annual %)



limited tools with which to do so. With its currency, the ngultrum, pegged at par to the Indian rupee, Bhutan's monetary policy has been devoted to maintaining the peg, which has rendered the RMA unable to use domestic interest rates to control inflation and inflationary expectation. As the Indian rupee circulates freely and serves as legal tender in Bhutan, it is also difficult for the RMA to control money supply for the purpose of macroeconomic management. In this context, the RMA's key policy instruments have been limited to a few measures, including setting the cash reserve and statutory liquidity requirements, selling RMA bills, and allowing banks to maintain sizable foreign exchange balances.

High inflation in India, especially food price inflation, remains a concern to Bhutan as the major share of its imports are from India. Also, Bhutan's currency peg with India allows a direct transmission of inflation from India. Bhutan's inflation rates have generally been lower than India's due to the difference in the composition of the consumption basket and the lower price of fuels because of substantial government subsidies. Nevertheless, Bhutan's inflation rates merit continued monitoring in the near term as inflationary pressure has built up on rapid credit growth in recent years and inflation in India increased (GNHC 2011b). Bhutan may experience further spillover effects as the Indian rupee has depreciated following its economic slowdown, pushing the import prices up. The Asian Development Bank predicts that after global commodity price hikes pushed Bhutan's inflation to reach 8.6% in FY2011 and 10.2% in FY 2012, the country's inflation rate will moderate to 9.3% in FY 2013 due to a tight fiscal stance adopted by the government and a clamp down on credit growth. Inflation is expected to ease further to 7.4% in FY 2014 as the foreign exchange position relaxes (ADB 2012b, 2013).

With the limited availability of monetary tools at Bhutan's disposal, liquidity management may place undue rigidity on the provision of credit for the private sector.

While maintaining the peg, Bhutan's monetary policy framework is also aimed at managing overall banking sector liquidity. The main purpose of liquidity management is to avoid sharp and excessive liquidity fluctuations in the financial system. Excessive liquidity in the banking sector

could result in less prudent lending activities and lead to an increase in nonperforming assets. Furthermore, rapid expansion of credit for consumption could lead to increased imports and worsen current account deficits, hence risking financial instability by depleting foreign exchange reserves.

The cash reserve ratio is the main tool the RMA has used to dampen the buildup of inflationary pressure and manage high credit growth. The rapid growth in loans to the building and construction sector and consumers in recent years has exerted inflationary pressure in Bhutan. In addition to the credit reserve ratio, banks are subject to a statutory liquidity ratio of 20%, while nonbank financial institutions are subject to a statutory liquidity ratio of 10%.²⁵ In response to the rapid credit growth and growing inflationary pressure, the RMA decided to maintain tight monetary conditions by (1) setting the cash reserve requirement at 17% (previously it was 15%) starting in August 2008 and discontinuing the payment of interest on it, and (2) maintaining the provisioning requirements of 30% for substandard and 60% for doubtful loans for the highest exposed sectors. The RMA continued to mop up excess liquidity by issuing 91-day Treasury Bills (RMA 2011a).

The level of excess liquidity has declined considerably (in fact registering a shortfall in 2011), from Nu4.4 billion (\$96.2 million) in 2010 to negative Nu1.1 billion (–\$23.6 million) in 2011, as the RMA has taken measures to address high credit growth and to lower excess liquidity (Table 2.8). The levels of both the credit reserve and statutory liquidity ratios increased sharply during the same period. The liquidity tightening measures and the subsequent rise in the level of borrowing rates may have helped tame the inflationary pressure, but they may have also constrained the amount of loanable funds in the real sector (RMA 2011b). Given the limited funds, banks naturally prefer to lend to larger enterprises, which tend to be less risky and can present evidence of substantial cash flows, e.g., export-oriented firms and large local industries. As such, tight liquidity management in the banking sector makes financing of MSMEs extra challenging.

²⁵ The statutory liquidity ratio requirement is applied to all financial institutions, which thus must maintain a minimum liquidity at all times to meet anticipated and contingent obligations in the form of quick assets (RMA 2012a).

Table 2.8. Excess Liquidity and Sterilization by Instrument, end of June (Nu million)

Items	2007	2008	2009	2010	2011
Quick Assets of Commercial Banks (CBs)	9,457.2	8,311.8	9,191.1	13,257.2	10,131.4
Cash in Hand	217.1	619.4	412.9	605.9	1,007.1
Gold and Precious Metals, of which:					
Current deposits of banks	7,371.8	5,180.8	5,342.7	8,108.9	6,207.9
Demand deposits held in CBs in Bhutan	245.0	350.5	1,126.0	2,247.1	1,178.9
Demand deposits held in CBs in India	398.3	643.0	509.7	1,241.3	683.4
Bhutan government bonds	577.0	577.0	1,054.0	1,054.0	1,054.0
Royal Monetary Authority Securities	121.1	414.2	745.8	—	—
Capital Fund	2,344.7	2,672.0	3,214.0	5,707.0	6,382.3
Statutory Liquidity Ratio Position	4,938.7	5,186.3	6,593.0	8,877.9	11,262.2
Excess Liquidity/Shortfall (1–3)	4,518.5	3,125.6	2,598.1	4,379.4	(1,130.8)
Amount of Sterilization	3,101.4	4,148.8	6,001.9	6,846.9	8,286.8
Cash Reserve Ratio	2,889.3	3,734.6	5,256.0	6,846.9	8,286.8
Bhutan Government T-Bills	121.1	414.2	745.8	—	—

— = data not available, CB = commercial bank, Nu = ngultrum.
Source: RMA (2012a).

The current monetary management framework to support the peg does not allow domestic credit to grow beyond a specific limit while the import-reliant economy is constantly running short of Indian rupees.²⁶ While the management of overall banking sector liquidity has been an important tool in Bhutan for maintaining banking and financial stability, this may place a disproportionately undue constraint on the availability of bank credit for MSMEs and small private borrowers.

To address the tight liquidity situation in both Indian rupees and ngultrums, the RMA recently implemented two rounds of cash reserve requirement reduction: from 17% to 10% in March 2012, and further to 5% in June 2012. This may guarantee that financial institutions have access to funds to support committed lending. However, sources of funds for financial institutions and public and private enterprises remain limited, with much

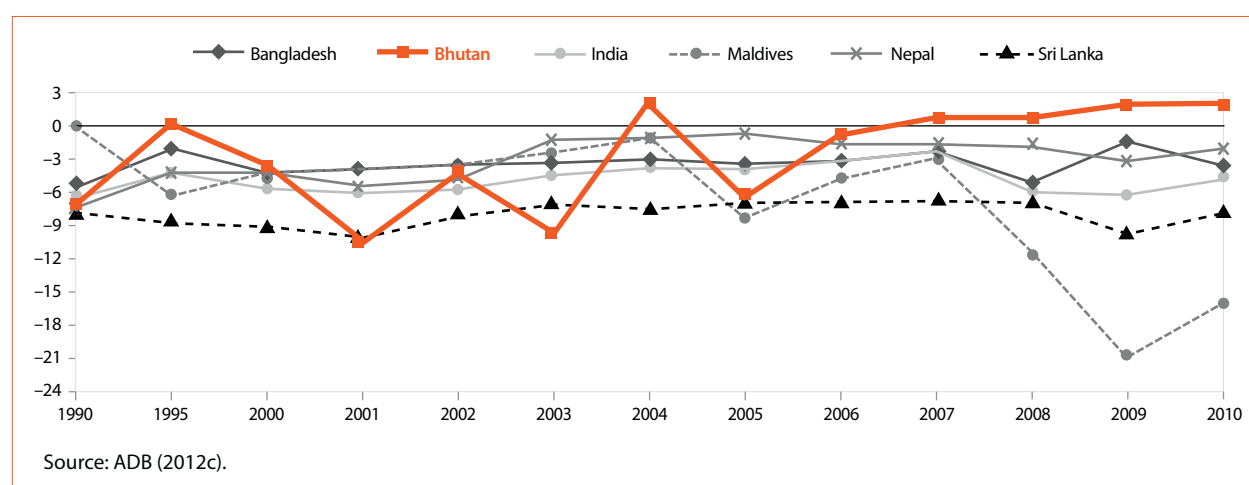
of the injected short-term liquidity unavailable for long-term lending (RMA 2012a).

Bhutan's monetary policy should also consider how best to manage the pace of credit growth without compromising the macroeconomic and financial stability. Measures could include developing more flexible tools for liquidity management (for example, targeting the credit demand rather than the supply directly), nonbanking sectors, and other financial markets, and expanding opportunities for export growth and foreign direct investment in the real sector.

Fiscal policy has been generally prudent, but there is a need to create more fiscal space to meet the growing demand for infrastructure and social spending.

Bhutan reported actual fiscal surplus of about Nu1.6 billion or 2.1% of GDP in FY2010, which is an improvement from the overall surplus during FY2007–2009. Bhutan's fiscal position compares favorably with that of its regional peers, which averaged a deficit of 8.2% of GDP in 2010 (World Bank 2011). During 2006–2009, Bhutan exercised fiscal discipline better than its neighbors, with the overall fiscal balance turning to a surplus since FY2007 (Figure 2.24). The improvement in the overall balance of FY2010 can be attributed to a substantial increase of grants from the Government of India and an increase in tax revenue.

²⁶ The RMA pointed out that fiscal and monetary expansion resulted in the deteriorating balance of payments with India, which has placed increasing pressure on Bhutan's limited rupee reserves. The RMA is, thus, forced to safeguard the exchange rate peg with India. The rupee shortfall in the banking system in the late 2000s has contributed to banks' low liquidity. In 2011, the RMA resorted to short-term borrowing of Rs8 billion at 10% per annum through an overdraft facility of the State Bank of India to meet the rupee shortage in the banking system and to support economic transactions in lieu of the peg with the rupee. The RMA has also sold \$200 million to liquidate some of its short-term debt and to meet the large debt service payments on the Kurichu and Tala hydropower plants due in January 2012 (RMA 2011b).

Figure 2.24. Fiscal Balance (% of gross domestic product)**Table 2.9. Department of Roads' Estimated Costs of Routine Maintenance and Resurfacing**

Routine Maintenance			Resurfacing (7-year cycle)		
Total km	Cost/km (\$)	Cost/Annum (\$)	Km/Year	Cost/km (\$)	Cost/Annum (\$)
2,120	1,029.2	2,182,000.0	226	16,852.3	3,808,620.0

km = kilometer.

Note: Based on an annual maintenance cost of Nu109.1 million covering 2,120 km of roads, and resurfacing cost of Nu190.431 million covering 226 km of roads, at Nu50/\$1. Roads include national highways, district roads, feeder roads, and urban roads.

Sources: World Bank (2004b, 2006).

Government expenditure has been growing as the government has stepped up its investment in infrastructure and social services. Adequate provision of infrastructure and social services is crucial to achieve sustained high growth, by crowding in private sector investment and generating higher productivity.

Bhutan's total government expenditure, measured as a percentage of GDP, is relatively high among South Asian economies, averaging about 24% of GDP during 2001–2010. Additional budget allocations for both current and capital expenditures have placed total government expenditures above 25% of GDP in 2008–2010.

Table 2.9 exemplifies how much more funds the government would require to accelerate its infrastructure development. Currently, about 35% of the country's total road network of 8,100 km is paved. Resurfacing 1 km of road in Bhutan would require about \$16,852.²⁷ If the government endeavors to double the share of paved roads (in the total road network) to, for example, 70% in 5

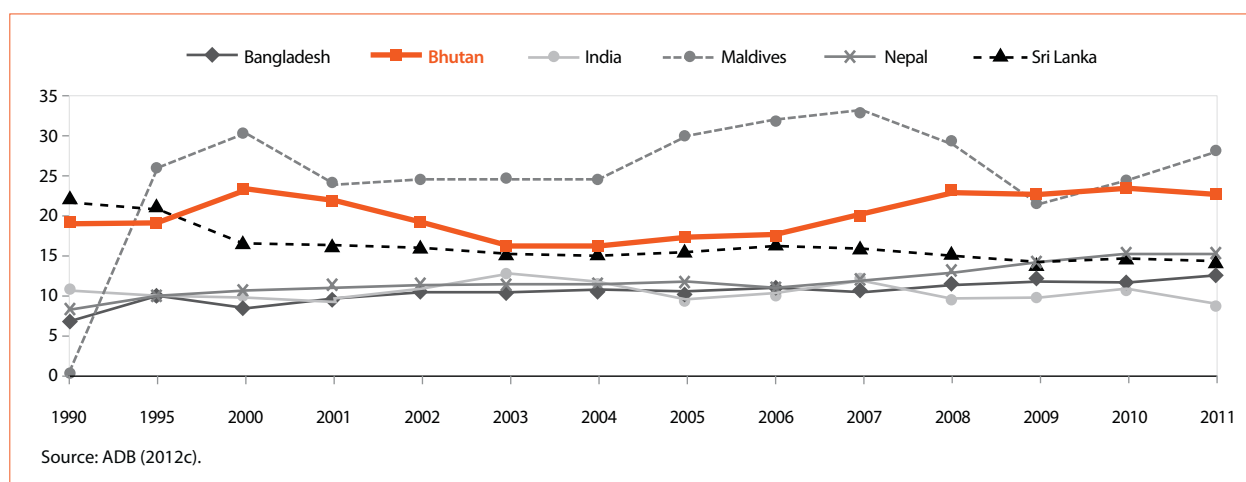
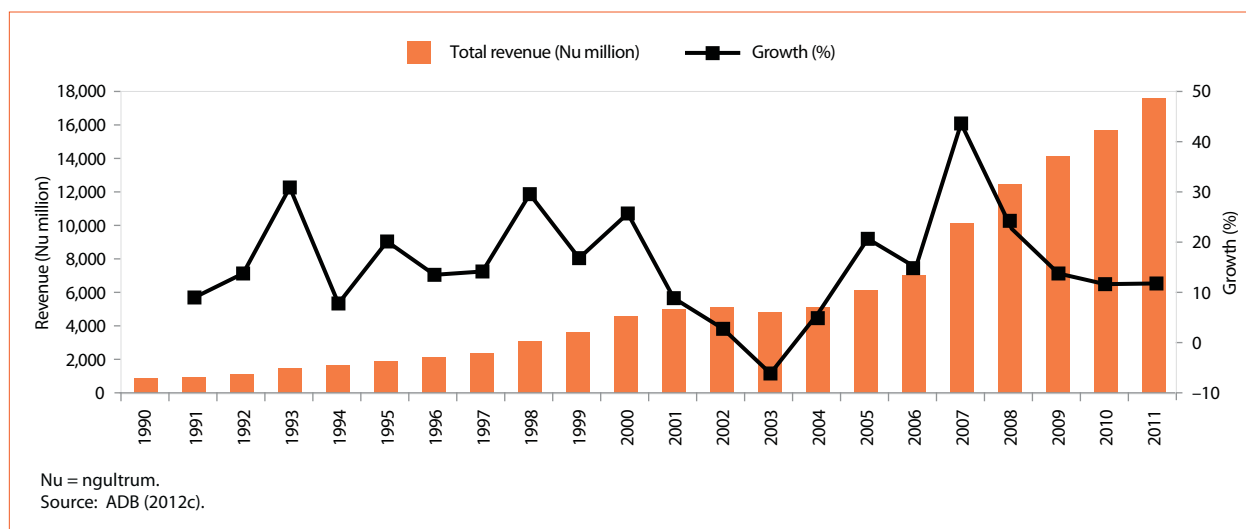
years (keeping the total road network constant), it would need about \$47.8 million in funding or about \$9.6 million per year (using the road resurfacing cost). Constructing new roads would require almost \$100,000 per kilometer (World Bank 2006).

Bhutan has maintained a good fiscal position on the back of strong growth of domestic revenues and a significant improvement in the tax effort. But, in the medium- to long-term, the government's narrow fiscal space could become a critical constraint to financing public expenditure that is needed to sustain and enhance growth.

Government revenue has improved, but a narrow tax base and imperfect tax administration continue to be a concern.

Bhutan's total government revenue as a percentage of GDP averaged about 20% during 2000–2011, which is the second highest in the region next to the Maldives. During 2007–2011, total government revenue reached 22% of GDP due to increased tax revenue from the new hydropower projects (Figure 2.25). Government revenue grew rapidly during most of the 2000s, and totaled Nu17.5 billion (\$374.1 million) in 2011 (Figure 2.26).

²⁷ In lieu of blacktopping, cost data for which are lacking. Road blacktopping normally costs more than road resurfacing.

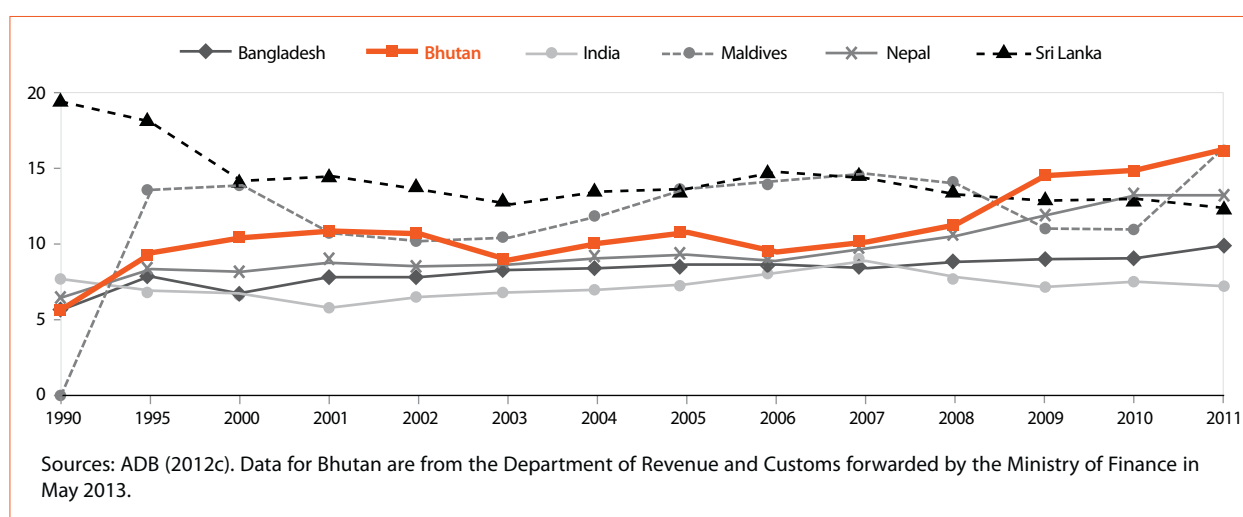
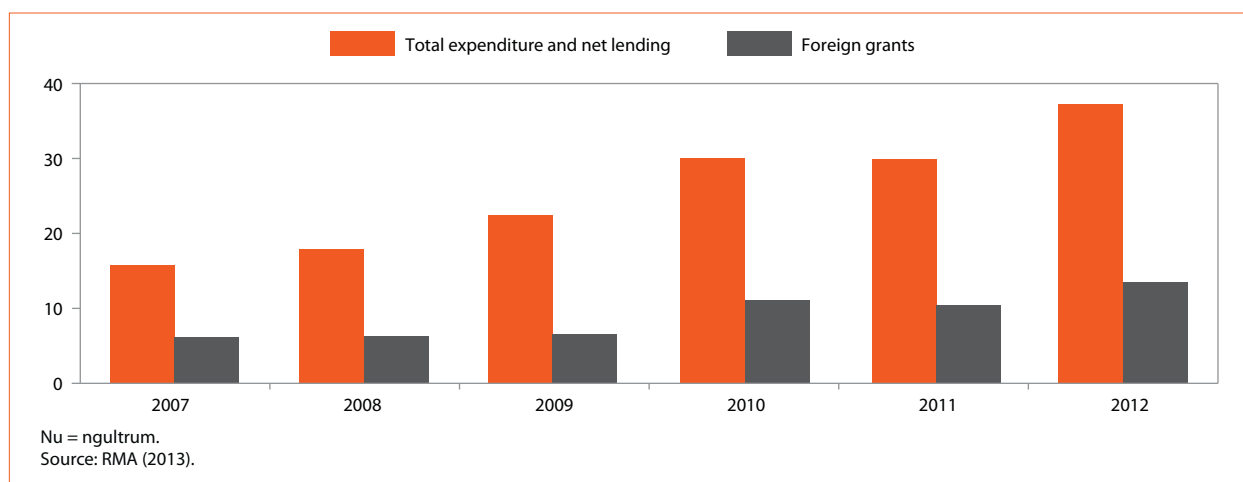
Figure 2.25. Total Government Revenue (% of gross domestic product)**Figure 2.26. Total Government Revenue (Nu million)**

Revenues from taxes have increased from 9.4% of GDP in 2006 to 16.1% in 2011. Indeed, Bhutan's tax performance has improved significantly since 2007 and exceeded that of its South Asia comparators in FY2010/11 (Figure 2.27). The significant increase in tax revenue in FY2010/11 can be attributed to the more than double increase in corporate income tax, from Nu2.3 billion to Nu5.1 billion, owing to the commencement of collection of corporate taxes from the Tala hydropower project. Tax revenues in FY2010/11 comprised about 66% of the total government revenue. Corporate income tax (which totaled Nu5.1 billion); excise duty (Nu1.6 billion); business income tax from tour operators, contractors, and other miscellaneous business entities (Nu1.1 billion); and personal income tax (Nu704.9 million) have also contributed to the

tax revenue. Revenue collected from sales tax and import duty totaled almost Nu1.9 billion.²⁸

However, the government revenue performance has been volatile, reflecting in part a narrow tax base and the limited scope of economic activity. The hydropower sector has been a major source of the government revenue and is subject to a long-term project cycle and seasonality. Bhutan's tax efforts are commendable, and the tax administration could be improved further. Growth of government revenue is slowing in 2008–2010 due to a decline in collection from nontax revenue sources and other miscellaneous receipts. Further revenue measures, through broadening the tax base and improving

²⁸ Based on data from the Department of Revenue and Customs forwarded by the Ministry of Finance in May 2013.

Figure 2.27. Tax Revenue (% of gross domestic product)**Figure 2.28. Government Budget (Nu billion)**

tax collection, are necessary to ensure adequate fiscal space.

Volatile revenue and aid flows cast a shadow on the medium-term fiscal outlook.

Foreign aid has been an important source of fiscal revenue in Bhutan. Grants covered, on average, about 34.9% of total expenditure during 2007–2012. In 2012, grant support helped finance 36.4% of total expenditure owing to a sharp rise in aid flows and increased commitments from development partners. In 2012, the amount of foreign grants reached \$289.2 million (Nu13.5 million), or 16% of GDP (Figure 2.28).

International aid flows, however, are expected to decline as Bhutan realizes a higher level of per capita gross national income on the back of its

strong economic growth. The *RMA Annual Report 2009–2010* recognizes that there is no assurance that the amount of foreign grants will continue to increase (RMA 2011a). Due to the impending decline of aid and grant flows, Bhutan will need to boost its tax efforts substantially going forward. Figure 2.29 shows how the fiscal deficit will widen if grant revenues are assumed to decrease starting in 2013, even if tax revenues are assumed to grow annually by 16.9% and nontax revenues by 9.0%, while expenditures are assumed to grow by 13.8% annually.

A heightened level of public debt poses a risk of medium-term debt distress if not addressed properly.

Bhutan's public debt grew rapidly in the 2000s: it more than quadrupled from \$171.3 million (Nu7.7

Figure 2.29. Bhutan Government Revenues and Expenditures
(with expected reduction in grant revenues, Nu billion)

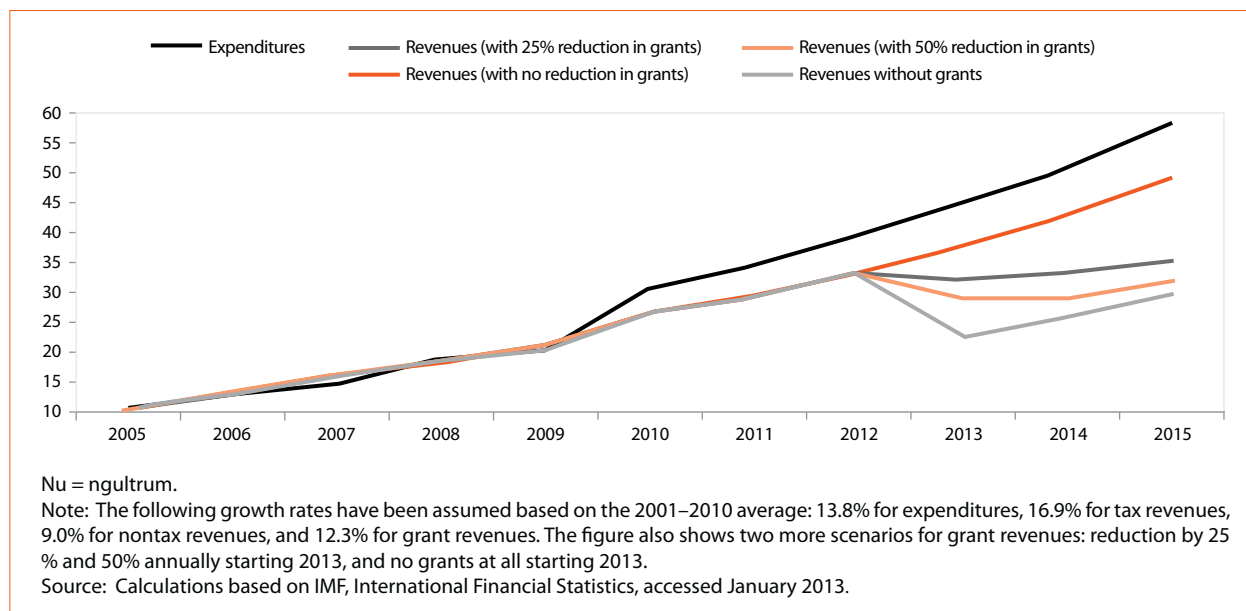
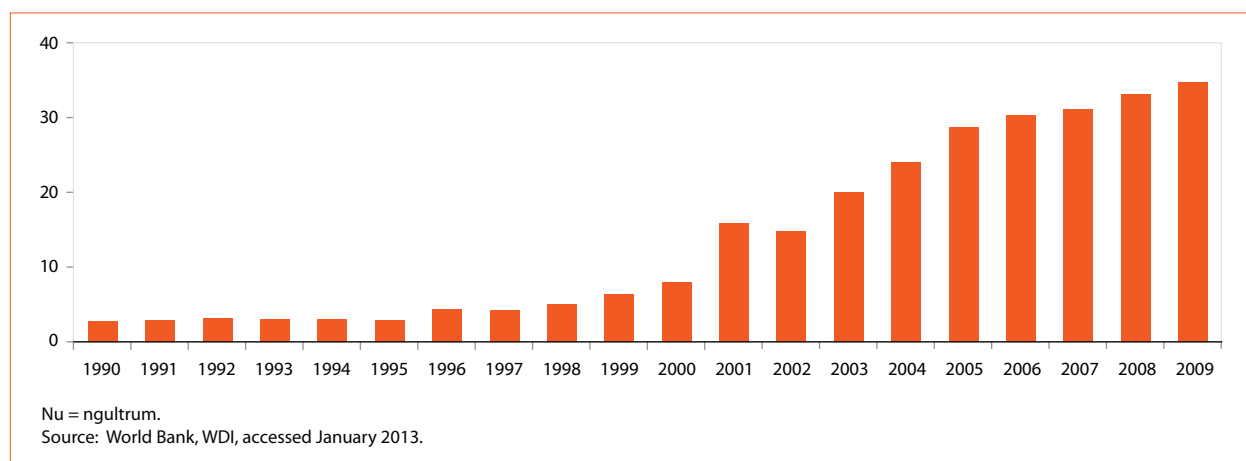


Figure 2.30. Total Bhutan Government Debt (Nu billion, current)



billion) in 2000 to about \$718.9 million (Nu34.8 billion) in 2009 (Figure 2.30). About 61% of total debt was incurred by the hydropower projects. However, the rapid rise alone does not currently seem to threaten debt sustainability given the country's solid economic performance, successful implementation of hydropower projects, and their commercial viability.

Indeed, Bhutan's public debt appears under control, with its share of GDP gradually falling from almost 80% in 2005 to 57% in 2009 (Figure 2.31). There are some mitigating circumstances for Bhutan's public debt risk: (1) most of India's loans to Bhutan were on concessional terms;

(2) Bhutan's hydropower sector is self-liquidating and commercially viable due to the strong energy demand from India, thereby mitigating the risks of default or inability to repay those foreign obligations, and mitigating the cost of borrowing; and (3) Bhutan has a good track record in project implementation and has maintained good ties with its major creditor, the Government of India.

Given the rapid rise in public debt, however, close monitoring of long-term debt sustainability is warranted. The International Monetary Fund projects that the public debt will rise further, exceeding 110% of GDP in FY2014/15 as a result of investments in the hydropower sector and rising

Figure 2.31. Central Government Debt, Total (% of gross domestic product)

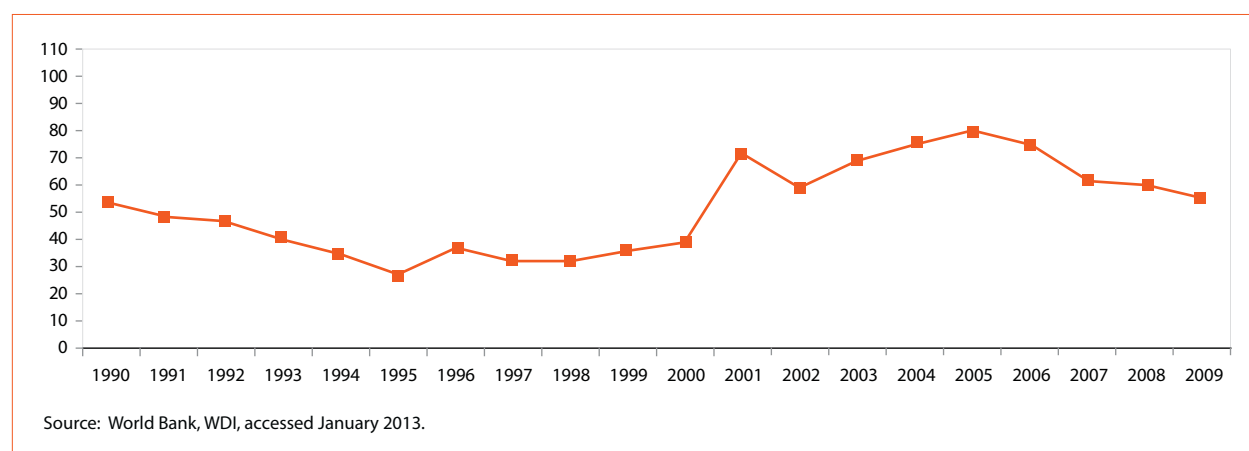
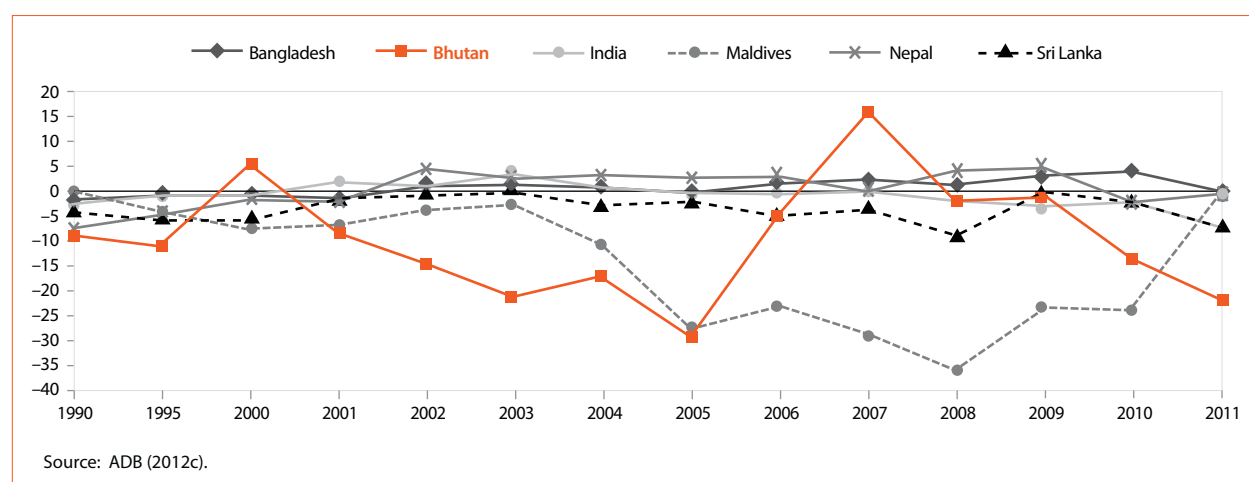


Figure 2.32. Current Account Balance (% of gross domestic product)



current spending (IMF 2011). The International Monetary Fund's debt sustainability analysis shows a moderate but still significant risk of debt distress. As such, debt management remains a priority policy of the government, as stipulated under its current FYP. Efficient debt management and improved revenue generation are essential to avoid fiscal shock in the future.

Widening current account deficits require more prudent macroeconomic management and close monitoring of external financing risks.

Bhutan's persistent current account deficits with its major trading partner, India, together with the ngultrum peg to the Indian rupee, remain a main source of vulnerability for the country's financial system (Bertelsmann Stiftung 2010). From 1990 until 2010, among South Asian economies,

Bhutan registered relatively large current account deficits, averaging 8.8% of GDP. Compared with other countries in South Asia, Bhutan's current account balance (as a percentage of GDP) has also been highly volatile, swinging from a deficit of almost 30% of GDP in 2005 to a surplus of 15.8% of GDP in 2007. Bhutan's current account balance deteriorated sharply again during 2008–2010, reversing to a deficit of 14.3% of GDP (\$192.5 million or Nu8.8 billion) in 2010 (Figure 2.32). This deterioration in 2010 was due to a substantial trade deficit and slow growth in the services and invisibles accounts (RMA 2011a).

The most recent RMA figures showed that Bhutan's current account deficit in FY2010/11 widened to 22.2% of GDP largely because the trade deficit worsened from \$304.0 million to \$503.5 million (Nu13.9 billion to Nu23.5 billion). Export growth has been unable to keep pace with import

growth, particularly imports from India, which increased by 43.4% (RMA 2012a). The present Asian Development Bank projections show that the current account deficit will likely persist at about 20% of GDP in FY2013 and FY2014, driven by strong demand for imports related to hydropower development (ADB 2013).

The RMA should step up its efforts to monitor external financing risks and maintain adequate foreign reserves to ensure financial stability. As a new hydropower project cycle is starting, imports will continue to grow and current account deficits will widen. This will necessitate financing the deficit through a combination of capital inflows from India for power plant construction, development assistance flows, foreign direct investment, and borrowing. Furthermore, external financial risks may arise if foreign aid flows drop and expansionary fiscal and monetary policies continue. Prudent macroeconomic management and efforts to enhance domestic financing will be critical to ensure macroeconomic and financial stability.

2.3.2. Microeconomic Risks

Government effectiveness is gradually improving.

Government effectiveness is affected by the quality of public service provision and the bureaucracy, the competence of civil servants, the independence of the civil service from political pressure, and the credibility of the government's commitment to policies. The World Bank's online Worldwide Governance Indicators score more

than 200 countries on government effectiveness. The main focus of the indicators is on the inputs required for the government to be able to produce and implement good policies and deliver public goods. In the indicators ranking, Bhutan scores the highest among the South Asian economies. Although its percentile ranking dropped to 54 in 2004 from its peak of 78 in 2000, it has been improving gradually during 2006–2011, reaching 70.6 in 2011 (Figure 2.33).

The Government of Bhutan has stepped up efforts to further curb corruption.

Bhutan continues to be one of the least corrupt countries in South Asia. The World Bank's Worldwide Governance Indicators report that Bhutan continues to lead the region in terms of control of corruption. The country's percentile rank remained at 75 in 2009 and 2010, then dropped slightly to 73.9 in 2011 (Figure 2.34). Bhutan's corruption perception index, as measured by Transparency International, improved from 5.0 to 5.7 (on a scale of 10). Accordingly, its rank improved from 49th (of 180) in 2009 to 36th (of 178) in 2010 (TI 2011). In terms of firms' informal payments to public officials, Bhutan ranks the lowest in the region (World Bank 2010b).

While some corruption exists in Bhutan, it is low relative to regional and all-country levels. As shown in Table 2.10, corruption is considered as a business constraint among 6% of the firms in the Enterprise Survey (World Bank and IFC 2009). Bhutan's Anti-Corruption Commission, established in 2006, has identified misuse of resources, bribery

Figure 2.33. Government Effectiveness (percentile rank)

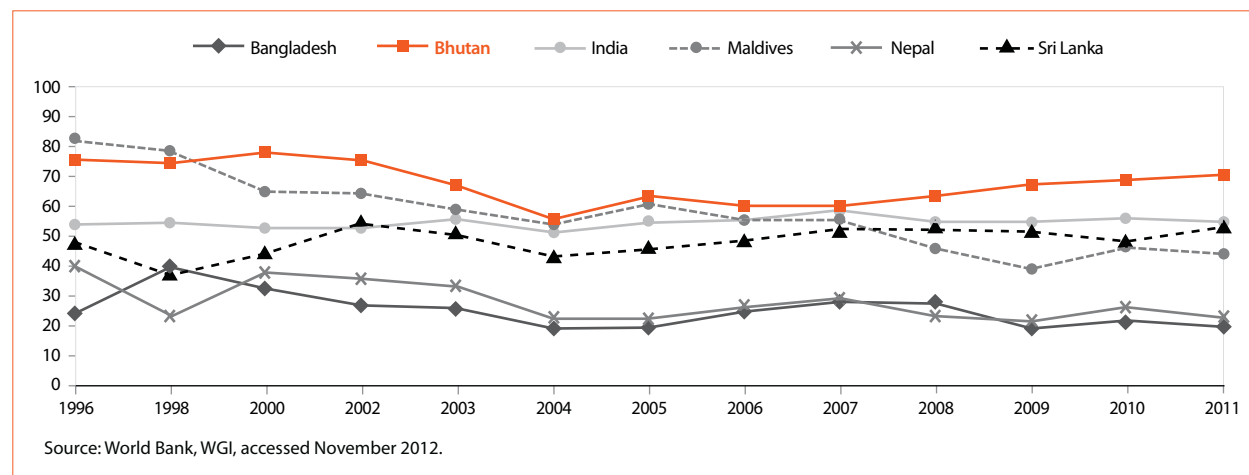


Figure 2.34. Control of Corruption (percentile rank)

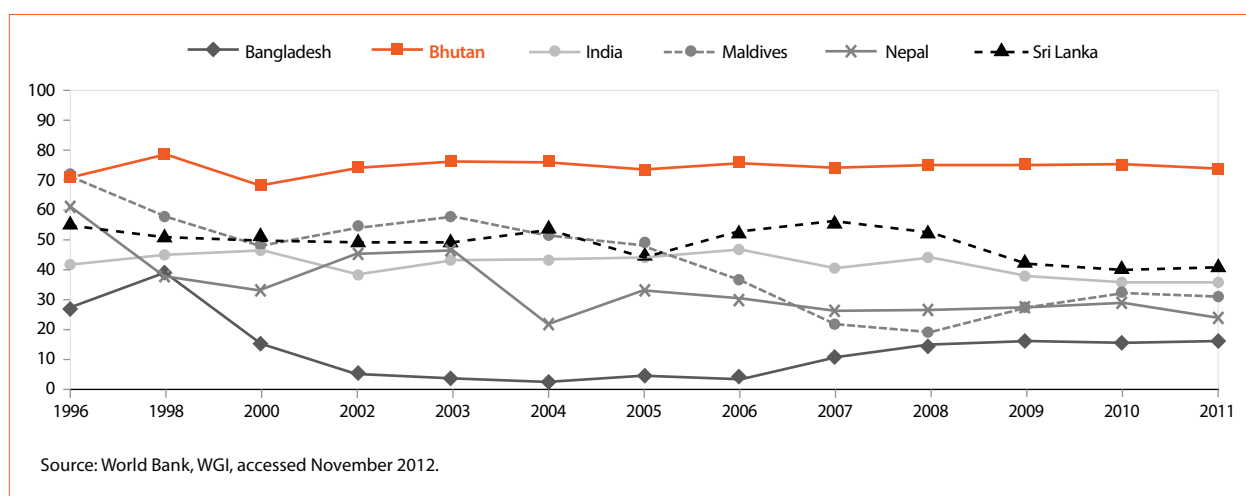


Table 2.10. Bhutan's Corruption Indicators (%)

Corruption	Bhutan	Region	All Countries
Firms Expected to Make Informal Payment to Public Officials to Get Things Done	10.1	37.3	25.3
Firms Expected to Give Gifts to Get an Operating License	1.4	19.9	15.0
Firms Expected to Give Gifts in Meetings with Tax Officials	2.5	31.3	15.6
Firms Expected to Give Gifts to Secure a Government Contract	7.0	27.8	23.5
Firms Identifying Corruption as a Major Constraint	6.0	33.6	35.9

Source: World Bank and IFC (2009).

and collusion, and nepotism as some major forms of corruption encountered in the country.

The government remains committed to rooting out corruption in the bureaucracy. An increasing number of cases have been referred to the Anti-Corruption Commission as it diligently promotes awareness of its role. The prosecutions are an indication that the courts actively enforce anticorruption legislation (Bertelsmann Stiftung 2010). Concurrently, the Royal Audit Authority has stepped up efforts to conduct audits, particularly at the district level, where lack of knowledge of government business processes causes inefficiencies and possible malfeasance. In addition, the Ministry of Finance is reviewing the procurement manual in view of strong evidence from the Royal

Audit Authority that the construction sector has inherent structural deficiencies in procurement (ADB 2009).

Bhutan's political situation is stable, with the rule of law mostly upheld.

Bhutan ranks the highest in terms of political stability in the region, although its percentile rank came down quite a bit from over 90 during the mid-2000s to about 73 in the late 2000s (Figure 2.35). Recent investment surveys confirm that political instability is not considered a significant constraint to doing business in Bhutan.

In March 2008, the country held its first national elections, with a voter turnout of 79.4%. Local elections transpired peacefully in January 2011 and the transition process to a full participatory democracy has proceeded steadily.

For a country in transition—having changed from a monarchy to a parliamentary democracy only in 2008—Bhutan compares favorably with its South Asian neighbors in terms of the rule of law. It maintained its percentile rank at about 60 during 2003–2011. Its voice and accountability has also been improving slightly since 2005, though it fell to 32 in 2011 from 34 in 2010 (Figure 2.35).

