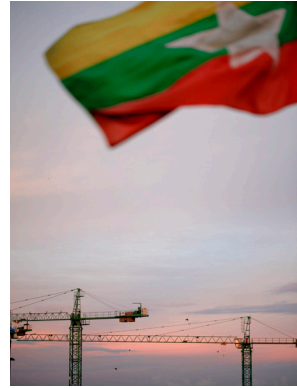
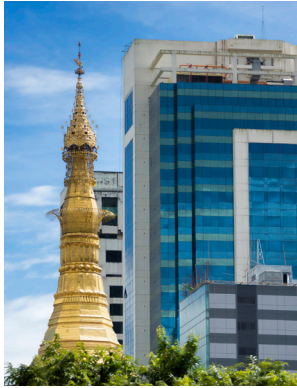


McKinsey Global Institute



June 2013

Myanmar's moment: Unique opportunities, major challenges



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Myanmar's moment: Unique opportunities, major challenges

Heang Chhor
Richard Dobbs
Doan Nguyen Hansen
Fraser Thompson
Nancy Shah
Lukas Streiff

Preface

Between June 5 and 7, the World Economic Forum on East Asia meets in Nay Pyi Taw, Myanmar's new capital city. The fact that Myanmar is hosting such a high-profile international gathering of luminaries from industry, government, and academia is a firm signal of the world's interest in this country's economic prospects. Myanmar's economy is relatively small—only 0.2 percent of the Asian economy overall. Yet the potential of Myanmar's economy is currently subject to intense curiosity. Myanmar is a very unusual case: a large country with a rich history that remains an underdeveloped agrarian economy in the heart of the world's fastest-growing regional economy—perhaps one of the few remaining, largely untapped markets in the world.

It is in this context that the McKinsey Global Institute (MGI) decided to launch a research project on Myanmar's economy. Very little is known about it, and data are generally lacking or of questionable accuracy. We nevertheless have tried to build as strong a fact base for our analysis as possible under the circumstances. A MGI team based in Myanmar for four months collected data from a range of government agencies with the help of local researchers, and conducted field research and more than 200 interviews with experts, political leaders, and business people. We used data from international organisations including the International Monetary Fund (IMF), World Bank, UN Development Programme (UNDP), and Economist Intelligence Unit (EIU). We also used comparison data from many other countries that have undergone transitions similar to that which could be in prospect in Myanmar today. While the unreliability of data is undeniably an issue, our hope is that this assessment will be a starting point for those looking to better understand Myanmar's economic prospects.

In this report, we discuss Myanmar's new beginning after a long period of economic stagnation and look at how the economy might develop. We have used MGI's experience of bottom-up sector analysis to size the potential economic opportunity of Myanmar's key sectors in the period to 2030—both in terms of their contribution to GDP and the creation of jobs. We highlight the importance of raising labour productivity across the economy. We have also looked at four areas that arguably deserve a greater focus: (1) the fact that Myanmar's transformation is beginning in the digital age, giving the country the opportunity to leapfrog in its development; (2) the importance of a structural shift towards manufacturing; (3) the impending urbanisation of Myanmar and the imperative to prepare for it; and (4) how to quickly reconnect to the global economy through investment, trade, and people. The task Myanmar faces is monumental—virtually every aspect of economic and social development is on the agenda—and we close the report with a discussion of some of the implications for government as well as businesses from Myanmar and overseas.

Heang Chhor, a McKinsey director in Singapore, and Richard Dobbs, a McKinsey and MGI director in Seoul, led this research together with Doan Nguyen Hansen, a partner in Vietnam, and Fraser Thompson, an MGI senior fellow in London. Consultant Nancy Shah led the Myanmar-based project team, which consisted of Kuntala Karkun, Stephanie Knight, Meik Laufer, Lukas Streiff, and Christabel Su-Huey Sunmugam, with help from Tim McEvoy, an MGI research fellow.

We are grateful for the advice and input of many McKinsey colleagues, including Jonathan Ablett, Suvradipta Banerjee, Timothy Beacom, Shannon Bouton, Marco Breu, Martin Checinski, Li-Kai Chen, Nicola Chiara, Mutsa Chironga, Brian Cooperman, Eoin Daly, Dumitru Dediu, Driek Desmet, Georges Desveaux, Lucia Fiorito, Michael Fleming, Francois Godin, Andrew Grant, Anna Gressel-Bacharan, Shishir Gupta, Supriya Handa, Johan Hesselsøe, Jimmy Hexter, Eduardo Doryan Jara, Martin Joerss, Karen Jones, Priyanka Kamra, Anushia Kandasamy, Duncan Kauffman, Tomas Koch, Kinshuk Kocher, Elif Kutsal, Peter Lambert, Cecile Lavrard, Jean-Christophe Lebraud, Armin Lohr, Susan Lund, Anu Madgavkar, Laurie Mahon, Alan Martin, Tobias Meyer, Jan Mischke, Ellen Mo, Sabrina Mustopo, Derek Neilson, Bettina Neuhaus, Stagg Newman, Raoul Oberman, Gordon Orr, Vivek Pandit, Moira Pierce, Herbert Pohl, Ali Potia, Tamara Rajah, Sree Ramaswamy, Lou Rassey, Markus Rebman, Stefan Rehbach, Jaana Remes, Alfonso Villanueva Rodriguez, Sunali Rohra, Morten Rossé, Lorraine Salazar, Brian Salsberg, Sunil Sanghvi, Shirish Sankhe, Halldor Sigurdsson, Vivien Singer, Seelan Singham, Pornnipa Srivipapattana, Matt Stone, Jennifer Sternberg, Tilman Tacke, Nadia Terfous, Oliver Tonby, Asli Ucyigit, Danny Van Dooren, Sergio Sandoval Villalba, Jue Wang, Jonathan Woetzel, and Haimeng Zhang.

The team benefited from the contributions of Janet Bush, MGI senior editor, and Roger Malone, who provided editorial support; Penny Burt and Rebeca Robboy, for their help on external relations; Julie Philpot, MGI's editorial production manager; and Marisa Carder and Joanne Willis, visual graphics specialists.

We would like to give particular thanks to the advisers on this project: Martin Baily, Bernard L. Schwartz Chair in Economic Policy Development at the Brookings Institution; Richard Cooper, Maurits C. Boas Professor of International Economics at Harvard University; Richard Horsey, independent Myanmar analyst; Nobel Laureate A. Michael Spence, William R. Berkley Professor in Economics and Business at the Leonard N. Stern School of Business, New York University, and chairman of the Commission on Growth and Development; and Sean Turnell, professor of economics at Macquarie University, Sydney.

Many experts in Myanmar and around the world from the fields of academia, government, and business have also offered invaluable guidance, suggestions, and advice. We are very grateful to Nay Aung, founder and CEO, Oway Company Limited; U Set Aung, deputy minister, Ministry of National Planning and Economic Development; U Toe Aung, head of the urban planning unit, Yangon City Development Committee; Elinor Bajrakthari, programme adviser, UNDP; Antonio Berenguer, head of trade and economic section, EU Mission to Myanmar; Sharad Bhandari, Principal Country Specialist, Asian Development Bank; Oliver Bientzle, counsellor and deputy head of mission, German Embassy in Yangon; Romain Caillaud, managing director, Myanmar office, Vriens & Partners; Aela Callan, independent film maker; Shon Campbell, manager, Myanmar Information Management Unit (MIMU); Alex Chan, executive vice chairman, Jebsen & Jessen; Adam Cooper, country representative in Myanmar, Centre for Humanitarian Dialogue; Professor David Dapice, Ash Center for Democratic Governance and Innovation at Harvard Kennedy School; Matt Davies, chief of mission to Myanmar, IMF; Daw Debbie Aung Din, director, Proximity Designs; Fergus Eckersley, head of economic relations and trade, British Embassy in Yangon; Jeff Glekin, head of economic diplomacy, Foreign and Commonwealth Office, United Kingdom; Andy Hall, migration consultant, International Management Group (IMG); Philipp Hoffmann, general manager, JJ-Pun Limited; Nang Mo Hom, researcher, Myanmar Development Research (MDR); U Sai Sam Htun, chairman, Loi Hein Group; Heinrich Jessen, chairman, Jebsen & Jessen; Putu Kamayana, head, extended mission in Myanmar, Asian Development Bank; Shumawa Khin and associates, My Republic; Jong-Inn Kim, lead energy specialist, Asian Development Bank; Andrew Kirkwood, fund director, Livelihoods and Food Security Trust Fund (LIFT); Morten Kvammen, managing partner, M-Invest; U Aung Myat Kyaw, vice chairman, Myanmar Tourism Federation; U Maung Maung Lay, vice president, Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI); U Than Lwin, deputy chairman, KBZ Bank; Steve Marshall, liaison officer Myanmar, International Labour Organization (ILO); Brontë Moules, Australian ambassador to Myanmar; Nikolas Myint, country manager, World Bank; U Myint, chief, Economic Advisory Unit, President's Office; U Thant Myint-U, member of the National Economic and Social Advisory Council (NESAC), and chairman, Yangon Heritage Trust; Daw Khine Khine Nwe, joint secretary general, UMFCCI, and member of the Myanmar Investment Commission (MIC); Cheong Yew Ng, centre director Yangon, International Enterprise Singapore; Daw Hlaing Maw Oo, deputy director, Department for Human Settlement and Housing Development, Ministry of Construction; U Aung Naing Oo, director general, Directorate of Investment and Company Administration, Ministry of National Planning and Economic Development; U Tin Htut Oo, chairman of NESAC; U Zaw Oo, executive director, Myanmar Development Resources Institute; Isabell Poppelbaum, political adviser, European Union Delegation to Myanmar; Anthony Preston, second secretary, British Embassy in Rangoon; U Serge Pun, chairman, Serge Pun & Associates (Myanmar) Limited; Khin Moe Samm, chief executive, Myanmar Egress; U Wai Lin Saw, special adviser to the under secretary general of the United Nations and executive secretary of the UN Economic and Social Commission for Asia and the Pacific; Fritz Graf von der Schulenberg, executive vice chairman, Jebsen & Jessen; Charles Schneider, country director, International Finance Corporation; Sunil Seth, country head, Tata International; Kanthan Shankar, country manager, World Bank; U Hla Maung Shwe, vice president, UMFCCI, and vice president, Myanmar Egress; Michael Slingsby, adviser, UN-HABITAT; Doug Sonnek, head of economic and political section, United States Embassy in Rangoon; U Soe Thane, minister for President's

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We would also like to thank the participants of two surveys related to manufacturing and foreign direct investment conducted for this report. The foreign direct investment survey was conducted with the support of the CIMB ASEAN Research Institute.

This report contributes to MGI's mission to help global leaders understand the forces transforming the global economy, identify strategic locations, and prepare for the next wave of growth. As with all MGI research, we would like to emphasise that this work is independent and has not been commissioned or sponsored in any way by any business, government, or other institution.

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June 2013

The challenge ...

\$1,500 average productivity of a worker in Myanmar today, about 70 percent below that of benchmark Asian countries

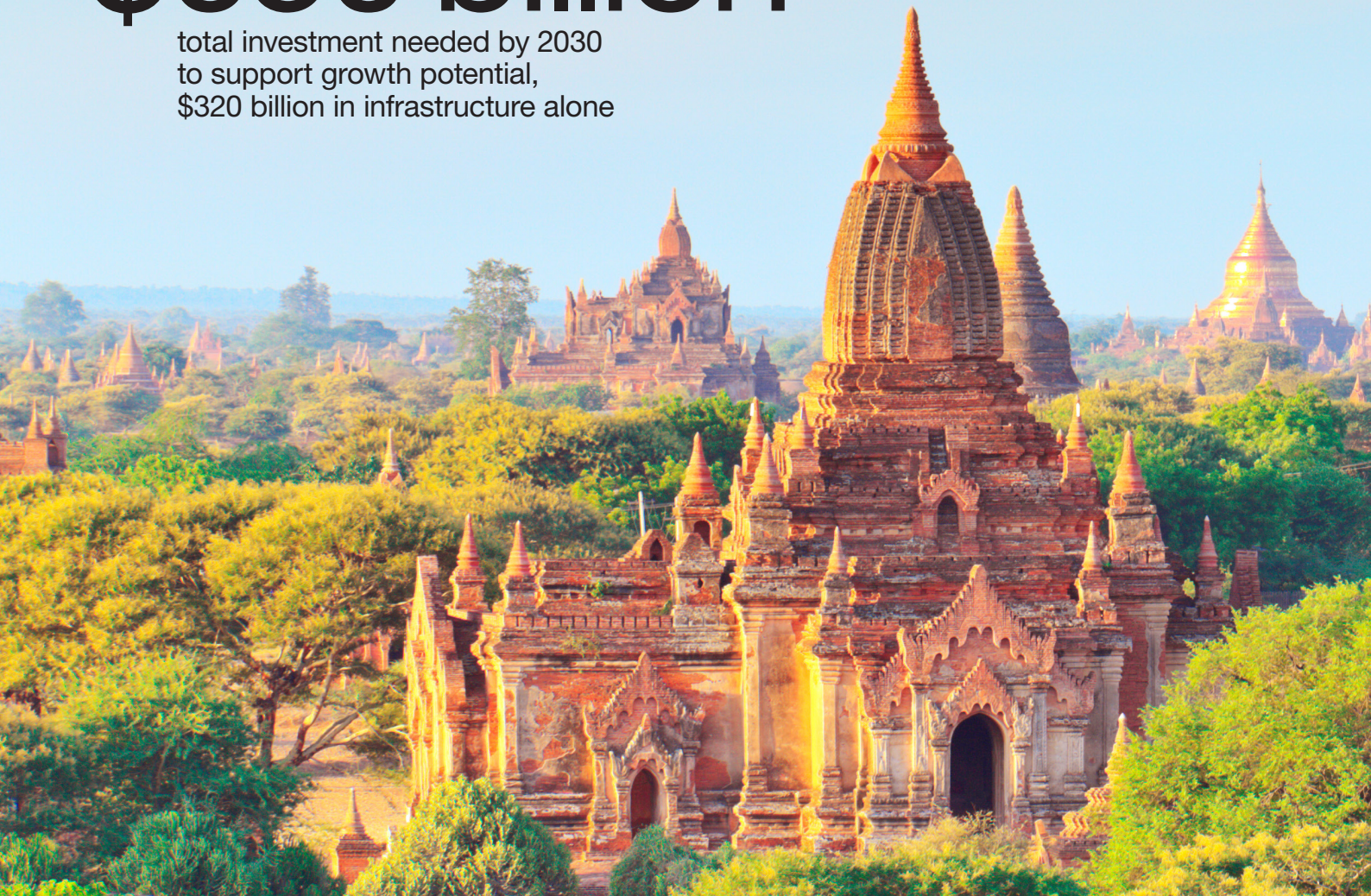
4 years

of average schooling in Myanmar
(UN Development Programme,
Human development report, 2013)

10 million additional people to absorb in Myanmar's large cities by 2030

\$650 billion

total investment needed by 2030
to support growth potential,
\$320 billion in infrastructure alone



... and the opportunity

Potential
to achieve

\$200 billion+

GDP in 2030, over four times as high as today

With spending potentially tripling from
\$35 billion to \$100 billion, an estimated

19 million

members of the consuming class in 2030 from 2.5 million in 2010

Potential
to create
more than

10 million

additional non-agricultural jobs by 2030

500 million

people living in countries bordering Myanmar
and the closest parts of China and India,
a huge potential market



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Executive summary

Myanmar is at a pivotal moment.¹ The government has ushered in a series of political and economic reforms after decades of authoritarianism, a revived peace process is under way to address on-going ethnic conflicts and communal violence, and the foundations of an open market economy are being laid after years of isolation.

There is everything to play for—but also a major risk of disappointment. Today, Myanmar is enjoying a groundswell of goodwill from an international community that is keen to support the country in its process of change and opening. Investors are understandably interested in this highly unusual and potentially promising market prospect. Myanmar is at the heart of the world's fastest-growing region and begins its transformation in the digital age. Severe underdevelopment, after nearly a century of economic stagnation, poses fundamental challenges for an economy that now only contributes 0.2 percent of Asia's GDP. But it also gives Myanmar an opportunity to use its greenfield situation to leapfrog over intermediate stages of economic development and to create sufficient jobs to meet the high expectations of its people.

Much uncertainty remains. Investors are actively considering Myanmar, but many want reassurance that the government can resolve ethnic and communal violence, maintain its momentum towards political and economic reform, and ease constraints on doing business. Those political and economic choices will determine the sustainability of change and the level of interest from investors and supporters—and therefore the success of Myanmar's economic transformation.

By developing a diversified set of sectors, Myanmar has the potential to more than quadruple the size of its economy to over \$200 billion by 2030. But if it fails to build a compelling growth plan and implement it effectively, today's goodwill and cautious optimism could evaporate all too rapidly.

In this report, the McKinsey Global Institute (MGI), the business and economics research arm of McKinsey & Company, assesses the economic potential that Myanmar offers and explores how the nation can seize today's window of opportunity to vault itself into a new era of growth and development. To undertake this research, we have had to make more than typical estimations, given issues with reliability of data on Myanmar. These estimations should be a starting point for those looking to better understand Myanmar's potential.

1 The ruling military junta changed the name of the country from Burma to Myanmar in 1989, and this remains the official name today. For this reason, despite the fact that many parties inside and outside the country do not recognise the nomenclature, we have opted to use Myanmar throughout this report.

Myanmar is at an early stage in its economic development but has some undeniable advantages

Myanmar has largely missed the enormous progress in growth, productivity, and poverty spreading across Asia. But as long as Myanmar stays the course on reform and transformation, it has a number of intrinsic assets and a highly supportive external environment on which to build.

MYANMAR LAGS BEHIND ASIA AFTER YEARS OF ECONOMIC STAGNATION

Between 1900 and 1990, the global economy achieved average GDP growth of 3 percent a year. But Myanmar's growth was strikingly low, estimated at only 1.6 percent a year. During this period, global per capita GDP quadrupled; Myanmar's was virtually stagnant.

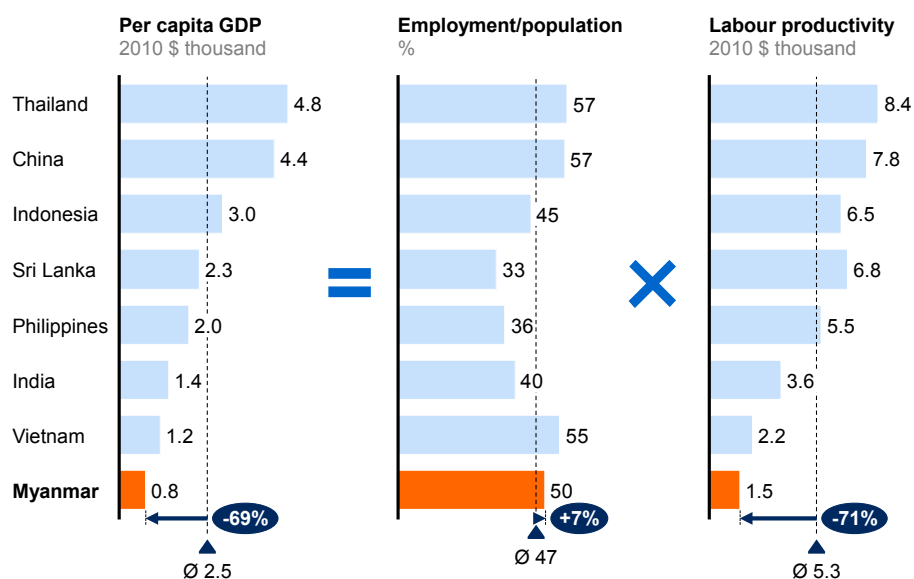
Since 1990, Myanmar's growth has picked up, but it is still much weaker than the growth rates common across Asia. From 1990 to 2010, we estimate that Myanmar's GDP grew at an average of 4.7 percent a year, which was slower than the average annual growth of nearly 6 percent posted by its Asian neighbours. Myanmar's per capita GDP grew at a compound annual growth rate of 2.7 percent, compared with the Asian average of 4.2 percent.

Myanmar's low per capita GDP is largely due to the fact that it has missed out on Asia's remarkable improvement in labour productivity. On average, a worker in Myanmar adds only \$1,500 of economic value in a year of work, around 70 percent less than the average of seven other Asian economies (Exhibit E1).

Exhibit E1

Myanmar's weak per capita GDP is due to low labour productivity

Decomposition of per capita GDP (real), 2010



The modest acceleration in Myanmar's GDP growth over the past 20 years has been due largely to an expanding population, rather than productivity growth. It is weak productivity that underlies Myanmar's low per capita GDP. This productivity gap exists across all sectors but also reflects the fact that Myanmar's economy continues to rely very heavily on agriculture, a low-productivity sector in most countries. Indeed, in Myanmar, agriculture's share of GDP actually rose from 35 percent in 1965 to 44 percent in 2010—while that share was dropping sharply in other Asian economies as they developed their manufacturing and service sectors. In the rest of Asia, the average share of agriculture in overall GDP in 2010 was 12 percent.

