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ADB

ASIAN DEVELOPMENT

# Outlook 2013

**Asia's Energy Challenge**

Asian Development Bank



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Printed in the Philippines.

ISBN 978-92-9254-022-7 (Print), 978-92-9254-023-4 (PDF)  
ISSN 0117-0481  
Publication Stock No. FLS135622

#### Cataloging-in-Publication Data

Asian Development Bank.

Asian development outlook 2013. Asia's energy challenge.  
Mandaluyong City, Philippines: Asian Development Bank, 2013.

1. Economics. 2. Finance. 3. Asia. I. Asian Development Bank.

The annual *Asian Development Outlook* provides a comprehensive economic analysis of 45 economies in developing Asia and the Pacific.

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# Definitions

The economies discussed in the *Asian Development Outlook 2013* (ADO 2013) are classified by major analytic or geographic group. For purposes of this publication, the following apply:

- **Association of Southeast Asian Nations (ASEAN)** comprises Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam.
- **Developing Asia** refers to the 44 developing member countries of the Asian Development Bank and Brunei Darussalam, an unclassified regional member.
- **Central Asia** comprises Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan.
- **East Asia** comprises the People's Republic of China; Hong Kong, China; the Republic of Korea; Mongolia; and Taipei, China.
- **South Asia** comprises Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka.
- **Southeast Asia** comprises Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam.
- **The Pacific** comprises the Cook Islands, Fiji, Kiribati, the Marshall Islands, the Federated States of Micronesia, Nauru, Papua New Guinea, Palau, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu, and Vanuatu.
- Unless otherwise specified, the symbol "\$" and the word "dollar" refer to US dollars.

ADO 2013 is generally based on data available up to 15 March 2013.

# Abbreviations

ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
CCS	carbon capture and storage
CNG	compressed natural gas
CO <sub>2</sub>	carbon dioxide
ECB	European Central Bank
EU	European Union
FDI	foreign direct investment
FY	fiscal year
GDP	gross domestic product
GHG	greenhouse gas
Gtoe	gigatons of oil equivalent
GW	gigawatt (1 billion watts)
IEA	International Energy Agency
IMF	International Monetary Fund
kW	kilowatt (1,000 watts)
Lao PDR	Lao People's Democratic Republic
Mtoe	million tons of oil equivalent
MW	megawatt (1 million watts)
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
PM <sub>10</sub>	airborne particulate matter less than 10 microns in diameter
PRC	People's Republic of China
TWh	terawatt-hour (1 trillion watts expended for 1 hour)
US	United States

# **Southeast Asia**

**Brunei Darussalam**

**Cambodia**

**Indonesia**

**Lao People's Democratic Republic**

**Malaysia**

**Myanmar**

**Philippines**

**Singapore**

**Thailand**

**Viet Nam**

# Myanmar

Policy reforms stimulated economic growth last year and are expected to drive further development during the forecast period. Inflation is projected to remain moderate. Improved economic prospects have sparked a surge of interest from foreign investors. Achieving the country's potential depends on maintaining momentum on the government's reform agenda.

## Economic performance

GDP growth quickened to an estimated 6.3% in FY2012 (ended 31 March 2013) compared with an average of 5% in the previous 5 years. The pickup reflects business optimism buoyed by the government's steps since 2011 to liberalize the economy and prospects for further reform. A modest slowdown in agricultural growth in FY2012, partly reflecting floods in August 2012, was more than offset by increases in industrial output and services.

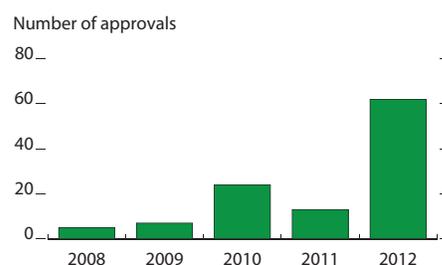
(Official national accounts data are available only on an annual basis with a 2-year lag and they show considerably higher rates of GDP growth, which are inconsistent with correlates of growth such as energy use.)

The number of foreign firms granted investment approval rose to 62 in April–December 2012, well above the total for the 3 previous fiscal years (Figure 3.27.1). A sharp increase in approvals for manufacturing indicated a welcome diversification from the past focus on energy and mining. Investor optimism was also signaled by an almost 14-fold surge from FY2011 in the number of new foreign company registrations in the 10 months to January 2013, albeit from a low base and partly reflecting some domestic companies reclassified as foreign. New domestic company registrations have climbed in the past 2 years (Figure 3.27.2).

Inflation has subsided since 2008, when it exceeded 20%. This follows reduced monetization of the fiscal deficit and a stronger kyat exchange rate on the unofficial market. The consumer price index fell in early FY2012, due to declining food prices. By December 2012, though, food prices were rising and inflation was 6.0% year on year (Figure 3.27.3).

The consolidated fiscal deficit of the central government and state economic enterprises narrowed to an estimated 5.4% of GDP in FY2012 from 6.0% a year earlier. Revenue benefited from the government's realignment in April 2012 of the (fixed) official exchange rate of the kyat, bringing it closer to the unofficial market exchange rate. As state enterprises are net exporters, the exchange rate revaluation boosted budget receipts, including export tax income and customs duties. Higher revenue enabled the government to increase spending on health, education, and capital investment.

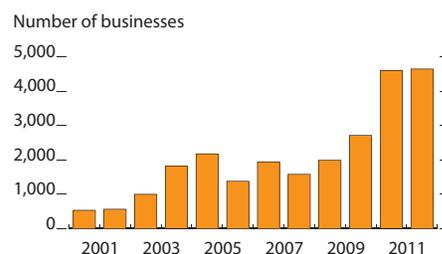
### 3.27.1 Foreign investment approvals



Note: Data in fiscal year (FY). 2012 data covers April–December 2012 only.

Source: Central Statistical Organization.

### 3.27.2 Domestic business registration



Note: Data in fiscal year (FY). 2012 data covers April 2012–January 2013 only.

Source: Directorate of Investment and Company Administration.

In external accounts, the current account deficit widened to an estimated 4% of GDP, with the trade balance in deficit owing mainly to a gradual liberalization of imports and higher investment. Customs data show a 3.6% decline in exports in April–December 2012 from a year earlier, likely caused by subdued demand in Thailand, the People’s Republic of China, and India, as well as weaker international commodity prices.

Exports of natural gas, which comprises 38% of total exports, were flat, and agricultural exports mostly declined in April–December. Garment exports rose by 18% year on year, benefiting from greater access to global markets and low domestic wages. The general weakness in total exports underscores the importance of sharpening competitiveness with higher investment, new technologies, and improved access to finance, as well as an appropriate exchange rate. The kyat has appreciated in nominal and real terms over the past few years.

Tourist arrivals and earnings from tourism have climbed as the country opened up after decades of isolation (Figure 3.27.4). Net foreign direct investment flows and renewed official development assistance supported an overall balance of payments surplus and increase in foreign exchange reserves to an estimated \$5.1 billion in FY2012, equal to about 4 months of imports of goods and services.

Arrears to ADB and the World Bank were cleared in January 2013, allowing their renewed lending to the country. The Paris Club of creditors also reached an agreement to cancel or reschedule arrears.

## Economic prospects

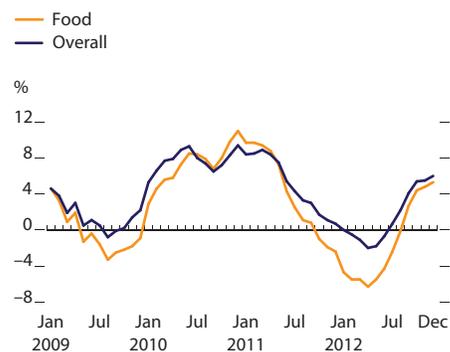
Economic growth is forecast to rise gradually to 6.5% in FY2013 and 6.7% in FY2014 (Figure 3.27.5). Projections assume the government will maintain momentum on policy reform over the medium term.

Growth will get a lift from the European Union’s proposed reinstatement of preferential access for Myanmar’s exports under the Generalized System of Preferences and the United States’ suspension of its ban on imports from Myanmar. Two large gas fields, Shwe and Zawtika, are expected to come online in FY2013, more than doubling gas production and raising exports to the PRC and Thailand. Higher gas exports, greater access to international markets, and faster economic growth in key markets such as the PRC will support growth in exports. Visitor arrivals are likely to post further large gains.

Movement toward unifying multiple exchange rates and a managed float of the currency, along with licensing private banks to engage in international banking and to offer foreign exchange services, should shift more foreign exchange from informal to formal markets, increase liquidity, and facilitate the central bank’s management of the exchange rate. The government is establishing a formal interbank market and plans to develop a secondary treasury securities market. A law to modernize and grant operational autonomy to the central bank has been submitted to the parliament.

Proposed fiscal reforms include simplifying the tax system, broadening the tax base, and eventually moving to a value-added tax to ease dependence on natural resources, which provide 23% of public revenue.

### 3.27.3 Monthly inflation



Source: Central Statistical Organization.

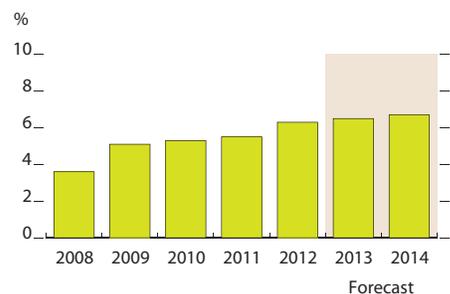
### 3.27.4 Tourism



Note: Excludes border tourism.

Source: Ministry of Hotels and Tourism.

### 3.27.5 GDP growth



Sources: International Monetary Fund; ADB estimates.

Steps taken last year to give state enterprises more financial autonomy and demand more accountability should facilitate their corporatization and potential privatization. Coupled with higher net export receipts, primarily from gas, these fiscal measures allow the government to increase spending on health, education, and infrastructure while reining in the fiscal deficit to 5.2% of GDP in FY2013.

Inflation is forecast to average 5.1% this year and next (Figure 3.27.6). A lower fiscal deficit and reduced credit to the government from the central bank should dampen inflation over the medium term.

In spite of expected higher receipts from exports and tourism, the current account deficit is projected to widen as import growth accelerates, reflecting higher investment and measures to lift foreign exchange restrictions (Figure 3.27.7). Inflows of foreign direct investment, including from the award of new telecommunications licenses in 2013 and higher official development assistance, will likely keep the balance of payments in surplus.

## Policy challenges—forward with reform

The government's ambitious reform agenda is commensurate with the catching up necessary to align policies with current international practice after long period of isolation. These reforms are outlined in the Framework for Economic and Social Reform, which sets out policy priorities until 2016 and guiding principles for longer-term development plans. The goal is higher, inclusive, and sustainable growth and reduced poverty, as 26% of the country's 60 million people live in poverty.

The framework identifies 10 priorities: (i) fiscal and tax reform, (ii) monetary and finance sector reform, (iii) trade and investment liberalization, (iv) private sector development, (v) improvements in health and education, (vi) food security and agricultural growth, (vii) governance and transparency, (viii) mobile telephony and internet, (ix) infrastructure investment, and (x) efficient and effective government.

While many of the reforms will take considerable time, several areas could yield results over the next 2–3 years. One is the underdeveloped finance system, in which credit to the private sector amounts to only 8% of GDP. Allowing greater participation by private banks and with prudent regulation, easing both controls on interest rates and restrictions on lending would boost private sector access to credit.

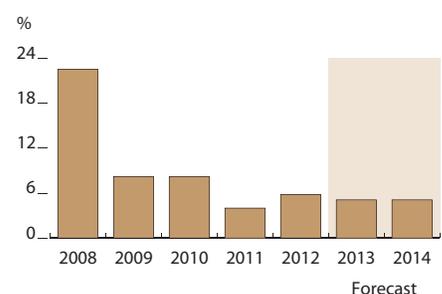
Implementing important new laws on land ownership, labor, and foreign investment, as well as measures to simplify business registration, will improve the business environment. Relatively quick improvements to infrastructure would include rehabilitating roads, upgrading power systems to reduce transmission and distribution losses (Figure 3.27.8), and developing a sound regulatory framework for independent power producers and public–private partnerships.

Tourism has substantial potential to spur employment and inclusive growth, especially with simpler visa requirements. In agriculture, which contributes 36% of GDP and the majority of employment, near-term measures to improve access to finance and inputs, implement small irrigation projects, and expand agricultural extension would shore up inclusive growth and food security.

3.27.1 Selected economic indicators (%)		
	2013	2014
GDP growth	6.5	6.7
Inflation	5.1	5.1
Current account balance (share of GDP)	–4.2	–4.4

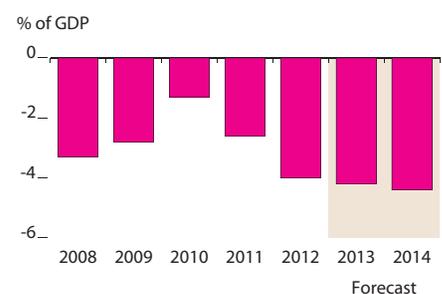
Source: ADB estimates.

### 3.27.6 Inflation



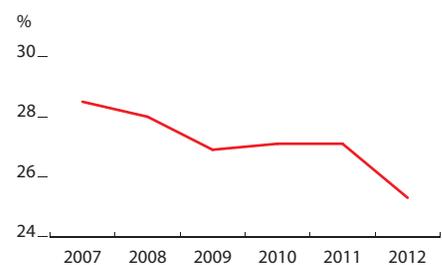
Sources: International Monetary Fund; ADB estimates.

### 3.27.7 Current account balance



Sources: International Monetary Fund; ADB estimates.

### 3.27.8 Power transmission and distribution losses



Source: Ministry of Electric Power.

and the industry sector as a whole contributed 3.4 percentage points to GDP growth, the biggest sector contribution from the supply side (Figure 3.30.2).

The service sector grew by 5.8% and was also an important source of GDP growth. A 16% rise in tourist arrivals, to 22.3 million, contributed to 8.8% growth in the hotels and restaurants subsector. Financial services grew by 6.6%, with insurance benefiting from buoyant auto sales. Agricultural output increased by 3.1% with higher output of rice, cassava, natural rubber, and oil palm.

Food price inflation eased and fuel prices were fairly stable. Despite picking up in the fourth quarter because of an increase in electricity tariffs and higher excise taxes on alcohol and tobacco, inflation for 2012 was the lowest in 3 years (Figure 3.30.3).

The Bank of Thailand, the central bank, lowered its policy interest rate to 3.0% to assist economic recovery after the floods, and reduced the rate again in October 2012 to 2.75%, slightly below the inflation rate (Figure 3.30.4). Lending interest rates declined, and commercial bank lending expanded by 13.7% in 2012, with a 21.6% surge in consumer loans.

Fiscal policy also stimulated the economy. The fiscal deficit widened to 4.1% of GDP in FY2012 (ended 30 September 2012) from 1.3% in FY2011. About 90% of planned spending was disbursed, though this fell to 66% for the capital budget owing to delays in approving the FY2012 budget after a change of government in August 2011 and shortages of construction materials after the floods. The wider deficit reflects new government subsidies and tax breaks to support households, farmers, and businesses, including a cut in the corporate tax rate to 23% in 2012.

Moreover, considerable spending was funded off-budget. Parliament approved an emergency decree allowing the government to borrow the equivalent of \$11.7 billion by June 2013 to be spent over several years on water management projects. About \$100 million of this was spent in 2012.

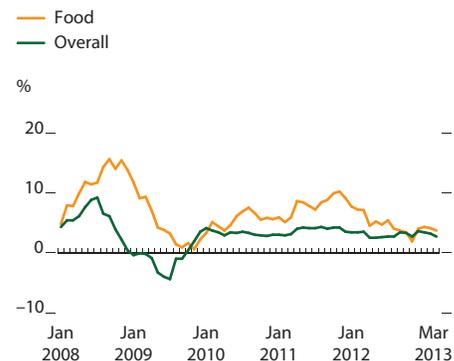
Merchandise exports rose by just 3.2% in US dollars last year. The value of rice exports shrank by 28% because the subsidy on the domestic purchase price pushed Thai rice prices well above international levels. Exports of automobiles increased by 26%, but those of electronic products edged up by just 0.9%.

Imports outpaced exports, rising by 7.8% in US dollars, in part a result of capital equipment purchased to replace that damaged by the floods. Consequently, the trade surplus shrank by half to \$8.3 billion (Figure 3.30.5). Insurance payouts after the floods contributed to a narrowing in the services trade deficit, but the sharply lower trade surplus meant the current account surplus fell to 0.7% of GDP.

The capital and financial account recorded a substantial surplus, largely because of net portfolio inflows and loans to businesses. The overall balance of payments remained in surplus, and gross international reserves rose by 3.7% to \$181.6 billion, cover for 10 months of imports.

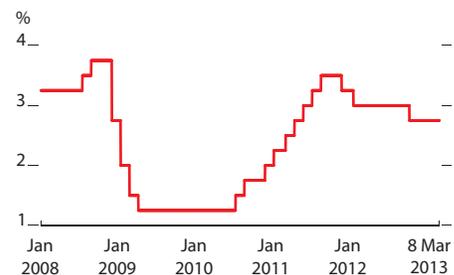
Higher capital inflows contributed to 6% appreciation of the Thai baht against the US dollar in 2012. The central bank indicated it would further liberalize outward foreign direct and portfolio investment, partly to take pressure off the baht. The Stock Exchange of Thailand index of share prices climbed by 35.8% over last year, and yields on government bonds generally declined. Housing prices showed modest gains.

### 3.30.3 Monthly inflation



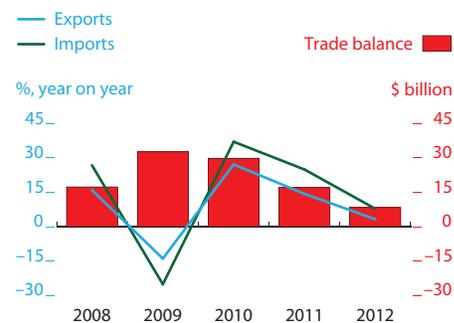
Sources: CEIC Data Company; Bureau of Trade and Economic Indices. <http://www.price.moc.go.th> (both accessed 2 April 2013).

### 3.30.4 Policy interest rate



Source: Bloomberg (accessed 11 March 2013).

### 3.30.5 Trade indicators



Source: Bank of Thailand. <http://www.bot.or.th> (accessed 11 March 2013).

## Economic prospects

After the rebound in 2012, economic growth is expected to moderate to about 5% this year and next (Figure 3.30.6), the pace seen in the 3 years leading up to the global financial crisis. Projections assume the government follows through with large public investments it plans in water management and transport infrastructure during the forecast period.

Private consumption will continue to benefit from a tight labor market and the minimum wage increases, which were extended throughout the country from January 2013. A study by the Thailand Development Research Institute found that last year's 40% increase in minimum wages in seven provinces did not cause significant layoffs.

Despite concerns that the rice price subsidies may not be the most cost-effective option for raising rural incomes, the government extended the rice-purchase program into 2013. However, the impact of flood-relief payments and low-interest loans offered in 2011 will fade during 2013 and beyond. The tax break for first-time house buyers is scheduled to end in May 2013, while the incentive for first-time car buyers expired at the end of 2012. While consumer confidence rose in February to its highest level in 18 months (Figure 3.30.7), growth in private consumption is unlikely to match that in 2012.

Growth in private investment will also moderate as post-flood reconstruction winds down, though investment is likely to remain robust. Cement sales were strong early this year, suggesting that construction remains buoyant. The Board of Investments approved investment incentives for 2,262 planned projects valued at \$330 million in 2012, double the value of the previous year. Business sentiment generally was high early in 2013 (Figure 3.30.7) and lending rates relatively low.

Government investment is expected to contribute more to economic growth, with public investment projected to rise by 12.5% this year. The water management program should gather momentum from the second half of 2013, with \$1.3 billion projected to be spent this year. The government plans legislation under which it can borrow the equivalent of \$67 billion off-budget over 7 years to invest in transport infrastructure: roads, railways, seaports, and airports. Investment in this program could start early next year. The fiscal deficit, including budget and off-budget spending, is projected to widen to 4.8% of GDP in FY2013.

Early in 2013 the central bank noted positive signs for continued economic growth, pointing to increases in indexes of consumption and investment, buoyant tourism, and an uptrend in exports in January.

Modest inflation—slightly above 3%—is projected for the forecast period (Figure 3.30.8). The government has extended a tax exemption on diesel fuel into 2013 and is expected to maintain controls on a range of consumer items. Global prices of oil and other commodities look likely to remain broadly stable. Rising domestic wages are anticipated to have a modest impact on inflation, which averaged 3.1% in the first 3 months of this year.

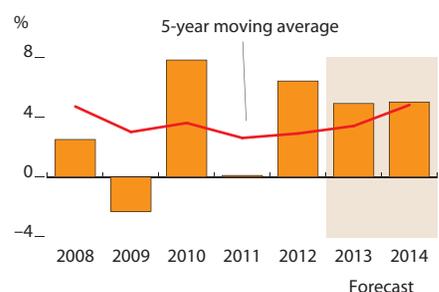
Monetary policy is expected to remain accommodative to growth for some time in light of low inflation and strong capital inflows. Higher government borrowing for public investment will likely drain some excess liquidity from the banking system. The monetary authorities have indicated they stand ready to take macroprudential measures to manage

### 3.30.1 Selected economic indicators (%)

	2013	2014
GDP growth	4.9	5.0
Inflation	3.2	3.1
Current account balance (share of GDP)	0.8	0.1

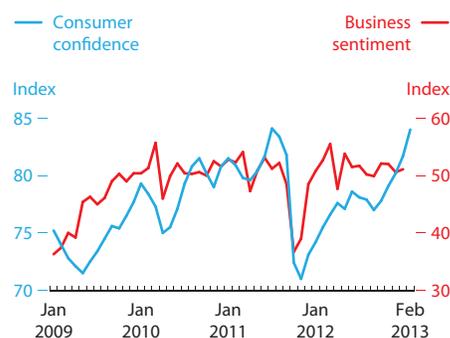
Source: ADB estimates.

### 3.30.6 GDP growth



Source: Asian Development Outlook database.

### 3.30.7 Consumer confidence and business sentiment



Sources: Center for Economic and Business Forecasting; Bank of Thailand. <http://www.bot.or.th> (both accessed 11 March 2013).

rising household debt if consumer lending continues at the high rate seen in 2012. The baht appreciated by 4.5% against the US dollar in the first 3 months of 2013 (Figure 3.30.9).

Stronger economic growth in some major export markets, including the People's Republic of China (PRC), and pickup in world trade indicate that growth in merchandise exports will quicken to about 10% in 2013, and step up again in 2014. Manufacturing industries' return to full production will support the increase in exports. Imports are forecast to increase by 11% this year, accelerating in 2014 when the government starts the new transport infrastructure projects. The current account is expected to record small surpluses (Figure 3.30.10).

Risks to this outlook include the challenges discussed below, potential significant delays affecting infrastructure projects, and capital inflows that maintain upward pressure on the baht, damaging the competitiveness of exports. Failure to address weaknesses in education is a longer-term risk to economic development.

The government is incurring substantial losses from its purchases of rice from farmers at prices above the international market. Thai rice inventories were estimated at 15 million tons early in 2013 as overseas buyers turned to lower-priced rice from India and Viet Nam (Figure 3.30.11). Losses could exceed the equivalent of 1% of GDP annually.

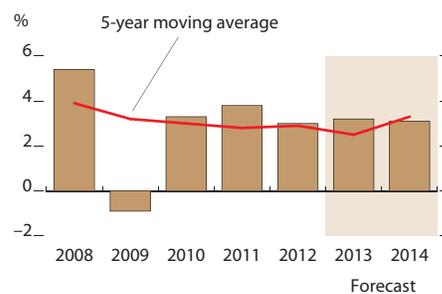
## Policy challenges—equity, public investment, and governance

Thailand faces several critical policy challenges. One is inequality, which undermines social and political stability with associated risks to investor confidence. Inequality is reflected in large rural–urban and regional gaps in incomes and access to social and economic services (Figure 3.30.12). Such structural problems are unlikely to be resolved by ad hoc measures to boost incomes through subsidies and tax concessions. More effective targeting of public investment in social and physical infrastructure will be important to address these concerns.

A second issue is inadequate public investment, which dents the country's competitiveness. Public investment as a ratio to GDP has declined over many years (Figure 3.30.13). The World Economic Forum ranks Thailand 38th of 144 countries in its *Global Competitiveness Report 2012–2013*. However, Thailand's ranking sinks to 46th for infrastructure and lower still for railway, port, and telephone components of infrastructure. Also of concern is the country's lowly ranking on basic education, at 89th, and on adoption of technology, at 84th. A separate World Bank benchmark that measures the performance of logistics ranked Thailand 38th of 155 countries in 2012, below the PRC and Malaysia.

Public investment is needed in transport infrastructure to reduce logistics costs and in water management infrastructure to mitigate the social and economic impacts of climate change and flooding. Increased investment in social infrastructure is needed to ensure equitable improvements in skills and social capital that will boost creativity and productivity to generate sustained gains in living standards.

### 3.30.8 Inflation



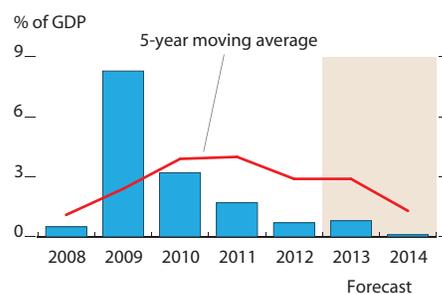
Source: Asian Development Outlook database.

### 3.30.9 Exchange rate



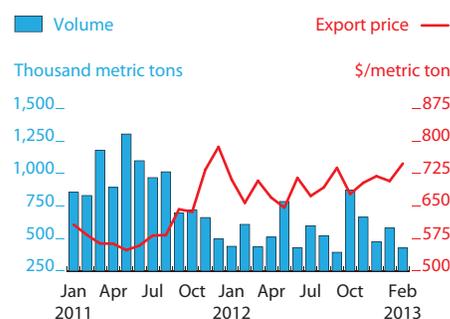
Source: Bloomberg (accessed 23 March 2013).

### 3.30.10 Current account balance



Source: Asian Development Outlook database.

### 3.30.11 Rice exports



Source: CEIC database (accessed 2 April 2013).

Mobilizing and effectively managing resources to ensure more equitable, efficient, and effective delivery of public services is one of Thailand's most pressing challenges. The government lacked resources for public investment following the 1997 Asian financial crisis. More recently, political instability has interrupted the planning and implementation of large public investment projects. Moreover, the government prioritized spending on fast-disbursing stimulus programs when the economy slumped during the global financial crisis in 2008–2009 and after the extreme flooding in 2011. Large public finance allocations were directed at incentives for first-time buyers of cars, pay rises for the public service, tax cuts for companies, popular measures such as the diesel fuel subsidy, and subsidized rice purchases from farmers.

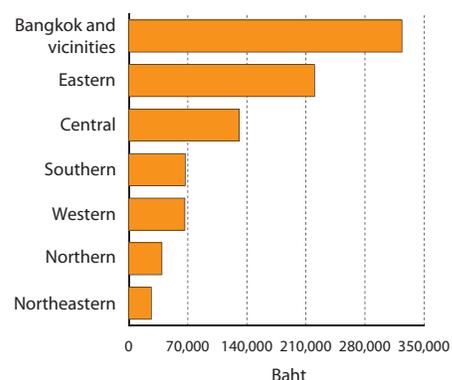
The government is now beginning to address declines in public investment with significant multiyear programs for water management (\$11.7 billion) and transport infrastructure (as much as \$67 billion), funded off-budget. However, considerable uncertainty surrounds the pace of implementation.

Investment in transport infrastructure aims to reduce logistics costs by 2 percentage points, from about 15% of total production costs. Most of the investment in transport will go to rail networks to improve transport links within Thailand and to neighboring countries. The water management projects are designed to mitigate the social and economic impact of flooding and better manage water resources.

While the commitment to increased public investment is a positive development, off-budget programs have the disadvantage of compromising transparency. Instead, increases in budget funding for public investment could be generated by broadening the tax base or phasing out the economic stimulus programs. The government could also consider amending the Public Debt Management Act to raise borrowing limits while maintaining its fiscal sustainability framework to keep public debt below 50% of GDP.

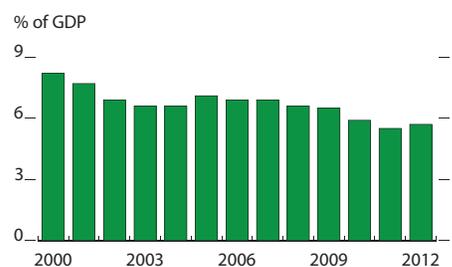
This leads to a third challenge: the need to improve public sector management and accountability, and to fight corruption. This will become increasingly important as public investment expenditure rises.

### 3.30.12 Average real GDP per capita by region, 1995–2011



Source: CEIC database (accessed 2 April 2013).

### 3.30.13 Public investment



Source: National Economic and Social Development Board. <http://www.nesdb.go.th> (accessed 19 March 2013).

# Cambodia

Higher inflows of foreign direct investment contributed to strong economic growth in 2012. Outcomes exceeded expectations in agriculture, construction, and tourism. The forecast is for further robust growth, with the trajectory expected to steepen slightly in 2014 with recovery in major export markets. Inflation subsided in 2012 and is projected to remain modest through the forecast period. Although poverty has declined, persistently high child malnutrition remains a critical development challenge.

## Economic performance

GDP growth picked up to 7.2% in 2012, driven by robust consumption and investment (Figure 3.23.1). Consumption expanded by an estimated 9.5% and made the biggest contribution to GDP growth from the demand side. Gross fixed investment increased by 30%, spurred by a surge in foreign direct investment (FDI) and higher bank lending. However, net exports dragged on GDP growth as they fell, partly reflecting elevated imports needed for power-generation projects.

The service sector expanded by an estimated 8% and was the main source of GDP growth from the production side. Strong growth in tourism and resurgence in real estate activity bolstered this sector. Assisted by more direct flights, tourist arrivals rose by 24.4% to 3.6 million and tourism receipts grew by 15.6% to \$2.2 billion (Figure 3.23.2).