The independence of Bhutan's judiciary was firmly and explicitly established under the Judicial Service Act of 2007. The judiciary had established its independence through a series of decisions in the 1990s. While the constitution mandates a separation of powers, the residual authority and prestige of the

Figure 2.35. Other Governance Indicators (percentile rank)

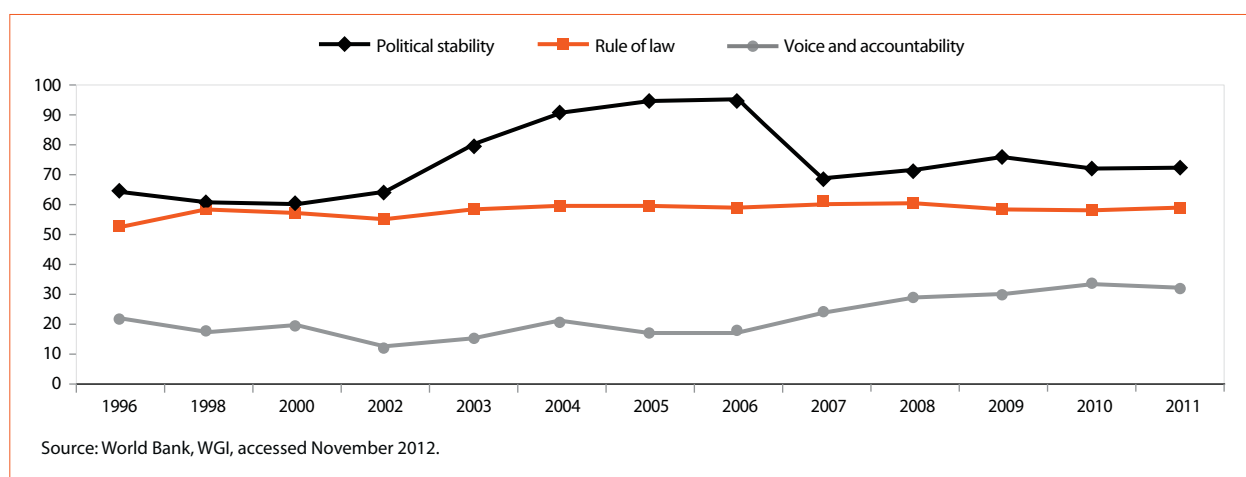
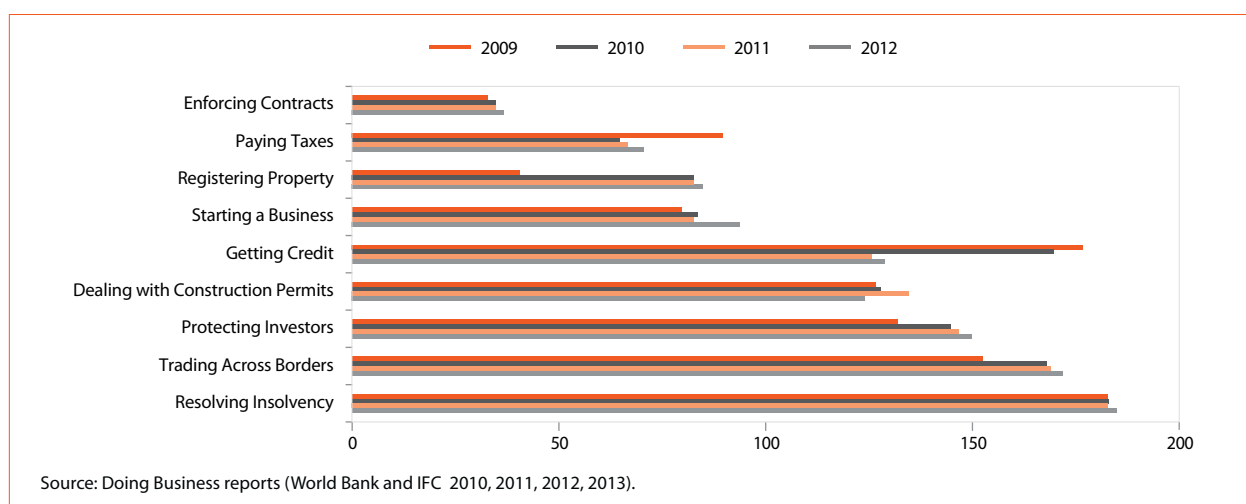


Figure 2.36. Ease of Doing Business in Bhutan



monarch also serve as a power center (Bertelsmann Stiftung 2010).

The World Bank (2010b) Investment Climate Assessment reports that Bhutan enjoys a safe and stable environment. Among Bhutan's comparator countries, it has the lowest share of firms paying for security and relatively low losses due to robbery and vandalism. Only 33% of firms in Bhutan reported paying for security compared with the 50% South Asian average. Firms in Bhutan also have the lowest perception of crime, theft, and disorder as a constraint to doing business—less than 5% of firms perceive this as a major obstacle, compared with 21% among the comparator countries.

Global competitiveness and ease of doing business exhibit nascent progress.

In terms of ease of doing business, as shown in Figure 2.36, Bhutan's overall rank has deteriorated from 126th (of 183) in 2009 to 148th (of 185) in 2012 and remains the lowest in the region (World Bank and IFC 2013, 2010). The decline in the 2012 ranking is mainly because no new reforms were undertaken in 2012.

Bhutan fares relatively well in terms of cost of starting a business, at 6.5% of income per capita (compared with the average of 21.6% for South Asia), but the process in Bhutan is more tedious, requiring 8 procedures and 36 days, compared with 7 procedures and 19 days on average for countries in South Asia. Contract enforcement takes 225 days to complete, with 47 procedures at a cost of only 0.1% of a claim, versus an average of 1,075 days, 43 procedures, and a cost of 27.2% of a claim for other countries in the region. Bhutan has improved the

most in the ease of enforcing contracts since 2005 (World Bank and IFC 2013).

The country also fares relatively well in terms of days to obtain a business license, based on the Investment Climate Assessment for Bhutan (World Bank 2010b). Obtaining a business license takes 19 days on average in Bhutan, versus the 27-day global average. While securing business licenses and permits is not identified as a major business environment constraint, it still ranked 6th of 15 constraints and was placed even higher in the trade sector.

Paying taxes in Bhutan ranks 71 out of 185 in the Doing Business Survey (World Bank and IFC 2013). Bhutan has relatively high tax rates, ranking 91st of 185 economies. Tax rates often rank among the highest constraints to doing business in Bhutan. The World Bank and IFC's (2009) Enterprise Survey ranks tax rates as the top constraint considered by all firms in Bhutan, second only to access to finance. In the World Bank's 2010 Investment Climate Assessment for Bhutan, more than 16% of all firms indicated tax rates as a constraint. Bhutan's total tax rate of 40.8% of profit is the third highest in the region, after India and Sri Lanka (PwC, IFC, and World Bank 2011). This doesn't necessarily suggest that Bhutan should lower tax rates, especially given the uncertainty over the medium-term fiscal sustainability, but, if high tax rates are not matched by a high level of public services, the global competitiveness of the firms operating in Bhutan will suffer. The government could usefully take a hard look at the quality of public services provided for the taxes paid.

Some subindicators, such as paying taxes, getting credit, and dealing with construction permits showed some improvement during 2009–2012, while the rest deteriorated. Remarkably, Bhutan ranked the lowest in terms of resolving insolvency, as it lacks the requisite legal and regulatory framework.

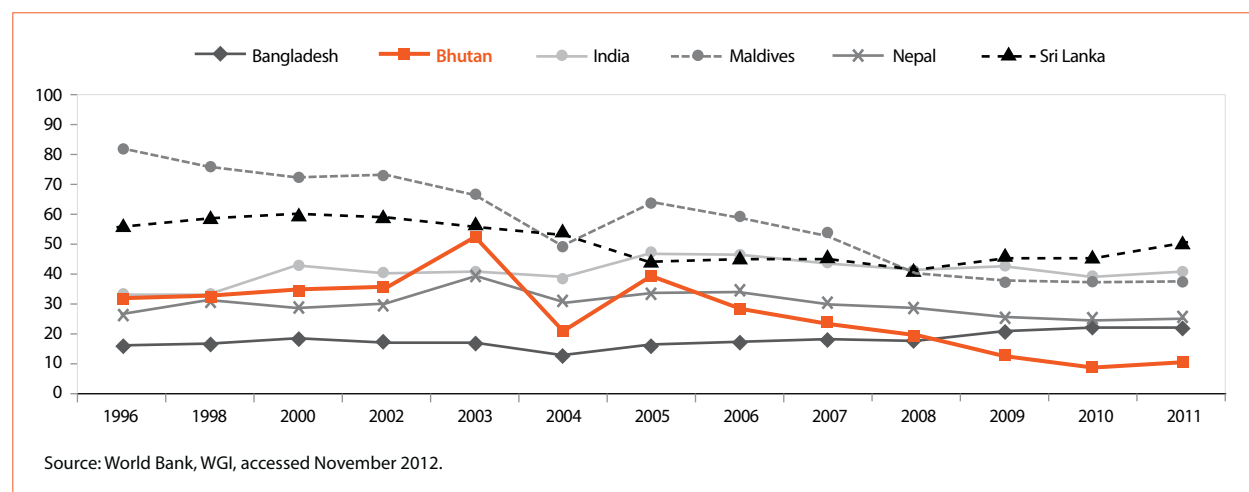
A deteriorating regulatory quality is a business constraint.

The perception of regulatory quality in Bhutan has declined vis-à-vis other South Asian countries. Bhutan's percentile rank dropped from a peak of 53 in 2003 to only 11 in 2011, the lowest in the region (Figure 2.37).

Firms in Bhutan generally incur high costs for regulatory compliance. A significant amount of the time of firms' senior management (16%) is spent dealing with regulations. Stringent regulations on the transport of goods within the country were also identified as a major barrier to doing business, and contribute to the losses that a high percentage of firms in Bhutan associated with ground transport costs (World Bank 2010b).

Microeconomic risks in general may not be a severe constraint in Bhutan. The government, however, could consider addressing emerging concerns about the business regulation environment and regulatory quality, including procedures for resolving insolvency. Resolution of these issues will help reduce the cost of doing business and ameliorate barriers to private sector investment.

Figure 2.37. Regulatory Quality (percentile rank)



2.3.3. Market Failures

Market failures, whereby social returns exceed private returns to investment, can lead to underinvestment.

Externalities can cause market failures by compromising the price mechanism, which is then unable to take into account the full social costs and social benefits of economic activities. Hausmann and Rodrick (2003) argue that introducing a new type of product and/or adding a new good to the export basket generates what is referred to as the “information externality.” For example, if a newly introduced good or application of a new technology is successful, it can be easily copied in developing countries due to the absence of patent protection. In such cases, the rewards of success are shared by investors who enter only when the initial entrepreneur’s activity has been successful. Conversely, in case of failure, the costs are borne solely by the first investor. Other kinds of market failures may arise due to coordination failures²⁹ and learning-by-doing externalities.³⁰ By lowering expected private returns to investment, market failures may inhibit entrepreneurs from venturing into newer segments of the manufacturing sector and consequently deter private investment, thereby slowing or hindering structural transformation, which is a key to sustained long-term growth.

Bhutan’s low value-added and concentrated manufacturing sector might indicate that market failures may be at work.

Despite strong growth in Bhutan’s industry, its performance has been largely driven by the hydropower and construction subsectors. Manufacturing remains a relatively small subsector, accounting for only about one-fifth of the industry sector. The narrowly based manufacturing subsector is also dominated by a few major operators and many small manufacturing plants concentrated in

food processing and cottage industries, the latter owing to Bhutan’s good timber resources and favorable agricultural conditions.

The level of production diversity and sophistication is a good gauge of a country’s long-term prospects.

Economic growth and development is accompanied by successful structural transformation. Earlier literature has focused on the role of manufacturing exports in facilitating structural transformation whereby the economy moves toward high value-added sectors and improving the country’s long-term economic prospects. A key insight from the literature on structural transformation is that, in the long run, a country’s income is determined by the nature (i.e., the sophistication) and the variety (i.e., the diversification) of the products it makes and exports successfully (Hausmann and Klinger 2006; Hidalgo et al. 2007; Hausmann, Hwang, and Rodrik 2007). A country with a sophisticated export basket is likely to have accumulated a complex range of productive capabilities. Similarly, a diversified export base indicates a wide range of productive capabilities. As such, a sophisticated and diversified export basket suggests the country has greater capabilities to produce more technologically advanced goods and move up the value chain over time, hence offering a better long-term prospect for economic growth and development than is the case for countries with less sophisticated and diverse baskets.

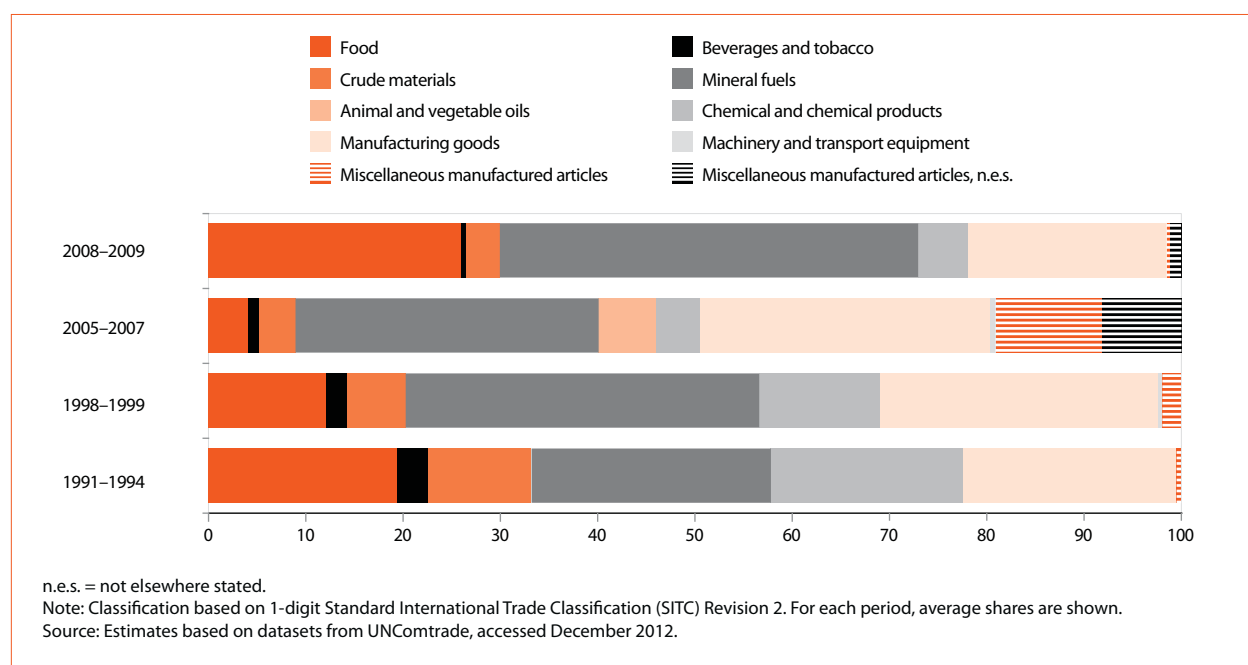
Bhutan’s export basket is among the more sophisticated ones in the region but shows little progress in its technological content.

Electricity has been Bhutan’s top export in the last 2 decades. Exports of mineral fuels (which include electricity) expanded from about 25% of total exports in the early 1990s to about 43% in 2008–2009 (Figure 2.38). The manufactured goods category, which includes metal products and cement, has consistently taken more than 20% of total exports, reaching almost 30% in the mid-2000s before falling to about 20% in 2008–2009. Food exports, on the other hand, increased to about 26% of total exports in 2008–2009 due to increased exports of spices, particularly ginger in 2008. Meanwhile, chemical and chemical products, which had a high share of total exports in the early 1990s,

²⁹ Coordination failures occur when a project requires many complementary investments to be profitable and private investment might not be forthcoming because of the lack of complementary public goods.

³⁰ Learning externalities exist when a firm is not fully able to capture the return on investments made in building the capacity of its workforce as the investments may spillover to third parties if trained workers move to a new employer, domestically or outside the country.

Figure 2.38. Bhutan's Average Export Values, Selected Periods (% of total)



have decreased to account for only about 5% of total exports in 2008–2009.

A product's sophistication can be measured by the PRODY index, which is the average exporting countries' GDP per capita weighted by each country's revealed comparative advantage for the exported commodity.³¹ The sophistication of a country's export basket can then be measured by *EXPY*, which is the weighted sum of the PRODY values of all the products that a country exports, with the weights being the share of each commodity in the country's

total exports.³² Sophistication captures the income content of a country's export basket. A higher value of *EXPY* indicates that the country has acquired complex capabilities that make it easier to export even more sophisticated products.

As recently as the early 1990s, Bhutan's export basket was the most sophisticated in South Asia, even more so than that of India (Figure 2.39). This was largely because Bhutan had a high share of chemical and chemical products and mineral fuels (which include electricity) in its export basket in the early 1990s (Figure 2.38). However, as the share of chemical and chemical products has fallen over time, so has the overall export sophistication—although it is still among the highest in the region.

³¹ Sophistication of a product (PRODY) is the income level associated with the products that a country exports. Following Hausmann, Hwang, and Rodrik (2007), PRODY is calculated as follows:

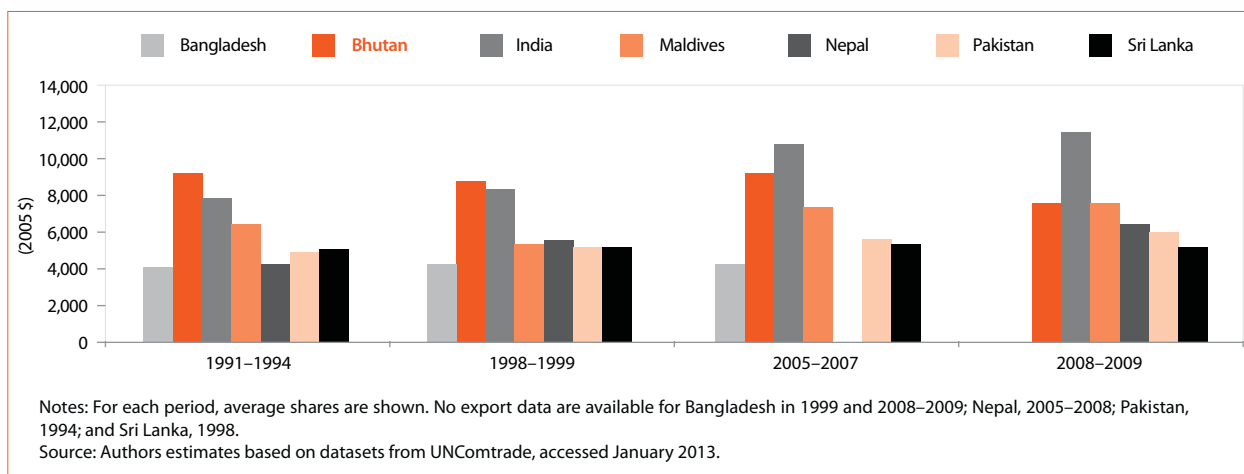
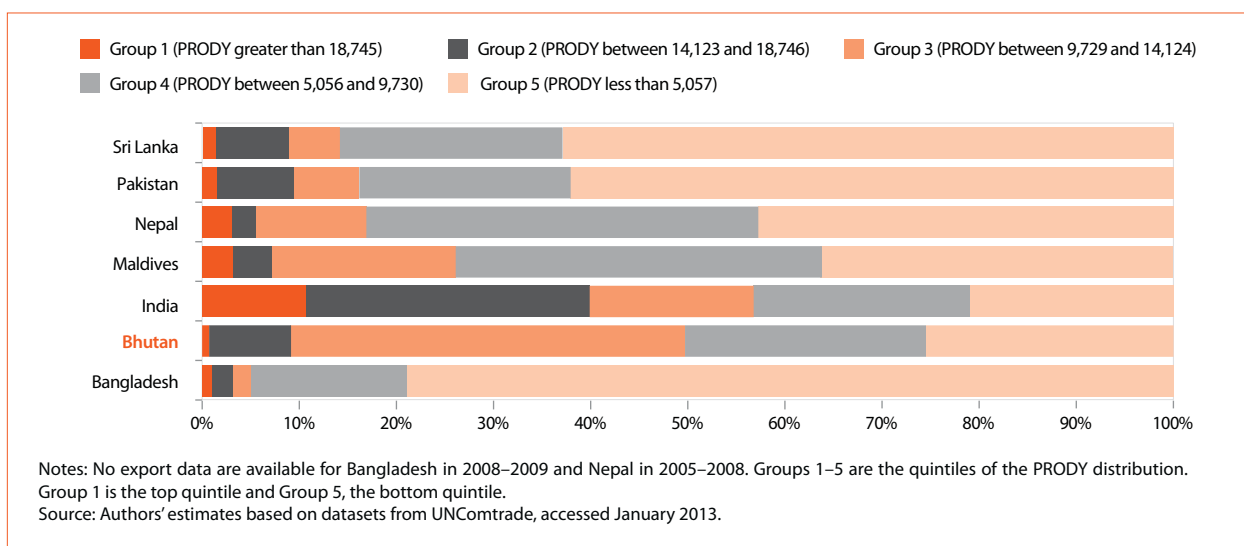
$$PRODY_i = \sum_c \left[\frac{xval_{ci} / \sum_i xval_{ci}}{\sum_c \left(xval_{ci} / \sum_i xval_{ci} \right)} \right] \times GDPPC_c$$

where $XVAL_{ci}$ is the export value of product i by country C and $GDPPC_c$ is gross domestic product per capita in country C .

³² The measure of sophistication of a country's export basket (*EXPY*) is from Hausmann, Hwang and Rodrik (2007). It is a weighted average of the sophistication level of the products that a country exports, weights being share in the country's exports. It is calculated as follows:

$$EXPY_c = \sum_i \left[\frac{xval_{ci}}{\sum_i xval_{ci}} \times PRODY_i \right],$$

where $XVAL_{ci}$ is the export value of product i by country C .

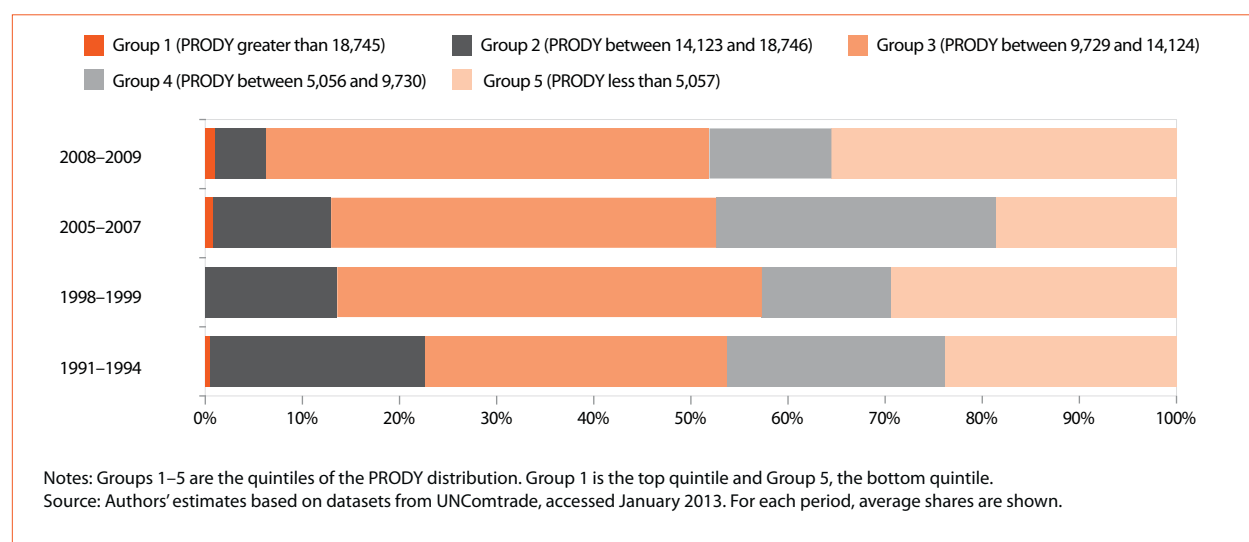
Figure 2.39. Sophistication of Export Baskets in South Asian Countries, Selected Periods**Figure 2.40. Disaggregation of Exports by Technological Sophistication Group, 2005–2009 Average (% of total)**

The reason behind the high sophistication of Bhutan's export basket vis-à-vis comparator countries in the region is that (Figure 2.40) Bhutan's basket has a large share (almost 50%) of high and medium PRODY products that are above the 40th percentile in the PRODY distribution.³³

³³ The products are divided into five groups based on the quintiles to which they belong in terms of the distribution of the sophistication level of the products. Group 1 is the top quintile, i.e., products whose sophistication level is above the 80th percentile. Group 2 comprises products with sophistication level between 60th and 80th percentiles, group 3 is made of products with PRODY between the 40th and 60th percentiles, and group 4 is the second quintile with products of sophistication level between the 20th and 60th percentiles. Group 5 is the bottommost quintile, comprising products with sophistication level below the 20th percentile.

Bhutan has the second highest share (more than 8%) of export products in the high PRODY group (groups 1 and 2), and the highest share (more than 40%) in the medium PRODY group (group 3). This is mainly because chemicals and chemical products, which are included in high and medium PRODY groups, used to be among Bhutan's major exports in the early 1990s and electricity, which is in group 3, is Bhutan's top export. In comparison, other countries in the region (except India and the Maldives) have a relatively large share (80%–90%) of low sophistication products (i.e., groups 4 and 5).

The overall sophistication level of Bhutan's exports has been stagnant (Figure 2.39). Disaggregating Bhutan's export basket by PRODY groups shows that the share of highly sophisticated

Figure 2.41. Disaggregation of Exports by PRODY Group for Bhutan, Selected Periods (% of total)

products in total exports has declined from an average of 22% in 1991–1994 to only 6% in 2008–2009 (Figure 2.41). But rapid expansion of PRODY group 3, which includes electricity, has helped Bhutan to maintain the overall sophistication level of its exports. The share of PRODY group 3 in Bhutan's export products increased from about 31% of total exports in 1991–1994 to over 42% of total exports from 1999 on.

Moreover, although Bhutan successfully exports some sophisticated products, the country's capabilities to produce remain underexploited due to a lack of production diversity.

Productive capabilities are often product-specific. Such capabilities include knowledge about the product, physical assets, intermediate inputs, labor relations, labor training requirements, technology, marketing, infrastructure, property rights, regulatory requirements, and other public goods. A country that has amassed productive capabilities in one product may have a comparative advantage in producing what the PRODY index terms “nearby” products, which use similar capabilities. However, if there are few nearby products and the existing products are not “well connected”—that is, the country's current set of capabilities cannot be easily applicable in producing other products—the country will find it difficult to expand its product categories. In this context, transferability of technology across products can be gauged by the level of the country's production

diversity and the proximity of its products to the core cluster of product space. Box 2.5 (pp. 58–59) provides the product space analysis for Bhutan's exports using the product space maps.

Bhutan's export basket has limited diversity, with a few products that are in relatively sophisticated categories but are “far” from the core cluster of product space. This can be examined by looking at the number of products that Bhutan exports successfully.³⁴ One can say a country exports a product “successfully” when the product's share in the country's total exports are larger than its share in the world trade. This is also referred to as a country's “revealed comparative advantage” for exporting that product.

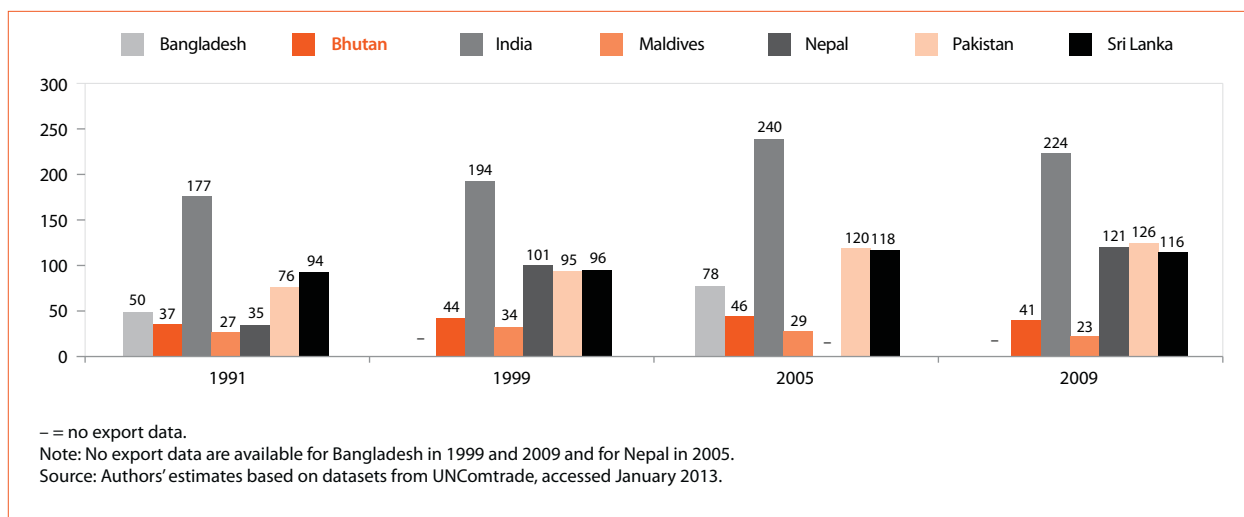
The number of products for which Bhutan has a revealed comparative advantage has remained low over the years compared with other countries in the region (Figure 2.42). Further, the diversification of

³⁴ Hidalgo et al. (2007) propose using the number of products exported with revealed comparative advantage as a measure of diversification. Revealed comparative advantage (RCA) is defined, based on Balassa (1965), as:

$$RCA_{ci} = \frac{\frac{xval_{ci}}{\sum_i xval_{ci}}}{\frac{\sum_c xval_{ci}}{\sum_{i,c} xval_{ci}}},$$

where $xval_{ci}$ is the value of the exports of country c in the product i . RCA is larger than one.

Figure 2.42. Average Product Diversification: Products with Comparative Advantage, 1991, 1999, 2005, and 2009 (all products)



Bhutan's export basket, i.e., the number of exported products with revealed comparative advantage, has not changed much in the last 20 years (37 commodities in 1991 to 41 commodities in 2009). Most of the products with revealed comparative advantage since 1991 are agricultural products and raw materials.

Bhutan's export basket also includes a limited number of "core" products.³⁵ Core products consist of chemicals, machinery, and metals, and on average are considered more sophisticated and require a wider and more complex range of capabilities than other products. The number of core products that Bhutan exported with revealed comparative advantage increased from 5 in 1991 to 10 in 2009 but remains small vis-à-vis comparator countries. Six of the 10 core products are metals and 3 are chemicals, which led to the high value of the sophistication ranking of Bhutan's export basket (Figure 2.39).

Bhutan's export basket indicates limited technical transferability of its current set of capabilities and hence the presence of market failures.

Bhutan's export basket can be characterized as relatively sophisticated but insufficiently diversified. The lack of diversity in Bhutan's exports, especially with concentration in only a few core

products, lends little opportunity for the country to expand its productive capabilities to new product categories. As the current set of capabilities is easily transferable, new products will require a new set of capabilities. Acquiring a new set of capabilities is costly and this may discourage investment in new economic activities. As such, market failures are a critical constraint in the context of Bhutan.

The Tenth FYP espouses a national industrial policy and strategy that aims to expand and diversify Bhutan's industrial and export base, increase productivity and value addition, and retain an accelerated pace of hydropower development.

Under the Tenth FYP, industrialization extends beyond the manufacturing sector, to encompass other economic activities such as hydropower, tourism, "cultural industries," and information and communications technology. Cultural industries involves the creation and production of goods and services that are cultural in nature and deal with heritage, literature, performing arts, and the media. The Tenth FYP also calls for support for cultural handicrafts and textiles and for minerals that need to be processed before exporting. The FYP seeks to establish industrial estates and parks and special economic zones to strengthen the manufacturing base. In promoting sustainable industrial development, the government will focus on MSMEs, cooperatives, and women entrepreneurs.

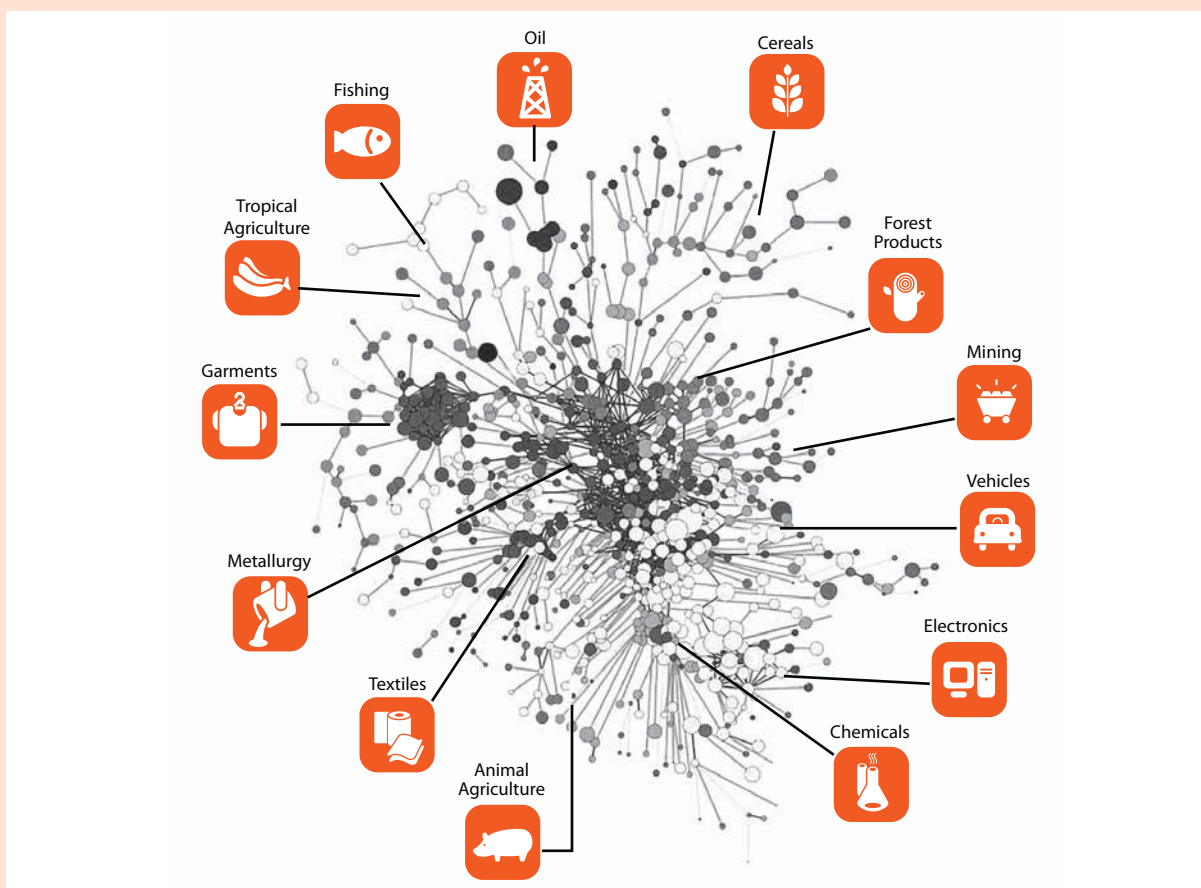
³⁵ The definition of core products is from Hidalgo et al (2007).

Box 2.5. Product Space Analysis

Hausmann and Klinger (2006) pioneered product space analysis as a methodology to analyze structural transformation of an economy. They specifically analyzed a key aspect of structural transformation—product diversification. Furthermore, Hidalgo et al (2007) created a mapping of products across global economies (Box Figure 2.5.1). This accounts for proximity by computing the probability of a country having a comparative advantage in one product given its comparative advantage in another product. Proximity measures capabilities that are used to produce one product, capabilities that can also be used to produce another product. (Capabilities could include knowledge about the product, physical assets, intermediate inputs, labor relations, labor training requirements, technology, marketing, infrastructure, property rights, regulatory requirements, and other public goods.) Hidalgo et al. explain further using the analogy that the product space is a forest, with trees as the products and monkeys as firms. A monkey can easily jump to “nearby” (proximate) trees but needs to exert a gargantuan effort to transfer to “far away” trees. If the monkey is in the clustered portion of the forest, the monkey has more opportunities to jump from one tree to another. The stock of capabilities accumulated jumping from tree to tree will serve the monkey well in the future. In summary, the capabilities that firms learned in producing several products (diversification) can lead to the development of more high-end products (sophistication).

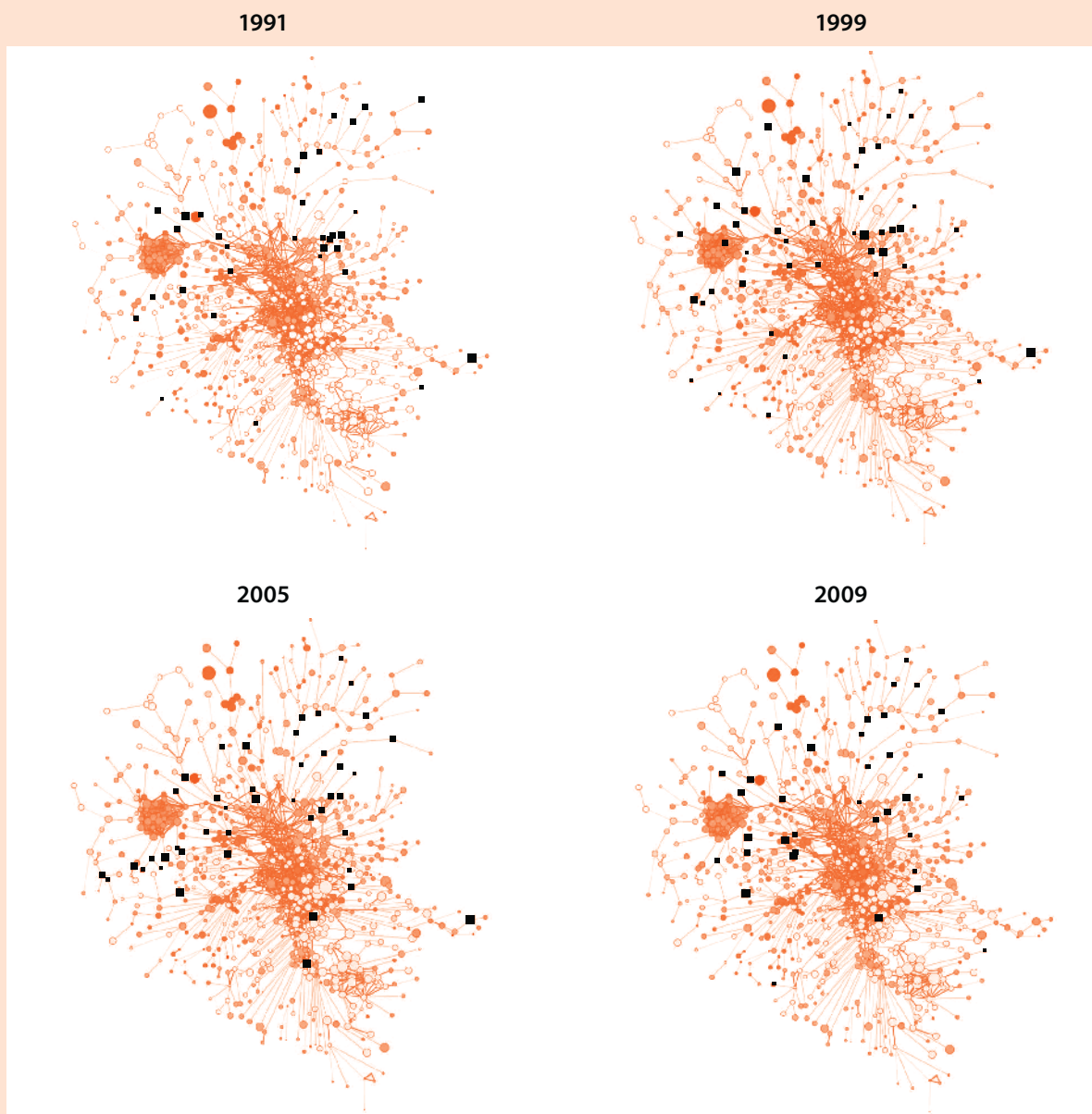
Hidalgo et al. (2007) measured the distance (proximity) of each pair of products and developed the concept of product space. They applied network theory to visualize the distance between products by their relative similarities in needed capabilities. Hidalgo et al. used an international trade dataset based primarily on the Standard International Trade Classification (SITC) Revision 2 disaggregated at the 4-digit level. Data were available for 773 products. The node size is proportional to the world trade value. The map is highly heterogeneous, with the dense part representing many products that are closely connected to each other—particularly machinery, chemicals, and capital-intensive products. This indicates the ease with which firms can move from one commodity to another. In the periphery, products such as natural resources, primary products, and agricultural products are weakly connected to others. This indicates difficulty of moving from these products to other products

Box Figure 2.5.1. Product Space



Box Figure 2.5.2 shows the product space maps for Bhutan by plotting Bhutan's exports on the product space map shown in Box Figure 2.5.1. The following figure shows the product space at four points in time. As discussed in the main text, Bhutan's exports are "far away" from the core of the product space. Thus, even though Bhutan has some complex capabilities and is successfully exporting some sophisticated products, there are no products "nearby," i.e., the capabilities used in those products are not easily transferrable to other products. Bhutan's orientation in the product space has not changed much over time.

Box Figure 2.5.2. Bhutan Product Space Maps



Notes: Black squares represent export products with revealed comparative advantage ($RCA \geq 1$). Refer to Box Figure 2.5.1 for colors and sizes of circles, and sizes of nodes.

Source: Estimates based on datasets from UNComtrade, accessed January 2013, and the product space program from Hidalgo et al. (2007).

The product space analysis for Bhutan's exports can suggest a set of "nearby" products with a high strategic value.

The product space analysis can be used to identify products that are not currently exported with revealed comparative advantage but that are "nearby," relatively sophisticated, and have a high strategic value. These are shown in Figures 2.43 and 2.44.³⁶ Figure 2.43 shows the products that are nearby, at a middle distance, or far away³⁷ from the set of products currently exported successfully, and that are more sophisticated (i.e., have a higher PRODY) than the current overall sophistication of Bhutan's export basket (i.e., *EXPY*). For example, milk and dairy products (such as cheese and cream), meats, and wool are among the nearby products with higher sophistication, but are not being fully exploited and are not being included in the government's target products. As these products are more sophisticated than the current average, venturing into them could increase the overall sophistication of Bhutan's export basket.

The top 20 products with the highest PRODY for each of the nearby, middle, and far away categories are presented in Figure 2.43 as orange dots. For comparison, the sectors targeted under the Tenth FYP are also shown (in black and grey).³⁸ While there are some overlaps in the nearby and the target products, such as some metal products and fertilizers, most of the targeted sectors are either at

middle or far away distances. Creating investment opportunities to produce and export these products can help Bhutan to expand its productive capabilities and enhance its long-term growth prospects.

Another important question could be which products have the highest potential for allowing Bhutan's production to easily move to other products. This is measured using what Hausmann and Klinger (2006) refer to as the "strategic value." The strategic value of a product measures how the expected value of unexploited opportunities changes if Bhutan were to successfully export, i.e., acquire revealed comparative advantage, in a particular product.³⁹ The strategic value of a product is a proxy for the spillovers derived from successfully exporting that particular product. Not all products would have the same impact for future growth. Products that are in the core of the product space are well connected to other products and exporting such products would mean that these capabilities could be used in a variety of other products. In other words, by successfully exporting certain products, the producers could apply the acquired capabilities to produce other products. Such products are said to have a high strategic value.