The rest of the world has seen economic growth partially driven by a ballooning consumer class—people with incomes of more than \$10 a day at purchasing power parity (PPP) who can spend money on discretionary goods and services as well as basic necessities—but because of its long history of weak growth, Myanmar remains a very poor country. Today, 35 percent of the world's population belongs to the global consuming class, and of the 2.5 billion people in the global consuming class, 40 percent, or one billion, live in Asia. However, only 4 percent of Myanmar's population falls into this category.

BUT MYANMAR HAS UNDENIABLE ADVANTAGES

Despite facing major challenges, Myanmar does have intrinsic strengths; it is fortunate in its location and that it is starting its reforms during the digital era.

Among Myanmar's intrinsic strengths are its rich endowments of natural gas, oil, and precious and semi-precious stones—though the experience of other countries shows that resources can be a mixed blessing.. Myanmar accounts for 90 percent of the world's jade production and is among the top producers of rubies and sapphires. Myanmar also has the 25th-largest endowment of arable land and ten times the per capita water endowment of China and India. Myanmar is blessed with a large working-age population (aged 15 to 64) estimated at 46 million out of an estimated population of 60 million, and an estimated three million to five million migrants working abroad whose experience would benefit the country if they were to return home.

Myanmar is also fortunate in its location at the crossroads between Bangladesh, China, India, Laos, and Thailand, countries that are home to more than 40 percent of the world's population and are huge potential markets. Overall, Myanmar is close to a market of more than half a billion people.² And by 2025 over half of the world's consuming class, that is, those with income of more than \$10 a day, will live within a five-hour flight of Myanmar. Not only are such Asian economies growing rapidly but economic integration in the region is gathering momentum, and Myanmar is part of that process. It chairs the Association of South East Asian Nations (ASEAN) in 2014. In addition, Myanmar is garnering considerable support from multilateral institutions and donors. Sanctions are being lifted, and foreign governments have opened embassies after many years of absence. Dozens of trade delegations have visited Myanmar in the past year alone, an indication of interest from potential investors.

2 All figures are for 2010 and sourced from the United Nations and China's National Bureau of Statistics, except for the population of the Indian provinces, which come from India's census in 2011.

Moreover, with little legacy infrastructure in place, Myanmar can use digital technology to avoid some of the cost of a more conventional bricks-and-mortar approach to such sectors as banking, retail, education, health care, and agriculture. It also can build the connections that can give even the poorest communities in remote rural areas access to economic opportunity and public services.

Myanmar could quadruple its economy to 2030, but risks disappointing

If current demographic trends continue and labour productivity growth remains the same as it has been over the past 20 years, annual GDP growth could be as low as 3.7 percent. However, Myanmar has the potential to achieve rapid economic growth equivalent to 8 percent per annum if it takes action to tap the full potential of all seven key sectors of its economy. Expanding these seven sectors (Manufacturing, Agriculture, Infrastructure, Energy/Mining, Tourism, Financial Services, and Telecom) could more than quadruple the size of the economy from \$45 billion in 2010 to over \$200 billion in 2030 and per capita GDP (PPP) could rise from \$1,300 in 2010 to \$5,100 by 2030. By 2030, this could move around 18 million people out of poverty (lifting individuals to earnings of above \$1.25 per day).³

The recent experience of other emerging economies suggests that such an acceleration of growth in Myanmar would be challenging, but possible. Incomes in developing economies are rising faster than at any other point in history. Globally, the average time it takes to double per capita GDP at PPP from \$1,300 to \$2,600 has dropped dramatically, from 47 years before 1960 to 17 years since 2000. Indonesia quadrupled per capita GDP (PPP) from the level in Myanmar today in just 14 years, and Thailand did it in 13 years. China quadrupled its per capita GDP in just 12 years.⁴

To achieve real annual GDP growth of 8 percent, Myanmar would need to accelerate the annual rate of growth in labour productivity to 7 percent from the current 2.7 percent (Exhibit E2). Again, the experience of other Asian economies suggests that such acceleration would be difficult but not unprecedented. For example, China increased labour productivity by 7 percent per year from 1994 to 2006, the time frame in which it quadrupled per capita GDP from the level of Myanmar today, and nearly doubled its labour productivity from \$3,600 to \$6,800 (PPP). Likewise, between 1982 and 1995, Thailand increased its labour productivity by 6.5 percent per year from \$4,800 to \$10,800.⁵

3 We calculated poverty reduction by looking at the average poverty percentage reduction in China, Indonesia, Sri Lanka, and Thailand when they increased per capita annual GDP by the same amount that Myanmar would increase its per capita GDP if it were to achieve 8 percent GDP growth between 2010 and 2030. We used IMF data for per capita GDP (PPP) and the poverty ratio from the World Bank.

4 We used per capita GDP (PPP) statistics from the IMF.

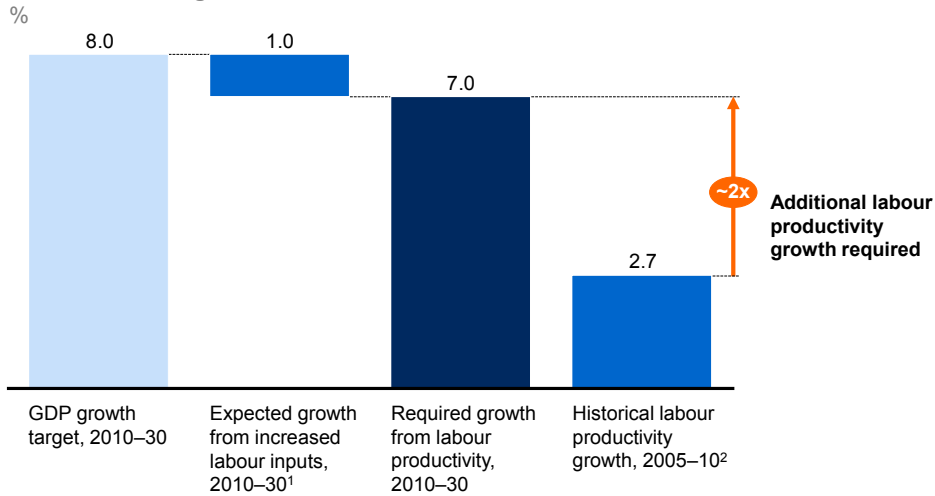
5 We used per capita GDP (PPP) statistics from the IMF and employment numbers from IHS Global Insight. China's data are from 1994 to 2006, and Thailand's are from 1982 to 1995.

While there has been a great deal of discussion and excitement about the potential of its energy and mining sector, Myanmar cannot rely narrowly on only one or two sectors of the economy if it is going to deliver rapid growth. Myanmar would need a more diversified economy. We believe that by fully tapping the potential of seven key sectors of the economy, Myanmar could generate GDP exceeding \$200 billion in 2030 (Exhibit E3). This could create more than ten million additional non-agricultural jobs through 2030.

Exhibit E2

Labour productivity will need to more than double to 2030 to achieve 8 percent annual GDP growth

Annual real GDP growth rates



1 At 2010 levels of participation and employment rates.

2 If labour productivity growth from 1990 to 2010 is used, growth would be even lower at only 2.5 percent.

NOTE: Numbers may not sum due to rounding.

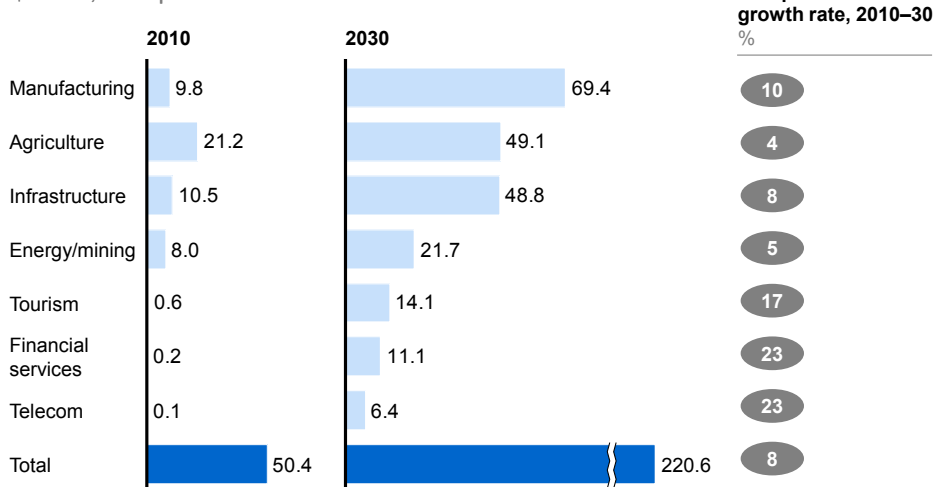
SOURCE: International Monetary Fund; Asian Development Bank; Sein Htay, *Burma Economic Review 2005–2006*, Burma Fund; Central Statistical Organisation, Myanmar; McKinsey Global Institute analysis

Exhibit E3

Seven sectors could generate more than \$200 billion of economic output by 2030

Real GDP sector sizing and potential¹

\$ billion, 2010 prices



1 Our estimate of the GDP contribution of these seven sectors differs from government data on their GDP contribution in 2010 because we have analysed each sector bottom-up—for example, by identifying production data and multiplying it by market prices.

SOURCE: McKinsey Global Institute analysis

Our analysis suggests that agriculture, manufacturing, energy and mining, and infrastructure, which together account for almost 85 percent of the total economic opportunity, will be major drivers of growth:

- **Agriculture.** Myanmar has a total of 12.25 million hectares of arable land and permanent crops, the 25th-largest endowment in the world despite the fact that Myanmar is only the 38th-largest country by total area. Although the country's endowment of water and fertile land is abundant, productivity in Myanmar's agriculture sector is low with output per worker of only around \$1,300 a year, compared with around \$2,500 per worker in Thailand and Indonesia. The sector's low productivity and the low level of inputs such as seeds, fertilisers, water, and machinery suggest that there is significant room to grow. There is also large scope to increase the share of fruits, vegetables, coffee, oil palm, rubber, and other high-value crops as well as the production of fisheries. Given that agriculture currently accounts for 52 percent of workforce employment, capturing the full growth potential of agriculture is critical to ensuring that the economy's growth is shared widely.
- **Energy and mining.** Myanmar has large endowments of oil, gas—its most important export—and precious minerals such as rubies, sapphires, and jade. For example, Myanmar currently ranks 46th in the world in terms of proven gas reserves, and estimates of undiscovered gas reserves indicate that the amount of reserves is likely to be much higher. Myanmar produces 90 percent of the world's jade, which is valued highly in Asia. Many of these natural resource reserves are largely unexplored today—with new technologies, the potential could be much higher than current estimates.
- **Manufacturing.** Myanmar's labour costs today are comparatively low, giving the country an opportunity to boost output in labour-intensive manufacturing sectors such as textiles, apparel, leather, furniture, and toys at a time when some of this manufacturing is leaving China. However, labour productivity in the sector is also weak. Output per worker is only 70 percent of that in Vietnam in 2010, 20 percent of that in China and Thailand, and less than 15 percent of that in Malaysia. To compete in the region, Myanmar will need to improve labour productivity. On the back of that higher productivity, there is scope over time to make the transition to more value-added sectors, following the example of Thailand, Malaysia, and other Asian economies.
- **Infrastructure.** Myanmar's infrastructure is not sufficient today to support the higher growth and future demand driven by developing industrial sectors and an urbanising population. Between 2010 and 2030, our analysis suggests that Myanmar will need to invest \$320 billion in its infrastructure if the economy is to achieve growth of 8 percent a year. The majority of infrastructure investment—60 percent—will need to be in residential and commercial real estate, but there is also a huge need for power plants, water-treatment plants, and road and rail networks.

There is also a significant consumer opportunity for private-sector firms to target. The number of people belonging to the consumer class—those with sufficient income for discretionary spending—could potentially rise from 2.5 million today to 19 million in 2030, thereby potentially tripling consumer spending from \$35 billion to \$100 billion.

Achieving this growth will not be easy; Myanmar has a monumental task ahead. The country will need to maintain credibility with the international community by demonstrating that it is committed to reform. The government also needs to show that it is capable of managing change. Myanmar is early in its transformation and will need to work courageously to maintain the speed and course of change currently under way and build capabilities within the government. Huge progress has already been made—with many of those in government working tirelessly. One of the tasks facing Myanmar is to quickly develop a cadre of skilled and talented officials who can navigate the country through the many challenges that lie ahead.

Myanmar needs to get all the fundamentals right— and use four other keys to unlock growth

Myanmar has a large opportunity for development and sustained growth. But the road ahead is not easy. Action in virtually every area of economic development as well as governance itself is essential. Myanmar has to prioritise its efforts and ensure delivery.

On the economic front, Myanmar needs to maintain macroeconomic stability, enhance and expand education and vocational training to close its skills gap, invest heavily in infrastructure, improve the ease of doing business, and strengthen its financial system. A politically stable environment is just as important. Economic development and foreign direct investment (FDI) in Myanmar will take off only if all parties remain committed to the reform agenda and if there is domestic political stability and security. Finally, there is the enormous challenge of putting in place the governance structures and capabilities that are necessary to implement, effectively and at the right pace, the extraordinarily complicated tasks that lie ahead.

These economic, political, and governance issues facing Myanmar are all widely acknowledged. But we believe that there are four other keys to unlocking growth that have not received as much attention. Action in these four areas could make a substantial contribution to Myanmar's growth and development agenda.

- **Digital leapfrogging.** Myanmar is starting on its economic development journey in the digital age—when mobile and Internet technology is increasingly affordable. One of the most important strategic decisions that Myanmar can make is to explore how it can leverage digital technology as a central platform of its development plans. Digital technology is accelerating development across emerging economies—and Myanmar has barely begun to tap its power. There is a correlation between technology, innovation, and economic growth. In a study of 120 low- and middle-income countries, the World Bank found that a 10 percent increase in broadband penetration between 1980 and 2002 yielded an additional 1.38 percent in GDP growth.⁶ In January 2012, the McKinsey High Tech Practice estimated that the Internet had accounted for as much as 12 percent of cumulative GDP growth over the past five years in a

6 C. Z. Qiang and C. M. Rossotto, "Economic impacts of broadband", in *Information and communications for development 2009: Extending reach and increasing impact*, World Bank, 2009.

group of aspiring countries.⁷ Digital technology could transform six important areas of Myanmar's economy: government, education, health care, banking, retail, and even agriculture. Technology could enable Myanmar to spread services in a cost-effective way to a broad swathe of the population. Take education as an example. Today, Myanmar has one of the lowest averages of schooling in the world at just four years. Its teacher-to-pupil ratio is around one teacher for every 30 schoolchildren—much higher than 1 to 17 in Indonesia and 1 to 13 in Malaysia.⁸ But change could come quickly if Myanmar uses technology to deliver an element of e-education to a much larger number of children of school age as well as adults in vocational training and even tertiary education, as we are seeing in many emerging economies today. Capturing this opportunity will not be easy— in particular, Myanmar will need to move decisively on an aggressive telecommunications infrastructure plan.

- **Structural sector shift.** Myanmar is quite unusual among emerging economies in that its economic mix has barely changed in decades. While other countries have experienced a structural shift away from agriculture towards manufacturing—and eventually service sectors—Myanmar's reliance on agriculture has continued. The first step in the structural shift undertaken by many emerging economies is usually into manufacturing, which has the potential to deliver the greatest gains in productivity and employment of any sector. Manufacturing plays an important development stepping stone by providing higher-value jobs for relatively under-educated workers moving from agriculture. Today, Myanmar's manufacturing sector is small in absolute terms—less than half the size of the sector in Vietnam, for instance—but it has the potential to be Myanmar's largest sector in 2030, overtaking agriculture and energy and mining. Myanmar could consider developing its manufacturing sector in stages, focusing in the short term on using current comparative cost advantages to expand labour-intensive manufacturing. Food and beverages, mineral-based products, textiles, footwear, furniture, jewellery, toys, and various rubber and plastic products are all industries that match the country's current capabilities and benefit from high domestic demand. At the same time, Myanmar could encourage investment and innovation by beginning to develop a few core industries with high growth potential and higher productivity, and where it could feasibly develop the capabilities to compete successfully over the long term. These segments could include automotive parts and assembly, chemicals, petroleum refineries, electrical machinery, and communications equipment, which are all high-growth and high-productivity industries.
- **Urbanisation.** Today, the vast majority of Myanmar's citizens still live in the countryside, but that is likely to change—at a rapid speed and on a large scale. We estimate that the share of Myanmar's people who live in large cities, which we define as having more than 200,000 inhabitants, could double from just 13 percent today to around one-quarter of the total population in 2030. In these large cities alone, there could be around ten million new urbanites—the equivalent

7 "Aspiring countries" are defined as those dynamic and significant enough that they can aspire to become developed countries within a reasonable time frame. "Dynamic" is defined as having a nominal per capita GDP that grew at a compound annual growth rate above 3 percent between 2005 and 2010. "Significant" is defined as having a nominal per capita GDP between \$1,000 and \$20,000 in 2010 and nominal GDP in 2010 above \$90 billion. See *Online and upcoming: The Internet's impact on aspiring countries*, McKinsey High Tech Practice, January 2012.

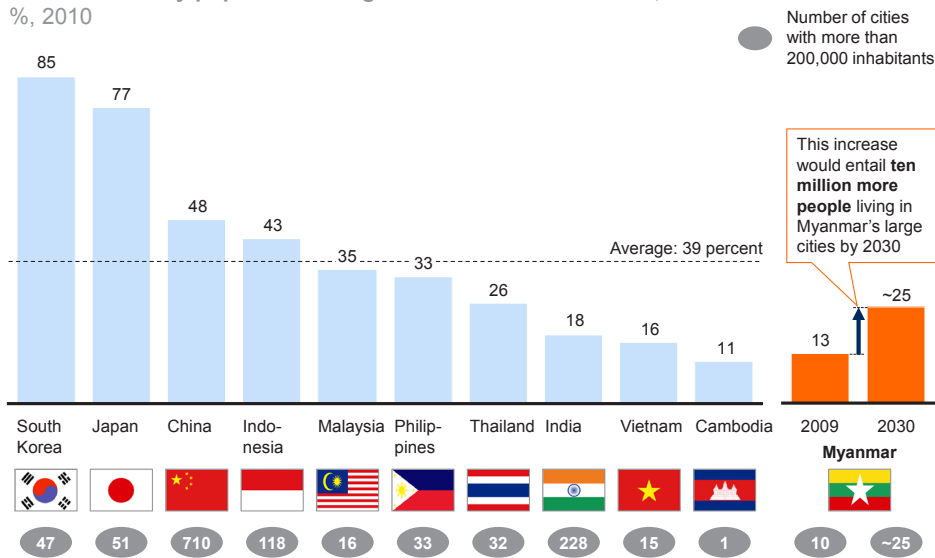
8 *Pupil-teacher ratio, primary*, World Development Indicators, World Bank, 2009.

of two new cities the size of Yangon or ten new cities the size of Mandalay. This could be one of the most significant migrations in Myanmar's history and has the potential to fundamentally transform Myanmar's economy and society in the decades to come. Large cities could generate 54 percent of the nation's GDP growth to 2030 (Exhibit E4). Myanmar has the opportunity to learn from the successes and failures of other countries. Their experience suggests that there are three elements that Myanmar needs to get right. First, it needs to plan proactively for its urban expansion, putting in place a modern planning system. Second, Myanmar needs to invest in the infrastructure that cities require to run smoothly and to cater to the needs of their citizens. Third, it needs to consider the governance of cities. One of the models that has proved effective in cities around the world (including London, Johannesburg, and Kolkata) is an elected mayor whose jurisdiction covers the whole city, and who works with professional agencies that implement urban plans and policies.⁹ This would be especially useful in Myanmar, where there are only two active city mayors, governing Yangon and Mandalay, and one de facto mayor, governing Nay Pyi Taw.

Exhibit E4

Myanmar's population living in large cities with 200,000 plus inhabitants, could double from just 13 percent to one-quarter of the population in 2030

Share of country population living in cities of more than 200,000 inhabitants
%, 2010



NOTE: Share of country population living in cities of more than 200,000 is not the same as the urbanisation rate.
SOURCE: McKinsey Global Institute Cityscope 2.0 database; Department of Human Settlement and Housing Development, Ministry of Construction, Myanmar; McKinsey Global Institute analysis

- **Globally connected economy.** After decades of being cut off, Myanmar needs to be open to, and part of, the global economy through investment, trade, people and the exchange of ideas. Based on the experience of other Asian countries, Myanmar could need around \$650 billion in total investment to achieve its growth potential. In the early years of its economic transformation, Myanmar may need to rely heavily on foreign capital and trade to drive growth. Myanmar could potentially need to attract foreign capital of more than \$170 billion to close the gap between required investment and potential domestic savings. This foreign capital could also help transfer capabilities and ideas. To bring in these high volumes of foreign capital, Myanmar would need to develop a targeted investment attraction strategy led by a dedicated agency

9 *India's urban awakening: Building inclusive cities, sustaining economic growth*, McKinsey Global Institute, April 2010.

and to prioritise improving its business environment including, for instance, regulation of financial services. Today, trade volumes are low and undiversified because of the long years of sanctions and stagnant growth. Myanmar could benefit from expanding trade opportunities with a larger set of partners, especially by establishing itself as part of the global supply chain. The most promising route thus far has proved to be free trade agreements, and Myanmar could consider how to strike more such deals and maximise the opportunities available to it as a member of ASEAN's existing free trade agreements with key countries. Myanmar may also want to understand where its economy and businesses could fit best into a global supply chain that is increasingly fragmented as countries specialise.¹⁰ Once this assessment has been made, it would be important to ensure that infrastructure services such as transport, telecommunications, finance, and insurance are available at reasonable cost. People flows are important, too. After years of isolation, welcoming a steady stream of foreigners into the country and sending its own citizens abroad to study, conduct business, or simply explore other parts of the world could help Myanmar build up its skills and stimulate the transfer of knowledge and technology—all important elements that need to be in place as the economy develops. Tourism may be not only a major economic opportunity, but also a way to reinforce a positive image of openness and connection to the world.