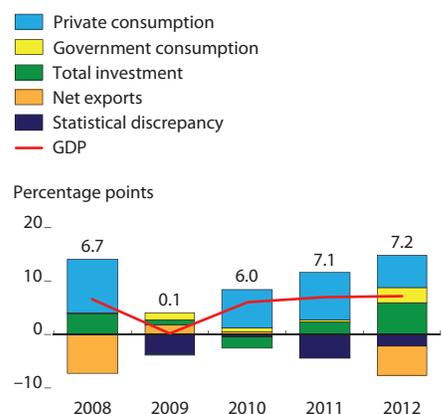
Growth in the industry sector moderated from the previous year's pace to just over 9% in 2012. Exports of garments and footwear to the US, Cambodia's top export market, fell by 1.8% to \$2.6 billion, though those to the European Union (EU) rose by 10.8% to \$1.8 billion. Industry sector growth was supported by a 5% increase in exports of milled rice to 187,000 tons, mostly to the EU. Construction accelerated as building project approvals nearly doubled to \$2.1 billion last year.

Agricultural production increased by an estimated 4%, despite floods in some provinces and dry weather in others. Output of crop production, mainly paddy rice, rose by 4.3%, and fishery yields increased by 6%.

A moderation in food prices brought down inflation from 5.8% in January 2012 to 2.6% in December (Figure 3.23.3). Food comprises 43% of the consumer price index. Year-average inflation decelerated to 2.9%.

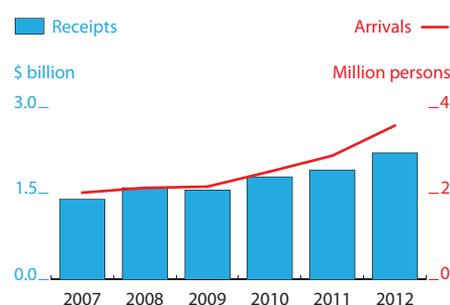
The government continued to rein in its fiscal deficit, which had widened sharply in 2009 to 8.6% of GDP. The fiscal gap, excluding grants, narrowed last year to an estimated 5.2% of GDP. Domestic revenue increased to 14.5% of GDP from 13.2% in the previous year, thanks to improved revenue collection and buoyant economic activity. Government spending was contained at 19.7% of GDP, down from 20.7% in 2011. Income from external grants and concessional loans amounted

3.23.1 Demand-side contributions to growth



Sources: National Institute of Statistics; ADB estimates.

3.23.2 Tourism



Source: Ministry of Tourism.

to 5.8% of GDP, so the government was able to replenish its savings by the equivalent of 0.6% of GDP after running down its deposits over the previous 3 years.

Growth in credit to the private sector accelerated to 34.1% last year (Figure 3.23.4). Concerned about this rapid pace, the central bank raised the reserve requirement for foreign currency deposits in commercial banks by 50 basis points to 12.5% in September 2012. The ratio of private sector credit to GDP jumped to 41.6%, well above the median for low-income countries. Reflecting a deepening of the financial system, the ratio of broad money to GDP rose to 50.5% from 45.4% in 2011. The Cambodian riel appreciated by an average of 0.8% against the US dollar last year.

Merchandise exports, mainly garments, footwear, and rice, rose in US dollar terms by an estimated 11.4%. Imports, bolstered by purchases of construction materials for power plants and other projects, rose by 17.0%. As the merchandise trade gap widened, so did the current account deficit, to 11.6% of GDP if official transfers are excluded. The deficit was fully financed by FDI and official loans and grants. Net FDI surged by 75% to \$1.5 billion (Figure 3.23.5), contributing to an increase in gross official reserves to \$3.5 billion, which covers 4.4 months of imports.

An International Monetary Fund analysis of debt sustainability published this year saw Cambodia at low risk of debt distress. It cautioned that structural reform and revenue mobilization, as well as the careful management of potential contingent liabilities from power-generation projects, will be important to ensuring long-term debt sustainability.

Poverty incidence likely fell below 20%, surpassing the official target to reduce poverty by half from levels in the early 1990s. This reduction has been achieved through sustained economic growth, with particularly good performance in agriculture.

## Economic prospects

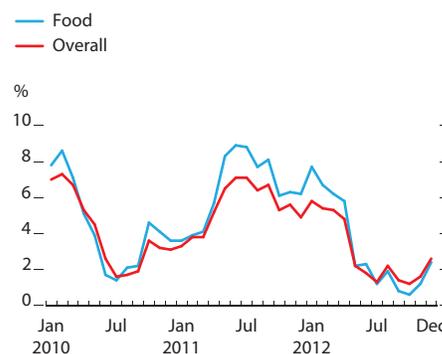
Economic growth is forecast at 7.2% in 2013, picking up to 7.5% next year as recovery in Europe and the US takes hold (Figure 3.23.6).

European demand for Cambodian garments and footwear is expected to maintain good growth, supported by duty-free access to the EU. Shipments to the US will likely be subdued this year but should pick up after that. Increased foreign investment is funding new industries, including the manufacture of automotive parts and processing of agricultural products, as well as diversifying garment production into higher-value products. Last year's surge in building approvals bodes well for construction. The timing of offshore oil exploitation is unclear. Industry as a whole is expected to expand by 10.5% in 2013.

The service sector is seen growing by 7%. Growth in tourism is benefiting the hotel, restaurant, retailing, and transport and communications subsectors. Buoyant property development stimulates growth in finance and real estate services. Agriculture will likely grow by about 4%, assuming favorable weather. The government is supporting paddy production and exports of milled rice.

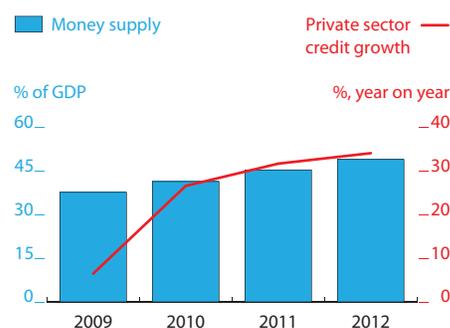
Fiscal consolidation looks set to continue in 2013, as the government targets a narrower fiscal deficit at 5.1% of GDP, to be funded by external grants and loans. Nevertheless, public spending could pick up ahead of

### 3.23.3 Monthly inflation



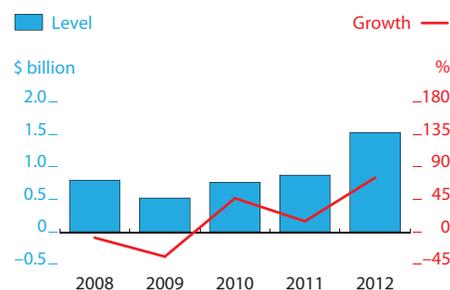
Source: National Institute of Statistics (accessed 14 March 2013).

### 3.23.4 Money supply and private sector credit



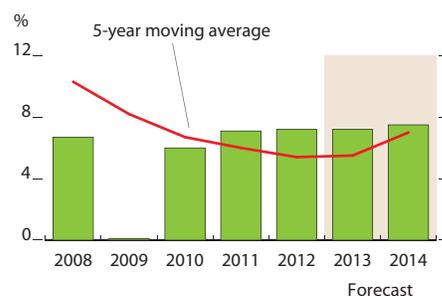
Source: National Bank of Cambodia.

### 3.23.5 Net foreign direct investments



Source: National Bank of Cambodia.

### 3.23.6 GDP growth



Source: Asian Development Outlook database.

national elections scheduled for July 2013, making fiscal consolidation more difficult. The stock of government deposits in the banking system—the country’s buffer to deal with shocks—is likely to increase to 4.6% of GDP, compared with 8% in 2008.

In light of the rapid growth in credit and excess liquidity at some banks, additional increases in bank reserve requirements may be required to reduce risks to financial stability. In this regard, the authorities are considering such macroprudential measures as imposing higher capital requirements for banks, or tightening permitted ratios of loans to value or loans to deposits. The central bank plans to develop the interbank market by introducing negotiable certificates of deposit, moving toward more market-based monetary policy operations. To reduce the heavy use of the US dollar for local transactions, the government will continue to encourage the use of the riel. Last year, the ratio of US dollar deposits to total deposits was 95.7%, down only marginally from 97.0% in 2008.

Good domestic harvests and relatively stable global food prices suggest that inflation this year will be on average similar to that in 2012 (Figure 3.23.7). Inflation is seen quickening in 2014 as continued robust domestic demand likely encounters some supply constraints. These inflation forecasts will be at risk if bad weather pushes up food prices.

Merchandise exports are projected to pick up during the forecast period while growth in imports moderates after the completion of large power projects. Receipts from tourism will keep the services account in surplus. The current account deficit, excluding official transfers, is projected to narrow (Figure 3.23.8). FDI and other capital flows are expected to maintain international reserves at levels that cover more than 4 months of imports.

Developments that enhance the environment for the private sector included the initial public offering of shares in the Phnom Penh Water Supply Authority, the first listing on the Cambodia Securities Exchange. An arbitration center was launched to provide businesses with a faster and less expensive way to resolve commercial disputes, and a credit bureau started to provide banks with better information on potential borrowers. To tackle corruption the government issued lists in January 2013 showing the official fees for public services including customs, taxation, business and trading procedures, and other activities related to investment. Finally, the authorities are strengthening the environment for public–private partnerships (Box 3.23.1).

## Policy challenge—child malnutrition

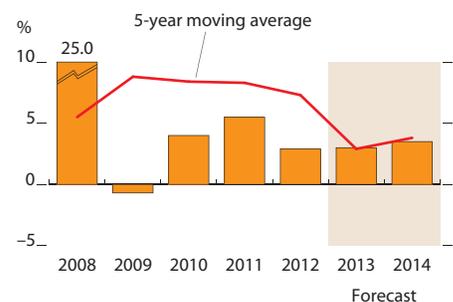
The high incidence of child malnutrition in Cambodia is a critical development challenge. Poor nutrition in the 1,000 days from conception to the second birthday causes long-term damage to physical and cognitive development. Functional losses in this period can never be fully recovered. In addition to impacts on child health and mortality, malnutrition has adverse health and economic consequences that persist throughout the individual’s lifetime and can be handed down to harm the next generation.

Chronic poor health and malnutrition stunt the growth of 40% of Cambodian children. Demographic surveys show 28% of children under 5 years of age underweight in 2005—and no improvement 5 years later.

3.23.1 Selected economic indicators (%)		
	2013	2014
GDP growth	7.2	7.5
Inflation	3.0	3.5
Current account balance (share of GDP)	-11.1	-10.1

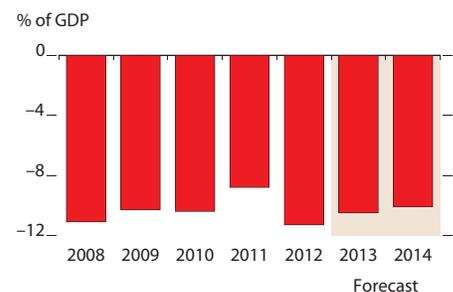
Source: ADB estimates.

### 3.23.7 Inflation



Source: Asian Development Outlook database.

### 3.23.8 Current account balance



Source: Asian Development Outlook database.

Indeed, severe malnutrition increased, with the incidence of wasting among children rising from 8.4% to 10.9% (Figure 3.23.9). The incidence of anemia was at epidemic proportions, affecting 55% of children under 5 in 2010.

The World Health Organization estimated in 2011 that Cambodia loses \$146 million in GDP each year from the impacts of vitamin and mineral deficiencies alone. While the full economic impact of malnutrition in the country has yet to be assessed, international evidence cited by the United Nations Development Assistance Framework suggests that a 1% decrease in adult stature translates into a 1.4% decrease in productivity.

Risk factors for child malnutrition include poverty (although child malnutrition also affects higher-income families in Cambodia), lack of toilets, unsafe water supply, inadequate breast feeding, and poor maternal nutrition. The 2010 demographic survey found that 57% of Cambodian households had no toilet and therefore defecated in the open, 26% of infants under 6 months were not exclusively breastfed, and 44% of women suffered some degree of anemia.

The good news is that addressing child malnutrition early can avoid long-term damage to health. Further, the solutions are highly cost-effective. The 2012 Copenhagen Consensus, a meeting of economists to establish cost-effective priorities to improve global welfare, found that fighting malnourishment should be the top priority and that the benefits in terms of improved health, schooling, and productivity would be significant.

Child malnutrition can be countered by

- targeting social transfers, fortifying foods, and improving local food production to overcome seasonal food shortages and ensure food supplies of sufficient quantity, quality, and variety;
- promoting breastfeeding and appropriate complementary feeding practices for young children;
- improving pregnant women's dietary intake through nutrition education and communication;
- providing to women and children improved basic health services and micronutrient supplementation; and
- reducing nutrient loss through improved hygiene, sanitation, parasite control, and food processing and storage.

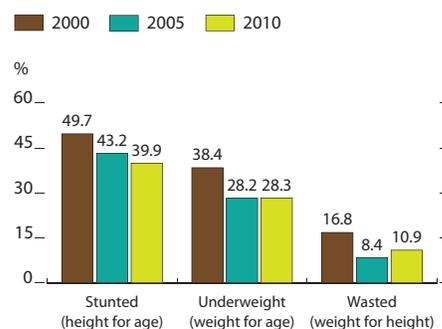
The key is to develop mechanisms to scale up existing and future small-scale pilot initiatives that are designed to address these issues, thereby converting them into a government-led, integrated package of interventions for better food security, nutrition, sanitation, and hygiene. This requires a program with active community participation and a concerted strategy to change parental behavior that hinders child nutrition. Malnutrition issues could be addressed under the umbrella of social protection, for example through cash transfers, or through innovative public-private partnerships.

### 3.23.1 Building public-private partnerships

Cambodia needs investment of \$12 billion–\$16 billion to build infrastructure for its growing economy. In view of this substantial funding need, the government is putting more emphasis on public-private partnerships in its development strategy. With development partner support, it has an ambitious range of initiatives under way to strengthen the legal, regulatory, and institutional environment for public-private partnerships.

These changes should improve the transparency and quality of public-private partnerships. The first projects under the new program are expected to take shape in 2013 and 2014, for implementation soon after.

### 3.23.9 Child malnutrition



Note: Children under 5 years of age.

Source: Cambodia Demographic and Health Surveys.

# Indonesia

Southeast Asia's biggest economy achieved another year of 6%-plus growth in 2012, despite falling exports. Sluggish external demand combined with stronger domestic demand to shift the current account into deficit. Inflation fell to a 12-year low. GDP growth is forecast to quicken in the next 2 years. Near-term challenges are to manage risks associated with the current account deficit and keep inflation moderate.

## Economic performance

GDP growth at 6.2% in 2012 was based on robust private consumption and a better performance in fixed-capital investment (Figure 3.24.1). Net exports fell, acting as a drag on GDP growth. Private consumption picked up to increase by 5.3%, the strongest pace in 4 years, and it contributed almost half of total GDP growth on the expenditure side. Consumption got a lift from increases in employment and wages as well as lower inflation. Sales of automobiles rose by nearly 25%, even though Bank Indonesia, the central bank, raised minimum down payments on cars and motorcycles.

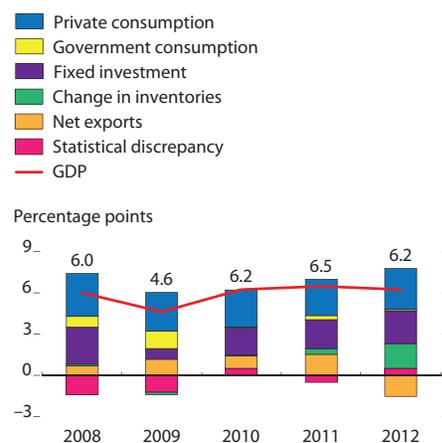
Fixed investment accelerated to 9.8% in 2012, building on the previous year's increase of 8.8%, and was the source of 2.4 percentage points of GDP growth. Driving factors included an improved investment climate, a record of solid economic growth over recent years, and the expansion of credit. Outlays on buildings and infrastructure rose by 7.5%, and investment in machinery and equipment increased by a strong 12.7%. Renewed efforts to improve public infrastructure saw the central government's capital spending rise by 18.9%. As a result, the ratio of fixed capital formation to GDP rose to 33.2%, the highest in at least 20 years (Figure 3.24.2).

Realized foreign direct investment (FDI) surged by 26.1% to \$23.6 billion, nearly half into manufacturing and 17% into mining (the data exclude investment in oil and gas). Investment in inventories also rose sharply.

The services and manufacturing sectors were key drivers from the supply side. Services expanded by 7.7%, contributing more than half of total growth (Figure 3.24.3). Telecommunications continued to record double-digit expansion owing to buoyant demand for mobile telephone and internet services.

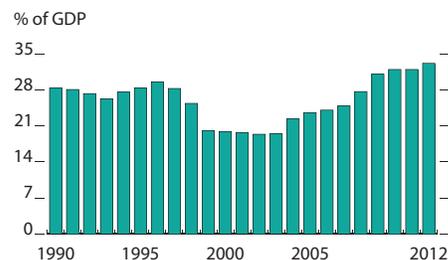
Growth in manufacturing decelerated to 5.7%, reflecting weaker export markets. Mining output was lackluster, showing growth of just 1.5%, largely a result of declining crude oil extraction. Oil production fell by 42,000 barrels a day to 860,000 barrels a day last year, the outcome

### 3.24.1 Demand-side contributions to growth



Sources: Asian Development Outlook database; CEIC Data Company (accessed 1 March 2013).

### 3.24.2 Fixed investment



Sources: Asian Development Outlook database; CEIC Data Company (accessed 1 March 2013).

of aging oil fields and low investment over many years. (A decade ago production was more than 1.1 million barrels a day.) Construction recorded solid expansion of 7.5% in 2012. A good harvest of food crops lifted growth in agriculture to 4.0%. Paddy production rose by 5.5% to 68.9 million tons, which generated rice surpluses estimated at 5.7 million tons.

Merchandise exports fell by 6.3% in US dollar terms (Figure 3.24.4), weighed down by sagging demand in major markets and lower prices for export commodities. Exports of manufactured goods declined by 6.7%. Shipments of commodities including coal and palm oil fell when measured by value despite higher export volumes. Merchandise imports, in contrast, rose by 8.3%, reflecting buoyant fixed investment, which requires imported capital goods, and growth in imported inputs for the expanding manufacturing industries. Imports of consumption goods were virtually flat, discouraged by a depreciating rupiah.

These developments—lower exports and higher imports—reduced the trade surplus by 76% to \$8.4 billion. The current account shifted into deficit, equivalent to 2.8% of GDP, the first deficit since 1997. This put downward pressure on the rupiah, which depreciated by 8.0% against the US dollar in 2012.

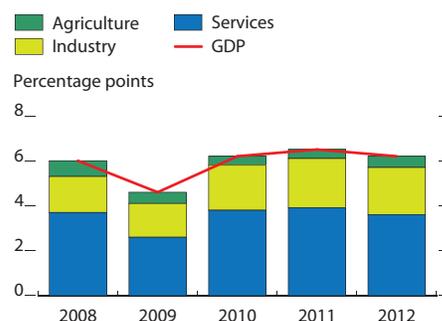
Strong inflows of portfolio investment and FDI produced a substantial surplus in the capital and financial account. Portfolio investment nearly tripled to \$9.2 billion last year, and net FDI inflows were a record at \$19.9 billion. Foreign holdings of government bonds jumped by \$3.4 billion to \$28.0 billion (Figure 3.24.5). The balance of payments recorded a small surplus, and gross international reserves had increased by year-end to \$112.8 billion, which is cover for 6.1 months of imports and government payments on foreign debt.

The good harvest, lower global food prices, and the postponement of increases in government-controlled fuel prices brought down inflation to an average of 4.3% in 2012, the lowest in 12 years. Inflation generally has trended down over recent years, reflecting the adoption of inflation targeting in 2005 and improved management of supply-side price pressures through an official inflation task force. Food prices started to edge up late in 2012 (Figure 3.24.6).

New jobs generated last year exceeded the number of entrants into the labor market. The unemployment rate fell from 6.6% to 6.1% in the 12 months to August 2012, though the rate of underemployment was barely changed at 29%. In a positive development, employment in the formal sector rose by 6.4%, or 2.7 million jobs, in this period, mostly in manufacturing and construction. Informal-sector employment fell by 2.3%, or 1.5 million jobs, as workers left agriculture. Poverty declined by 0.7 percentage points to 11.7% in the 12 months to September 2012 (Figure 3.24.7). Contributing factors were lower food price inflation, higher wages for agricultural and construction workers, and better incomes for farmers.

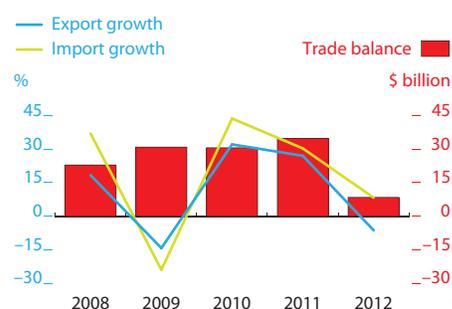
In the context of subdued inflation and a sagging global economy, Bank Indonesia lowered its policy interest rate by 25 basis points to 5.75% in February 2012 and reduced its overnight deposit facility rate by 25 basis points to 3.75%. Although the central bank later reversed the cut in the overnight deposit rate to drain excess liquidity, it maintained the policy

### 3.24.3 Supply-side contributions to growth



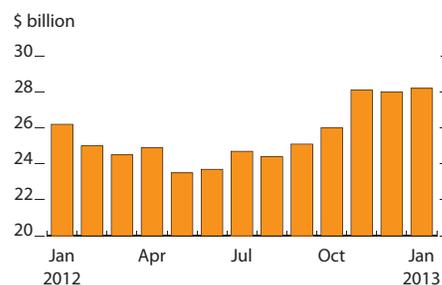
Sources: Asian Development Outlook database; CEIC Data Company (accessed 1 March 2013).

### 3.24.4 Trade indicators



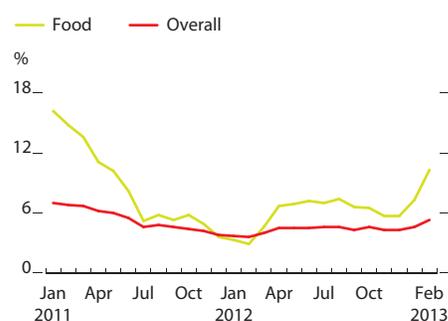
Sources: Asian Development Outlook database; CEIC Data Company (accessed 1 March 2013).

### 3.24.5 Foreign ownership of tradable securities



Source: CEIC Data Company (accessed 16 March 2013).

### 3.24.6 Monthly inflation



Source: CEIC Data Company (accessed 16 March 2013).

rate at 5.75%. A requirement since March 2011 that banks disclose base lending rates to the public helped to bring down lending interest rates in 2012 (Figure 3.24.8). Growth in credit remained high at 23.1%, with loans for investment up by just over 27% (Figure 3.24.9).

Fiscal policy was also set to counter the impact of the global slowdown on the domestic economy. The government raised spending and widened the budget deficit target to 2.2% of GDP in 2012, double the actual deficit in 2011 of 1.1%. As it turned out, shortfalls in government spending held the budget deficit to 1.8% of GDP. Central government debt fell to 24.0% of GDP, maintaining a downward trend (Figure 3.24.10).

Reflecting the country's better performance over recent years, Moody's raised Indonesia's rating to investment grade Baa3 in January 2012, and Fitch reaffirmed its investment grade rating BBB- in November 2012.

## Economic prospects

Economic growth is forecast to pick up to 6.4% this year and 6.6% in 2014 (Figure 3.24.11), underpinned by robust private consumption, the improving investment performance, and a gradual pickup in world trade. Growth of 6.6%, projected for 2014, would be the highest in 15 years.

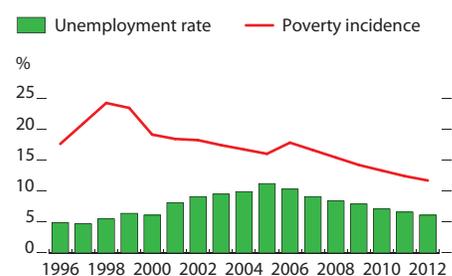
Private consumption is expected to quicken in 2013, fueled by rising employment, a 30% increase in average minimum wages, a 7% rise in public service wages, and a tax break from January 2013, when the government raised the income threshold at which income tax is payable. With parliamentary elections scheduled for April 2014 and a presidential election in July 2014, election-related spending is likely to contribute to consumption from the second half of 2013. A consumer survey conducted by Bank Indonesia in February 2013 showed an upturn in consumer confidence from a dip late last year (Figure 3.24.12).

Investment, both private and public, looks likely to maintain healthy expansion. Support for this projection comes from the upgrades in sovereign credit ratings, lower interest rates, increased budget allocations for infrastructure, and a lengthening record of good GDP growth. A \$2.7 billion expansion by auto maker Toyota over the next 4 years is one of several large FDI-funded investments planned. Businesses planned significant increases in investment in the first half of 2013, according to a survey late last year.

Public investment will benefit from a 55% increase in the 2013 budget allocation for infrastructure, even though the outcome will likely fall short of that target because of chronic delays in the execution of budget projects. With this in mind, the government is directing state-owned enterprises to become more involved in building infrastructure and is making concerted efforts to accelerate budget execution.

The government took two other steps last year to overcome obstacles to infrastructure development: First, it issued implementing regulations for the new land-acquisition law passed by Parliament in December 2011, which provides more certainty in the resolution of land acquisition for infrastructure. Second, it established a viability gap fund to support public-private partnerships. This year, officials are reviewing investment regulations, including the list of industries currently closed or only partly open to foreign investment.

### 3.24.7 Poverty and unemployment



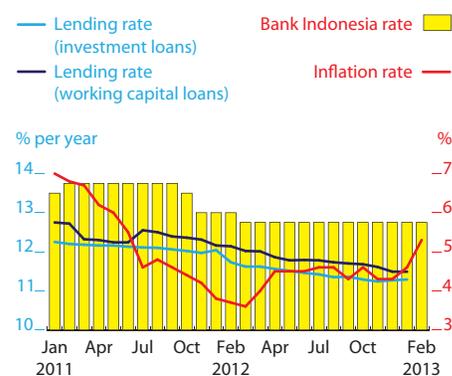
Sources: Statistics Indonesia. <http://www.bps.go.id>; CEIC Data Company (both accessed 16 March 2013).

### 3.24.1 Selected economic indicators (%)

	2013	2014
GDP growth	6.4	6.6
Inflation	5.2	4.7
Current account balance (share of GDP)	-2.3	-1.8

Source: ADB estimates.

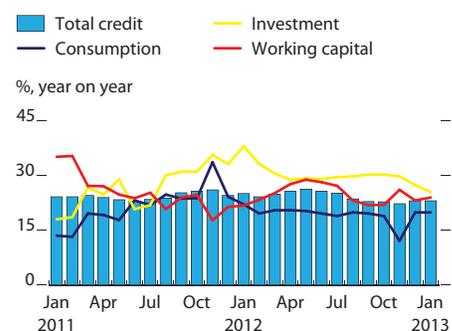
### 3.24.8 Interest and inflation rates



Note: Refers to rupiah credit.

Sources: Asian Development Outlook database; CEIC Data Company (accessed 21 March 2013).

### 3.24.9 Credit growth



Sources: Asian Development Outlook database; CEIC Data Company (accessed 26 March 2013).

Exports are projected to improve in light of stronger growth in the PRC and some other markets in 2013. Next year, the export recovery should gather pace as prospects brighten for growth in major industrial economies. The drag on GDP growth from net exports is expected to moderate. Monthly data indicate that the decline in exports bottomed out in August 2012 (Figure 3.24.13). Prices for export commodities have firmed. Merchandise exports are forecast to rise by 7% in 2013. Robust investment will keep imports of capital goods relatively high, though imports of consumption goods will likely be curtailed by the rupiah's depreciation.

The trade surplus is projected to rise and the current account deficit to narrow (Figure 3.24.14). Inflows of direct and portfolio investment are seen keeping the balance of payments in surplus. Downward pressure on the rupiah is expected to abate as the current account deficit shrinks.

Inflation is forecast to average 5.2% in 2013, rising since last year because of a 15% increase in electricity tariffs, the depreciation of the rupiah, and a boost in minimum wages. Higher food prices lifted inflation to 5.3% in the first 3 months of this year. Upward pressure from this source should ease as the harvest season gets underway in April. Inflation in 2014 is expected to average 4.7%, taking into account base effects from the pickup this year. These forecasts assume the government does not raise fuel prices in 2013 or 2014. Inflation would be higher if fuel prices were increased to ease the high cost to the budget of fuel subsidies or if food supplies are disrupted by bad weather.

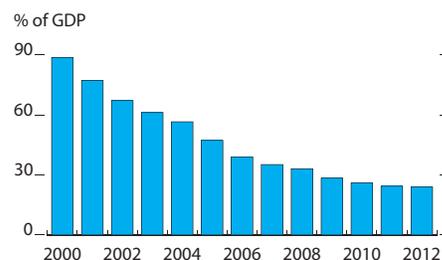
The government targets a budget deficit this year equivalent to 1.6% of GDP, narrowing slightly from last year's outcome of 1.8%. The budget contains incentives for oil and gas exploration, the production of low-emission motor vehicles, and manufacturing with higher value added, plus the boost in infrastructure spending.

Inflation within Bank Indonesia's target range of 3.5%–5.5% suggests that monetary policy will be accommodative to economic growth. If the government were to increase fuel prices, the central bank might need to quickly lift the policy rate to dampen inflationary expectations and bolster market confidence. Nevertheless, bank lending interest rates will likely stay relatively low this year and stimulate credit growth.

External risks to this outlook involve the global economy and capital inflows. Slower-than-projected growth in major export markets would delay the recovery in exports and hold down GDP growth. The shift of the current account into deficit has made the country more dependent on capital inflows. A sharp slowdown in inflows, or a reversal to outflows, would put pressure on the balance of payments and could disrupt the financing of the budget. The government has taken steps to manage this risk by establishing a bond stabilization fund and arranging for a \$5 billion standby loan from development partners, among other precautionary measures.

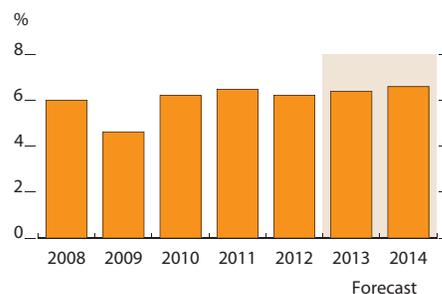
Domestic risks involve investment and inflation. It will be important to maintain efforts to improve the investment climate to safeguard the uptrend in fixed investment. An unexpected spike in inflation, perhaps caused by tight food supplies or a large increase in fuel prices, would hurt consumption, investor sentiment, and capital inflows.