Figure 2.44 highlights the top 20 products with the highest strategic value for each of the nearby, middle, and far away categories (shown in orange dots). While there are some overlaps (such as metal products) between the top 20 products that are nearby and have a high strategic value and the products targeted under the Tenth FYP (shown in black and grey), many others (e.g., milk and dairy products such as cheese and cream, and some oils and perfumes) are not in the target group but have a high strategic value and are nearby to the current set of capabilities. Successfully exporting these products (i.e., acquiring revealed comparative advantage) can help increase Bhutan's productive capabilities to produce other products over a period of time.

³⁶ Given the landlocked nature of Bhutan, Standard International Trade Classification (SITC) 2-digit code 03 (Fish) was excluded from the analysis. Also, as Bhutan is not a known exporter of oil and gas, SITC 2-digit codes 33 (petroleum and petroleum products) and 34 (gas) were excluded.

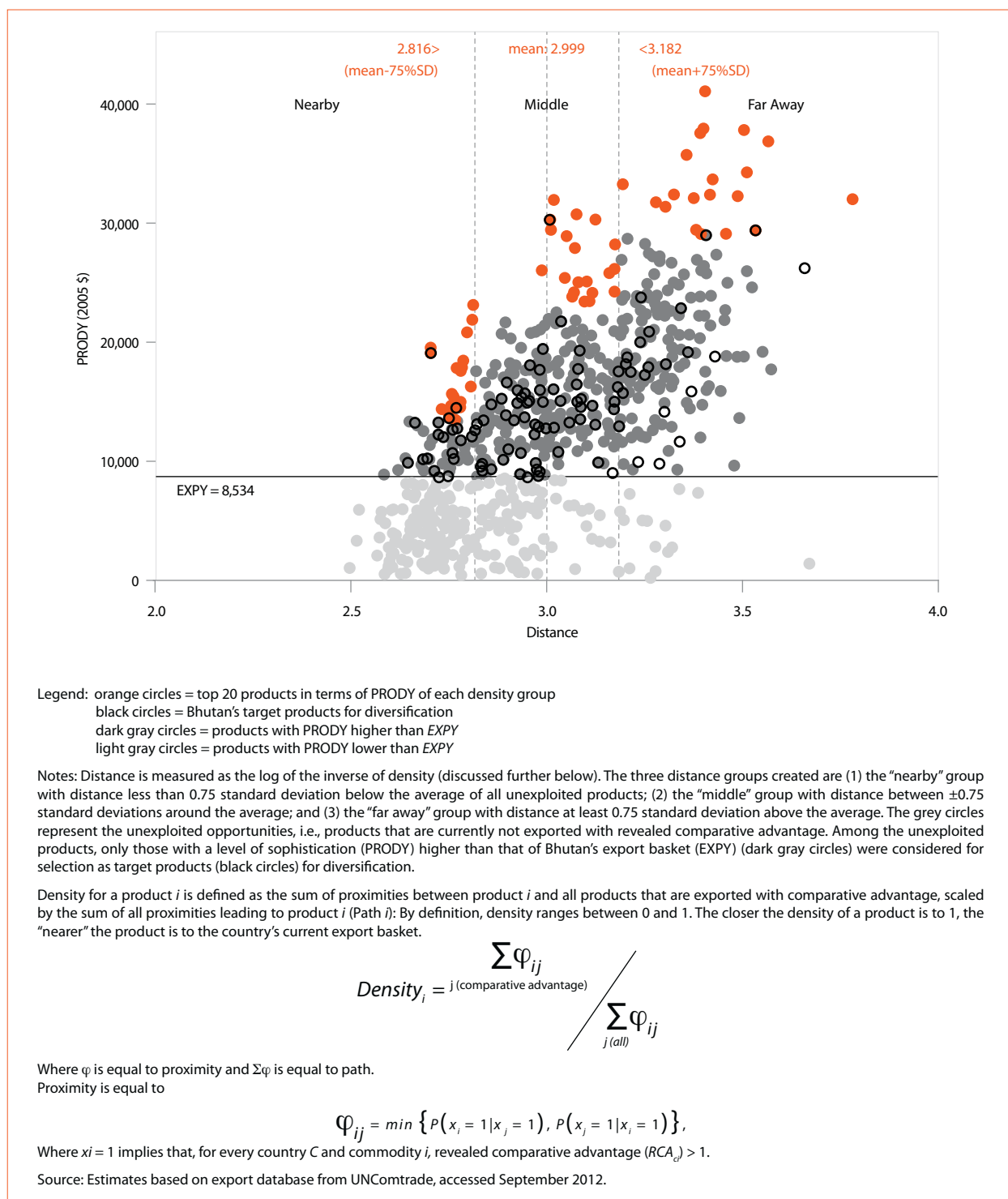
³⁷ In a path-dependent view of development, as is the case under product space analysis, the kind of products a country produces is important to the process of structural transformation. This means the orientation of a country within the product space is important, i.e., whether it is in the dense or the sparse part of the product space. This matters for successfully exporting a new product and the ease with which the current capabilities in the economy can be adapted to a new product. If a product is in the dense part of the product space, it is easier to find products that use similar capabilities. In other words, a product with high density is "nearby" other products. Distance is thus the inverse of density.

³⁸ As the sectors targeted under the Tenth FYP fall into very broad categories, all products within those sectors, at the SITC 2-digit level, have been assumed to be targeted for the purpose of this exercise. As a result, the exercise here may be overstating the targeted products. The sectors considered to be targets, in terms of the SITC-2digit codes, are crude fertilizer and crude minerals (27), metalliferous ores (28), textile yarn and fabrics (65), nonmetallic minerals (66), iron and steel (67), nonferrous metals (68), and manufactures of metals not elsewhere specified (69).

³⁹ The strategic value of each unexploited product (product *j*) is the potential contribution of that product to the open forest if it is assumed to be exported with comparative advantage. It can be defined as

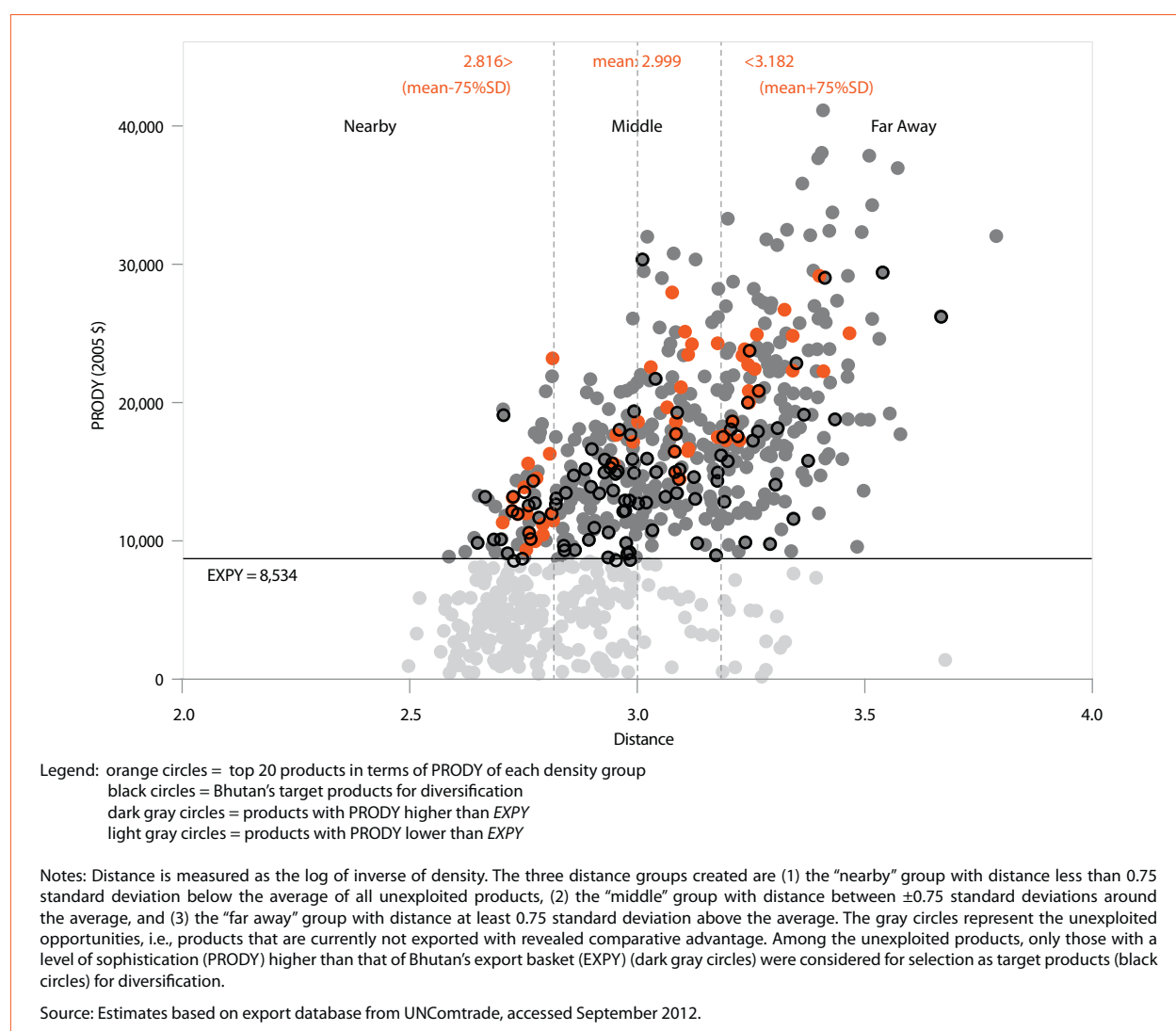
$$Strategic\ Value_j = \sum_i \frac{\varphi_{ij}}{\sum_j \varphi_{ij}} (1 - x_i) \cdot PRODY_i$$

where $x_i = 1$ if the product *i* has comparative advantage, and $x_i = 0$ if the product *i* does not have comparative advantage.

Figure 2.43. Top 20 Products with the Highest Level of Sophistication, 2009 (selected by PRODY)

Bhutan's current capabilities, however, seem limited relative to those of other developing economies in Asia, presenting further challenges of product diversification.

Bhutan's unexploited opportunities (also shown in Figures 2.43 and 2.44) are "far away" when compared with those of other countries. Bhutan's "nearby" products are even farther away from the far away products of all the comparator

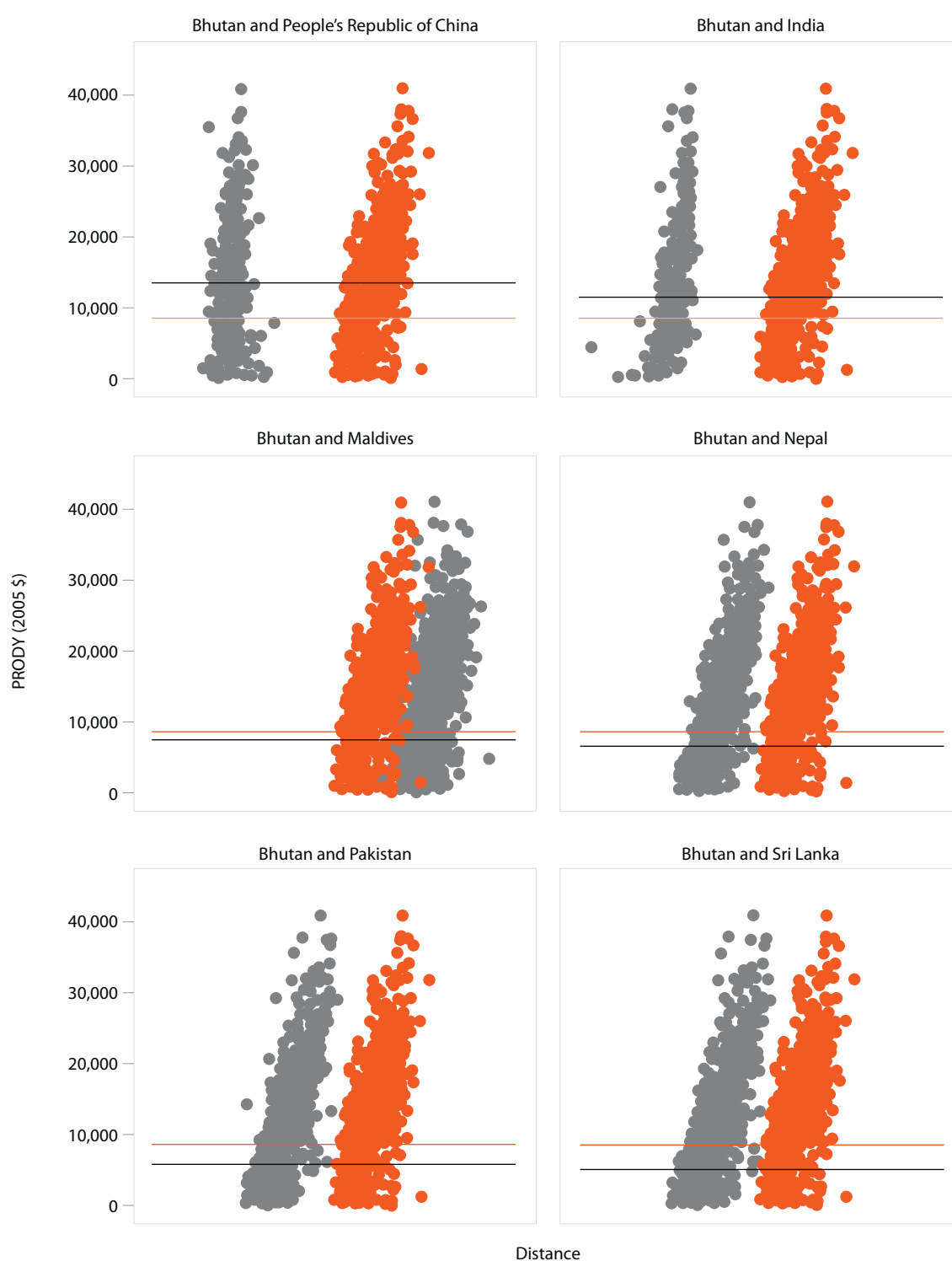
Figure 2.44. Top 20 Products with the Highest Spillover Effect, 2009 (selected by strategic value)

countries (except the Maldives), as shown in Figure 2.45. Thus, Bhutan's productive capabilities are too limited for it to enter into new nearby products and are even more limited for exporting the products that are far away. This raises a question about how much Bhutan can benefit from the set of unexploited products. An answer is that it would be most efficient for Bhutan to focus only on the "nearby" products—the most sophisticated ones or the ones with the most potential for spillovers (i.e., high strategic value) or some combination thereof.

2.4. Conclusion

The Bhutanese economy is expected to continue its high growth path but more needs to be done to sustain this high growth. Diagnosis of key aspects of the economy has identified five critical constraints that can derail its growth—lack of access to finance, low education outcome, inadequate transport network, narrow fiscal space, and presence of market failures (Table 2.11).

Figure 2.45. Unexploited Opportunities, 2009



Notes: Distance is measured as the log of the inverse of density. Orange lines represent the level of EXPY for Bhutan and grey lines for comparator countries. Orange circles represent Bhutan's unexploited products and grey circles represent comparator countries. Source: Estimates based on datasets from UN Comtrade, accessed January 2013.

Table 2.11. Summary of Diagnosis of Constraints to Growth

Broad Determinants of Growth	Factors Affecting Determinants of Growth	Why is the Factor a Constraint to Growth?	Critical Constraint or Not?	Likely to Impact Inclusiveness?
Cost of Finance	Access to finance	<ul style="list-style-type: none"> High real domestic interest rate (because of low savings and limited competition) Few alternative financing options (banks are the chief source) Negligible access to international finance Inefficient and ineffective domestic financial intermediation 	Critical (particularly for micro, small, and medium enterprises and rural agriculture lending)	✓
Social Returns to Investments	Human capital	<ul style="list-style-type: none"> Low quality of education Labor force lacks adequate education and necessary skills Shortage of high-level skills and presence of skills gap. 	Critical	✓
				✓
				✓
	Transport network	<ul style="list-style-type: none"> Mountainous geography Inadequate transport facilities Limited reach of the domestic transport system Limited access to regional and global markets Delays at ports Inefficiencies at land border crossings 	Critical (particularly for rural areas)	✓
				✓
				✓
				✓
	Electricity	<ul style="list-style-type: none"> Shortage of power during dry winter months 	Not critical	
	Telecommunications	<ul style="list-style-type: none"> Minimal competition 	Not critical	
	Irrigation	<ul style="list-style-type: none"> Limited funds for further development 	Not critical	
Appropriability of Returns to Investments	Macroeconomic risks	<ul style="list-style-type: none"> Deteriorating fiscal balance Inflation levels manageable but continue to be a concern Volatile current account balance Increasing public debt High government expenditure relative to gross domestic product 	Critical (in the medium to long term)	✓
	Microeconomic risks	<ul style="list-style-type: none"> Increasing cases of corruption Decline in regulatory quality High tax rates 	Not critical	
	Market failures	<ul style="list-style-type: none"> Low technological content in industry and lack of innovation Lack of diversity in the export basket, limiting technical transferability of production capabilities 	Critical	

Chapter 3

Critical Constraints to Reducing Poverty and Inequality

In 3 decades, Bhutan has successfully reduced poverty through high growth and improved social programs. The share of the population living below the national poverty line fell from 23.2% to 11.5% in the 5 years to 2012—a significant achievement. While the decline was more substantial in rural than in urban areas, 16.2% of rural inhabitants remained poor at the end of the period, while only 1.2% of the population in urban areas remained poor. Income inequality widened, however, and income disparity remains high relative to other parts of South Asia.

This chapter identifies potential barriers to further reduction of poverty and income inequality in Bhutan. The barriers may include (1) a lack of productive and decent employment opportunities; (2) unequal access to economic opportunities such as education, health, and other factors; and (3) inadequate social safety nets.

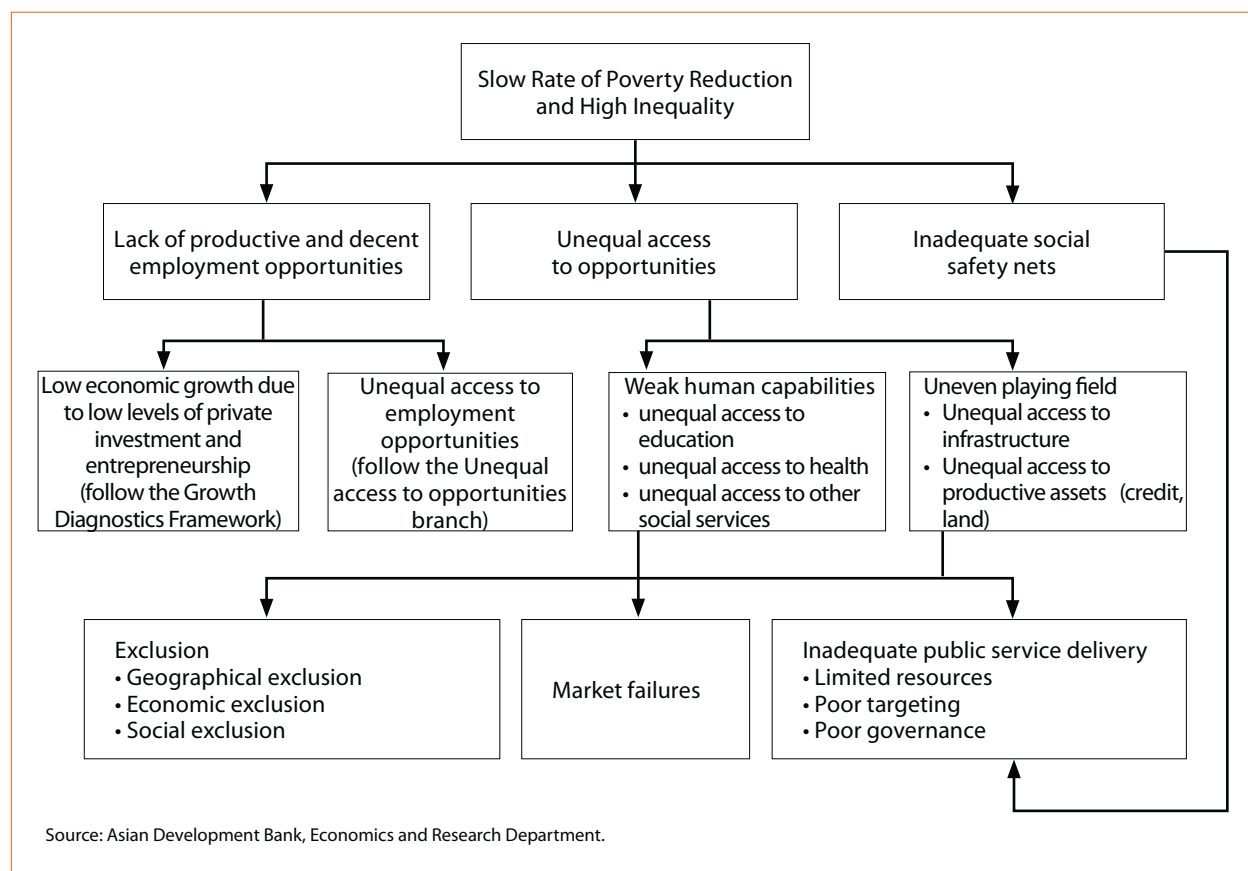
3.1. Poverty and Inequality Diagnostics Framework

A diagnostics approach can be employed to analyze aspects of economic development, in addition to growth. The same methods are used in conducting a detailed analysis to determine binding constraints and prioritize policy responses. In this chapter, diagnostics are used to identify critical constraints to reducing poverty and inequality, and thus to enhancing the inclusiveness of growth.

Growth is inclusive when all segments of society can participate in and benefit from the opportunities created by growth, while receiving adequate protection from economic shocks and transitions (Ali and Son 2007). Using a diagnostics approach, a diagnostics tree can trace key factors to determine the binding constraints to greater inclusion (Figure 3.1).

The availability of productive and decent employment opportunities is a key to ensuring inclusion. But people need to be able to access these opportunities. Inequitable access can be attributable to weak human capabilities and/or an uneven playing field, both of which can prevent people from participating in the growth process. Certain groups of people may have weaker human capabilities than others, partly due to unequal access to education, health, clean water, and other services. Inequity in accessing opportunities can also be caused by unequal access to infrastructure and productive assets, such as land and credit. In geographically challenged countries such as Bhutan, infrastructure plays a key role in promoting inclusion. Inclusion also requires that government provides social safety nets to mitigate the effects of external and transitory livelihood shocks as well as to meet the minimum needs of daily life (Zhuang 2008).

The diagnostics framework also suggests that each of the deficiencies just noted (weak human capabilities, uneven playing field, and inadequate social safety nets) may, in turn, be caused by deeper factors, including market failures,

Figure 3.1. Diagnostics Framework for Constraints to Reducing Poverty and Inequality

government failures to deliver adequate public services, and various forms of social discrimination and exclusion. The key role of the government in promoting inclusiveness is to address these market, institutional, and policy failures.

3.2. Productive Employment Opportunities

Bhutan's growth in recent years has been based on capital-intensive hydropower generation, an industry that creates a relatively limited number of jobs. The construction of power installations and other infrastructure, along with the transport sector, is more labor intensive. These linkages to the hydro sector have thus created employment opportunities in supporting activities. Overall, however, the employment-generating effects of growth have been muted and unemployment has risen. Job quality has shown limited improvement during the last 5 years (RMA 2012a).

Agriculture is the main employer, accounting for 62% of the labor force. Services employ another 29% and industry makes up the remaining 9%. In the 5 years to 2011, industry's share of employment rose by 1.6 percentage points and services by 1.0 percentage point. This indicates a gradual shift in employment patterns, following structural transformation, from agriculture to other sectors. Economywide labor productivity is relatively high, driven by the capital intensity of industry, and is on par with Sri Lanka but 30% higher than India and twice the level in Bangladesh. Labor productivity increased considerably during the 2000s, driven by the industrial sector (Figure 3.2). In effect, increased labor productivity in industry reflects high returns to capital. In contrast, output per worker in agriculture and services has stagnated or declined during the last decade (Figure 3.3). This is worrying, given that over 90% of the labor force is engaged in these sectors and the limited use of capital means that productivity affects income more directly.

Figure 3.2. Labor Productivity, South Asia (\$)

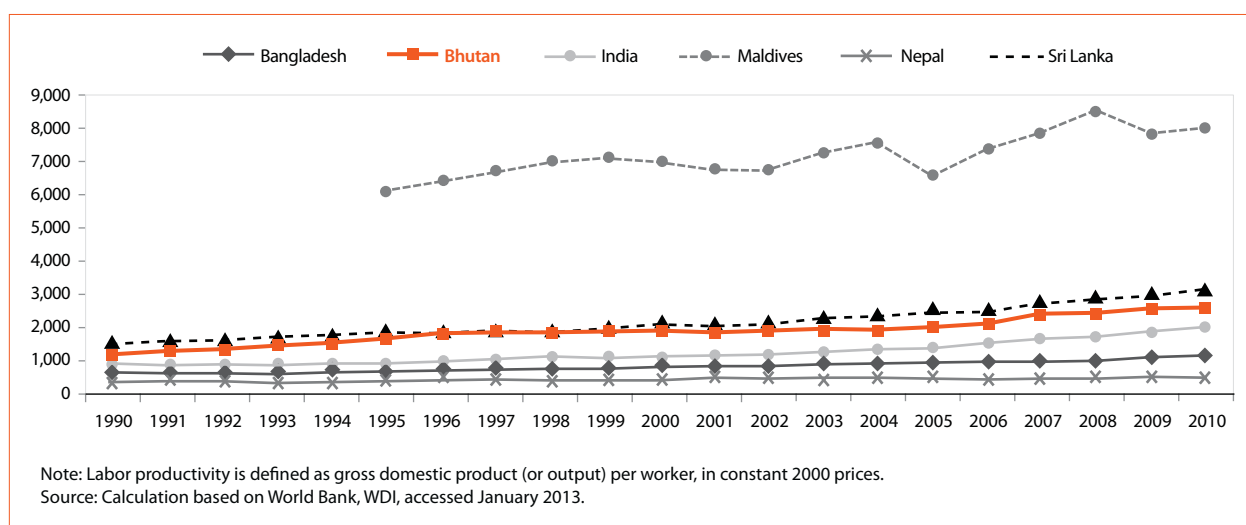
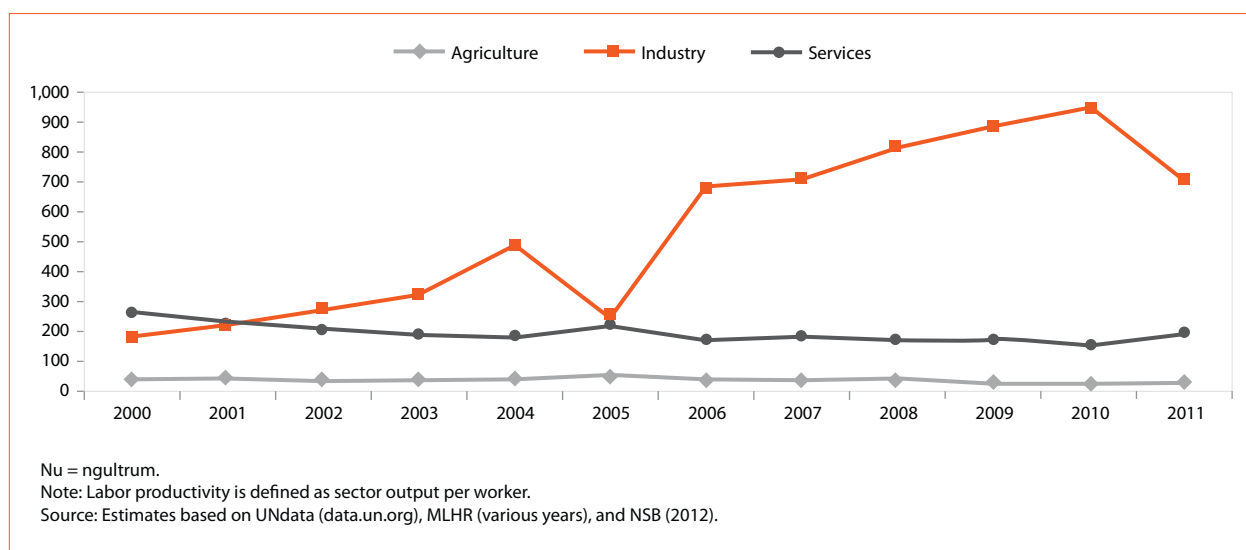


Figure 3.3. Labor Productivity by Sector (Nu '000, constant 2000 prices)



Labor Market Dynamics

Bhutan has a complex labor market.¹ A young population of school leavers and a rise in labor force participation have increased labor supply. Indeed, labor force participation rose significantly, from 64% to 73% during 1995–2010.² In addition, many foreigners enter the country to take technical jobs for which Bhutanese do not possess the requisite

skills. Foreigners also occupy manual positions that the local population is not interested in filling.

On the demand side, the growth process has created jobs, but not enough to absorb the increased supply. Unemployment has risen as a result, from about 1.9% in 2001 to about 2.1% in 2012 (Figure 3.4). This is still low, and unemployment is particularly low among the rural population—where it is near 1.5%—and the poorer segments of urban society. The low unemployment is explained by the lack of social security, so that most adults do not have the option of not working. The low unemployment rate may, therefore, mask considerable underemployment. Indeed, about 15% of people classified as employed in 2012 worked less than 40 hours per

¹ Unless otherwise indicated, figures in this section are from Bhutan's Labour Force Survey reports (MLHR various years).

² In contrast, labor force participation declined in other South Asian countries, except for the Maldives, between 1990 and 2010. Bhutan now has the second highest rate in the region (World Bank WDI, accessed January 2013).

week. (Some of the underemployed may opt to work part time.)

In urban areas, joblessness is much higher, having risen since the mid-2000s and reaching 3.5% in 2012. Youth unemployment was 7.2% in 2012 and includes many educated urban dwellers.³ About 25% of the urban unemployed have higher-secondary education and a further 25% have tertiary education (Figure 3.5). Many young people do not have skills for the jobs on offer, however, and many technical positions are filled by workers from India and other parts of South Asia. Bhutanese youth tend not to be interested in these jobs and thus do not obtain the required skills. Instead, they train for and seek higher paying white-collar jobs, especially in government, where employment is not expanding sufficiently to absorb them all. This skills (and motivation) mismatch helps to explain the rise of urban unemployment—a major challenge facing policymakers. Higher urban unemployment may also be affected by migration from rural areas.⁴

Regarding the nature of employment, just over 70% of the workforce consists of own-account and family workers (Table 3.1). This percentage changed very little during the 6 years to 2012. The lack of change suggests that growth has had little impact recently in creating more stable and productive employment. The vast majority of own-account and family employment is informal, although some own-account workers are professionals. The remaining 30% of the workforce consists mostly of paid workers. They typically have more regular income, better social protection, and improved prospects for career development. A look at the profile of occupations indicates mixed trends in job quality. The share of professional, technical, and related workers increased from 7.9% to 9.6% in the 6 years to 2012, although it was higher at 12.0% in 2011. During the same period, the share of low-level service jobs increased from 6.3% to 9.1%, although it fell to just 3.7% in 2011. Generally, the bulk of occupations are in farming and other primary occupations. Figure 3.6 indicates that about 18% of total employment is with the government, public corporations, or armed forces, and about 22% is in the private nonfarm sector.

³ About 7.3% of people with higher secondary education and 6.1% of those with tertiary education were unemployed in 2012.

⁴ Districts that include urban centers (Gasa, Paro, Punakha, and Thimphu) experienced a minimum 6% net intake of migrants during 2000–2005 (Office of the Census Commissioner 2006).

Figure 3.4. Unemployment Rate in Urban and Rural Areas (%)

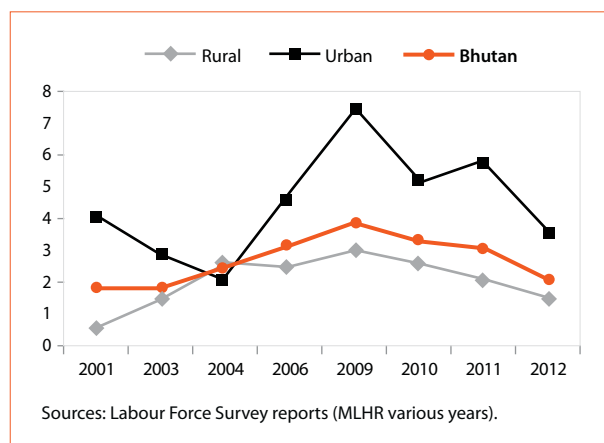
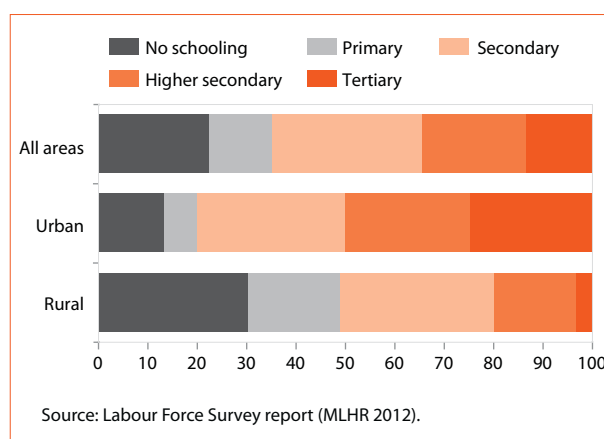


Figure 3.5. Distribution of Unemployed People, by Education Level, 2012 (%)



Thus, access to employment opportunities varies across location and educational attainment, as well as by gender (Figures 3.7–3.9). Unemployment is high in urban areas, where it affects the educated youth disproportionately. This reflects both a skills and motivation mismatch and a wealth factor (many educated youth can afford to be unemployed). In rural areas, unemployment is low but the degree of underemployment and informal work (own-account and family work) is higher. Uneducated people are more likely to be informally employed than educated people. Women are particularly disadvantaged, facing higher levels of unemployment, underemployment, and informality than men.

Table 3.1. Characteristics of Employed People (%)

	2006	2011	2012
Sector of Employment			
Agriculture	62.8	60.2	62.4
Industry	7.6	9.2	8.5
Services	29.6	30.6	29.1
Nature of Employment			
Agriculture: Own-account workers	—	29.9	19.5
Agriculture: Family workers	—	25.8	39.5
Nonagriculture: Own-account workers	—	11.9	10.2
Nonagriculture: Family workers	—	3.3	1.7
Total own-account and family workers	—	70.9	70.9
Regular paid employees	23.4	24.0	23.8
Casual paid employees	5.8	4.2	3.6
Piece/contract paid workers	—	0.6	1.6
Employer	0.2	0.2	0.1
Occupation			
Professional, technical, and related workers	7.9	12.0	9.6
Administrative, executive, and managerial	1.0	1.4	1.9
Clerical	2.6	2.2	1.8
Sales	9.2	9.8	8.3
Farmers, fishers, hunters, loggers, and related workers	60.6	59.1	61.9
Craftspeople, production-process workers	8.7	9.6	5.2
Service workers ^a	6.3	3.7	9.1
Armed forces	3.8	2.2	2.1
Sex			
Male	56.7	52.6	49.0
Female	43.3	47.4	51.0
Age			
Youth (age 15–24)	19.6	15.5	13.5
Prime adult (age 25–44)	51.3	55.1	53.8
Mature adult (45–64)	29.1	29.3	32.7
Educational Attainment			
No schooling	69.2	66.3	65.6
Primary	12.4	10.5	10.6
Lower secondary	13.4	13.5	13.7
Higher secondary	3.1	5.7	5.7
Tertiary	1.9	3.9	4.4

— = not available.

^a Most service workers are employed in menial jobs e.g., as laborers in mining, construction, and personal and protective services.

Sources: Labour Force Survey reports (MLHR various years).

Figure 3.6. Employment by Type of Enterprise, 2012 (%)

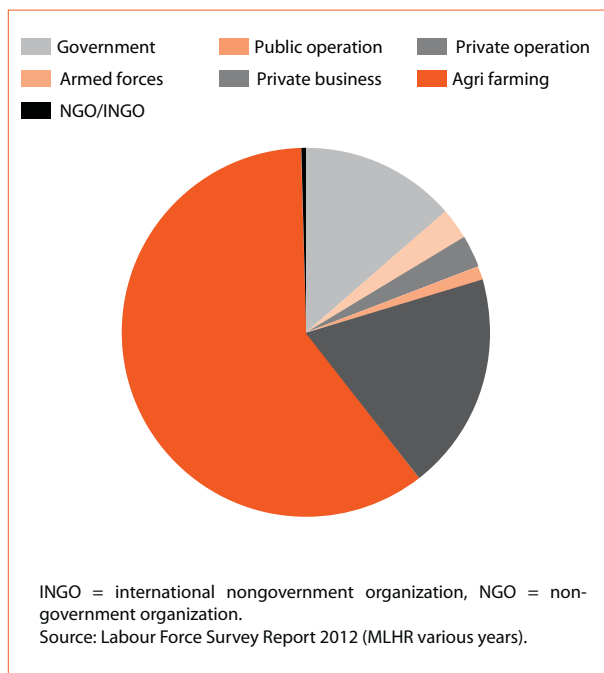


Figure 3.7. Informal Employment and Underemployment Rate, by Area, Gender, and Education Level, 2012 (%)

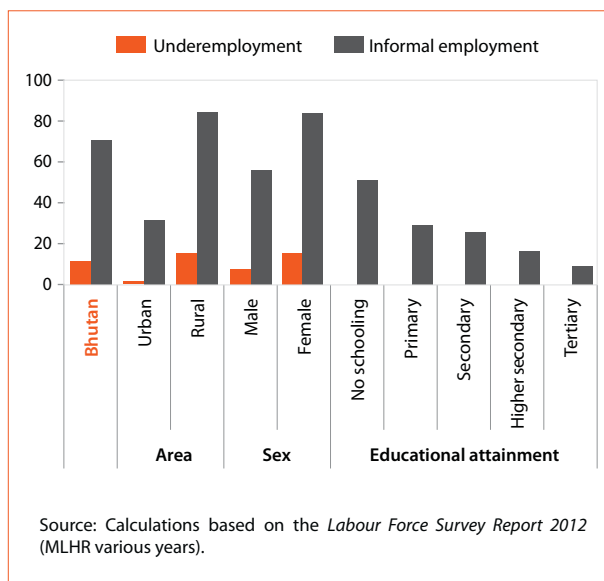
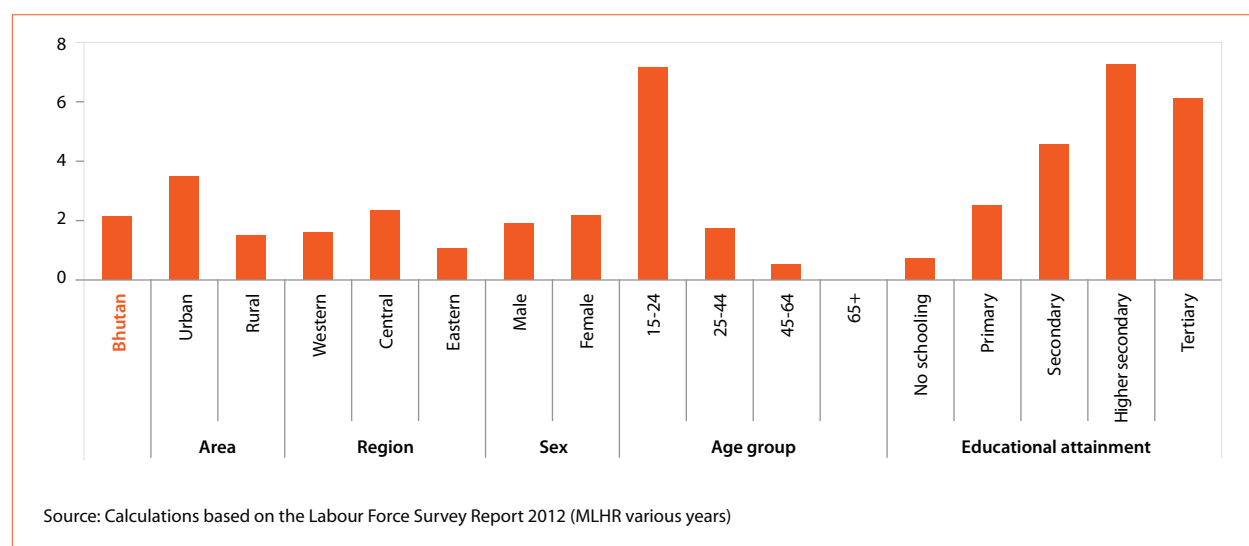
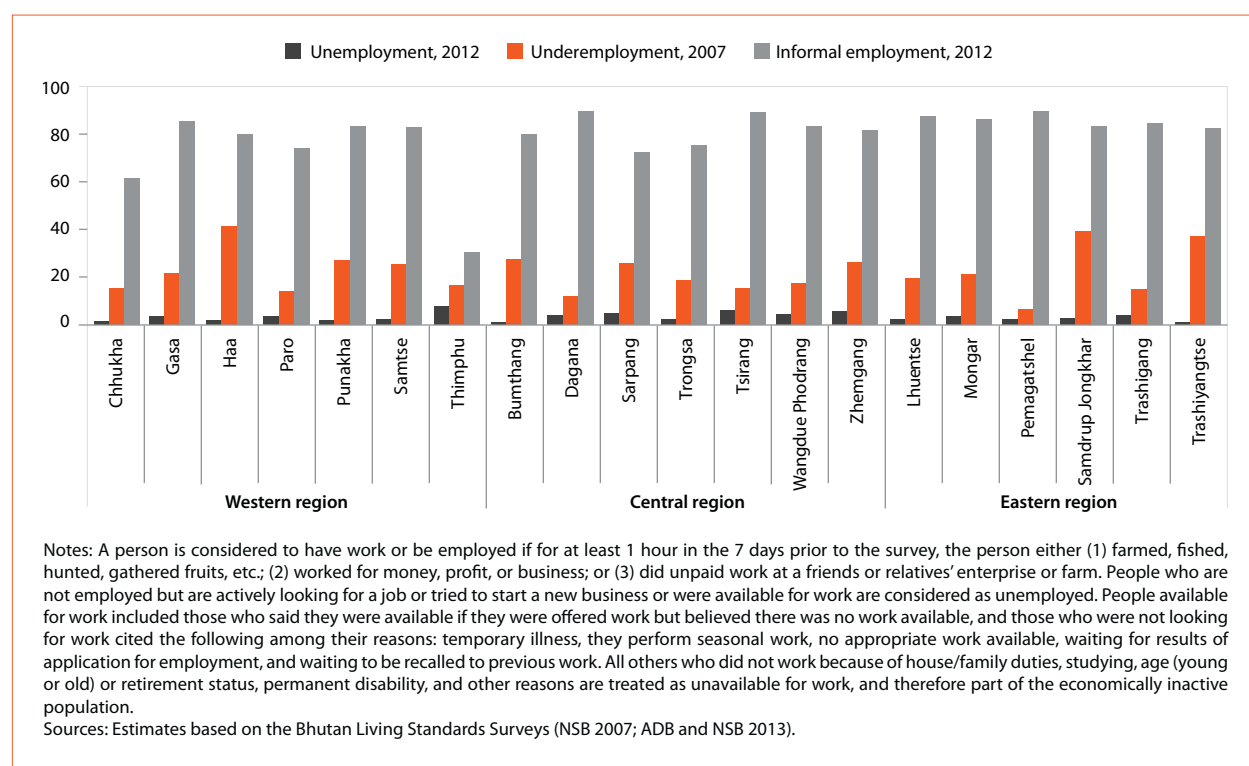


Figure 3.8. Unemployment Rate, by Area, Region, Gender, Age, and Education Level, 2012 (%)**Figure 3.9. Unemployment, Underemployment, and Informal Employment Rate, by District (%)**

3.3. Human Capabilities

Unequal access to opportunities may result when certain segments of the population have weaker human capabilities than others, partly due to unequal access to education and health services. Another factor is adverse health conditions, which may be exacerbated by unequal access to social services such as clean water and sanitation.