Making this happen will require government and the private sector to rethink their current approaches

Myanmar's potential is formidable, but so are the challenges. The country's growth trajectory could become either one of the fastest economic transformations seen in past decades or a great disappointment. Realising the economic potential we have outlined will depend in large measure on the actions of Myanmar's leaders, in both the public and private sectors, during the coming months and years.

GOVERNMENT

The government is working within extremely tight constraints in terms of its capacity, finances, and time. Key considerations for the future should include ensuring delivery of the political and economic reforms so as to maintain the confidence and trust of its own citizens, local businesses, and international corporations and institutions. The government also needs to drive through key legislation. Another useful step might be to develop a compelling master plan for growth and investment. There is no guarantee that current interest in the economy among investors will turn into real investment, and Myanmar therefore needs to articulate a clear "business case" that includes, for instance, a transparent view of the future regulatory environment, a multi-year infrastructure capacity-building plan, and a programme of building skills.

Myanmar might also consider setting up a government delivery programme to drive implementation. Delivery programmes have had success even in countries whose governmental capacity constraints were similar to Myanmar's. Governments

10 A common way to assess trade in intermediate goods is to use the United Nations' Broad Economic Categories. This groups commodities by main end-use, principally distinguishing between consumption, capital and intermediate goods. See *Trade patterns and global value chains in East Asia: From trade in goods to trade in tasks*, WTO and IDE-JETO (Institute of Developing Economies–Japan External Trade Organization), 2011.

have managed extraordinary transformations because they focused on a well-designed and well-executed delivery programme that applied seven types of best practice. First, they clearly defined the priority outcomes to be delivered over different time horizons, such as poverty reduction and educational attainment. Second, they developed implementation plans in intense full-time collaborations uniting all stakeholders. Third, they delivered more for less by focusing public and private funds according to the delivery priorities. Fourth, they intensified internal and external pressure to perform by publishing targets and regularly reviewing performance. Fifth, they established a high-powered delivery unit—an institution with the sole purpose of solving problems and driving the implementation of change across government. Sixth, they ensured visible sponsorship from top leaders. Lastly, they didn't just communicate with stakeholders—they engaged them.

PRIVATE SECTOR

Myanmar's companies will experience a period of huge change in coming years. To thrive in this environment, they need to meet three interlinked imperatives. First, they need to prepare to compete at home and overseas, building an understanding of the opportunities available in different markets and the strategies of competitors. Second, they need to rapidly reach international standards of quality and price for their goods and services. Third, they need to explore foreign partnerships as a source of capital and knowledge, and to connect to global supply chains.

For international companies, there are different considerations. First, they need to move fast if they are to be the first to establish lasting business relationships in Myanmar and build market share into a leadership position in their segments. Second, companies should be prepared to make a long-term commitment to Myanmar and to play a part in developing the business environment and training the workforce. Third, their approach needs to be sufficiently detailed, with a high level of agility and adaptability to seize the opportunity in what will be a fragmented market—this is a country of more than 135 ethnic groups, where the population is spread across the country with few population centres, and infrastructure connections between regions are currently limited. Finally, partnering with local companies could provide a platform for more rapid growth and improved access to local talent.

□ □ □

The triple transformation on which Myanmar has embarked—towards democracy, towards peace, and towards a market economy—is as demanding a reform agenda as a country can aspire to implement. There is much to do if Myanmar is going to realise its potential and create a prosperous and inclusive society. In Chapter 1, we examine the country's past economic performance and assess the potential advantages it could leverage to drive future growth. In Chapter 2, we explore the potential for Myanmar to accelerate GDP growth, looking at the potential of key sectors of the economy by 2030. In Chapter 3, we examine four areas that will be crucial to realising this growth aspiration, but which we believe have not received sufficient attention to date. Finally, we conclude in Chapter 4 with a discussion of the implications for the government and the private sector.

1. Myanmar's new start

Myanmar is in the throes of remarkable change.¹¹ Authoritarianism is giving way to political and governmental reform, a peace process could bring an end to decades of civil war, and the government is opening its economy up to the world after years of isolation. This country of 60 million people in the heart of Asia is eager to make its place in the world, and there is considerable excitement in political, business, and economic circles around the globe about what the country could achieve. But nobody should be in any doubt that the journey ahead will be long and challenging. Myanmar needs to seize its moment.

Economic development and FDI in Myanmar will take off only if all parties remain committed to the reform agenda, the peace process and reconciliation between ethnic and religious groups succeed, and the election in 2015 marks another peaceful political transition. Among observers, including investors, there is still considerable uncertainty—and even unease—over Myanmar's progress, and whether the country's leaders will maintain the breakneck speed of change and sustain reform (see Box 1, "Myanmar's reforms thus far").

The country has a monumental task ahead. Myanmar's transformation is at an early stage, and the distance to travel if Myanmar is to close the gap with other Asian economies is considerable. Myanmar has largely missed the economic renaissance that is delivering enormous progress in growth, productivity, and reduction of poverty across emerging markets in general and many of Myanmar's neighbours in Southeast Asia in particular. As long as Myanmar stays the course on political reform and economic transformation, it has a number of intrinsic assets and a highly favourable external environment in Asia that it can use as a platform for growth. The economy could develop at a pace that may surprise many people and begin to put to rest any remaining nervousness about the country's prospects.

11 The ruling military junta changed the name of the country from Burma to Myanmar in 1989, and this remains the official name today. For this reason, despite the fact that many parties inside and outside the country do not recognise the nomenclature, we have opted to use Myanmar throughout this report.

Box 1. Myanmar's reforms thus far

A new chapter in Myanmar's story began in November 2010. Since then, many developments have taken place on the political, governance, and economic fronts:

Politics and governance

- A parliament was elected for the first time in half a century with former military commander Thein Sein selected as civilian president.
- Nobel Peace Prize winner Aung San Suu Kyi was released from house arrest along with many other political prisoners. Political opponents were allowed back into the country. The National League for Democracy (NLD), the main opposition party, boycotted the 2010 elections. President Thein Sein initiated a dialogue with the NLD, culminating in the NLD's participation and victory in April 2012 by-elections.
- New laws have ended censorship and overturned bans on political gatherings.
- Transparency has increased, improving governance. The 2012 budget was debated for the first time in parliament and published in private newspapers.
- The auditor-general has been given a measure of independence.
- Public opinion has had some influence on government policy, leading to increases in the health and education budgets and the cancellation of some controversial infrastructure projects.
- The government has made efforts to foster reconciliation with ethnic and religious minorities. Cease-fires have been renewed or put in place with some armed groups, including the SSA-South, UWSA, KNU, KNPP, and NMSP.¹ However, the cease-fires remain fragile, and renewed conflict has broken out with another group, the KIO. Serious sectarian and ethnic turmoil persists.²

Economic

- The kyat, Myanmar's currency, was floated in April 2012.
- The Central Bank of Myanmar was given a larger measure of independence.
- Myanmar has introduced tax reform, including abolition of the profit tax and reduction of the sales tax to 5 percent for most items (down from 90 percent in some cases).
- Steps were taken to decentralise fiscal policy with the establishment of state and regional budgets.
- There has been some acceptance of the repatriation of profits, although parliament has announced limits on foreign ownership in some sectors.
- Special Economic Zones (SEZ) are being introduced.³

1 The Shan State Army-South, United Wa State Army, Karen National Union, Karenni National Progressive Party, and New State Mon Party. This list is not exhaustive.

2 Kachin Independence Organisation. See John Buchanan et al., *Developing disparity: Regional investment in Burma's borderlands*, Transnational Institute Burma Centre Netherlands, February 2013.

3 *Interim strategy note for the Republic of the Union of Myanmar for the period FY13–14*, International Development Association (IDA) and International Finance Corporation (IFC), October 30, 2012; *Myanmar in transition: Opportunities and challenges*, Asian Development Bank, August 2012; *Myanmar: Storm clouds on the horizon*, International Crisis Group, Asia Report number 238, November 12, 2012..

Myanmar has experienced a century of economic stagnation

The 20th century was one of the most dynamic in history in terms of economic change and progress. Between 1900 and 1990, the world economy grew at an average rate of 3 percent a year, lifting global GDP from \$1.9 trillion to \$27 trillion.¹² Between 1981, when the World Bank began comprehensive monitoring of global poverty, and 2005, 650 million people left extreme poverty—defined as living on less than \$1 a day—thereby cutting the global tally by half.¹³ Over the course of the century, life expectancy doubled from 31 years to 66.¹⁴

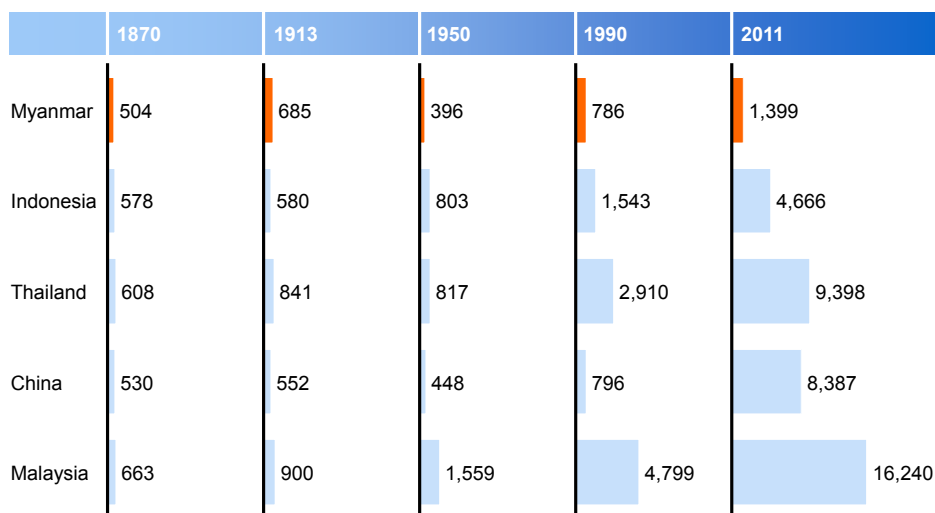
Prior to the 1930s, Burma, now Myanmar, was fully part of this global economic progress. Indeed, Myanmar was one of the world's fastest-growing economies in the late 19th and early 20th centuries and one of the most developed economies in Asia (Exhibit 1). Rangoon, now Yangon, was one of the region's most important ports, Burma's banking system was relatively developed, and, for the time, the country's transport and communications networks were also rather advanced. Myanmar was a major exporter of such commodities as rice, timber, and petroleum products.¹⁵

Exhibit 1

Myanmar's economy was on a par with other Asian economies until the early 20th century, after which it remained stagnant while Asia surged

Per capita GDP, purchasing power parity (PPP)

1990 International Geary-Khamis \$



SOURCE: 1870–1990 figures from Angus Maddison, *Historical statistics of the world economy: 1–2008 AD*; 1990 and 2011 figures are from the International Monetary Fund figures (PPP); McKinsey Global Institute analysis

12 1990 Geary-Khamis (PPP) US dollar. See Angus Maddison, *Historical statistics of the world economy: 1–2008 AD*, 2008.

13 Shaohua Chen and Martin Ravallion, *An update to the World Bank's estimates of consumption poverty in the developing world, briefing note*, Development Research Group, World Bank, January 2012.

14 Angus Maddison, *The world economy: A millennial perspective*, Development Centre Studies, Organisation for Economic Co-operation and Development (OECD), 2001.

15 Thant Myint-U, *Where China meets India: Burma and the new crossroads of Asia*, Farrar, Straus and Giroux, 2011.

As the century progressed, however, a succession of devastating events undermined this impressive economic performance. In the 1930s, Myanmar's economic output contracted largely because of falling rice prices, which hit farmers hard.¹⁶ World War II then raged on Myanmar's territory, virtually destroying the country's infrastructure.¹⁷ War was followed by an unsteady period as the newly independent country grappled with civil conflict and economic self-determination.¹⁸ By the early 1950s, Myanmar's per capita GDP was less than one-third of that in Thailand and the Philippines.¹⁹ After the coup d'état in 1962, Myanmar descended into military authoritarianism and isolation from the world. All industries except agriculture were nationalised and economic and social development stagnated.²⁰

Looking at 1900 to 1990 as a whole, Myanmar's overall economy appears to have barely progressed even while the global economy surged. Economic data in Myanmar today are not complete or reliable, and it is therefore difficult to arrive at a full and accurate picture of the economy's long-term growth record—or even the current population and GDP (see Box 2, “What are Myanmar's population and GDP?”). However, the data that are available suggest that real GDP growth during this 90-year period averaged a strikingly low 1.6 percent per year, around half of the global growth rate of 3 percent per year in the same years.

Between 1900 and 1990, our best estimate is that Myanmar's population grew at a compound annual rate of 1.5 percent, close to the global average of 1.4 percent. While incomes fluctuated, they fell over this period as a whole. Per capita GDP was virtually unchanged in 1990 from its level in 1900, with effectively an annual growth of a marginal 0.1 percent a year. This was one of the slowest growth rates in the world. In stark contrast, global average per capita GDP quadrupled in this period, after growing at a compound annual growth rate of 1.6 percent (Exhibit 2). In short, while the world underwent an unparalleled transformation, Myanmar virtually stagnated.

16 Anne Booth, “The Burma development disaster in a comparative historical perspective”, *SOAS Bulletin of Burma Research*, volume 1, number 1, spring 2003.

17 Ian Brown, “Tracing Burma's economic failure to its colonial inheritance”, *Business History Review*, volume 85, issue 4, December 2011.

18 Thant Myint-U, quoted in *ibid.*, *Interim strategy note*, IDA and IFC, 2012.

19 *Ibid.*

20 *Myanmar: The politics of economic reform*, International Crisis Group, July 2012.

Box 2. What are Myanmar's population and GDP?

In the past, Myanmar had a rich tradition of data recording and analysis. However, in recent decades the accuracy of official economic and social data has been questionable.¹ The current government has begun to make a serious effort to improve data gathering, reporting, and analysis, but there is still a lack of clarity on even the most basic statistics such as total population, GDP, and GDP growth. We recognise that the assumptions we make about these basic statistics affect a range of others used in this report such as per capita GDP and labour productivity. We believe that using multiple sources to compare data offers the best way of ensuring that the statistics in this report are based on the most reliable data currently available to us.

Population. The last census was in 1983, and estimates of the size of the current population are subject to a high degree of uncertainty. The government puts the population at around 60 million in 2010. Most international organisations, including the Asian Development Bank, IMF, United Nations Population Fund, and World Bank, use similar estimates.² However, figures aggregated by the Myanmar Ministry of Health using the observations of health professionals on the ground suggest a number closer to 48 million.³ Only when the results of the 2014 census are published is there likely to be a greater degree of clarity. For all analyses that include population data in this report, we take the more commonly used population estimate of about 60 million in 2010. We assume that the population will grow at an average annual rate of 0.9 percent as projected by the United Nations' population division in the period to 2030, taking the population to around 72 million at that date.⁴

GDP and GDP growth. Estimates of these two metrics have been highly questionable. In the decade to 2010, official government statistics report average annual real GDP growth of 12 percent, but several academic publications and a number of global economic institutions have raised issues with this estimate.⁵ The IMF and the EIU have questioned official estimates of GDP growth by examining the relationship between GDP growth and other indicators such as trade patterns, private consumption, and energy demand. Our interviews with local experts as well as officials at the IMF, Asian Development Bank, and World Bank suggest that it is unlikely that Myanmar posted double-digit GDP growth during this decade. Even taking account of the fact that Myanmar's economy was starting from a lower base, it seems unlikely that growth over the past decade was higher than that of China and other Asian economies. We compiled a revised time series of historical GDP for Myanmar using revised estimates of GDP and GDP growth from the IMF and *Burma Economic Review*. Throughout this report, we use GDP data from 1990 to 2010 and extrapolate through 2030 using the following two denominations: real US dollars using 2010 as the base year and real US dollars corrected for PPP with 2005 as the base year (see the technical appendix for more details about our methodology).

1 U Myint, *Myanmar economy: A comparative view*, Institute for Security and Development Policy, 2009.

2 *Statistical yearbook 2010–2011*, Central Statistical Organisation, Myanmar.

3 *Township health profile 2011*, Ministry of Health, Department of Health Planning, Myanmar.

4 US Census Bureau/United Nations Population Division, Revision 2.

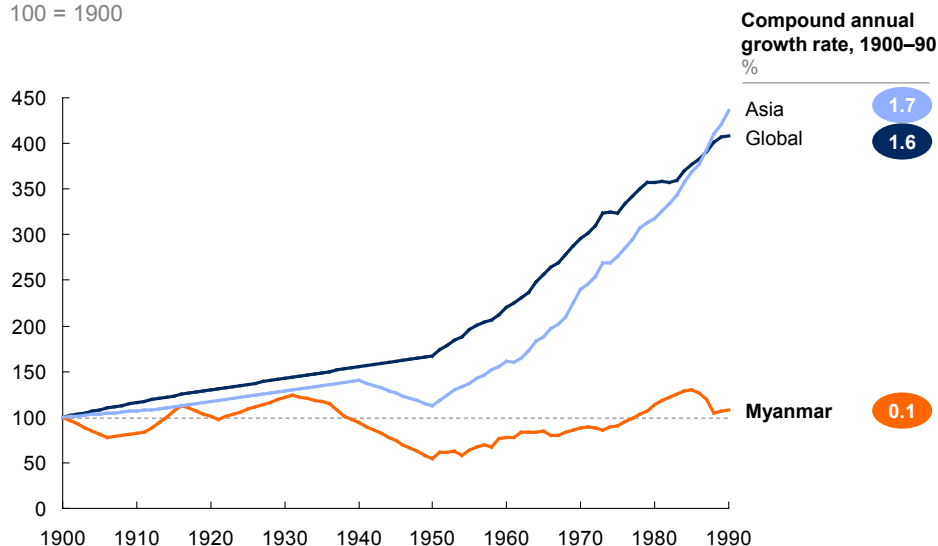
5 *Appraising the post-sanctions prospects for Myanmar's economy: Choosing the right path*, Ash Center for Democratic Governance and Innovation, Harvard Kennedy School, January 2012; *ibid.*, U Myint, *Myanmar economy: A comparative view*, 2009.

Exhibit 2

In 1990, Myanmar's per capita GDP was close to its 1900 level, but during this period per capita GDP more than quadrupled in Asia and globally

Indexed per capita GDP (1990 PPP \$)

100 = 1900



SOURCE: Angus Maddison, *Historical Statistics of the World Economy: 1–2008 AD*; International Monetary Fund; McKinsey Global Institute analysis

Myanmar's growth has picked up in the past 20 years but still lags behind that of a resurgent Asia

In 1900, Asia accounted for 30 percent of global GDP, but by 1950 this had dropped to 20 percent.²¹ Today we are witnessing a decisive shift in the world's economic centre of gravity back towards Asia, and at a speed and scale never before witnessed. China's economic transformation is happening at over 100 times the scale of the first urban nation—the United Kingdom—and at ten times the speed.²² However, Myanmar has not matched the surging labour productivity and rising incomes of other Asian economies.

Myanmar's anaemic growth rate did pick up somewhat after 1988 when there was a measure of economic liberalisation. Between 1990 and 2010, we estimate that Myanmar's GDP grew by about 4.7 percent per year on average, surpassing average global annual growth of 3.2 percent but significantly weaker than the close to 6 percent average growth rate of its Asian neighbours.²³ On a per capita basis, too, Myanmar has significantly lagged behind the rest of Asia. Myanmar's per capita GDP grew at a compound annual growth rate of 2.7 percent, above the global growth rate of 1.9 percent but well below the average of Asian benchmark countries of 4.2 percent (Exhibit 3). For instance, in this 20-year period, Indonesian per capita GDP grew at 3.2 percent per year, Cambodia's at 5.2 percent, and Vietnam's at 5.9 percent.