### 3.24.10 Central government debt



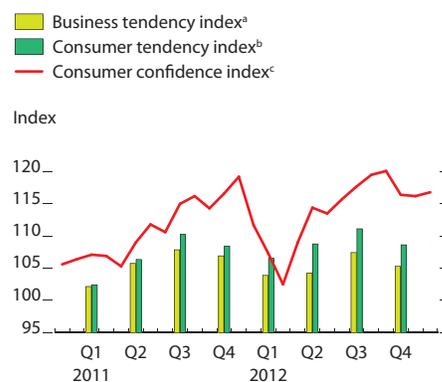
Sources: Asian Development Outlook database; Indonesia Debt Management Office. <http://www.dmo.or.id> (accessed 16 March 2013).

### 3.24.11 GDP growth



Source: Asian Development Outlook database.

### 3.24.12 Business and consumer confidence indexes



Notes:

<sup>a</sup> From a quarterly Statistics Indonesia survey of business executives.

<sup>b</sup> From a quarterly Statistics Indonesia survey of middle- and upper-income households.

<sup>c</sup> From a monthly Bank Indonesia survey of households.

A score above 100 means that respondents are optimistic and vice versa.

Source: Asian Development Outlook database.

## Policy challenge—building infrastructure for inclusive growth

Economic growth averaging about 6% over the past 6 years has helped to lift 8.6 million people out of poverty. Yet 29 million Indonesians continue to live below the government's poverty line, and another 30 million would join them in the event of even a small reduction in their incomes. Of those employed, 60% work in the informal sector, where incomes are low. Further, income inequality as measured by the Gini coefficient has worsened from 0.35 in 2008 to 0.41 in 2011 (Figure 3.24.15).

Improved public infrastructure would make a significant contribution to reducing poverty and closing gaps in income inequality.

Toward reducing poverty, better infrastructure, particularly for transportation and generating electricity, would support growth in manufacturing, which generates jobs in the formal sector. The performance of manufacturing has been lackluster since the late 1990s and started to improve only in the past 2 years.

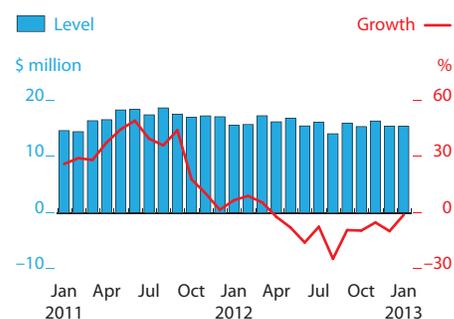
Congested ports and rising logistic costs are major constraints on the expansion of manufacturing. The average time ships spend at Tanjung Priok, the country's main port, stretched to 6.7 days in January 2012 from 4.9 days in 2010. This compares with 1–2 days at Asia's most efficient ports (Figure 3.24.16). It costs \$750 to transport a container 56 kilometers from the Cikarang industrial zone to Tanjung Priok port, almost 70% more than moving a container a similar distance in Malaysia. The difference is primarily caused by road congestion in Indonesia.

Toward closing income gaps, investment in infrastructure is needed to address high poverty rates in rural areas, which average 14.7% compared with 8.6% in urban areas. Surveys suggest that 41% of district roads and 24% of provincial roads throughout Indonesia are in bad condition. Development prospects are poor for rural areas that lack good connections with towns and markets. Finally, poverty in some eastern provinces is even higher—at 24.1% in Maluku and Papua. Weak infrastructure there hinders economic activity, the growth of employment, and access to services such as education and health care.

The government's master plan to accelerate economic development, known by its Indonesia acronym MP3EI, has three main pillars: developing six economic corridors, improving connectivity both within the country and internationally, and strengthening human resource capacity and technology. Acting to support these goals, the government has increased its budget for infrastructure, with a large share allocated to eastern provinces. Substantial additional funding could become available if the government redirected huge budget allocations for fuel subsidies, equivalent to 2.6% of GDP in 2012, toward infrastructure and social development. The fuel subsidies benefit mainly higher-income households.

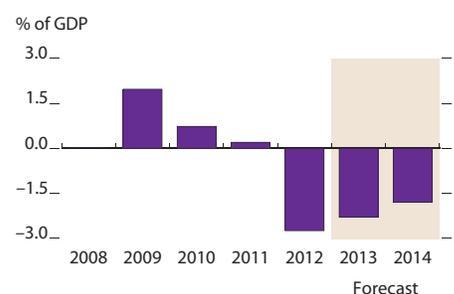
Progress on infrastructure is being achieved. Work started last year on 182 infrastructure projects valued at \$65 billion under the MP3EI program. Funding came from private companies (44%), state-owned enterprises (20%), governments (19%), and public-private partnerships (17%). Nearly 40% of this amount was allocated to eastern provinces. More projects are scheduled for this year.

### 3.24.13 Merchandise exports



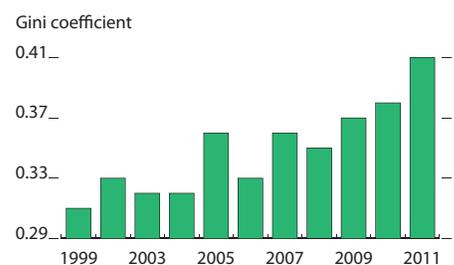
Source: CEIC Data Company (accessed 26 March 2013).

### 3.24.14 Current account balance



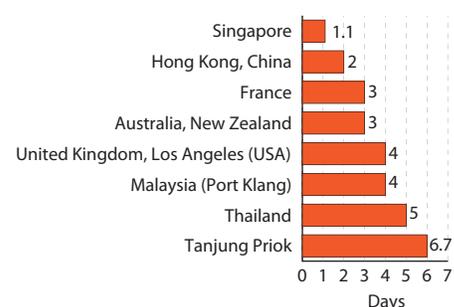
Source: Asian Development Outlook database.

### 3.24.15 Income inequality



Source: Statistics Indonesia. <http://www.bps.go.id/> (accessed 2 March 2013).

### 3.24.16 Dwell time in selected countries



Note: Dwell time is the number of days a cargo container averagely stays in a port.

Source: Indonesia Infrastructure Initiative. 2012. *Journal of the Indonesia Infrastructure Initiative PRAKARSA*. Issue 10. April.

# Lao People's Democratic Republic

Last year's economic outcomes—solid growth and moderate inflation—are likely to be repeated this year and next. Foreign direct investment has doubled in the past 2 years. However, rising domestic demand, stimulated by credit expansion, is putting pressure on foreign reserves. Concerns over the management of land and other natural resources are still to be addressed.

## Economic performance

Growth in 2012 benefited from developments in agriculture, construction, hydropower, mining, and services. GDP increased by 7.9%, slightly above the average rate over the past 10 years (Figure 3.25.1).

The industry sector grew by an estimated 14% to remain a major driver of GDP. Mining production was boosted by the start of the Ban Houayxai gold and silver mine and the expansion of existing minerals projects. Copper output from the two largest producers, which together generate more than 90% of total production, rose by 8% to 149,500 tons, with gold production climbing by 61% to 206,240 ounces, and silver production up by 15% to 616,680 ounces.

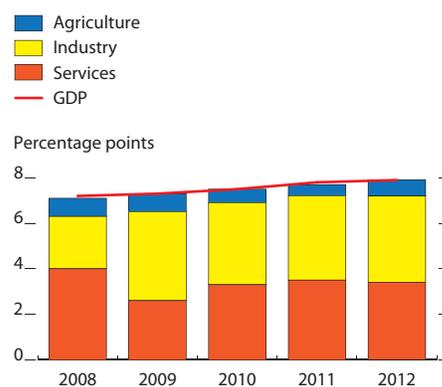
Hydropower output jumped by 29% to 13.8 billion kilowatt hours. The country's biggest hydropower project, Nam Theun Two, raised production close to full capacity. Ample water in reservoirs enabled other plants to operate at higher capacity. New hydropower projects commissioned in 2012 increased national output by more than 650 megawatts. About 70% of all hydropower generated is exported, mainly to Thailand.

Major construction projects under way last year included the \$3.7 billion Hongsa lignite thermal power project, seven new hydropower projects, and expanded facilities in the capital, Vientiane, to handle a major international meeting and the Association of Southeast Asian Nations (ASEAN) University Games toward the end of 2012. Cement production rose by an estimated 42.4% in 2012, reflecting buoyant construction. However, the garment industry suffered from weaker external demand and shortages of skilled labor. Garment exports fell by 25% to \$173 million (Figure 3.25.2).

In agriculture, higher production of rice, cassava, maize, poultry, and livestock lifted the sector's output by 2.5%.

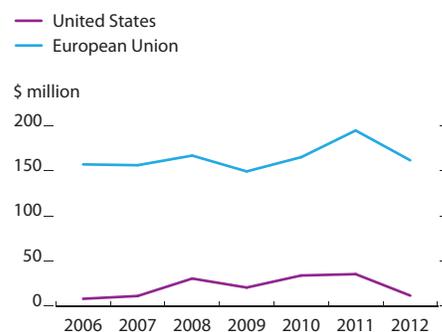
The service sector expanded by 8%, underpinned by a 22% boost in tourist arrivals to 3.3 million supporting hotels, restaurants, and transportation (Figure 3.25.3); growth in wholesale and retail trade; and the deepening of financial services. The increase in tourist arrivals from Asian countries outpaced declines from Europe and the US.

3.25.1 GDP growth



Sources: Lao Statistics Bureau; Asian Development Outlook database.

3.25.2 Exports of garments and footwear to the European Union and United States



Notes: Using imports data from US OTEXA and Eurostat. Data from Eurostat were converted to US dollars using €/s average exchange rate for the year.

Sources: Office of Textiles and Apparel. <http://otexa.ita.doc.gov>; Eurostat <http://epp.eurostat.ec.europa.eu> (both accessed 14 March 2013).

Decelerating food and fuel prices brought down inflation to 2.9% year on year in July, at which point inflation started to edge up again (Figure 3.25.4). The year-average inflation rate of 4.3% was 3 percentage points below that of 2011.

While growth in M2 money supply remained strong at 31%, and in credit at 36.2%, credit expansion moderated from the very high rates of previous years (Figure 3.25.5). The central bank reduced its direct lending for infrastructure and slowed the registration of new commercial banks to dampen growth in credit. Foreign exchange policy focused on keeping the Lao kip broadly stable against the US dollar and the Thai baht. The kip appreciated by 0.3% against the dollar and by 2.4% against the baht in 2012. Dollarization declined to about 44% of M2, maintaining a gradual downtrend.

Fiscal accounts benefited from buoyant revenue from mining and hydropower, coupled with rising income from a value-added tax introduced in 2010 and external grants. The fiscal deficit, including grants and excluding off-budget spending, narrowed to 1.5% of GDP in FY2012 (ended 30 September 2012).

Growing credit and domestic demand propelled merchandise imports up by an estimated 17% to \$5.4 billion in 2012. Exports rose by a relatively sedate 9% to \$3.4 billion, resulting in a trade deficit of \$2.1 billion. Receipts from tourism rose, but so did payments abroad of interest and income by resource-based companies, so that the current account deficit widened to an estimated 22.6% of GDP. Foreign direct investment increased to \$1.4 billion last year, doubling since 2010. However gross international reserves of \$708 million provided cover for just 1.6 months of goods and services imports.

Structural reforms in 2012 included improvements to trade and investment regulations instituted to satisfy commitments made to join the World Trade Organization (completed in early 2013) and the ASEAN Economic Community at the end of 2015. The government established the State Accumulation Fund to finance its responses to future natural disasters, economic downturns, and revenue shortfalls when global mineral prices slide. Fund resources are to come from additional mining revenue and any budget savings.

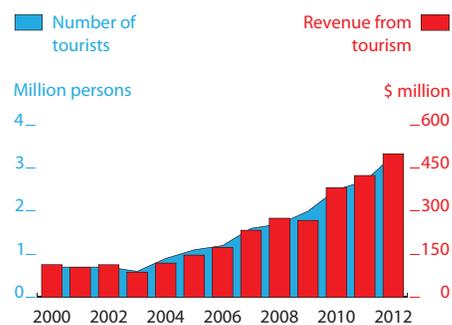
The International Monetary Fund and the World Bank analyzed debt sustainability in the Lao People's Democratic Republic (PDR) and consequently reclassified its risk of debt distress to moderate from high. The country's stock of external public and publicly guaranteed debt was, at \$3.7 billion in 2011, equivalent to 44.4% of GDP, showing a decline from 50.3% in 2010 because of economic growth and the appreciation of the kip against the US dollar. However, the share of non-concessional debt has expanded over recent years.

## Economic prospects

The outlook is for further solid growth during the forecast period, just below 8% growth target in the government's Seventh National Socioeconomic Development Plan, 2011–2015 (Figure 3.25.6).

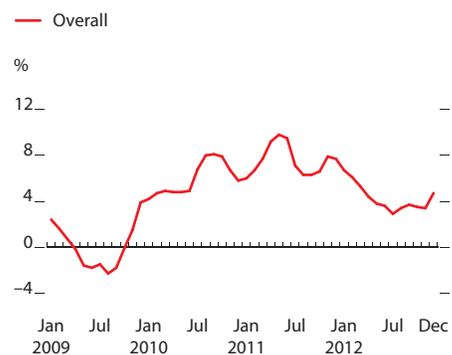
Substantial investment flowing into hydropower and mining, coupled with the construction of hotels, offices, and housing, will drive GDP

### 3.25.3 Tourism



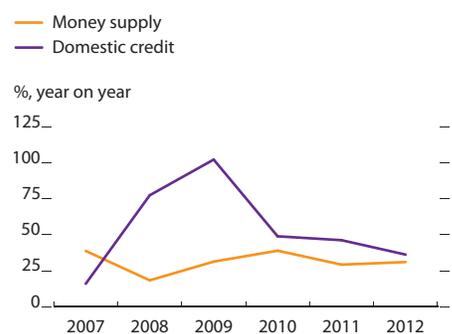
Source: National Tourism Administration.

### 3.25.4 Inflation



Source: CEIC Data Company (accessed 15 March 2013).

### 3.25.5 Monetary indicators



Note: Available data for 2012 is from January to November only.

Source: Bank of Lao PDR.

growth. In addition to the large Hongsa lignite power plant, which is about 40% completed, work has started on the \$3.5 billion Xayaburi dam and hydropower project, scheduled for commissioning in 2018 with capacity to generate 1.3 gigawatts of electricity. Five smaller hydropower projects are under development. Some new commercial-residential projects in the capital involve investments of several hundred million dollars, largely funded by foreign investment.

The hydropower plants brought on line last year will contribute to an expected 12% increase in power generation in 2013. Gold and silver production is expected to increase, but copper output is likely to be little changed. The mining and processing of potash for fertilizer is an expanding industry, with one project starting last year and another scheduled to produce fertilizer this year. Coal production is expected to rise.

Agriculture, which employs more than 60% of the workforce, is expected to grow at a slightly faster pace in 2013 as rice production recovers and animal husbandry continues to expand. Logging will be constrained again by quotas.

Tourist arrivals are projected to rise by 5%–10% in 2013. Other service industries likely to maintain good growth include financial services, wholesale and retailing, and transport and communications. Manufacturing industries will benefit from the government's promotion of food and beverage processing, cement production, and garments, which aims to reduce imports of these products.

Fiscal policy may be more expansionary in FY2013, given that the target for the fiscal deficit is 3.1% of GDP, taking grants into account. The government is raising salaries for the civil service, police, and military by 165% in steps over 3 fiscal years, starting in FY2013.

Monetary policy could tighten during the forecast period if the strong growth in the money supply and credit over several years is considered to undermine banking system stability, contribute to the problem of low international currency reserves, or pose other macroeconomic risks. The government targets holding growth in the money supply below 30% in 2013, and the central bank aims to keep the kip broadly stable against the dollar and the baht.

Inflation is projected to edge up to 5.5% on average in 2013 in light of buoyant domestic demand and higher salaries for government employees (Figure 3.25.7). Prices for meat and cooked food picked up early this year.

Rising imports of consumer and capital goods will maintain pressure on the external position. Merchandise imports are forecast to increase by 15% this year and exports by 14%, widening the trade gap to \$2.4 billion. The current account deficit will continue to exceed 20% of GDP (Figure 3.25.8).

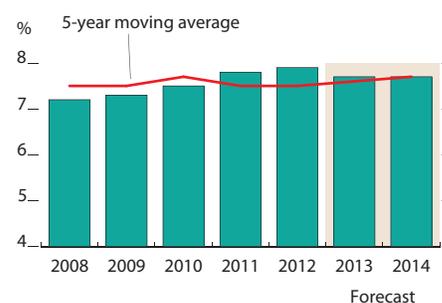
Poverty incidence has likely declined from 27% in 2008, the last official survey. Projected economic growth and government social programs should further reduce poverty, but additional efforts are needed in remote regions, where high concentrations of poverty persist. Moreover, rates of child malnutrition are still high, as 41% of children under 5 years of age suffer chronic malnutrition. The country will be challenged to meet some Millennium Development Goals by 2015, including improvements in maternal mortality and access to safe drinking water and basic sanitation.

### 3.25.1 Selected economic indicators (%)

	2013	2014
GDP growth	7.7	7.7
Inflation	5.5	5.0
Current account balance (share of GDP)	-21.5	-23.6

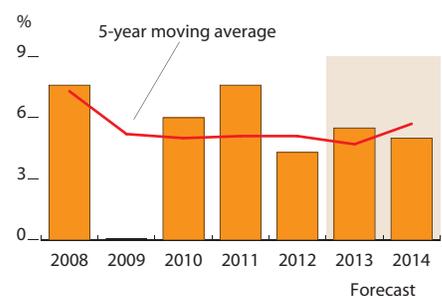
Source: ADB estimates.

### 3.25.6 GDP growth



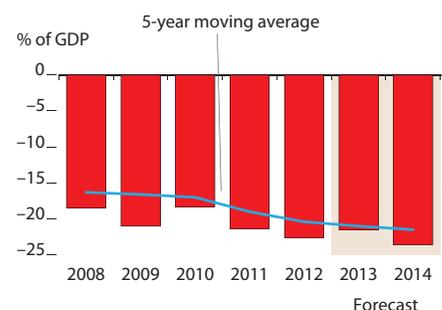
Sources: Asian Development Outlook database; ADB estimates.

### 3.25.7 Inflation



Sources: Asian Development Outlook database; ADB estimates.

### 3.25.8 Current account balance



Sources: Asian Development Outlook database; ADB estimates.

Risks to economic prospects come from increasingly volatile weather patterns, which can have severe impacts on agriculture. Viet Nam's economic slowdown poses risks because Vietnamese companies are major investors in the Lao PDR.

## Policy challenge—managing land and other natural resources

The government has granted land concessions over a significant area in the past decade to encourage investment. During this period the country has attracted investment into agriculture; tree plantations; commercial, residential, and tourism property development; hydropower; and mining.

Investors, mostly from abroad, were awarded 1.1 million hectares of land from 2000 to 2009, according to a report prepared last year for the government (Figure 3.25.9). This area, which excludes land concessions for logging, mineral exploration, contract farming, and hydropower, is about 5% of the country's total land area, more than is dedicated to wet season rice, the main crop. Most foreign investors holding land concessions are from the PRC, Thailand, and Viet Nam.

While the report found that land concessions have contributed to economic growth and government revenue, it noted weaknesses in the management of concessions and the governance of land and natural resources.

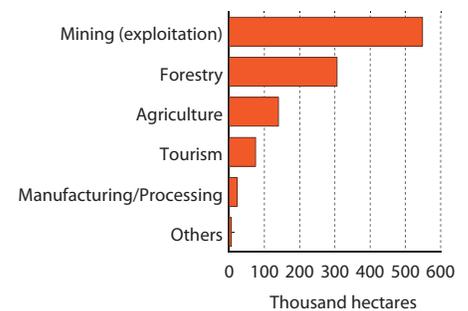
Much of the investment in agriculture is directed to lowland areas that are accessible to towns and cities, with little going to poorer remote areas. Land concessions for agriculture and forestry are dedicated to a handful of mostly exotic crops, such as rubber and eucalyptus, endangering biodiversity and local food security. The narrow range of crops makes only a limited contribution to the goal of diversifying exports. Tracts of farmland on urban fringes are being converted for housing, manufacturing, and other property developments.

In some cases, local populations have lost access to land and forests upon which they depended for subsistence. Inadequate compensation for land and the resettlement of displaced people in areas where they struggle to earn a livelihood have become major concerns for affected communities.

The land-concession system could be improved by better monitoring of the allocation and development of land and by ensuring that displaced people receive fair compensation and resettlement in areas that enable them to maintain their livelihoods. Further, strengthening the land title system would provide people in rural areas with legally protected access to land for their livelihoods and enable the enforcement of existing land titles.

It would be helpful to establish a system for settling disputes over land, which would shorten the time taken and lift the burden on the courts.

3.25.9 Total Area allocated for investment, 2000–2009



Note: Excludes logging concessions, contract farming, hydropower projects, and mining exploration.

Sources: Ministry of Natural Resources and Environment; Natural Resource; Environment Information Center.

# Viet Nam

The economy stabilized in 2012 as previous policy tightening suppressed inflation and bolstered external accounts. Subdued economic growth prompted an easing of monetary policy last year, but lending was constrained by problems in the banks. GDP growth is forecast to edge up this year and next, with inflation in the high single digits. Sustaining foreign direct investment inflows and maintaining competitiveness requires intensified efforts to reform banking, state-owned enterprises, and the business environment.

## Economic performance

GDP growth ebbed to 5.0% in 2012 (Figure 3.31.1), the slowest in 13 years, as fiscal and monetary tightening in 2011 continued to have an impact into last year. While the policies took a toll on growth, they achieved sharp reductions in inflation and a more stable exchange rate, and they contributed to a record current account surplus and to rebuilding foreign reserves.

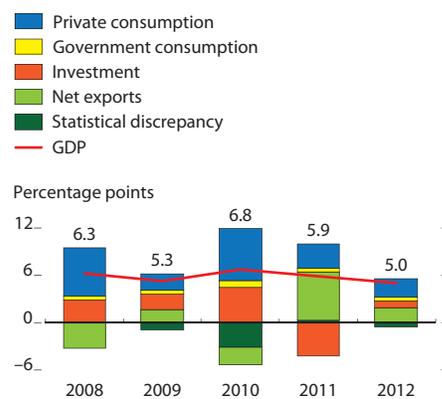
All sectors—agriculture, industry, and services—recorded slower growth in 2012 than in 2011. Manufacturing decelerated to 4.5%, reflecting weak domestic demand, high inventories, and reduced bank lending. Construction grew by a modest 2.1% after contracting in 2011 when the government squeezed credit and cut public investment. Services expanded by 6.4% to make the biggest sector contribution to GDP growth last year. Tourism-related services benefited from 9.5% growth in visitor arrivals, though this was a slowdown from 2011. Agriculture grew by just 2.7%.

From the demand side, growth in private consumption eased to 3.4% owing mainly to a weaker labor market. About 116,000 businesses closed in the past 2 years. Investment grew by 2.2%, a turnaround from its contraction in the previous year. Foreign direct investment (FDI) inflows remained substantial, but private domestic investment was dampened by weak credit growth. The government brought forward some planned capital spending, which lifted public investment. Strong exports and sluggish imports meant net exports made a significant contribution to GDP growth for the second consecutive year.

The stabilization policies, together with good domestic harvests and soft global food prices, tamed inflation in 2012. It decelerated sharply from over 20% year on year in October 2011, bottoming out at 5.0% in August 2012 (Figure 3.31.2). On a year-average basis, inflation receded to 9.2%, half the rate of 2011.

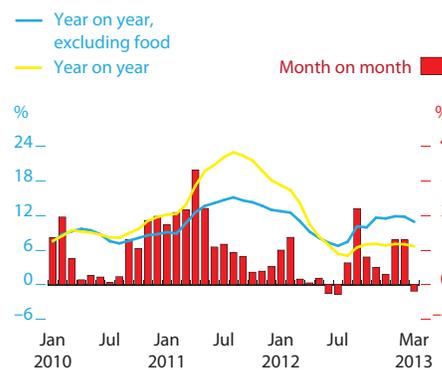
Steep declines in inflation allowed the State Bank of Viet Nam, the central bank, to lower its refinancing and discount rates, and its caps on short-term deposit rates, by 600 basis points (Figure 3.31.3). It also increased its limit on credit growth for some banks and reintroduced, then later

3.31.1 Demand-side contributions to growth



Source: General Statistics Office of Viet Nam.

3.31.2 Monthly inflation



Source: General Statistics Office of Viet Nam.

lowered a ceiling on bank lending interest rates for priority industries. Nevertheless, growth in credit estimated at 8.9% last year was the slowest for many years and fell short of the central bank's 15%–17% target (Figure 3.31.4).

Broad money supply (M2) increased by 22%, above the central bank's target of 14%–16%, suggesting sufficient liquidity but lack of demand for credit. Banks were cautious in extending credit due to their impaired balance sheets, illustrated by rising nonperforming loans (NPLs), and their concerns about the financial health of borrowers and other banks. Firms and individuals hesitated to take on debt at a time of weak domestic demand and a declining property market. Lending for consumption, real estate, and marketable securities was only 4% of total lending, well below the 16% cap on lending for these activities introduced by the central bank in 2011.

The Viet Nam dong, after depreciating against the US dollar for several years, traded within its official exchange rate band for most of 2012 (Figure 3.31.5). The more stable exchange rate mainly resulted from lower inflation, positive real interest rates, stronger external accounts, a cap on US dollar deposit interest rates, and lower domestic gold prices.

Fiscal stimulation of the economy was relatively modest in 2012. The government brought forward capital spending and made some concessions on taxes and fees. Budget spending relative to GDP was little changed from 2011 while tax revenue declined on this basis. The budget deficit widened slightly to 4.8% of GDP. On-budget capital spending as a share of total budget outlays fell from an average of 30% in 2008–2011 to 22%, in part a result of higher salaries in the public sector. Off-budget expenditures and lending was funded through domestic bond issuances.

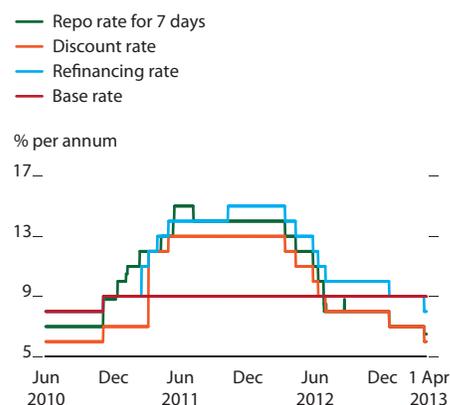
High liquidity allowed the government to boost its net issuance of government bonds to the equivalent of about 3.6% of GDP, from 1.2% in 2011.

Strong growth in exports and subdued imports produced a record trade surplus estimated at \$10 billion on a balance-of-payments basis. Merchandise exports rose by 18.2%, a much stronger performance than other countries in Southeast Asia. Viet Nam became the world's biggest exporter of rice and coffee in 2012. Manufactured exports rose steeply, reflecting the start of operations of foreign-invested factories making mobile phones, computers, and other electronics. Customs data show the proportion of high-tech products in total exports has climbed to 18% from 4% in the past decade (Figure 3.31.6).

Merchandise imports increased by 7.5% on sluggish domestic demand. The trade surplus, coupled with tourism receipts and remittance inflows, contributed to a current account surplus estimated at 6.4% of GDP, a huge turnaround from 4 years earlier, when the current account recorded a deficit of 11.9% of GDP. Together with higher capital inflows, these developments helped rebuild foreign reserves to an estimated 2.6 months of goods and services imports (Figure 3.31.7). FDI inflows rose by 11% to an estimated \$8.4 billion, medium and long-term loans by 19% to nearly \$4 billion, and portfolio investment by 36% to \$2 billion.

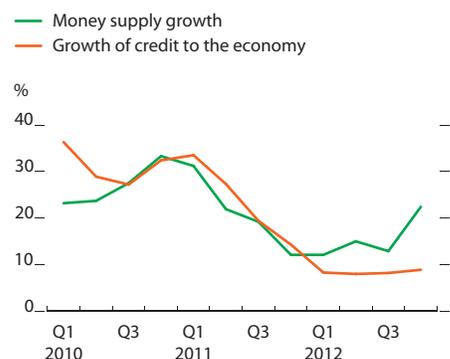
The government continued to grapple with banking sector problems. Banks reported in October 2012 that NPLs were about 4.8% of total loans, but based on closer surveillance of the banking system the central bank estimated that the ratio of bad loans was 8.8% at mid-year. It trimmed

### 3.31.3 Interest rates



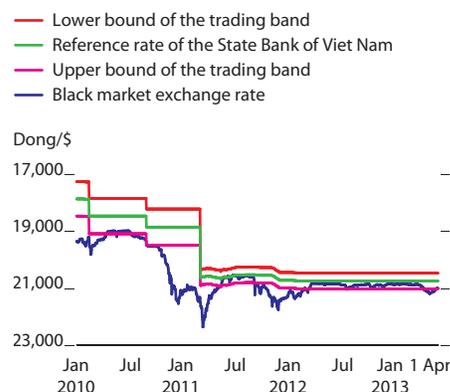
Source: State Bank of Viet Nam.

### 3.31.4 Credit and money supply growth



Sources: State Bank of Viet Nam; ADB estimates.

### 3.31.5 Exchange rate



Sources: State Bank of Viet Nam; ADB observations.

that estimate to 6.0% in February 2013. Independent analysts estimate that NPLs could be in double digits using international accounting standards (Figure 3.31.8). NPLs have proliferated because of rapid growth in lending over several years followed by the squeeze on credit in 2011, the downturn in the economy and property market, and poor performances by some highly leveraged state-owned enterprises (SOEs).

In March 2012 the government approved a reform plan to strengthen the banking system through mergers, recapitalization, the adoption of international prudential standards, and improvements in bank supervision. Several financially stressed banks were merged, and the authorities disclosed additional data on the health of the banking system. However, there was little progress on recapitalizing banks or resolving NPLs. The capital adequacy ratio of the banking system fell to 13.6% in January 2013 from 14.6% in April 2012 (Figure 3.31.9). While this ratio is still well above the 9% floor set by the authorities, banks' capital positions may be weaker than reported if they have underestimated NPLs and not made adequate provision for them.