3.3.1. Education

Education is an important contributor to human capabilities, providing skills needed to access productive employment and improve household income and welfare. Formal education in Bhutan was only introduced at the start of the First Five Year Plan, in the early 1960s. Given its relatively young education system, that the government's has

Figure 3.10. Educational Attainment among People Aged 15 and Over, by Region and Socioeconomic Group, 2012 (%)

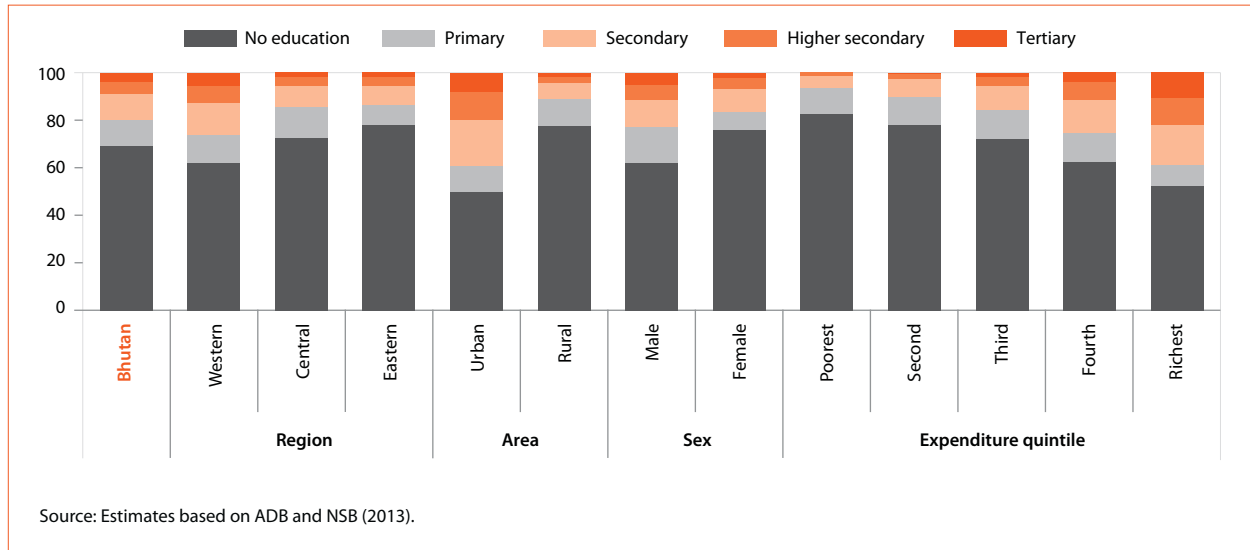
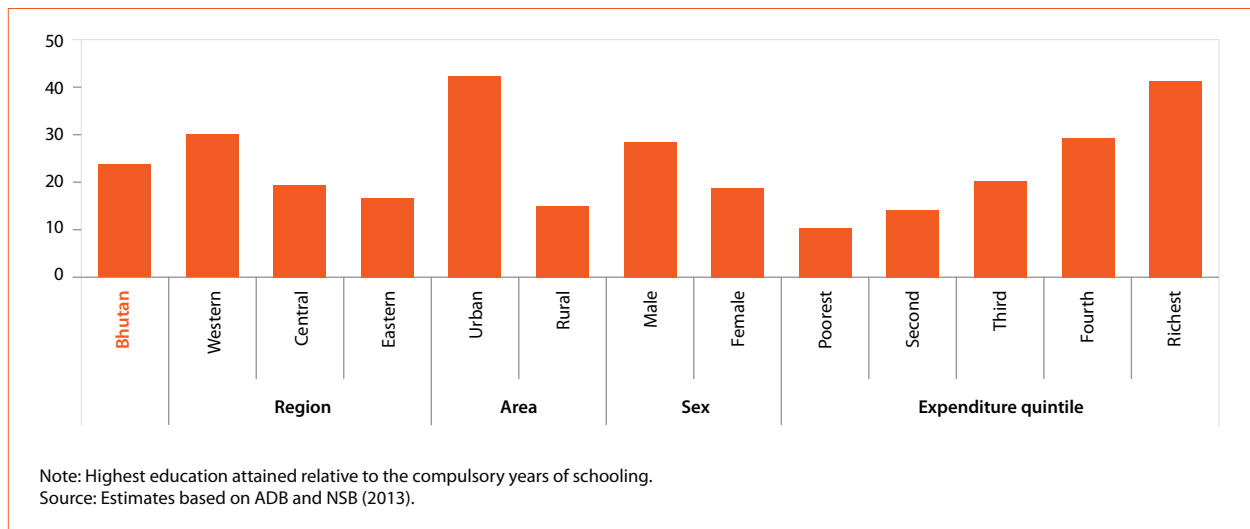


Figure 3.11. Quality of Labor Supply, by Region and Socioeconomic Group, 2012 (%)



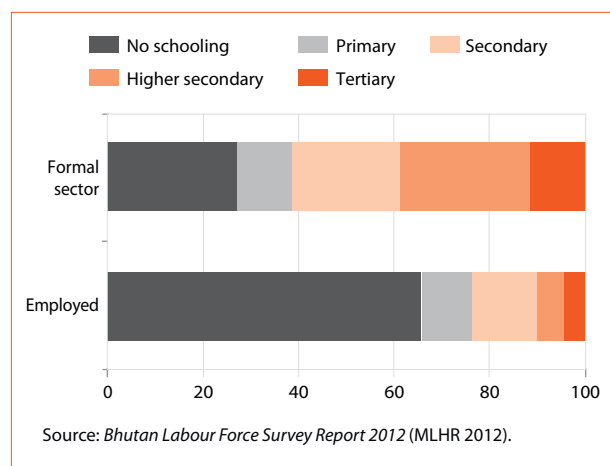
ensured access to basic education is noteworthy. Nevertheless, remaining gaps have to be addressed to achieve universal access, particularly at the secondary and tertiary levels.

The education level of Bhutan's labor force remains low, particularly among people residing in rural areas and the eastern region, and among women and the poor. The importance of education is underlined by the results from the regression analysis of the determinants of poverty discussed in the Appendix to this chapter. Figure 3.10 illustrates the very small share of the Bhutanese population that is educated. In 2012, almost 70% of the population aged 15 years and older had not

received any education. Moreover, less than 20% were schooled above the primary level. People in rural areas and the eastern region, as well as women and households in lower income brackets, had the highest rates of no education.

Figure 3.11 emphasizes the education gap in the working population by region, gender, and income group. This is measured by the years of schooling attained relative to the years of basic education each Bhutanese should receive.⁵ Completion of both

⁵ Article 16 of the Constitution of Bhutan states that free education shall be provided to all children of schooling age up to the tenth standard (i.e., secondary level).

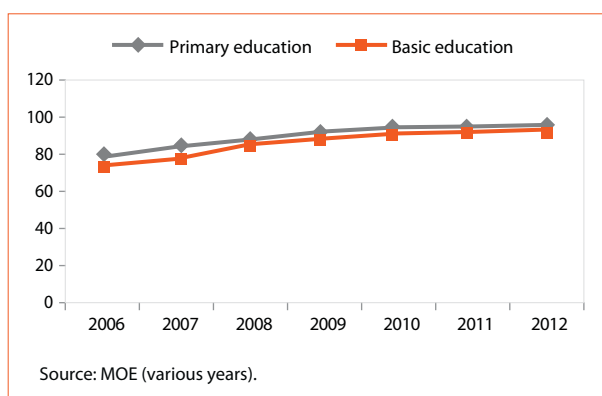
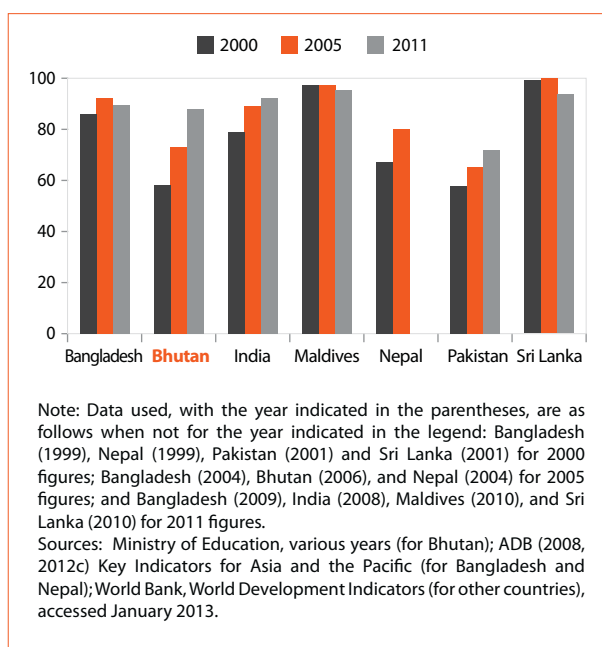
Figure 3.12. Educational Level, by Employment Status, 2012 (%)

primary and secondary education would result in a perfect score (i.e., 100%). Figure 3.11 shows that, on average, the working population (aged 15 and older) has finished less than 3 years of schooling, or about 23% of the required 11 years of basic education. People in urban areas have more years of education, at 42% of the requirement, than those in rural areas, at 15%. Men have a 28% completion rate, which is almost 10 percentage points higher than that for women. Across expenditure quintiles, people in the poorest quintile achieved only 10% of the required years of schooling, which is about one-fourth of what those in the highest quintile achieved.

Narrowing the observation to the employed population, Figure 3.12 highlights the importance of education in securing productive employment. The workers in the formal sector are more likely to have received education (about 73%) than those in informal employment. Over 60% of the formally employed workers have more than primary education, with about 39% having higher secondary or tertiary education. As shown in the figure, the proportion of people with more than primary education decreases drastically (to about 24%) for the entire working population. Evidently, education is critical for accessing opportunities and securing gainful employment.

The enrollment rate at all levels has increased steadily during the last decade.⁶ Both administrative

⁶ Most of the discussions in this section refer to net enrollment rates, which measure the enrollment of the official school-age group for a given level of education as a percentage of the population in that group, unless otherwise specified.

Figure 3.13. Basic Education Net Enrollment Rate (%)**Figure 3.14. Primary Net Enrollment Rate for South Asian Countries (%)**

and household survey data substantiate this observation. Net enrollment in basic education⁷ increased by 19 percentage points in 2006–2012 (Figure 3.13). Against other countries in the region, Bhutan's progress becomes even more significant (Figure 3.14). Its net enrollment rate for primary education was the region's highest during 2011–2012.

Bhutan has made good progress with providing universal education and

⁷ Basic education includes 7 years of primary (including preprimary) and 4 years of secondary education.

increasing access to primary education, but access is still limited and unequal, particularly at the secondary and tertiary levels.

Estimates from household survey data confirm Bhutan's progress in access to education from 2003 through 2012. Figures 3.15–3.18 report net enrollment rates in 2003, 2007, and 2012 by region and socioeconomic group for various levels of education. For primary education, net enrollment reached about 91% in 2012, an increase of 18 percentage points from 2003 and 6 percentage points from 2007 (Figure 3.15). The increase was greatest among people residing in rural areas and the central region as well as among women, implying that access to primary education has become more equitable in recent years. Thus, access to primary education is generally equal across areas, regions, and genders, although a narrow disparity in enrollment persists between expenditure quintiles.

Secondary enrollment also rose (Figure 3.16). At the national level, it increased from approximately 23% to 37% during 2003–2007 and to 53% in 2012. A relatively strong increase was observed again in rural areas and among females, with the latter even surpassing the net enrollment of males in 2007 and 2012. Access to secondary education remained inequitable, however, as enrollment was relatively lower among those who resided in the rural areas. While the net enrollment rate was about 68% in urban areas, it was about 47% in rural areas.

But the disparity has narrowed across regions (54% in the western region, 53% in the eastern region, and 51% in the central region). While enrollments in lower expenditure quintile groups have been rising at a faster rate than in other quintiles, differences in enrollment rates among expenditure quintiles are still a concern. In 2012, the enrollment rate for the richest quintile stood at about 70% whereas that for the poorest quintile was about 25%.

Enrollment rates for higher secondary and tertiary education remain low, although they rose from 4.0% in 2003 to 10.3% in 2007 and to 21.3% in 2012 for higher secondary education and from 1.6% in 2003 to 10.3% in 2012 for tertiary education (Figures 3.17 and 3.18). Access to higher secondary and tertiary education was much less equitable than for primary or secondary schooling. Net enrollment rates were generally lower among people living in rural areas and the central and eastern regions, and among lower expenditure quintiles. However, Bhutan has been successful in addressing gender disparity in school participation at all levels.

Figures 3.19–3.22 (pp. 75–76) report net enrollment rates in 2003, 2007, and 2012 by district for various levels of education. The patterns are similar to those of Figures 3.15–3.18. Primary school enrollment improved most among the districts with relatively lower enrollment rates in earlier years, including Dagana, Gasa, Samtse, and Tsirang (Figure 3.19). Gasa even achieved 100% primary net enrollment rate in 2012. During 2007–2012,

Figure 3.15. Primary Net Enrollment Rate, by Region and Socioeconomic Group (%)

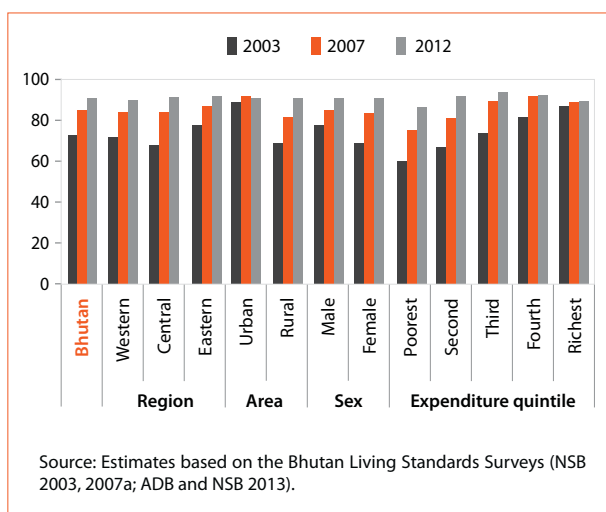


Figure 3.16. Secondary Net Enrollment Rate, by Region and Socioeconomic Group (%)

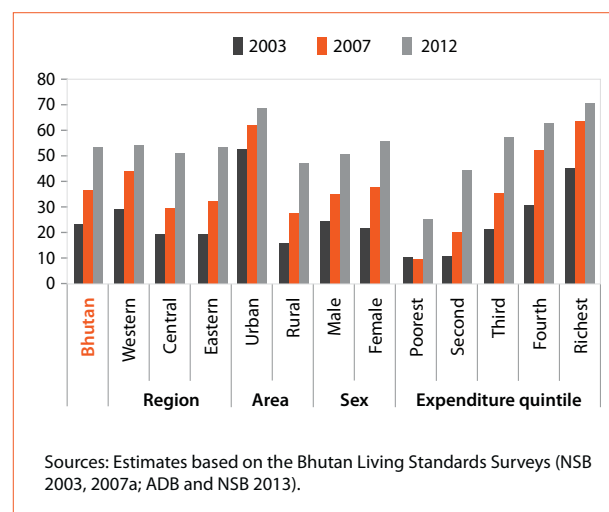
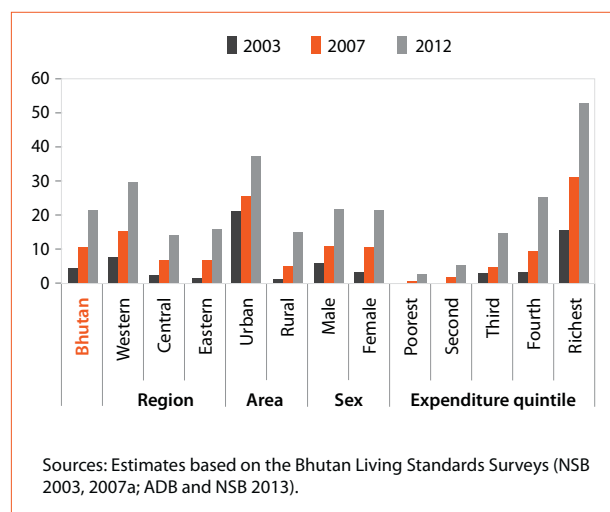
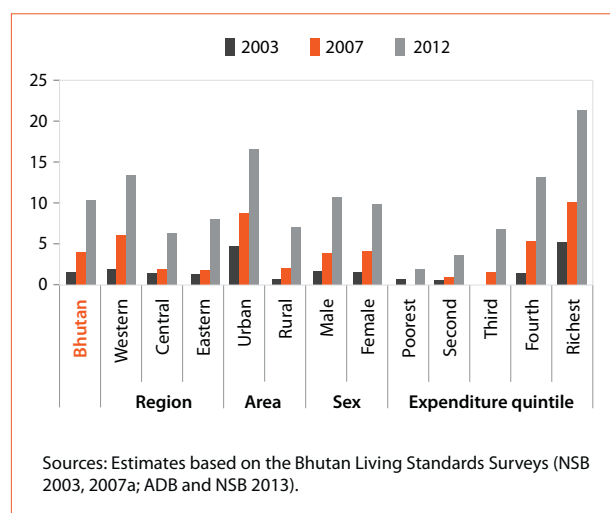


Figure 3.17. Higher Secondary Net Enrollment Rate, by Region and Socioeconomic Group (%)**Figure 3.18. Tertiary Net Enrollment Rate, by Region and Socioeconomic Group (%)**

net enrollment declined only in Bumthang, where it was still higher than in 2003, albeit marginally. For secondary education, enrollment rates were above 50% in only 10 districts, and above 60% in four districts: Pemagatshel 64%, Paro 65%, Thimphu 68% and Bumthang 79% (Figure 3.20). Figures 3.21 and 3.22 also confirm that access to higher secondary and tertiary education was less equitable than access to primary and secondary education.

Some factors prevent children from attending school in Bhutan.

Tables 3.2 and 3.3 (p. 77) summarize the main reasons for children not attending school. For

primary school, the most common reasons include admission requirements,⁸ school-related costs (too costly), need to work, lack of interest, and illness.⁹ Distance to the nearest primary school is a main reason rural respondents cited for not attending school (5% of rural respondents) while no urban respondents cited this as a reason. Affordability is marginally more of an issue for boys (17.6%) than girls (17.1%). Remarkably, a relatively high percentage of respondents belonging to higher expenditure quintiles stated affordability as the main reason for not sending their children to school.

The main reasons for not attending secondary school are slightly different from those for not attending primary school (Table 3.3, p. 77). In 2012, the most common barrier was affordability, with about 26% of respondents stating this as the main reason, followed by the need to work with 25%. This suggests that the opportunity cost of studying is relatively high among older children. Other common responses include lack of interest and family issues. In contrast to the case of primary education, more females than males are not attending school due to affordability, though the difference is very marginal. Lack of interest is an issue particularly in urban areas and among males. On the other hand, the need to work is an issue particularly in rural areas and among females. Approximately 11% of females (against 6% of males) do not attend school because of family reasons.

Affordability emerged as the top reason for not attending school, particularly at the secondary level, and could be due to the relatively high cost of education in Bhutan. The estimated annual cost of education per student at the secondary level ranges from Nu15,000 to about Nu49,000—about \$321 to \$1,050¹⁰ (Figure 3.23, p. 78). Lodging costs add significantly to the total expense, and spending on schooling increases with the level of education.

⁸ A study on enrollment and retention strategies by the Ministry of Education in 2009 lists verification of the child's health card and the identification cards of parents as requirements for school admission (MOE 2009). The study mentions that these requirements have been simplified to encourage school participation in recent years.

⁹ While the main reason in Table 3.2 is "under/over age," this refers primarily to underage, i.e., that children have not yet reached the age required for admission.

¹⁰ Using the 2011 exchange rate of \$1:Nu46.67, from World Bank, WDI, accessed March 2013.

Figure 3.19. Primary Net Enrollment Rate, by District (%)

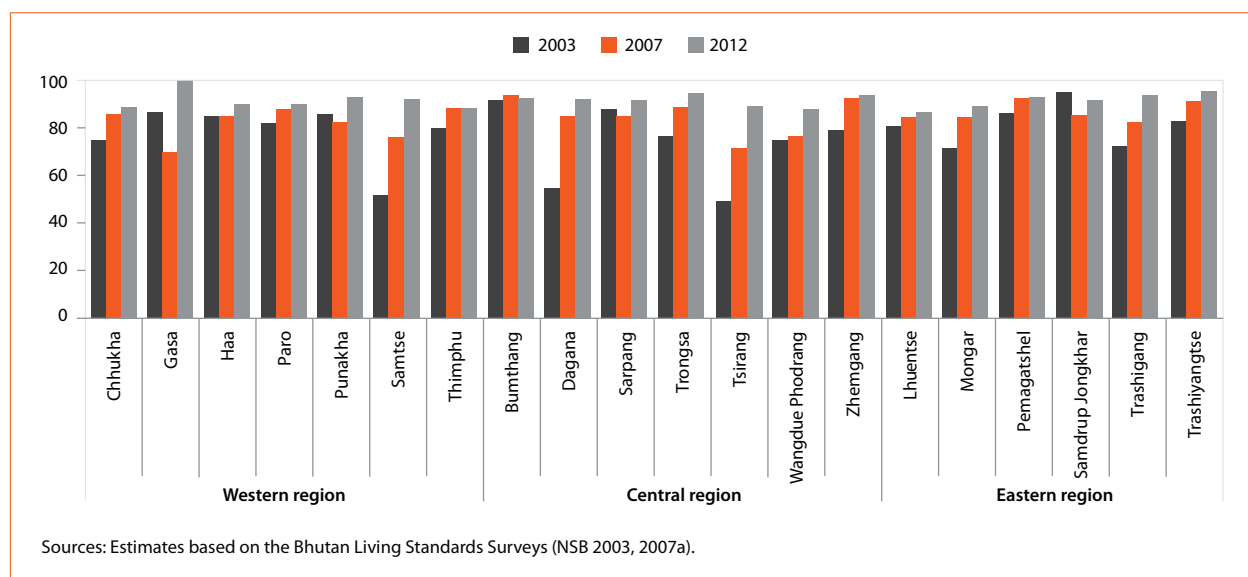
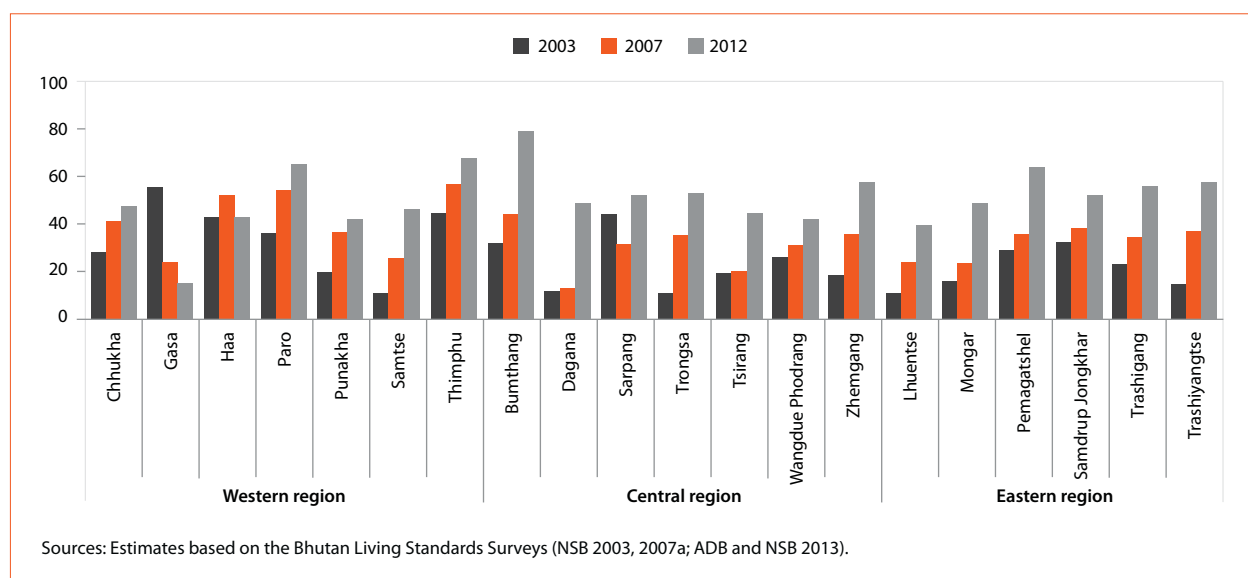


Figure 3.20. Secondary Net Enrollment Rate, by District (%)



Access to vocational education remains limited in Bhutan.

Numerous programs have sought to increase the intake into vocational education but results have been limited. Combined enrollment in the six technical training institutes and two institutes for traditional arts and crafts (*zorig chusum*)¹¹ rose

from 800 to 1,239 students during 2006–2011. However, this is equivalent to only 2% of secondary students.¹² As noted earlier, the technical training institutes trained only 4,161 students in the entire period 1970–2011. The government is the chief provider of vocational education, whereas the 27 registered private training providers in Bhutan are confined to information and communications technology and related courses (Chhoeda 2012).

¹¹ Zorig chusum refers to the 13 traditional visual arts and crafts that Bhutanese have practiced for generations. These include painting, carving, sculpture, calligraphy, carpentry, gold- and silversmithing, bamboo work, wood turning, weaving and embroidery, pottery, blacksmithing, masonry, and incense-stick making.

¹² The zorig chusum institutes were added in 2007 and 2008.

Figure 3.21. Higher Secondary Net Enrollment Rate, by District (%)

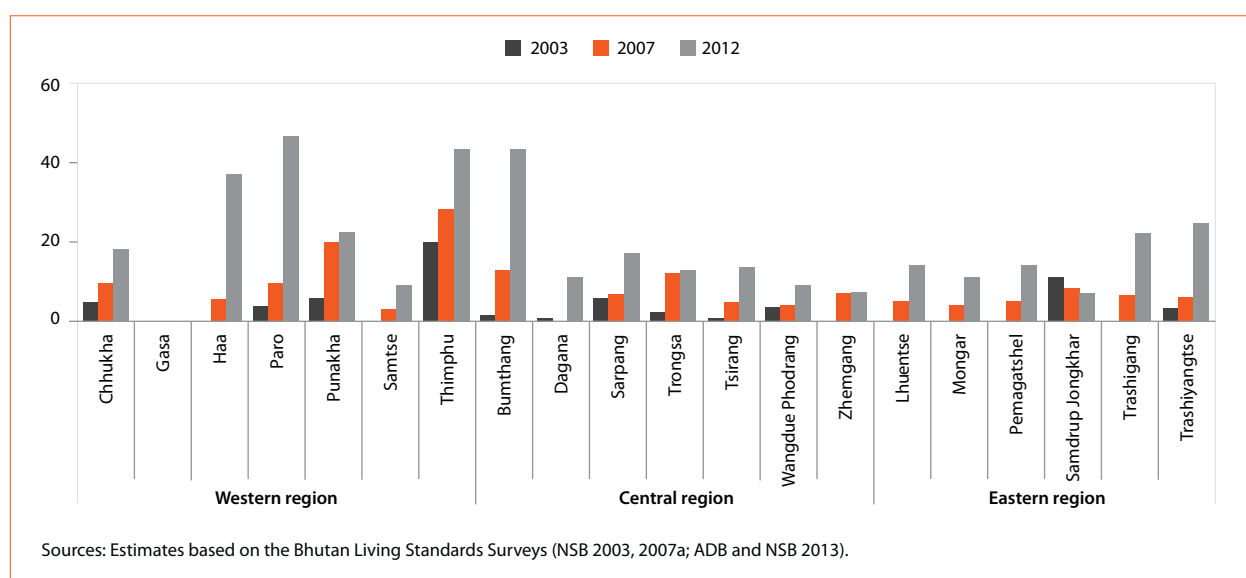
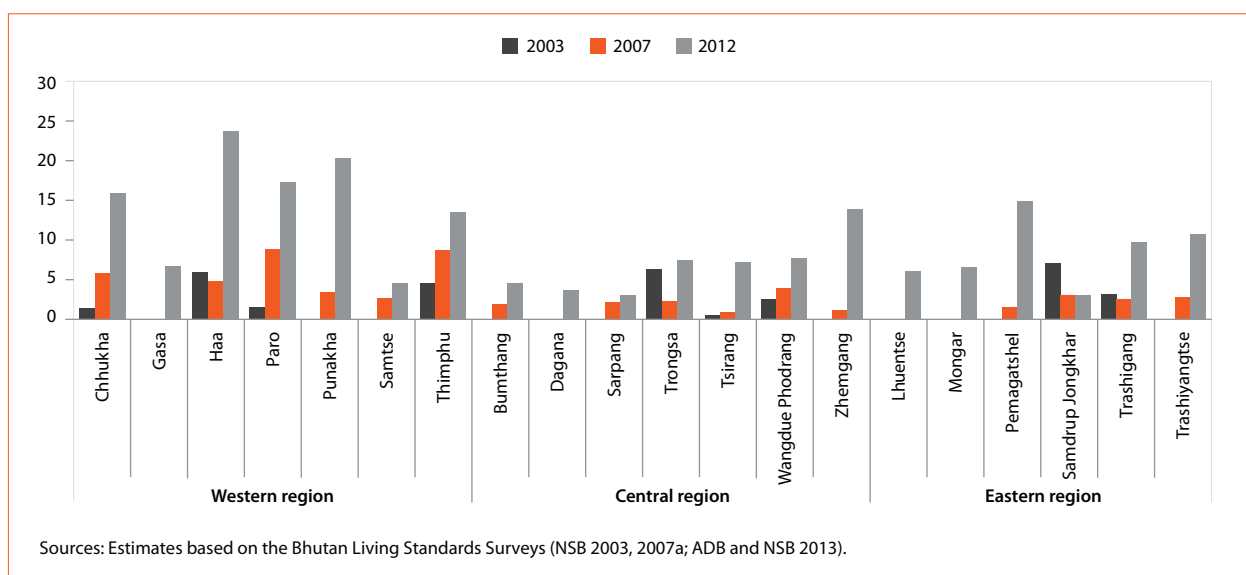


Figure 3.22. Tertiary Net Enrollment Rate, by District (%)



That Bhutan has so few technicians may be partly the result of prejudice against manual labor, in particular among the younger population. The origin of this prejudice can be traced to the beginning of the modern education system, when the primary purpose of schooling was to allow people to leave their farms and take staff positions within the bureaucracy and other government institutions. Preference for civil service employment over farm and manual work has grown as the former guarantees a lifetime source of income (Chhoeda 2012).

The quality of education is improving.

The quality of education affects employability and potential earnings, which are critical for reducing poverty and inequality. The government has been taking several measures to improve the quality of education through constructing new schools, expanding and upgrading existing ones,¹³ decentralizing education monitoring and

¹³ During the Ninth Fifth Year Plan, 128 new schools were constructed (GNHC 2009).

Table 3.2. Reasons for Not Attending Primary School, by Region and Socioeconomic Group, 2012 (%)

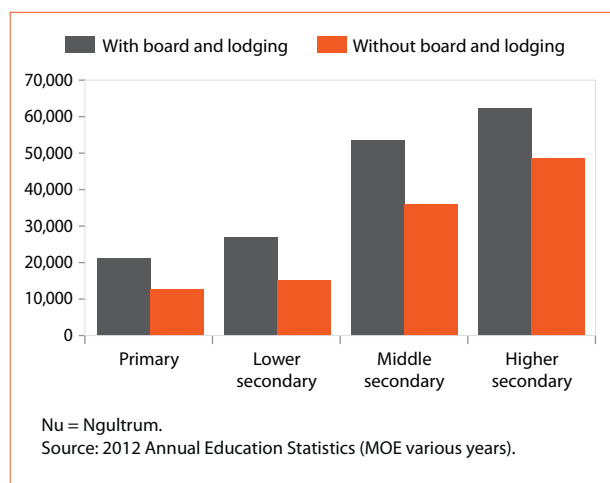
Sub-group	Qualification Issues		Too Costly	Need to Work	Family Issues	Distance	Lack of Interest	Illness	Poor Quality of Teaching	Other
	Under/Over Age	Did not Qualify								
Bhutan	28.9	12.4	17.4	9.6	3.0	4.0	7.2	6.6	0.0	11.1
Area										
Urban	29.8	11.2	15.4	1.8	5.3	0.0	10.6	16.7	0.0	9.3
Rural	28.7	12.5	17.7	10.7	2.6	4.6	6.7	5.1	0.0	11.4
Region										
Western	25.8	15.1	15.8	6.4	5.5	8.9	5.2	6.8	0.0	10.5
Central	34.8	12.9	17.2	13.7	1.8		6.8	5.1	0.0	7.6
Eastern	27.0	8.2	19.6	9.5	0.7	1.5	10.3	7.9	0.0	15.3
Sex										
Male	29.3	10.3	17.6	9.8	4.7	2.8	7.6	6.4	0.0	11.5
Female	28.4	14.3	17.1	9.3	1.3	5.1	6.9	6.9	0.0	10.7
Expenditure Quintile										
Poorest	24.5	8.0	19.0	14.0	1.3	5.4	10.5	6.7	0.0	10.6
Second	25.6	18.6	19.1	4.1	2.8	6.7	1.9	4.0	0.0	17.4
Third	28.6	20.7	13.5	10.1	3.9	0.0	4.2	13.7	0.0	5.3
Fourth	53.0	6.5	11.7	4.3	5.5	0.0	12.3	0.0	0.0	6.8
Richest	39.9	0.0	22.0	0.0	13.9	0.0	0.0	7.1	0.0	17.2

Source: Calculations based on the Bhutan Living Standards Survey 2012 (ADB and NSB 2013).

Table 3.3. Reasons for Not Attending Secondary School, by Region and Socioeconomic Group, 2012 (%)

Sub-group	Qualification Issues		Too Costly	Need to Work	Family Issues	Distance	Lack of Interest	Illness	Poor Quality of Teaching	Other
	Under/Over Age	Did not Qualify								
Bhutan	4.0	1.7	26.1	25.0	8.7	1.2	16.0	4.6	0.3	12.5
Area										
Urban	2.9	0.0	37.6	14.3	5.8	0.0	18.9	5.8	1.4	13.3
Rural	4.2	2.1	23.5	27.5	9.4	1.5	15.3	4.3	0.0	12.3
Region										
Western	2.2	1.0	31.1	23.7	7.0	1.3	17.2	4.7	0.5	11.1
Central	5.9	0.0	26.8	28.4	12.1	2.7	10.9	7.9	0.0	5.4
Eastern	5.6	3.9	17.6	24.8	9.2	0.0	17.5	2.1	0.0	19.4
Sex										
Male	5.1	2.6	26.0	21.3	5.7	0.0	20.0	4.0	0.0	15.4
Female	3.1	1.0	26.2	28.0	11.2	2.2	12.8	5.1	0.5	10.2
Expenditure Quintile										
Poorest	4.1	1.3	18.2	33.1	11.7	0.0	14.5	6.0	0.0	11.2
Second	8.8	0.0	26.2	18.1	5.9	0.0	16.8	6.9	1.3	16.1
Third	1.9	4.0	15.6	27.3	6.8	8.6	22.3	0.0	0.0	13.6
Fourth	0.0	0.0	47.3	18.4	9.0	0.0	11.5	3.3	0.0	10.4
Richest	2.7	6.7	35.5	16.3	5.5	0.0	18.9	2.7	0.0	11.7

Source: Calculations based on the Bhutan Living Standards Survey (ADB and NSB 2013).

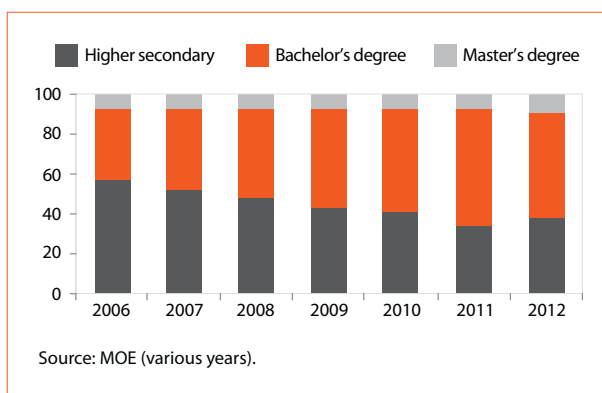
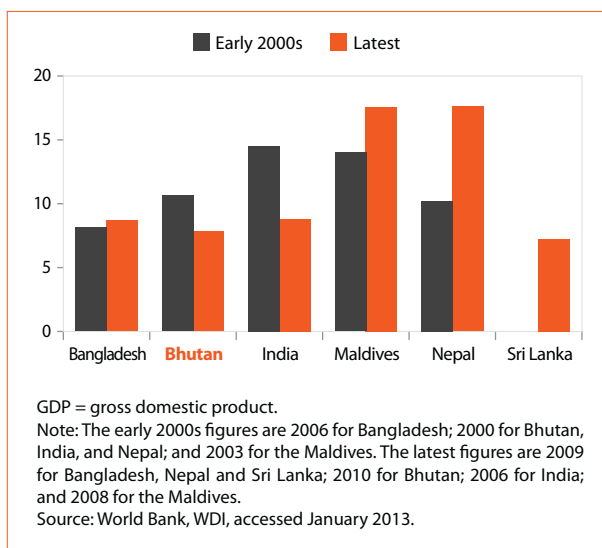
Figure 3.23. Estimated Annual Cost of Education per Student, 2011 (Nu)

support services, and upgrading the qualifications and competency of teachers (GNHC 2009). Student:teacher ratios vary in the range of 20–33 and are low relative to ratios in other countries in the region. Bhutan's ratio is comparable to Sri Lanka's for primary and secondary schools and is lower than ratios in densely populated countries such as Bangladesh, India, and Pakistan.

Bhutan's improvement in the education level of primary and secondary education teachers is impressive. The share of teachers with bachelor's degrees increased from 36% to 53% during 2006–2012 (Figure 3.24). One measure of the quality of education is students' performance in national examinations. Students who have completed 11 years of basic education take the Bhutan Certificate for Secondary Education examination and those who have completed higher secondary education take the Bhutan Higher Secondary Education Certificate examination. The results determine entry to higher education levels, admission to prestigious schools especially at the tertiary level, and eligibility to limited government scholarships. The pass rate of those taking the Bhutan Certificate for Secondary Education has improved continuously during the last decade, from 80% in 2000 to 97% in 2009. The pass rate for the Bhutan Higher Secondary Education Certificate declined in 2007, but then increased to 91% by 2009 (MOE various years).

Government expenditure on education remains relatively low.

Bhutan's public expenditure on primary education, as a percentage of gross domestic

Figure 3.24. Educational Background of Teachers (%)**Figure 3.25. Expenditure per Primary Student, in South Asian Countries (% of GDP per capita)**

product per capita, is the second lowest in South Asia, next to Sri Lanka (Figure 3.25). Per student expenditure, relative to per capita income, declined during 2000–2010. While Bhutan's expenditure per student in secondary education, relative to per capita income, remains the highest in the region, the expenditure was reduced significantly between 2000 and 2010 (Figure 3.26).

Unequal distribution of schools across the country is an important factor in the disparity in access to education, especially beyond primary schooling. As seen in Figure 3.27, the distribution of middle and higher secondary schools is significantly skewed toward urban and semiurban areas.¹⁴ The limited availability of rural schools is partly

¹⁴ Available data do not allow per capita comparison of school availability by location.

Figure 3.26. Expenditure per Secondary Student, in South Asian Countries (% of GDP per capita)

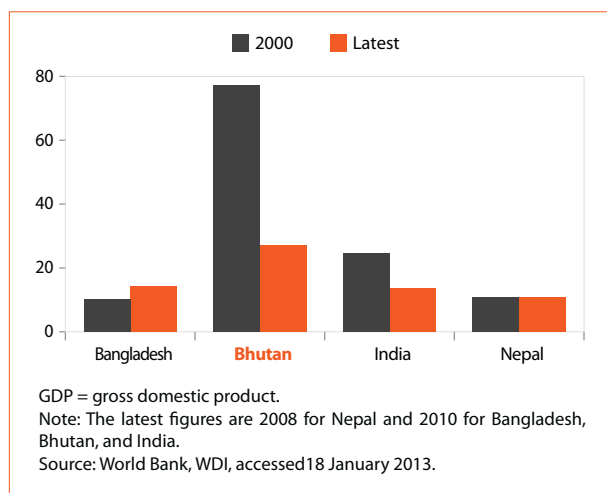
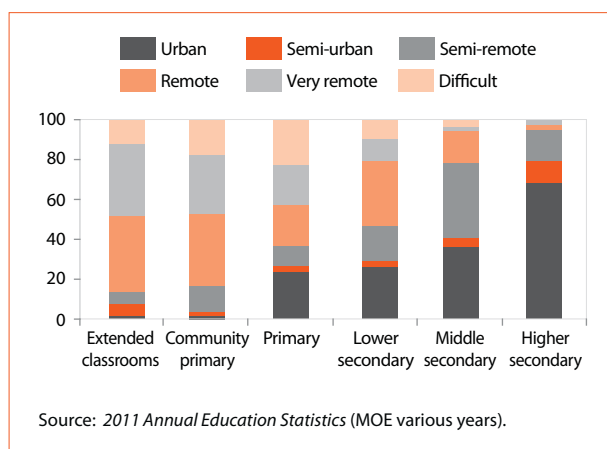


Figure 3.27. Distribution of Schools by Location, 2011 (%)



responsible for the low enrollment in rural areas. As reported in Tables 3.2 and 3.3, distance to school was cited as one of the main reasons for children not attending school, particularly in rural areas.

3.3.2. Health

Access to healthcare is a constraint to reducing poverty and inequality, but is not critical.

Health is a key contributing factor to human capabilities, as poor health can prevent people from working and can adversely affect their productivity. Health outcomes have been improving in the last few decades in response to the government's efforts at enhancing access to healthcare services

Table 3.4. Health Outcomes in Bhutan

Year	Life Expectancy at Birth (years)	Infant Mortality (per 1,000 live births)	Child Mortality (per 1,000 live births)	Maternal Mortality (per 100,000 live births)
1990	53	96	139	940
1995	57	79	111	650
2000	61	65	89	420
2005	65	53	71	260
2011	67	42	54	180

Note: The 2011 figures for maternal mortality rates are for 2010.
 Source: World Bank, WDI, accessed 18 January 2013.