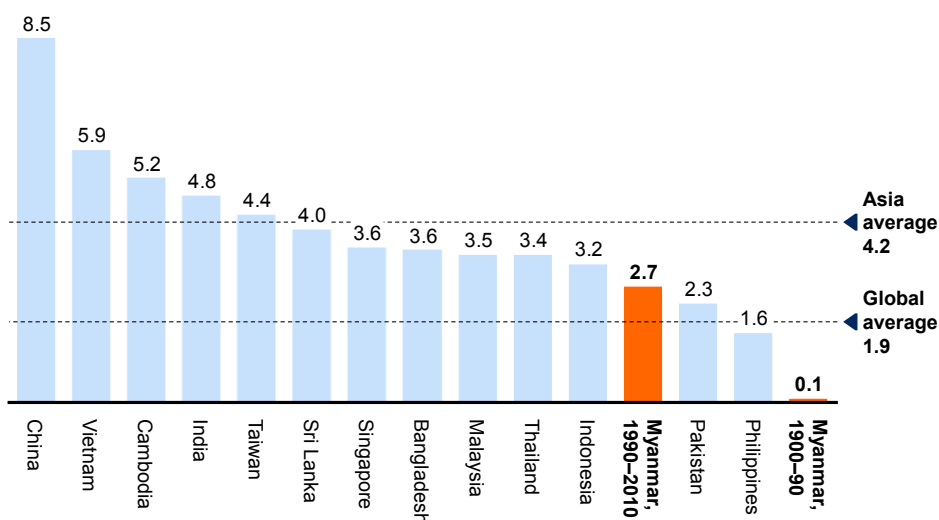
21 Ibid., Angus Maddison, *Historical statistics of the world economy*, 2004.

22 *Urban world: Cities and the rise of the consuming class*, McKinsey Global Institute, June 2012.

23 We compiled a revised time series of historical GDP for Myanmar from 1990 to 2010 using revised estimates of the size of GDP and GDP growth from the IMF and Sein Htay, *Burma Economic Review 2005–2006*, Burma Fund, 2007.

Exhibit 3**Since 1990, GDP growth rate has picked up but remains at the lower end of benchmark countries**

Per capita GDP growth (PPP), 1990–2010
Compound annual growth rate (%)



SOURCE: International Monetary Fund; Conference Board Total Economy Database; McKinsey Global Institute analysis

Myanmar's relatively weak growth performance in this period can be partially ascribed to a number of economic shocks both man-made and natural. In 2003, Myanmar experienced a banking crisis that resulted in an estimated zero GDP growth that year. Faced with a run on banks, the Central Bank of Myanmar placed restrictions on withdrawals and forced banks to recall loans from borrowers. This policy response effectively froze Myanmar's financial markets and brought growth to a halt. In May 2008, Cyclone Nargis killed an estimated 140,000 people and devastated agricultural and industrial production as well as large parts of the country's already weak infrastructure. Estimates suggest that the cyclone wiped out more than 3 percent of GDP growth in the subsequent year and cost the economy an estimated \$4 billion.²⁴

However, such shocks are only part of Myanmar's weak growth story between 1990 and 2010. More fundamental was the fact that the economy was handicapped by isolation and ineffective economic policies.²⁵

²⁴ Sean Turnell, Wylie Bradford, and Alison Vicary, *Burma's economy 2009: Disaster, recovery ... and reform?*, Macquarie University, Australia, September 2009.

²⁵ Lex Rieffel, *The Myanmar economy: Tough choices*, *Global Economy and Development*, working paper 51, the Brookings Institution, 2012.

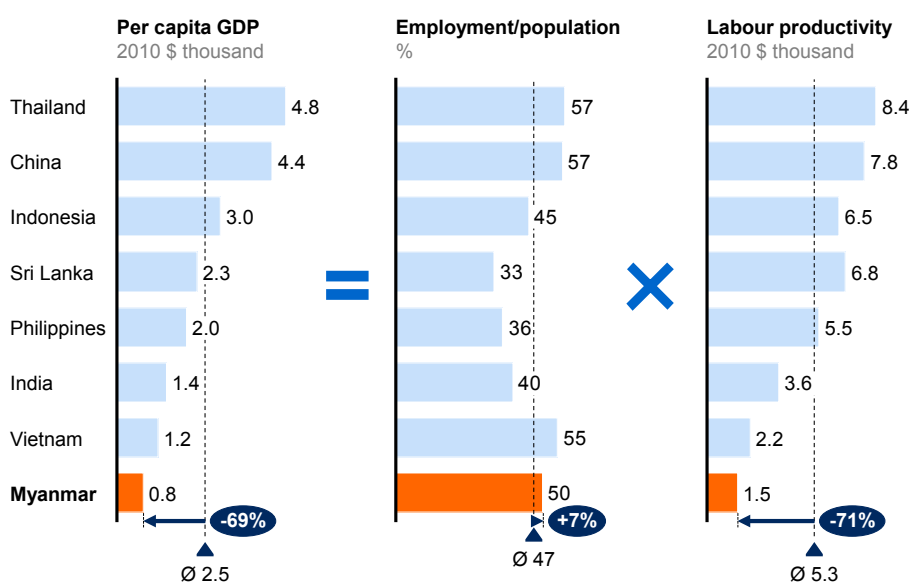
MYANMAR HAS LAGGED BEHIND ASIA IN LABOUR PRODUCTIVITY

Low labour productivity rather than a low employment rate explains Myanmar's relatively weak performance in per capita GDP.²⁶ Myanmar's official employment data indicate that 50 percent of the total population is working, slightly higher than the average of 45 percent in neighbouring economies. While it is not possible to verify the accuracy of these employment data, this relatively high employment rate appears to be reasonable given that most households face economic pressure to participate in the workforce and given the high proportion of the population that is working in farming. However, labour productivity is very low. On average, a worker in Myanmar adds only \$1,500 of economic value in a year of work, around 70 percent less than the average of seven other Asian countries (Exhibit 4).

Exhibit 4

Myanmar's weak per capita GDP is due to low labour productivity

Decomposition of per capita GDP (real), 2010



The modest acceleration in Myanmar's GDP growth between 1990 and 2010 was largely due to an expanding population rather than higher labour productivity. In this period, increases in the population and in the share of working-age people in that population accounted for 64 percent of GDP growth. Just 5 percent came from changes in workforce participation and employment rates, and only 31 percent from growth in labour productivity (Exhibit 5). The contrast with other Asian economies over the same period is stark. In China, 90 percent of GDP growth came from productivity. In Thailand, the contribution was 72 percent, in Bangladesh 59 percent, in Malaysia 55 percent, and in Cambodia 52 percent. Myanmar's labour productivity growth of 1.4 percent between 1990 and 2010 was

26 A country's GDP can be seen as the number of working people multiplied by the country's labour productivity—the economic value of a year's work of the average working person. We define labour productivity as the ratio of economic output over labour inputs, or the efficiency at which labour is used. In simple terms, we define labour productivity as the economic output per worker. For all comparisons of labour productivity, we use real US dollars. Similarly, Myanmar's per capita GDP can be decomposed into the share of the country's population in employment, multiplied by labour productivity.

the second weakest in the region; the weakest growth during this period was in Japan at 1.06 percent, but Japan's productivity was already very high.²⁷

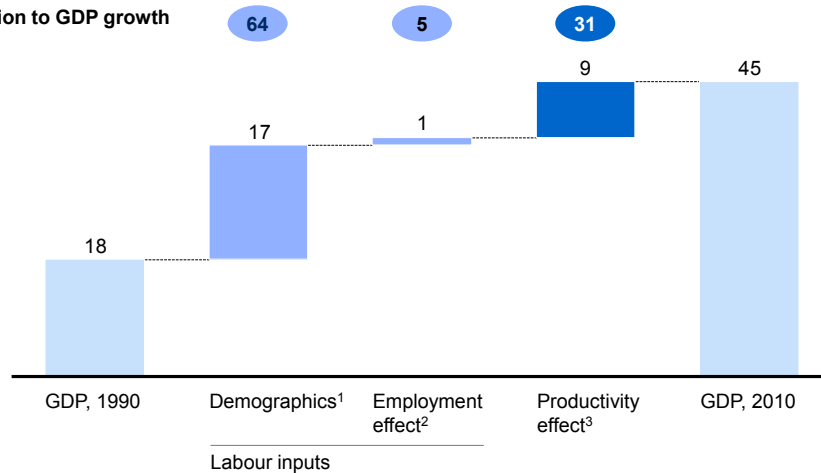
Exhibit 5

Growth has been driven largely by labour inputs rather than productivity

Real GDP, 1990–2010

2010 \$ billion

Contribution to GDP growth
%



¹ Growth of population and share of working age population (15–64 years) in total population.

² Includes changes in workforce participation and employment rates.

³ Productivity effect is growth in labour productivity, measured by real GDP per employee.

SOURCE: International Monetary Fund; Asian Development Bank; McKinsey Global Institute analysis

We see the increase in Myanmar's labour force continuing to make a contribution to GDP growth but at a decelerating rate in the period to 2030. Between 1990 and 2010, employment grew by 3.2 percent a year, driven mainly by the growth in the working-age population. However, growth in that population is expected to weaken between 2010 and 2030 to a compound average rate of only 1 percent.²⁸ It is therefore vital that Myanmar acts decisively to boost growth in labour productivity.

²⁷ Ibid., Angus Maddison, *Historical statistics of the world economy*, 2004.

²⁸ We calculated this figure using growth rates for the working-age population from the US Census Bureau/United Nations Population Division, Revision 2. We assumed constant 2010 employment and labour force participation rates.

Myanmar's weak productivity has been driven both by the concentration of output in low productivity sectors and low productivity within sectors

Overall, Myanmar's labour productivity was below the average of Thailand, Indonesia, Vietnam, China, and India. There have been two key drivers of this weak performance. The first has been the lack of a significant shift out of low-productivity agriculture and into manufacturing and services. The second was a failure to boost productivity within individual sectors of Myanmar's economy, especially in comparison with other Asian economies.

MYANMAR'S ECONOMY REMAINS HEAVILY DEPENDENT ON AGRICULTURE

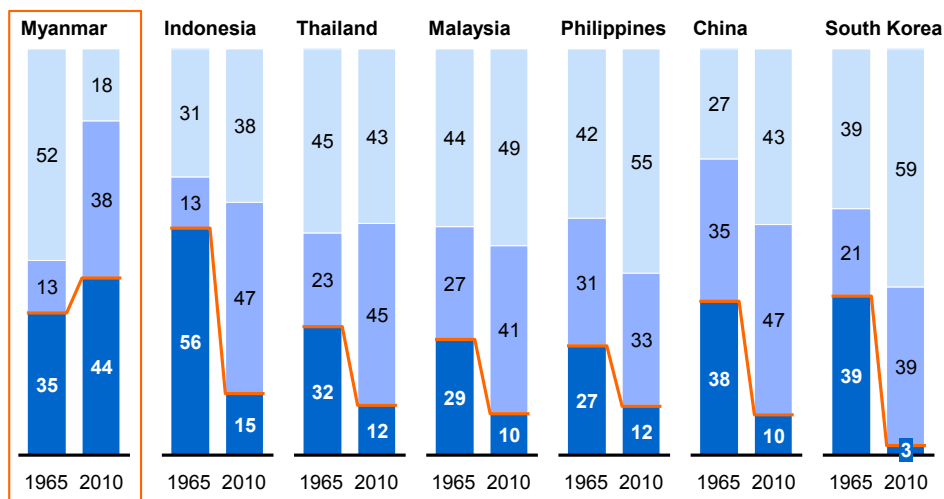
Myanmar's economy has not yet made the usual structural shift from agriculture to manufacturing and services that economies undergo, and has remained largely dependent on agriculture. In 2010, agriculture in Myanmar generated 44 percent of GDP. The economic structure of other Asian economies has shifted in the opposite direction with the contribution of agriculture to GDP falling to or below 15 percent in Thailand, the Philippines, Indonesia, and Malaysia as the contribution of manufacturing and services grew strongly (Exhibit 6). Agriculture dominates employment in Myanmar, accounting for around 52 percent of all jobs in 2010 (Exhibit 7).²⁹ In contrast, the employment share of Thailand's agriculture sector stood at 50 percent in 1994 and had dropped to 38 percent by 2010.

Exhibit 6

Agriculture continues to dominate Myanmar's economy, but other countries have shifted towards industry and services

Sector share of GDP
%

Services
Industry
Agriculture



NOTE: Numbers may not sum due to rounding.

SOURCE: World Development Indicators, World Bank; Myanmar in 2010, Central Statistical Organisation, Myanmar; McKinsey Global Institute analysis

²⁹ Integrated household living conditions survey in Myanmar (2009–2010), UNDP et al., June 2011.

Exhibit 7

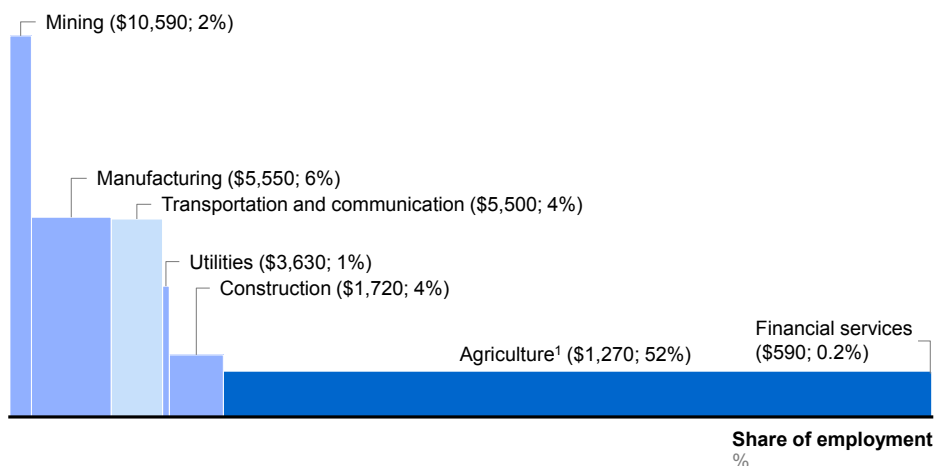
A shift out of agriculture can drive higher productivity

Sectors of Myanmar's economy by labour productivity and share of employment, 2010



Labour productivity

2010 \$ (real), rounded



1 Includes hunting, forestry, and fishing.

SOURCE: Economist Intelligence Unit; International Monetary Fund; Asian Development Bank; The Conference Board Total Economy Database; UNDP, *Integrated household living conditions survey*, McKinsey Global Institute analysis

Labour productivity in Myanmar's dominant agriculture sector is low at only about \$1,300 per worker. Therefore, even a modest and gradual shift in the structure of Myanmar's economy out of agriculture and into higher productivity sectors would make a significant difference to its labour productivity.

MGI has found that the shift from agriculture to manufacturing and services, and the corresponding shift from a rural to an urban economy, is one of the most critical drivers of growth in most countries.³⁰ Roughly, each 15 percent increase in the manufacturing and services share of GDP is associated with a doubling of per capita GDP.³¹ In the case of Vietnam, a movement of workers from agriculture into other sectors accounted for about one-third of Vietnam's growth between 2005 and 2010. From 2000 to 2010, the share of agriculture in Vietnam's employment dropped by 13 percentage points, while the share of workers employed in industry rose by 9.6 points and in services by 3.4 points. In the same period, Vietnam's per capita GDP (PPP) more than doubled. Average labour productivity in Vietnam's industry today is almost six times as high as in agriculture, and services productivity is four times as high. As the share of these high-productivity sectors increased, agriculture's contribution to Vietnam's GDP fell by half, from 40 percent in 1995 to 20 percent in 2010.³² In these same years, Vietnam's real GDP grew by 7 percent a year from \$38 billion to \$106 billion.

30 *Sustaining Vietnam's growth: The productivity challenge*, McKinsey Global Institute, February 2012; *ibid.*, *Urban world: Cities and the rise of the consuming class*, McKinsey Global Institute, June 2012.

31 *Lions on the move: The progress and potential of African economies*, McKinsey Global Institute, June 2010.

32 *Ibid.*; *Sustaining Vietnam's growth*, McKinsey Global Institute, February 2012.

MYANMAR'S SECTORS HAVE SIGNIFICANT PRODUCTIVITY GAPS AS COMPARED TO THOSE IN OTHER ASIAN COUNTRIES

Not only is Myanmar's labour force concentrated in low-productivity sectors, but labour productivity is also low in all sectors compared with other Asian economies.³³ The available data suggest that Myanmar lags behind its regional peers in productivity across all major sectors. For example, the labour productivity in Myanmar's manufacturing sector is about 50 to 75 percent lower than the weighted average of manufacturing labour productivity in China, India, Indonesia, Thailand, and Vietnam.³⁴ In agriculture, a small improvement in labour productivity would have a large economic impact simply because the number of workers in the sector is so large. This underlines the importance of rural development in Myanmar. Across sectors, closing labour productivity gaps between Myanmar's key economic sectors and other Asian economies would greatly improve the competitiveness of the economy.

Only 4 percent of Myanmar's citizens are members of the consuming class, compared with 35 percent worldwide

This rise of the "consuming class" in emerging markets in recent decades has been a dramatic transformation and source of economic growth. The consuming class consists of consumers with incomes of more than \$10 a day measured on a PPP basis, sufficient for spending not just on basic necessities such as food and shelter but also on discretionary goods and services. As recently as 1990, out of a total global population of roughly five billion, the consuming class had about one billion members, the vast majority of whom were in North America, Western Europe, and Japan. But over the past two decades, surging incomes have more than doubled the size of the consuming class to 2.4 billion people, or 35 percent of the world's population in 2010. In that year, one billion of these consumers lived in Asia.³⁵ By 2025, MGI research suggests, the global consuming class will grow to 4.2 billion consumers, or more than half the predicted global population of 7.9 billion. Of these consumers, 2.5 billion are expected to live in Asia.³⁶

33 Because Myanmar's sector employment includes informal workers, it understates Myanmar's labour productivity in sectors with high informal labour (e.g., agriculture, construction) when compared with figures of other countries. However, even in agriculture and construction, based on interviews and bottom-up analysis, labour productivity in these sectors is low.

34 We use data from Myanmar's Central Statistical Organisation, Myanmar, IHS Global Insight, and the ILO.

35 McKinsey Global Institute Cityscope 2.0 database.

36 Ibid., *Urban world: Cities and the rise of the consuming class*, McKinsey Global Institute, June 2012.

The rise of the consuming class globally and in emerging economies has been a significant driver of consumption and economic growth, but it is a development from which Myanmar is yet to benefit. A century of structural economic stagnation means that Myanmar currently has a very small consuming class of 2.5 million people, amounting to only around 4 percent of the population.³⁷ In 2006, Myanmar households spent a very high proportion of their income—71 percent—on the basic necessities of food and beverages.³⁸ In 1985, before China’s economic opening, the share spent by Chinese households on food and beverages was 62 percent; today, it has fallen to 27 percent. In Vietnam, households spent only 44 percent on food and beverages in 2010, and Indonesia reduced that share from 63 percent in 1990 to 48 percent in 2010.³⁹

Myanmar has intrinsic strengths, a favourable external environment, and a greenfield advantage

Although Myanmar’s economic development is at an early stage and many challenges lie ahead, there is an undeniable opportunity to accelerate growth. Despite the years of stagnation and underdevelopment, Myanmar has a number of intrinsic strengths. Moreover, the external environment is favourable. ASEAN, of which Myanmar is a member, is in a dynamic phase of integration; there is intense interest in Myanmar among international investors; and Myanmar currently enjoys the full support of international development partners. Myanmar also has a greenfield advantage. The fact that the economy is at such an early stage of development affords an opportunity to leapfrog over some intermediate stages of economic evolution and go straight to highly productive and efficient infrastructure. The fact that Myanmar is embarking on its developmental journey in the digital age is an undoubted opportunity to accelerate growth in a way that includes even the poorest families in the most remote communities.

MYANMAR HAS MANY INTRINSIC STRENGTHS

Myanmar’s home-grown strengths include its location at the heart of Asia; rich endowments of natural resources; and a growing labour force.⁴⁰

Strategic location at the heart of Asia

Myanmar has long been cut off from political, economic, and trading relationships and has not been able to participate in regional integration and capitalise on its ideal position in the world’s fastest-growing regional economy. Now that Myanmar’s economy is opening up, there is potential to become a major exporter, especially of agriculture and food products, to many of its regional neighbours that are experiencing strong demand and rapid growth. Consider the fact that Myanmar borders Bangladesh, China, India, Laos, and Thailand—home to 40 percent of the world’s population.⁴¹ Bangladesh alone has a population of 150 million, and

37 We use income distribution percentage shares from the McKinsey Global Institute Cityscope 2.0 database and apply them to statistics on the total population from the Myanmar Central Statistical Organisation’s *Statistical yearbook 2010-2011*. We define the “consuming class” as individuals with an annual net income of above \$3,600 (\$10/day) at 2005 PPP.

38 *Statistical yearbook 2010–2011*, Central Statistical Organisation, Myanmar.

39 EIU.

40 *Ibid.*, *Myanmar in transition*, Asian Development Bank, August 2012.