The government also outlined a plan to improve SOEs' disclosure, governance, and operations. More information on this strategy is scheduled to be disclosed in 2013.

Moody's downgraded Viet Nam's credit rating to B2 from B1 in September 2012, citing banking system weaknesses and lower economic growth. Standard & Poor's has a long-term rating for Viet Nam of BB- and revised its outlook to stable from negative in June 2012. Meanwhile Fitch, which has a B+ long-term rating, affirmed its stable outlook rating in January 2013.

## Economic prospects

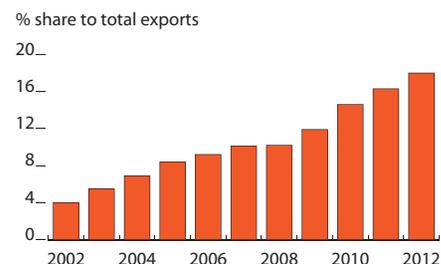
Government statements indicate that macroeconomic stability remains the main priority. The discussion below assumes policy stimulation to support growth during the forecast period will be moderate.

The central bank is targeting credit growth of 12%, stronger than the 2012 outcome of 8.9%, and M2 growth of 14%–16%, down from last year's actual growth of 22.4%. The central bank has removed restrictions on lending for consumption, real estate, and marketable securities. After inflation eased to 6.6% year on year in March 2013, the central bank lowered a number of interest rates, including its refinance and discount rates by 100 basis points to 8% and 6%, respectively. The impact of these lower rates on credit growth may be muted until the banking sector problems are addressed more decisively.

On the fiscal front the government has maintained the budget deficit target at 4.8% of GDP for 2013. In January it allowed small and medium-sized enterprises and labor-intensive manufacturers to defer corporate income tax and value-added tax payments, and it offered subsidies and tax breaks to revive the property market. Capacity to provide greater fiscal stimulation is constrained by public debt, which has increased to 55% of GDP, and contingent liabilities in SOEs and banks.

Private consumption will get support from the downtrend in inflation, though labor market weakness remains a dampener. The outlook for investment has improved with a surge in FDI commitments from Japan

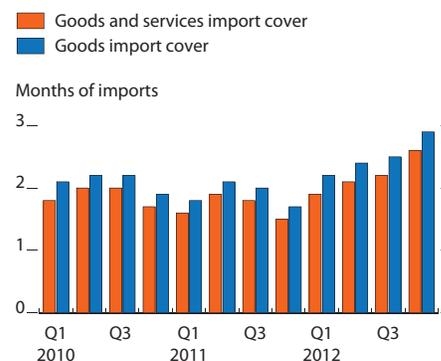
### 3.31.6 High-technology exports



Note: Merchandise exports.

Sources: United Nations Commodity Trade Statistics Database, General Statistical Office; ADB estimates.

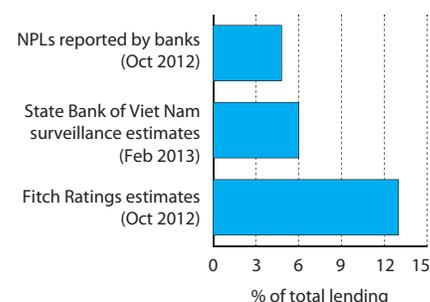
### 3.31.7 Gross international reserves



Note: Data exclude government foreign exchange deposits at the State Bank of Viet Nam and the foreign exchange counterpart of swap operations. Import data are on free-on-board basis.

Sources: State Bank of Viet Nam; International Monetary Fund; ADB estimates.

### 3.31.8 Nonperforming loans



NPLs = nonperforming loans.

Sources: State Bank of Viet Nam; Fitch Ratings.

last year and the policy decisions mentioned above. However, questions over the soundness of the banking system will continue to weigh on domestic private investment.

Exports are projected to maintain solid expansion, given higher economic growth in the PRC and some other markets this year, and the anticipated pickup in major industrial economies in 2014. Manufactured exports will continue to trend up as FDI-funded factories come into production. Imports also will increase, though, as domestic demand gradually recovers, as well as to supply inputs for the export-oriented manufacturers.

GDP grew by 4.9% in the first quarter of 2013, marginally higher than the year-earlier period, and the purchasing managers' index trended up slightly as orders increased. On the down side, growth in industrial production at 4.9% and in real retail sales at 4.5% showed slight decelerations from a year earlier.

Taking these factors into consideration, GDP growth is forecast at 5.2% in 2013, picking up to 5.6% in 2014 (Figure 3.31.10) if progress is made in strengthening the banking sector and recovery in major industrial economies gathers momentum in 2014.

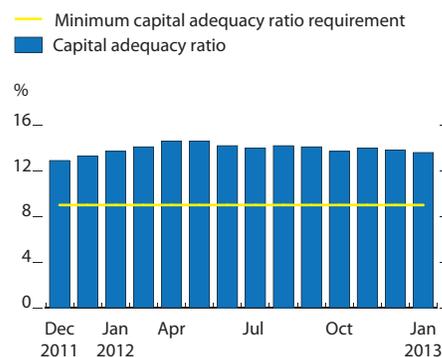
Inflation is seen easing to 7.5% on average this year before quickening to 8.2% in 2014. This view assumes reasonable weather for food production, a broadly stable dong exchange rate, and restrained policy stimulation. The trade surplus is expected to climb to a record \$12.5 billion in 2013 and the current account surplus to increase further this year before easing in 2014 as imports accelerate in tandem with GDP growth (Figure 3.31.11).

Risks to the outlook center on the soundness of the banking system and the scale of NPLs. The NPL problem started spreading to the interbank money market from late 2011, when some banks were unable to recover funds provided to smaller banks with high NPLs. The central bank responded last year by, among other measures, restricting banks with interbank debts overdue by more than 10 days from borrowing through the interbank market. Those measures reduced interbank transaction risks but also restricted the functioning of the market. The central bank eased some restrictions at the start of this year.

A finance sector assessment, conducted by the International Monetary Fund and the World Bank with the agreement of the government, will be completed this year. Meanwhile, the authorities have introduced regulation that requires commercial banks to increase risk provisioning against NPLs and report on loan classification by June 2013. Compliance might take longer because banks need to upgrade their accounting systems. The central bank's supervisory and regulatory functions need to be strengthened to ensure compliance with the new regulations.

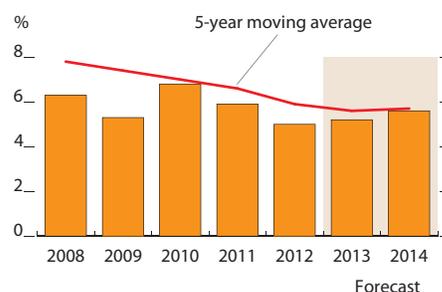
Cleaning up bank balance sheets would pave the way for a more robust expansion of lending. With this in mind the central bank intends to establish an asset-management company to acquire bad loans from banks. Adequate funding will be critical to the success of this plan, as will a transparent process by which assets are priced and an insolvency system with improved capacity to manage the resolution of distressed assets.

### 3.31.9 Capital adequacy ratio



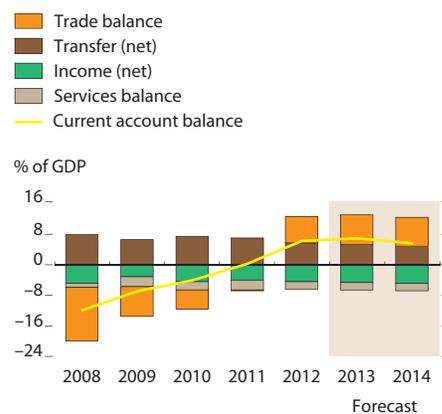
Sources: State Bank of Viet Nam; ADB estimates.

### 3.31.10 GDP growth



Source: Asian Development Outlook database.

### 3.31.11 Current account balance



Source: State Bank of Viet Nam; ADB estimates.

A revival of the property market could ease pressure on the banks, at least temporarily. In this regard the government unveiled in January 2013 a package of measures that targets social housing projects with subsidized mortgage rates for low-income earners and public servants, reductions in state land rents, deferment of land use fees, and cuts in corporate income and value-added tax. The measures also involve a streamlining in the building permit process.

As a way to draw in foreign capital and expertise, the government is expected to increase the cap on foreign ownership in domestic banks by an institutional investor from 10% to 15%, and up to 20% for strategic investors, as well as allow more than 30% total foreign ownership in weak banks undergoing restructuring.

Plans for broader finance sector reform include the development of the bond market over the medium term as outlined in a government blueprint in February 2013. Policy actions will involve establishing credit rating agencies, a benchmark yield curve, primary dealer system, and a legal framework to encourage investment in government bonds by voluntary pension funds and insurance companies. The government aims to increase the value of bonds outstanding from 18% of GDP in 2011 to 38% in 2020 and to raise the percentage of bonds held outside banks from 12% to 20% in that period.

As for the SOE sector, the government has committed to issuing a road map for reform by mid-2013. Implementation will require interagency coordination as SOE reform cuts across the mandates of several ministries. Restructuring plans have been approved for 24 large SOEs, and more such plans are expected, including equitization or partial privatizations through share offerings if market conditions allow. Equitization has slowed in recent years (Figure 3.31.12). One goal is to divest SOEs' noncore businesses by 2015, as many SOEs have accrued debts by investing in areas unrelated to their core businesses. The absence of an overarching regulatory framework for SOE reform could put at risk the implementation of restructuring plans developed through an ad hoc approach. For example, support for SOE restructuring will be difficult to muster until programs are put in place to support and retrain workers displaced during the shakeup of state firms.

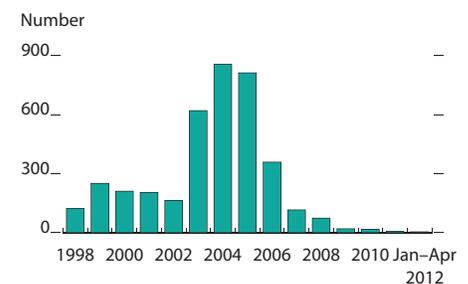
Despite these concerns, Viet Nam has remained an attractive investment destination in light of its growing working-age population and low labor costs. This is illustrated by an increase in FDI from Japan (Figure 3.31.13). Nevertheless, the country faces increased competition for FDI in Southeast Asia particularly from Indonesia. Viet Nam's ability to remain competitive and drive economic growth back up to 7%–8% will depend in large part on the timely and decisive implementation of structural reforms to the banking and SOE sectors and the improvement of other aspects of the business environment.

Indicating the extent of this challenge, Viet Nam's ranking in the World Economic Forum's Global Competitiveness Index fell by 16 places in the past 2 years to 75th of 144 countries (Table 3.31.2). That puts it below other larger Southeast Asian economies. Viet Nam scored poorly on several index components, including infrastructure (95), business sophistication (100), respect for property rights (113), irregular payments and bribes (118), and soundness of banks (125). The World Economic

3.31.1 Selected economic indicators (%)		
	2013	2014
GDP growth	5.2	5.6
Inflation	7.5	8.2
Current account balance (share of GDP)	6.9	5.6

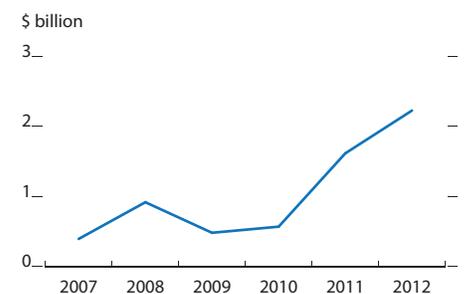
Source: ADB estimates.

3.31.12 Number of equitized state owned enterprises



Sources: Ministry of Finance; ADB estimates.

3.31.13 Foreign direct investment from Japan



Sources: Japan External Trade Organization; ADB estimates.

Forum report noted that the country's relative strengths are its labor market (ranking 51) and large domestic market (32).

## Policy challenge—wastewater threat to water resources

Less than 10% of urban wastewater in Viet Nam is treated adequately. Most urban households use poorly maintained septic tanks or similar on-site systems that only partly treat sewage and can pollute freshwater resources. A study of water resources in 2009 found that the safety of water supplies in several river basins was at risk from the discharge of untreated and partly treated wastewater, including domestic sewage and industrial wastewater.

A rapidly growing urban population means the government will need to invest substantial amounts in wastewater collection and treatment to protect public health and guard against the pollution of freshwater resources. The government aims to connect 70% of the urban population, or about 35 million people, to central wastewater collection and treatment systems by 2025. Currently, only about 2.5 million people are centrally connected. The average per capita cost to connect to a new wastewater system with adequate treatment is \$200–\$600, suggesting the government will need to invest \$6.4 billion–\$20.0 billion over 12 years to meet its target (Figure 3.31.14).

Responsibility for urban infrastructure rests with local governments, but most do not have the financial or technical capacity to manage the scale, complexity, and cost of urban environment programs. Many wastewater utilities are not fully prepared to operate on commercial principles and attract private sector financing and expertise. Neither do they have access to capital markets. A sustained capacity-building effort is therefore required to implement urban wastewater management systems on a large scale.

While new wastewater treatment facilities have been constructed, a recent performance review found that legislation and regulations governing these projects need to be amended to ensure limited financial resources are directed to high-priority areas. Some investments were misdirected to unnecessarily costly treatment options or systems with high energy requirements. Local implementation of new sewer systems has on occasion resulted in poor coverage and failure to improve public health or the environment.

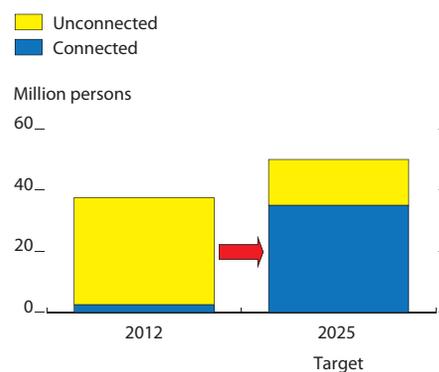
Looking further ahead, the government could supplement public funds by attracting private investment into wastewater management. This would require clarity on asset ownership, reliable information on existing infrastructure, clear assignment of responsibility for operation and maintenance, accounts and procedures that are consistent with international standards, and the timely imposition and enforcement of water and wastewater tariff increases to ensure at least cost recovery.

### 3.31.2 Global competitiveness index rankings, 2012–2013

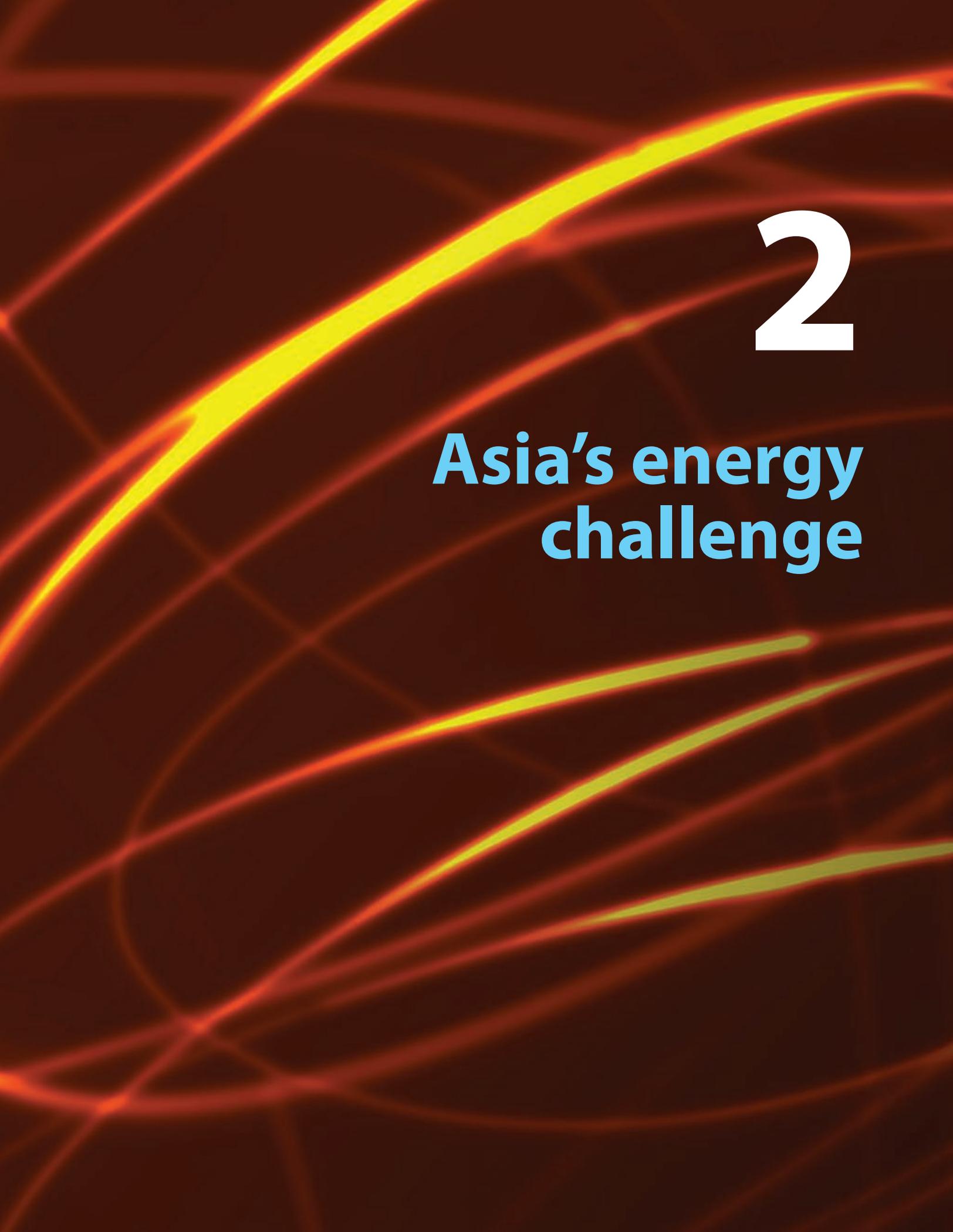
	Rank
Singapore	1
Malaysia	25
Brunei Darussalam	28
China, People's Rep. of	29
Thailand	38
Indonesia	50
India	59
Philippines	65
Viet Nam	75
Cambodia	85

Source: World Economic Forum. <http://www.weforum.org>

### 3.31.14 Urban population connected to wastewater system



Source: ADB estimates.



2

**Asia's energy  
challenge**

# Asia's energy challenge

## Critical energy needs for the Asian Century

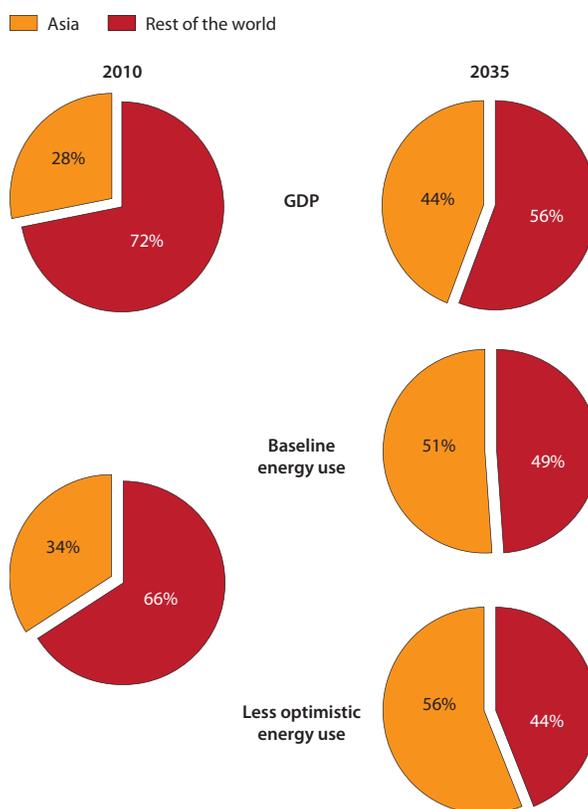
Rapid growth has transformed developing Asia's presence in the world economy. The region will likely continue to grow rapidly, further weighing, for better or worse, on global developments. Developing Asia's gross domestic product (GDP) will more than quadruple from 2010 to 2035, and by 2050 the region will generate over half of global GDP. This promising vision of Asia's 21st century is often called the Asian Century growth scenario, articulated in *Asia 2050: Realizing the Asian Century* (ADB 2011). Past growth has dramatically improved Asia's living standards, lifting millions out of poverty. Future growth will do the same.

But, crucially, can developing Asia secure the energy it needs to fuel this dramatic economic expansion? Energy security rests on three pillars: the adequacy and reliability of physical energy supply, environmental sustainability, and affordable access. Where will this energy come from? Can the region expand its energy infrastructure to support its growing needs? Even if the adequate supply of energy is available, will it be environmentally sustainable and widely accessible and affordable? Failure on any of these fronts would hinder efforts to realize the environmentally sustainable, inclusive growth that lies behind the Asian Century ideal.

### Energy and economic growth

In 2010, Asia contributed 28% of global GDP. If Asia follows the expected growth trajectory, by 2050 its per capita GDP will reach Europe's current level, and its share of global GDP will nearly double to 52%, making about 3 billion additional Asians affluent (ADB 2011). Asia will already account for 44% of global GDP by 2035 (Figure 2.1.1).

2.1.1 Developing Asia's growing share of GDP and primary energy consumption, 2010–2035



Sources: IEA 2012a, Lee, Park, and Saunders, forthcoming.

This chapter was written by Minsoo Lee and Donghyun Park of the Economics and Research Department; and Harry Saunders of Decision Processes Incorporated. It draws on the background papers listed at the end of the chapter. Changyong Rhee, chief economist, provided guidance at various stages.

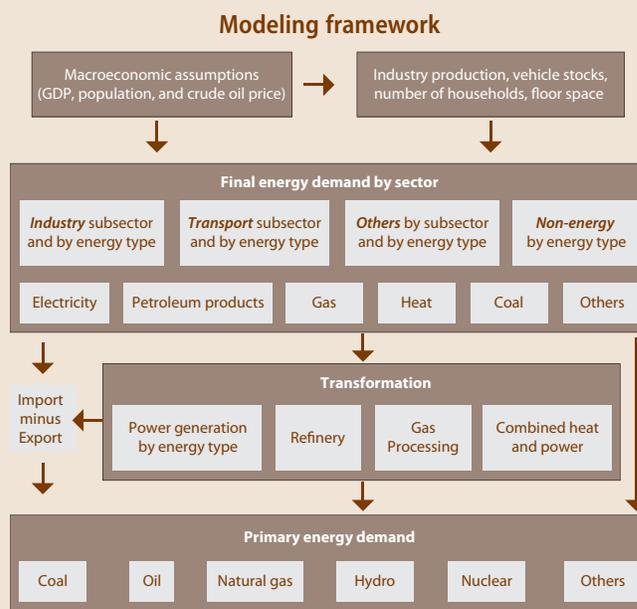
### 2.1.1 The Asian Century scenario: energy consumption projections

Energy consumption forecasts derive from econometric analyses by country and sector. Demand equations are estimated using historical data of standard explanatory variables such as GDP, population, industrial production, and vehicle stocks. The econometric model incorporates changes in the structure of output and energy efficiency improvements. Future values of energy demand are then projected using the explanatory variables. The model thus takes into account the historical correlation between explanatory variables and energy consumption (box figure).

Broadly speaking, the econometric strategy begins by deriving final energy demand projections, from which it derives primary energy demand projections. “Final energy demand” refers to the consumption of final energy goods such as electricity and gasoline, and “primary energy demand” to the implicit demand for energy sources such as oil and coal required to meet final energy demand.

For all countries, data on key macroeconomic indicators such as GDP, population, and crude oil price are used as the bases for future projections of final energy demand. In addition, some countries have data on more detailed socioeconomic variables such as industrial production, vehicle stocks, number of households, and floor space, which provided additional inputs for these countries’ projections.

Transformation analysis examines the transformation of primary energy into final energy. Examples of transformation



include electricity generation, oil refining, gas processing, and coal transformation. Primary energy demand projections can be derived by energy type by combining final energy demand and transformation analysis. Net imports of final energy are also factored into primary energy demand projections, as are changes in energy policy.

Such economic expansion requires huge amounts of energy. Already in 2010, Asia accounted for 34% of world energy consumption. The link between the final energy used by firms and households, which rises as GDP expands, and an economy’s demand for primary energy depends on a complex host of factors (Box 2.1.1). But assumptions on the evolution of energy intensity—changes in the physical energy used to generate each unit of GDP—have big effects on forecast demand.

For example, if economic expansion raises by the middle of the 21st century energy consumption per capita for Asia’s 5 billion people to the level found today in industrialized economies, the region’s share of global energy use is projected to increase to 51% by 2035 (Figure 2.1.1 baseline). This is a conservative estimate, reflecting an optimistic projection of energy intensity trends. This baseline model endogenously projects energy intensity declining by 3.2% per year on average over the forecast horizon. This would bring energy intensity in 2035 down to 45% of its 2010 value—an improvement by better than half.

This compares with the historical trend from 1990 to 2000 of 2.47% improvement per year, which is used in the less optimistic scenario. If energy intensity follows its historical trend, Asia’s share of world energy consumption would be as high as 56% by 2035 (Figure 2.1.1, less optimistic).

Energy intensity trends are hard to predict as they are driven by many factors beyond improved technical efficiency. The faster decline of energy intensity in the baseline scenario assumes improvements supported by changes in industry structure, slower industrialization in the People's Republic of China (PRC), and productivity gains for non-energy inputs. This forecast is subject to greater uncertainty than the less optimistic scenario based on historical trend. Figure 2.1.2 shows the growth of energy consumption under the two scenarios. Asia's energy consumption is projected to double from 2010 to 2035 even under the optimistic baseline scenario.

Note that this report's baseline forecast shows the primary energy growth rate to be 2.82% annually from 2010 to 2035. This is quite consistent with the forecasts of other organizations (Table 2.1.1). Energy consumption grows despite substantial improvement in energy efficiency because of sharply increased per capita GDP. While Asia's population is forecast to grow only modestly by 0.7% annually, Asians will drive more and use air-condition more as they become richer.

## Composition of Asia's energy demand

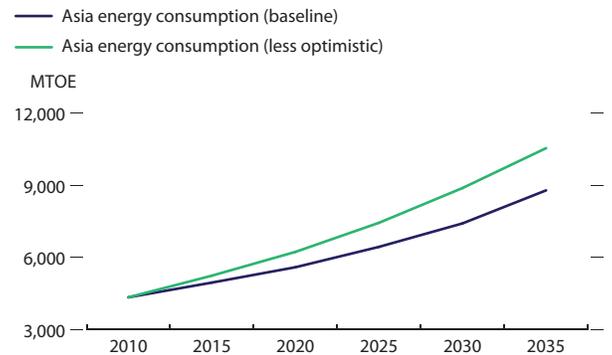
Aside from becoming higher, energy demand poses many challenges for developing Asia in terms of its composition. In particular, what is the mix of primary sources that will satisfy Asia's growing thirst for energy? The current composition of Asia's energy demand holds some important clues (Figure 2.1.3).

Under the baseline scenario in Box 2.1.1, most of the twofold (202%) increase in energy consumption from 2010 to 2035 will come from fossil fuels. Coal use is expected to increase by 81% as oil consumption approximately doubles and natural gas use more than triples. The use of renewables is set to increase but will make a relatively small contribution to 2035 energy requirements. The same goes for nuclear power.

Subregional differences in energy demand and the energy mix will be substantial by 2035. Following the Asia 2050 study's forecasts (ADB 2011), the scenarios allow for large differences in subregional growth rates in the next 2 decades. Regional GDP growth will likely be dominated by South and East Asia—South Asia because of its high potential growth rate and East Asia because its growth at about 6% builds on its existing large share of developing Asia's GDP (the two subregions will jointly account for 83% of developing Asia's GDP by 2035).

Aside from these different growth rates, different subregions rely on different energy mixes (Figure 2.1.4). Coal plays a much larger role in East and South Asia than in Central Asia, Southeast Asia, or the Pacific. Natural gas occupies a markedly bigger share of the energy mix in Central Asia than in the four other subregions. Relatively low demand

### 2.1.2 Sensitivity of energy consumption to the evolution of energy intensity, historical intensity trend (less optimistic) versus forecast trend (baseline)



MTOE = million tons of oil equivalent.

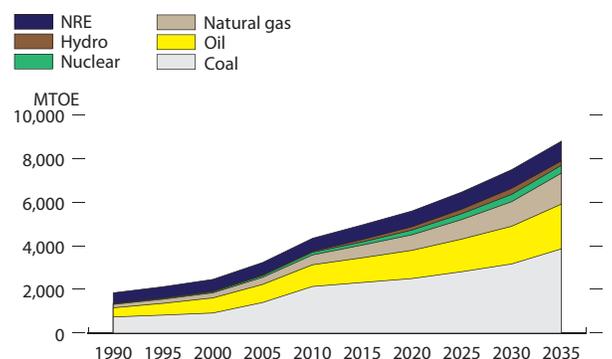
Source: Lee, Park, and Saunders, forthcoming.

### 2.1.1 Comparison of organizations' energy consumption forecasts

	Primary energy growth rate (%)	Time horizon
Energy Information Administration (non-OECD Asia)	2.90	2008–2035
British Petroleum (Asia-Pacific)	2.72	2010–2030
International Energy Agency (New Policies Scenario, Asia)	2.20	2010–2035
Asian Development Bank	2.82	2010–2035

Sources: EIA 2011a, BP 2013, IEA 2012a.

### 2.1.3 Fuel composition for Asia's energy requirements



MTOE = million tons of oil equivalent, NRE = new and renewable energy.

Source: Lee, Park, and Saunders, forthcoming.

in the Pacific islands will be met by oil and natural gas in most countries. On the other hand, across all subregions coal, oil, and natural gas dominate while renewables and nuclear occupy only a limited share of the energy mix.

## An achievable energy future for Asia

Energy consumption that more than doubles under the Asian Century vision poses a colossal challenge. Can it be achieved? Where will Asia find so much energy—over half the energy needed by the entire world in 2035? If the answer is that Asia cannot find it, the region will not realize the Asian Century. Asia faces a stark reality: Either it secures adequate energy supply or economic growth suffers accordingly. Even if Asia is able to secure enough physical energy supply, there remains the question of whether it can do so while safeguarding environmental sustainability and ensuring affordable energy for all. The three pillars of energy security are examined below, one by one.