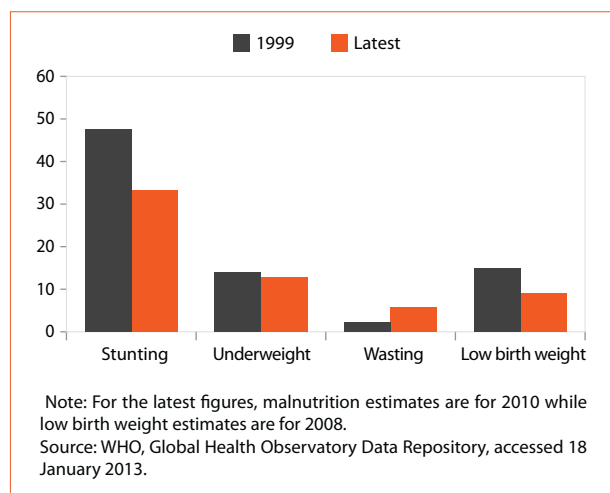
Table 3.5. Health Outcomes of South Asian Countries, Latest Figures

Country	Life Expectancy at Birth (2012, years)	Infant Mortality (2011, per 1,000 live births)	Child Mortality (2011, per 1,000 live births)	Maternal Mortality (2010, per 100,000 live births)
Bangladesh	69	37	46	240
Bhutan	68	42	54	180
India	66	47	61	200
Maldives	77	9	11	60
Nepal	69	39	48	170
Pakistan	66	59	72	260
Sri Lanka	75	11	12	35
South Asia	66	48	62	220
Lower Middle-Income, Worldwide	66	46	62	260

Source: World Bank, WDI, accessed 18 January 2013.

(Table 3.4). Life expectancy at birth has increased from 53 to 67 years in the last 2 decades, while infant, child, and maternal mortality rates have all decreased. The reduction in the maternal mortality rate was particularly remarkable, falling to almost one-fifth in 2010 from the rate in 1990.

Bhutan's progress in health puts it on track to meet its Millennium Development Goal targets by 2015. Compared with other South Asian countries, Bhutan fares well across a range of indicators (Table 3.5). Nevertheless, room for improvement remains. For example, Bhutan has the third highest infant and child mortality rates in the region, after India and Pakistan. The limited access to preventive and

Figure 3.28. Nutritional Status of Children under 5 and Low Birth Weight Incidence (%)

curative healthcare services and lack of awareness of good childcare and hygiene practices at the family level contribute to the higher mortality, especially in rural areas.

The relatively high infant and child mortality rates can be traced with nutrition issues. Insufficient intake of protein, energy, and micronutrients increases the risk of disease and early death. Figure 3.28 reports the nutritional status of children under 5 and the incidence of low birth weight. Despite some improvement since 1999, stunting is still common among Bhutanese children. It was observed in approximately 34% of children under age 5 in 2010, indicating the prevalence of chronic malnutrition. Although the proportion of underweight children is relatively low, it has declined only marginally from, 14% in 1999 to 13% in 2008. The reduction was greater in the incidence of low birth weight, which declined by 38% between 1999 and 2008. Of most concern, however, is the significant increase in the incidence of wasting between 1999 and 2010.

Table 3.6 suggests, however, that the nutritional status of children in Bhutan is far better than that of other children in South Asia—Bhutan's incidences of malnutrition and low birth weight are less than the averages in South Asia. Bhutan also performs relatively well in comparison with other lower middle-income countries in the world.

Disparities in health status are apparent across the country and among socio-economic groups.

Data from the 2010 Bhutan Multiple Indicator Survey¹⁵ indicate that infant mortality rates are significantly lower among girls than boys (NSB 2011a). Children in urban areas and in the western and central regions have better chances of survival than those in rural areas and in the eastern region. The difference between urban and rural areas is particularly significant: about 31 infants per 1,000 live births do not survive in urban areas, but 54 infants per 1,000 live births do not survive in rural areas. Samdrup Jongkhar and Trashigang districts in the eastern region have exceptionally high infant mortality rates. In contrast, Gasa, Haa, and Paro districts in the western region have relatively low infant mortality rates. The infant mortality rate is directly correlated with the mother's education level and household wealth: the rate decreases considerably as the mother's education level and the living standards rise.¹⁶

The incidence of stunting is also greater in rural areas. Children in the eastern region are, on average, less nourished than those in the western and central regions. In particular, children from Lhuentse, Pemagatshel, and Trashigang districts in the eastern region fare worst. As in the case of infant mortality rates, the prevalence of malnutrition is greater among children whose mothers are less educated or among those from lower wealth quintile groups (NSB 2011a).

Relatively high levels of public spending on health have improved health outcomes.

As one of its major thrusts in achieving gross national happiness, the government has been giving high priority to healthcare. As a testament to the government's commitment, public spending on health has been maintained at about 12% of total government expenditure in recent years, translating to 4% of GDP (Figure 3.29). Real per capita spending has also increased steadily since the mid-2000s.

¹⁵ This nationally representative survey was carried out by the National Statistics Bureau with the support of the United Nations Children's Fund (UNICEF) and the United Nations Population Fund. This survey resembles the Multiple Indicator Cluster Survey (developed by UNICEF) and the Demographic and Health Survey. It is intended to monitor the country's progress on the Millennium Development Goals.

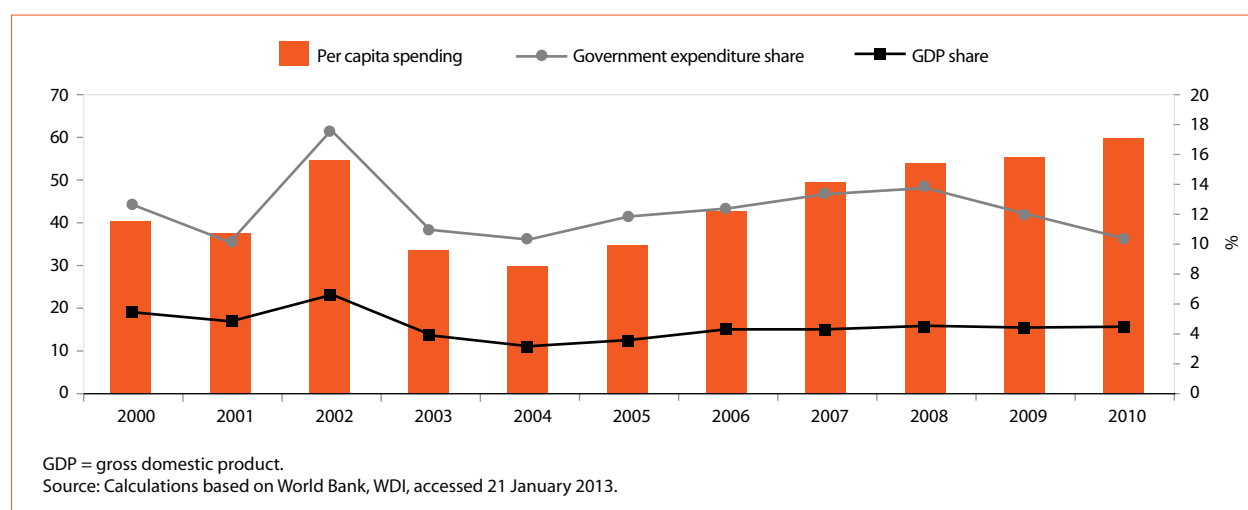
¹⁶ In the *Bhutan Multiple Indicator Survey Report 2010* (NSB 2011a), a wealth index was constructed based on proxy indicators of welfare to identify income groups.

Table 3.6. Nutritional Status of Children and Low Birth Weight Incidence, South Asian Countries (%)

Country	Year	Malnutrition (children under 5)			Low Birth Weight
		Stunting	Underweight	Wasting	
Bangladesh	2007	16.1	12.1	2.9	21.6 (2006)
Bhutan	2010	13.3	3.2	2.0	9.9 (2010)
India	2006	23.8	17.4	6.8	27.6 (2006)
Nepal	2011	26.3	8.1	2.9	21.2 (2006)
Sri Lanka	2009	4.6	3.9	1.9	16.6 (2007)
South Asia	2011	39.0	33.2	16.0	30.0 (2000)
Lower Middle-Income, Worldwide	2011	35.7	24.3	12.8	22.3 (2000)

Source: World Bank, WDI, accessed 21 January 2013

Figure 3.29. Public Health Expenditure in Bhutan (2000 \$)

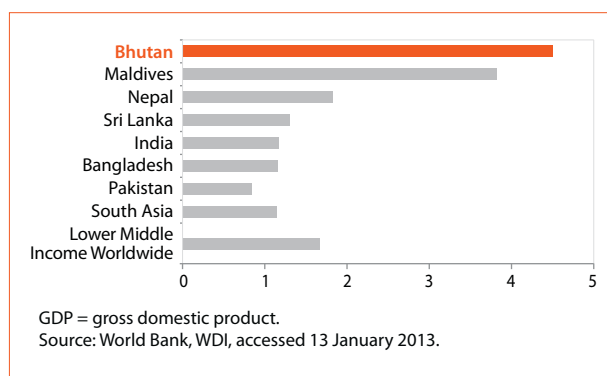


Bhutan's allocation to public health is much higher than that of other countries in the region (Figure 3.30). As a share of GDP, Bhutan's spending is more than twice that of Nepal and more than three times that of Bangladesh, India, and Sri Lanka. Furthermore, it is more than twice the average spending of lower middle-income countries.

Access to basic healthcare facilities and services has been increasing across the country in recent years.

The sustained budgetary support to health has translated into an enhanced provision of healthcare services across the country. For example, Figure 3.31 shows improving immunization coverage of infants during the last decade—about 93% of infants received a standard set of vaccinations in 2010. The significant reduction in the infant mortality rate can be attributed, at least partly, to the high rate

Figure 3.30. Public Health Expenditure in South Asian Countries, 2010 (% of GDP)



of immunization, while the remarkable decrease in maternal mortality can be attributed to the improved provision of maternal healthcare. Figure 3.32 reports access to assisted birth delivery and Figure 3.33 shows access to antenatal care for South Asian

Figure 3.31. Immunization Coverage of 1-Year-Old Infants (%)

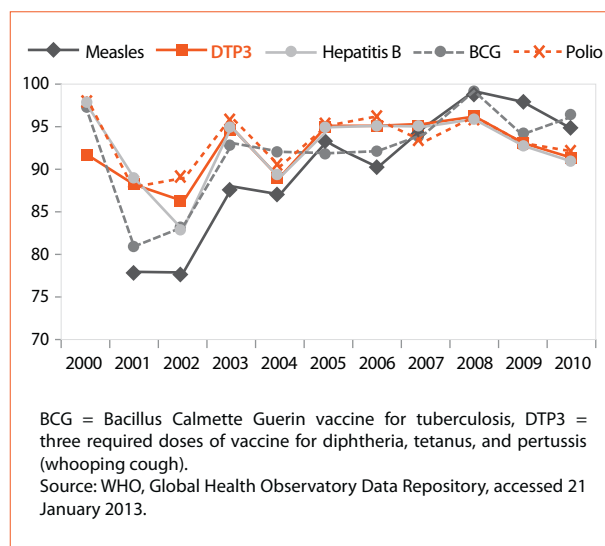
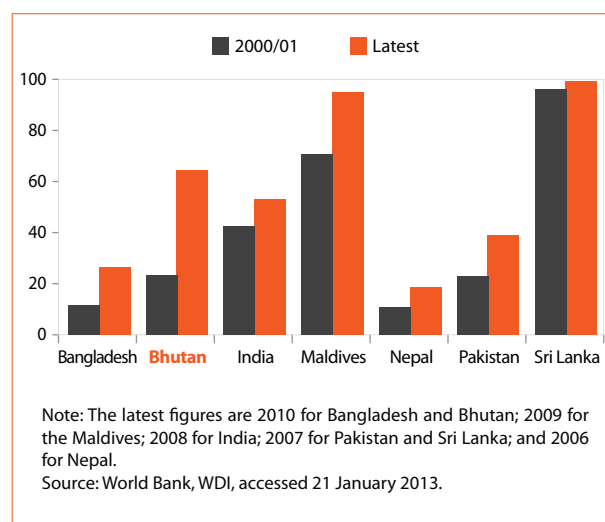


Figure 3.32. Births Attended by Skilled Health Personnel, in South Asian Countries (%)



countries. Bhutan's improved provision of maternal healthcare between 2000 and 2010 is remarkable compared with the performance of other countries in the region. The share of birth deliveries assisted by skilled health workers increased significantly—by 172%—during this period. Bhutan's 91% increase in access to antenatal care was also the greatest in the region.

Within Bhutan, regions and socioeconomic groups have equal access to antenatal care but disparity exists in the access to professional assistance for birth delivery (Figure 3.34). For example, skilled health personnel attended about

Figure 3.33. Pregnant Women Receiving Antenatal Care, in South Asian Countries (%)

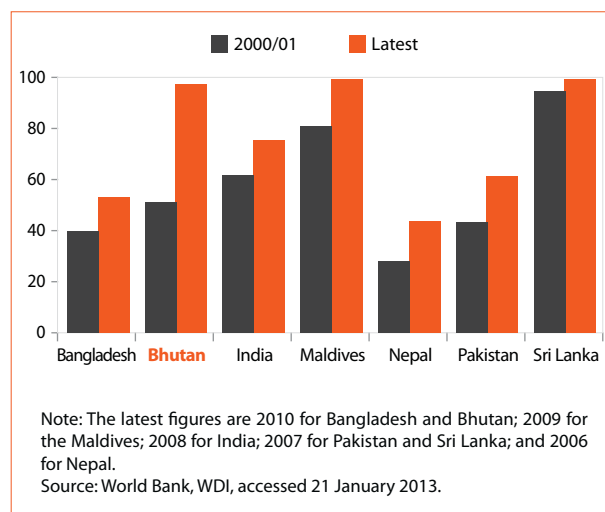
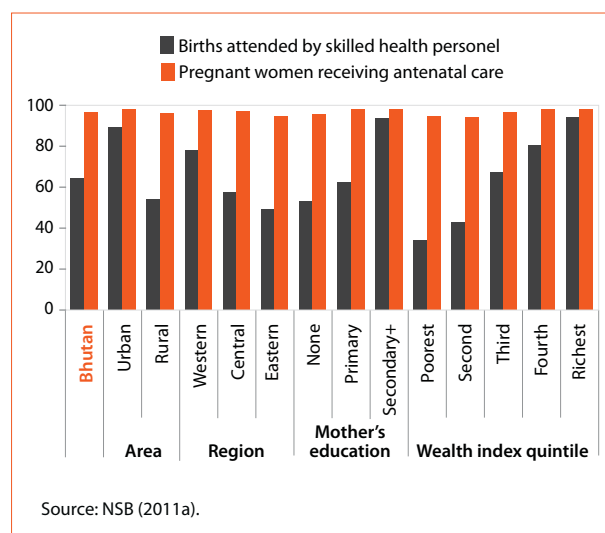


Figure 3.34. Maternal Healthcare, by Region and Socioeconomic Group, 2010 (%)



90% of birth deliveries in urban areas, but only 54% of deliveries in rural areas. A lower percentage of birth deliveries were assisted in the central and eastern regions than in the western region. Moreover, the higher the mother's education level and the household's wealth, the greater is the likelihood that birth delivery will be assisted by skilled health personnel.

In general, Bhutanese seek medical attention or visit healthcare facilities when they are ill or injured. More than 85% of people who became ill sought some kind of medical attention in 2003 and 2007, although this rate dropped to 68% in 2012 (Table 3.7). The table also shows that modern

Table 3.7. Household Medical Practices (%)

	2003	2007	2012
Became Ill or Injured	15.1	15.4	16.8
People Who Became Ill Sought Medical Attention Through			
Hospital/basic health unit	70.5	73.9	66.4
Traditional practitioner	8.2	6.4	0.4
Private doctor/nurse/pharmacist	2.9	3.4	0.0
Other	3.8	2.2	1.5
Took Medication	74.1	81.8	—

— = data not available.

Source: Calculations based on Bhutan Living Standards Surveys (NSB 2007, ADB and NSB 2013).

medical practice is preferred in Bhutan over traditional or indigenous practices, with less than 1% of respondents opting for a traditional practitioner in 2012. Medicine is also accessible, as about 82% of people who became ill or injured took medication to remedy their illness in 2007, an improvement from about 74% in 2003 (no data were available for 2012).

Almost all Bhutanese people visit hospitals and/or basic health units (BHUs) when they become ill or injured and this is consistent across the country and the expenditure quintiles (Table 3.8). BHUs are the country's most common healthcare facilities. The proportion of people who visit hospitals or BHUs in rural areas is higher than that in urban areas. Although generally small, the proportion of people who consult traditional practitioners is higher in urban than in rural areas.

Accessibility to healthcare facilities needs improving in rural and remote areas, and the number of medical workers needs to be increased.

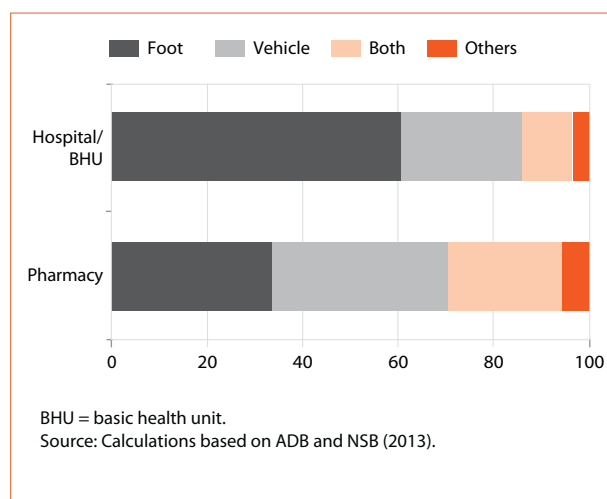
The usual mode of reaching healthcare facilities is by foot, which implies they are relatively accessible. As seen in Figure 3.35, about three-fifths of households reach hospitals and BHUs on foot. Pharmacies are less accessible, as only 1 of every 3 households can reach these facilities on foot. Among districts and even within districts, however, there is a great variation in distances to healthcare facilities (Figure 3.36). Depending on the district, reaching a facility can take 21 minutes to a little more than 2 hours. Health facilities in highly urbanized districts and to some extent in small districts (i.e., Bumthang,

Table 3.8. Type of Healthcare Facilities Accessed, 2012 (%)

	Hospital/ Basic Health Unit	Indig- enous Centers ^a	Private Health Practitioner	Traditional Practitioner	Others
Bhutan	97.2	0.6	0.1	0.2	2.0
Area Type					
Urban	95.1	1.0	0.0	0.2	3.6
Rural	97.9	0.4	0.1	0.2	1.5
Region					
Western	97.2	0.8	0.1	0.2	1.6
Central	99.1	0.5	0.0	0.1	0.3
Eastern	95.6	0.3	0.1	0.2	3.8
Expenditure Quintile					
Poorest	97.0	0.6	0.0	0.2	2.2
Second	98.0	0.2	0.2	0.1	1.5
Third	97.1	0.5	0.0	0.4	2.0
Fourth	96.7	0.7	0.1	0.1	2.4
Richest	97.0	0.9	0.0	0.1	2.1

^a Indigenous centers provide traditional medical services and products.

Source: Calculations based on ADB and NSB (2013).

Figure 3.35. Means of Accessing Health Facilities, 2012 (%)

Lhuentse, Paro, Punakha, and Thimphu) are more accessible. The distance within large districts and in isolated areas varies widely (i.e., Haa, Samdrup Jongkhar, Trongsa, and Zhemgang). The government, therefore, needs to continue its efforts at providing universal healthcare services across the country, by increasing the provision of healthcare infrastructure and enhancing accessibility to it. One effort is the health help center the government launched in 2011. The health help center provides

Figure 3.36. Travel Time to Hospital or Basic Health Unit, 2012 (minutes)

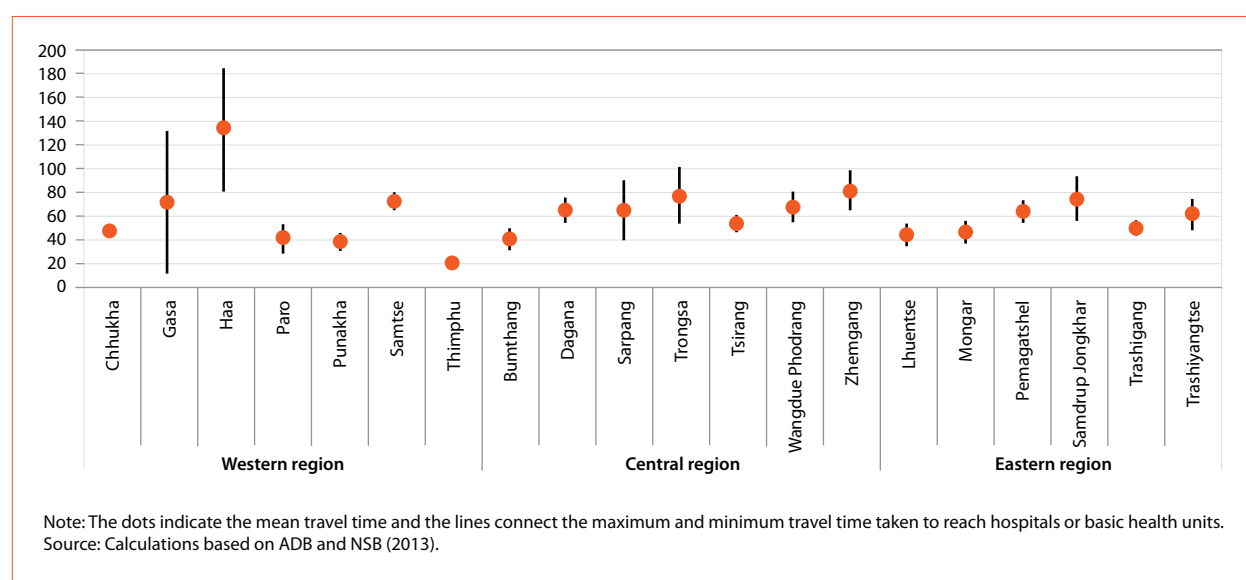


Table 3.9. Health Workers in South Asian Countries (per 100,000 people)

Country	Year	Hospital Beds	Physicians	Community Health Workers	Nurses and Midwives	Dentists	Pharmacists
Bangladesh	2007	30 (2005)	30	33	27	2	6
Bhutan	2007	180 (2011)	2	10	24	3	4
India	various	90 (2005)	65 (2009)	5 (2005)	100 (2008)	8 (2008)	52 (2006)
Maldives	2007	430 (2009)	160	227	445	1	82
Nepal	2004	500 (2006)	21	63	—	1	1
Pakistan	2009	60 (2010)	81	6	56	6	8
Sri Lanka	2007	310 (2004)	49 (2006)	—	193	8	4

— = data not available.

Source: WHO, Global Health Observatory Data Repository, accessed 21 January 2013.

“Emergency Response” and “Healthcare Helpline” services through a toll-free number, and has 61 ambulances in 37 locations across the country (Meena and Yasuda 2011).

Although access to healthcare facilities seems adequate, the quality of services provided is a concern—in particular, due to the lack of healthcare workers. Table 3.9 shows that there are only 2 physicians, 24 nurses and midwives, and 10 community health workers per 100,000 people in Bhutan. The ratios of dentists and pharmacists are also low, at 3 and 4 per 100,000, respectively. The ratios are also low compared with those of other countries in the region. Bhutan’s ratios of physicians, nurses, and midwives are the lowest in the region. Its ratio of community health workers is the third lowest next to India and Pakistan.

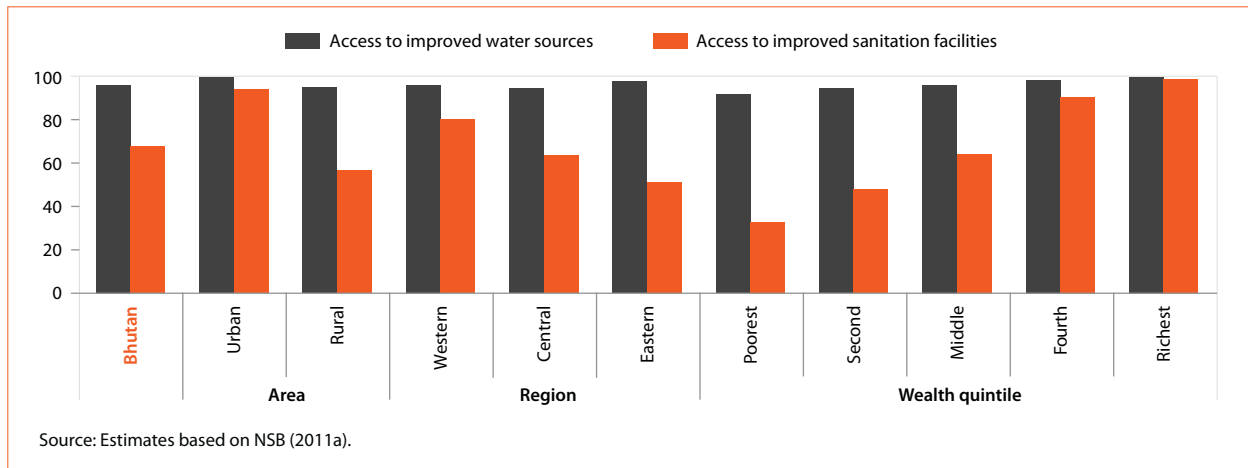
3.3.3. Other Social Services

Ensuring equal access to safe drinking water and sanitation facilities is one of the most effective ways to prevent common diseases, such as diarrhea and dysentery. Lack of such access increases the chance of contracting illness.

Although the provision of sanitation facilities needs to improve, it may not pose a critical constraint to reducing poverty and inequality.

Data from the 2010 Bhutan Multiple Indicator Survey (NSB 2011a) show that, in 2010, access to safe drinking water was universally high in Bhutan (Figure 3.37). In contrast, access to improved sanitary facilities was varied across the country and

Figure 3.37. Access to Improved Water Source and Sanitation Facility, by Region and Socioeconomic Group, 2010 (%)



its wealth quintiles, but has steadily increased during the last decade. About 94% of urban but only 57% of rural households have access to improved sanitation facilities. Among the three regions, households in the western region have better access (about 81%) than those living in the central or eastern regions (at 64% and 52%, respectively). Nearly all households (about 99%) from the richest quintile have access to improved sanitation facilities versus only 33% from the poorest quintile. These figures suggest the need for continued government efforts to improve the provision of sanitation facilities in disadvantaged parts of the country.

3.4. Uneven Playing Field

To level the playing field, the government has to ensure equal access to economic opportunities—e.g., to infrastructure, productive assets such as land, and credit—across the country and socioeconomic groups.

3.4.1. Infrastructure

Bhutan's terrain poses challenges to providing adequate infrastructure and connecting different parts of the country. The availability of infrastructure affects people's access to economic opportunities and to key public services such as education and health.

Access to key infrastructure, particularly roads, remains unequal and limited in rural areas, and is a critical constraint to the inclusiveness of growth.

Recognizing the importance of road networks for ensuring broad-based economic growth and poverty reduction, particularly in rural areas, the government has carefully laid down policies and programs to improve access to roads in the country. As discussed in Chapter 2, the road network has increased in recent years. The distribution, however, remains unequal, with significant disparity across the country and expenditure groups. Road density is particularly high in Chhukha, Mongar, Paro, Pemagatshel, Punakha, and Tsirang districts (Figure 3.38). Disparity also exists in the distribution of national and district roads (Figure 3.39).

Data from the 2007 and 2012 Bhutan Household Living Standards Surveys show similar stories (NSB 2007, ADB and NSB 2013). Figure 3.40 reports the median time taken to reach the nearest asphalt road on foot. The figure explicitly shows that access to asphalt roads increased by about 75% at the national level between 2007 and 2012, while confirming the unequal distribution. Access to roads is much better in urban than in rural areas. While people in rural areas take about 30 minutes to reach the nearest asphalt road, urbanites take only about 2 minutes. Moreover, householders in the eastern region take about half an hour to reach the nearest asphalt road, but people in the western and central regions take only about 0.1 and 0.2 hours, respectively.

On a positive note, between 2007 and 2012, travel time to the nearest asphalt road decreased more in rural areas than in urban areas. The reduction rate was the highest in the eastern region, where connectivity is the worst among the three

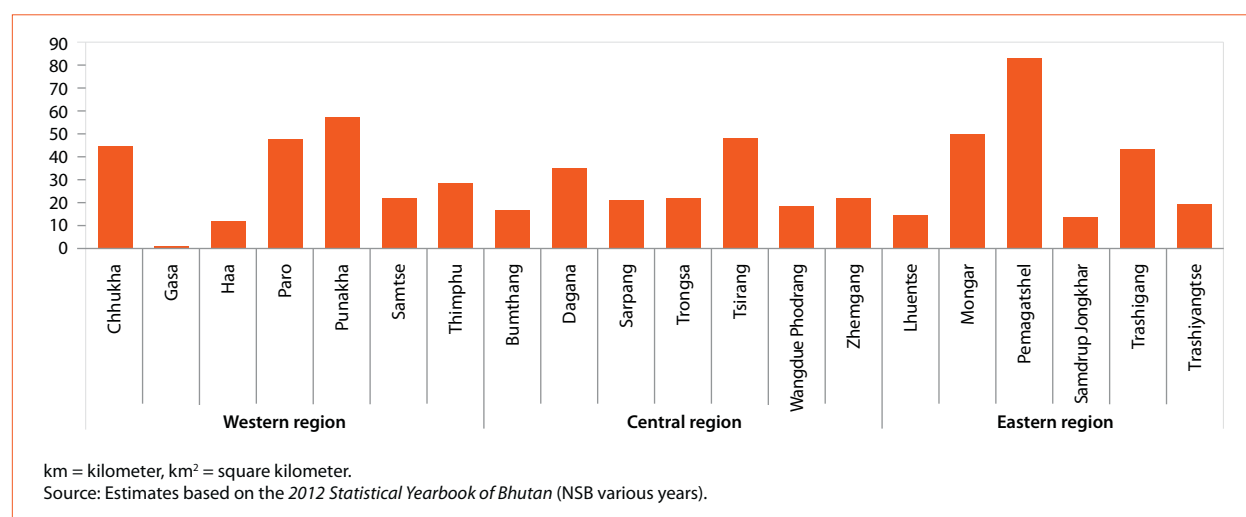
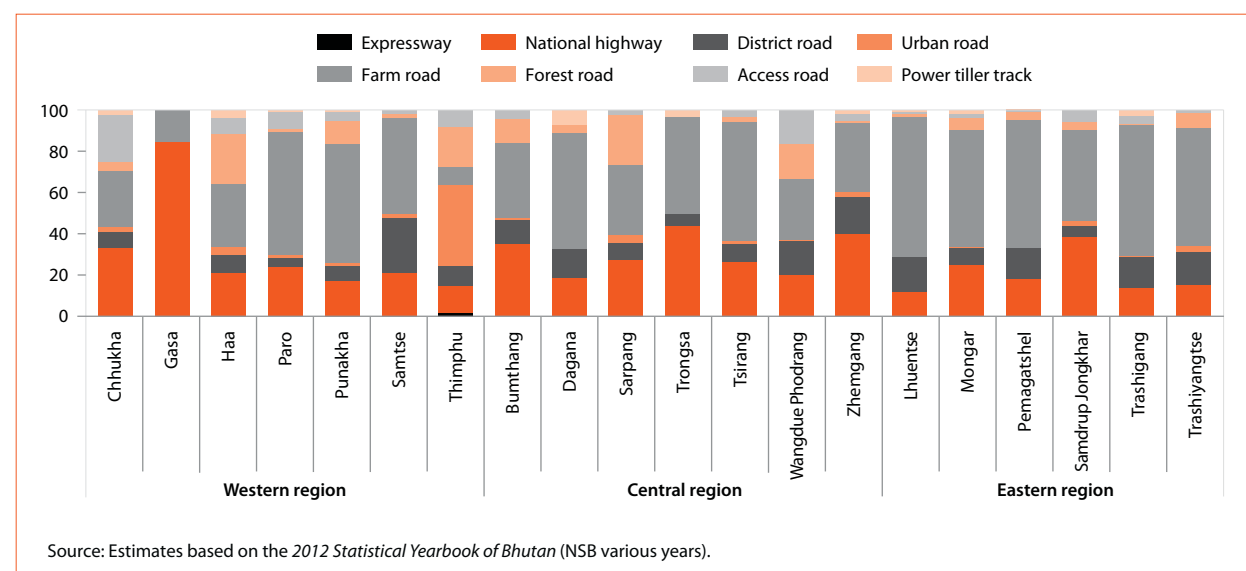
Figure 3.38. Road Density: All Roads, by District, 2012 (km/km²)

Figure 3.39. Types of Roads, by District, 2012 (%)



regions. While accessibility among expenditure quintiles improved between 2007 and 2012, poorer households still tend to have less access to roads than better-off ones.

Access to key economic and public facilities is not equally distributed across the country and among expenditure groups.

Figures 3.41 and 3.42 show the median travel time taken to reach markets and banks, respectively. Both figures show that, at the national level, the travel time decreased between 2007 and 2012, which can be partly attributed to the enhanced provision of roads. Table 3.10 reports the common means to reach key economic and public facilities.

In accessing markets and agricultural extension centers, most respondents walk. Additional means of transport are often needed to reach banks and district government headquarters.

Improved accessibility to markets, economic centers, and banks, however, is not universal. In 2012, urban residents took about 0.2 hours to reach a market (no improvement from 2007) whereas rural residents needed about 0.5 hours (a 50% reduction from 2007); greater disparity is also observed for accessing banks, although rural residents' access times improved from 2.0 to 1.5 hours between 2007 and 2012. A huge improvement in travel time to markets and banks was recorded in the eastern region. While travel time to markets

Figure 3.40. Travel Time to the Nearest Asphalt Road on Foot, by Region and Expenditure Quintile (hours)

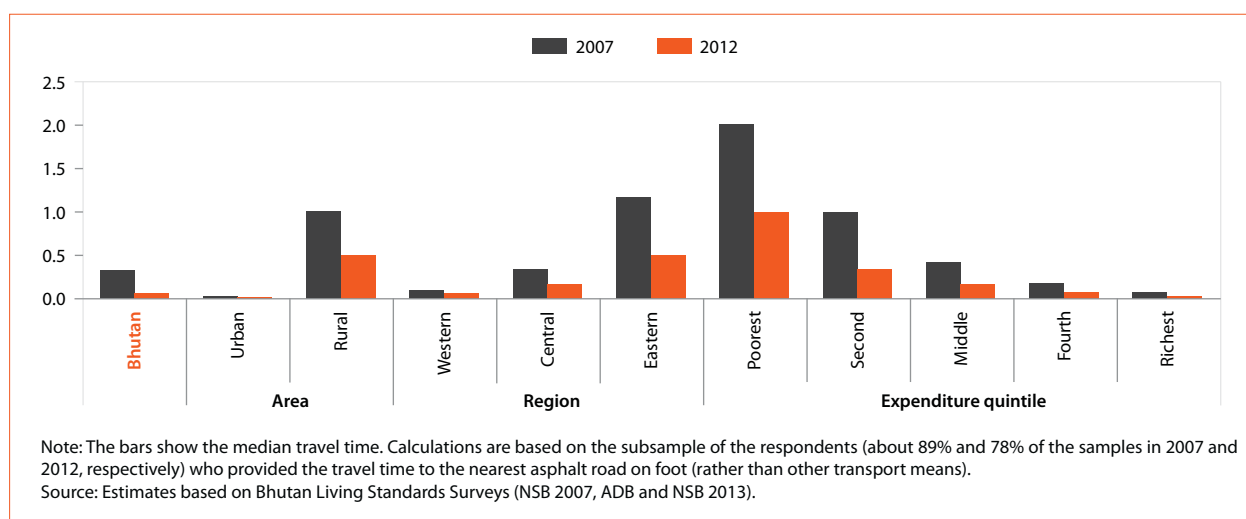


Figure 3.41. Travel Time to Market, by Region and Expenditure Quintile (median travel times, hours)

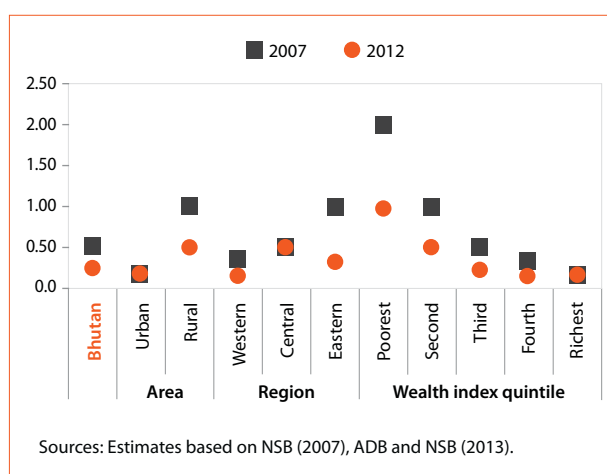


Figure 3.42. Travel Time to a Bank, by Region and Expenditure Quintile (median travel times, hours)

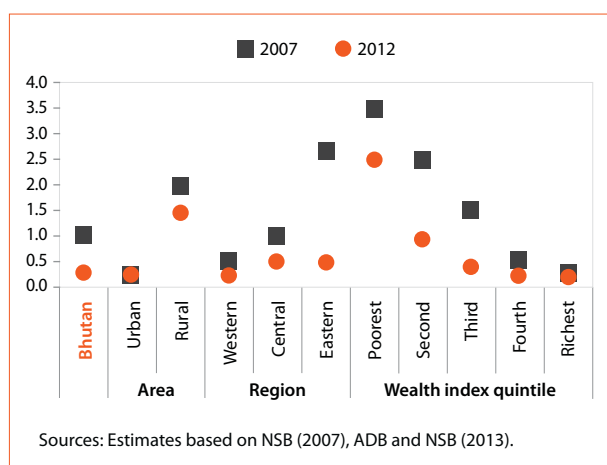


Table 3.10. Households' Access to Economic and Public Facilities, 2012 (%)

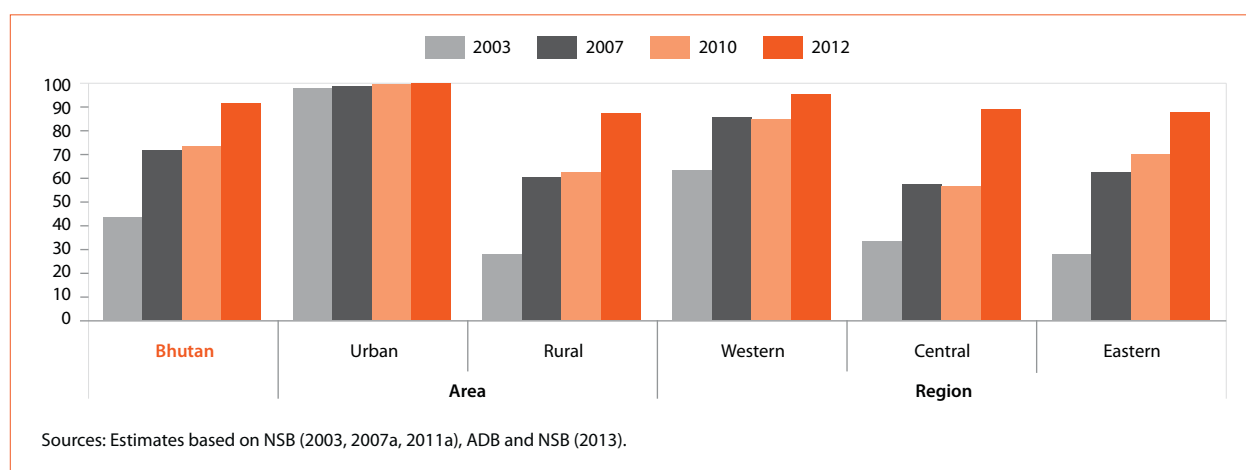
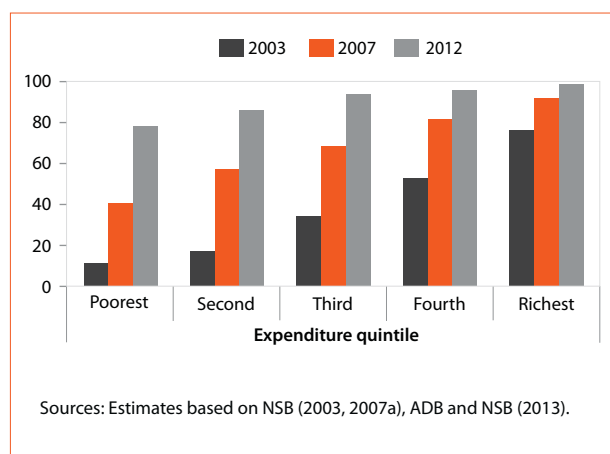
Means of Travel	Economic Facilities		Public Facilities	
	Market	Bank	District Government Headquarters	Agriculture Extension Center
Foot	65.3	29.7	19.6	74.2
Vehicle	19.5	37.9	42.0	15.3
Both	12.1	27.0	32.6	9.2
Other	3.2	5.5	5.8	1.4

Source: Estimates based on ADB and NSB (2013).

and banks improved among people in the lower expenditure quintiles between 2007 and 2012, wide disparity persists. It is, therefore, important for the government to improve connectivity, particularly for rural and remote areas, to ensure equal access to economic opportunities.

Access to electricity increased significantly during the last decade, particularly in rural and remote areas, but disparities remain across the country and among expenditure groups.

The share of households with access to electricity increased from about 43% in 2003 to about 92% in 2012 (Figure 3.43). Because the majority of urban households already had access to electricity in 2003, most of the improvement took place in rural areas, where the electrification rate has more than tripled between 2003 and 2012. The 2012 estimates show that about 87% of households have access

Figure 3.43. Households with Electricity, by Region (%)**Figure 3.44. Households with Electricity, by Expenditure Quintile (%)**

to electricity in rural areas. In the western region, about 95% of households have access to electricity, compared to about 90% and 88% of households in the central and eastern regions, respectively.

Disparity also persists among expenditure quintiles (Figure 3.44). Although poor households benefitted most from the improvement between 2003 and 2012, they had less access to electricity than better-off households. While about 98% of households in the richest quintile had access to electricity, about 77% had access in the poorest quintile. The government has committed to provide all households access to electricity by 2013, however. More hydropower projects are to be launched in line with the Bhutan Sustainable Hydropower Development Policy (GNHC 2010).