41 United Nations, Department of Economic and Social Affairs, Population Division.

Thailand and Laos have a combined population of 75 million people. China's Yunnan province to the north-east of Myanmar is home to an additional 46 million people. The Indian provinces bordering Myanmar as well as those across the Andaman Sea have 240 million more people. Taking all of this together, Myanmar is close to a market of more than half a billion people and, by 2025, will be within a five-hour plane ride of 2.5 billion members of the consuming class.⁴²

In addition to this export potential, observers have often suggested that Myanmar could become a trade hub on the crossroads of Asia. However, it remains questionable whether the land routes across Myanmar can attract a substantial share of regional trade transit, given that China's demand centres tend to be by the coast and that sea freight is substantially cheaper. For instance, transporting a ton of freight by ship from Chennai to Shanghai is ten times cheaper than shipping it to Myanmar and then trucking it overland to China's eastern seaboard.⁴³

Rich endowment of resources

Myanmar has many natural resources. Gas is the country's most important source of export revenue. BP estimates that proven natural gas reserves in Myanmar total 7.8 trillion cubic feet, giving Myanmar a worldwide rank of 46th. While its value is less significant, Myanmar's endowment of precious and semi-precious stones is remarkable. Myanmar accounts for 90 percent of the global value of jade production and ranks among the top producers in the world of gems including rubies and sapphires.⁴⁴

Myanmar also has a favourable climate for agriculture and valuable land resources. It is the 38th-largest country in the world by total area, but with 12.25 million hectares of arable land and permanent crops, the 25th largest in terms of agricultural land.⁴⁵ In the past Myanmar was known as the rice bowl of Asia, but its agriculture sector's output has fallen far behind its potential. Efforts to revive the sector would be well timed to take advantage of the soaring global demand for food. Recent MGI research projected that worldwide demand for food, feed, and fuel in 2030 could require 175 million to 220 million hectares of additional cropland.⁴⁶

42 All figures are for 2010 and sourced from the United Nations and China's National Bureau of Statistics, except for the population of the Indian provinces, which come from India's census in 2011.

43 Transporting by rail instead of truck from Myanmar to Shanghai would reduce the cost to four times that of sea freight compared with ten times. Our estimates of freight costs from Chennai to Shanghai via Myanmar by ship and by overland routes consist of the following elements: sea shipment from Chennai to Yangon at a rate of \$0.003 per kilometre per ton, and land transport from Yangon to Shanghai by way of the Muse/Ruili border crossing at a rate of \$0.05 for trucking and \$0.02 for rail. We use Chinese benchmark costs for the whole journey. We used data from Drewry Shipping Consultants, China Railway, and the China Federation of Purchasing and Logistics.

44 Expert interview; Stephen Webb and Robert Edel, *Mining in the Asia Pacific: A legal overview—Myanmar (Burma)*, DLA Piper, July 31, 2012.

45 We use the sum of the Food and Agricultural Organization's "arable land" and "permanent crops" categories. See *Resource Revolution: Meeting the world's energy, materials, food, and water needs*, McKinsey Global Institute and McKinsey Sustainability and Resource Productivity Practice, November 2011.

46 Ibid.

Water is becoming an increasingly critical resource for many countries around the world, and Myanmar is well placed on this front. It has an estimated 24,164 cubic metres per person per year, more than ten times the per capita endowment of China and India, around four times that of Thailand and the Philippines, and more than double the per capita endowment of Vietnam, Indonesia, or Bangladesh.⁴⁷ Myanmar's water resources also mean that it has considerable potential to use hydropower more extensively—hydropower already accounts for three-quarters of electricity-generating capacity—although there are social and environmental challenges in developing this power source.⁴⁸

Large working-age population and a significant number of semi-skilled migrant workers

Although Myanmar cannot count on positive demographics to continue to buoy growth in the long term, the country does have the advantage that trends in the working-age population are likely to remain a positive contributor to growth at least until 2030.⁴⁹ This is in contrast to many economies whose GDP growth is already constrained by an aging population. We estimate that Myanmar's working-age population numbers 46 million or 76 percent of the population.⁵⁰ This is among the highest percentages in ASEAN.⁵¹ Estimates suggest that Myanmar's working-age population will continue to grow at an average annual rate of 1 percent to reach a total of 57 million in 2030.⁵²

Myanmar could potentially further benefit from attracting home a significant number of skilled members of its diaspora and a large migrant labour force currently working abroad. This group is estimated at between three million and five million people, or more than 10 percent of Myanmar's current workforce. The majority of these people are believed to be working in Thailand, although the Thai authorities report that only about 537,000 workers from Myanmar have had their nationality verified.⁵³ Anecdotal evidence suggests that Myanmar's migrant workers are employed mainly in low-skilled and semi-skilled positions in labour-intensive manufacturing, seafood processing, dockyards, construction, agriculture, and services such as shops, restaurants, hotels, and domestic service.⁵⁴ Many of these workers have useful skills that probably currently outstrip those of the majority of Myanmar's domestic population. If there were more economic opportunities and a guarantee of political stability in Myanmar itself, a share of members of the diaspora and migrant workers might choose to return. Their skills would be a valuable resource as emerging sectors grow.

47 AQUASTAT database, Food and Agriculture Organization of the United Nations (FAO), 2011.

48 Ibid., *Myanmar in transition*, Asian Development Bank, August 2012.

49 We assume that participation and employment rates stay equal to 2010. We use statistics from US Census Bureau/United Nations Population Division, Revision 2.

50 The EIU and the World Bank indicate that 77 percent of Myanmar's population is of working age, defined as ages 15 or over. Multiplied by the total population of roughly 60 million, this yields a working-age population of just over 46 million.

51 The working-age population numbers 55 million in Thailand, 40 million in South Korea, and 20 million in Malaysia. All figures are 2010 data from the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).

52 US Census Bureau/United Nations Population Division, Revision 2.

53 Andy Hall, *Migration and Myanmar: Exploratory report on recruitment channels*, Mahidol Migration Center, Thailand, December 2012.

54 Ibid.

MYANMAR'S EXTERNAL CONTEXT IS HIGHLY FAVOURABLE

Myanmar can also take advantage of powerful external trends. ASEAN integration has entered an active phase, and there is already intense interest in Myanmar's prospects among investors, companies, and foreign governments and intergovernmental organisations. Many countries are setting up embassies in the country after numerous years of absence. Myanmar will be in the international spotlight as host of the World Economic Forum in June 2013, host of the 2013 Southeast Asian Games in December, and chair of ASEAN in 2014.

Dynamic phase in ASEAN's integration

Myanmar's new openness is well timed to take advantage of the establishment of the ASEAN Economic Community (AEC) free trade zone at the end of 2015. Plans for enhancing regional connectivity and requirements for the liberalisation of services and investment ahead of the 2015 deadline should help to entrench and speed up Myanmar's reform. In the medium term, Myanmar can benefit from strengthening trade and investment ties and financial cooperation through such initiatives as the ASEAN+3 Asian Bond Markets Initiative and the Credit Guarantee and Investment Facility, which could mobilise savings throughout Asia and help to source funds for Myanmar's investment needs. ASEAN is not the only useful regional forum. Myanmar is a long-standing member of the Greater Mekong Subregion, a forum for economic cooperation that aims to facilitate high-priority sub-regional projects in transport, energy, telecommunications, the environment, the development of human resources, tourism, trade, private-sector investment, and agriculture.

The benefits are not guaranteed. ASEAN's market integration holds great potential for competitive sectors and companies in Myanmar, but it also increases the pressure on Myanmar to prepare and become competitive ahead of that integration. Myanmar, together with other countries that joined ASEAN since 1990, has been given more time to meet targets laid down in the AEC blueprint than the more developed ASEAN 6 countries, but meeting the required competitiveness standard ahead of the implementation of these targets remains challenging even on an extended timetable.

Strong interest from investors

International investors, including multinational corporations and Asian businesses, are showing keen interest in Myanmar, keeping a close eye on action taken by the government on issues such as the rule of law as well as tax and financial regulations.

The progressive easing of sanctions by the United States and the one-year suspension of sanctions by the European Union (EU) in April 2012 has helped to give investors increased confidence in Myanmar. In April 2013, the EU went on to lift sanctions, citing the reform process. However, considerable uncertainty remains (see Box 3, "Sanctions").

Box 3. Sanctions

Beginning in 1990, a number of countries, led by the United States, implemented a wide range of restrictions on Myanmar in several stages over 20 years in response to the crackdown on pro-democracy protests and the re-establishment of military rule.¹ These sanctions included bans on certain imports, exports, and investments, as well as restrictions on the provision of services, asset freezes, limits to aid assistance, and foreign-travel bans for those connected to the military regime. The sanctions have made doing business in the country difficult. Limits on imports mean supply lines often need to be entirely domestic. Export restrictions reduce sales potential for Myanmar-based operations. Sanctions of various types require additional due diligence for business transactions, increasing administrative costs.

Recent developments in the country have improved relations with the international community, and there has been progress on the easing of sanctions. In April 2012, the EU suspended all restrictive measures, with the exception of an arms embargo, and in April 2013 it made the suspension permanent (while keeping the arms embargo in place). The United States suspended sanctions on investment and financial services in May 2012, although other US sanctions remain in place, notably a ban on business dealings with certain individuals and companies on the US Specially Designated Nationals List and reporting requirements for US companies with more than \$500,000 investment in the country. Canada has now lifted most of its sanctions. Australia is also moving towards normalising trade relations.² Further easing of sanctions clearly hinges on Myanmar's continued political reform.

1 Michael Martin, *US Sanctions on Burma*, Congressional Research Service, October 19, 2012; "Council regulation (EC) No. 194/2008", Official Journal of the European Union, February 25, 2008.

2 *Ibid.*; *Restrictive measures in force (Article 215 TFEU)*, European Commission, February 21, 2013.

Many sectors are attracting a high degree of interest from investors. In June 2013, Myanmar plans to grant two licenses for the operation of private telecommunications and 91 expressions of interest were submitted before that decision, although the list of those qualifying was considerably smaller. The financial services sector remains highly underdeveloped, and foreign banks will be allowed to operate in the country only after the planned Financial Institutions of Myanmar Law is put in place in anticipation of the integration of ASEAN at the end of 2015. While this law was still being drafted in spring 2013, our interviews suggest that another piece of legislation—the Central Bank of Myanmar Law—was likely to be passed shortly after and therefore might start to drive some reform of commercial banking. Looking ahead to this new access, 17 foreign banks had already established representative offices in Myanmar by April 2013.⁵⁵

55 Eric Duflos et al., *Microfinance in Myanmar sector assessment*, IFC and the Pacific and Consultative Group to Assist the Poor, January 2013.

Committed support of development partners

The fact that diplomatic relations with many countries around the world have normalised and that development partners are once again fully engaged in Myanmar will boost the country's potential to make rapid progress. At the time of writing this report, the international community was united in its support of Myanmar's transition. Donors from across the world have committed to coordinating their activities through a programme of sustained development partnership detailed in the Nay Pyi Taw Accord for Effective Development Cooperation signed in January 2013.

The Asian Development Bank and the World Bank settled the issue of Myanmar's outstanding arrears, and this left the way open for the Paris Club, Japan, and Norway to grant additional relief. This resulted in a total of \$6 billion of debt relief given to Myanmar in January 2013. The government of Myanmar said that it had met with the Paris Club on January 25 and that agreement was reached for the cancellation of half of the arrears in two stages, with the rest rescheduled over 15 years with a seven-year grace period. In January 2013, the Asian Development Bank announced a \$512 million loan for Myanmar and the World Bank declared \$440 million in loans.⁵⁶ In the same month, the International Finance Corporation (IFC), part of the World Bank Group, announced that it was investing \$2 million in ACLEDA Bank PLC to help set up a new microfinance institution with the aim of providing loans to more than 200,000 people by 2020.⁵⁷ Myanmar is in discussions to become a member of the Multilateral Investment Guarantee Agency, which provides risk guarantees to investors.⁵⁸

MYANMAR HAS A GREENFIELD ADVANTAGE

Myanmar's current state of development is undoubtedly a considerable challenge but could also prove to be a powerful advantage by allowing Myanmar to leapfrog over intermediate stages of development and accelerate growth. The fact that Myanmar is beginning its transformation decades after some of its Asian neighbours means that it can learn from their experience—good and bad. Moreover, Myanmar is starting its development in a post-Internet world, potentially allowing for a different, and higher-productivity, approach to delivering public and commercial services using digital technology. Making the right decisions now could lead to high-productivity and energy-efficient systems and infrastructure for decades to come. Despite the up-front investment, higher productivity and efficiency will save on-going operating costs and potentially prevent financial, social, and environmental strains emerging. Technology that connects people even in the most remote areas to health care, education, banking, shopping, and other services can be a powerful force for social and economic inclusivity—a central component of Myanmar's "people-centred" development.

56 Press releases from the Asian Development Bank, World Bank, Paris Club, and Myanmar government.

57 IFC press release.

58 World Bank press release.



Myanmar is at a pivotal point in its complex history. It stands at the heart of the world's most dynamic region, but, after a century of economic stagnation, is at a far earlier point in its economic evolution. Now there is a groundswell of goodwill from governments and multilateral institutions, investors and companies, as well as citizens around the world. This is a window of opportunity—potentially a narrow one—that Myanmar must grasp.

In the next chapter, we explore the scope for accelerated growth in Myanmar, looking at the recent experience of other emerging economies as a guide to what might be possible, and the potential contributions to GDP and jobs of key sectors of the economy.

2. A \$200 billion opportunity but potential for disappointment

If Myanmar manages only to maintain current rates of growth in labour productivity and if demographic trends evolve as currently expected, annual GDP growth could be lower than 4 percent, disappointing today's high expectations. However, the experience of other economies that have already negotiated Myanmar's stages of development suggests that it is possible to achieve rapid growth in productivity and sustain high annual GDP growth over a long period. Myanmar's economy could potentially grow at a rate of 8 percent a year if it achieves a step change in labour productivity, creates a diversified economy, maintains its credibility among investors, and builds its capacity to govern.⁵⁹ By fully tapping the potential of seven key sectors of the economy, we believe that Myanmar could generate more than \$200 billion of GDP and create more than ten million additional non-agricultural jobs by 2030.

The experience of high-growth countries suggests that Myanmar could accelerate development

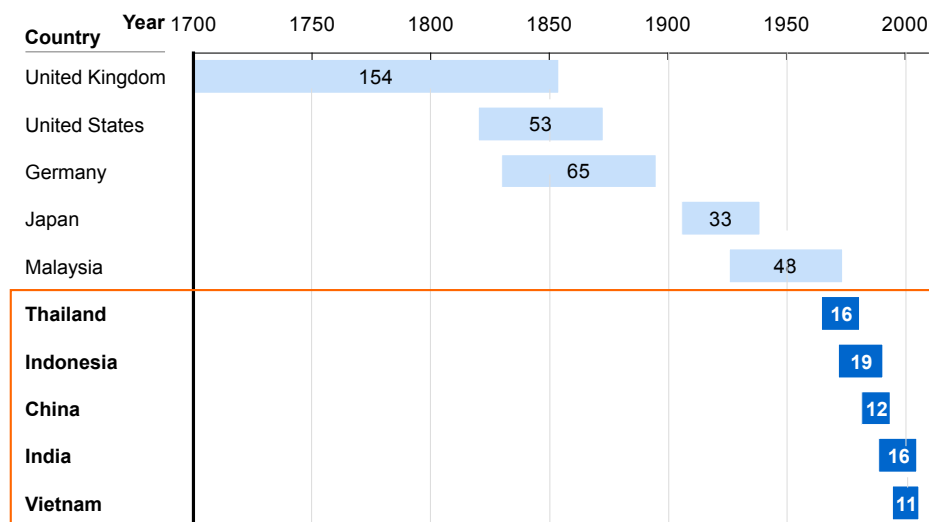
The experience of other countries suggests that a high pace of economic development is possible when countries are in "catch-up" mode. Incomes in developing economies are rising faster than ever (Exhibit 8). Globally, the average time it takes to double per capita GDP at PPP from \$1,300—the level in Myanmar today—to \$2,600 has dropped dramatically from 47 years before 1960 to 17 years in the first decade of the new millennium. Asian economies have beaten this global average by some margin. Many of them further doubled per capita GDP from \$2,600 to \$5,200 in only 13.5 years on average, compared with the global average of 36 years.⁶⁰

In a global comparative study, the Commission on Growth and Development identified 13 countries whose GDP has grown at an average of 7 percent a year—the equivalent of a doubling of the economy every decade—for 25 years or longer.⁶¹ Many of these countries were starting from similar income levels and per capita GDP as those found in Myanmar today. Many of the 13 economies were also driven by resources—oil in the case of Oman and diamonds in the case of Botswana. Several, including China and Vietnam, also began their transition as largely closed economies. Indonesia was governed under restrictive policies from 1967 to 1988. Like Myanmar, all of these 13 economies stood to benefit from the contribution to GDP of a young, growing population.

59 Commission on Growth and Development, *The growth report: Strategies for sustained growth and inclusive development*, World Bank, 2008. The 13 economies are Botswana, Brazil, China, Hong Kong, Indonesia, Japan, Malaysia, Malta, Oman, Singapore, South Korea, Taiwan, and Thailand.

60 Ibid., Angus Maddison, *Historical statistics of the world economy*, 2004.

61 Ibid., *The growth report*, Commission on Growth and Development, 2008.

Exhibit 8**Incomes in developing economies are rising faster—and on a greater scale—than at any previous point in history**Years to double per capita GDP¹

¹ Time to increase per capita GDP (in PPP terms) from \$1,300 to \$2,600.

SOURCE: Angus Maddison, *Historical Statistics of the World Economy: 1–2008 AD*; McKinsey Global Institute analysis

Based on their experience, Myanmar could aspire to achieve annual GDP growth of 8 percent. We describe this 8 percent rate as “aspirational” reflecting the distance Myanmar would have to travel even from today’s growth rates to achieve it. If GDP were to grow by 8 percent a year, Myanmar’s GDP would more than quadruple from \$45 billion in 2010 to over \$200 billion in 2030. Myanmar’s per capita GDP, in real terms, would increase 3.5 times from an estimated \$760 to \$2,950.⁶² We estimate that this could lift approximately 18 million people living on less than 1.25 per day in Myanmar out of poverty.⁶³

Maintaining historical labour productivity increases would lead to disappointing GDP growth

Myanmar’s GDP growth has already accelerated from the average of 4.7 percent a year between 1990 and 2010. According to IMF data, the economy grew at 5.3 percent in 2010 and an estimated 5.5 percent in 2011. The IMF has projected that this upward trend could continue in 2013 with growth strengthening to 6 percent as the result of recent economic reforms and increasing foreign investment in natural resources and commodities exports.⁶⁴

⁶² GDP of \$212 billion in 2030 assumes that the economy’s GDP grows at an annual rate of 8 percent from 2010 to 2030. The \$212 billion is measured in 2010 prices. In 2005 PPP dollar terms, the total would be \$365 billion, measured in 2005 prices. Per capita GDP in 2005 PPP dollar terms would increase from \$1,300 to \$5,100.

⁶³ We calculated poverty reduction by looking at average poverty percentage reduction in China, Indonesia, Sri Lanka, and Thailand when they increased per capita GDP the same amount that Myanmar’s would increase if 8 percent growth is achieved between 2010 and 2030. We used IMF data for per capita GDP (PPP) and poverty ratio from the World Bank. Poverty is defined as individual earnings of less than \$1.25 per day.

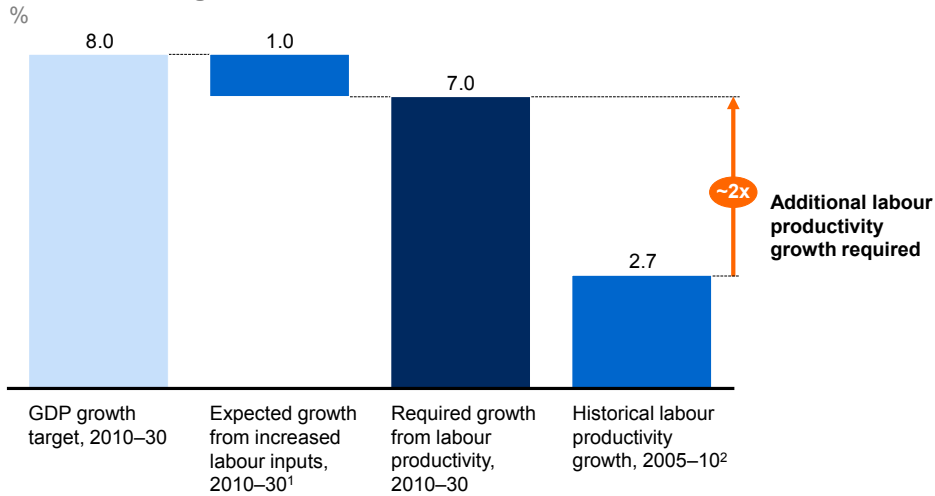
⁶⁴ *Staff report for the 2011 Article IV consultation*, IMF Country Report.12/104, May 2012.

However, this predicted surge of growth in 2013 could prove to be short-lived. If Myanmar were to simply maintain historical growth in labour productivity and if growth in the working-age population were to evolve as currently expected, the economy would achieve annual GDP growth of only around 3.7 percent, we estimate. In order to achieve a growth rate of 8 percent, Myanmar would need to more than double the rate of labour productivity growth achieved between 2005 and 2010, to 7 percent a year to 2030 (Exhibit 9).