## Adequacy and reliability implications

Coal is abundant in Asia, which has a 35% share of the world endowment (Table 2.1.2). Asia can reasonably expect to source coal from other regions if need be.

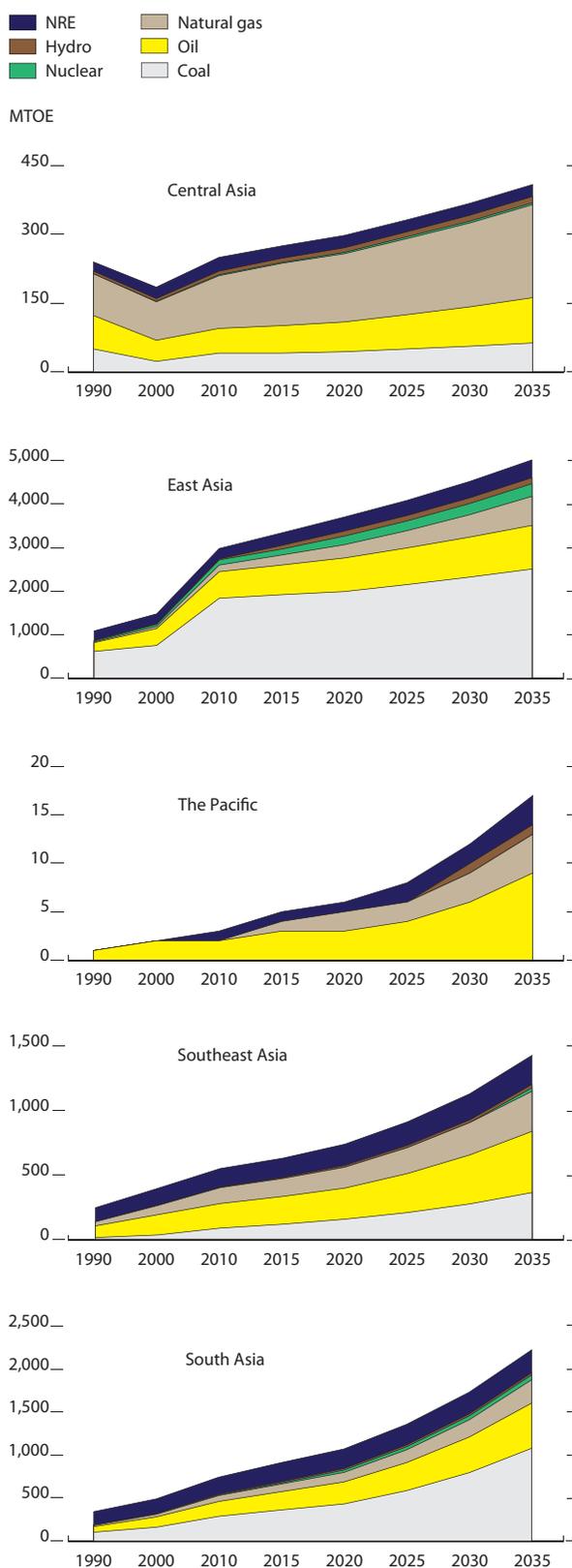
Less abundant than coal in Asia is conventional natural gas, of which Asia has 16% of proven global reserves. The gas trade is widely distributed in terms of sources, though, and international trade in gas is growing. As such, Asia can expect to have relatively unfettered access to gas (Table 2.1.3).

Oil is different. And it poses the greatest threat to the adequacy of Asia's physical energy supply. Proven reserves of crude oil in the region amount to a mere 9% of the world total. When combined with natural gas liquids, the Asian share is 15% of world reserves (Table 2.1.4).

Crude oil supply is by no means the only element of energy supply security, but it is the most problematic for Asia because of the region's limited endowment and how it compensates. In 2010, Asia imported nearly half of all crude oil traded on international markets. If crude oil demand grows as projected in Figure 2.1.3, developing Asia's oil imports will expand dramatically (Figure 2.1.5). Taking into account Asian production, Asia's oil imports are expected to almost triple from 11 million barrels per day (MMBD) to over 31 MMBD by 2035, growing annually by 4.2%.

Control over Asia's oil supply has steadily shifted toward Middle East suppliers. In 1990, 33% of developing Asia's oil imports came from the Middle East; by 2010, this figure had risen by half to 48%. As this accelerating trend will likely continue, Asia's high and growing dependence on a single region poses a risk to adequate and reliable energy supply.

### 2.1.4 Primary energy demand, by Asian subregion



MTOE = million tons of oil equivalent, NRE = new and renewable energy.

Source: Lee, Park, and Saunders, forthcoming.

2.1.2 Proven reserves of coal, 2011				
	Anthracite and bituminous	Sub-bituminous and lignite	Total	Share of Total (%)
Total North America	112.8	132.3	245.1	28.5
Total South and Central America	6.9	5.62	12.52	1.5
Total Europe and Eurasia	93.0	211.6	304.6	35.4
Total Middle East and Africa	32.7	0.17	32.87	3.8
Australia	37.1	39.3	76.4	8.9
PRC	62.2	52.3	114.5	13.3
India	56.1	4.5	60.5	7.0
Indonesia	1.5	4.01	5.51	0.6
Japan	0.34	0.01	0.35	0.04
Kazakhstan	21.5	12.1	33.6	3.9
New Zealand	0.033	0.54	0.573	0.1
North Korea	0.3	0.3	0.6	0.1
Pakistan	...	2.07	2.07	0.2
South Korea	...	0.13	0.13	0.01
Thailand	...	1.24	1.24	0.1
Vietnam	0.15	...	0.15	0.02
Other Asia Pacific	1.58	2.13	3.71	0.4
Total Asia and the Pacific	180.8	118.62	299.42	34.8
of which: Developing Asia	143.35	78.77	222.12	25.7
Developed Asia	37.47	39.85	77.32	9.0

... = data not available.  
Notes: Anthracite is hard, high-energy coal; bituminous, sub-bituminous, and lignite are progressively softer kinds of coal with progressively less energy.  
Source: British Petroleum 2012.

2.1.3 Undiscovered technically recoverable gas		
Region	Mean estimate (trillion cubic meters)	Share (%)
Arctic + former Soviet Union	57	29
Middle East and North Africa	33	17
Asia and the Pacific	32	16
Europe	5	3
North America	20	10
South America and Caribbean	24	12
Sub-Saharan Africa	26	13
Total	198	100

Source: US Geological Survey 2012.

2.1.4 Undiscovered technically recoverable oil and natural gas liquids				
Region	Mean estimate (MMBO)	Share (%)	Mean estimate (MMBNGL)	Share (%)
Arctic + former Soviet Union	66	12	40	24
Middle East and North Africa	111	20	31	18
Asia and Pacific	53	9	25	15
Europe	10	2	3	2
North America	83	15	19	12
South America and Caribbean	126	22	21	13
Sub-Saharan Africa	115	20	28	17
Total	565	100	167	100

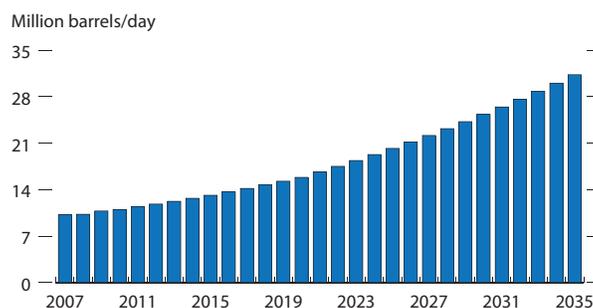
MMBNGL = million barrels of natural gas liquids, MMBO = million barrels of oil.  
Source: US Geological Survey 2012.

Disrupted flow of crude oil from the Middle East for an extended period would hit Asia hard. Worse, Asia's refineries are configured to process mostly light Middle Eastern crudes and, unlike refineries in other regions, cannot immediately handle very heavy crudes. If the Middle East tap closed, Asia would be poorly equipped to switch to heavy crudes available from elsewhere.

Long-term oil security can be enhanced by substituting other fuels, but the short run lacks options. Asia uses oil largely for transportation (48% in 2010), which almost always requires readily portable energy. The convenience of liquid fuels for this purpose, the well-developed supply chain, and superior economics give petroleum products a huge advantage over alternatives. Biofuels offer some potential as substitutes for oil products, but they are unlikely to be commercially competitive within the forecast horizon.

Much of the projected surge in oil imports reflects the rapid expansion of motor traffic expected in Asia. The PRC's

### 2.1.5 Projected Asian oil import requirements



Source: Isaak, Park, and Lee, forthcoming.

vehicle fleet for passengers and goods is forecast to grow at over 6% annually (Figure 2.1.6). Rapid economic growth means that more Asians can now afford cars. Trading public transport for private cars is a natural consequence of Asia's growing affluence and middle class, and it will further whet the region's thirst for imported oil.

In addition to oil supply disruptions, threats to supply adequacy arise from potential interruptions of electricity and gas supply. Unreliable electric and gas systems can leave households without power and stymie industrial and commercial activity, causing heavy losses. India has experienced serious interruptions to electricity supply, with the July 2012 blackout in India affecting some 670 million people. In 2009, a dispute between Russia and Ukraine over pricing and transit costs for Russia's gas prompted Russia to cut off all gas supplies to and passing through Ukraine, imposing wintertime supply disruptions on 18 European countries—and this dispute remains unresolved.

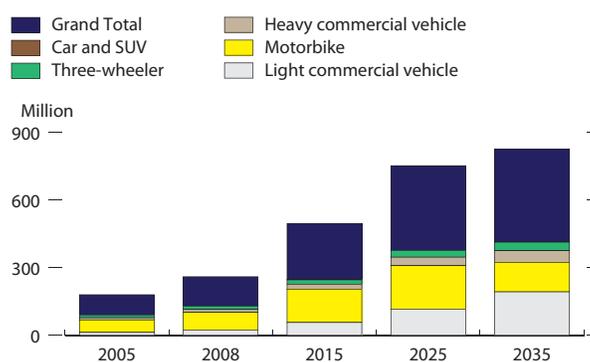
By 2035, most Asian countries will produce less than half the energy they need, and many will produce only a tiny fraction. This means that Asia will remain heavily dependent on energy imports, in particular of oil, for the foreseeable future. More generally, securing adequate and reliable energy supply will persist as a difficult challenge across the region.

Figure 2.1.7 ranks Asian economies according to an index of energy self-sufficiency, in which a value of 1 indicates all primary energy demand is met with indigenous resources and a value of 0 indicates complete reliance on energy imports. The index is calculated based on each country's projected primary energy mix until 2035 (e.g., how much it will use coal to generate electricity), its current proved indigenous reserves of fossil fuel, and its projected consumption until 2035 (Fueyo, Gómez, and Dopazo, forthcoming).

Only three countries in developing Asia—Azerbaijan, Brunei Darussalam, and Kazakhstan—are energy self-sufficient. Some economies have minimal self-sufficiency. Singapore and Hong Kong, China both have high demand for fossil fuels but no supply. As their energy sources were entirely imported even in 2010, their situation will change little by 2035. The Republic of Korea has limited fuel reserves—some coal and nuclear fuels, the latter perhaps largely uranium processed from imports. In 2010, the Republic of Korea imported about 80% of its primary energy (IEA 2012a). Indigenous reserves will be depleted by 2035. The share of hydropower is negligible at 0.02% of primary energy consumption, and other renewables' share is only 2.1%.

Japan's trends for economic growth and energy demand are unique in Asia, reflecting its economic maturity. Its GDP will grow very slowly between 2010 and 2035. Its primary energy consumption will fall by 15%, but hydropower's share of primary energy will remain more or less constant at 1.5%, while that of other renewables will rise substantially from 2.1% to 15.7%.

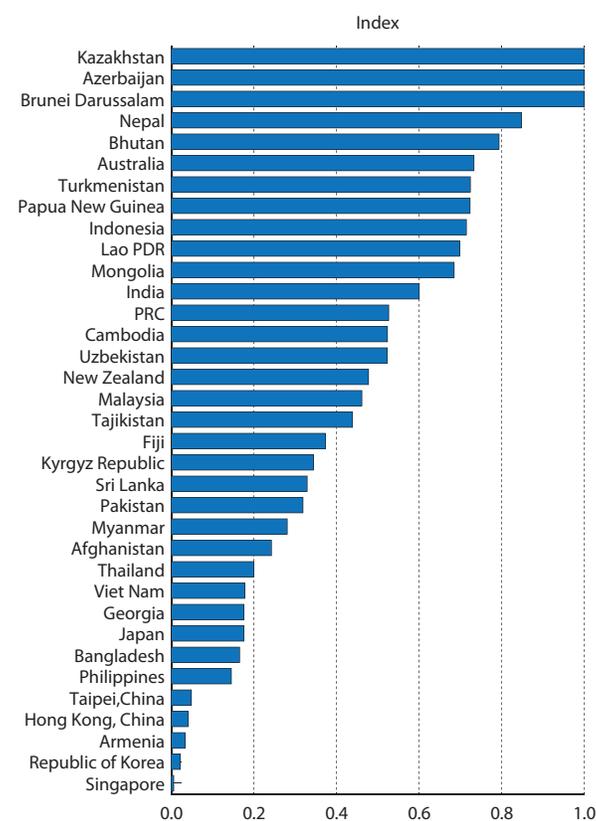
### 2.1.6 Vehicle population forecast for PRC, 2005–2035



PRC = People's Republic of China, SUV = sports utility vehicle.

Source: ADB 2006.

### 2.1.7 Asian countries' energy self-sufficiency, 2035

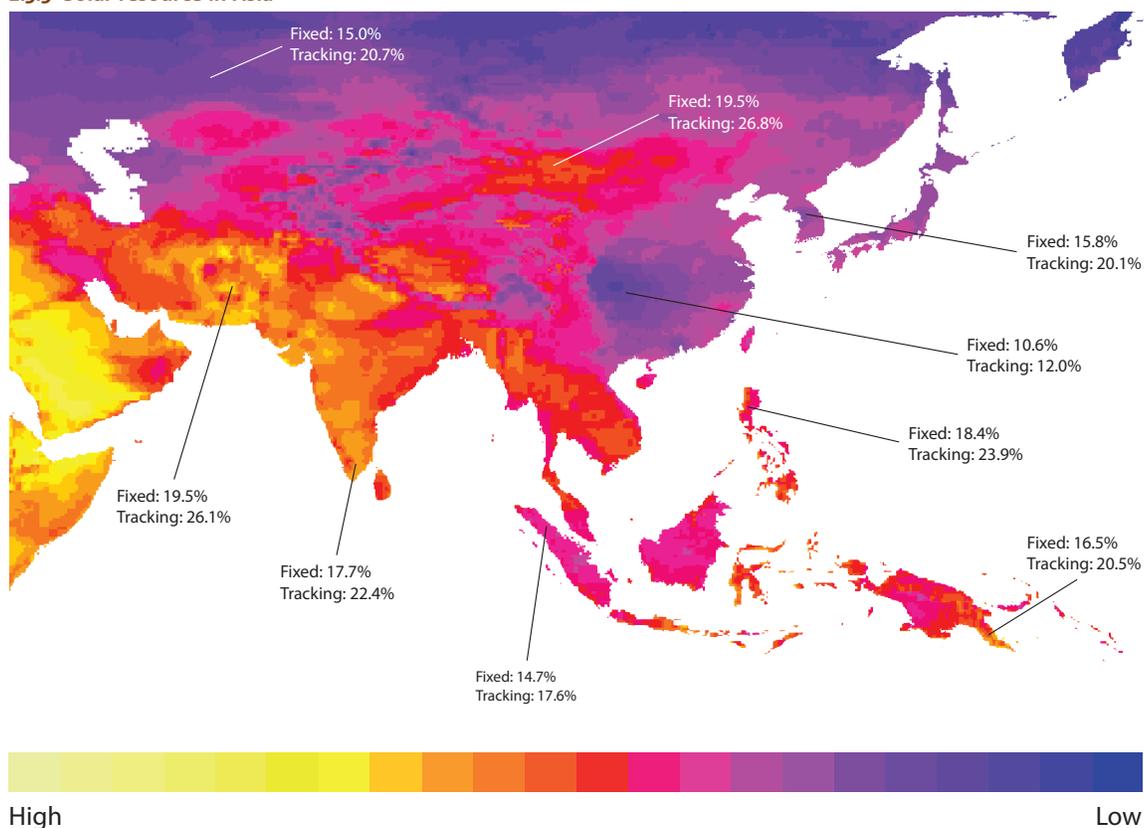


PRC = People's Republic of China, PDR = people's democratic republic.

Note: The self-sufficiency index formula accounts for the share of renewable resources projected to be available, projected demand for conventional fuels, and corresponding depletion of conventional fuels given the country's endowment.

Source: Fueyo, Gomez, and Dopazo, forthcoming.

### 2.3.3 Solar resource in Asia



Notes: Color bar shows average global radiation on the horizontal in kWh/m<sup>2</sup>. For selected locations, the capacity factors for fixed arrays and tracking photovoltaic systems have been calculated with RETScreen 4 software. The capacity factor—percentage of actual energy of the theoretical energy production—is given for some locations; there are two values, one for a fixed system and another for tracking system.

Source: Meteonorm. [www.meteonorm.com](http://www.meteonorm.com).

energy installations in Canada, Germany, and Spain, and they shifted manufacturing to lower-cost producers in the PRC that already had the skills for manufacturing semiconductors. Rapid cost declines have continued since then—recently reaching \$0.70/watt—with radical implications for the PV industry. Module manufacturers have expressed some concern about overcapacity and low price, but production continues to expand as they find new ways to cut costs and learn from experience.

By the end of 2011, the global installed capacity of grid-connected PV systems was over 69 GW, which could annually produce 85 terawatt-hours (TWh), enough to power more than 20 million households (European Photovoltaic Industry Association 2013a). Preliminary estimates indicate that the installed capacity crossed the 100 GW threshold by the beginning of 2013, assuming additions in 2012 at the same pace as in 2011 (EPIA 2013b). Notably, six countries in Asia and the Pacific have over 100 MW of grid-connected PV systems: the PRC with 7,000 MW, Japan 6,914 MW, Australia 2,200 MW, India 1,461 MW, the Republic of Korea 963 MW, and Thailand 360 MW.

How will PV prices evolve over time? Figure 2.3.4 compares the levelized cost of solar power from utility-scale plants (generally with capacity above 10 MW) with some conventional technologies. It suggests

that even by 2030 PV-generated electricity will struggle to compete with large hydropower, cheap coal, nuclear, and cheap gas at today's prices. However, if coal and gas prices were to escalate significantly over this time horizon, solar could become more competitive.

PV installations can be integrated into the grid from a central plant, as with conventional power plants, or distributed around many locations on the grid. Distributed systems can be mounted on roofs and facades, minimizing land use and providing power close to where it is consumed, which reduces losses in transmission.

Concentrated solar power also has potential to contribute. Investment costs for concentrated solar power systems range from \$3,800/kW without storage to \$7,700/kW with storage, for an estimated levelized cost of electricity in 2009 ranging from \$0.18–\$0.27/kWh. Continued development is expected to halve the cost by 2025. US and European research and development programs envision even more dramatic cost reductions, targeting \$0.05–\$0.06/kWh by 2020 (Arvizu et al. 2011), which is cost-competitive with conventional alternatives.

In the meantime, governments have offered subsidies to spur the development of solar power by the private sector. Many governments hope that such subsidies, while costly in the short run, will accelerate the development of cost-competitive technologies and provide net economic and environmental gains over the long term.

In sum, solar power has numerous advantages over conventional power. The solar PV system is modular, so little technological change is needed for fitting individual homes, including even PV lanterns. It is virtually free of GHG emissions, and the primary energy source—sunlight—is freely available and widely distributed, notably in remote locales with no access to the grid.

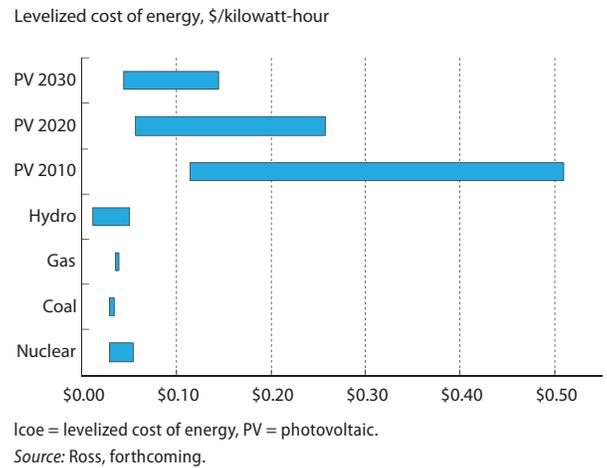
PV is already cost competitive in many remote areas where the cost of extending electricity grids would be prohibitive: remote islands in the Pacific, the Philippines, and Indonesia; in the mountains of Bhutan and the PRC; and the sparsely populated plains of Mongolia. These installations use public finance and international aid, but, as PV system costs decline, so will the need for subsidies. Improvements in battery technology will enable households to tap PV systems at night, making it an attractive investment. The Energy and Resources Institute in India has led the global distribution of solar lanterns that provide basic but clean light to poor households.

However, the prospects of utility-scale solar power becoming cost effective within the forecast horizon are uncertain unless more investment is forthcoming to further develop the technology. Satellites can assist evaluation of solar potential in a particular region, but assessments of capacity factor at specific locations, and thus of commercial solar potential, requires gathering data on the ground.

### Hydropower

Hydropower has a number of attractive attributes. It is a clean resource with few GHG emissions and virtually no other pollutants emitted during

### 2.3.4 Projected levelized cost for utility-scale photovoltaic systems compared with conventional generation, in the People's Republic of China



cost-competitive with alternative sources—will inevitably diminish with time and technological progress.

## Biofuels

Biofuels emit greenhouse gases, as do such conventional fuels as gasoline and diesel. However, they are produced from biomass, which sequester carbon dioxide from the atmosphere for photosynthesis while growing. Therefore, in principle, burning such fuels does not cause a net increase in atmospheric concentrations of carbon dioxide. Accordingly, their development and use can, in principle, advance environmental sustainability. Further, biofuels are liquids and therefore a convenient substitute for oil-based transportation fuels that can reduce the need for oil imports and enhance energy supply adequacy.

World production of biofuels in 2011 was mostly concentrated in the US and Brazil. Asia accounted for only 6% of total biofuel production, though it accounted for 13% of biodiesel production (Table 2.3.2).

The technical process for transforming biomass to biofuels is shown in Figure 2.3.5. The first generation of biofuels were made from the oil, starch, and sugar contained in cultivated crops. More recently, the technology improved to extract cellulose from non-edible vegetation—a second generation of biofuels—which minimizes competition with food production. The latest, third-generation technology, still at a pilot stage, uses algae grown in water bodies to avoid land-use competition. Ethanol and biodiesel are the main biofuels and can be added to gasoline and diesel.

It has been about 10 years since the US and Europe implemented various policies and incentives to promote biofuel production. According to Agriculture Outlook 2012, co-published by the Organisation for Economic Co-operation and Development and the Food and Agriculture Organization of the United Nations, 65% of EU vegetable oil, 50% of Brazilian sugarcane, and about 40% of US maize production is used as feedstock for biofuel production. During 2009–2011, global production of ethanol averaged 98.2 billion liters (equal to 8.6% of gasoline use by volume) and of biodiesel 21.3 billion liters (3.1% of diesel). High global oil prices have been a major factor behind such high production, which is projected to double by 2021. The leading Asian producers of ethanol are the PRC at 8,094 million liters, India at 1,976 million liters, and Thailand at 777 million liters, and of biodiesel Thailand at 664 million liters, Malaysia at 563 million liters, and Indonesia at 397 million liters.

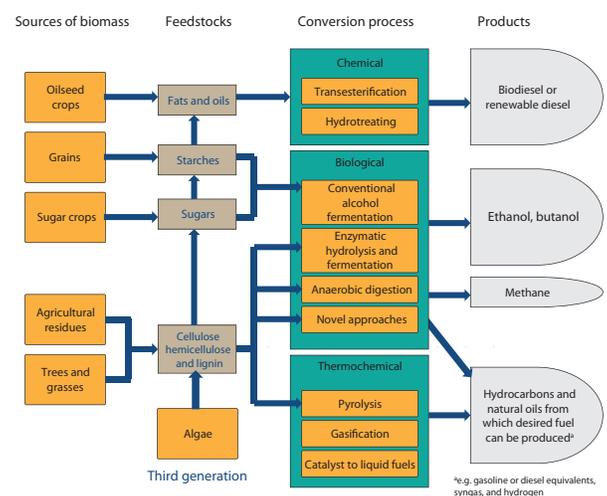
However, the current generation of biofuels has three significant problems. First, biomass cultivation, transportation, and processing requires energy that must be subtracted from biofuel energy content to arrive at net energy output. The net energy ratio, or energy available in biofuel per unit of energy used to produce it, is lowest converting

2.3.2 Global biofuel production, 2011

	Percent of world production, 2011		
	Fuel ethanol	Biodiesel	Total biofuels
<b>North America</b>	62.9	16.3	53.0
United States	60.8	15.6	51.2
<b>Central and South America</b>	27.8	25.6	27.4
Brazil	26.2	11.4	23.1
<b>Europe</b>	4.9	44.0	13.2
<b>Asia and Oceania</b>	4.3	13.2	6.2
People's Republic of China	2.6	1.9	2.5
India	0.4	0.5	0.4
Thailand	0.6	2.5	1.0
Indonesia	0.0	5.0	1.1

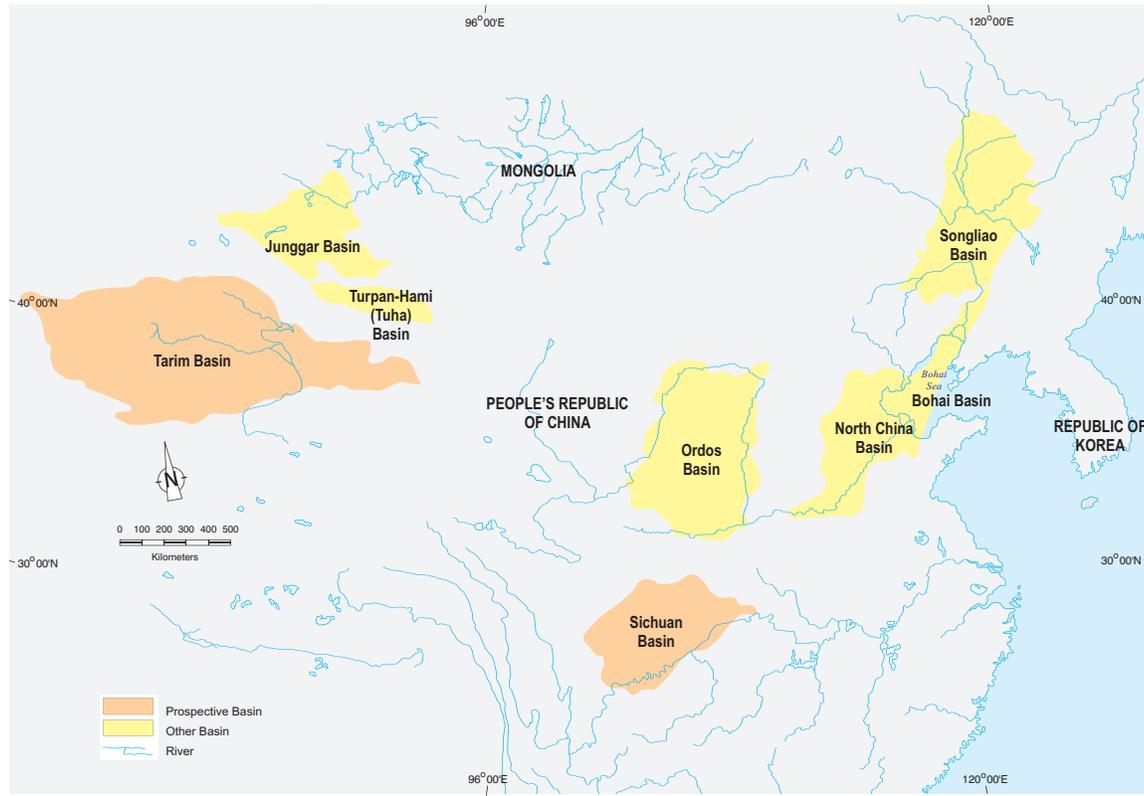
Source: EIA 2011d.

2.3.5 Technology pathways to transform biomass into biofuel



Source: Pena 2008.

### 2.3.7 The PRC's unconventional gas resources



Source: Approximation based on EIA 2011b.

Were Indonesia to achieve a reserves-to-production ratio comparable to the PRC's, it would be producing about 50 Mtoe/year of coal bed methane gas by 2030.

#### *Challenges to shale gas production*

The rapid expansion of shale gas production in the US prompted predictions that the country would become a net exporter of liquefied natural gas by 2016 and a net exporter of natural gas overall by 2020 (EIA 2012c). This prediction is contentious.