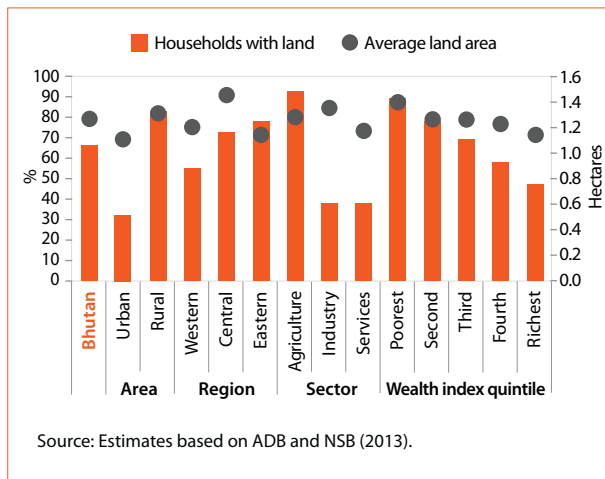
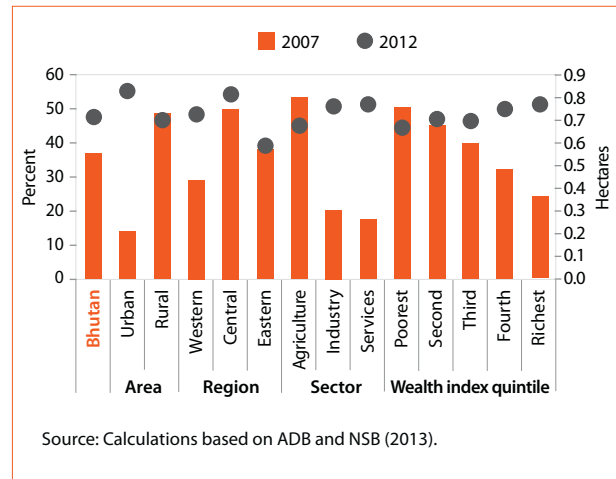
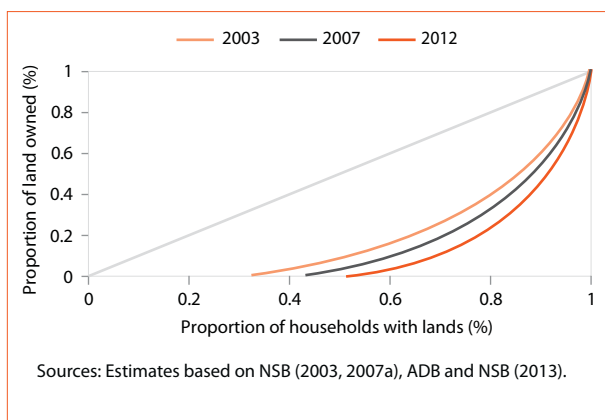
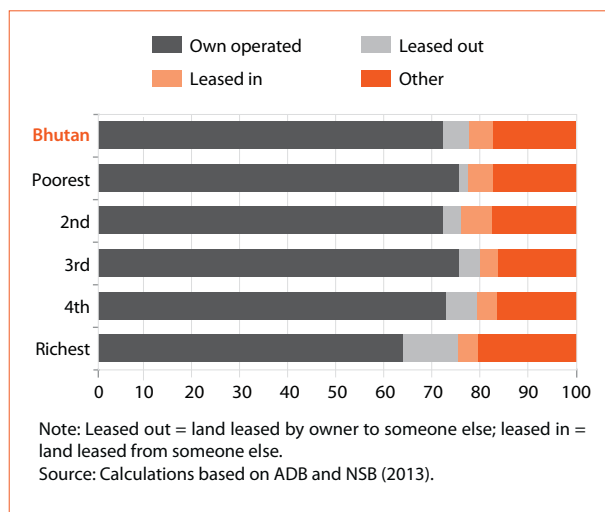
3.4.2. Land

Access to land may not be a critical constraint to inclusiveness, as the poor appear not to be precluded from owning land.

For countries such as Bhutan, where the majority of the population are engaged in agriculture, one of the most important productive assets is land. Given the country's topographical features, access to productive land is limited because only about 7% of the total land area is arable. Figure 3.45 shows that about 66% of households and the average land-ownership is 1.3 hectares. Ownership is concentrated in rural areas, where 8 of 10 households own land.

Figure 3.45 compares landownership across the sectors in which the household head is engaged. While almost all households engaged in agriculture own land (about 92%), only about 38% of households working in each of the industry and services sectors possess land. The landownership proportion is also greater among households in the lower expenditure quintiles than those in the 4th and richest quintiles. Nearly 9 in 10 households in the poorest quintile own land, but only about 5 in 10 in the richest quintile own land. In terms of area, households working in industry and/or poorer households tend to own larger land areas.

Land distribution seems to have worsened between 2003 and 2012. The Gini coefficient for land distribution increased from 0.465 in 2003 to 0.694 in 2012, which is also illustrated by Lorenz curves (Figure 3.46). In terms of tenure status, most

Figure 3.45. Landownership, by Region and Socioeconomic Group, 2012**Figure 3.48. Ownership of Productive Land, by Region and Socioeconomic Group, 2012****Figure 3.46. Lorenz Curves of Landholdings, 2003, 2007, and 2012****Figure 3.47. Households' Land Tenure Pattern, 2012 (%)**

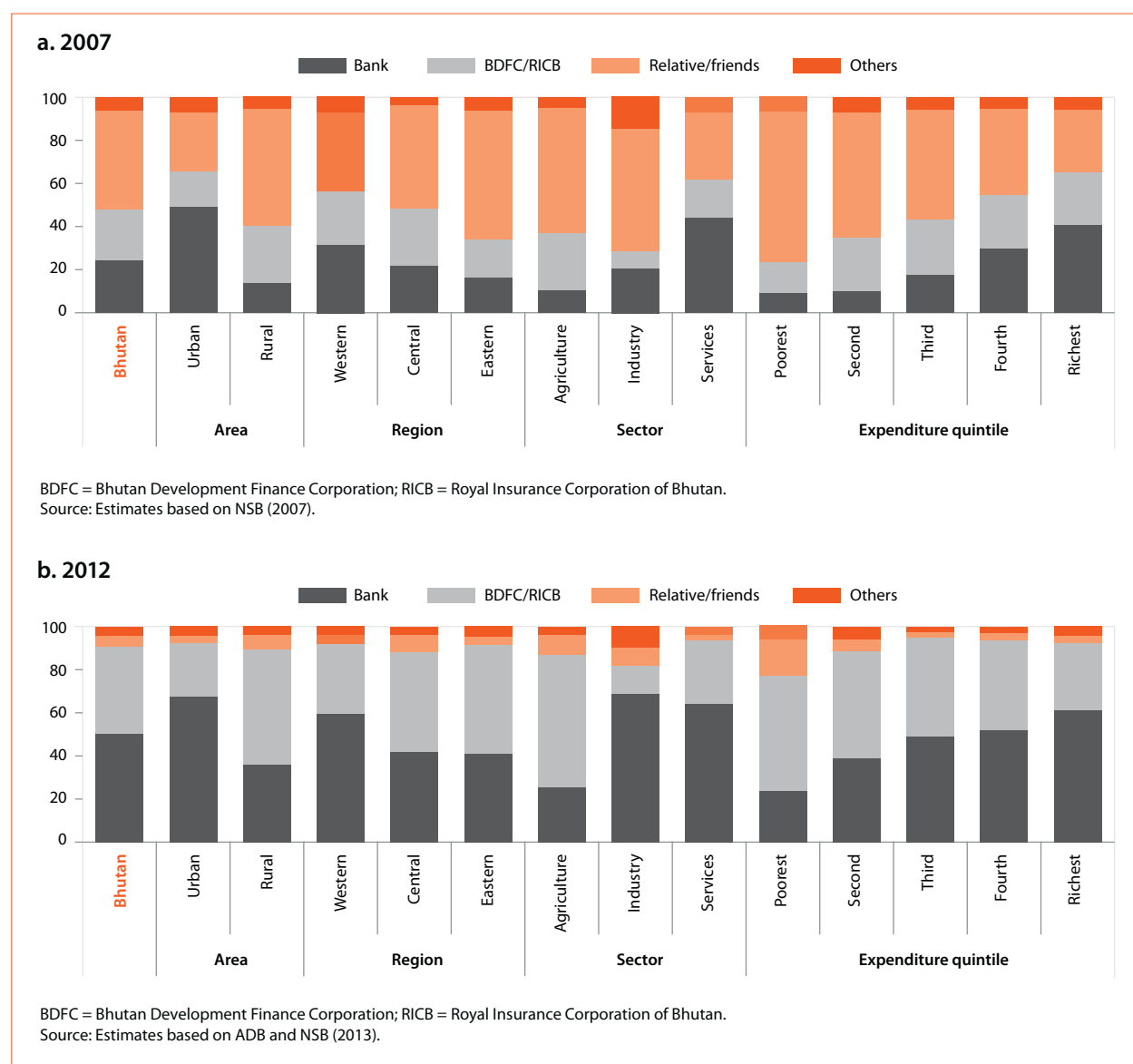
landholdings are operated by their owners (Figure 3.47) across all the expenditure quintiles; however, the share of leased-out land is higher among households in richer quintiles and that of leased-in land is higher among poorer households.

In addition to landownership, households' access to productive land is important. In the Bhutan Living Standards Surveys, landownership is classified by type—dry and wet. Wet land refers to productive arable land that may be irrigated, and in the current report is termed “productive land.” Ownership of productive land is shown in Figure 3.48. Only about 37% of households have access to productive land. The percentage of productive landownership is noticeably higher among certain subgroups, including those engaged in agriculture, rural households, people residing in the central region, and lower expenditure quintiles.

3.4.3. Credit

Equality of access to formal financial services has improved and is not a critical constraint to reducing poverty and inequality.

Ensuring access to credit across sectors is critical for enhancing the inclusiveness of economic growth. Credit enables poor households to take advantage of economic opportunities, meet daily needs, and cope with shocks. Financial intermediaries channel funds from people who have savings to those who have productive uses for them. But information asymmetry inherent in financial intermediation (that is, borrowers generally know more about their investment projects and their

Figure 3.49. Sources of Credit, by Region and Socioeconomic Group (%)

likelihood of repaying a loan than do lenders) may present a significant hurdle to access to credit in many developing countries.

Figure 3.49 shows that access to credit through formal financial institutions has improved from 2007 to 2012. About 91% of people who availed of loans took them from formal intermediaries such as banks, the Bhutan Development Finance Corporation (BDFC), and the Royal Insurance Corporation of Bhutan (RICB) in 2012—a huge improvement from only about 49% in 2007. This may be attributed to the launching in late 2009 of Bhutan’s first credit information bureau, which became fully operational in 2010, to address the

problem of credit information asymmetry. The share of bank lending to rural households is, however, still small compared with that of urban households despite the large proportion of rural households that own land that may be used as collateral. The small share suggests that other factors, such as availability of bank branches in the rural areas and burdensome documentation requirements, may also be at play. Nonetheless, it is encouraging to note the increase in rural households taking loans from BDFC and RICB between 2007 and 2012. The share of borrowing from friends and relatives sharply declined across areas, sectors, and expenditure groups. Still, access to formal credit is greater in urban areas and among better-off households. Figure 3.49a illustrates

that, in 2007, poorer households were more likely than richer ones to borrow from informal sources for their credit needs, but Figure 3.49b shows this situation has been largely reduced, and more than three-fourths of the poorest quintile households with loans were able to borrow from formal sources in 2012.

3.5. Social Safety Nets

Recent government initiatives on the provision of safety nets are encouraging.

Figure 3.50 reports government expenditure on social security and welfare for South Asian countries. While Bhutan's allocation for social protection was less than 2% of GDP in 2010, it is in the range of that provided by other countries in the region.

The strategic framework of Bhutan's Tenth Five Year Plan is hinged on its overarching goal of reducing poverty. During the last decade, the country implemented several social protection initiatives. Universal health coverage and free education for school-aged children were put in place prior to the 2000s, and several social policy strategies were also initiated during the 2000s, including social insurance, labor protection, and housing subsidies. The Bhutan National Human Development Report 2011 notes that the social insurance measures include the 2002 National Pension and Provident Fund, which was set up to provide pension management services for civil

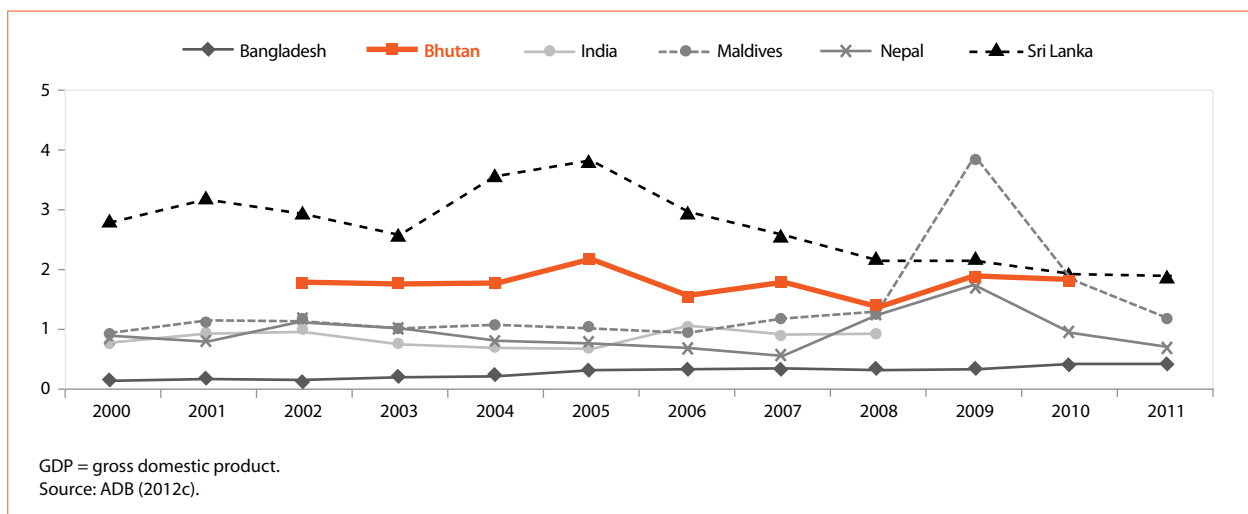
servants, including people employed in state-owned enterprises joint-sector companies, the military, and the police (GNHC 2011a). Labor protection measures include the 2007 Labor and Employment Act, which guarantees to protect the interests of workers, particularly for tenure and proper working conditions. Affordable housing was made available by the National Housing Development Policy, which was also implemented in 2002.

The government has also implemented policies targeting certain underprivileged groups (Choden 2010). In 2004, the National Commission for Women and Children was established specifically to attend to the protection of Bhutanese women and children from all forms of discrimination, exploitation, and abuse. The Commission is mandated to ensure that the country's commitments to international and regional conventions and treaties (e.g., the Convention on the Rights of Children and the Convention on Elimination of Discrimination against Women) are fulfilled. The Youth Development Fund, established in 1998, has supported youth programs and institutions. The programs include education scholarships for less fortunate children and special assistance to youth who need rehabilitation from addiction to alcohol and drugs.

3.6. Conclusion

Efforts to reduce poverty and inequality have made headway, particularly in the provision of healthcare and social services. Additional

Figure 3.50 Government Expenditure on Social Security and Welfare (% of GDP)



tasks need to be accomplished for Bhutan to achieve more inclusive growth. Diagnosis of key socioeconomic aspects identified the following as critical constraints: limited opportunities to

productive and decent employment; poor quality of education and disparity in the availability to it; and poor connectivity, particularly in the rural areas (Table 3.11).

Table 3.11. Summary of Diagnosis of Constraints to Reducing Poverty and Inequality

Broad Determinants of Poverty and Inequality	Factors Affecting Poverty and Inequality		Why Factor Constrains Reduction of Poverty and Inequality	Critical Constraint ?	Impact on Growth
Productive and Decent Employment Opportunities	Employment opportunities		• Internal migration from rural to urban areas	Critical	✓
			• Limited generation of jobs and development of the formal sector		✓
			• Mismatch between demand and supply of employment opportunities		✓
			• Low productivity in the agriculture sector		✓
	Human capabilities	Education	• Low level of education of the labor force, particularly among people residing in rural areas and the eastern region, women, and relatively poor households	Critical	✓
			• Limited and unequal access to education particularly at the secondary level and above		✓
			• Limited access to vocational education		✓
			• Shortage of vocation and manual workers as the young population prefers white-collar jobs		✓
		Health	• Infant and child mortality rates decreased but still high by regional standards	No	
			• Some disparity in health status across the country and among socioeconomic groups		
		Other social services	• Room for improving accessibility to healthcare in rural and remote areas	No	
			• Dearth of healthcare workers		
	Uneven access to infrastructure and productive assets	Infrastructure, particularly roads	• Partial access to sanitation facilities in rural areas and among the poor	Critical	✓
			• Access remains unequal and limited in rural areas		
		Land	• Some deterioration in the distribution of land—Gini coefficient increased by 0.022 percentage points	No	
Social Safety Nets	Social safety nets	Credit	• Equality of access to formal financial services has improved	No	
			• Limited allocation for social protection	No	

Appendix B. Analyzing the Probability of Not Being Poor

The Bhutan Living Standards Survey 2012 can be used to identify critical constraints to reduce poverty and inequality. Using information available from the survey, it is possible to analyze the probability of not being poor (i.e., being nonpoor). The estimation results can help provide guidance

to identify critical constraints to reducing poverty and inequality. The analysis was done by estimating a logit model. The choice of determining factors is a combination of location variables, demographic characteristics, and access variables. These are consistent with the usual indicators used in poverty studies. Table A3 shows the results of the analysis. The model provides a reasonably good estimate of the likelihood of not being poor, and the parameter estimates yield the expected signs. The positive sign

Table A3. Probability of Being Nonpoor

Parameter	Coefficient Estimate	Standard Error	z	Marginal Effect (dy/dx)
Location (Western region = control)				
Central region	-0.2012	0.1251	-1.61	-0.0054
Eastern region	-0.3986	0.1214	-3.28 ***	-0.0112
Urban	0.4398	0.1975	2.23 **	0.0107
Household Head's Characteristics				
Male	-0.0350	0.1075	-0.33	-0.0009
Age	-0.0074	0.0217	-0.34	-0.0002
Age (squared)	-0.0000	0.0002	-0.16	-0.0000
Marital status (not married)	0.0720	0.1372	0.52	0.0018
Years of education	0.0992	0.0240	4.14 ***	0.0026
Formally employed	0.8840	0.2266	3.90 ***	0.0202
Other Demographics				
Family size	-0.2616	0.0202	-12.93 ***	-0.0067
Dependency burden	-0.3784	0.2321	-1.63	-0.0098
Access Variables				
Housing materials				
Strong roof	0.3659	0.1393	2.63 ***	0.0110
Strong walls	0.4506	0.1069	4.21 ***	0.0133
Strong flooring	0.0086	0.1017	0.08	0.0002
Electricity	0.5140	0.1278	4.02 ***	0.0163
Safe drinking water	0.2008	0.1104	1.82 *	0.0055
Sanitation	1.3757	0.3810	3.61 ***	0.0255
Own land	-0.0942	0.1808	-0.52	-0.0024
Distance to nearest facility (time, ln)				
Paved road	-0.1210	0.0406	-2.98 ***	-0.0031
Hospital or basic health unit	-0.1279	0.0460	-2.78 ***	-0.0033
Bank	-0.1767	0.0551	-3.21 ***	-0.0046
Constant	4.6735	0.7017	6.66 ***	
Number of observations 8,968				
Pseudo R² 0.2383				

* = 10%, ** = 5%, *** = 1% level of significance, ln = natural logarithm.

Notes: z is the ratio of the coefficient to the standard error of the respective independent variable. The z value is used to test against a two-sided alternative hypothesis that the coefficient is not equal to zero (i.e., whether the coefficient is statistically significant or not). dy/dx indicates the marginal effects of the independent variables for the logit regression model (a measure of the change of the dependent variable from 0 to 1 when x increases by 1).

Source: Calculations based on ADB and NSB (2013).

of coefficients (in the second column, except those that deal with distance) indicates that the variable increases the probability of being nonpoor (i.e., increases the probability of being poor) while the negative sign implies that the variable reduces the probability of being nonpoor.

Key observations indicate that households in the eastern region are more likely to be poor than people from the other regions, while people in urban areas have a higher probability of not being poor than people in rural areas. Large households and/or those with a higher ratio of dependency (the ratio of children and the elderly to adults) are more likely to be poor. The estimation results clearly show the importance of education, as the education level of household heads (measured by the number of years

of formal schooling) increases the likelihood that a household will not be poor.

The model also verifies the advantage of formal employment as shown by the positive sign of the parameter estimate. In Bhutan, access variables appear to be strong proxy indicators of material well-being. Households with housing materials such as strong roofs and walls are less likely to be poor. Access to electricity, piped water, and sanitary toilets are also positive predictors of not being poor. The importance of credit is also reflected in the model, as households with better access to banks (measured by the time taken to reach a bank) are less likely to be poor. Similarly, a household with better access to roads and hospitals is less likely to be poor.

Chapter 4

Drivers of Inclusive Growth for Bhutan

The main sources of Bhutan's robust economic performance have been investment in hydropower and growth in hydropower-related construction and services. Heavy dependence on hydropower exploitation has confined the country's economy to narrowly based growth and limited employment opportunities. Reliance on electricity exports to India as the major source of foreign exchange has also made the economy vulnerable to swings in India's business cycles. In the longer term, jobless growth and dependence on one sector for growth are unsustainable, will lead to income disparities, and will frustrate the efforts of increasing numbers of educated youth seeking gainful employment. The anticipated future decline in external aid and grants has underscored the importance of addressing the narrowing fiscal space issue and diversifying the economy.

For more broad-based and inclusive growth, Bhutan will need to tap new drivers of growth. A more diversified economy will put the country on a more stable and sustainable growth path and generate productive employment opportunities for the population. How then, should Bhutan better position itself to ensure its economic future? This chapter attempts to answer the question by (1) reviewing the economic performance of sectors that are current drivers of growth; (2) outlining new, emerging drivers that can accelerate growth that is sustainable and inclusive; and (3) offering policy options to support and advance new growth engines that are sources of new employment.

4.1. Existing Drivers of Growth in Bhutan

The main drivers of growth in Bhutan have been the energy sector (specifically hydropower), tourism, and agriculture—referred to as the “existing growth drivers.” The development of hydropower and tourism played an important role in propelling Bhutan along a higher growth path, while agriculture, which has lagged in performance, has been the main source of income in rural areas. The energy sector accounted for approximately 20% of the economy, and growth in production and related construction has accounted for one-third of gross domestic product (GDP) growth. Tourism is a relatively more recent growth driver and has considerable potential for the future. While tourist arrivals have been increasing since 2001, they began to accelerate rapidly only from 2010, and tourism contributed about 7% to GDP in 2010. Agriculture's share of GDP has been declining fast, but the sector has the potential for higher productivity with proper deployment of innovative farming methods and infrastructure. With almost 60% of the workforce depending on agriculture, it could make a much larger contribution to economic growth.

4.1.1. Energy Sector

Hydropower. Hydropower dominates the power sector in Bhutan. It plays a crucial role in Bhutan's socioeconomic development by providing clean, reliable, and affordable electricity for domestic use. Bhutan is also a net power exporter.

Table 4.1. Hydropower Projects, 2008–2024

Project	Capacity (MW/GWh)	Construction Schedule	Development Mode
Punatsangchhu I	1,200/5,671	2008–2016	Intergovernmental projects
Punatsangchhu II	1,020/4,357	2010–2017	Intergovernmental projects
Mangdechhu	720/2,924	2010–2017	Intergovernmental projects
Sankosh Storage	2,560/6,267	2014–2021	Intergovernmental projects
Amochhu	540/1,835	2014–2022	Intergovernmental projects
Kuri-Gongri	3,200/13,855	2015–2024	Intergovernmental projects
Chamkharchhu I	770/3,253	2014–2023	Joint-venture projects
Bunakha	180/1,669	2014–2022	Joint-venture projects
Wangchu	570/2,526	2014–2022	Joint-venture projects
Kolongchu	600/2,593	2014–2022	Joint-venture projects

GWh = gigawatt-hour, MW = megawatt.
Source: MOF (2012).

Bhutan exports 80% of the power it generates annually to India; the remaining 20% meets domestic consumption needs. Taxes and dividends, mainly from hydropower companies, also constitute the largest source of national revenue (more than 40% of government revenue). Hydropower development and electricity exports have steadfastly underpinned the rapid growth of Bhutan's economy and generated government resources for social and other investments.

Bhutan's hydrology and topography combine to give a large hydropower potential of 23,760 megawatts (MW).¹ The current total installed hydropower generation stands at 1,488 MW, which accounts for about 99% of the nation's total installed electricity generation capacity of 1,506 MW. (The total includes installed capacity of solar photovoltaic—0.045 MW—and diesel—17.39 MW). Currently, 28 hydropower plants are operating, of which 5 are large plants with installed capacities of at least 20 MW and 23 are small, mini, and micro plants with installed capacities of over 1 MW up to 10 MW, over 100 kilowatts up to 1 MW, and equal to or less than 100 kilowatts, respectively. The large hydropower plants are Chhukha, Basochu I and II, Kurichu, and Tala, with a total installed capacity of 1,480 MW.

Because all of the plants are run-of-river, total generation capacity drops dramatically to

about 288 MW during the winter and dry seasons (December–March). This low capacity cannot meet the system peak demand during the winter and dry seasons. In 2010, about 25 MW of industrial load was shed during the winter months. Power imports from India, especially in the winter, have become increasingly difficult to arrange as India has its own power shortages in these months. Winter power shortages are thus expected to worsen and will only be alleviated in 2016 when the Punatsangchhu I hydropower plant (1,200 MW) comes on line.

In 2008, Bhutan agreed with India to develop and export 10,000 MW of capacity by 2020. Punatsangchhu I is included under this bilateral framework, along with 9 other large hydropower projects that are at various development stages with the Indian government and Bhutanese enterprises (Table 4.1).

In addition to the bilateral arrangements, Bhutan's development strategy considers various financing mechanisms through public–private partnerships, in particular for medium- and small-size projects. The Dagachhu hydropower project (126 MW), brought on line in 2008, was the first public–private partnership infrastructure project in Bhutan. The project was developed on commercial terms and will contribute to government revenue through taxes, dividends, and royalties. Accelerating the development of hydropower for export will be of strategic significance to the sustained growth of the Bhutanese economy.

Rural Electrification. Although Bhutan has a net power surplus to export, most rural residents

¹ The terrain descends from 7,554 meters above sea level in the north to less than 100 meters in the southern foothills. The annual average rainfall varies between 500 millimeters (mm) and 2,000 mm in the north to 5,000 mm in the south.

do not have access to electricity. Only 40% of rural households use electricity as their main source of lighting—versus 96% of urban households. With the expansion of electrification in the rural areas, electricity from hydropower and solar sources will replace kerosene and fuelwood and enhance energy and social security. Because about 70% of the population lives in rural areas and population density is low, the cost of investment in and operation and maintenance of electricity supply is high. Lack of infrastructure and unfavorable terrain also pose significant challenges to achieving “electricity for all.”

To alleviate poverty and stimulate inclusive economic development, the government started large-scale rural electrification projects under its Sixth Five Year Plan (FYP) 1988–1993. All subsequent FYPs included rural electrification as one of the key development elements. Preliminary results of the 2012 Bhutan Living Standards Survey indicate that the country has achieved electrification of 92% of its households (ADB and NSB forthcoming). The government expects to achieve 100% electrification of households by the end of 2013 (Thinley 2013).

Operating subsidies are essential to ensure the sustainability of expanding rural electrification. In Bhutan, subsidies are regulated and provided from royalty revenues from power exports used to cross-subsidize electricity tariffs, in particular for rural domestic customers. The government distributes the remaining revenues from exporting power to support socioeconomic goals such as improved health and education, as well as infrastructure development such as rural roads and bridges. Thus, achieving inclusive economic growth and poverty reduction through rural electrification is strongly related to electricity exports.

Government Initiatives. The government’s development strategy recognizes that development of the energy sector will play a central role in promoting (1) fiscal revenues from power exports, (2) economic development with poverty reduction, (3) balanced regional growth with the electrification of rural communities, and (4) industrial investment based on reliable supply of electricity. To achieve these objectives, the strategy also recognizes the importance of improving the institutional capacity of power sector entities, expanding the reach of the power transmission and distribution networks into rural areas, and increasing generation capacity

through investments in export-oriented hydropower development.

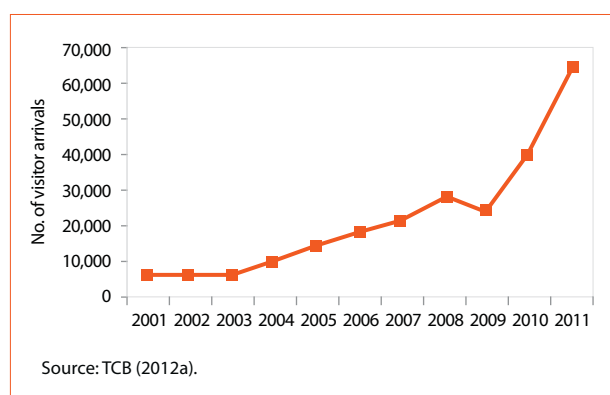
To promote hydropower export, the governments of Bhutan and India entered into a memorandum of understanding for mutual cooperation. The memorandum includes 10 large hydropower projects totaling 10,000 MW of installed capacity (Table 4.1) under bilateral financing from the Government of India and through joint ventures with Indian public sector enterprises. To accelerate hydropower development on a sustainable basis, the Government of Bhutan has also established policy and institutional frameworks, such as public–private partnerships for the participation of private independent power producers. These export-oriented projects are important to sustain Bhutan’s economic growth.

Current Issues. Given that Bhutan has agreed with India to develop and export 10,000 MW of capacity by 2020 and given the sheer size of these hydropower projects, the energy sector will continue to be the main driver of economic growth for the foreseeable future. In the past, domestic savings were inadequate to finance hydropower projects and will continue to be so. Domestic savings rates averaged about 32% of GDP during 2001–2010, substantially less than the rate of investment. Therefore, these projects will largely be financed by foreign funds, mainly from India, which will increase Bhutan’s debt burden.

The debt-to-GDP ratio is projected to rise from about 54% in fiscal year (FY) 2008/09 to about 80% in FY2012/13 (World Bank 2010a). This ratio will likely rise further. However, almost 98% of the country’s debts are owed to India, and are serviced automatically by hydropower receipts. Hydropower projects bring strong growth dividends, boosting the average real GDP growth and exports. The external debt service ratio as a share of exports of goods and services is expected to decline from more than 14% to below 13% during FY2012/13. A joint International Monetary Fund and World Bank debt sustainability analysis suggested moderate risk of debt distress during FY2008/09–FY2028/29 (World Bank 2010a).

4.1.2. Tourism

Due to its rapid increase in recent years, tourism is an emerging driver of growth (Figure 4.1). International tourism arrivals increased from a low

Figure 4.1 Visitor Arrivals in Bhutan, 2001–2011

base of 287 in 1974 to 64,028 “high-end” visitors in 2011.² Figure 4.1 illustrates the growth of high-end visitor arrivals in Bhutan from 2001 to 2011.³ Tourism accounted for 6.8% of GDP in 2010, has significantly contributed to the development of the service sector, and offers opportunities to absorb an increasingly educated labor force.

Approximately 90% of visitors to Bhutan are interested in the country’s rich cultural heritage and colorful festivals. Peak tourist seasons are usually around times such as the Paro and Thimphu festivals. Tour operators have aggressively marketed attendance at these festivals, resulting in the increasing numbers of visitors in recent years. However, accommodating the increased visitors during peak seasons has been a challenge for the sector. A number of strategies are available to achieve the ambitious targets, although the results may be limited by the absorptive capacity of the country’s infrastructure, culture, security, and environment.

Government Initiatives. Box 4.1 sets out over 20 innovative tourism products and approaches to address the seasonality issue and spread the benefits of the tourism sector. The products are consistent with Bhutan’s “high-value, low-impact” approach. They are divided into four categories: nature, culture, wellness, and other. Some were identified

in 2005 (or earlier) in the Sustainable Tourism Development Strategy, and some of the products have not yet been fully pursued (Department of Tourism 2005).

The 2010 Economic Development Policy of Bhutan called for “spreading the benefits (of tourism) to a larger proportion of the population through the creation of forward and backward linkages and diversification of livelihood opportunities especially for contribution to the rural economy” (GNHC 2010: p. 17). The 2012 Diagnostic Trade Integration Study aimed to bolster the value chains linking tourism to Bhutan’s labor market, households, and farmers, to (1) limit the flow of tourism-related earnings outside of the country, (2) provide income and employment opportunities for poor households, and (3) increase GDP (Ministry of Economic Affairs 2012). At present, there are few “quick fixes” for the current weak linkages and value chain complexities, which arise due, among other things, to low visitor volumes and small-sized landholdings. Nevertheless, where there is verifiable market demand, the scope for strengthening supply chains should exist through innovative and targeted support.

The Government of Bhutan drafted a tourism bill that aims to organize and increase tourism and address (1) the coordination and clarity of roles between different government agencies under the laws governing tourism resources, management, planning; (2) gaps and overlaps relating to planning, construction, investment, coordination, enterprise regulation, and security; and (3) decentralization. The government established the Royal Institute for Tourism and Hospitality in Thimphu in October 2010. The institute was created to strengthen the skills and capacity of the tourist sector’s middle- and high-level human resources.

The Tourism Council of Bhutan (TCB) has been active in marketing and promoting Bhutan as a tourism destination. Recent initiatives include the identification of public relations agencies in selected source markets, travel and tourism fairs showcasing Bhutan, and collaborative measures to host media personnel on familiarization visits of travel agents. Additional efforts have included applying “Brand Bhutan” to the tourism sector. The TCB proposed that Bhutan be positioned as a carbon-neutral destination, communicating to the global market that the country is a net sequester of carbon, and

² Tourists in Bhutan that are considered “high end” arrive by air and are paying the government’s tourism tariff. The total tourist arrival figures do not include the high-end regional tourist arrivals by land (1,728 in 2011).

³ High-end regional tourists (from Bangladesh, India, and the Maldives) were included in the figures in 2010 and 2011 but not in prior years. High-end regional tourists are defined as arrivals by air and staying in a minimum of a three-star accommodation.

has been taking proactive measures to promote a carbon-neutral tourism sector.⁴

Current Issues. Efforts to develop Bhutan's tourism sector need to address four key issues: (1) the narrow range of tourism products, (2) limited access to air transport, (3) an inflexible tariff and royalty policy, and (4) limited marketing and promotion.

Historically, the range of tourism products in Bhutan focused on cultural sites and festivals in Paro and Thimphu. While these products have been consistent with the policy of providing an authentic experience for visitors, other products have been less explored, resulting in sharp seasonal peaks and unbalanced and unequal development of the sector. The relatively cold winters and wet summers that disrupt flight schedules and cause landslides that block roads contribute to the seasonality problem. Box 4.1 presents tourism product offerings to address these issues. Many visitors from India come to Bhutan to escape the summer heat, which suggests that growth of regional tourism could help offset the seasonality of tourism in Bhutan.

Considerable growth in international air passenger traffic is expected in the short and long terms, putting pressure on the only international airport, at Paro. Drukair has been the sole international operator into Paro. As noted in Chapter 2, airport facilities are basic and operations are conditional on the weather. Moreover, Paro International Airport is in a deep valley at about 2,200 meters (m) above sea level and is surrounded by peaks as high as 5,500 m. The runway is 2,265 m long. The approach into Paro is by visual flight rules—a set of regulations that allow a pilot to operate an aircraft in weather conditions generally clear enough to allow the pilot to see where the aircraft is going. Thus, operations are limited to daylight hours and are often disrupted by bad weather. Paro International Airport needs to be upgraded and expanded to increase its handling capacity from 350 to 600 passengers per day. Other improvements needed include runway widening; safety, security, and navigational improvements;

Box 4.1. Innovative Tourism Products and Approaches to Address Seasonality and Further Develop Tourism

Nature

- N1. Community-based trekking routes
- N2. Lodge-based trekking routes
- N3. Winter trekking routes
- N4. Hot springs (*tsachhu*)
- N5. Wildlife tours
- N6. Bird watching
- N7. Flower tours
- N8. Butterfly tours
- N9. Tour bicycling/mountain bicycling

Wellness

- W1. Traditional medicine (for preventive medicine and chronic diseases)
- W2. Health tourism at moderate altitudes
- W3. Meditation

Culture

- C1. Festivals (*tsechus*) in less-traveled regions/seasons
- C2. "Living Buddhism"
- C3. Farm stays
- C4. Textile tours

Others

- O1. Meetings, incentives, conventions, and exhibitions
- O2. Education
- O3. International film production
- O4. High-end regional tourism
- O5. Domestic tourism

Sources: Department of Tourism (2005: pp. 137–70), Ministry of Economic Affairs (2012: p. 96), TCB (2012b).

and additional parking for land vehicles. To increase the air traffic into Paro, flights on existing routes need to be more frequent, new routes should be introduced from other points of origin, more carriers need to be allowed access, and the Drukair fleet needs expanding and/or its current aircraft needs to be more frequently used.

Visitors often misconstrue the all-inclusive tariff for tourists as an entrance fee only. The "one price policy" tends to limit incentives for tour operators to compete and upgrade services, and confines the benefits of the sector to a few hotels and restaurants, with little impact on the rural economy. Box 4.2 describes the tourism tariff and royalty policy.

⁴ As proposed in the TCB (2012b) Tourism Strategy and Development Plans, 2013–2018, and the Ministry of Economic Affairs' (2012) Diagnostic Trade Integration Study. Communicating the country's unique environmental policies is a sound tourism strategy and complements the high priority accorded to environmental conservation.

Box 4.2. Bhutan's Tourism Tariff and Royalty Policy

A key feature of Bhutan's "high-value, low-impact" approach is the tariff and royalty policy adopted by the government. Tourists now pay \$250 per day to enter the country during the peak months (March, April, May, September, October, November),^a which was increased for the first time in two decades from \$200 per day in 2012 (the \$200/day still applies in off-peak months).^b The "one price policy" all-inclusive tariff is applied to each international visitor, to be booked through a tour agent. This tariff covers a triple-sharing occupancy stay in four-, five-, and "seven"-star hotels and special personalized activities, plus supplements if any.

As of 2011, the top 12 tour operators accounted for approximately 50% of the market and the top 6 for about 30% of the market. The \$250 tariff includes \$25 as the overseas tour agent's commission, \$65 as royalty to the government, and 2% advance payment of the business tax (\$3.20); the remaining \$156.80 goes to the tour operator in local currency, from which it must provide the minimum services (accommodation, transport, guide, and meals). The total average daily spending per visitor to Bhutan has been estimated at \$330 (2008), which is exceeded by only a few top tourist destinations (Iceland, Peru, and Switzerland); similarly, the average length of stay (at 7.5 days in 2011) is exceeded by only a few top tourist destinations (French Polynesia, Kenya, Peru, and Sri Lanka).

^a The charging of a tariff of this magnitude for entry into a country may be unique, although some countries (e.g., Botswana, Ecuador, Kenya, and Rwanda) charge similarly high tariffs for overnight stays in national parks.

^b Certain discounts are available, e.g., there is no charge for children up to 5 years old and children 6–12 years old accompanied by elders/guardians are given a 50% discount on daily rates and a 100% discount on the royalty; full-time students below the age of 25 holding valid identity cards from their academic institutions receive a 25% discount on daily rates; a 50% discount on the royalty is given after the 8th night and a 100% discount on the royalty is given after the 14th night.

Sources: (1) Interviews conducted during field visit to Bhutan, 12–27 January 2012 by a Japan International Cooperation Agency (JICA) study team; (2) documents emailed by the Tourism Council of Bhutan Secretariat to the JICA study team on 18 January 2012; and (3) TCB. Travel Requirements. <http://www.tourism.gov.bt/plan-your-trip/travel-requirements>, accessed on 16 February 2012

While private sector operators are allowed to deduct marketing expenses from their taxable income, this is limited to 2% of assessed gross profit⁵

Other factors affecting tourism are (1) sub-standard accommodation, low occupancy, and

limited travel options; (2) poor quality infrastructure; (3) skills and knowledge shortages among tourism-related workers; and (4) inconsistent tourism policy and its weak dissemination and coordination among stakeholders involved in tourism.

Hotel occupancy varies widely between the peak and lean tourism seasons. Five-star hotels (7.6% of the total hotel beds) have an occupancy rate in the peak month of 69.1% and an average annual occupancy rate of 31.0%; while four-star hotels (14.0% of the total hotel beds) have 74.6% and 40.7%, respectively.⁶ The value for money of the accommodation is low, that is, the \$150–\$225 rooms in Bhutan are actually valued at \$80–\$100 by international standards. About 24% of international visitors in 2011 found the quality of hotels to be "average." And, with tourism's tariff structure, tourists have a limited choice of hotels and itineraries.

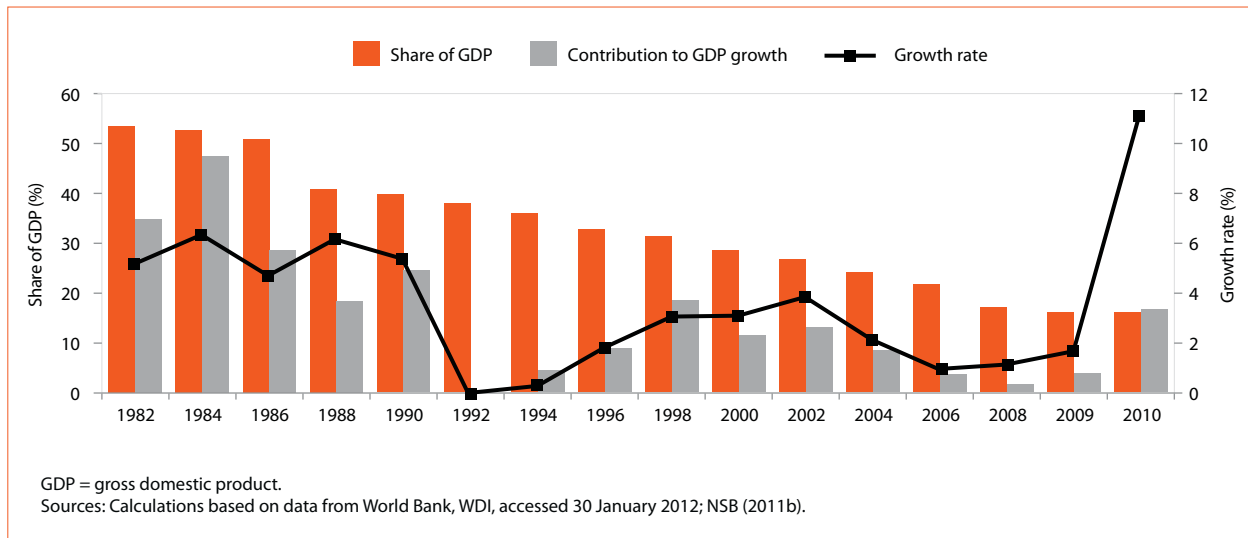
Road connectivity is poor in Bhutan. Roads to and in the central and eastern regions have prevented the development of tourism into the west. While tourists are now allowed to enter and exit at Samdrup Jongkhar in southeastern Bhutan, Gelephu in the south central area, and Phuentsholing in the southwest, road conditions are poor in terms of width, alignment, and surface condition. In cities and towns, including Thimphu, the quality of sidewalks and pedestrian paths is also poor. Respondents to the TCB (2011) annual exit survey identified several other infrastructure issues. The main ones include poor garbage control and management, poor public toilets and restrooms, lack of credit card and ATM facilities, presence of stray dogs, and poor internet and communications facilities.

Both the public and private sectors lack qualified and experienced tourism professionals. Understanding of the market-oriented dynamics of the industry is limited, and interpreters and tour guides fall short of expectations. Unskilled workers are poorly trained, receive low wages, and work long hours (13 hours per day, 6 days per week). Inconsistent sector policies make coordination challenging among many government agencies and private stakeholders involved in tourism accommodation, entertainment, financial services, tour operations, and transport enterprises.

⁵ Regulation of the Department of Revenue and Customs.

⁶ October is the peak month.