Exhibit 9

Labour productivity will need to more than double to 2030 to achieve 8 percent annual GDP growth

Annual real GDP growth rates



1 At 2010 levels of participation and employment rates.

2 If labour productivity growth from 1990 to 2010 is used, growth would be even lower at only 2.5 percent.

NOTE: Numbers may not sum due to rounding.

SOURCE: International Monetary Fund; Asian Development Bank; Sein Htay, *Burma Economic Review 2005-06*; Burma Fund; Central Statistical Organisation, Myanmar; McKinsey Global Institute analysis

Other Asian economies have achieved such a rate of labour growth and greater. China grew labour productivity by 7 percent in the time frame in which it made the same per capita GDP (at PPP) journey that Myanmar will make through 2030. The country nearly doubled labour productivity to \$6,800 from \$3,600. When Thailand made this same journey, it grew labour productivity at 6.5 percent per year, increasing labour productivity by 2.3 times from \$4,800 to \$10,800.⁶⁵

Other Asian economies have achieved such a rate of labour productivity growth and more. To further improve productivity, Myanmar would need to spur productivity within sectors and lift barriers to sector growth. This would involve improvements in the use of capital, innovation, increases in competition, and gains in operational efficiency.

65 We used per capita GDP (PPP) from IMF and employment numbers from IHS Global Insight. China's data are from 1994 to 2006, and Thailand's are from 1982 to 1995.

Sustained rapid growth in Myanmar will require a diversified economic base

Myanmar's assets and the favourable external environment give some reason for optimism, and precedents exist for sustained rates of rapid growth. Estimating growth potential is not easy in any economy, but the task is even more difficult in Myanmar because the current size of sectors is unclear and reliable data are not available. To overcome these difficulties and help to produce a less opaque picture of Myanmar's economy and its potential, MGI has calculated a rough estimate of the potential of seven key sectors by taking a production view rather than an expenditure or income approach. We have quantified the GDP contribution and employment of each of these seven sectors today (based on 2010 data) and potential GDP contribution and employment in 2030. We did not estimate the size or the potential of public administration, business services, education, and health and social-work sectors due to the limited data available and their highly fragmented nature.

This exercise indicates that growth cannot come from one sector alone. Myanmar may be able to use its natural resources to its advantage but growth must also come from other sectors of the economy. Our analysis suggests that four sectors in particular—agriculture, energy and mining, manufacturing, and infrastructure—could be important for driving growth because together they account for almost 85 percent of the total growth opportunity in the seven sectors analysed. In terms of employment potential, manufacturing, infrastructure, and tourism are likely to be the most important sectors and could account for 92 percent of the employment potential in the seven sectors.

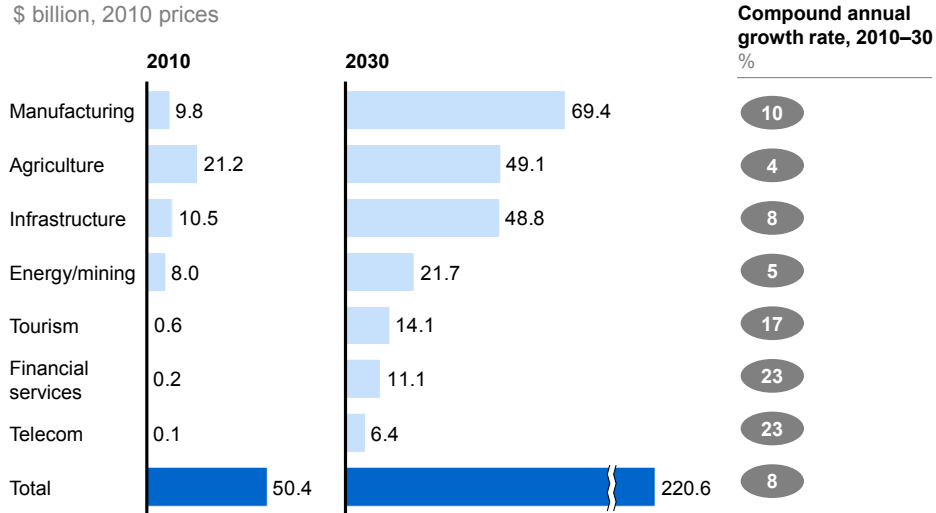
Overall, the seven sectors could together potentially contribute more than \$200 billion to GDP by 2030 and create over ten million additional non-agricultural jobs (Exhibits 10 and 11).⁶⁶ The opportunity in these seven sectors suggests that an 8 percent annual growth rate in the period to 2030 is challenging but realistic. We now discuss each of the seven sectors in turn.

66 See the technical appendix for detailed notes for each sector. For all analyses of the size of different industries and the aggregate economy compared with other countries, we use US dollars. Our estimate of the GDP contribution of these seven sectors differs from government data on their GDP contribution in 2010 because we have analysed each sector bottom-up—for example, by identifying production data and multiplying it by market prices. Publicly available figures cannot be disaggregated, and this precludes a more granular analysis. Our estimate of the employment in these seven sectors in 2010 differs from government data, too. No comprehensive official labour data exist because the most recent labour force survey by the Department of Labour was in 1990. The best estimate of employment in various sectors is in the *Integrated household living conditions survey of Myanmar (2009–2010)*. Our estimate uses benchmarks observed in other countries to derive employment (multiples of workers per unit of GDP contribution). Due to complexities in estimating sector-level productivity as well as uncertainty about sector-level employment in Myanmar, the 2010 and 2030 GDP contribution and employment estimates should not be used to inform sector-level productivity improvements to 2030.

Exhibit 10

Seven sectors could generate more than \$200 billion of economic output by 2030

Real GDP sector sizing and potential¹
\$ billion, 2010 prices



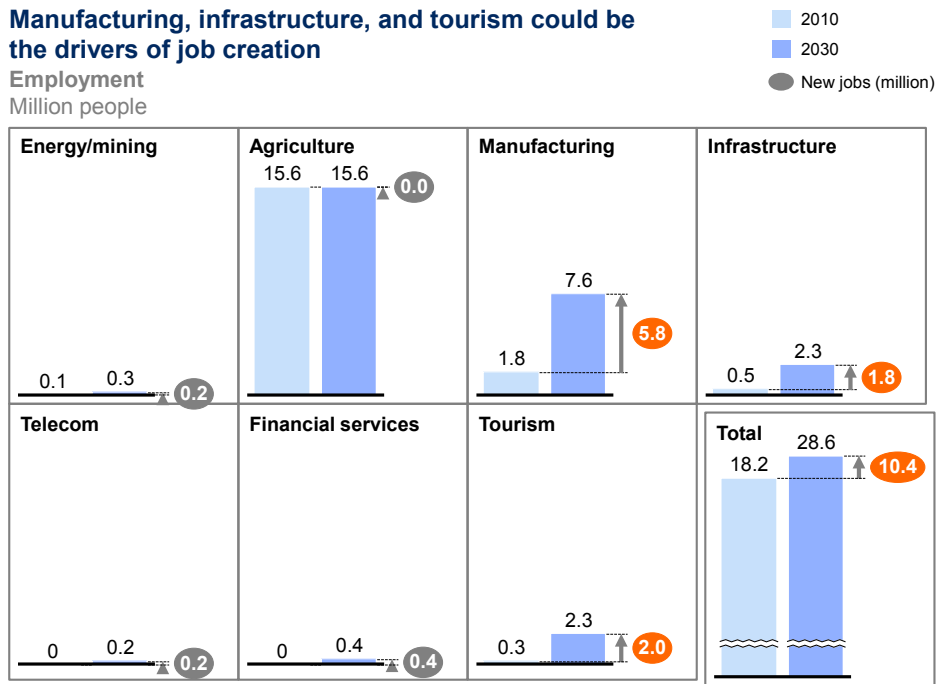
¹ Our estimate of the GDP contribution of these seven sectors differs from government data on their GDP contribution in 2010 because we have analysed each sector bottom-up—for example, by identifying production data and multiplying it by market prices.

SOURCE: McKinsey Global Institute analysis

Exhibit 11

Manufacturing, infrastructure, and tourism could be the drivers of job creation

Employment
Million people



SOURCE: McKinsey Global Institute analysis

AGRICULTURE

Estimates of the size and value of Myanmar's agriculture sector vary, but it is clear that it is the country's largest. According to the government, agriculture—including crops, livestock, fishery, and forestry—accounted for 44 percent of GDP in 2010.⁶⁷ A comprehensive survey suggests that 52 percent of workers were employed in the agriculture sector in 2010, which indicates that 15.6 million people earned their livings in this sector.⁶⁸ Currently, Myanmar's largest crops by value are paddy (un-husked rice), beans, pulses, and oil seeds. Using a detailed analysis of individual crops harvested and multiplying that production by market prices for each commodity, we estimate that the sector contributed around \$21.2 billion to GDP in 2010.

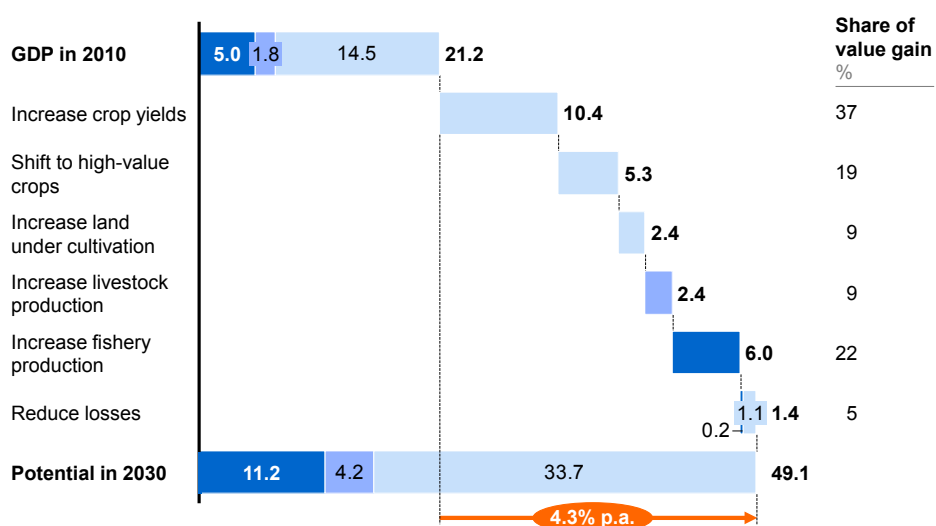
We estimate that the agriculture sector, excluding forestry, could grow at a compound annual rate of 4.3 percent to a total contribution of \$49.1 billion by 2030, more than double that of 2010 (Exhibit 12). Despite this solid economic growth potential, we estimate that employment in the sector will remain roughly unchanged at 15.6 million in 2030. In China, India, Thailand, and Vietnam, labour productivity in the agriculture sector has improved by an average of 4.3 percent in the period since these countries' per capita GDP was at a similar level as Myanmar's was in 2010.⁶⁹ This suggests that rising productivity and the substitution of labour inputs by capital inputs will keep employment in Myanmar's agriculture sector stable even while the sector's contribution to GDP grows (see Box 4, "Achieving the potential of Myanmar's agriculture sector").

Exhibit 12

By 2030, Myanmar's agriculture sector GDP could more than double to ~\$49 billion by capturing six main sources of value

GDP contribution of the agriculture sector, 2010 and 2030

2010 \$ billion



67 *Statistical yearbook 2010–2011*, Central Statistical Organisation, Myanmar.

68 *Ibid.*, *Integrated household living conditions survey*, UNDP et al., June 2011. Total employment in 2010 was 9.87 million, according to the Myanmar Central Statistical Organisation's *Statistical yearbook 2010–2011*.

69 We calculated this figure based on GDP data from IHS Global Insight and data on the labour force and employment share of the agriculture sector from the World Bank.

Box 4. Achieving the potential of Myanmar's agriculture sector

Myanmar's agriculture sector has major potential for growth. Myanmar has ready access to export agricultural products to around half a billion residents of neighbouring areas, and, in the past decade alone, global food prices have increased by 135 percent as demand went up and supply tightened.¹ Local demand for food products should also increase as incomes rise and the number of citizens living in large cities potentially rises by around ten million between 2010 and 2030 (see our discussion of urbanisation in Chapter 3). But to capture this value, Myanmar needs to ensure that it produces products that are in demand and initiates reform of the agriculture sector. The country has abundant fertile land and water, but productivity in the sector is low at around \$1,300 per worker per year compared with about \$2,500 in Thailand and Indonesia.

MGI research suggests that there are a number of ways to achieve rapid improvement in agricultural productivity that would not only enable the sector to make an even larger contribution to economic growth but would also alleviate poverty.

The first way to improve agricultural productivity is to increase crop yields. We estimate that yields can rise by around 70 percent on average by 2030 mainly by improving irrigation, farming systems, and inputs such as cultivars, fertilisers, and better tools and machinery. Only about 20 percent of net sown area in Myanmar is irrigated, and can be increased in a variety of ways that coverage including supporting private investment in irrigation systems and harnessing micro-irrigation. Myanmar's agricultural extension service can modernise and become a useful source of expertise for smallholders, but the agency needs fundamental reform and financial backing. For example, daily wages for extension service workers are a meagre 15 kyat, or about 2 US cents.² Farmers can obtain better access to credit. Prices of inputs and machinery can be reduced through trade, competition, and improved supply infrastructure. Significant potential can be unlocked by increasing research and development (R&D) specific to farming in Myanmar. World Bank studies have shown that investment in R&D produces rates of return of 43 percent to 151 percent, while subsidies on private goods such as fertilisers have harmed growth in agriculture.³

The second is expanding the use of technology. Digital technology is a powerful way to leapfrog to higher productivity in farming. In India, the e-Choupal programme operates in traditional community gathering venues (choupals) in farming villages, using a common portal that links multimedia personal computers by satellite.⁴ The computers give farmers better access to information such as local weather forecasts, crop price lists in nearby markets, and the latest sowing techniques. Training for using the computers is provided to the hosts, who are typically literate farmers with a respected role in their communities.

Smallholders and commercial farms in Myanmar could both become much more productive, but they face the same barriers to growth, including insufficient and poorly maintained irrigation systems and machinery, as well as transport and cold-chain infrastructure, older, lower-yielding cultivars, sub-optimal farm management, limited access to capital, and a strong kyat that depresses the competitiveness of exportable crops. These barriers, together with the paramount challenge of land rights and property speculation, need to be addressed urgently for Myanmar's agriculture sector to reach its potential of around \$50 billion per year by 2030.

1 Ibid., *Resource Revolution*, McKinsey Global Institute and McKinsey Sustainability & Resource Productivity Practice, November 2011.

2 David Dapice et al., *Revitalizing agriculture in Myanmar: Breaking down barriers, building a framework for growth*, Ash Center for Democratic Governance and Innovation, Harvard Kennedy School, July 2010.

3 Enrique Blanco Armas et al., *Agriculture public spending and growth in Indonesia*, World Bank policy research working paper number 5977, February 2012.

4 *Information and communications for development*, World Bank, 2012.

We believe that the agriculture sector's potential is so large partly because of the low starting point. For example, current input levels, including seeds, fertilisers, water, and machinery, as well as productivity, are very low. Estimating potential yields using the Global Agro-ecological Zones model of the Food and Agriculture Organization (FAO) of the United Nations and the International Institute for Applied Systems Analysis (IIASA), we estimate that increasing crop yields could produce an additional \$10.4 billion contribution to GDP. A further \$5.3 billion of GDP could potentially be captured if Myanmar farmers increase the share of high-value crops such as fruit, vegetables, coffee, oil palm, and rubber in the crop mix.⁷⁰ Other value pools, notably an increase in fishery production, could yield an additional \$6 billion in annual GDP by 2030.

ENERGY AND MINING

In 2010, we estimate that Myanmar's energy and mining sector contributed \$8 billion to real GDP in 2010 prices and employed 90,000 people. By 2030, we estimate that the sector could contribute GDP of \$21.7 billion and employ 250,000 people.⁷¹ The \$8 billion we estimate is higher than the current official estimate of \$5.1 billion, which is based on approximations of sector shares by Myanmar's planning department and the IMF's economy-wide GDP estimate for 2010. We arrived at a higher GDP contribution by looking in detail at the sector by commodity, including crude oil, natural gas, coal, and precious minerals, and estimating their value by multiplying production by market prices for each commodity (see Box 5, "From resource curse to blessing" for a discussion of the circumstances in which rich endowments of natural resources can create challenges for an economy, and how to overcome them).

There are many uncertainties surrounding the potential of the energy and mining sector, including future price fluctuations, a shifting market due to the supply of shale gas resources, and the true nature of the reserves in the country. Because of these uncertainties, we assume that prices are kept constant at 2010 levels. In 2030, we estimate that energy could account for 60 percent of the sector's GDP contribution and mining the remaining 40 percent. The key commodities in 2010 were gas, jade, oil, and limestone, which together accounted for 80 percent of the value of the sector's production. These commodities are expected to remain important for the sector's GDP contribution to 2030.

Myanmar appears to enjoy a comparative advantage in gas with a ranking of 46th in the world on proven reserves.⁷² Estimates of undiscovered gas reserves indicate that this resource could be even more significant. Although Myanmar's gas reserves look relatively small in a global context, they are significant within Asia (Exhibit 13).

70 Géza Tóth, Bartosz Kozłowski, Sylvia Prieler, and David Wiberg, *Global Agro-ecological Zones (GAEZ v3.0): User's guide*, IIASA and FAO, May 2012.

71 For sources of estimated and known reserves, we used FACTS, Bloomberg, World Bank, US Energy Information Administration, London Metal Exchange, US Geological Survey (USGS), Consensus Economics, and the Myanmar Central Statistical Organisation's *Statistical yearbook 2010–2011*.

72 *BP statistical review of world energy 2012*, BP, June 2012.

Box 5. From resource curse to blessing

Over the next two decades, global demand for natural resources is likely to increase at an unprecedented rate, fuelled by the transformation of major emerging economies. Myanmar is a resource-driven exporter. Despite relatively limited exploration and development, natural resources still account for more than 55 percent of merchandise exports today.¹ The role of natural resources in Myanmar's economy is likely to rise with the development of ambitious projects, including the Shwe natural gas pipeline and onshore terminal with a planned capacity of about 12 billion cubic metres of natural gas a year.

However, there should be a note of caution about relying too heavily on natural resources to support growth, development, and jobs. Revenue from this sector often fails to lend support to longer-term social and economic development. Indeed, rich endowments of resources can potentially harm an economy through channels such as macroeconomic volatility due to changes in resource prices and fiscal revenue; a reduction in the competitiveness of export sectors through exchange-rate appreciation and domestic cost inflation; and the potential undermining of democratic institutional development.² Resource endowments can also lead to distortions in the economy through subsidies on the domestic use of a raw material and by failing to recognise the environmental externalities of its over-use. Further, the production of resources often does not generate significant employment and can produce large environmental costs such as deforestation and contamination.

The Myanmar government has shown a willingness to adopt international best practices such as the voluntary Extractive Industries Transparency Initiative as it considers how to capture the greatest value from its natural resources. However, many challenges remain.³ Ensuring that the country's natural resources help create a productive, inclusive, and resilient economy will require learning from the successes and failures of other resource-driven countries.

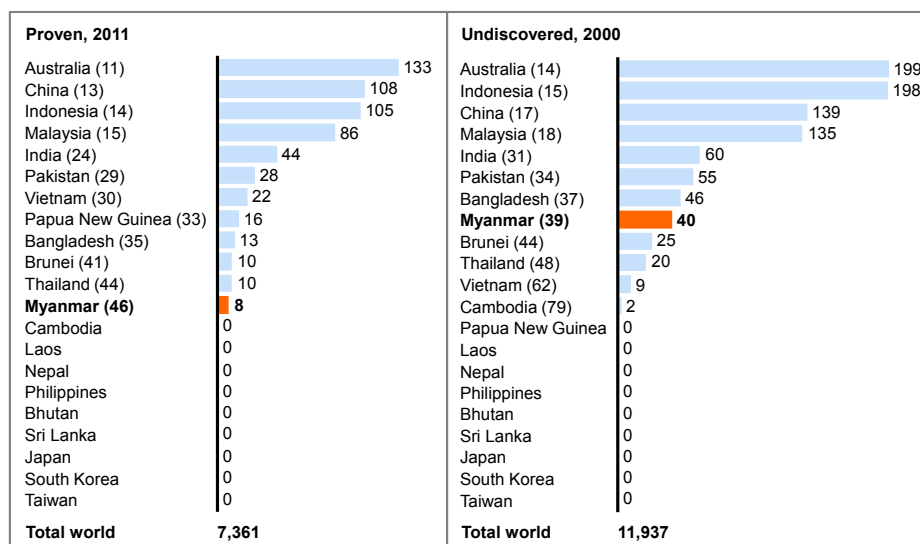
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- 1 UN Conference on Trade and Development (UNCTAD), *Resource export intensity in 2011*, UNCTAD Statistics.
 - 2 For further detail on these arguments, see Erika Weinthal and Pauline Jones Luong, *Combating the resource curse: An alternative solution to managing mineral wealth, 2006*; and Jeffrey Frankel, *The natural resource curse: A survey of diagnoses and some prescriptions*, Center for International Development at Harvard University, working paper number 233, 2012.
 - 3 Gwen Robinson and Lionel Barber, "Myanmar to reconsider energy contracts", *Financial Times*, April 11, 2013.