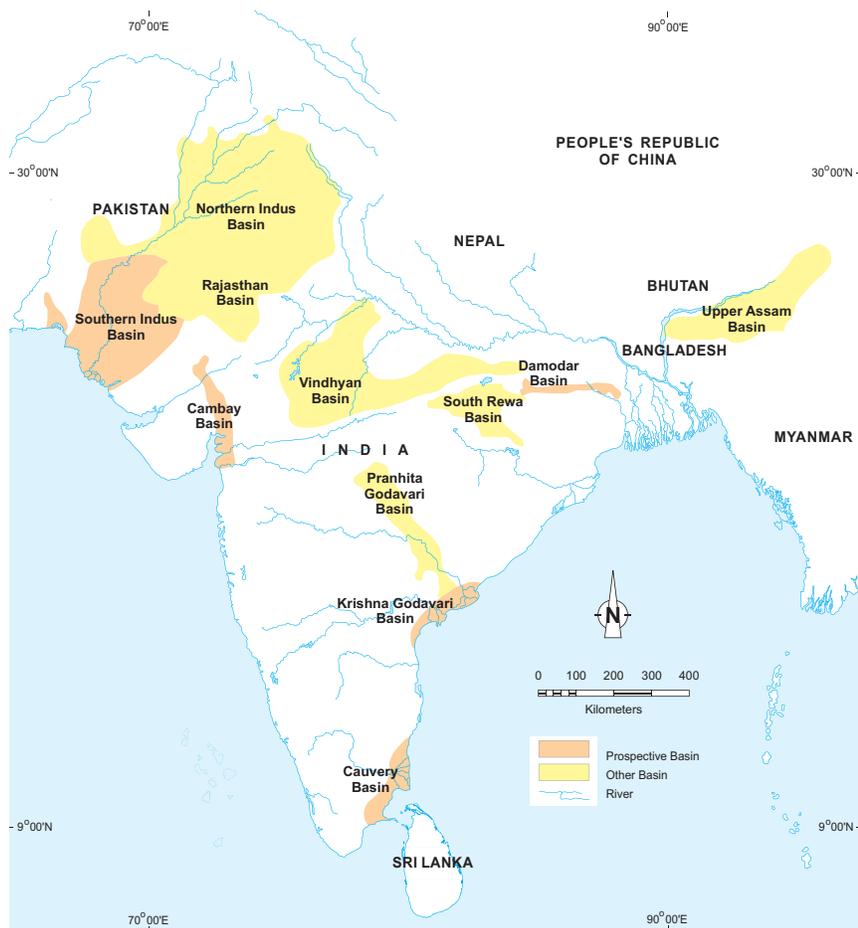
Uncertainty is even greater for Asia. The ambitious shale gas targets set by the Government of the PRC and the interest expressed by the governments of India, Indonesia, Kazakhstan, and Pakistan in exploiting their shale gas resources reflect the enthusiasm of the last several years. Many in government and industry expect to see an Asian echo of the North American shale gas boom.

But the North American shale gas revolution may not be easy to repeat in Asia. The Asian situation differs from that in North America in a number of ways that may challenge shale gas production. And the cost of extracting shale gas may be higher in Asia than in North America, compromising its ability to supplant other fuels or sources of gas.

The challenges facing Asian shale gas development include the following:

- **More challenging geological conditions.** Relative to gas shales in North America, many in the PRC appear to be smaller, deeper,

## 2.3.8 India and Pakistan's unconventional gas resources



Source: Approximation based on EIA 2011b.

more complex, and higher in clay content, which makes fracturing difficult (Lelyveld 2012, Kim et al. 2012, Katakey et al. 2012).

- **Lack of geological data.** Successfully producing shale gas requires a good understanding of regional geology. In North America, good data covering large prospective areas has accumulated through decades of conventional drilling and seismic surveys (Butkiewicz 2012). Not so in Asia.
- **Development on densely populated land.** Unlike in North America, many prospective shale gas production areas in the PRC, India, and other parts of Asia are heavily populated. This means more involuntary resettlement and environmental impact in Asia. Even when the required land area is minimized by drilling only one wellhead, from which sprout multiple horizontal wells, each wellhead may require a thousand truck trips over a period of several weeks to transport water and equipment for the drilling. Pipelines for collecting the gas from wellheads and roads for moving heavy vehicles will require space.

Exporting the shale gas revolution to Asia will require creative policy approaches that attend to these challenges.

### 2.3.9 Indonesia's unconventional gas resources



Source: Approximation based on ADB 2003.

While natural gas produces lower GHG emissions than coal when burned to generate electricity, it is not as clean as nuclear or most renewables. A concern is that leakage of methane, a powerful GHG, can occur during production, separation, transmission, and distribution. A further concern is that shale gas development risks groundwater contamination if not prudently undertaken, including the proper treatment and disposal of water and debris from boreholes. The land used for drilling and surface works needs to be restored after drilling, which could become a contentious issue with the local populations who see restoration as incomplete. High disclosure standards and effective enforcement capacity will have to be built before the large-scale production of shale gas can start.

Moreover, current shale gas production technology uses copious amounts of water. Competition for water to meet local agricultural and domestic needs may place serious constraints on the rate at which shale gas can be developed.

In 2012, the IEA published its golden rules for a golden age of gas, outlining the standards and protocols they believe will permit the environmentally sustainable development of unconventional gas.

If available in sufficient quantities, natural gas from shale and coal bed methane could replace a certain portion of naphtha used for petrochemicals, thus reducing the need for oil imports and advancing energy supply adequacy. However, unless these supplies also contain sufficient quantities of readily separable natural gas liquids—heavier substances extracted from “wet” gas prior to transmission—totally displacing oil-derived petrochemicals is technically impossible.

On the whole, the aggressive development of unconventional gas has the potential to enhance supply adequacy, affordability, economic

### 2.4.1 Efficient transmission in interconnecting power grids

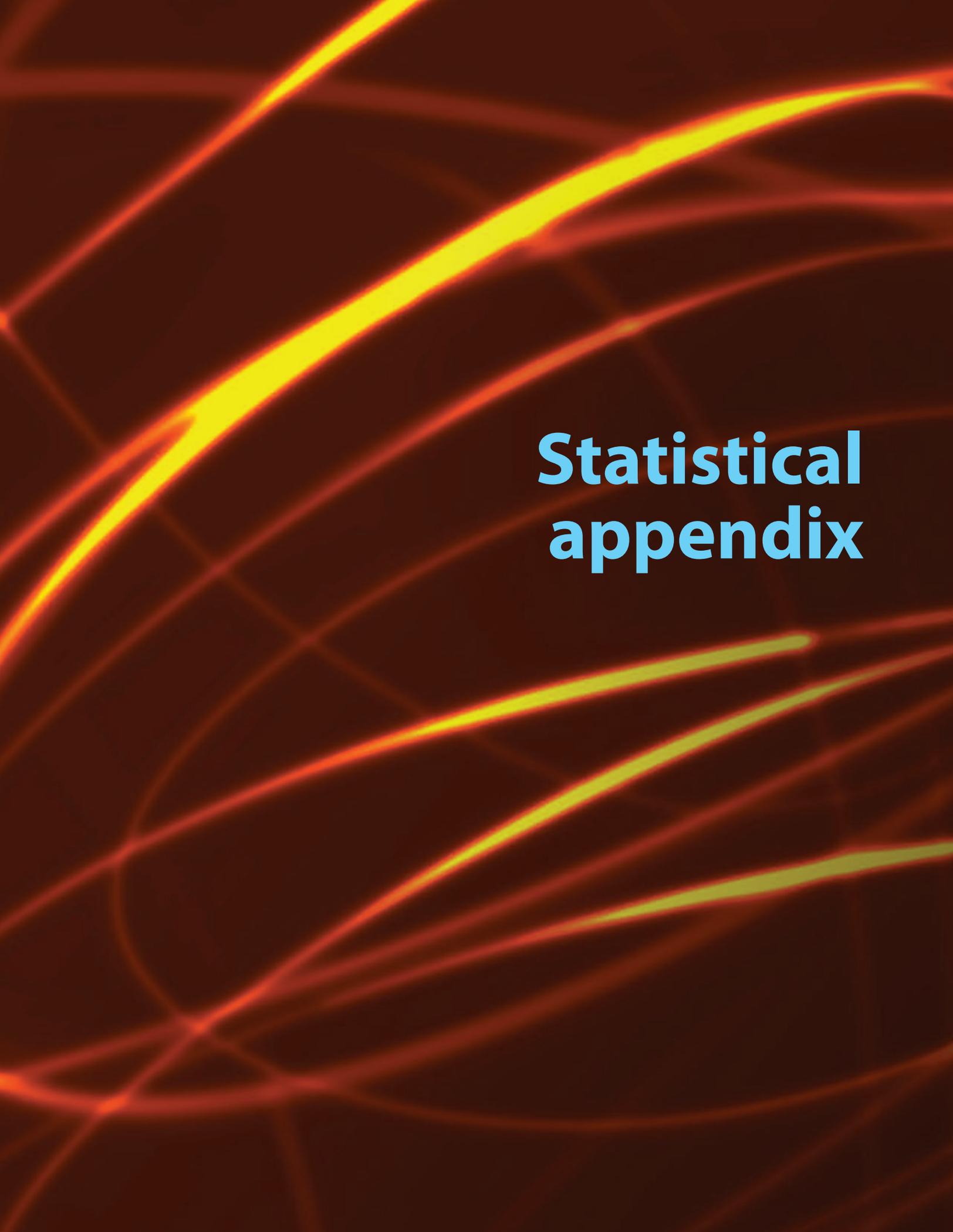
Most electricity worldwide is transmitted as alternating current (AC), the form of power produced by all electric generators and needed by end users for lighting, appliances, industrial processes, and other uses. The catch is that AC suffers high technical losses in transmission, making it a poor choice for maximizing energy efficiency. High-voltage direct current (HVDC) transmission loses less power in transit and has other technical advantages. The downside is that it has high capital costs because of the need to convert the original AC power into DC power for transmission and then back again to AC for distribution to customers. The high price tag on converters—called “rectifiers” for converting AC to DC and “inverters” for converting DC back to AC—can be justified economically only if the potential technical losses incurred transmitting large AC loads over long distances are high enough to cover the investment. That requires a big grid.

Other technical considerations can tilt the field in favor of HVDC transmission. In addition to lower transmission losses, HVDC transmission significantly improves the stability to the grid because energy flow over an HVDC interconnection can be precisely regulated. Further, the two AC systems at either end of an HVDC interconnection need not be synchronized with matching alternating frequency. This flexibility allows interconnection between countries using 60 alternating cycles per second (measured in hertz)—as in the Republic of Korea, the Philippines, Taipei, China, and parts of Japan—to neighbors using 50 hertz, as in the rest of Asia. Flexibility is further valuable in light of utility operators’ need to match supply to ever-changing and sometimes unpredictable demand.

cooperation and integration. In fact, India started helping Bhutan develop its hydropower potential in the early 1960s. India financed through a mix of grants and loans several large hydropower projects such as at Chukha with 336 megawatts (MW), Tala with 1,020 MW, and Kurichu with 60 MW.

Much of the power generated by these hydroelectric projects was exported to India, providing India with much-needed energy and Bhutan with much-needed revenues. When northern India was hit by its worst power outage in a decade in July 2012, the Indian government turned to Bhutan for assistance. Bhutan responded by releasing additional power from its hydroelectric stations to kick-start India’s fossil fuel-based power plants. Today, Bhutan meets 1% of India’s electricity needs, and it entered into a deal to sell India 5.48 billion kilowatt-hours in the year from April 2012 to March 2013. Bhutan has 30,000 megawatts of hydropower potential, equal to about a fifth of India’s hydropower potential.

The Greater Mekong Subregion (GMS) is an illustrative example of large scope for cooperation and integration. The sheer diversity of the subregion’s resource base multiplies the huge potential gains achievable from regional energy integration. The GMS has enormous energy resource endowments. Realizing just half of its hydropower potential would generate 450 terawatt-hours, or almost double the subregion’s total electricity generation from all sources in 2010. In addition, the region is endowed with abundant coal deposits and promising gas and petroleum reserves. However, these energy resources are unevenly distributed across the subregion. Hydropower potential is abundant in the PRC’s Yunnan and Guangxi provinces, Myanmar, the Lao PDR, and Viet Nam, which together control 94% of hydropower resources in the GMS. Hydropower potential in Myanmar and the Lao PDR is huge relative to the countries’ populations and expected electricity needs. Myanmar, Thailand, and Viet Nam have natural gas; Viet Nam has most of the subregion’s oil; and Yunnan has the main coal deposits.



# **Statistical appendix**

# Statistical notes and tables

The statistical appendix presents in 18 tables selected economic indicators for 44 developing member economies of the Asian Development Bank (ADB) and for Brunei Darussalam, an unclassified regional member. The economies are grouped into five subregions: Central Asia, East Asia, South Asia, Southeast Asia, and the Pacific. Most of the tables contain historical data from 2008 to 2012; some have forecasts for 2013 and 2014.

The data were standardized to the degree possible to allow comparability over time and across economies, but differences in statistical methodology, definitions, coverage, and practices make full comparability impossible. The national income accounts section is based on the United Nations System of National Accounts, while the balance-of-payments data are based on International Monetary Fund (IMF) accounting standards. Historical data were obtained from official sources, statistical publications and databases, and documents of ADB, the IMF, and the World Bank. Projections for 2013 and 2014 are generally ADB estimates made on the basis of available quarterly or monthly data, although some projections are from governments.

Most countries report by calendar year. Some economies record their government finance data by fiscal year: Armenia; Azerbaijan; the Cook Islands; Hong Kong, China; Kazakhstan; the Kyrgyz Republic; the Lao People's Democratic Republic (Lao PDR); Samoa; Singapore; Taipei, China; Tajikistan; Thailand; and Uzbekistan. The Federated States of Micronesia, Nauru, the Republic of Marshall Islands, and the Republic of Palau report government finance and balance-of-payments data by fiscal year. Myanmar, Samoa, Tonga, and countries in South Asia except for the Maldives and Sri Lanka report all variables by fiscal year.

Regional and subregional averages and totals are provided in seven tables: A1, A2, A6, A11, A12, A13, and A14. In tables A1, A2, A6, and A14, the averages are computed using weights derived from gross national income (GNI) in current United States (US) dollars following the World Bank Atlas method. The GNI data for 2008–2011 were obtained from the World Bank's World Development Indicators online. Weights for 2011 were carried over through 2014. The GNI data for the Cook Islands were estimated using the Atlas conversion factor. Myanmar and Nauru have no GNI data. For tables A11 and A12, the regional and subregional averages were computed on the basis of a consistent sum, which means that if country data are missing for a given year, the sum of the prior year used for computing the growth rate excludes the corresponding country data.

Data for Myanmar and Nauru are excluded from the computation of all subregional averages and totals.

**Tables A1, A2, A3, A4, and A5.** These tables show related data on output growth, production, and demand. Changes to the national income accounts series for some countries have been made owing to a change in source, methodology, and/or base year. The series for Bhutan and India reflect the fiscal rather than the calendar year data, while those for Timor-Leste reflect gross domestic product (GDP) unrelated to oil or the United Nations mission.

**Table A1: Growth rate of GDP (% per year).** The table shows annual growth rates of GDP valued at constant market prices, factor costs, or basic prices. GDP at market prices is the aggregation of the value added of all resident producers at producers' prices including taxes less subsidies on imports plus all nondeductible value-added or similar taxes. Constant factor cost measures differ from market price measures in that they exclude taxes on production and include subsidies. Basic price valuation is the factor cost plus some taxes on production, such as property and payroll taxes, and less some subsidies, such as labor-related subsidies but not product-related subsidies. Most countries use constant market price valuation. Fiji, India, Pakistan, and Sri Lanka use constant factor costs, while the Maldives and Nepal use basic prices. GDP growth for 2008 is excluded for Nauru because of consistency issues.

**Table A2: Growth rate of per capita GDP (% per year).** The table provides the growth rates of real per capita GDP, which is defined as GDP at constant prices divided by the population. The series for most of the Pacific countries were revised to reflect a change in the source of population data. Also shown are data on per capita gross national product in US dollar terms for 2011, sourced from the World Bank's World Development Indicators online.

**Table A3: Growth rate of value added in agriculture (% per year).** The table shows the growth rates of value added in agriculture and its corresponding share in 2011. The agriculture sector comprises agricultural crops, livestock, poultry, fisheries, and forestry.

**Table A4: Growth rate of value added in industry (% per year).** The table provides the growth rates of value added in industry and its corresponding share in 2011. This sector comprises manufacturing, mining and quarrying, construction, and utilities.

**Table A5: Growth rate of value added in services (% per year).** The table gives the growth rates of value added in services, as well as its corresponding share in 2011. Subsectors generally include trade, banking, finance, real estate, public administration, and other services.

**Table A6: Inflation (% per year).** Data on inflation rates represent period averages. Except for India, which reports the wholesale price index, the inflation rates presented are based on consumer price indexes. The consumer price indexes of the following countries are for a given city or group of consumers only: Afghanistan is for Kabul until 2010, Cambodia is for Phnom Penh, Marshall Islands is for Majuro, Solomon Islands is for Honiara, and Nepal is for urban consumers.

**Table A7: Growth in money supply (% per year).** This table tracks the annual percentage change in the end-of-period supply of broad money as represented by M2 (for most countries). M2 is defined as the sum of M1

and quasi-money, where M<sub>1</sub> denotes currency in circulation plus demand deposits and quasi-money consists of time and savings deposits including foreign currency deposits.

**Tables A8, A9, and A10: Government finance.** This set of tables refers to the revenue and expenditure transactions as well as the fiscal balance of the central government expressed as a percentage of GDP in nominal terms. For Cambodia since 2006, the People's Republic of China, India, Kazakhstan, the Kyrgyz Republic, Mongolia, and Tajikistan, transactions are those reported by the central government, while for Turkmenistan data are those reported by state governments.

**Table A8: Central government revenues (% of GDP).** Central government revenues comprise all nonrepayable receipts, both current and capital, plus grants. These amounts are computed as a percentage of GDP at current prices. For the Republic of Korea, revenues exclude social security contributions. For Singapore, revenues refer to receipts credited to the three accounts listed for the previous table, including investment income, capital receipts, and investment adjustments. For Kazakhstan, revenues include transfers from the national fund. Grants are excluded in Cambodia, the Lao PDR, Malaysia, Singapore, and Thailand; revenues from disinvestment are included for India; and only current revenues are included for Bangladesh.

**Table A9: Central government expenditures (% of GDP).** Central government expenditures comprise all nonrepayable payments to both current and capital expenses, plus net lending. These amounts are computed as a share of GDP at current prices. For Thailand, expenditures refer to budgetary expenditures excluding externally financed expenditures and corresponding borrowing, while that for Tajikistan includes externally financed public investment programs. One-time expenditures are excluded for Pakistan.

**Table A10: Fiscal balance of central government (% of GDP).** Fiscal balance is the difference between central government revenues and expenditures. The difference is also computed as a share of GDP at current prices. Data variations may arise from statistical discrepancies, e.g., balancing items for both central and local governments, and differences in the concept used in the individual computations of revenues and expenditures as compared with the calculation of the fiscal balance. For Fiji, the fiscal balance excludes total loan repayments. For Thailand, the fiscal balance is a cash balance composed of the budgetary and nonbudgetary balances.

**Tables A11, A12, A13, and A14: Balance of payments.** This set of tables shows selected international economic transactions of countries as recorded in the balance of payments. These items cover annual flows, except that some countries show data as of a specified period only.

**Tables A11 and A12: Growth rates of merchandise exports and imports (% per year).** The annual growth rates of exports and imports, in terms of merchandise goods only, are shown in these tables. Data are in million US dollars, primarily obtained from the balance-of-payments accounts of each country. Exports are reported on a free-on-board basis. Imports are also generally reported on a free-on-board basis, except for Afghanistan, Bhutan, Cambodia, India, the Lao PDR, Myanmar, the

Philippines, Samoa, Singapore, Solomon Islands, Tajikistan, and Thailand, which value them on a cost, insurance, freight basis.

**Table A13: Trade balance (US\$ million).** The trade balance is the difference between merchandise exports and merchandise imports. Figures in this table are based on the exports and imports levels used to generate Tables A11 and A12.

**Table A14: Current account balance (% of GDP).** The current account balance is the sum of the balance of trade for merchandise, net trade in services and factor income, and net transfers. The values reported are divided by GDP at current prices in US dollars. In the case of Cambodia, the Lao PDR, and Viet Nam, official transfers are excluded from the current account balance.

**Table A15: Exchange rates to the US dollar (annual average).** The annual average exchange rates of each economy are quoted in local currencies per US dollar. The rate for 2012 for India is for the period April 2012–March 2013.

**Table A16: Gross international reserves (US\$ million).** Gross international reserves are defined as the US dollar value of holdings of foreign exchange, special drawing rights, reserve position in the IMF, and gold at the end of a given period. For Turkmenistan, gold is excluded from the computation. For the Marshall Islands and Taipei, China, this heading refers to foreign exchange reserves only. In some countries, the rubric comprises foreign assets and reserves of national monetary authorities and national oil funds, i.e., foreign assets of the Maldives Monetary Authority, net foreign reserves of the State Bank of Pakistan, assets of the National Oil Fund of Azerbaijan, and official external assets of Kiribati. The data for India are as of 15 March 2013.

**Table A17: External debt outstanding (US\$ million).** For most economies, external debt outstanding—public and private—includes medium- and long-term debt, short-term debt, and IMF credit. For Cambodia, Georgia, the Lao PDR, and Tajikistan only public external debt is reported. For Azerbaijan, India, Kazakhstan, and Singapore the figures for 2012 are as of the end of September.

**Table A18: Debt service ratio (% of exports of goods and services).** This table generally presents the total debt service payments of each economy, which comprise principal repayments (excluding on short-term debt) and interest payments on outstanding external debt as a percentage of exports of goods and services. For Cambodia and the Lao PDR, debt service refers to external public debt only. For Papua New Guinea, Samoa, and Viet Nam, exports of goods are used as the denominator in the calculation of the ratio; for the Philippines, exports of goods, services, and income are used as the denominator. For Bangladesh, the ratio represents debt service payments on medium- and long-term loans as a percentage of exports of goods, nonfactor services, and workers' remittances, while for Azerbaijan the ratio represents public and publicly guaranteed external debt service payments as a percentage of exports of goods and nonfactor services. For India, Kazakhstan, and Singapore data for 2012 are as of the end of September.

Table A1 Growth rate of GDP (% per year)

	2008	2009	2010	2011	2012	2013	2014
<b>Central Asia</b>	6.5	3.2	6.8	6.8	5.6	5.5	6.0
Armenia	6.9	-14.1	2.2	4.7	7.2	4.5	4.6
Azerbaijan	10.8	9.3	5.0	0.1	2.2	3.1	4.8
Georgia	2.3	-3.8	6.3	7.2	6.1	5.5	6.0
Kazakhstan	3.3	1.2	7.3	7.5	5.0	5.2	5.6
Kyrgyz Republic	8.4	2.9	-0.5	6.0	-0.9	5.5	4.5
Tajikistan	7.9	3.9	6.5	7.4	7.5	6.5	6.0
Turkmenistan	14.7	6.1	9.2	14.7	11.1	9.0	8.0
Uzbekistan	9.0	8.1	8.5	8.3	8.2	7.5	8.0
<b>East Asia</b>	7.3	6.8	9.8	8.2	6.5	7.1	7.1
China, People's Rep. of	9.6	9.2	10.4	9.3	7.8	8.2	8.0
Hong Kong, China	2.1	-2.5	6.8	4.9	1.4	3.5	3.8
Korea, Rep. of	2.3	0.3	6.3	3.7	2.0	2.8	3.7
Mongolia	8.9	-1.3	6.4	17.5	12.3	16.5	14.0
Taipei, China	0.7	-1.8	10.8	4.1	1.3	3.5	3.9
<b>South Asia</b>	6.4	7.7	8.5	6.0	5.0	5.7	6.2
Afghanistan	3.6	21.0	8.4	7.2	11.9	3.3	5.1
Bangladesh	6.2	5.7	6.1	6.7	6.3	5.7	6.0
Bhutan	10.8	5.7	9.3	10.0	7.5	8.6	8.5
India	6.7	8.6	9.3	6.2	5.0	6.0	6.5
Maldives	12.2	-3.6	7.1	7.0	3.4	4.3	5.5
Nepal	5.8	3.9	4.3	3.8	4.6	3.5	4.2
Pakistan	3.7	1.7	3.1	3.0	3.7	3.6	3.5
Sri Lanka	6.0	3.5	8.0	8.2	6.4	6.8	7.2
<b>Southeast Asia</b>	4.4	1.4	7.9	4.7	5.5	5.4	5.7
Brunei Darussalam	-1.9	-1.8	2.6	2.2	1.0	1.8	2.0
Cambodia	6.7	0.1	6.0	7.1	7.2	7.2	7.2
Indonesia	6.0	4.6	6.2	6.5	6.2	6.4	6.6
Lao People's Dem. Rep.	7.2	7.3	7.5	7.8	7.9	7.7	7.7
Malaysia	4.8	-1.5	7.2	5.1	5.6	5.3	5.5
Myanmar	3.6	5.1	5.3	5.5	6.3	6.5	6.7
Philippines	4.2	1.1	7.6	3.9	6.6	6.0	5.9
Singapore	1.7	-0.8	14.8	5.2	1.3	2.6	3.7
Thailand	2.5	-2.3	7.8	0.1	6.4	4.9	5.0
Viet Nam	6.3	5.3	6.8	5.9	5.0	5.2	5.6
<b>The Pacific</b>	6.1	4.3	5.5	8.3	7.3	5.2	5.5
Cook Islands	-3.5	1.0	-2.9	1.0	3.3	3.0	3.2
Fiji Islands	1.1	-1.3	0.1	1.9	2.5	2.0	2.3
Kiribati	2.8	-0.7	-0.5	3.3	3.0	3.5	3.5
Marshall Islands, Rep. of	-1.9	-1.5	5.6	0.8	1.9	2.3	1.5
Micronesia, Fed. States of	-2.5	0.9	2.5	2.1	1.4	1.0	1.5
Nauru		-18.6	0.0	3.8	4.9	8.0	8.0
Palau, Rep. of	-6.1	-4.6	0.3	5.8	4.0	3.0	3.5
Papua New Guinea	6.6	6.0	7.4	11.1	9.2	5.5	6.0
Samoa	4.3	-5.1	0.4	2.0	1.2	0.9	2.0
Solomon Islands	7.2	-1.0	6.9	10.6	5.5	4.0	4.0
Timor-Leste, Dem. Rep. of	14.6	12.8	9.5	10.8	10.6	10.0	10.0
Tonga	1.9	3.2	3.3	2.9	0.8	0.5	0.3
Tuvalu	11.6	-2.3	-1.4	-0.6	1.2	1.3	1.5
Vanuatu	6.5	3.3	1.6	1.4	2.0	3.2	3.4
<b>Average</b>	6.7	6.1	9.2	7.3	6.1	6.6	6.7

... = data not available.

Table A2 Growth rate of per capita GDP (% per year)

	2008	2009	2010	2011	2012	2013	2014	Per capita GNP, US\$, 2011
<b>Central Asia</b>	5.1	1.4	5.3	5.2	4.3	4.0	4.8	...
Armenia	6.7	-14.4	1.9	4.3	6.8	4.2	4.3	3,360
Azerbaijan	9.6	7.1	3.8	-1.1	0.8	1.8	4.3	5,290
Georgia	2.6	-3.9	5.0	6.4	6.8	4.8	6.0	2,860
Kazakhstan	1.8	-0.7	5.5	5.9	3.5	3.7	4.1	8,260
Kyrgyz Republic	6.8	0.7	-1.6	4.6	-2.9	3.9	2.9	880
Tajikistan	5.6	1.8	5.5	7.4	4.7	4.9	4.4	870
Turkmenistan	12.8	4.2	9.2	12.8	9.3	7.2	6.2	4,800
Uzbekistan	7.3	6.3	6.8	5.3	7.5	5.3	6.6	1,510
<b>East Asia</b>	6.8	6.3	9.3	7.7	6.1	6.7	6.7	...
China, People's Rep. of	9.0	8.7	9.9	8.8	7.3	7.7	7.5	4,940
Hong Kong, China	1.5	-2.7	6.0	4.1	0.5	2.8	3.1	36,010
Korea, Rep. of	2.0	0.0	6.0	3.4	1.8	2.6	3.6	20,870
Mongolia	7.1	-3.1	4.5	15.5	11.0	15.0	12.5	2,310
Taipei, China	0.4	-2.2	10.6	4.0	1.1	3.3	3.7	20,200
<b>South Asia</b>	4.8	6.2	6.9	4.5	3.7	4.3	4.7	...
Afghanistan	1.5	18.6	6.3	5.2	9.7	1.3	3.0	470
Bangladesh	4.8	4.4	4.7	4.1	5.0	4.3	4.6	780
Bhutan	8.7	3.8	7.3	8.1	5.7	6.7	6.7	2,130
India	5.2	7.1	7.8	4.8	3.7	4.7	5.2	1,410
Maldives	10.5	-5.2	5.3	5.3	1.7	2.6	3.7	5,720
Nepal	4.6	2.3	2.7	3.0	3.2	2.1	2.8	540
Pakistan	1.5	-0.4	0.9	0.9	1.6	2.2	1.7	1,120
Sri Lanka	4.9	2.4	7.0	7.1	9.2	2.6	3.0	2,580
<b>Southeast Asia</b>	2.5	0.1	5.8	2.8	4.6	4.2	4.5	...
Brunei Darussalam	-3.2	-3.1	0.8	0.5	-0.6	0.3	0.5	31,800
Cambodia	3.2	-1.4	4.8	5.2	5.7	5.0	5.8	820
Indonesia	4.7	3.3	3.4	3.6	6.0	5.4	5.6	2,940
Lao People's Dem. Rep.	4.9	5.0	5.3	5.7	6.5	5.9	6.1	1,130
Malaysia	3.5	-2.8	4.6	3.7	4.3	4.0	4.2	8,770
Myanmar	2.0	3.8	3.2	3.4	4.2	4.4	4.6	...
Philippines	2.0	0.5	6.1	1.9	4.8	4.3	4.3	2,210
Singapore	-3.5	-3.7	12.8	3.0	-1.1	0.4	1.5	42,930
Thailand	1.6	-3.1	7.2	-0.4	5.9	4.4	4.5	4,440
Viet Nam	5.2	4.2	5.7	4.8	4.0	4.1	4.5	1,270
<b>The Pacific</b>	4.2	2.6	3.6	6.4	5.4	3.0	3.3	...
Cook Islands	-3.9	0.7	-3.2	0.6	3.0	1.7	...	...
Fiji Islands	0.4	-1.9	-0.6	1.4	1.9	1.5	1.8	3,720
Kiribati	0.9	-2.5	-3.9	-0.3	1.4	1.9	1.9	2,030
Marshall Islands, Rep. of	-3.4	-1.8	4.9	-0.2	0.9	1.3	0.6	3,910
Micronesia, Fed. States of	-2.0	1.5	3.2	2.7	1.9	1.5	1.9	2,860
Nauru	...	-19.8	0.5	-0.7	4.9	8.0	8.0	...
Palau, Rep. of	-6.6	-5.2	-0.3	5.2	3.4	2.4	2.8	6,510
Papua New Guinea	4.3	3.8	5.1	8.7	6.9	3.3	3.7	1,480
Samoa	3.9	-5.5	0.1	1.8	1.0	0.7	1.8	3,160
Solomon Islands	2.9	-3.3	4.5	7.9	3.2	1.6	1.5	1,110
Timor-Leste, Dem. Rep. of	11.9	10.1	6.8	8.2	8.0	5.5	5.5	2,730
Tonga	1.3	2.9	3.0	2.6	0.6	0.2	0.0	3,820
Tuvalu	12.5	-2.8	-1.9	-1.1	0.7	0.8	1.0	4,950
Vanuatu	4.1	1.1	-0.8	-0.9	-0.3	0.9	1.1	2,750
<b>Average</b>	5.8	5.2	8.3	6.4	5.4	5.8	6.0	...