Figure 4.2. Agriculture in Bhutan's Economy, 1982–2010



Limited quantitative tools restrict the assessment of tourism's impact on Bhutan's economy and hamper the ability to produce accurate estimates and, hence, to facilitate more relevant policy formulation.

4.1.3. Agriculture

Bhutan has a total land area of 38,394 square kilometers, about 70% of which is covered by forest and 11% by shrubs. The area suitable for agricultural production is limited by the steep and rugged terrain, the altitude, and the high priority given to maintaining forest cover. Only about 3% of the land is cultivated and 1% is irrigated. Of the 3% of cultivated land, 62% of that is rainfed (*kamzhing*); 28% is irrigated, terraced land (*chhuzhing*), used primarily for rice cultivation; and the rest is used for horticulture.⁷ Land use and agricultural activities in Bhutan are influenced by the diverse climate and topography. In the higher altitudes, farming is dependent on raising livestock; temperate fruit crops; and crops such as potato, buckwheat, wheat, and barley. Further south, toward the subtropical areas, rice and maize dominate the farming system.⁸

Despite the limited area used for agriculture, the majority of the population is engaged in farming

activities. Thus, agriculture remains critical in fostering economic and inclusive growth. Although agriculture's growth and contribution to GDP has declined since the 1980s, the latest annual growth rate of 11% in 2010 is promising as it is the highest rate recorded in the last 3 decades. Agriculture's contribution to GDP growth also rose sharply in 2010 (Figure 4.2).

Improved yields of certain crops, along with several government initiatives, have spurred recent growth. The World Food Programme attributes the yield improvement to better agricultural practices, including integrated pest management and improved irrigation services. Department of Agriculture (DOA) officials attribute the productivity growth primarily to the use of modern high-yielding varieties of seeds that the Renewable and Natural Resources Research Development Centers have developed. The use of more efficient production technologies, such as herbicides for weed control, nitrogen fertilizer for better yields, and farm mechanization (power tillers, reapers, and threshers), adds to the increase in yields.

Bhutan has been importing some of its food.⁹ Despite improved yields, Bhutan has experienced food shortages, particularly of food derived from

⁷ Figures are based on the land cover assessment made under the Land Cover Mapping Project (2010) of the Department of Agriculture, as reported in the *Statistical Yearbook of Bhutan 2011* (NSB various years). Data for irrigated land are as of 2007, based on World Bank WDI, accessed 30 January 2012.

⁸ Department of Agriculture, Ministry of Agriculture and Forests website.

⁹ Bhutan's imports of rice from India declined from 24,739 tons in 2005 to 6,218 tons in 2009.

crops.¹⁰ Both are evidence of unmet demands and emphasize the need to develop technologies to upgrade agriculture's productivity. Greater scope for improving efficiencies exists if farmers increase economies of scale through collective mechanisms, such as communal use of machinery and equipment. Better planning and allocation of land use can help increase productivity. Improved productivity will help solve issues of food shortages and improve the living standards of the general populace.

Government Initiatives. Several DOA initiatives supported the dramatic 11% growth of agriculture in 2010. First, the DOA initiated commercial rice production in Sarpang district (*dzhongkhag*) to supply good quality branded rice to Bhutanese consumers. In particular, over 320 hectares (ha) in Chuzergang and over 240 ha in Umling were brought under cultivation of improved rice varieties (both communities are in Sarpang). Second, farmers were supported through subsidized mechanization, supply of good quality seeds, and training in various agronomic practices. Third, a rice mill with 1.5 tons per hour capacity was installed in Chuzergang. Approximately 64 tons of paddy was collected for processing in January, milled, and the rice was then marketed around the country. The DOA will be replicating similar initiatives in other districts to achieve 65% rice self-sufficiency by the end of the Tenth FYP. The Tenth FYP also seeks to enable farmers to overcome poverty in conjunction with programs and strategies designed to complement the overarching goal of self-sufficiency in rice production.

To achieve sustainable use of natural resources for equitable social and economic well-being, the Ministry of Agriculture and Forests (MOAF) strives to provide adequate access to food and natural resources and lays down the following sector objectives:

- (1) enhance sustainable rural livelihood—by increasing food production, enhancing cash income in the rural population, and contributing to poverty alleviation;
- (2) conserve and promote sustainable utilization of forest and water resources—through assuring the long-term sustainability of hydropower, tourism, and natural resource-based industries, and economic development of both urban and rural populations;
- (3) promote sustainable use of arable agriculture and pasture land resources—by increasing the productivity and carrying capacity of pasture lands to reduce the problem of multiple use of forest resources; and
- (4) enhance food security—by ensuring the availability of and secure access to food.

Three strategies are to be employed in the agriculture sector, which is also known as the renewable natural resources (RNR) sector. The “One Geog Three Products” approach to planning was employed in the RNR plan harmonization exercise where 1–3 products are identified for every village group (*geog*) to focus on. Product choices depend on market availability and the geog's potential. The three strategies are:

- (1) targeted marketing—marketing mechanisms and intelligence will be employed to orient production toward meeting market demands and to encourage the shift from subsistence to market-driven farming;
- (2) improved access—better connectivity will facilitate outflow of enhanced production and inflow of farm inputs; and
- (3) enhanced production—the best practices and most suitable technologies will be used to enhance production to eventually meet the primary objective of food security.

The DOA identified central programs to ensure food security and to increase farmer incomes. Among the central programs are the centers¹¹ that provide

¹⁰ Among the coping mechanisms of poor rural households are sale of potatoes (a major cash crop), fruit, forest products and by-products, and vegetables; engaging in off-farm activities (e.g., weaving); hiring out bullocks, horses, and mules; exchanging labor for food, such as a share of the crop; and relying on cash remittances of employed members of the households (2009 data from Ministry of Agriculture and Forests various years).

¹¹ The centers include the Agriculture Machinery Center, National Post Harvest Center, and National Seed Center based in Paro, and the National Soil Services Center and National Plant Protection Center based in Thimphu. The National Mushroom Center based in Yusipang currently reports directly to the DOA Horticulture Division. The Central Machinery Unit based in Bumthang leads farm road construction and reports directly to the Engineering Division of DOA.

extension and research services in consultation with the Renewable Natural Resources Research Development Centers. Some of the accomplishments in RNR during the first half of the Tenth FYP are as follows:

- Under the One Geog Three Products strategy, about 61 high-priority products were identified based on the agro-climatic conditions of each geog.
- The government encouraged foreign direct and private sector investment in RNR, starting with a mountain hazelnut venture, on 567 ha in the eastern region. A memorandum of understanding for the first coffee plantation in Samtse was signed with Samphel Norbu Private Ltd., for which 121 ha were identified. Seven more parties have expressed interest in collaborating in RNR.
- Bhutan met its internal demand for eggs. Milk and milk products are now supplied to about 18 towns.
- Three one-stop farmer shops have been established at strategic locations.
- Sustainable land management practices have been mainstreamed in all districts.
- The Department of Agricultural Marketing and Cooperatives was established to align the pertinent institutions.
- A bioexploration and research unit was established in the National Biodiversity Centre for bioprospecting. Memoranda of understanding for bioprospecting were signed with Nimura Genetic Solutions (Malaysia) and Quantum Pharmaceuticals (Switzerland).
- Agriculture machinery centers were established in three geogs.
- Bhutan achieved 50% rice self-sufficiency in the first half of the Tenth FYP. The target is 65% rice self-sufficiency by the end of the FYP, but the midterm review in 2011 indicated that the sector may only achieve 55 by the end of the Tenth FYP period (GNHC 2011b).

Current Issues. Bhutan's crops consist mainly of cereals and they are usually produced with few purchased inputs. Bhutan's agriculture is characterized by subsistence farming. Cultivation is primarily undertaken with animal and human labor, and limited machinery with a low level of technology. Purchased inputs are limited to improved seeds and small amounts of fertilizer and pesticides, for which seasonal credit is often used. Soil fertility depends primarily on the use of

farmyard manure and compost. Family survival is the main objective of subsistence farming, but does not preclude the possibility of marketing some produce.

Some issues prevailing in agriculture are those pertaining to farm inputs, technologies, wildlife attacks, pests and diseases, climate change, rural–urban migration, and landholding sizes.¹² Upgrading agriculture production from subsistence to commercial farming requires support in the form of farm inputs. However, the government has decreased the distribution of fertilizers and seeds in the last 5 years (Table 4.2).¹³ Heavy reliance on older varieties of seeds reduces plant vigor and limits access to new and higher potential varieties. The Druk Seed Corporation (replaced by the National Seed Corporation in 2010) had limited capacity for seed multiplication and conditioning, contributing to the declining distribution of improved varieties during 2005–2009. However, the demand for plant protection chemicals is growing because of the relatively low cost, ease of transport, and high impact, particularly for fruit and vegetable production.

The low level of technology in the sector is reflected in the low mechanization level. In the first half of the Tenth FYP, the government supplied to the districts a total of 3,552 units of machinery, including 122 power tillers and 188 rice mills. For 20 districts, the government provided 14 operations and maintenance training sessions, installed 178 farm machines, and repaired a further 167 farm machines. Compared with other South Asian countries, however, Bhutan has a low level of farm mechanization (together with Afghanistan and Bangladesh).¹⁴ This is partly because the country's topography hampers provision of comprehensive farm mechanization.

¹² The government cites the following reasons for the low level of crop productivity, particularly in rice: subsistence farming, shortage of arable land and farm labor, low cropping intensity, inadequate irrigation, and crop losses to pests and wild animals. A recent study reports that farmers cite the following top five issues: (1) crop losses due to wild animals, (2) crop losses due to pests and diseases, (3) insufficient irrigation supply, (4) labor shortage, and (5) land shortage (Ministry of Agriculture and Forests 2010. Technology Adoption, Agricultural Productivity and Road Infrastructure in Bhutan, cited in Christensen 2011).

¹³ The Ministry of Agriculture and Forests' extension system coordinates and monitors the distribution of seed, fertilizer, pesticides, and herbicides to farmers.

¹⁴ Based on World Bank, WDI Online, accessed January 2012.

Table 4.2. Public Supply and Distribution of Farm Inputs

Input	2005–2006	2007–2008	2009–2010	% Change
Fertilizer (tons)				
Urea	1,610.75	1,399.27	1,219.28	–24.3
Suphala	964.85	1,042.23	838.08	–13.1
SSP	450.60	602.35	411.55	–8.7
MOP	14.66	29.15	9.75	–33.5
Butachlor	264.62	266.02	279.79	5.7
Seed (tons)				
Cereal and legumes	107.31	111.04	86.95	–19.0
Potato seed	229.70	120.62	—	—
Vegetable seed	7.45	2.86	2.44	–67.2
Plant Chemicals (kilograms)				
Fungicides	2,515.00	4,100.00	3,423.00	36.1
Herbicides	809.00	5,380.00	3,004.00	271.3
Insecticides	2,521.00	7,734.00	4,875.00	93.4

— = not available, MOP = muriate of potash, SSP = single superphosphate.
Source: Ministry of Agriculture and Forestry, cited in Christensen (2011).

Increasing crop losses in recent years have been attributed to pest attacks and disease, global warming, erratic rainfall, windstorms, droughts, flashfloods, and landslides. In 2011, an unprecedented dry spell in Pemagatshel, one of Bhutan's poorest districts in the east, destroyed hundreds of hectares of maize, leading to a seed shortage for the next crop of maize (Namgyel 2011). With Bhutan's policy to maintain extensive forest cover, agricultural lands are scattered in the forests and thus susceptible to wild animals. The Bhutan National Food Security Strategy Paper (2005) reported that wild animals damage 11% of maize, 8% of wheat, 7% of rice, and 6% of potato crops every year.¹⁵ Despite this, low priority is given to research on measures that would reduce crop damage caused by wildlife, pests, and diseases. Less than 1% of the RNR budget for the Tenth FYP is allocated to these problems. The current research agenda may have to be reviewed to strengthen its link to farmers' real needs (Christensen 2011).

Female participation in agriculture has increased, explaining the slight increase in the rural work force from 2001 to 2010. Migration from rural

to urban areas particularly by males resulted in the increased reliance on women to work on farms (Christensen 2011). Greater reliance on a female workforce carries a risk of lower production as Bhutan's farms use little mechanization and require great physical strength.

Approximately 70% of the reasons reported for food shortages were directly related to land being inadequate and unproductive. A balance needs to be found between the policy of maintaining 60% of the land under perpetual forest cover (Box 4.3) and the policy of environmental conservation, so that these do not conflict with productivity, commercialization, and food security objectives. Farming in Bhutan is challenging as small landholdings and the rugged topography with steep slopes make farming labor intensive and mechanization difficult (Tobgay 2006). Still, some rural lands are left uncultivated owing to the shortage of farm labor due to rural-to-urban migration.

A majority of the farmers own a limited amount of land. While only one of five rural households is landless, traditional farms are usually very small, ranging from 1–3 ha. Seven of 10 rural households own less than 2 ha. Such land distribution hinders the agriculture sector from taking advantage of economies of scale, which could raise production. Sharecropping among the landless farmers has impeded agricultural productivity as sharecroppers have little incentive to increase yields, maximize cropping intensity, and invest in land improvements.

The patchy development of road networks and other infrastructure restricts access to farm inputs and market opportunities. However, irrigation development shows impressive progress as the number of irrigation systems increased by almost 15% to 1,496 and the total length has been extended by 14% to 3,762.47 kilometers in January 2011 from June 2010. Yet, irrigation remains insufficient, covering only 1% of the total land area. Access to finance is also a major issue for the sector if it is to transform from subsistence to commercial farming.

4.2. Emerging Growth Drivers for Bhutan

To diversify the economy while maintaining high rates of growth, additional drivers of growth that capitalize on Bhutan's comparative

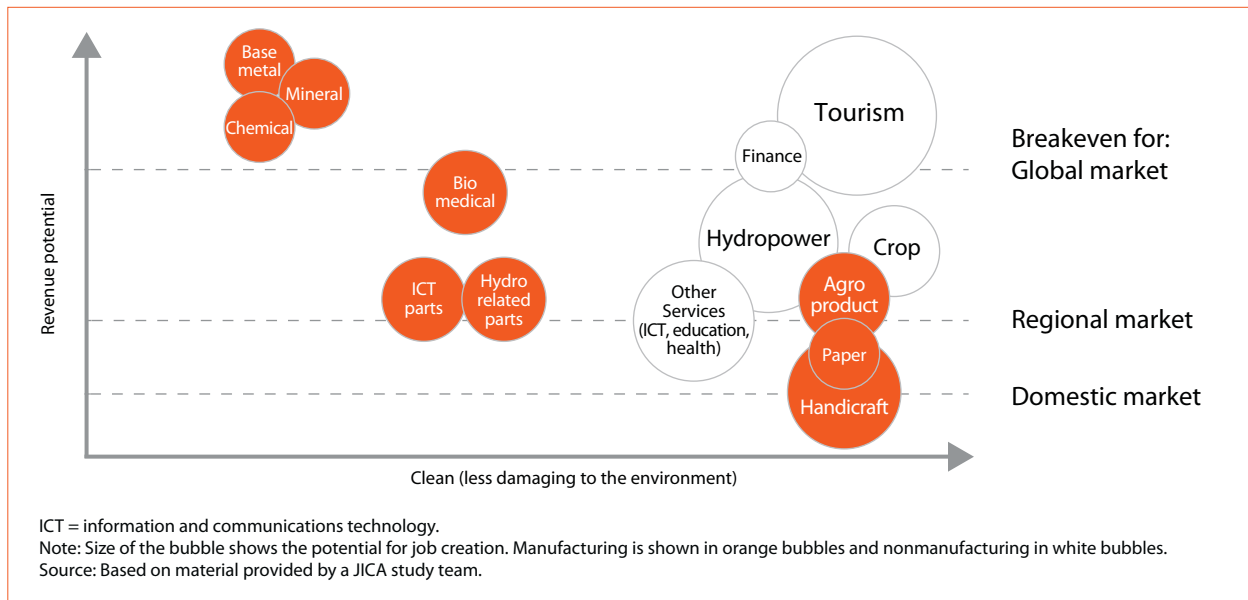
¹⁵ Cited in Duba, Gurung, and Ghimiray (2006).

Box 4.3. Bhutan's National Constitution, Article 5

1. Every Bhutanese is a trustee of the Kingdom's natural resources and environment for the benefit of the present and future generations and it is the fundamental duty of every citizen to contribute to the protection of the natural environment, conservation of the rich biodiversity of Bhutan, and prevention of all forms of ecological degradation including noise, visual, and physical pollution through the adoption and support of environment friendly practices and policies.
2. The Royal Government shall:
 - (a) Protect, conserve, and improve the pristine environment and safeguard the biodiversity of the country;
 - (b) Prevent pollution and ecological degradation;
 - (c) Secure ecologically balanced sustainable development while promoting justifiable economic and social development; and
 - (d) Ensure a safe and healthy environment.
3. The Government shall ensure that, in order to conserve the country's natural resources and to prevent degradation of the ecosystem, a minimum of sixty percent of Bhutan's total land shall be maintained under forest cover for all time.
4. Parliament may enact environmental legislation to ensure sustainable use of natural resources and maintain intergenerational equity and reaffirm the sovereign rights of the State over its own biological resources.
5. Parliament may, by law, declare any part of the country to be a National Park, Wildlife Reserve, Nature Reserve, Protected Forest, Biosphere Reserve, Critical Watershed, and such other categories meriting protection.

Sources: Constitution of the Kingdom of Bhutan. http://oag.gov.bt/wp-content/uploads/2010/05/Constitution_of_Bhutan.pdf; http://www.wipo.int/wipolex/en/text.jsp?file_id=167955

Figure 4.3. Mapping of Growth Drivers



advantage need to be identified. This report puts forth two emerging drivers of growth. The first is information and communications technologies (ICT) and the second, “cleaner” manufacturing, in particular, through micro, small, and medium enterprises. These two offer opportunities that are complementary to Bhutan’s pursuit of inclusive and

sustainable socioeconomic development. Figure 4.3 maps the existing and emerging drivers’ revenue and job creation potential, in addition to their environmental impacts.

As Bhutan makes strides in education, ICT could absorb the increasing number of graduates.

Concurrently, ICT is a means to make growth more inclusive as it extends information and access to rural areas. And cleaner manufacturing, which often involves micro, small, and medium enterprises, also helps with rural development as it creates jobs and uses indigenous products. The impact of ICT and clean manufacturing on the environment is relatively limited, which is well suited to Bhutan's pursuit of environmental and cultural preservation.

4.2.1. Information and Communications Technology

The ICT Development Index is one of the most common and internationally recognized indexes used to compare overall ICT sector performance among countries. The index ranks Bhutan 119th of 152 countries—categorized as a “low ICT Development Index” country. Within South Asia, it is ranked fourth of seven countries. The application of ICT reduces the constraints of time and space in an economy and contributes to economic growth. Therefore, increased ICT use in Bhutan is expected to contribute to growth in agriculture, industry, and services, as well as to improve the efficiency of transport, increase access to capital, and strengthen the application of knowledge.¹⁶

Voice and data communications services are currently the most common ICT services in Bhutan. They are provided by two companies, the state-owned Bhutan Telecom and privately owned Tashi Cell. The monopoly of Bhutan Telecom ended in 2007 and the ensuing duopoly yielded rapid growth in mobile telephony services and decreases in prices.¹⁷ Currently, the telecom services are making significant contributions to the economy. The telecom service providers employ 775 people directly and about another 400 indirectly. Telecom services are also being exported in the form of “roaming” services to foreign operators whose customers visit Bhutan. With changes in the

way services for the third generation of mobile technology are provided to domestic and roaming customers, telecom revenues may increase.

Significant new economic and employment opportunities could be created if the ICT subsector developed beyond the supply of conventional telecom services. The two current operators—Bhutan Telecom and Tashi Cell—can expand their activities to provide more broadband connectivity and “more-than-voice” services that customers can use directly from their phones. Mobile money servicing is the most prominent domestic service and has the greatest potential for new growth. Instantaneous transmission capability is necessary for services such as data centers (including disaster recovery services), business process outsourcing (BPO), and knowledge process outsourcing (KPO), and most forms of software production. These are highly dependent on the availability of telecommunications connectivity, the reliability of power supply, and the quality of the workforce.

Landlocked Bhutan currently purchases transit services, but new developments in international connectivity suggest that the country could be a provider. Due to increasing concerns over the unreliability of undersea cables connecting Asia to Europe and North America, a reliable back-up cable connection is necessary. Because considerable political and engineering challenges have been overcome in laying hundreds of kilometers of cable, including aerial cable, across the Himalayas, prospects for terrestrial cable between India and the People's Republic of China are therefore promising. This presents an opportunity for Bhutan because of its political stability compared to other areas within the region.

Data centers have the most rigorous requirements in terms of instantaneous, large-volume, and reliable electronic connectivity and electricity; they must not be subject to power outages or fluctuations. They consume large amounts of power for computing and generate large amounts of heat that require extensive use of air conditioning.¹⁸ With the global concern about climate change, data centers prefer places offering electricity from renewable sources and requiring less cooling, such as Bhutan.

¹⁶ The ICT sector in Bhutan includes manufacturing and services industries whose products capture, transmit, or display data and information electronically. The sector includes related activities of manufacturing; the wholesale and retail trade; communications; business services (such as call centers, software development, website development and hosting, multimedia, information technology [IT] consulting, and disaster recovery). Information technology training is excluded from the ICT sector definition (Samarajiva 2012).

¹⁷ A 7-year exclusivity period began with the licensing of Tashi Cell in 2007.

¹⁸ For example, major data centers Google and Amazon give primacy to the availability of low-cost and highly reliable electricity.

Table 4.3. Illustrative Tier Requirements for Data Centers

Tier	Requirements
1	<ul style="list-style-type: none"> Single nonredundant distribution path serving the IT equipment Nonredundant capacity components Basic site infrastructure guaranteeing 99.671% availability
2	<ul style="list-style-type: none"> Meets or exceeds all Tier 1 requirements Redundant site infrastructure capacity components guaranteeing 99.741% availability
3	<ul style="list-style-type: none"> Meets or exceeds all Tier 1 and Tier 2 requirements Multiple independent distribution paths serving the IT equipment All IT equipment must be dual-powered and fully compatible with the topology of a site's architecture Concurrently maintainable site infrastructure guaranteeing 99.982% availability
4	<ul style="list-style-type: none"> Meets or exceeds all Tier 1, Tier 2, and Tier 3 requirements All cooling equipment is independently dual-powered, including chillers and heating, ventilating, and air-conditioning systems Fault-tolerant site infrastructure with electrical power storage and distribution facilities guaranteeing 99.995% availability

IT = information technology.

Source: ADC Telecommunications (2006).

There are essentially two kinds of data centers. One has massive capacity and communications requirements, to reduce time and costs to process queries. The other is the disaster recovery center, which is slightly less demanding of bandwidth capacity but no less demanding of reliability. In both cases, clients in distant locations must be able to interact with data as though it is in the same premises as they are. Table 4.3 lists design standards for data centers.

Reliable telecom connectivity is a necessity for the BPO and KPO industries, and to a lesser extent for software exports. Yet, the requirements of redundancy of media (more than one fiber cable), redundancy of suppliers (more than one operator who can supply leased lines), and acceptable quality and price levels apply to all. Two principal models exist for developing these export-oriented information technology (IT) and IT-enabled services (ITES) industries:

(1) Local entrepreneur-driven model.

Locally owned and operated companies develop software for export and local

consumption and undertake BPO, KPO, data center, and disaster-recovery services for customers abroad as well as within the country.

(2) Foreign-direct-investment-driven model.

IT and ITES enterprises are owned and operated by foreign entities and the local inputs are skilled workers, facilities, and associated services. This model has two variants: (a) captive operations in which the local entity has no responsibility for business development, relying entirely on the parent enterprise for work orders; and (b) noncaptive operations in which the operating entity, which is foreign-owned, has complete responsibility over business development and maintenance of customer relationships.

Countries generally attempt to adopt both models. Bhutan appears to currently focus on the model led by foreign direct investment (FDI), but Bhutan's IT park shows that there is room for both approaches. A pool of workers with appropriate skills and local entrepreneurship are key requirements for both models, although the FDI-driven model may emphasize the latter less. A skilled workforce is the most critical factor in attracting FDI to the IT and ITES industries. While the ITES segment in a small country such as Bhutan could follow either of the FDI-driven variants, a dynamic software industry is unlikely to emerge without local entrepreneurs. Local entrepreneurs have incentives to develop the skills of local employees.

Government Initiatives. The BPO segment is emerging, as it was central to the government's plan in developing the IT park and to create employment opportunities. The most successful BPO appears to be a 90-employee medical transcription operation that is part of a local conglomerate. Although a few small firms have exited, several are still active in Thimphu. The government's primary focus is to attract to the IT park an "anchor tenant"—one whose presence will attract other businesses to become tenants. The secondary focus is to develop local entrepreneurs. In small countries with limited pools of potential employees, it is prudent to identify and focus on high-value niches such as KPO. Niche technology areas in Bhutan also include digital media (in the area of media and entertainment), mobile applications, and aspects of BPO such as transcription from video to text.

Bhutan's business climate has been improving. The IT park initiative resulted in the implementation of policy changes relevant to the IT and ITES industries. Locating or starting up a software firm, BPO operation, or data center is now easier with the spacious and designed-for-all-IT-purposes IT park. The IT park is optimally located within Thimphu, but also with easy access to the airport in Paro. However, the remoteness of Bhutan and the difficulties of getting to Thimphu remain challenges.

Current Issues. Market competition and innovation are lacking. The duopolistic industrial structure may not be conducive to rapid innovation in new “more-than-voice” services being offered on mobile platforms. Current levels of mobile tele-phone penetration are also lower than they should be. The issuance of a third license has been proposed as a solution, notwithstanding the 7-year exclusivity period licensing agreement with Tashi Cell in 2007, which expires at the end of 2013. However, the small size of the market warrants caution. Among 11 countries with populations of less than 1 million (like Bhutan), 7 still have only one operator. Only Bhutan, the Maldives, Samoa, and Vanuatu have two. None have more than two operators. Gambia, with a population twice that of Bhutan, is the smallest country to have licensed three operators (International Telecommunication Union 2006). Measures to enhance market competition and firms' competitiveness need to be actively explored. Lack of information sharing among the government, ICT enterprises, user enterprises and institutes of higher learning on the competencies required in the ICT industry has resulted in a mismatch between the ICT talent developed and the ICT capabilities expected by the ICT industry.

Skilled labor for the ICT sector is in short supply. The IT and ITES industries require educated and/or trainable young people because the necessary IT skill sets are rarely found among individuals aged 35 and above. Bhutan's tertiary education system is developing rapidly and the number of bachelor's degree holders will likely increase. Table 4.4 provides a forecast of graduates up to 2020.

While tertiary education may not be required for BPOs, it is important for KPO and software industries. A typical pool of talent for KPOs, such as chartered financial analysts or architects, is hard to find in Bhutan. This does not seem to be a binding constraint now, as the KPO sector is yet to realize

Table 4.4. Projected Number of Graduates in the Tertiary Level, 2012–2020

Year	Graduates
2012	2,406
2013	2,597
2014	2,463
2015	3,290
2016	4,034
2017	4,476
2018	4,886
2019	5,127
2020	4,763

Source: Chhoeda (2012).

its potential. However, building human resources takes time and a good head start would help prepare the Bhutanese to embrace the opportunities that this new knowledge niche provides.

Nevertheless, the quality of education is a major issue, especially for the software segment. There is a shortage of high-quality computer science and engineering graduates, although efforts to broaden access to education have been under way. More effort is needed to improve the quality of education.

4.2.2. Clean Manufacturing

Bhutan has been aiming to achieve a self-reliant economy and full employment by 2020. In view of Bhutan's policy of environmental conservation, the manufacturing sector is expected to provide “high-value, low-volume” output. Few industries, however, qualify as growth drivers to achieve these goals.¹⁹ This section discusses three that show promise: (1) handicrafts, (2) agro-based manufacturing, and (3) hydropower- and ICT-related parts and maintenance. This short list reflects the difficulty of fostering clean manufacturing. Table 4.5 presents a preliminary sector evaluation of economic and social aspects.

¹⁹ The Regulation for the Environmental Clearance of Projects prepared by the National Environmental Commission Secretariat identified six industries that do not require environmental clearance: (1) arts, handicrafts, and quilts; (2) carpets and textiles (not using dyes); (3) candles and incense; (4) food processing (potato chips and noodles); (5) organic fertilizers; and (6) bioengineering.

Table 4.5. Clean Manufacturing Sector Evaluation

Sector	Share in Revenue Exports	Job Potential	Job Creation	GNH Impact	Env Impact
Hydropower	34%	O	O	O	O
Base Metals and Related Articles	32%	O	x	x	x
Minerals	8%	O	x	x	x
Chemicals	5%	O	x	x	x
Tourism	5%	O	O	O	O
Crops ^a	3%	x~Δ	x~Δ	Δ	O
Agro Product	0.3%	x~Δ	x~Δ	Δ	O
Handicrafts	<0.1%	x	O	O	O
Handmade Paper	<0.1%	x	x	O	O
Other Services (ICT, Education, Health)	<0.1%	x~Δ	x~Δ	O	O

^a Crops include orange, cardamon, potato, apple, cordyceps, rice, matsutake and lemongrass.

O = yes, x = no, Δ = yes or no, x~Δ = between yes and no but leaning to no, Env = environmental, GNH = gross national happiness, ICT = information and communications technology.

Note: Manufacturing sectors are highlighted.

Source: Ministry of Economic Affairs (2012).

Handicrafts. While the contribution handicrafts make to overall output is small, the sector can play a productive role due to its synergy with tourism, one of the country's strategic sectors. In 2009, the handicrafts sector provided 5% of total employment (about 8,500 people) and 65% of the rural population is engaged in handicrafts during seasons of little cultivation activities. Also, the sector is an important source of employment for women in rural areas. The government has been promoting the sector in 13 identified arts and crafts as pure traditional product categories (e.g., sculpting, weaving, embroidery, wood carving, shoemaking, and metal work), and has been providing skill training in two institutes.

In 2011, the Department of Trade of the Ministry of Economic Affairs established the Agency for Promotion of Indigenous Crafts (APIC) to promote handicrafts.²⁰ APIC has opened a crafts

bazaar (consisting of 78 shops for crafts and 2 for food items) in the city center, inviting retailers from across the country. APIC is planning to move the bazaar from its temporary site to the suburbs in the next fiscal year, and to more than double its current size.

Another APIC initiative is a certification system for handicraft products. A “seal of origin” is rendered to suppliers of products with more than 60% of the value added in Bhutan (in line with rules of the World Trade Organization). A “seal of quality” and a “seal of excellence” will be introduced shortly. These measures are expected to enhance professionalism among the artisans scattered across the country, which eventually will attract tourists who are looking for products that are authentically Bhutanese.

Agro-Based Manufacturing (food processing). Another potential driver of clean manufacturing is the agro-based food processing industry, which uses local ingredients (for example, fruits, vegetables, dairy products, herbs, and mineral water). This industry can make the most of Bhutan's branding, focusing on the country's “clean and natural” image. Since the country promotes high-end tourism, this industry can supply hotels, wellness centers, and retail shops, adding extra value that is not necessarily required for domestic consumption.

While there are already large-scale, state-owned enterprises such as Bhutan Agro Industry, there is also potential for small and community- or cooperative-based businesses. One successful case is Bio Bhutan, a privately owned company that started in 2007, with support from Helvetas (Swiss Intercooperation). Bio Bhutan started with a lemon grass business in collaboration with a farmer's group in eastern Bhutan and has expanded the product line to include spices, ginger, tea, honey, and handmade soap. Bio Bhutan's uniqueness lies in its business model—it provides farmers' groups with relevant packages including facilities and training. Then it buys raw materials from the farmers' groups as well as half-processed materials from other suppliers. Thus, even small-scale farmers can be integrated into the supply chain, with access to nationwide or even overseas markets.

Hydropower- and ICT-Related Manufacturing. Manufacturing accounts for 46% of Bhutan's export value, but if base metals and minerals are excluded, the share is only 6%. The product variety

²⁰ The following initiatives in the crafts sector were included: (1) creation of an autonomous agency, APIC; (2) product innovation and design; (3) enhancement of distribution and crafts products; (4) craft clusters and product areas; (5) development of a micro, small, and medium enterprise policy under the Ministry of Economic Affairs; and (6) marketing and promotion (e.g., implementation of a certification system).

is limited due mainly to the cost disadvantages vis-à-vis India. In general, the manufacturing sector in Bhutan is locked into relatively low-value-added products. Registered business entities are concentrated in urban areas, with the majority engaged in mineral, forest, and agriculture-based businesses. They are also very small: most of them are classified as micro and small enterprises.

Transformation of the manufacturing sector could help reduce the vulnerability of the economy to international crises. Policies could usefully focus on strengthening the economic structure by accelerating import substitution and by increasing the capacity to export. One sector that could achieve both aims is hydropower-related parts and related maintenance as there is already a domestic market for these goods and services. The knowledge that has been acquired from planning, constructing, and operating hydropower plants can be employed domestically and could be exported to regional markets in India, Nepal, and perhaps beyond the region. Norway, which has hydropower as one of its core sectors, provides a good example. Tapping the hydropower parts and related maintenance could open opportunities for Bhutan to diversify and grow the manufacturing and services sectors and thus improve the external balance by reducing imports and expanding exports.

Manufacturing parts for ICT-related equipment can also provide an opportunity to save and earn foreign currency. One step that can be taken in a relatively short time is adding value to existing resources, such as ferrosilicon, in the context of ongoing ICT development.

Current Issues. Developing cleaner manufacturing requires addressing many issues, including geography and competitiveness, absence of a clear industrial vision, and insufficient sector policy coordination.

Bhutan's manufacturing sector faces challenging circumstances, partly because of the country's landlocked situation. Even compared to other landlocked economies, Bhutan's access to neighboring countries and, indeed, the rest of the world is limited. Bhutan shares borders only with the People's Republic of China and India and has very difficult topology for maintaining connectivity. Expansion of trade relationships beyond India, its current dominant trade partner, is constrained by limited air and border access. Moreover, the small

size of Bhutan's domestic market does not allow for exploitation of economies of scale and differences in labor cost put Bhutan at a significant cost disadvantage with respect to India.

Policymakers could usefully develop a clear vision for the overall industrial structure. Top policymakers are familiar with policy tools through numerous consultations with development partners. The policy formulation process is often biased toward a bottom-up approach, which may not allow for intersectoral coordination. Effective policy design requires an economy-wide vision. Accordingly, the design for a cleaner manufacturing sector needs to be reviewed in the context of the overall economy to avoid distortions in the allocation of resources.

Informality and fragmentation is typical in small-scale cleaner manufacturing, such as the handicrafts industry. Most shops in the crafts bazaar sell the same products, sometimes mixing local products with those from India and Nepal and with nontraditional products. Expertise in marketing, advertising, product development, and distribution is limited, particularly in fragmented small businesses. The export potential of some products that could be competitive in regional or global markets is thus not fully developed.

Other significant hurdles to developing cleaner manufacturing include access to finance, human capital, and infrastructure, especially for connectivity. Previous chapters identified these critical constraints to achieving sustained high and inclusive economic growth in Bhutan. Further development of current and new growth drivers requires policy, regulatory, and institutional reforms to facilitate and foster a dynamic economy driven by the private sector.

4.3. Conclusion

Bhutan's economic transformation during the last 5 decades has been remarkable, but its economy is still narrowly based with limited job creation. Bhutan's strong growth has been driven by hydropower, tourism, and agriculture. Future growth prospects rest on these current growth drivers, and on new growth engines. Two new growth engines applicable for Bhutan are ICT and cleaner manufacturing. Advancing and creating new value added and jobs through these drivers

can provide the economy with pathways to added economic growth that is sustainable and inclusive, and increased employment.

Impediments to the successful use of the two drivers include the cost of and access to finance, and low levels of private investment and entrepreneurship. The cost of and access to finance are critical for small-scale borrowers, which comprise much of the tourism, agriculture, and cleaner manufacturing sectors. Low levels of private investment and entrepreneurship may be attributed to insufficient social returns to investment and access to economic opportunities, which require investment in education (human capital) and infrastructure, especially in transport. By relaxing some of these critical constraints, Bhutan can unleash its potential for entrepreneurship and private sector development and thus create productive and decent employment opportunities, particularly for increasing numbers of educated youth seeking gainful employment.

Recognizing the importance of private sector development as the key to high and sustained economic growth, the government has emphasized in its FYPs the need to create an enabling environment for entrepreneurship and private sector development. Especially in its Tenth FYP (2008–2013), the government highlighted the development of creative industries and micro, small, and medium enterprises.

Fostering a stable and predictable investment climate is essential for private sector development. The basis of stability and predictability comes from macroeconomic stability, the rule of law, a skilled and productive labor force, adequate and accessible infrastructure, and strong governance based on transparency and accountability. Country and sector-specific critical constraints to private sector development can be addressed through effective reforms evolved through public–private dialogue to identify appropriate policies and institutional reforms that can encourage entrepreneurship and promote private investment.

Chapter 5

Policy Recommendations

In a span of 5 decades, Bhutan has undergone considerable transformation, from a pastoral and subsistence-level economy, to a low middle-income country. Judicious macro management and utilization of abundant hydro resources have propelled the country's growth.

Sustained growth has led to significant progress in poverty reduction and has enhanced the population's human development. Furthermore, the adoption of a constitution and the introduction of a parliamentary democracy in 2008 marked a successful sociopolitical transition. A common vision of achieving "a green and self-reliant economy sustained by an IT-enabled knowledge society and guided by the philosophy of Gross National Happiness" binds a stable and participatory polity (GNHC 2010).

To further its remarkable growth and successful poverty reduction, Bhutan still faces considerable development challenges that the government may wish to consider when preparing its Eleventh Five Year Plan (FYP). Among the most pertinent challenges are economic growth that is hinged on a narrow base, a not particularly diversified economy, limited productive economic activities outside the hydropower sector, dependence on external aid flow, relatively high income inequality, and lack of gainful employment for an increasing number of youths.

Creating a transparent and conducive environment for business and investment is a key to achieving broad-based, sustainable, and inclusive growth. This will require dealing with

critical constraints to private sector development. Growth in private investments in turn can lead to job creation that is beyond the hydropower sector, driving economic growth. And better targeted social expenditure will be at the core of strategies to make the benefits of growth more inclusive.

5.1. Critical Constraints to Inclusive Growth

The study used a diagnostics approach to identify the most critical constraints to economic growth and to reduction of poverty and income inequality in Bhutan. Overcoming the constraints will push the economy onto a higher and more sustainable growth path, and result in wider and more equitable access to opportunities and benefits generated by a growing economy. The critical constraints to inclusive growth are

- (1) narrow fiscal space;
- (2) inadequate and poor quality infrastructure;
- (3) limited and unequal access to quality education (particularly to secondary, tertiary, and vocational education), and labor market mismatch;
- (4) lack of access to finance by micro, small, and medium enterprises (MSMEs); and
- (5) presence of market failures.

In addition, the study identified new drivers of growth that could make it more broad-based and inclusive. While the current growth engines, including hydropower, tourism, and agriculture, could improve productivity and hence further accelerate Bhutan's economic growth, developing new drivers would offer chances to achieve more balanced, sustainable, and inclusive growth. Two possible new drivers include information and communications technology (ICT) and clean manufacturing, and removing constraints to private investments could be critical for promoting these new drivers.

5.2. Policy Recommendations on Critical Constraints to Growth

5.2.1. Creating a Comfortable Fiscal Space

The Government of Bhutan adopted the Budget Policy and Fiscal Framework Statement by the Public Finance Act, which was passed in 2007 to promote prudent macroeconomic management to better cope with volatile government revenue and expenditure. In preparing the budget for fiscal year (FY) 2012/13, the government followed prudent budgetary guidelines, including expenditure rationalization measures, sustainable fiscal balance, and other measures (Ministry of Finance 2012). The framework envisions moving to multiyear rolling budgets and achieving long-term fiscal policy goals to ensure continued macroeconomic stability in Bhutan.

As the government prioritizes capital expenditure to expand infrastructure and provision of social services, consideration is due to the questions raised regarding whether the current structure of public finance can support the country's medium- to long-term fiscal sustainability. The overall fiscal position has been generally sound since 2007. But the country's total public debt is expected to rise under most scenarios shown by sensitivity analysis. Within the next 10 years, the government envisages constructing as many as 10 hydropower projects, building over 2,000 kilometers of roads, providing electricity for the entire population, and increasing spending for the social sector. The Tenth FYP also presents the government's aggressive public programs, including the plan to ratchet up investments in health, education, and general infrastructure; the establishment of

institutions to support the new democratic system; and decentralization. Together with increased debt servicing, these programs have become major budget items for the FYP implementation.

In Bhutan, government spending linked to hydropower development has been a main driver of growth. Indeed, a majority of the public debt is due to hydropower development. The returns from the hydropower projects have helped boost domestic revenue, which can now fully cover the current expenditure. Nevertheless, the current budget structure relies substantially on continued international aid flows,¹ which may not be sustained at the current high levels.² As such, it is imperative for the government to effectively mobilize domestic resources. In the medium term, expanding revenue and prioritizing spending are necessary to limit the public debt buildup.

The government recognizes that it has to accelerate the budgetary and tax reform efforts in order to create a comfortable fiscal space for future development spending.³ While fiscal incentives promote investments and jobs creation, the government needs to consider, in future reform efforts, the efficiency of fiscal incentive schemes given to companies. The National Revenue Report 2011 indicated revenue foregone arising from fiscal incentives amounting to almost Nu2.0 billion (\$42.9 million), and about Nu552 million (\$11.8 million) due to the exemption of certain organizations from sales taxes (Ministry of Finance 2011a). The estimated revenue foregone in 2011 was about 14% of total national revenue.

During 2009–2011, the Government of Bhutan made laudable progress in tax reform, which will help improve its fiscal position. The first tax bill was passed in 2011 during the 7th Summer Session of the First Parliament. The bill covered the revision

¹ The Annual Financial Statements of the Government for the year ended June 2011 reported the following breakdown of total government receipts for the year, which already showed a decline in grants: internal revenue (44.4%), grants (26.7%), borrowing (7.9%), recovery of loans (4.8%), and others (16.2%). "Others" comprises mostly dividends from state-owned enterprises and companies with government shareholdings, and interest receipts from corporations.

² The government also recognized that continued availability of foreign aid flows cannot be assured with Bhutan becoming a middle-income country (GNHC 2010).

³ In particular, the Ministry of Finance (2011b) identified a need to revisit tax structures and administrations to enhance domestic revenue.

and rationalization of customs duties; sales tax on selected goods such as alcohol, vehicles, spare parts, and precious metals (gold and silver); and excise duty on domestically manufactured alcohol. During the 6th Session of the First Parliament in November 2010, certain provisions of the Income Tax Act 2001 related to entertainment expenses and fines on nonfilers were also amended (Ministry of Finance 2011a).

Overall, in addition to the current efforts to expand the country's economic base, the government could continue to enhance its sources of finance and identify new ones. To strengthen the country's fiscal position, short-to-medium- and medium-to-long-term measures are proposed for consideration. Box 5.1 presents some specific policy recommendations on at least two fronts—revenue mobilization and taxation and prudent government expenditures.