Exhibit 13**While Myanmar's gas resources are modest in a global context, they are of a relevant size within Asia**

Country (global rank)

Gas reserves in Asia

Trillion cubic feet



SOURCE: Proven reserves: BP statistical review of world energy 2012; undiscovered reserves: US Geological Survey, World petroleum assessment 2000, and BP statistical review 2004; McKinsey Global Institute analysis

We estimate that the contribution to the sector from oil will increase because of exploration and improvements in extraction capacity. As Myanmar's economy opens up, it is likely that advanced exploration and prospecting could unearth more reserves. Better data may also lead to higher estimates of reserves. We see the largest driver of growth being improved extraction rates for both oil and gas. We assume that the extraction rate for oil rises to 4.4 percent by 2030 and to 2.9 percent in the case of gas by 2030.⁷³ For mining, we assume growth in production of 4.8 percent in the period to 2020, subsequently rising to 8 percent in line with GDP growth to 2030.

Myanmar produces 90 percent of the world's jade, a semi-precious stone valued highly in Asia.⁷⁴ Official government auctions in 2011 yielded \$1.7 billion for jade alone.⁷⁵ This total does not take into account unofficial sales that are likely to be substantial given that Myanmar's reserves are mostly in northern regions that are still experiencing some political instability. According to expert interviews, the actual size of the jade market could be up to 40 percent larger than the officially declared value. Myanmar is also one of the world's top producers of gems, ranking fourth in official ruby production and ninth in sapphire production in 2005.⁷⁶ Limestone, another key commodity in Myanmar, is estimated to comprise 10 percent of the sector's value by 2030.

⁷³ We define the extraction rate as total production over proven deposits.

⁷⁴ Stephen Webb and Robert Edel, *Mining in the Asia Pacific: A legal overview—Myanmar (Burma)*, DLA Piper, July 31, 2012.

⁷⁵ Renaud Egreteau, "The Burmese jade trail: Transnational networks, China, and the (relative) impact of international sanctions on Myanmar's gem industry", in *Myanmar's transition: Openings, obstacles and opportunities*, Nick Cheesman, Monique Skidmore, and Trevor Wilson, eds., ISEAS Publications (Institute of Southeast Asian Studies), 2012.

⁷⁶ Thomas R. Yager, David Menxie, and Donald W. Olson, *Weight of production of emeralds, rubies, sapphires, and tanzanite from 1995 through 2005*, USGS, 2008.

MANUFACTURING

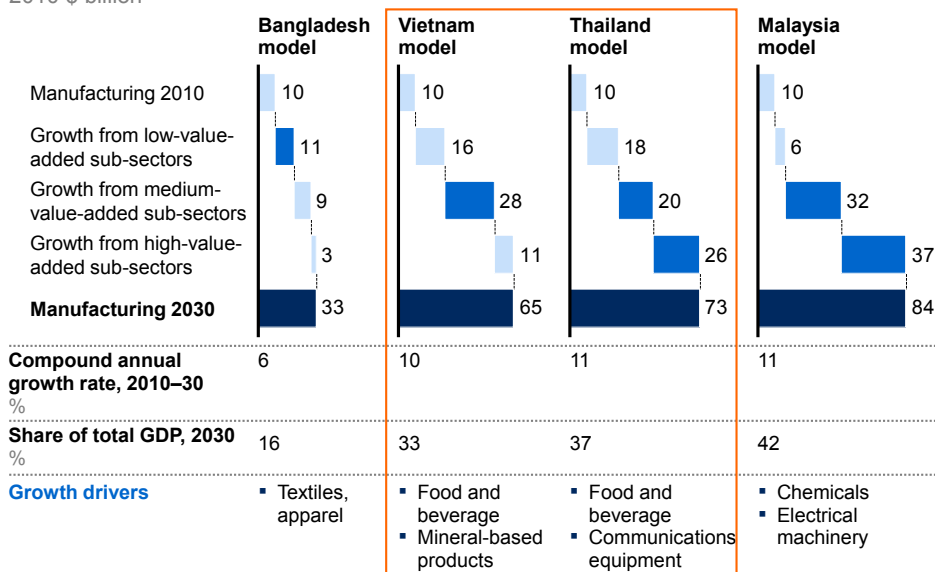
We estimate that Myanmar's manufacturing sector contributed \$9.8 billion to GDP in 2010 and employed 1.8 million people. By 2030, the sector could contribute \$69.4 billion and employ 7.6 million people.⁷⁷ To estimate the 2030 potential, we assumed that the current structure of manufacturing sector GDP is similar to that of Pakistan and Bangladesh, countries with large, textiles-heavy sectors. Labour-intensive industries tend to be low-skill, low-value added, and low productivity. Countries move up the manufacturing value chain from labour-intensive industries into more capital-intensive and value-added manufacturing.

The \$69 billion GDP estimate assumes that Myanmar can emulate the growth trajectory of Vietnam and Thailand (Exhibit 14). This would require Myanmar to more than double labour productivity by building core enablers such as workforce skills and infrastructure. In 2010, Myanmar's productivity was 50 to 75 percent less than the weighted average of manufacturing labour productivity in China, India, Indonesia, Thailand, and Vietnam.⁷⁸ In addition to leveraging Myanmar's current comparative cost advantage in labour-intensive sectors, future growth in this sector will come from moving to more capital-intensive and value-added industries over time (see Chapter 3 for a more extensive discussion of sector shift to manufacturing).

Exhibit 14

The experience of other developing countries suggests a range of possible paths for Myanmar's manufacturing to 2030

2010 \$ billion



SOURCE: International Monetary Fund; Asian Development Bank; The Conference Board Total Economy Database; IHS Global Insight; McKinsey Global Institute analysis

77 This is the average of 2030 projections if Myanmar follows the Vietnam and Thailand growth models in manufacturing.

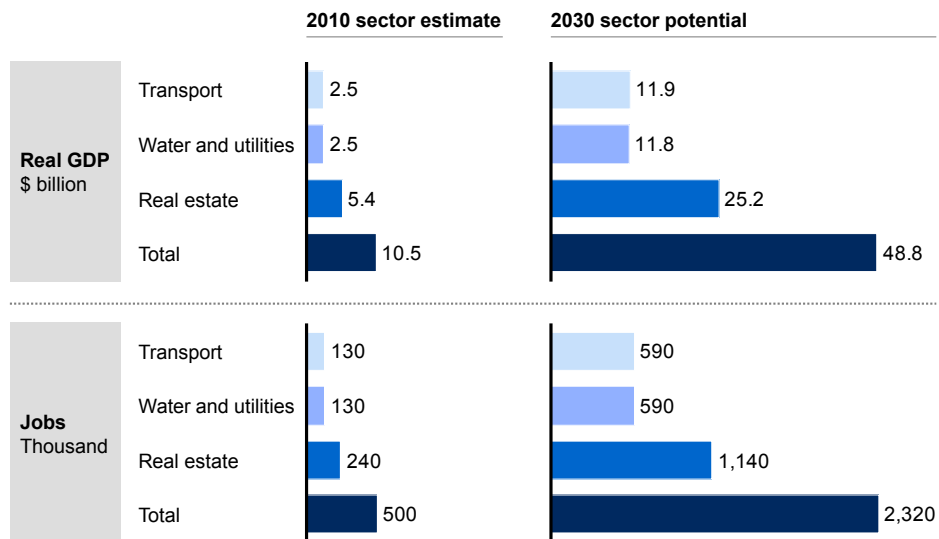
78 Myanmar's Central Statistical Organisation, IHS Global Insight, and the ILO.

INFRASTRUCTURE (TRANSPORT, WATER AND UTILITIES, AND REAL ESTATE)

Infrastructure construction and operations contributed an estimated \$10.5 billion to GDP in 2010 and provided employment for 500,000 people. By 2030, we estimate that the GDP contribution could be \$48.8 billion and employment 2.3 million. We calculate the sector's potential by taking into account the contribution to GDP from both building and operating infrastructure—for example, we include both the installation of a power plant and the revenue of the utility company operating it. We break the infrastructure sector down into three broad categories: transport, water and utilities, and real estate (Exhibit 15).

Exhibit 15

The largest potential for growth and jobs between 2010 and 2030 in the infrastructure sector is in real estate



SOURCE: McKinsey Global Institute analysis

To estimate Myanmar's infrastructure investment need and the potential economic effect of the infrastructure sector in 2030, we assume that Myanmar's infrastructure stock will increase in line with the ambitious GDP growth rate of 8 percent. MGI estimates that a country's stock of transport, utility, and telecommunications infrastructure typically stands at around 70 percent of GDP.⁷⁹ This rule of thumb is based on a perpetual inventory model for 12 countries for which comprehensive historical spending data on infrastructure are available across asset classes. For investment in real estate, we estimate the required urban floor space in 2030 by using benchmark data from the McKinsey Global Institute's Cityscope 2.0 database, a global database of large cities.⁸⁰ We estimate that urban floor space in Myanmar's large cities will account for around 60 percent of the country total and that real estate construction costs in Myanmar are similar to those in Vietnam.

79 *Infrastructure productivity: How to save \$1 trillion a year*, McKinsey Global Institute and McKinsey Infrastructure Practice, January 2013.

80 *Ibid.*, *Urban world: Cities and the rise of the consuming class*, McKinsey Global Institute, June 2012.

Using this methodology, we estimate that Myanmar will need total infrastructure investment of \$320 billion between 2010 and 2030. The most significant investment needs to be in residential and commercial real estate, which could potentially comprise around 60 percent of the total requirement. Power plants, water-treatment plants, and road and rail networks will also need significant investment. In Myanmar, infrastructure investment has been low to date, partly reflecting the fact that 87 percent of the population lived in rural areas and small cities in 2010, but the demand for new infrastructure is likely to rise if Myanmar begins to undergo a structural economic shift to manufacturing and urbanise (see Chapter 3 for a more extensive discussion of infrastructure in the context of an urbanising Myanmar).⁸¹

Myanmar could emulate the example of other countries that have made large up-front and rapid investments in infrastructure. As an illustration, between 2004 and 2012, China increased its road network by 59 percent in terms of kilometres and Malaysia increased its network by 179 percent. Between 2007 and 2012, India increased the length of its rail network by 32 percent. Between 2007 and 2010, Morocco increased electricity production from renewable sources by 3.5 times.⁸²

It is important that Myanmar plans to invest in sufficient infrastructure, because infrastructure is a key to driving growth in productivity and to attracting investors and companies to locate in the country. Myanmar's low level of infrastructure investment today does give the economy a potential greenfield advantage. Myanmar could bypass old technologies and approaches and build well-planned, cost-effective, and potentially sustainable infrastructure, including medium-term investment in rail networks, automated port systems, and energy-efficient buildings.

TELECOMMUNICATIONS

In 2010, we estimate that telecommunications contributed \$100 million to GDP and accounted for approximately 2,600 jobs. In 2030, we estimate that the sector could contribute \$6.4 billion to GDP and employ around 240,000 people. To calculate the sector potential, we divided the sector into mobile, fixed household and fixed business telecoms. We estimated penetration using the benchmarks of Indonesia, Malaysia, the Philippines, Thailand, and Vietnam, and we calculated the sector's GDP contribution by multiplying the penetration by the average revenue per unit.

Myanmar has the lowest penetration of telecommunications infrastructure of any ASEAN country.⁸³ Less than 3 percent of citizens had access to a mobile phone in 2011. In February 2013, a single basic SIM card was retailing at \$25-30 in Yangon. However, in mid-April, the price of the same SIM card dropped to \$2, which is likely to drive a large increase in penetration. Myanmar's low starting point and the experience of other countries suggest that the sector's growth could be rapid (see Chapter 3 for a more extensive discussion of telecommunications in the context of digital leapfrogging). Vietnam ramped up penetration from 3 percent

81 *World population prospects: The 2010 revision*, Population Division of the UN Department of Economic and Social Affairs, 2011; *World urbanization prospects: The 2011 revision*, Population Division of the UN Department of Economic and Social Affairs, 2011.

82 *Myanmar: An untapped telco market*, Nomura Equity Research, March 14, 2012.

83 *Ibid.*

in 2003 to 40 percent in 2007.⁸⁴ Improved availability of telecommunications increased productivity among Vietnamese small and medium-sized enterprises (SMEs) by about 19 percent.⁸⁵ The Internet has proved itself a powerful driver of GDP growth. Previous MGI research found that the Internet's total contribution to global GDP is bigger than the GDP of Spain or Canada.⁸⁶

FINANCIAL SERVICES

In 2010, we estimate that the financial services sector contributed \$200 million to GDP and around 7,000 jobs. In 2030, we estimate that the sector could contribute \$11.1 billion to GDP and about 400,000 jobs. We calculated the potential for 2030 by taking benchmark asset penetration ratios in Indonesia, Malaysia, the Philippines, Thailand, and Vietnam. We applied the risk-adjusted return divided by total assets for Cambodia and Laos as a percentage of banking assets in Myanmar to calculate banking revenue from asset management, personal finance, and wholesale finance.

Although Myanmar has four large state-owned banks and 19 local private banks, the penetration of banking products in Myanmar is currently very low.⁸⁷ While available data do not allow for the accurate assessment of the size of the bankable population, it is our assumption that the proportion of this population that has a bank account is currently well below that of other ASEAN countries. A large informal banking sector exists, consisting of money lenders and *hundis*, an informal network that facilitates domestic and international remittances, including those of an estimated three million to five million overseas workers from Myanmar.⁸⁸ Many of these informal money lenders are reported to charge very high interest rates of 10 to 20 percent per month. The inability to easily transfer funds into the country also severely restricts the flow of capital.

The opening of the country promises growth for foreign and local banks, but there is nevertheless a significant challenge for Myanmar's legislators, who have to create banking regulation from scratch. At least 17 foreign banks have set up representative offices in anticipation of a banking law that is expected to be put in place before 2015.⁸⁹ While Visa and MasterCard entered Myanmar in 2012, the use of debit and credit cards for payments is still very limited. In some hotels where debit and credit cards are accepted, there is a 4 percent surcharge.

Among the vital ingredients, not only of macroeconomic stability but also of a prudent financial services sector, are a sound credit system in which banks lend at rational rates and their risk-management processes are closely monitored; a payments system with much deeper penetration of debit and credit cards; and capital markets. Availability of credit is one of the key indicators in the Doing Business ranking of the World Bank, and a fully functioning banking system will help to stimulate private-sector growth. Another important lever for increasing the flow of capital is the development of a securities exchange. Currently, securities

84 World Cellular Information Service.

85 *Online and upcoming: The Internet's impact on aspiring countries*, McKinsey High Tech Practice, January 2012.

86 *Ibid.*, *Online and upcoming*, McKinsey High Tech Practice, January 2012.

87 *Ibid.*, Eric Duflos et al., *Microfinance in Myanmar*, IFC and the Pacific and Consultative Group to Assist the Poor, January 2013.

88 *Ibid.*

89 *Ibid.*

are issued by companies and banks, but they cannot be traded. The Central Bank of Myanmar, Tokyo Stock Exchange, and Daiwa Securities are discussing ways to share knowledge on developing a stock exchange in Myanmar.⁹⁰

TOURISM

Myanmar's rich cultural heritage and natural attractions are significant strengths and suggest considerable potential in tourism, especially considering the growth of the consuming class in Asia. We estimate that Asian tourists could make 525 million trips within the region by 2030. Of this number, 200 million trips could originate from China alone. If Myanmar is to capture even a fraction of this market, it will need to invest massively in tourism infrastructure and attract investment for the sector.

In 2010, we estimate that tourism contributed \$600 million to GDP and employed close to 270,000 people. By 2030, we estimate tourism services could contribute \$14.1 billion to GDP and employ around 2.3 million people. Due to expected growth in Asian tourists to 2030, we estimate that the potential upside for Myanmar's tourism sector could be two to three times the estimated sector size in 2030. Indeed, the constraints on growth are not demand but the rate at which Myanmar can add the necessary infrastructure.

We calculated the potential of the tourism sector by multiplying the number of expected arrivals by the average expected length of stay and average expected spending per day. We made the conservative assumption that arrivals will increase at 27 percent each year for the first six years starting in 2010 and then at 18 percent each year to 2030.⁹¹

In 2010, Myanmar had the lowest number of tourists of any ASEAN country. Its 311,000 tourists were one-quarter of the number visiting Laos.⁹² However, the growth rate of international arrivals in Myanmar—a 27 percent increase in arrivals from 2010 to 2011—is the highest in Southeast Asia.⁹³ Even today, the average stay and spending of visitors is high, suggesting that Myanmar is attracting the mid- and high-end segment. In 2010, spending per night was slightly lower than in Indonesia but above that of the Philippines and Bangladesh.⁹⁴ Our 2030 sizing of the sector assumes that Myanmar will attract 13.5 million visitors staying an average of seven nights and spending \$145 a night.⁹⁵ It is likely to be of benefit to Myanmar if it continues to focus on mid- and high-end visitors, given its strength in this segment today.

90 Ibid.

91 Myanmar's growth rate was 27 percent between 2010 and 2011, and we expect this growth to be maintained through 2018. A growth rate of 18 percent, equivalent to Cambodia's growth rate between 2000 and 2010, is assumed through the rest of the period to 2030.

92 The number of overnight arrivals was 311,000 in 2010, according to the United Nations World Tourism Organization.

93 *Tourism highlights 2012*, United Nations World Tourism Organization, 2012.

94 United Nations World Tourism Organization and Myanmar Ministry of Hotels and Tourism.

95 We used the seven-night average to be conservative. This is based on the past Myanmar average length of stay of eight nights and benchmark countries (seven nights in Cambodia and nine nights in Thailand).

To unlock the potential of the sector, the government could play an enabling and coordinating role. Among the priorities it could consider are liberalising the transport sector and easing visa entry requirements; ensuring that supporting infrastructure such as air, water, rail, and road infrastructure is in place to support the expansion of hotels and airports; removing bureaucratic barriers to investment; and putting in place national marketing campaigns to attract tourists.

Myanmar's consuming class could grow more than seven-fold to around 19 million by 2030

Fulfilling Myanmar's economic potential of growing GDP to more than \$200 billion and creating over ten million non-agricultural jobs by 2030 would give a significant boost to incomes across the nation, in itself creating consumption-driven GDP growth. Myanmar's consuming class, defined as individuals earning more than \$10 per day, numbers only around 2.5 million people today, but that tally could reach 19 million by 2030 (Exhibit 16). To put it into context, this would be roughly equivalent to the consuming class in Malaysia or the Philippines in 2010.⁹⁶ By 2030, around a quarter of Myanmar's population would be members of the consuming class, up from only 4 percent today. Consumer spending could potentially triple to nearly \$100 billion from \$35 billion currently.⁹⁷ Myanmar is one of the last potentially sizeable consumer markets to emerge among developing economies. Those businesses that are effective in reaching out to, and serving, this market at this early stage could establish long-term market leadership.

What could Myanmar's consumer market look like? If we observe how China's consumption evolved when that market was at a similar stage and assume that Myanmar's consumption develops similarly, about 80 percent of this growth in consumer spending is likely to be in semi-necessities and in discretionary goods and services. The share of wallet claimed by food—a basic necessity—would drop to around one-third, while semi-necessities such as housing and utilities, household items, apparel, and health care would account for an additional one-third. The last one-third would be spent on discretionary items such as recreation, culture, education, transport, and communication (Exhibit 17).

96 McKinsey Global Institute Cityscope 2.0 database.

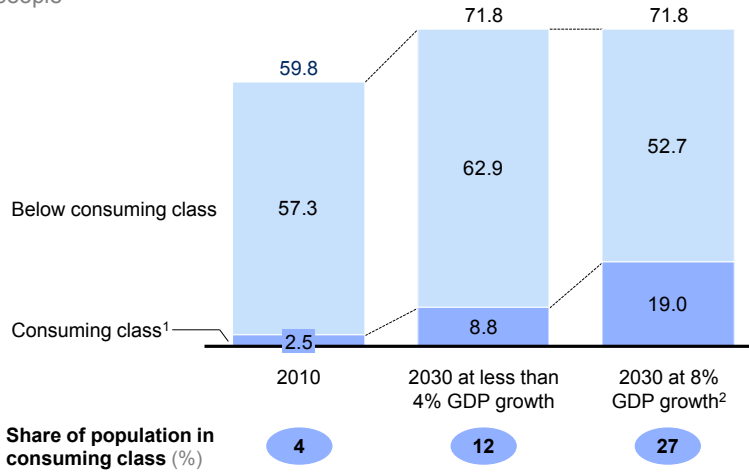
97 We used the Myanmar Central Statistical Organisation's *Statistical yearbook 2010–2011* for consumer expenditure shares and applied it to 2010 GDP from IMF. We then applied the growth rate of China's consumer expenditure from 1985 to 2005, when it was undergoing similar change in development. Finally, we applied China's share of wallet in 2005 to Myanmar's projected expenditure to calculate share of wallet. This is a deliberately conservative approach to sizing consumer expenditure.