... = data not available.

Table A3 Growth rate of value added in agriculture (% per year)

	2008	2009	2010	2011	2012	Sector Share, 2010, %
<b>Central Asia</b>						
Armenia	3.3	6.0	-16.0	13.6	9.3	20.7
Azerbaijan	6.1	3.5	-2.2	-8.0	3.7	5.4
Georgia	-4.4	-6.8	-4.8	8.0	-3.3	10.4
Kazakhstan	-6.1	13.5	-11.6	26.5	-17.8	6.1
Kyrgyz Republic	0.9	6.7	-2.6	1.9	1.2	18.7
Tajikistan	7.8	10.5	6.8	7.9	10.4	...
Turkmenistan	...	...	...	...	...	...
Uzbekistan	4.7	5.7	6.8	6.6	7.0	31.2
<b>East Asia</b>						
China, People's Rep. of	5.4	4.2	4.3	4.3	4.5	7.8
Hong Kong, China	-17.0	-4.6	3.8	0.8	-0.7	0.1
Korea, Rep. of	5.6	3.2	-4.4	-2.1	-0.6	2.9
Mongolia	4.7	3.6	-16.6	-0.5	21.3	16.6
Taipei, China	0.1	-3.0	1.7	7.2	-5.8	1.4
<b>South Asia</b>						
Afghanistan	-14.9	44.6	-6.4	-7.9	31.5	20.0
Bangladesh	3.2	4.1	5.2	5.1	2.5	20.0
Bhutan	0.8	1.7	1.5	0.9	0.8	14.4
India	0.1	0.8	7.9	3.6	1.8	14.1
Maldives	-3.4	-2.5	-0.9	1.1	4.9	3.3
Nepal	5.8	3.0	2.0	4.5	4.9	35.1
Pakistan	1.0	4.0	0.6	2.4	3.1	21.2
Sri Lanka	7.5	3.2	7.0	1.4	5.8	11.2
<b>Southeast Asia</b>						
Brunei Darussalam	3.8	5.6	-5.8	4.6	...	1.1
Cambodia	5.7	5.4	4.0	3.1	4.0	28.3
Indonesia	4.8	4.0	3.0	3.4	4.0	12.8
Lao People's Dem. Rep.	2.5	2.4	2.0	1.8	2.5	29.4
Malaysia	3.8	0.1	2.4	5.9	0.8	7.8
Myanmar	5.6	5.6	4.7	...	...	...
Philippines	3.2	-0.7	-0.2	2.7	2.7	11.5
Singapore	-4.6	3.1	3.9	3.2	1.2	0.0
Thailand	4.2	1.3	-2.3	4.1	3.1	8.6
Viet Nam	4.7	1.8	2.8	4.5	2.7	16.2
<b>The Pacific</b>						
Cook Islands	-9.9	7.2	1.5	-6.6	...	5.5
Fiji Islands	5.0	-13.0	-4.1	11.5	...	13.4
Kiribati	15.0	-8.2	-2.5	5.7	...	23.8
Marshall Islands, Rep. of	-1.8	12.7	24.3	4.8	...	12.9
Micronesia, Fed. States of	-0.2	-0.9	0.7	4.5	...	26.3
Nauru	1.7	1.7	...	...	...	...
Palau, Rep. of	-7.1	6.0	...	...	...	...
Papua New Guinea	4.3	0.7	2.9	8.6	0.2	32.7
Samoa	2.4	-10.8	-3.2	-1.4	-5.1	9.5
Solomon Islands	10.5	-1.3	...	...	...	...
Timor-Leste, Dem. Rep. of	7.6	8.5	-2.1	0.0	0.0	...
Tonga	-5.3	-1.4	0.5	2.0	0.5	18.9
Tuvalu	-0.6	0.7	2.2	0.5	...	20.1
Vanuatu	2.6	0.7	4.8	5.9	...	22.2

... = data not available.

Table A4 Growth rate of value added in industry (% per year)

	2008	2009	2010	2011	2012	Sector Share, 2010, %
<b>Central Asia</b>						
Armenia	7.8	-29.6	5.8	1.0	3.5	35.6
Azerbaijan	9.7	10.6	4.4	3.4	-1.9	65.6
Georgia	-3.9	-3.5	9.1	9.4	9.9	27.2
Kazakhstan	2.6	1.4	7.2	3.4	1.2	38.6
Kyrgyz Republic	14.0	-0.3	2.5	7.0	-13.8	29.5
Tajikistan	-8.9	-6.5	9.7	5.9	10.4	...
Turkmenistan						
Uzbekistan	6.5	9.7	8.3	6.7	8.0	35.0
<b>East Asia</b>						
China, People's Rep. of	9.9	9.9	12.3	10.3	8.1	59.9
Hong Kong, China	1.8	-5.1	7.6	8.8	5.6	7.2
Korea, Rep. of	2.0	-0.6	10.7	5.1	1.7	40.0
Mongolia	-0.8	-0.4	4.3	9.1	10.1	31.7
Taipei, China	0.2	-4.1	23.1	5.7	0.9	36.3
<b>South Asia</b>						
Afghanistan	5.7	6.1	6.3	9.8	7.2	26.6
Bangladesh	6.8	6.5	6.5	8.2	9.5	30.4
Bhutan	20.4	4.8	8.2	8.1	8.8	45.2
India	4.4	9.2	9.2	3.5	3.1	27.5
Maldives	9.5	-26.1	4.3	14.6	14.0	15.4
Nepal	1.7	-0.6	4.0	2.9	1.7	15.3
Pakistan	1.4	-0.1	6.1	0.7	3.4	25.5
Sri Lanka	5.9	4.2	8.4	10.3	10.3	29.3
<b>Southeast Asia</b>						
Brunei Darussalam	-5.4	-5.0	1.7	0.9	...	51.9
Cambodia	4.0	-9.5	13.6	14.5	9.2	30.6
Indonesia	3.7	3.6	4.9	5.3	5.2	40.7
Lao People's Dem. Rep.	10.2	17.4	14.5	14.2	13.7	28.6
Malaysia	0.1	-7.2	8.0	2.0	5.1	37.4
Myanmar	18.0	17.7	18.6	...	...	...
Philippines	4.8	-1.9	11.6	2.3	6.5	32.1
Singapore	-1.5	-1.3	24.7	7.4	1.2	33.5
Thailand	3.2	-5.0	12.8	-3.9	7.2	46.8
Viet Nam	6.0	5.5	7.7	5.5	4.5	41.8
<b>The Pacific</b>						
Cook Islands	2.5	-2.2	-8.7	8.7	...	9.4
Fiji Islands	-1.4	-0.4	5.7	1.4	...	18.7
Kiribati	-25.2	21.3	-9.9	11.8	...	8.6
Marshall Islands, Rep. of	3.3	-7.4	-6.2	-6.4	...	9.7
Micronesia, Fed. States of	7.6	36.3	16.2	12.8	...	8.9
Nauru	404.9	-41.1	...	...	...	...
Palau, Rep. of	-30.7	-11.6	...	...	...	...
Papua New Guinea	7.0	8.1	10.8	13.0	15.9	35.9
Samoa	5.9	-15.7	2.7	1.0	2.7	27.5
Solomon Islands	13.0	1.3	...	...	...	...
Timor-Leste, Dem. Rep. of	24.7	13.8	11.1	...	...	...
Tonga	0.7	12.9	11.6	5.5	1.2	21.2
Tuvalu	81.9	-14.4	-6.9	-28.7	...	12.1
Vanuatu	27.5	27.6	12.6	-20.9	...	9.4

... = data not available.

Table A5 Growth rate of value added in services (% per year)

	2008	2009	2010	2011	2012	Sector Share, 2010, %
<b>Central Asia</b>						
Armenia	5.0	-3.6	4.6	5.9	8.4	43.7
Azerbaijan	14.0	9.1	7.2	-2.1	9.9	29.0
Georgia	7.4	-3.4	7.8	5.7	5.8	62.4
Kazakhstan	4.3	-1.1	7.1	9.0	9.8	55.3
Kyrgyz Republic	11.0	2.3	-1.1	6.9	6.2	51.8
Tajikistan	12.0	9.5	4.6	13.5	14.5	...
Turkmenistan	...	...	...	...	...	...
Uzbekistan	15.3	9.3	11.6	12.7	10.4	33.7
<b>East Asia</b>						
China, People's Rep. of	10.4	9.6	9.8	9.4	8.1	32.3
Hong Kong, China	2.4	-1.7	7.0	5.2	2.0	92.7
Korea, Rep. of	2.8	1.1	3.9	2.6	2.5	57.1
Mongolia	16.6	0.8	9.8	16.8	13.4	51.8
Taipei, China	1.3	-0.2	4.8	3.1	1.0	62.3
<b>South Asia</b>						
Afghanistan	13.8	17.2	18.1	12.7	7.3	53.3
Bangladesh	6.5	6.3	6.5	6.2	6.1	49.6
Bhutan	5.4	9.1	12.7	13.8	9.0	40.4
India	10.0	10.5	9.8	8.2	6.6	58.4
Maldives	13.5	1.7	8.0	6.0	1.4	81.3
Nepal	7.3	6.0	5.8	3.6	5.1	49.6
Pakistan	6.0	1.7	2.6	4.4	4.0	53.4
Sri Lanka	5.6	3.3	8.0	8.6	4.6	59.5
<b>Southeast Asia</b>						
Brunei Darussalam	2.6	2.1	3.8	3.7	...	47.0
Cambodia	9.0	2.3	3.3	5.0	8.0	41.1
Indonesia	8.7	5.8	8.4	8.5	7.7	46.5
Lao People's Dem. Rep.	9.5	6.2	8.0	8.5	8.0	41.9
Malaysia	8.6	2.9	7.2	7.0	6.4	54.8
Myanmar	11.6	12.2	11.6	...	...	...
Philippines	4.0	3.4	7.2	5.1	7.4	56.4
Singapore	4.5	-0.7	10.7	4.4	1.2	66.5
Thailand	1.3	-0.2	4.6	3.8	6.2	44.5
Viet Nam	7.4	6.6	7.5	7.0	6.4	42.0
<b>The Pacific</b>						
Cook Islands	-2.9	2.4	-2.5	0.4	...	85.2
Fiji Islands	0.9	0.9	-0.5	0.3	...	67.9
Kiribati	5.4	1.1	1.4	-1.2	...	67.6
Marshall Islands, Rep. of	-2.4	-0.5	3.2	0.9	...	77.4
Micronesia, Fed. States of	-3.5	-1.5	1.6	0.2	...	64.9
Nauru	32.8	1.0	...	...	...	...
Palau, Rep. of	-1.9	-1.8	...	...	...	...
Papua New Guinea	8.6	9.7	8.5	11.5	10.1	31.4
Samoa	3.9	1.5	0.0	3.0	1.5	64.3
Solomon Islands	1.3	-1.3	...	...	...	...
Timor-Leste, Dem. Rep. of	18.2	13.2	12.9	...	...	...
Tonga	4.1	0.8	1.0	1.8	0.5	59.9
Tuvalu	3.1	3.5	2.5	6.4	...	67.8
Vanuatu	5.0	3.3	3.1	3.6	...	68.4

... = data not available.

Table A6 Inflation (% per year)

	2008	2009	2010	2011	2012	2013	2014
<b>Central Asia</b>	16.4	5.9	7.0	8.9	5.3	6.7	6.7
Armenia	9.0	3.4	8.2	7.7	2.6	3.6	3.2
Azerbaijan	20.8	1.5	5.7	7.9	1.1	6.0	7.0
Georgia	10.0	1.7	7.1	8.5	-0.9	3.0	4.0
Kazakhstan	17.0	7.3	7.1	8.3	5.1	6.7	6.5
Kyrgyz Republic	24.5	6.8	7.8	16.6	2.8	7.5	5.5
Tajikistan	20.4	6.5	6.5	12.5	5.8	6.5	7.0
Turkmenistan	14.5	-2.7	4.4	5.3	5.3	6.0	6.5
Uzbekistan	12.7	14.1	9.4	13.1	12.9	9.5	9.0
<b>East Asia</b>	5.5	-0.1	3.1	5.0	2.6	3.1	3.3
China, People's Rep. of	5.9	-0.7	3.3	5.4	2.6	3.2	3.5
Hong Kong, China	4.3	0.6	2.3	5.3	4.1	3.9	4.3
Korea, Rep. of	4.7	2.8	3.0	4.0	2.2	2.5	2.8
Mongolia	28.0	7.6	10.1	9.1	14.3	13.0	10.0
Taipei, China	3.5	-0.9	1.0	1.4	1.9	1.6	1.8
<b>South Asia</b>	8.0	5.6	9.4	9.3	8.0	7.4	7.1
Afghanistan	26.8	-12.2	7.7	11.8	6.2	6.1	5.8
Bangladesh	9.9	6.7	7.3	8.8	10.6	7.8	7.0
Bhutan	6.4	7.1	4.8	8.6	10.2	9.3	7.4
India	8.1	3.8	9.6	8.9	7.5	7.2	6.8
Maldives	12.0	4.5	6.1	11.3	10.9	9.3	8.5
Nepal	7.7	12.6	9.6	9.6	8.3	10.5	9.0
Pakistan	12.0	20.8	10.1	13.7	11.0	9.0	9.5
Sri Lanka	-20.8	3.5	6.2	6.7	7.6	7.5	6.5
<b>Southeast Asia</b>	8.5	2.6	4.1	5.5	3.9	4.2	4.1
Brunei Darussalam	2.1	1.0	0.4	2.0	0.5	1.0	1.2
Cambodia	25.0	-0.7	4.0	5.5	2.9	3.0	3.5
Indonesia	9.8	4.8	5.1	5.4	4.3	5.2	4.7
Lao People's Dem. Rep.	7.6	0.0	6.0	7.6	4.3	5.5	5.0
Malaysia	5.4	0.6	1.7	3.2	1.7	2.2	3.0
Myanmar	22.5	2.3	8.2	2.8	3.5	5.1	5.1
Philippines	8.3	4.1	3.9	4.6	3.2	3.6	3.8
Singapore	6.6	0.6	2.8	5.3	4.5	3.8	3.0
Thailand	5.4	-0.9	3.3	3.8	3.0	3.2	3.1
Viet Nam	23.0	6.9	9.2	18.6	9.2	7.5	8.2
<b>The Pacific</b>	9.3	5.4	5.1	8.5	5.3	6.1	6.3
Cook Islands	4.3	10.3	1.8	0.6	2.8	3.0	3.0
Fiji Islands	7.8	3.7	5.5	8.7	4.3	4.5	4.0
Kiribati	11.0	8.4	-2.8	1.2	-1.8	3.0	3.0
Marshall Islands, Rep. of	14.7	0.5	1.8	5.4	5.7	4.5	3.5
Micronesia, Fed. States of	6.6	7.8	6.3	4.7	5.6	4.5	3.5
Nauru	1.0	21.2	-0.6	-3.5	-0.5	0.5	2.5
Palau, Rep. of	10.0	4.7	1.1	2.6	6.0	5.5	5.5
Papua New Guinea	10.8	6.9	6.0	8.4	4.1	6.5	7.5
Samoa	6.3	14.6	-0.2	2.9	6.2	4.5	4.0
Solomon Islands	17.4	7.1	1.0	7.4	5.9	4.5	4.5
Timor-Leste, Dem. Rep. of	7.6	-0.0	5.6	13.1	10.9	9.0	7.7
Tonga	9.5	6.0	5.1	6.1	4.6	2.7	2.7
Tuvalu	4.7	-5.5	-1.9	0.5	1.4	2.0	2.0
Vanuatu	4.8	4.3	2.8	0.8	1.4	2.5	2.5
<b>Average</b>	6.6	1.4	4.4	5.9	3.7	4.0	4.2

... = data not available.

Table A7 Change in money supply (% per year)

	2008	2009	2010	2011	2012
<b>Central Asia</b>					
Armenia	2.4	15.1	11.8	23.7	19.5
Azerbaijan	44.0	-0.3	24.3	32.1	20.7
Georgia	6.9	8.2	33.1	14.5	11.4
Kazakhstan	35.4	19.5	13.3	15.0	7.9
Kyrgyz Republic	12.6	17.9	21.1	14.9	23.8
Tajikistan	6.3	39.6	26.2	44.2	23.2
Turkmenistan	62.8	10.9	43.4	36.3	16.6
Uzbekistan	38.7	40.9	52.4	32.3	25.0
<b>East Asia</b>					
China, People's Rep. of	17.8	27.6	19.7	13.6	13.8
Hong Kong, China	2.6	5.3	8.1	12.9	11.1
Korea, Rep. of	12.0	9.9	6.0	5.5	4.8
Mongolia	-5.5	26.9	62.5	37.0	18.8
Taipei, China	7.2	5.8	5.4	4.8	3.5
<b>South Asia</b>					
Afghanistan	27.0	33.1	26.9	21.3	9.3
Bangladesh	17.6	19.2	22.4	21.3	17.4
Bhutan	2.3	24.6	30.1	21.2	-1.0
India	19.3	16.8	16.0	13.2	12.3
Maldives	21.8	14.4	14.6	20.0	5.0
Nepal	25.2	27.0	30.5	12.3	22.7
Pakistan	15.3	9.6	12.5	15.9	14.1
Sri Lanka	8.5	18.6	15.8	19.1	17.6
<b>Southeast Asia</b>					
Brunei Darussalam	21.6	-16.8	9.4	14.5	...
Cambodia	4.8	36.8	20.0	21.5	20.9
Indonesia	14.9	13.0	15.4	16.4	14.9
Lao People's Dem. Rep.	18.3	31.3	38.9	29.2	31.0
Malaysia	13.4	9.5	7.2	14.6	9.6
Myanmar	23.4	34.8	36.3	26.3	28.6
Philippines	15.6	8.3	10.6	6.3	10.6
Singapore	12.0	11.3	8.6	10.0	7.2
Thailand	9.2	6.8	10.9	15.1	10.3
Viet Nam	20.3	29.0	33.3	12.1	22.4
<b>The Pacific</b>					
Cook Islands	4.0	65.9	-2.3	-13.4	...
Fiji Islands	-5.4	7.4	4.2	14.8	6.3
Kiribati	...	...	...	...	...
Marshall Islands, Rep. of	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...
Nauru	...	...	...	...	...
Palau, Rep. of	...	...	...	...	...
Papua New Guinea	7.8	21.9	10.0	17.6	6.4
Samoa	5.8	9.1	7.1	-4.0	-6.4
Solomon Islands	8.0	16.8	16.6	15.6	...
Timor-Leste, Dem. Rep. of	34.1	29.6	18.2	9.3	26.2
Tonga	8.4	-1.9	5.1	2.7	...
Tuvalu	...	...	...	...	...
Vanuatu	13.2	0.5	-6.0	1.3	-0.6

... = data not available.

Table A8 Central government revenues (% of GDP)

	2008	2009	2010	2011	2012
<b>Central Asia</b>					
Armenia	22.0	22.0	22.6	23.3	23.6
Azerbaijan	26.8	29.0	26.9	30.1	32.0
Georgia	30.7	29.3	28.3	28.2	28.9
Kazakhstan	25.1	20.6	19.7	19.5	19.3
Kyrgyz Republic	29.9	32.2	30.5	27.2	28.6
Tajikistan	22.0	23.4	23.2	24.9	26.5
Turkmenistan	20.9	20.4	16.1	18.9	20.5
Uzbekistan	34.5	33.8	32.5	31.8	30.8
<b>East Asia</b>					
China, People's Rep. of	19.5	20.1	20.7	22.0	22.6
Hong Kong, China	18.5	19.2	21.2	22.6	21.8
Korea, Rep. of	21.2	20.4	19.1	19.9	21.6
Mongolia	33.1	30.3	37.1	40.3	35.6
Taipei, China	13.0	12.4	11.1	12.2	12.3
<b>South Asia</b>					
Afghanistan	17.5	20.6	22.0	20.6	25.0
Bangladesh	11.1	10.4	10.9	11.7	12.6
Bhutan	35.2	40.4	46.4	35.6	35.8
India	19.9	19.1	21.0	20.1	21.3
Maldives	30.8	22.6	24.0	31.5	28.1
Nepal	15.4	16.7	18.1	17.8	18.3
Pakistan	14.6	14.5	14.0	12.5	12.4
Sri Lanka	15.6	15.0	14.9	14.5	14.2
<b>Southeast Asia</b>					
Brunei Darussalam	60.2	39.4	51.9	46.8	...
Cambodia	13.3	11.9	13.2	13.2	14.5
Indonesia	19.8	15.1	15.4	16.3	16.2
Lao People's Dem. Rep.	14.4	14.9	15.7	16.4	17.7
Malaysia	20.8	22.3	20.1	21.0	22.1
Myanmar	13.5	11.7	13.0	13.0	19.8
Philippines	15.6	14.0	13.4	14.0	14.5
Singapore	16.8	16.9	16.9	17.7	18.2
Thailand	16.9	16.8	17.6	17.8	19.1
Viet Nam	29.3	28.1	30.1	26.6	25.1
<b>The Pacific</b>					
Cook Islands	32.1	33.7	29.0	28.7	41.6
Fiji Islands	25.1	24.7	24.9	26.8	...
Kiribati	69.3	79.0	81.5	82.9	74.1
Marshall Islands, Rep. of	70.1	69.2	66.9	63.7	60.8
Micronesia, Fed. States of	57.3	65.9	68.2	65.8	65.2
Nauru	61.7	80.7	49.5	62.1	85.3
Palau, Rep. of	39.5	40.4	43.0	37.1	37.5
Papua New Guinea	32.2	29.3	31.0	30.1	30.8
Samoa	31.2	34.5	36.2	37.5	34.3
Solomon Islands	33.6	34.1	34.1	43.3	40.3
Timor-Leste, Dem. Rep. of	381.6	275.5	308.4	354.4	276.7
Tonga	25.9	32.3	27.0	26.3	27.0
Tuvalu	74.6	83.2	69.9	82.7	88.0
Vanuatu	27.0	25.9	24.0	21.6	...

... = data not available.

Table A9 Central government expenditures (% of GDP)

	2008	2009	2010	2011	2012
<b>Central Asia</b>					
Armenia	22.7	29.6	27.6	26.1	25.1
Azerbaijan	26.6	29.7	27.7	29.6	31.7
Georgia	37.0	38.4	34.9	31.8	31.9
Kazakhstan	27.2	23.5	22.1	21.5	22.3
Kyrgyz Republic	29.3	36.1	36.6	31.9	35.2
Tajikistan	27.0	28.6	26.1	27.0	26.4
Turkmenistan	10.9	13.4	14.1	15.2	14.5
Uzbekistan	33.2	34.2	32.8	33.3	31.5
<b>East Asia</b>					
China, People's Rep. of	19.9	22.4	22.4	23.1	24.2
Hong Kong, China	18.5	17.6	17.0	18.9	18.7
Korea, Rep. of	22.9	25.2	21.7	22.2	24.5
Mongolia	37.6	35.5	36.6	45.1	43.3
Taipei, China	13.9	16.0	14.1	14.1	14.0
<b>South Asia</b>					
Afghanistan	21.7	22.1	21.1	21.2	25.1
Bangladesh	15.8	14.3	14.6	16.1	17.6
Bhutan	34.4	38.6	44.7	37.8	39.9
India	28.3	28.5	27.5	28.1	28.3
Maldives	42.0	43.1	39.6	39.0	40.4
Nepal	17.4	20.0	20.0	20.2	20.4
Pakistan	22.2	19.9	20.3	19.2	21.0
Sri Lanka	22.6	24.9	22.8	21.4	20.4
<b>Southeast Asia</b>					
Brunei Darussalam	30.0	33.4	27.2	23.3	...
Cambodia	15.9	20.5	21.3	20.7	19.7
Indonesia	19.9	16.7	16.2	17.4	18.0
Lao People's Dem. Rep.	20.2	20.7	24.6	24.4	25.6
Malaysia	25.4	28.9	25.5	25.9	26.6
Myanmar	16.0	16.9	18.4	16.9	25.3
Philippines	16.5	17.7	16.9	16.0	16.8
Singapore	16.8	17.2	16.6	16.5	17.1
Thailand	18.3	18.8	16.9	16.2	20.5
Viet Nam	32.4	37.4	37.4	31.6	32.0
<b>The Pacific</b>					
Cook Islands	28.8	35.9	28.8	28.0	43.7
Fiji Islands	29.0	33.4	30.7	35.7	...
Kiribati	88.9	91.8	92.0	97.1	94.2
Marshall Islands, Rep. of	61.0	61.4	54.7	60.0	61.9
Micronesia, Fed. States of	59.0	64.3	67.7	65.2	64.0
Nauru	71.8	80.4	43.5	61.4	86.5
Palau, Rep. of	43.2	46.5	44.5	40.6	40.7
Papua New Guinea	34.4	28.7	30.3	27.8	32.0
Samoa	32.6	37.6	42.8	42.7	38.8
Solomon Islands	39.6	50.2	32.8	38.2	42.2
Timor-Leste, Dem. Rep. of	110.8	104.7	116.9	112.3	139.7
Tonga	22.9	33.2	32.3	33.7	29.9
Tuvalu	74.3	91.9	99.3	90.0	80.4
Vanuatu	24.8	24.9	26.0	23.9	...

... = data not available.

Table A10 Fiscal balance of central government (% of GDP)

	2008	2009	2010	2011	2012
<b>Central Asia</b>					
Armenia	-0.7	-7.6	-5.0	-2.8	-1.5
Azerbaijan	0.2	-0.7	-0.9	0.6	0.3
Georgia	-6.3	-9.2	-6.6	-3.6	-3.0
Kazakhstan	-2.1	-2.9	-2.4	-2.1	-3.0
Kyrgyz Republic	0.0	-3.7	-6.3	-4.8	-6.6
Tajikistan	-5.5	-5.4	-3.7	-2.5	0.1
Turkmenistan	10.0	7.0	2.0	3.6	6.0
Uzbekistan	4.5	0.6	1.8	-1.5	-0.7
<b>East Asia</b>					
China, People's Rep. of	-0.4	-2.3	-1.7	-1.1	-1.6
Hong Kong, China	0.1	1.6	4.2	3.7	3.2
Korea, Rep. of	-1.7	-4.8	-2.6	-2.2	-2.9
Mongolia	-4.5	-5.2	0.5	-4.8	-7.7
Taipei, China	-0.8	-3.5	-3.0	-1.9	-1.6
<b>South Asia</b>					
Afghanistan	-4.1	-1.6	0.9	-0.6	0.0
Bangladesh	-4.7	-3.9	-3.7	-4.4	-5.1
Bhutan	0.8	1.9	1.6	-2.1	-4.0
India	-8.4	-9.3	-6.5	-7.9	-6.9
Maldives	-11.2	-20.5	-15.6	-7.5	-12.3
Nepal	-2.1	-3.3	-1.9	-2.4	-2.2
Pakistan	-7.6	-5.3	-6.3	-6.6	-8.5
Sri Lanka	-7.0	-9.9	-8.0	-6.9	-6.2
<b>Southeast Asia</b>					
Brunei Darussalam	30.2	6.0	24.7	23.6	...
Cambodia	-2.7	-8.6	-8.1	-7.5	-5.2
Indonesia	-0.1	-1.6	-0.7	-1.1	-1.8
Lao People's Dem. Rep.	-5.9	-5.8	-8.9	-7.9	-7.9
Malaysia	-4.6	-6.7	-5.4	-4.8	-4.5
Myanmar	-2.5	-5.2	-5.4	-3.9	-5.4
Philippines	-0.9	-3.7	-3.5	-2.0	-2.3
Singapore	0.1	-0.3	0.3	1.2	1.1
Thailand	-1.3	-4.8	-2.7	-1.3	-4.1
Viet Nam	-3.1	-9.3	-7.3	-5.0	-6.9
<b>The Pacific</b>					
Cook Islands	3.3	-2.2	0.2	0.7	-2.2
Fiji Islands	0.5	-4.0	-2.1	-1.4	-1.6
Kiribati	-19.6	-12.8	-10.6	-14.2	-20.0
Marshall Islands, Rep. of	3.4	1.3	4.5	3.7	-1.1
Micronesia, Fed. States of	-1.7	1.6	0.5	0.6	1.2
Nauru	-10.1	0.3	6.0	0.6	-1.2
Palau, Rep. of	-3.7	-6.1	-1.4	-3.5	-3.2
Papua New Guinea	-2.2	0.6	0.7	2.3	-1.2
Samoa	-1.5	-3.1	-6.6	-5.3	-4.5
Solomon Islands	-6.1	-16.1	1.4	5.1	-1.9
Timor-Leste, Dem. Rep. of	270.7	170.8	191.6	242.1	136.9
Tonga	3.0	-0.9	-5.3	-7.4	-2.9
Tuvalu	-0.7	-3.1	-30.0	-4.6	7.6
Vanuatu	2.1	1.0	-2.0	-2.3	...

... = data not available.