Box 5.1. Strengthening the Government Fiscal Position

Key Steps for Improving Allocative and Operational Efficiencies

Key Steps for Improving Revenue Mobilization

Short- to Medium-Term Measures

1. Comprehensively review all expenditure items to identify a set or categories of expenditure items that should be phased out based on agreed policy and priorities of the government.
2. Comprehensively review subsidies to consumers, sectors, and state-owned enterprises to improve spending efficiency.^a
3. Adopt a policy for implementing a medium-term expenditure framework to realistically link resource constraints to expenditure requirements.
4. Formulate a 3-year rolling budget that includes capital and recurrent expenditures to improve resource allocation and predictability of spending.
5. Prioritize all capital and recurring expenditures based on agreed priorities in the Medium-Term Development Plan.
6. Identify nonperforming or losing state-owned enterprises that can be restructured, privatized, or retired.
7. Analyze the functional classification of expenditures to ascertain inconsistencies between actual resource allocations and responsibilities of the public sector
8. Analyze the funding and composition of expenditures—review personnel and operating expenditures, trends in real levels of salaries, and other uncategorized expenditures.
9. Review recurrent cost implications, especially of new capital expenditures, and ensure that explicit or implied expenditure commitments are factored into projections.
10. Adopt for each sector an expenditure ratio (per unit cost) that is within acceptable or comparable levels internationally.
11. Improve the financial management information system to help control aggregate spending and the deficit; strategically prioritize expenditures across policies, programs, and projects; and better use budgeted resources.
12. Introduce and implement an e-procurement system and a computerized accounting system for transparency and accountability.
13. Improve the monitoring of the fiscal position of state-owned enterprises and lower-level governments.

Tax Revenues

1. Produce tax expenditure statements that contain details of tax concessions, benefits, and incentives given to taxpayers to enhance fiscal transparency.^b
2. Computerize tax administration and records, including setting up a tax registry, collection monitoring, tax audits, and other items.
3. Introduce selective tax audits using sampling techniques and train personnel on tax audits.
4. Implement the Revenue Administration Management Information System, a web-based real-time data management system being developed with Asian Development Bank assistance to facilitate e-filing of tax returns and online payment of taxes.

Nontax Revenues

1. Consider organizing a consultative group meeting among development partners for the retention of grant funds and revenues for development projects.
2. Maximize tourism revenues by further unleashing the potential of the tourism industry while maintaining the “low-volume and high-value” tourism policy.

continued on next page

Box 5.1. continued**Medium- to Long-Term Measures**

1. Complete the phasing out of subsidies provided to sectors, programs, or entities identified for the phase-out.
2. Expand the implementation of an e-procurement system to districts and lower levels of government.
3. Expand and mainstream the application of the medium-term expenditure framework process to all sectors and levels of government.

Tax Revenues

1. Broaden the corporate income tax base by reducing and/or eliminating specific exemptions, tax incentives, and deductions.^c
2. Simplify the tax system and remove distortions by aligning the top personal and corporate income tax rates.
3. Consider introducing an imputation tax system to avoid the double taxation of corporate income.
4. Apply the incorporated companies' tax rules to all businesses.^d
5. Replace the sales tax with a uniform value-added tax that applies to a comprehensive and broad base to raise tax collection and lower the current volatility of tax revenues due to seasonal variations in hydro-power production.
6. Negotiate and ratify a double tax agreement with India and other major economic partners to avoid double taxation, and cancel the duty refund procedure on imports from India.
7. Remove tax concessions for selected sectors, e.g., civil servants.

Nontax Revenues

1. Consider privatizing some state-owned enterprises that have inefficient operations and rely heavily on government subsidies.
2. Consider some form of cost recovery for some services provided by government to partly fund its operations.

^a Current subsidies (excluding tax concessions) are large. In fiscal year (FY) 2011/12 they amounted to about 2% of gross domestic product, which is about the same as government expenditure on public order and safety.

^b Tax expenditure statements would complement subsidy payments already listed in the national budget.

^c In FY2010/11, fiscal incentives amounted to 14% of national revenue or 3.2% of gross domestic product (Ministry of Finance 2011a).

^d Under an imputation system, taxes paid by companies are considered as paid on behalf of its shareholders, i.e., credits are attached to dividends for income tax that has been paid at the company level.

Source: Authors.

5.2.2. Providing Adequate Infrastructure

Internal transport infrastructure is important for landlocked countries such as Bhutan (Faye et al. 2004). Geographic isolation is a major cause of poverty and underdevelopment in some districts. About 40% of the population had no road access as of 2007. While road density almost doubled between 2005 and 2011, the additional roads are mostly unpaved, and thus are vulnerable to landslides and frequent blockages. Poor connectivity brings about challenges to accessing regional and global markets.

Improving transport networks and other critical infrastructure will enable Bhutan to have better connectivity between rural areas and domestic markets, and to establish better trading opportunities in the region. Availability of other infrastructure services, such as power and irrigation,

is also important to encourage private sector investment that will help reduce the cost of doing business and encourage development of MSMEs to provide livelihood opportunities, especially for people living in rural and far-flung areas.

Short- to Medium-Term Measures

The near-term measures are as follows:

(1) General

- (a) Explore, through studies and stakeholder consultations, options for moving toward an institutional framework that effectively consolidates the roles of and capacity for strategic planning, coordination, and monitoring without centralizing the implementation and maintenance

responsibilities. In particular, the government may explore the feasibility of creating a two-tier system wherein the main roads and highways are in the domain of a single national agency and the responsibility for the local, rural, and urban roads rests with the local governments.

- (b) Undertake a comprehensive assessment of capacity building needs in the transport sector, at national, district, village group (*geog*), and village levels, with a particular focus on the capacity to plan, design, construct, and maintain road and related infrastructure. Also, identify steps aimed at developing the skills and capabilities of the local contractors to design and undertake construction and maintenance contracts of small and medium sizes.

(2) Road transport

- (a) Review the Road Sector Master Plan, 2007–2027, and expand it from being a priority list of feeder roads to a comprehensive subsector plan covering investment in new and existing roads, capacity and institution building, operation and maintenance (O&M) financing, and the regulatory environment (MWHs 2006). The Road Sector Master Plan should be comprehensive in terms of covering different types of roads, including highways, district and feeder roads, and farm and rural roads; it should also give due consideration to road safety and climate proofing of the infrastructure.
- (b) Assess the development partners' experiences with pilot projects for upgrading the road construction technology, and (i) introduce environment-friendly road construction techniques, and (ii) formulate a plan for gradually mainstreaming these technologies and schemes. In particular, review the experience gained on technical assistance projects supported by the Asian Development Bank, SNV Netherlands, and World Bank.
- (c) Review the implementation status of the road asset management system, and

fast-track its implementation toward being a key planning, budgeting, and monitoring tool.

- (d) Explore and expand the use of road maintenance financing mechanisms such as toll fees and road users' charges, as a means of sustainably financing road O&M costs.
- (e) Strengthen the enforcement of the road safety standards on buses and taxis transporting people and goods across the districts (*dzhongkhag*).
- (f) Formulate for each district a district transport master plan (DTMP) in a consultative manner with the involvement of the local administrations and communities as well as through participation of the relevant national ministries, to ensure that the DTMP will be demand-driven and coordinated with the development of highways and national roads as well as with the available and planned farm and rural roads.
- (g) Introduce eco-friendly mass public transit systems in larger towns to reduce congestion and air pollution.

(3) Air transport

- (a) Review and update the Civil Aviation Master Plan (including airport master plans), taking into account the emerging priorities, including (i) the potential role of domestic air transport in opening up the more distant regions of the country and making the economic growth more inclusive, and (ii) the need to expand the international air links to keep up with growing demand.
- (b) Review and regularly update air transport regulations to comply with international safety and environmental standards
- (c) Further modernize the Paro International Airport by equipping it with more passenger services and modern navigational, engineering, and safety provisions.

- (d) Complete the modernization of the three newly established domestic airports.

(4) Electricity and irrigation

- (a) Complete the rural electrification program to increase access to electricity for rural communities.
- (b) Expand the power distribution network and transmission grid to rural areas to complement the rural electrification program.
- (c) Following the guidance provided in the Revised National Irrigation Policy of 2011, formulate a comprehensive irrigation sector master plan that is based on the principles of integrated water resource management and community participation, and takes into account agronomic, technical, financial, and economic considerations in identifying the thrust and prioritizing the scope of the master plan.
- (d) Review and clarify the institutional arrangements concerning the roles and responsibilities of various agencies at national and local government levels with respect to engineering and agronomic aspects of the irrigation infrastructure. Provide capacity building in irrigation engineering and irrigation agronomy, where needed.
- (e) Inventory the available irrigation and related infrastructure, and assess the urgent needs to upgrade and rehabilitate it while taking into account financial, economic, and sustainability considerations.

Medium- to Long-Term Measures

These measures are as follows:

(1) General

- (a) Implement institutional reforms to clarify roles and consolidate implementation responsibilities in the transport sector, as designed as a part of the foregoing short- to medium-term measures.

- (b) Initiate a comprehensive capacity development program at national and local levels, based on the needs identified above as a part of the short- to medium-term measures.

(2) Road transport

- (a) Fast-track construction and/or improvement of the high-priority road projects—in particular, the Thimphu–Phuentsholing Highway, the Thimphu–Trashigang Highway, southern segments of the East–West Highway, and the North–South Highway.
- (b) Assess the feasibility of constructing new alignments (diversions), tunnels, and viaducts on key routes to reduce distances and allow for increased carriage weight and speeds.
- (c) Invest in mainstreaming new engineering and construction technology to reduce overall life-cycle costs and ensure better quality roads and highways.
- (d) Implement the DTMPs by making available the financial and skilled human resources required for construction, rehabilitation, and improvement of the high-priority road infrastructure, and by establishing a program for ensuring adequate O&M of existing and planned roads.
- (e) Support the communities in constructing and maintaining farm roads by providing (i) design of roads and related infrastructure to ensure that the infrastructure is technically sound and climate resilient, (ii) capacity building to manage and undertake construction and maintenance, and (iii) investment support on a cost-sharing basis.

(3) Air transport

- (a) Encourage reputable regional carriers to start passenger and cargo services between Paro and regional destinations.
- (b) Expand the domestic air transport network by constructing short take-off

and landing airstrips and/or helipads in remote or unserved districts.

- (c) Explore opportunities for private sector participation, for example in O&M of air transport facilities and provision of services, including charter and emergency services. Through the process, review the relevant laws and regulations and institutional mechanisms to identify and rectify any bottlenecks.
- (d) Expand international links with other Asian hubs and regional centers by considering code-share agreements with other airlines or by seeking bilateral air transport agreements with other regional destinations (such as Hong Kong, China; Japan; the Republic of Korea, and Singapore⁴) that may promise a significant level of tourists and business travelers.

(4) Electricity and irrigation

- (a) Expand the program for an interconnected transmission grid by integrating the country's western and eastern grids.
- (b) Undertake other renewable energy projects (off-grid micro-hydropower, solar, and biogas) to meet the energy needs of remote communities, including grid-connected wind power to complement the hydropower resources, given the seasonality of hydro resources in Bhutan.
- (c) Initiate an investment program for developing irrigation infrastructure in line with the provisions of the irrigation sector master plan, with the management of irrigation schemes being handed over to communities upon completion of civil works, on a cost sharing basis. Initiate development of irrigation infrastructure after community mobilization and training in irrigation agronomy and irrigation system management, including O&M of the infrastructure.
- (d) Initiate integrated water resources management in priority river basins

through community participation, particularly in managing and protecting the watersheds, controlling floods and erosion, harvesting water, and using water and other resources in a sustainable manner.

- (e) Pilot test and adopt efficient irrigation techniques such as micro and drip irrigation, particularly for irrigating orchards and other high-value crops.

5.2.3. Improving the Quality of Education and Addressing a Labor Market Mismatch

Bhutan guarantees 11 years of free education, resulting in high rates of primary school enrollment and increasing enrollment rates in secondary school. The quality of education remains an issue, however, in part related to teachers' inadequate subject knowledge and ineffective pedagogy (REC 2012). The skills level of Bhutan's labor force is low, particularly among poor and rural workers. Skills shortages and labor market mismatch constrain economic growth and development of the private sector.

In short, the quality of education needs to be improved at all levels. Enhanced education and training is imperative to empower the Bhutanese people and realize greater gross national happiness.

Quality of Education

Measures to improve the quality of education are as follows:

(1) Short- to medium-term measures

- (a) Evaluate the impact of the curriculum and related reforms on educational outcomes to develop lessons and guide improvements in education quality.
- (b) Improve the competency of teachers through teacher development programs—covering modern teaching methods—and the provision of appropriate incentives for excellent teachers.
- (c) Reduce the burden of administrative tasks so schools and teachers can focus on the

⁴ A Singapore–Bhutan air service agreement was signed in 2011 allowing Drukair to begin its Paro–Singapore route commercial service on 1 September 2012.

core task of teaching. There are currently too many extracurricular responsibilities and requirements from the Ministry of Education (MOE) and other government agencies. Overly detailed directives to schools undermine the education leadership role of principals and teachers. The MOE could concentrate on managing outcomes rather than processes, and on supporting and encouraging schools to improve their performance in established core learning areas, including literacy and mathematics.

- (d) Advance nonformal education as a way of reaching learners in remote areas and those that have missed out on formal education. Such outreach should cater to all ages, and may include adult literacy and education for out-of-school children.
- (e) Expand technical and vocational education and training (TVET) by increasing the annual enrollment in the technical training institutes (TTIs) from 450 to 3,000. Ensure access to poor households and women by providing scholarships and other financial incentives. The Ministry of Labour and Human Resources could undertake extensive campaigns in the schools to promote technical occupations as a valued career choice.
- (f) Explore innovative public–private partnerships (PPPs) to expand provision of high-quality TVET.
- (g) Ensure access to secondary and tertiary education for poor households and women through a system of conditional transfers, bursaries, and scholarships.
- (h) Enhance ICT skills programs, maintain distance learning facilities, and improve course management systems to sustain a better learning environment for students.
- (b) Establish a polytechnic university to provide a broader range of courses than is available at the Royal University of Bhutan. The curriculum should respond to the skills requirements of the private sector and entrepreneurship. Along with traditional technical skills for construction and other sectors, courses could be offered in accounting and other business skills, the creative arts (e.g., graphic design, computer applications, music, drawing, painting, acting, and writing) and other areas relevant to the labor market. Courses could be 60% practical and 40% theoretical. A key objective would be to upgrade the qualifications of working people, through evening and winter classes and online programs. To promote inclusion, there could be no age limit on admissions.
- (c) Allow a smooth transition from technical training to university. Graduates of TTIs could be eligible to pursue a bachelor's degree after gaining 3 years of work experience. University education could build on the theoretical knowledge students gain at a TTI and the expertise obtained from their work experience.
- (d) Build the capacity of TTIs to implement TVET programs that respond quickly to changes in the labor market.
- (e) Develop and implement a compulsory accreditation system for TTIs and colleges to maintain and improve the quality of teaching outcomes and national competency standards.
- (f) Mainstream entrepreneurship courses in secondary and tertiary education to provide students with the skills and knowledge necessary to become successful entrepreneurs. Courses may include finance, marketing, product development, human resource management, and technology management.
- (g) Expand access to basic skills development courses and apprenticeships for high school students.

(2) Medium- to long-term measures

- (a) Strengthen and modernize the country's schools, TTIs, and private colleges using as benchmarks reputable learning institutions in the region and the world.

Labor Market Mismatch

Measures to address labor mismatch include the following:

(1) Short- to medium-term measures

- (a) Strengthen job placement services focusing on women, youths, and the poor.
- (b) Link technical training institutes, private colleges, and the university with employers to improve the skill provision system and address labor market mismatch.
- (c) Expand incentive programs to entice firms to train or employ semi-skilled and skilled workers.
- (d) Introduce testing and certification systems to certify the quality of skilled workers.
- (e) Instill the value and dignity of blue collar jobs in the minds of youth through improved values education, better remuneration, and enhanced service conditions. Change attitudes so that TVET is more attractive as an academic and career choice. This can be done through marketing campaigns and improved career counselling at high schools.
- (f) The civil service should stop taking in fresh graduates and instead require new recruits to have at least 3 years of private sector experience. For certain categories of managerial positions, the civil service could invite open competition. Furthermore, the civil service may consider allowing staff to be seconded to the private sector and then to return. Currently, civil servants who leave the government are not allowed to return.
- (g) Create an environment conducive to private sector development through more efficient and business-friendly regulations, including efficient procedures for registering, obtaining permits and licenses, and inspecting work premises.

(2) Medium- to long-term measures

- (a) Develop medium- and long-term forecasts of employment opportunities and skills requirements. Such forecasts would guide education and training institutes in determining curriculum priorities and help students chart career paths.
- (b) Accelerate the shift from middle to higher skills through in-service training and retraining programs. Provide incentives for firms to offer on-the-job, on-site, and/or off-site training (e.g., training subsidies).
- (c) Improve the quality of training for the construction sector and support participation of Bhutanese contractors and workers in the construction of hydropower projects.

5.2.4. Enhancing Access to Finance

The Royal Monetary Authority (RMA) has launched a series of financial sector reforms, regulatory framework improvements, and financial education and literacy campaigns to improve the financial architecture of the country. Its efforts included expanding access to microfinance and using technology such as branchless banking to expand the outreach of lending institutions.

Access to formal finance has been primarily limited to the bigger corporate borrowers, especially those in the urban areas. A large proportion of MSMEs, small-scale farmers, and other rural residents cannot borrow from banks despite having collateral (i.e., land) to secure loans.

Credit availability for MSMEs and small borrowers has been constrained further by the recent liquidity crunch in the banking system. Underlying the domestic credit crisis was the RMA's tighter restrictions on bank loans following the Indian rupee crisis of February 2012 (Box 5.2). With its currency pegged at par with the Indian rupee and independent monetary policy largely absent, prudent management of international reserves and banking sector liquidity is critical for maintaining the peg and macroeconomic stability in Bhutan. However, the chronic rupee shortfall and the increased volatility of overall domestic credit growth underscore the

Box 5.2. The Indian Rupee Shortage and Its Implications for Macroeconomic Management

The continuing Indian rupee shortfall, which became critical again in February 2012, has caused considerable economic strain in Bhutan. As India is Bhutan's largest trading partner, accounting for about 84% of exports and 72% of imports in 2011, and the rupee is a major part of Bhutan's international transactions, the impact of a rupee shortage has been felt economy wide.

The Royal Monetary Authority adopted several policy and administrative measures to address the rupee shortfall, including restrictions on bank loans, suspension of rupee withdrawals, and control of rupee outflow. However, these restrictive measures have in part exacerbated the rupee shortage by denting public confidence in the domestic currency, the ngultrum.

Underlying frequent rupee shortages is a structural imbalance in Bhutan's economy. The rupee management has become increasingly challenging as Bhutan's aggregate demand increases rapidly, raising the demand for the rupee. While hydropower development and its related imports have been a major factor behind large trade deficits with India, increased household consumption and other domestic demand growth also contribute significantly to the rupee shortage. On the supply side, however, a limited export base and volatile electricity exports to India (due to the marked seasonality in electricity generation) continue to constrain the rupee supply and contribute to volatility in net rupee inflows.

The acute shortage of the rupee and its wide-ranging economic impact prompted the government to form a task force in January 2012 to look into the rupee situation. The task force, which consisted of representatives from the Ministry of Finance, Ministry of Economic Affairs, National Statistics Bureau, Royal Monetary Authority, and a few other relevant agencies, was mandated to identify the causes and solutions to the problem of chronic rupee deficits.^a

The rupee shortage has become one of the most critical economic constraints in recent years, and requires reassessing the current international reserve management policy and reviewing liquidity management practices. Rapid credit growth and expansionary domestic demand policies in the 2000s have contributed to a surge in imports from India and increased the rupee demand. Addressing the challenge posed by the rupee shortfall and the underlying structural imbalance requires prudent macroeconomic management with a pragmatic monetary policy framework.

^aThe analysis and recommendations of the Task Force are in the Task Force Report on Balance of Payment with India and the Rupee Shortfall (2012).

Source: Authors.

need for strategic rethinking of the current practice of maintaining most of its international reserve in the United States dollar and sterilizing the rupee inflows through liquidity management in the banking system. Measures to enhance access to finance are as follows:

(1) Short- to medium-term measures

- (a) Improve the management of international reserves. Currently, about 98% of Bhutan's international reserves are in convertible currency. It would be reasonable to maintain about 30%–35% of Bhutan's international reserves in the Indian rupee, given the predominant use of the rupee in the country's international transactions.
- (b) Consider a rupee currency swap arrangement with India. The RMA may

think about entering into a swap agreement with India to provide a backstop line of funding for short-term foreign exchange liquidity requirements.

- (c) Improve the management of banking sector liquidity. The government may consider establishing an exchange stabilization fund to keep the rupee inflows associated with the hydropower development outside the domestic banking system. This will help reduce volatility in domestic credit growth induced by the foreign investment and grant flows due to hydropower projects.
- (d) Introduce new savings instruments to the private sector; the issuance of short-term ngultrum-denominated bonds would especially help absorb banking sector liquidity and enhance the domestic savings rate.

- (e) Develop electronic payment system infrastructure to improve the domestic payment system and promote private sector growth.
- (f) Explore the use of new technology and innovative approaches such as mobile banking technology to extend the reach of the banking sector.
- (g) Maintain prudent fiscal management. Government spending may contribute to the rupee demand through increased aggregate demand and its multiplier effect. While strengthening domestic sources of finance for government expenditure, greater care could be taken to reduce nonpriority expenditures in the government budget.
- (h) Strengthen the credit information system and extend the coverage of the Credit Information Bureau to collect and facilitate information sharing for MSMEs and farmers.
- (i) Introduce credit risk guarantee facilities for MSME and rural finance. The government may consider setting up a fund for MSME and agriculture credit guarantees.
- (j) Improve the efficiency of lending institutions by allowing entry of foreign (beyond the existing Indian) banks.
- (k) Strengthen the regulatory framework for microfinance.
- (l) Continue and expand financial literacy campaigns.
- (m) Offer training courses for MSMEs, farmers, and rural residents to help them with loan applications and financial planning.

(2) Medium- to long-term measures

- (a) Continue reforms (financial deregulation and liberalization) to accelerate financial development.
- (b) Explore schemes of microfinance lending, including associations, community and

village banking, and cooperatives, to broaden the reach of microcredit facilities.

- (c) Consider the appropriateness of the current exchange rate regime; as the economy develops further and opens, the cost and benefit of the fixed exchange rate regime may be reviewed.

5.2.5. Addressing Market Failures

Hydropower is likely to remain the mainstay of Bhutan's economy. However, its capital-intensive nature has not been conducive to employment generation. Thus, it is critical that Bhutan create a dynamic manufacturing sector that can generate productive jobs while contributing to more broad-based and inclusive growth.

The key is in upgrading and diversifying the manufacturing base. However, in developing economies, the process of discovering goods that can be produced profitably is typically fraught with market failures. Addressing the market failures requires policy intervention to create an enabling environment for the private sector. Such government intervention may be specific measures targeted at some industries (so-called hard or vertical industrial policy) or more broad-based interventions that seek to promote private sector development and improve the business climate for the private sector (so-called soft or horizontal industrial policy).

The product space analysis (Chapter 2) helps identify the products that are “nearby” and can benefit from Bhutan's existing capabilities. However, Bhutan shows limited diversification in its products, in the core of its product space, indicating limited productive capabilities. Expanding into the other products that are “far away” will require targeted and product-specific interventions. As targeted policy support has often in the past fallen victim to crony capitalism, rent seeking, and corruption in other countries, it is imperative to have a clear institutional framework for diversifying the economy.

Rodrik (2004) proposed 10 principles (Box 5.3) to guide the design of a new industrial policy to aid diversification of an economy. Appropriate industrial policy should be viewed as a strategic collaboration between public and private sectors to identify sector-specific constraints.

Box 5.3. Ten Guiding Principles to a New Industrial Policy Framework

Rodrik (2004) lays out the contours of a new industrial policy framework. Institutional architecture is as critical as the design of the policy. Elements of institutional structure include political support at the highest levels to promote economic diversification, coordination and deliberation councils to facilitate public–private dialogue to identify constraints specific to a particular product, and transparency and accountability to avoid elite capture. The following principles should guide the formulation of a modern industrial policy framework:

- (1) Incentives should be provided only to “new” activities.
- (2) Benchmarks or criteria for success and failure should be clearly laid out.
- (3) Sunset clauses for state support must be built in.
- (4) Public support must target specific activities and not sectors.
- (5) Subsidized activities should have a clear potential for spillovers and demonstration effects.
- (6) Industrial policy actions should be implemented by agencies with demonstrated competence to do so.
- (7) Monitoring should be done by a principal stakeholder who has political authority at the highest level.
- (8) The process should involve close communication with the private sector.
- (9) Mistakes that result in “picking the losers” will occur. The key is to identify the losers early on in the process and cut losses. If there are no losers, then it is important to take a hard look at the whole framework again.
- (10) Promotion activities need to have the capacity to renew themselves to ensure an ongoing cycle of discovery.

Source: Rodrik (2004).

A key ingredient of the modern industrial policy framework is the institutional architecture. Bhutan’s Tenth FYP calls for the formulation of a clear and comprehensive industrial policy to guide sustainable development of industries. Along this line, the Tenth FYP envisages establishing the necessary legal framework and enacting an

investment and industries act. The design of a modern industrial policy, nature of interventions, and target products or sectors will evolve over time. In this context, it is critical that the relevant agencies have the capacity to identify the changes and restructure policies as needed. As such, the Tenth FYP also recognizes the need to strengthen the capacity of the Department of Industry, which will implement the plan.

Another key ingredient of the modern industrial policy framework is the private sector, with the government playing the role of strategist and coordinator. Bhutan’s Tenth FYP recognizes that the country’s private sector is small and relatively underdeveloped, with 98% of the activity taking place in MSMEs. The plan notes that MSMEs face considerable constraints, such as lack of basic skills and entrepreneurial talent, limited access to finance, poor physical infrastructure, high transport costs, and lack of business information. Bhutan’s Tenth FYP seeks to address these constraints by providing essential business development services; promoting access to finance through financial schemes such as the Economic Development Policy loan scheme, Credit Guarantee Scheme, and Rural Enterprises Grant Scheme; enhancing capacity through training in entrepreneurship development; and creating an enabling environment for developing the private sector, such as by simplifying business procedures (which has already been done). The private sector will also benefit from export promotion activities—a priority under the Tenth FYP—such as creating awareness about and building brand images for national products and improving access to information.

The Government of Bhutan is also promoting development of industrial estates that can create a favorable environment for private sector. The Department of Industry, along with Regional Trade and Industry offices and the districts, plans to develop and establish three more industrial estates during the Tenth FYP. To facilitate trade, the government is also establishing dry ports, which are apt for landlocked locations. Dry ports, which can handle customs-related services and are equipped with appropriate cargo handling and storage facilities, will help reduce trading costs.

Private sector development is likely to have cross-sectoral implications and is thus primarily of a “horizontal” nature, involving broad-based

interventions. Targeted actions to address product-specific binding constraints will need to be identified through public policy dialogues when the sectors that present the greatest opportunity and value for diversification are identified. Other elements of the policy agenda to address market failures and promote economic diversification can include the following:

(1) Short- to medium-term measures

- (a) Identify sectors that present the greatest opportunity and value for diversification. This can be based on, for example, the product space analysis illustrated in Chapter 2. In the case of Bhutan, entering into the core of the product space will require that the government make “strategic bets,” as the country’s current productive capabilities are limited and unlikely to promote product diversification.
- (b) Based on public–private policy dialogue, identify specific policy actions needed to address the product- or industry-specific constraints. The design of the policy framework could be guided by the principles outlined in Box 5.3.
- (c) For products that the government considers as strategic bets, attracting foreign direct investment can be an option to gain a foothold and develop the necessary capabilities. The foreign investment policy can also target promoting technology transfer. Any concessions such as tax breaks, however, should come with clear performance indicators and sunset clauses.

(2) Medium- to long-term measures

- (a) Make operational the industrial policy framework and build capacity in the relevant ministries and planning bodies.
- (b) Address other cross-cutting issues for private sector development, such as improving access to finance, improving the transport network and infrastructure for connectivity, and enhancing the quality of education.

5.3. Policy Recommendations to Support Drivers of New Growth

Promoting new engines of growth will help support broad-based and inclusive development. A more diversified economy will help generate productive employment opportunities for the population and make Bhutan’s development more balanced and sustainable. Existing growth drivers—hydropower and tourism—have played important roles in propelling Bhutan to its current state. Agriculture, while contributing less to the economy in recent decades, still shows potential for productivity improvements. Two additional potential drivers have been identified—ICT and “clean” manufacturing (in particular through MSMEs), and are referred to here as emerging growth drivers. They could complement Bhutan’s quest for inclusive and sustainable socioeconomic development.

5.3.1. Hydropower

Development of the hydropower sector will continue to be a principal strategy for stimulating stronger growth in the future. As discussed in previous chapters, hydropower development and export have steadfastly underpinned the rapid growth of Bhutan’s economy and generated government resources for social and other investments. Power generation in Bhutan relies almost exclusively on hydropower and its development is crucial. Transmission and distribution networks have to be maintained and improved in rural areas.

It is vital for Bhutan to undertake power sector reforms that will motivate greater investments and participation from both the public and private sectors. The 2010 Economic Development Policy stipulates the vision and main strategies for the development of the hydropower sector: (1) electricity will be provided to all by 2013, (2) essential public institutions and services will receive the highest priority for the supply of electricity, (3) development of hydropower will be accelerated to generate a minimum of 10,000 megawatts (MW) by 2020, and (4) transmission grids will be interlinked to ensure energy security and reliability (GNHC 2010). While hydropower development will be one of the government’s main thrusts, an integrated approach will be pursued to secure reliable energy supply in

the most efficient manner. The following measures are suggestions for enhancing hydropower's contribution to the economy:

(1) Short- to medium-term measures

- (a) Adopt a comprehensive power development framework integrating the hydropower program with other forms of renewable energy. This includes an energy and water resource master plan for developing the hydropower sector in a sustainable manner.
- (b) Adopt an integrated management system for the power sector to avoid future conflicts and delays in implementation of projects.
- (c) Adopt policies to address the environmental impacts associated with hydropower development based on Bhutan's watersheds, especially in relatively small and ecologically sensitive areas.
- (d) Review the tariff structure and consider power sector tariff adjustments and smart targeting of rural electrification subsidies to ensure that the tariff will not become a disincentive to private sector investment in hydropower.
- (e) Prepare a plan for diversifying energy sources by establishing a national policy to support the development of alternative renewable energy sources (such as wind, solar, biomass, and small and micro hydropower) other than large hydropower.
- (f) Establish legal and regulatory frameworks for PPP projects, including policies protecting investors from expropriation and nationalization and allowing the remittance of dividends and the repatriation of foreign investment.
- (g) Review Bhutan's foreign direct investment policy with regard to foreign equity participation, as well as incentives that can be provided to encourage private sector participation in hydropower.

- (h) Review institutional arrangements for environmental and social assurance and commercial dispute resolution and regularly enhance the capacity of the pertinent institutions.

- (i) Select one or two medium-sized projects for pilot PPP schemes and prepare detailed feasibility studies for them.
- (j) Develop transport infrastructure to facilitate access to hydropower sites, including construction and repair of roads, to contain transport costs in the construction and O&M of hydropower projects.

(2) Medium- to long-term measures

- (a) Introduce competition in the power sector to improve efficiency, customer responsiveness, and innovation by unbundling the incumbent monopoly utilities into separate generation, transmission, distribution, and supply entities.
- (b) Privatize the unbundled entities, so that dispersed ownership will facilitate competition, and so that private investors and operators will bring financial resources and managerial expertise into production and supply, which was previously dominated by less effective state-owned monopolies.
- (c) Establish an independent or quasi-independent regulatory framework and provide support for its capacity building requirements.
- (d) Expand the program for the development of the high-voltage (400/220 kilovolt) transmission network for power evacuation to India and supply of the load centers in Bhutan, in parallel with implementation of the 10,000-MW hydropower program.
- (e) Leverage PPP to promote private investments in power development projects.

- (f) Implement nonhydro forms of renewable energy to complement the hydropower sources and diversify the country's energy mix to reduce dependence on hydropower and mitigate the hydrology risk.

5.3.2. Tourism

The government may consider partial liberalization of the tourism industry to promote competition. The government may also consider providing support for marketing Bhutan as a tourist destination. Marketing of Bhutan as a tourist destination has the characteristics of a public good and hence may not be optimally provided by markets. The problem is that some tourism operators benefit from advertising by their competitors without contributing to the full or partial cost. Further development of tourism standards, norms, and related regulations may be also needed.

(1) Short- to medium-term measures

- (a) Enhance tourism marketing and promotion activities by investigating new tourism markets and their preferences, conducting tourism fairs, popularizing Brand Bhutan, and marketing the country as a carbon-neutral tourist destination.
- (b) Improve accommodation standards, food, and services by establishing a classification system for accommodation and tourism services.
- (c) Remove the tax deduction limit of 2% of net profits for publicity and advertising expenses.
- (d) Review the tariff or royalty system and package tour requirements, which currently give tour operators control over itineraries and products. Give tourists more choice in booking services and tourism products.
- (e) Strengthen tourism-related human resources, such as the qualifications of tour guides and hotel and restaurant crews. Consider sending Bhutanese

officials to tourism agencies overseas for training on assessing the economic impacts of the tourism industry.

(2) Medium- to long-term measures

- (a) Review institutional mechanisms with a view to enhancing the structure of the tourism sector and coordination across related sectors.
- (b) Improve tourism-related infrastructure such as solid waste management, water pressure, toilets, and banking facilities (including electronic payment services such as ATM facilities and the use of credit and debit cards).
- (c) Enhance access to the border crossing points open to tourists in Bhutan and India, and make the border crossing points more traveler-friendly. Improve sidewalks and pedestrian lanes in towns.

5.3.3. Agriculture

As the majority of Bhutan's population is engaged in agriculture, it is critical to pursuing poverty alleviation as well as to achieving balanced and inclusive growth (GNHC 2010). The government has worked toward increasing mechanization, developing new farming techniques, and setting organic farming standards and regulation, and more needs to be done. In the Tenth FYP, agriculture is envisioned to address poverty by enhancing food security. This entails improving production to increase food availability, securing food access, and employing targeted marketing. Improving agricultural productivity promotes food security and sustainable and inclusive growth as it provides employment to the majority, decreases food shortages, encourages food sufficiency, and allays disproportionate rural–urban migration. Measures pertinent to agriculture include the following:

(1) Short- to medium-term measures

- (a) Continue promoting commercial or market-driven farming over subsistence farming and employ marketing mechanisms and market intelligence to adjust production toward meeting market demands.

- (b) Prioritize public investment in agriculture for constructing rural roads and irrigation systems, and providing modern inputs such as high-yielding seeds and fertilizer.
- (c) Conduct research on and implement measures that will reduce crop damage caused by wildlife, pests, and diseases.
- (d) Review land-use regulations with a view to providing more land for farming, particularly for commercial farming.

(2) Medium- to long-term measures

- (a) Implement a comprehensive farm mechanization program appropriate to Bhutan's topography.
- (b) Forge and/or strengthen partnerships with international research institutions on agriculture-related activities for technology transfer and sharing and collaborative research. Develop the capacity of the Royal University of Bhutan for providing leadership in agriculture and allied studies and research, and for developing farming technology relevant to the country's topography.

5.3.4. Information and Communications Technology

Bhutan has been focusing on telecommunications (voice and data communications) services, as indicated by the government's information technology (IT) park initiatives (Chapter 4). The country's growth potential can be expanded by looking beyond the supply of conventional telecom services and focusing on other value-adding services such as mobile money services, business process outsourcing (BPO), knowledge process outsourcing (KPO), and the operation of data centers (including disaster recovery services). Other niche areas include digital media focusing on media and entertainment, mobile applications, and graphic design and animation. Bhutan's potential in the BPO segment is apparent with the success of a 90-employee medical transcription operation that is part of a local conglomerate. The following measures are suggested to enhance Bhutan's ICT efforts.

(1) Short- to medium-term measures

- (a) Ensure power supplies have the required quality and reliability in all locations where data centers, software firms, and BPOs may be located.
- (b) Provide telecommunications connectivity—through a fully redundant, multiple operator network with appropriate price and quality bundles—to the IT park in Thimphu.
- (c) Ensure an adequate and continuing supply of skilled employees by creating appropriate ICT education programs and establishing software for KPO activities and the niche areas already noted. Developing strong industry linkage between the academia and industry to turn out better skilled manpower as required by industry is critical. Encourage firms to contribute knowledge and teaching resources and provide internship opportunities for students.
- (d) Establish a government information center that will be an anchor for developing e-government services.
- (e) Develop an e-government master plan to embark on a holistic approach to e-government planning to drive social and economic development through ICT in the Eleventh FYP, including recommendations for developing the ICT industry.

(2) Medium- to long-term measures

- (a) Consider requiring data center operations and disaster recovery facilities in the designed-for-all-IT-purposes IT park in Thimphu to have back-up fiber connectivity and power supplies.
- (b) In partnership with BPO firms, develop an articulated training and education program that is tailored to their needs.
- (c) For the BPO industry, consider licensing one or more international gateway operators to provide three

kinds of business services: leased-line services (private telecommunications services usually used by businesses to connect branch offices), international call termination (connecting incoming international calls), and outgoing international traffic (connecting outgoing international calls).

- (d) Use ICT to improve connectivity among the districts.
- (e) Expand the existing 2.0-hectare IT Park to 7.3 hectares and nurture the incubation center (a comprehensive program of services targeted to accelerate the growth and success of start-up and emerging firms) to turn out successful entrepreneurs.

5.3.5. Clean Manufacturing

Clean manufacturing involving micro and small industries shows good potential to be a new engine of growth. The sector can take advantage of Bhutan's rich natural endowment and culture amid growth support from the global community for green businesses. Development of the sector is consistent with Bhutan's vision that (1) its environmental conservation approach needs to be dynamic rather than static by utilizing its vast natural assets in a sustainable manner for socioeconomic development, and (2) its rich culture has to be infused with contemporary relevance and meaning (Planning Commission 1999).

Bhutan has been aiming to achieve full employment and a self-reliant economy by 2020 in which the manufacturing sector is expected to provide high-value low-volume output. If successful, clean manufacturing, an emerging labor-intensive industry, can complement the overarching goal of promoting broad-based and inclusive growth. The small and cottage industries, however, have yet to develop economies of scale to significantly contribute to growth and employment.

The short list of identified manufacturing industries reflects the challenge of finding a balance between minimum environmental impact, commercial viability, and social impact. The list is (1) handicrafts, (2) food processing, (3) manufacture of hydropower-related parts and maintenance, and (4) manufacture of ICT-related parts. The following

recommendations are based on the assumption that other measures will address the critical constraints to inclusive growth identified in earlier discussions.

(1) Short- to medium-term measures

- (a) Review the current industrial policy (explicit and implicit) and incentives structure in order to confirm that it adequately supports industries. The incentive structure may need to support emerging sectors by being consonant with the synergy with and spillovers into existing sectors.
- (b) Review the roles of and coordination among institutions created to help improve the effectiveness of MSME development.
- (c) Review the environmental policies and regulations overseeing the establishment of manufacturing enterprises and revise environmental standards for manufacturing to be comparable to international standards.
- (d) Enhance product quality to be at par with international standards by utilizing globally accepted product evaluation systems.
- (e) Explore new markets by participating in international trade fairs and partnerships with overseas retail chains and department stores.

(2) Medium- to long-term measures

- (a) Design and adopt clear sector strategies. For example, for handicrafts, a dual track strategy can be adopted that focuses on improving the quality of genuine traditional products and developing traditional materials to fit the tastes of Western and Asian consumers, which are potentially large markets.
- (b) For agro-based manufacturing, provide training courses to enhance capacity building in product development, quality control, packaging, marketing, and advertising.

- (c) Engage in international research and development consortia and partnerships to effect transfer of knowledge and technology toward developing the local manufacturing industry.
- (d) Develop an entrepreneurship-friendly culture and environment by, among other things, pursuing the enactment of an enterprise registration bill, streamlining the registration and licensing procedures for enterprises, and issuing periodic monitoring reports on MSMEs.

5.4. The Way Forward

Bhutan's remarkable economic transformation has dramatically reduced poverty and improved the people's welfare. However, growth that is primarily driven by the externally funded, capital intensive, hydropower sector has been highly cyclical and vulnerable to external shocks, and unable to create adequate jobs for the growing youth population. Moving forward, Bhutan needs to chart its course

of economic development that will generate more broad-based, sustainable, and inclusive growth.

This study aims to provide support for the Government of Bhutan in its preparations for the Eleventh FYP by identifying the critical constraints to achieving the desired growth. The foregoing policy recommendations have been suggested to assist the government in overcoming the constraints to growth and poverty-inequality reduction, and addressing the bottlenecks to sustainable and inclusive development. The study also proposes some potential drivers that the government may wish to consider while drafting its forthcoming blueprint to achieving "a green and self-reliant economy sustained by an IT enabled knowledge society guided by the philosophy of Gross National Happiness" (GNHC 2010: p 5). New drivers of growth have been identified on the basis of their potential to escalate, diversify, and broaden the sources of growth. Appropriate policy recommendations are suggested to resolve any remaining issues regarding the growth drivers and, subsequently, direct them to their full potential and contribution to the economy.

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Bhutan: Critical Development Constraints

Guided by its philosophy of gross national happiness, Bhutan achieved strong growth during 1981–2011, and its per capita gross domestic product more than quintupled, with hydropower as the main growth driver. The government's conscious efforts to invest in socioeconomic programs have helped reduce poverty in the country. Bhutan recognizes that it needs to continue its efforts to make growth resilient to external and internal factors. This report identifies the most critical constraints facing the economy and discusses policy options to assist the government in its endeavor to achieve strong, balanced, and resilient growth that is also inclusive. The report also highlights potential new drivers that can help complement Bhutan's continuing efforts to achieve inclusive and sustainable socioeconomic development.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two-thirds of the world's poor: 1.7 billion people who live on less than \$2 a day, with 828 million struggling on less than \$1.25 a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

About the Australian Agency for International Development

The Australian Agency for International Development (AusAID) is responsible for managing Australia's overseas aid program. The purpose is to help people overcome poverty, thus helping to promote stability and prosperity in the region and beyond. AusAID focuses its efforts in areas where Australia can make a difference and where its resources can most effectively and efficiently be deployed. It provides advice and support on development policy, and plans and coordinates poverty reduction activities in partnership with developing countries; leads and coordinates Australia's responses to humanitarian disasters; and represents Australia in international development forums. AusAID is based in Canberra and has representatives in 37 Australian diplomatic missions overseas.

About the Japan International Cooperation Agency

The Japan International Cooperation Agency (JICA) aims to contribute to the promotion of international cooperation and the sound development of Japanese and global economies by supporting the socioeconomic development, recovery, or economic stability of developing regions. On 1 October 2008, New JICA was inaugurated, merging the existing JICA and the overseas economic cooperation section of the Japan Bank for International Cooperation. New JICA supports the process of inclusive and dynamic development through technical cooperation, concessional loans and investment, and grant aid. JICA is based in Tokyo and has 92 overseas offices.

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