Table A11 Growth rate of merchandise exports (% per year)

	2008	2009	2010	2011	2012	2013	2014
<b>Central Asia</b>	42.6	-32.1	28.4	38.7	3.6	4.4	4.6
Armenia	-7.1	-32.7	57.0	34.4	7.0	8.5	9.0
Azerbaijan	43.8	-31.0	25.5	30.3	-4.1	-2.3	2.2
Georgia	16.3	-22.0	30.0	32.2	8.1	11.5	14.8
Kazakhstan	48.9	-39.0	40.2	43.7	4.4	5.0	5.0
Kyrgyz Republic	40.1	-9.6	5.0	27.7	-13.1	20.0	15.0
Tajikistan	-4.2	-28.2	18.3	5.2	8.2	8.5	7.5
Turkmenistan	29.3	-24.1	8.0	46.9	19.3	8.0	7.0
Uzbekistan	40.5	-4.2	4.7	31.3	2.2	6.9	-1.0
<b>East Asia</b>	13.4	-16.0	30.0	18.3	5.4	9.2	9.4
China, People's Rep. of	17.6	-16.1	31.4	20.4	8.0	10.0	9.0
Hong Kong, China	7.3	-10.8	22.8	12.5	6.4	9.8	10.8
Korea, Rep. of	11.6	-17.6	28.8	19.6	0.1	7.5	10.5
Mongolia	30.1	-25.6	54.3	65.6	-9.0	34.3	35.8
Taipei, China	3.4	-20.2	34.6	12.1	-2.4	5.5	8.0
<b>South Asia</b>	14.2	-3.3	31.1	24.6	-3.4	7.1	14.2
Afghanistan	34.4	2.1	12.3	-4.7	-3.0	-2.4	3.0
Bangladesh	17.4	10.1	4.2	39.2	6.2	6.0	8.0
Bhutan	4.4	-13.8	5.5	22.2	-10.6	-36.6	-30.8
India	13.7	-3.5	37.3	23.7	-4.0	8.0	16.0
Maldives	46.0	-49.0	16.8	75.4	-4.8	6.3	3.9
Nepal	9.3	-4.7	-6.3	11.7	5.7	0.2	5.5
Pakistan	18.2	-6.4	2.9	28.9	-2.8	1.0	3.5
Sri Lanka	6.2	-12.7	21.0	23.2	-7.4	4.0	5.0
<b>Southeast Asia</b>	12.1	-15.1	30.7	15.1	4.4	6.6	9.6
Brunei Darussalam	40.4	-33.0	29.8	32.5	1.5	2.2	3.2
Cambodia	7.6	-14.2	29.7	34.4	11.4	13.0	17.0
Indonesia	18.3	-14.3	32.1	27.0	-6.3	7.0	12.1
Lao People's Dem. Rep.	21.8	-5.5	44.4	42.0	9.0	14.0	13.9
Malaysia	13.0	-21.1	26.6	14.6	-0.0	2.0	7.0
Myanmar	12.3	-1.4	25.8	13.3	11.2	14.1	17.5
Philippines	-2.5	-22.1	34.9	-6.3	8.5	9.1	10.3
Singapore	6.7	-14.2	31.4	6.9	6.0	4.0	8.0
Thailand	15.9	-13.9	27.1	14.3	3.2	10.0	11.0
Viet Nam	29.1	-8.9	26.5	34.2	18.2	16.0	12.0
<b>The Pacific</b>	21.7	-24.4	31.7	24.6	-30.7	-	-
Cook Islands	83.5	-16.2	11.3	-2.3	-24.8		
Fiji Islands	20.4	-32.1	38.9	29.0	5.1		
Kiribati	-23.2	-26.7	52.4	22.9	9.3	6.2	5.8
Marshall Islands, Rep. of	10.4	2.7	55.2	55.2			
Micronesia, Fed. States of	5.4	-8.8	17.2	37.9	6.9	8.8	
Nauru	-	-31.4					
Palau, Rep. of	12.4	-34.6	-13.3	-5.6	4.4		
Papua New Guinea	21.4	-23.9	30.9	21.8	-36.7	33.7	20.0
Samoa	-18.8	-1.3	13.8	-13.9	-6.1		
Solomon Islands	27.6	-21.4	35.6	84.6			
Timor-Leste, Dem. Rep. of	0.0	-31.5	163.1	-18.5	0.0	22.7	
Tonga	-9.6	-32.4	-8.1	38.0	7.3	6.0	8.1
Tuvalu	35.4	-18.2	-2.4	53.0	9.4		
Vanuatu	41.6	33.2	-8.4	24.6			
<b>Average</b>	13.9	-15.6	30.2	18.5	4.4	8.3	9.7

... = data not available.

Table A12 Growth rate of merchandise imports (% per year)

	2008	2009	2010	2011	2012	2013	2014
<b>Central Asia</b>	24.8	-16.4	6.8	27.5	14.2	12.7	5.8
Armenia	35.0	-25.0	13.4	14.0	1.7	6.5	5.0
Azerbaijan	25.3	-14.0	3.6	50.7	-3.6	45.9	-12.6
Georgia	25.6	-31.4	17.7	33.6	15.0	7.0	7.5
Kazakhstan	15.6	-24.7	13.6	23.2	16.5	10.0	10.0
Kyrgyz Republic	43.6	-25.0	5.9	32.0	26.2	15.0	15.0
Tajikistan	33.2	-21.4	3.5	19.9	18.6	9.0	6.5
Turkmenistan	41.9	50.5	-8.0	28.8	24.4	5.0	6.0
Uzbekistan	48.5	-2.7	-6.8	26.5	11.4	9.1	4.2
<b>East Asia</b>	16.6	-15.4	36.0	22.1	3.4	9.0	9.8
China, People's Rep. of	18.8	-11.2	39.1	25.1	4.4	9.0	9.0
Hong Kong, China	8.6	-7.9	27.1	15.4	9.4	10.9	11.1
Korea, Rep. of	21.9	-25.4	31.5	23.4	-1.1	8.0	11.0
Mongolia	57.4	-34.1	49.7	106.2	2.1	15.0	15.0
Taipei, China	9.4	-26.9	43.1	12.9	-3.6	7.0	10.0
<b>South Asia</b>	21.1	-3.8	-73.7	30.3	0.1	5.3	12.4
Afghanistan	14.7	-0.8	11.6	3.6	8.7	6.3	2.8
Bangladesh	25.6	4.2	5.4	41.8	5.4	-2.0	6.0
Bhutan	27.4	-9.6	39.0	40.5	-9.5	-20.5	-14.9
India	19.8	-2.6	26.7	31.1	-1.0	6.0	14.0
Maldives	26.4	-34.4	14.8	38.9	3.1	6.6	1.7
Nepal	24.1	8.3	35.5	8.9	4.7	18.7	13.7
Pakistan	31.2	-10.3	-1.7	14.9	11.9	0.0	2.2
Sri Lanka	24.7	-27.6	31.8	50.7	-5.8	6.0	10.0
<b>Southeast Asia</b>	18.4	-21.7	32.8	15.4	6.6	7.6	10.3
Brunei Darussalam	44.1	-20.3	2.0	19.3	20.5	25.0	28.5
Cambodia	12.4	-11.6	21.7	22.8	17.1	11.0	13.0
Indonesia	36.9	-24.0	43.7	30.3	8.3	6.7	11.2
Lao People's Dem. Rep.	31.5	2.0	23.5	29.7	16.8	15.2	19.5
Malaysia	6.6	-20.6	34.0	14.3	4.3	3.0	7.0
Myanmar	25.6	1.9	15.8	24.4	22.0	15.0	17.0
Philippines	5.6	-24.0	32.9	2.4	5.1	9.4	10.9
Singapore	15.1	-19.1	30.3	8.2	9.5	6.0	9.0
Thailand	26.7	-25.1	37.0	24.9	7.8	11.0	12.5
Viet Nam	27.9	-14.3	19.6	25.8	7.5	15.0	13.0
<b>The Pacific</b>	19.8	-16.1	20.7	22.3	-10.8	-	-
Cook Islands	-0.1	-27.9	-4.5	26.8	10.0		
Fiji Islands	20.8	-37.3	24.7	23.6	2.2		
Kiribati	5.3	-9.6	20.4	18.7	14.2	0.4	-2.1
Marshall Islands, Rep. of	2.4	4.8	41.1	-10.8			
Micronesia, Fed. States of	14.4	2.9	4.3	9.1	1.0	0.6	
Nauru	-1.3	11.0					
Palau, Rep. of	21.1	-28.6	8.2	23.6	0.2		
Papua New Guinea	18.6	-8.1	23.0	21.5	-23.1	52.3	2.6
Samoa	9.9	-8.0	14.1	2.5	-11.5		
Solomon Islands	6.5	-14.1	50.8	15.4			
Timor-Leste, Dem. Rep. of	61.7	9.9	2.8	87.3	15.0	13.0	
Tonga	37.8	-13.2	-4.8	16.9	21.0	0.1	3.9
Tuvalu	63.2	-18.7	35.4	18.7	-6.9	-8.0	
Vanuatu	38.9	-1.9	1.9	1.0			
<b>Average</b>	17.7	-15.7	-10.2	21.6	3.9	8.3	10.1

... = data not available.

Table A13 Trade balance (US\$ million)

	2008	2009	2010	2011	2012	2013	2014
<b>Central Asia</b>	54,920	25,245	46,345	72,063	65,315	59,889	61,190
Armenia	-2,664	-2,081	-2,033	-2,078	-2,030	-2,128	-2,161
Azerbaijan	23,012	14,583	19,730	24,328	23,270	18,000	20,500
Georgia	-3,833	-2,399	-2,590	-3,494	-4,246	-4,385	-4,427
Kazakhstan	33,519	14,969	28,670	47,925	45,156	45,053	44,709
Kyrgyz Republic	-1,879	-1,120	-1,202	-1,665	-2,993	-3,344	-3,845
Tajikistan	-1,863	-1,559	-1,463	-1,930	-2,419	-2,643	-2,800
Turkmenistan	6,423	875	2,232	4,622	5,026	5,785	6,315
Uzbekistan	2,205	1,976	3,000	4,354	3,550	3,550	2,900
<b>East Asia</b>	408,594	330,269	322,848	292,680	367,147	407,922	435,210
China, People's Rep. of	360,646	249,511	254,179	243,549	323,100	372,749	406,296
Hong Kong, China	25,010	12,592	2,365	-8,596	-22,672	-30,000	-35,000
Korea, Rep. of	5,170	37,866	40,083	31,660	38,338	38,642	39,922
Mongolia	-710	-252	-292	-1,781	-2,354	-1,859	-913
Taipei, China	18,478	30,553	26,513	27,848	30,735	28,390	24,904
<b>South Asia</b>	-156,079	-148,752	-164,662	-231,609	-245,022	-251,269	-275,760
Afghanistan	-6,480	-6,355	-7,070	-7,559	-8,530	-9,298	-9,549
Bangladesh	-5,330	-4,710	-5,155	-7,744	-7,995	-5,928	-5,775
Bhutan	-72	-90	-299	-519	-477	-474	-464
India	-119,519	-118,202	-130,593	-189,759	-197,155	-203,036	-225,038
Maldives	-1,318	-913	-1,044	-1,379	-1,449	-1,546	-1,565
Nepal	-2,410	-2,733	-4,084	-4,422	-4,623	-5,672	-6,529
Pakistan	-14,970	-12,627	-11,536	-10,516	-15,481	-15,247	-15,258
Sri Lanka	-5,980	-3,122	-4,881	-9,710	-9,313	-10,067	-11,582
<b>Southeast Asia</b>	113,548	140,255	160,857	160,904	118,627	111,999	111,826
Brunei Darussalam	7,879	4,914	7,011	9,595	9,211	8,651	7,870
Cambodia	-1,584	-1,494	-1,582	-1,490	-2,043	-2,152	-2,169
Indonesia	22,916	30,932	30,627	34,783	8,417	9,545	12,426
Lao People's Dem. Rep.	-1,228	-1,372	-1,378	-1,516	-2,014	-2,361	-3,040
Malaysia	51,501	39,928	41,826	48,389	40,544	39,485	42,249
Myanmar	303	72	796	-10	-1,112	-1,376	-1,541
Philippines	-12,885	-8,842	-10,966	-15,652	-14,818	-16,350	-18,471
Singapore	42,080	51,105	69,907	70,267	62,221	57,052	57,557
Thailand	17,348	32,620	29,751	16,989	8,337	6,992	4,135
Viet Nam	-12,783	-7,607	-5,136	-450	9,884	12,512	12,810
<b>The Pacific</b>	139	-457	32	197	-1,299	-318	1,556
Cook Islands	-108	-78	-74	-95	-105		
Fiji Islands	-1,106	-647	-723	-849	-838		
Kiribati	-65	-60	-71	-83	-96	-95	-92
Marshall Islands, Rep. of	-70	-74	-101	-69	-69	-68	
Micronesia, Fed. States of	-122	-128	-131	-134	-133	-130	-129
Nauru	6	-8					
Palau, Rep. of	-118	-85	-93	-118	-117		
Papua New Guinea	2,655	1,524	2,221	2,712	1,132	901	1,956
Samoa	-238	-218	-249	-257	-227		
Solomon Islands	-68	-74	-137	-3			
Timor-Leste, Dem. Rep. of	-261	-295	-280	-565	-654	-736	
Tonga	-145	-128	-123	-142	-173	-172	-179
Tuvalu	-15	-13	-17	-20	-19	-17	
Vanuatu	-201	-182	-191	-181			
<b>Total</b>	421,121	346,559	365,418	294,235	304,767	328,223	334,023

... = data not available.

Table A14 Balance of payments on current account (% of GDP)

	2008	2009	2010	2011	2012	2013	2014
<b>Central Asia</b>	8.1	0.4	4.9	8.1	5.3	3.1	4.5
Armenia	-11.8	-15.8	-14.8	-10.9	-10.4	-9.8	-9.1
Azerbaijan	33.7	23.0	28.4	25.7	22.6	13.0	17.0
Georgia	-22.8	-11.2	-10.2	-12.8	-13.5	-11.9	-10.7
Kazakhstan	4.7	-3.6	1.2	7.2	4.3	2.5	4.0
Kyrgyz Republic	-13.7	-2.2	-7.2	-6.1	-20.9	-7.0	-5.0
Tajikistan	-7.6	-5.9	2.1	-2.3	-3.5	-5.0	-4.8
Turkmenistan	16.5	-14.7	-10.6	2.0	1.5	2.0	3.0
Uzbekistan	8.9	2.2	6.6	8.1	4.7	4.3	3.2
<b>East Asia</b>	7.7	5.3	4.3	3.1	3.1	3.0	2.8
China, People's Rep. of	9.3	4.9	4.0	2.8	2.6	2.5	2.1
Hong Kong, China	15.0	9.5	6.6	4.8	1.1	4.0	5.0
Korea, Rep. of	0.3	3.9	2.9	2.3	3.8	3.0	2.5
Mongolia	-12.3	-7.5	-14.3	-31.5	-31.3	-22.0	-15.0
Taipei, China	6.9	11.4	9.3	8.9	10.5	11.0	12.0
<b>South Asia</b>	-3.0	-2.7	-2.2	-3.5	-4.3	-3.7	-3.2
Afghanistan	0.9	-2.8	3.9	3.0	4.0	1.6	0.3
Bangladesh	0.9	2.7	3.7	0.8	1.4	2.0	1.0
Bhutan	-2.2	-1.1	-9.9	-23.5	-18.9	-20.0	-20.0
India	-2.4	-2.8	-2.7	-4.1	-5.0	-4.4	-3.7
Maldives	-32.3	-11.1	-9.2	-21.4	-26.3	-27.8	-22.0
Nepal	2.9	4.2	-2.3	-0.9	4.9	-0.5	-1.8
Pakistan	-8.5	-5.7	-2.2	0.1	-2.0	-0.8	-0.9
Sri Lanka	-9.5	-0.5	-2.2	-7.8	-5.8	-5.0	-4.5
<b>Southeast Asia</b>	4.4	7.1	6.4	5.3	3.3	2.9	2.7
Brunei Darussalam	48.5	37.3	48.5	45.5	47.0	45.0	47.0
Cambodia	-11.1	-10.3	-10.4	-8.8	-11.6	-11.1	-10.1
Indonesia	0.0	2.0	0.7	0.2	-2.8	-2.3	-1.8
Lao People's Dem. Rep.	-18.5	-21.0	-18.3	-21.4	-22.6	-21.5	-23.6
Malaysia	17.1	15.5	11.1	11.0	7.9	5.8	5.6
Myanmar	-3.1	-2.6	-1.2	-2.5	-4.0	-4.2	-4.4
Philippines	2.1	5.6	4.5	3.2	2.9	3.0	3.2
Singapore	14.9	18.4	28.4	23.8	19.0	16.1	14.7
Thailand	0.5	8.3	3.1	1.7	0.7	0.8	0.1
Viet Nam	-11.9	-6.8	-4.0	0.2	6.4	6.9	5.6
<b>The Pacific</b>	47.7	15.6	21.5	41.7	15.0	4.8	4.4
Cook Islands							
Fiji Islands	-17.4	-5.2	-7.5	-7.0	-6.1	-22.5	-7.0
Kiribati	-34.3	-30.5	-22.9	-27.2	-26.6	-23.9	-20.0
Marshall Islands, Rep. of	-1.8	-16.9	-28.1	-6.2	-6.3	-2.5	-2.5
Micronesia, Fed. States of	-16.8	-18.5	-16.5	-18.8	-15.0	-14.3	-14.0
Nauru	11.9	-7.0					
Palau, Rep. of	-17.8	-1.5	2.0	4.1	5.9	7.5	7.5
Papua New Guinea	9.8	-7.1	-6.4	-1.3	-17.5	-15.1	-8.4
Samoa	-11.1	-6.2	-9.3	-9.2	-10.8	-13.4	-15.5
Solomon Islands	-17.8	-20.9	-28.3	-7.8	-5.8	-10.0	-10.0
Timor-Leste, Dem. Rep. of	297.8	164.0	201.3	261.5	153.5	102.8	66.0
Tonga	-11.9	-15.7	-13.4	-11.1	-17.9	-6.3	-6.3
Tuvalu	-26.6	15.1	-15.5	-39.8	-8.4	-3.3	
Vanuatu	-6.6	-6.1	-5.5	-6.3	-6.0	-10.0	-10.0
<b>Average</b>	5.4	4.0	3.5	2.5	2.0	1.9	1.8

... = data not available.

Table A15 Exchange rates to the US dollar (annual average)

	Currency	Symbol	2008	2009	2010	2011	2012
<b>Central Asia</b>							
Armenia	Dram	AMD	306.0	363.3	373.7	372.5	401.8
Azerbaijan	Azerbaijan new manat	AZN	0.8	0.8	0.8	0.8	0.8
Georgia	Lari	GEL	1.5	1.7	1.8	1.7	1.7
Kazakhstan	Tenge	T	120.3	147.5	147.4	146.6	149.1
Kyrgyz Republic	Som	Som	36.6	42.9	46.0	46.1	47.0
Tajikistan	Somoni	TJS	3.4	4.1	4.4	4.6	4.8
Turkmenistan	Turkmen manat	TMM	2.3	2.9	2.9	2.9	2.9
Uzbekistan	Sum	SUM	1,319.6	1,465.6	1,576.8	1,710.9	1,885.4
<b>East Asia</b>							
China, People's Rep. of	Yuan	CNY	6.9	6.8	6.8	6.5	6.3
Hong Kong, China	Hong Kong dollar	HK\$	7.8	7.8	7.8	7.8	7.8
Korea, Rep. of	Won	W	1,100.5	1,275.0	1,155.4	1,107.4	1,125.7
Mongolia	Togrog	MNT	1,165.8	1,437.8	1,357.9	1,265.2	1,359.2
Taipei, China	NT dollar	NT\$	31.5	33.1	31.6	29.5	29.6
<b>South Asia</b>							
Afghanistan	Afghani	AF	51.0	49.3	45.8	47.7	50.9
Bangladesh	Taka	Tk	68.6	68.8	69.2	71.2	79.1
Bhutan	Ngultrum	Nu	40.4	47.8	46.7	45.3	50.3
India	Indian rupee/s	Re/Rs	45.9	47.4	45.6	47.5	54.4
Maldives	Rufiyaa	Rf	12.8	12.8	12.8	15.4	15.4
Nepal	Nepalese rupee/s	NRe/NRs	64.7	76.6	74.2	72.1	80.7
Pakistan	Pakistan rupee/s	PRe/PRs	62.5	78.5	83.8	85.5	89.2
Sri Lanka	Sri Lanka rupee/s	SLRe/SLRs	108.3	114.9	113.1	110.6	127.6
<b>Southeast Asia</b>							
Brunei Darussalam	Brunei dollar	B\$	1.4	1.5	1.4	1.3	1.2
Cambodia	Riel	KR	4,060.0	4,148.3	4,188.5	4,065.9	4,033.7
Indonesia	Rupiah	Rp	9,699.0	10,389.9	9,090.4	8,770.4	9,386.6
Lao People's Dem. Rep.	Kip	KN	8,734.9	8,501.0	8,248.6	8,011.4	7,994.0
Malaysia	Ringgit	RM	3.3	3.5	3.2	3.1	3.1
Myanmar	Kyat	MK	917.0	918.0	803.0	772.0	852.0
Philippines	Peso	P	44.3	47.7	45.1	43.3	42.2
Singapore	Singapore dollar	S\$	1.4	1.5	1.4	1.3	1.2
Thailand	Baht	B	33.4	34.3	31.7	30.5	31.1
Viet Nam	Dong	D	16,302.0	17,065.0	18,621.0	20,490.0	
<b>The Pacific</b>							
Cook Islands	New Zealand dollar	NZ\$	1.4	1.6	1.4	1.3	1.2
Fiji Islands	Fiji dollar	F\$	1.6	2.0	1.9	1.8	1.8
Kiribati	Australian dollar	A\$	1.2	1.3	1.1	1.0	0.9
Marshall Islands, Rep. of	US dollar	US\$	1.0	1.0	1.0	1.0	1.0
Micronesia, Fed. States of	US dollar	US\$	1.0	1.0	1.0	1.0	1.0
Nauru	Australian dollar	A\$	1.2	1.3	1.1	1.0	0.9
Palau, Rep. of	US dollar	US\$	1.0	1.0	1.0	1.0	1.0
Papua New Guinea	Kina	K	2.7	2.7	2.7	2.3	2.1
Samoa	Tala	ST	2.6	2.7	2.5	2.5	2.5
Solomon Islands	Sol. Islands dollar	SI\$	7.8	8.1	8.1	7.6	7.4
Timor-Leste, Dem. Rep. of	US dollar	US\$	1.0	1.0	1.0	1.0	1.0
Tonga	Pa'anga	T\$	1.8	2.1	2.0	1.7	
Tuvalu	Australian dollar	A\$	1.2	1.3	1.1	1.0	0.9
Vanuatu	Vatu	Vt	101.4	105.9	97.2	94.6	

... = data not available.

Table A16 Gross international reserves (US\$ million)

	2008	2009	2010	2011	2012
<b>Central Asia</b>					
Armenia	1,407	2,004	1,866	1,932	1,799
Azerbaijan	6,467	5,364	6,409	10,274	12,000
Georgia	1,480	2,110	2,264	2,818	2,873
Kazakhstan	19,872	23,091	28,275	29,328	28,280
Kyrgyz Republic	1,225	1,588	1,719	1,835	2,067
Tajikistan	150	278	476	572	662
Turkmenistan					
Uzbekistan	9,534	12,226	14,580	19,780	23,000
<b>East Asia</b>					
China, People's Rep. of	1,966,200	2,453,200	2,914,200	3,255,800	3,352,300
Hong Kong, China	182,539	255,816	268,731	285,408	317,336
Korea, Rep. of	201,223	269,995	291,571	306,402	326,968
Mongolia	637	1,294	2,197	2,457	4,091
Taipei, China	291,707	348,198	382,005	385,547	403,169
<b>South Asia</b>					
Afghanistan	3,591	4,209	5,403	6,208	6,867
Bangladesh	6,149	7,471	10,750	10,912	10,364
Bhutan	589	704	792	906	770
India	252,326	277,042	303,482	294,398	292,317
Maldives	241	261	350	335	305
Nepal	2,477	2,872	2,759	3,003	4,238
Pakistan	8,577	9,118	12,958	14,783	11,901
Sri Lanka	1,753	5,097	6,610	5,958	6,877
<b>Southeast Asia</b>					
Brunei Darussalam	751	1,357	1,563	2,487	3,315
Cambodia	2,164	2,367	2,653	3,032	3,463
Indonesia	51,639	66,105	96,207	110,123	112,781
Lao People's Dem. Rep.	636	633	727	677	708
Malaysia	91,648	96,744	106,590	133,257	139,658
Myanmar	2,254	2,909	3,309	3,818	5,071
Philippines	37,551	44,243	62,373	75,302	83,831
Singapore	174,196	187,809	225,754	237,737	259,307
Thailand	111,008	138,418	172,129	175,124	181,608
Viet Nam	23,022	14,148	12,382	13,500	25,400
<b>The Pacific</b>					
Cook Islands					
Fiji Islands	351	557	679	852	922
Kiribati	44	59			
Marshall Islands, Rep. of	2				
Micronesia, Fed. States of	45	53	57	77	77
Nauru					
Palau, Rep. of					
Papua New Guinea	2,095	2,623	3,092	4,323	4,296
Samoa	96	95	165	143	145
Solomon Islands	92	144	266	397	497
Timor-Leste, Dem. Rep. of	210	238	394	450	
Tonga	48	64	87	120	140
Tuvalu	25	23	24	25	
Vanuatu	128	137	155	172	

... = data not available.

Table A17 External debt outstanding (US\$ million)

	2008	2009	2010	2011	2012
<b>Central Asia</b>					
Armenia	1,577	2,967	3,299	3,568	3,738
Azerbaijan	3,001	3,422	3,734	4,841	
Georgia	2,691	3,658	4,219	4,506	4,820
Kazakhstan	107,933	112,867	118,270	125,153	134,878
Kyrgyz Republic	3,591	4,118	4,381	4,872	5,403
Tajikistan	1,498	1,692	1,911	2,093	2,260
Turkmenistan	606	485	2,347	2,049	4,820
Uzbekistan	3,748	5,022	5,753	7,899	9,100
<b>East Asia</b>					
China, People's Rep. of	390,161	428,648	548,938	694,997	850,000
Hong Kong, China	686,664	712,784	879,656	982,701	1,045,244
Korea, Rep. of	317,370	345,677	359,757	398,724	413,437
Mongolia	2,184	2,986	5,928	9,628	15,260
Taipei, China	90,361	81,963	101,581	122,528	124,325
<b>South Asia</b>					
Afghanistan	2,069	1,150	1,303	1,242	1,340
Bangladesh	20,266	20,859	20,336	22,086	22,095
Bhutan	820	795	873	1,312	1,358
India	224,500	260,935	305,852	345,357	365,315
Maldives	879	934	962	909	942
Nepal	3,197	3,495	3,442	3,658	3,863
Pakistan	46,161	52,331	57,363	61,844	65,833
Sri Lanka	15,107	18,662	21,438	24,466	
<b>Southeast Asia</b>					
Brunei Darussalam					
Cambodia	2,776	2,940	3,337	3,841	4,281
Indonesia	155,080	172,871	202,413	225,375	251,200
Lao People's Dem. Rep.	2,575	2,694	2,809	2,990	3,100
Malaysia	68,243	67,965	73,643	81,009	82,662
Myanmar	12,744	13,207	13,643	14,632	12,251
Philippines	54,328	54,856	60,048	60,442	60,337
Singapore	901,379	888,314	989,210	1,089,884	1,148,412
Thailand	76,102	75,306	100,561	105,957	130,500
Viet Nam	21,816	27,929	32,501		
<b>The Pacific</b>					
Cook Islands					
Fiji Islands	299	269	286	469	537
Kiribati	15	14	18	28	34
Marshall Islands, Rep. of	99	96	107	105	101
Micronesia, Fed. States of	74	85	84	87	87
Nauru			63		
Palau, Rep. of	75	80	78	75	80
Papua New Guinea	1,040	1,028	922	979	1,260
Samoa	229	211	289	329	278
Solomon Islands	140	134	125	113	124
Timor-Leste, Dem. Rep. of					43
Tonga	86	95	121	166	186
Tuvalu	15	14	16	15	13
Vanuatu	100	102	111		

... = data not available.

**Table A18 Debt service ratio (% of exports of goods and services)**

	2008	2009	2010	2011	2012
<b>Central Asia</b>					
Armenia	3.1	5.4	4.7	4.2	9.4
Azerbaijan	0.9	1.3			
Georgia	3.4	5.2	4.9	7.5	
Kazakhstan	41.7	63.2	32.1	24.2	21.3
Kyrgyz Republic	26.8	41.4	25.9	11.5	11.3
Tajikistan	10.5	20.3	7.5	5.1	
Turkmenistan	1.4	1.1	0.9	0.6	
Uzbekistan	5.7	5.4	7.9	9.7	10.7
<b>East Asia</b>					
China, People's Rep. of	1.8	2.9	1.6	1.7	2.0
Hong Kong, China					
Korea, Rep. of	7.9	7.8	6.8	6.4	7.4
Mongolia	5.9	12.4	11.3	6.6	9.3
Taipei, China	3.9	2.6	1.2	2.2	1.6
<b>South Asia</b>					
Afghanistan	1.1	0.8	1.1	1.3	1.1
Bangladesh	3.2	3.2	2.9	2.5	2.4
Bhutan	17.3	30.5	29.7	52.3	117.5
India	4.4	5.8	4.3	6.0	5.9
Maldives	2.6	2.9	2.5	2.8	1.2
Nepal	9.6	10.2	11.6	11.1	11.1
Pakistan	13.0	17.2	16.7	11.3	14.6
Sri Lanka	15.1	19.0	15.9	12.6	
<b>Southeast Asia</b>					
Brunei Darussalam					
Cambodia	1.2	1.5	1.4	1.2	1.2
Indonesia	17.2	21.1	19.8	21.7	35.3
Lao People's Dem. Rep.	4.3	4.9	4.5	4.6	
Malaysia	2.6	6.5	7.6	10.3	10.0
Myanmar	6.4	6.6	3.1	3.9	5.1
Philippines	9.7	10.4	8.7	10.2	7.4
Singapore					
Thailand	8.3	7.6	4.7	3.5	4.3
Viet Nam	3.3	4.2	3.4	3.5	
<b>The Pacific</b>					
Cook Islands					
Fiji Islands	1.1	1.7	1.3	8.8	1.6
Kiribati	3.6	9.0	3.5	2.7	2.8
Marshall Islands, Rep. of	24.7	22.7	17.6	11.4	
Micronesia, Fed. States of	5.4	6.7	6.6	6.9	6.6
Nauru	0.6	2.1			
Palau, Rep. of	49.3	69.9	62.4	48.3	52.5
Papua New Guinea	1.8	0.5	0.3	0.4	0.3
Samoa	67.8	62.1	75.8		
Solomon Islands	5.6	3.6	3.0	1.3	1.3
Timor-Leste, Dem. Rep. of					
Tonga	10.1	5.7	10.6	8.7	9.0
Tuvalu	21.9	16.3	12.0	9.9	
Vanuatu	1.3	1.5	1.4		

... = data not available.