Exhibit 16

Myanmar's consuming class could grow more than seven-fold to around 19 million by 2030

Size of the consuming class¹

Million people



1 Consuming class defined as individuals with an annual net income of above \$3,600 at 2005 PPP. Across countries, this income level sees a steep hike in consumer spending with a higher share on semi-necessities and discretionary items.
 2 Based on annual GDP growth from 2010–30 of 8 percent.

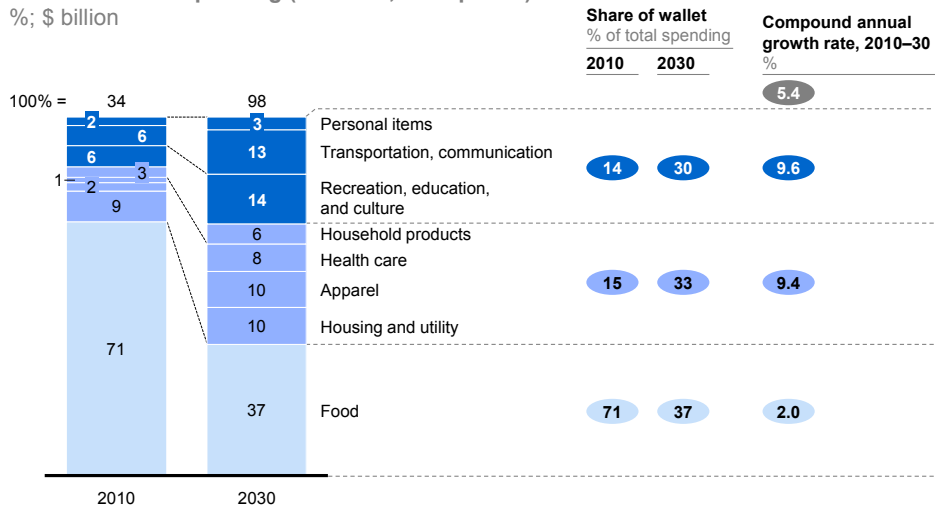
SOURCE: Central Statistical Organisation, Myanmar; McKinsey Global Institute Cityscope 2.0 database; McKinsey Global Institute analysis

Exhibit 17

Consumer markets could offer a ~\$100 billion opportunity to 2030, with the highest growth from discretionary spending

Total consumer spending (real GDP, 2010 prices)¹

%; \$ billion



NOTE. Numbers may not sum due to rounding.

1 We use China's growth in consumer expenditure and share of wallet from 1985 to 2005 when China was at a similar stage of development as Myanmar today. In 1985, China spent ~62 percent on food vs. Myanmar's 71 percent in 2010.

SOURCE: Central Statistical Organisation, Myanmar; McKinsey Global Institute Cityscope 2.0 database; McKinsey Insights China; McKinsey Global Institute analysis

Despite this significant potential increase in the consuming class and its spending, we expect about three-quarters of Myanmar's population to still likely be earning less than \$10 a day in 2030. In this context, companies seeking to serve the Myanmar consumer market will need to ensure that they cater to acutely price-sensitive consumers (see Box 6, "Frugal innovation").

Box 6. Frugal innovation

"Frugal innovation" has proven to be a powerful approach in emerging markets. This expression refers to the process of reducing the complexity, cost, and production of a good to make it affordable to consumers with very limited discretionary spending. There are four ways to do this:

First, companies can adapt successful products from developed markets for consumers in developing countries either by selling in small packages—in India, for example, 60 percent of shampoo sales are in single-use sachets—or by redesigning a product using much cheaper technologies. Siemens' Indian engineers, for example, developed a foetal heart monitor using microphone technology instead of the more conventional and more expensive ultrasound. This made the equipment significantly more affordable for local hospitals.¹ Second, companies can "reverse innovate"—designing products with less complexity and at lower cost—in developing countries, taking advantage of the proximity of the target market and relatively cheap R&D costs. The Indian company Godrej and Boyce designed a refrigerator that uses 50 percent less energy, runs on batteries to make it independent from power outages, and has one-tenth the parts of a standard fridge. It was co-designed with village women and distributed via microfinance groups and local villagers.² Third, companies can create multipurpose products. In China, for instance, Haier developed an extra-durable machine that can wash both vegetables and clothing. Fourth, companies can improve business processes as well as technology.

Policy can limit or encourage frugal innovation, or the transfer of frugal innovations made elsewhere. Having restricted foreign investment in local design and manufacturing companies for many years, India liberalised this regulation, and companies such as LG Electronics then developed a number of new products for the Indian market including more cost-effective televisions with better sound quality.³

1 Navi Radjou and Jaideep Prabhu, "Frugal innovation: A new business paradigm", *Insead Knowledge*, January 10, 2013.

2 McKinsey Asia Centre.

3 Yuval Atsmon et al., "Winning the \$30 trillion decathlon: Going for gold in emerging markets", *The McKinsey Quarterly*, August 2012.

Myanmar needs to maintain credibility and build its own capabilities or risks disappointing expectations

There is, as we have discussed, considerable potential for accelerated growth in Myanmar, but this depends a great deal on Myanmar's continuing its concerted efforts to reform its political and economic systems. The burst of investor enthusiasm observed thus far clearly reflects perceived momentum in the transformation process. But nervousness remains. Will the government maintain, if not increase, the energy that it has displayed in economic reform? Can the government maintain political stability in a country that is still dealing with pockets of ethnic conflict and inter-communal tensions? Is the rule of law sufficiently robust (see Box 7, "The rule of law")? To capture the significant opportunity we have outlined, Myanmar will need to rely heavily on international support from investors, foreign governments, and multilateral organisations for capital, investment, and trade. All of them are watching events in Myanmar closely.

Box 7. The rule of law

Companies and potential investors frequently cite uncertainties about the rule of law as one of the most important barriers to doing business in Myanmar. One index, based on perceptions prior to when reform began in earnest, ranked Myanmar 172nd of 176 nations on the issue.¹ Companies need to know that the law is stable, clear, and consistently enforced; frequent changes in legislation are unsettling to them. Transparent and clear laws that are not open to major interpretation and qualitative judgment also help to limit corruption. Enforcement of the law needs to be consistent, too. Arbitrary power in the hands of officials can cause inconsistencies across the country.

A permanent law reform commission would be one useful innovation. Such a commission could examine the legal code in Myanmar and deal with some of the current issues.² The current government has made some progress.³ President Thein Sein launched an anti-corruption campaign during a speech in December 2012, and a move to increase the wages of civil servants appears to be a useful measure to help in this effort. The plan to join the Extractive Industries Transparency Initiative is another promising development.

1 *The rule of law in Myanmar: Challenges and prospects*, International Bar Association Human Rights Institute, December 2012.

2 *Ibid.*

3 *Ibid.*

Credibility with the international community is critical, but on its own is not sufficient. The government also needs to show that it is capable of managing its transition. Myanmar is a nascent democracy and will need to work courageously to maintain the speed and course of change currently under way and build capabilities within government. Considerable progress has already been made with many of those in government working tirelessly. But there are not enough people to handle today's many challenges, and Myanmar needs to consider how it can quickly develop an expanded cadre of skilled and talented officials.

Should Myanmar's credibility with international supporters recede and should its governmental capacity prove insufficient to tackle the country's pressing imperatives, the economic potential by 2030 that we have described would remain a distant aspiration.



A push for higher productivity across key sectors of the economy could more than quadruple 2010 GDP by 2030. Seven key sectors of the economy could generate more than \$200 billion of GDP in 2030 and over ten million additional non-agricultural jobs. This would be a remarkable leap forward for Myanmar—and a very large opportunity for businesses in Myanmar itself and overseas.

The agenda that needs to be put in place to more than double productivity and create a diversified economy is a very substantial one indeed, and nobody should doubt the risk that growth and productivity may fall short of the potential we have outlined. In the next chapter, we discuss four areas that have not received as much attention as we believe they deserve. A greater focus on them would, we believe, bolster the chances of achieving an aspirational growth rate of 8 percent.

3. Four keys to unlocking Myanmar's potential

Although Myanmar has a large opportunity to accelerate growth, every area of economic and social management appears to need attention. There are arguably certain issues that Myanmar just has to prioritise and get right; the government is already well aware of many of them and they are subject to on-going lively discussion in Myanmar and the government's conversations with development partners and investors.

In our view, "must-do" priorities include developing the sectors that can make significant contributions to the economy, and in particular the four sectors that account for the lion's share of GDP. Agriculture will continue to employ an estimated 15 million people—more than any other sector—and is fundamental to inclusive development. The sector is receiving significant attention in Myanmar today, discussions of how to develop agriculture are on-going, and many organisations are in the process of researching and conducting highly detailed fieldwork on the sector with findings expected to be communicated over the next year.⁹⁸ There is no doubt that agriculture will remain a clear priority in Myanmar's development plans.

The energy and mining sector is important for exports, and making the most of the nation's abundant natural resources is an obvious priority. Developing Myanmar's limited infrastructure is, by common consent, crucial to getting the economy moving and to making a business case to foreign investors. And, if the experience of the evolution of all other emerging economies is our guide, it will be essential for Myanmar's economy to undergo the typical structural shift away from a dominant agriculture sector towards manufacturing, which we discuss in detail in this chapter.

Overcoming today's skills shortages is another urgent priority Myanmar will need to address. Heavy investment in developing skills through improvements in education and vocational training is necessary to ensure that Myanmar can generate the capital investment needed to sustain growth; foreign investors come to countries that have a sufficient pool of labour with the skills they require.

Maintaining political stability—and, as we have noted, the rule of law—is a prerequisite if Myanmar is to retain the confidence of international investors and development partners, and businesses, local and international. Many areas of regulation, including reforming the governance of the financial system, would need to be on the agenda for the next one to two years to provide a reassuring environment for businesses.

98 Among the organisations that are preparing reports on Myanmar's agriculture sector are the World Bank, FAO, and the Livelihoods and Food Security Trust Fund.

In our view, all of these elements must be in place to capture the growth opportunity that we have identified. They are a set of fundamentals for all developing countries. Of the many priorities that Myanmar faces, we believe that four particular areas deserve greater emphasis in the debate on Myanmar's economic future, and those four areas could make the decisive difference to the country's ability to seize its full growth potential:

- **Digital leapfrogging.** Myanmar is starting on its economic development journey in the digital age—when mobile and Internet technology is ubiquitous and more widely affordable than ever. One of the most important strategic decisions that Myanmar could make would be to explore how to leverage modern technology as a central platform of its development plans. By harnessing technology in a coordinated effort across the key areas of government, education, health care, banking, and retail, Myanmar could even potentially become one of the fastest-growing economies in the world. To capture this opportunity—probably the most potent example of leapfrogging to higher growth and development—Myanmar would need to move decisively to put the right telecommunications infrastructure in place.
- **Structural sector shift.** Myanmar is quite unusual among emerging economies in that its economic mix has barely changed in decades. While others have experienced a structural shift away from agriculture towards manufacturing—and eventually service sectors—Myanmar's reliance on agriculture has actually risen. The first step in the structural shift undertaken by many developing economies is usually into manufacturing, which has the potential to deliver the greatest gains in productivity and employment of any sector and is the natural home for low-skilled workers moving from agriculture. No developing economy in the modern world has developed quickly without building a strong manufacturing sector.
- **Urbanisation.** The majority of Myanmar's citizens still live in the countryside, but that is likely to change at a rapid speed and on a large scale. We estimate that ten million more people could live in Myanmar's cities by 2030. Myanmar needs to anticipate and plan for this shift to avoid running into the stresses of urbanisation that many other emerging countries have experienced. It would be beneficial for Myanmar to consider now—before the urban wave begins to roll across the economy—what investment is necessary and how to finance it, as well as how to plan and govern cities that are socially cohesive and economically vibrant.
- **Globally connected economy.** Myanmar has an opportunity to become open to, and part of, the global economy. Myanmar would benefit from doing all it can to allow foreign companies to invest in the country and to facilitate that investment to support strong and sustained growth. It has the advantage of its strategic location to increase trade with its neighbours and the world economy. Tourism and, in broad terms, encouraging the flow of talented people in, and out, of the country are other conduits to embedding itself in the global economy.

Digital leapfrogging: Accelerating growth through technology

Myanmar is starting its economic development journey in the digital age. In that sense, it could be the test case for the power of digital technology to vault an economy onto a much accelerated growth path. The country is embarking on its economic transformation at a time when mobile and Internet technologies are ubiquitous and more affordable than ever.

We believe that one of the most important strategic decisions that Myanmar can make is to explore how it can leverage modern technology as a central platform of its people-centred development plans. While not all technological implementations have been successful, and many are just in the experimental phase, when used properly, technology could be a considerable force for inclusivity, enabling cash-strapped governments to provide social services such as education and health care even to the poorest families in the most remote communities. The fact that Myanmar doesn't need to grapple with legacy systems is the most potent leapfrogging opportunity that today's situation offers. The years ahead are a once-in-a-century window of opportunity to make the right choices and learn from a multitude of experiments harnessing digital technologies in other countries. How Myanmar responds today could decide whether the economy struggles to catch up with its neighbours and the rest of the world or whether—perhaps—it becomes one of the fastest-developing economies the world has seen.

USING DIGITAL TECHNOLOGY IS BECOMING A CENTRAL PILLAR OF ECONOMIC POLICY MAKING AROUND THE WORLD

While it is difficult to quantify the exact impact of fully harnessing mobile and Internet technology on growth in Myanmar, we believe that it could be a critical enabler to help the country achieve annual GDP growth of 8 percent. There is a correlation between technology, innovation, and economic growth. For instance, in a study of 120 low- and middle-income countries, the World Bank found that a 10 percent increase in broadband penetration between 1980 and 2002 correlated with an additional 1.38 percent in GDP growth.⁹⁹ MGI research in 2011 found that in 13 advanced countries accounting for 70 percent of the world's GDP, the Internet accounted for an average 3.4 percent of GDP. At the beginning of 2012, McKinsey research estimated that the total contribution of the Internet to GDP in all aspiring countries was \$366 billion, or 1.9 percent of total GDP of \$19.3 trillion, and that its impact is strengthening as adoption accelerates.¹⁰⁰ The Internet's contribution to GDP has accounted for as much as 12 percent of GDP growth over the past five years.¹⁰¹

99 Ibid., C. Z. Qiang and C. M. Rossotto, "Economic impacts of broadband", World Bank, 2009.

100 "Aspiring countries" are defined as those dynamic and significant enough that they can aspire to become developed countries within a reasonable time frame. "Dynamic" is defined as having a nominal per capita GDP that grew at a compound annual growth rate above 3 percent between 2005 and 2010. "Significant" is defined as having a nominal per capita GDP between \$1,000 and \$20,000 in 2010 and nominal GDP in 2010 above \$90 billion.

101 Ibid., *Online and upcoming*, McKinsey High Tech Practice, January 2012.

The Internet contributes to economic growth in numerous ways. A McKinsey survey of SMEs found respondents reporting that Web technologies had enabled productivity increases averaging 11 percent in developing countries. Internet-enabled productivity gains correlated to greater profitability gains.¹⁰² Another analysis studied the impact of broadband access on exports of manufacturing and service firms and found that, in the manufacturing sector, firms with Internet access enabled by broadband generated 6 percent more foreign sales than those without access. In the service sector, broadband-enabled companies generated between 7.5 percent and 10 percent more sales.¹⁰³ McKinsey has also found that the Internet created 3.2 jobs for every job it reduced in these aspiring countries—more than the 1.6 jobs created for every job lost in developed countries.

Governments are also increasingly seeing information and communication technology (ICT) as a crucial mechanism for enhancing the quality of, and access to, public services, as well as boosting national competitiveness. In this context, we observe that many countries are putting in place plans to make broadband universally accessible. For example, in 2002 Jordan launched its Connecting Jordanians Initiative, which aimed to improve the delivery of education through public-private partnerships, enhance the quality of education through the effective use of technology, build the capacity of the local technology industry, and create a global education programme model that could be replicated in other countries. In 2004, Malaysia's Ministry of Energy, Communications and Multimedia announced that it was developing a National Broadband Plan for the country. The government and the telecommunication industry have worked closely on this initiative, whose goals are to increase national competitiveness by increasing productivity, to improve the delivery of public services, to improve socioeconomic conditions by providing access to advanced applications that raise the quality of life, and to increase communications between urban and rural areas in order to develop more integration of the communities.¹⁰⁴

The case of Africa strongly suggests that Myanmar is not too early in its development to benefit from this technology. Many countries in Africa that are also in the very early stages of their economic development are now using technology to great effect. The ICT sector directly contributes around 7 percent of Africa's GDP, which is higher than the global average for the sector.¹⁰⁵ Mobile phones are transforming the way that Africans live by substituting for many other types of services, including financial services, newspapers, games, and entertainment. Mobile phones are even helping to increase access to health care. As a result, the value of the mobile phone is greater than elsewhere because telecommunications services in African countries are inclusive of many other service sectors.¹⁰⁶

102 *The impact of broadband on the economy: Research to date and policy issues*, International Telecommunication Union (ITU), April 2012.

103 George R. Clarke, "Has the Internet increased exports for firms from low and middle-income countries?" *Information Economics and Policy*, volume 20, issue 1, 2008.

104 *Broadband: A platform for progress*, ITU, May 2010.

105 Enock Yonazi et al., eds., *The transformational use of information and communication technologies in Africa*, World Bank and African Development Bank, 2012.

106 Ibid.

DIGITAL TECHNOLOGY CAN HAVE A DRAMATIC IMPACT ACROSS FIVE KEY SERVICE AREAS

Myanmar could use technology to enable growth across service sectors to make an impact in five key areas: government, education, health, banking, and retail.¹⁰⁷ While many experiments are underway and are yet to reach scale, Myanmar can learn from some of the early successes. For example, Myanmar could increase the productivity and impact of government services by providing e-services. The country could use digital technologies to reach students in remote areas and radically change the teacher-to-pupil ratio. Through mobile health solutions, Myanmar could enable doctors to provide care to more patients. Instead of building traditional bricks-and-mortar financial services and retail chains, Myanmar could move directly to mobile financial services and e-commerce. Leveraging digital technology in all these areas simultaneously could be a major opportunity, but also a significant challenge for Myanmar. While there are many success stories in leveraging technology, there are also many failures. Success for Myanmar will depend on careful consideration of which technologies are likely to be most impactful in its current situation. Deploying these technologies on a large scale, and in a way that met the country's current objectives, would be a considerable undertaking.

Digital technology can quickly increase the effectiveness of delivering government services

E-services can create substantial cost savings and boost efficiency for governments. Today, Myanmar does not have many automated procedures and therefore has a major opportunity to improve the way it delivers services while saving on costs. Automation can also reduce the opportunity for corruption. Moreover, "going digital" is a cost-effective and relatively easy way of improving how the government engages with citizens and businesses. In practical terms, the government could move many registration and licensing processes online and even make social payments using the Internet. Given Myanmar's severe capacity constraints in government, an e-government digital strategy should be considered.

Manual processing is very labour-intensive, and going electronic allows most emerging countries to increase efficiency in government services by allowing civil servants to potentially shift to more value-creating functions in an already stretched government. One state-of-the-art example of how technology can increase efficiency is Dubai's totally automated Salik tolling system, which identifies and bills users through radio frequency identification (RFID) technology. Electronic processing also means that governments can move operations to lower-cost locations—or even reduce government office space altogether. Digital processing precludes the need for physical space to store documents and saves on postage. When Brazil's Bolsa Familia programme, which delivers cash transfers to 12.4 million people, switched to electronic benefit cards, it cut administrative costs from 14.7 percent of the value of grants disbursed to only 2.6 percent.¹⁰⁸ Using technology in government doesn't just save on cost and staffing but also boosts efficiency by increasing the speed of decision making and using electronic data to make those decisions better informed.

107 Agriculture, too, can be transformed by digital technology, but we don't focus on agriculture in this sub-chapter.

108 *General guidelines for the development of government payment programs*, World Bank, July 2012.

E-government could also give Myanmar an effective tool to engage with citizens and businesses. In the United Kingdom, the government places a great deal of public data online for citizens to read and has launched online applications for smartphones that, for instance, allow people to view information about their neighbourhoods such as crime statistics. For businesses, the United Kingdom's Directgov website is a one-stop portal for all government e-services. In Singapore, citizens can receive timely and personalised SMS alerts and notifications for various services such as passport renewals and road tax renewals, and all government tenders are distributed through one website. Kenya was the first African country to launch an open-data portal. Kenya's information and communications minister estimated that the government could save up to \$1 billion annually by making procurement processes visible to citizens.

E-education could be a quick way of ramping up Myanmar's educational provision

Today, Myanmar has one of the lowest averages of schooling in the world at just four years, a significant hurdle to the country's social and economic development.¹⁰⁹ While more should be done to bolster the educational system as a whole, e-education could be used to leapfrog in the areas of access, availability and assessments. Change could come quickly if Myanmar uses mobile technology to deliver an element of e-education to a much larger number of children of school age as well as adults in vocational training and even tertiary education, as we are seeing in many emerging economies today. Many successful experiments have allowed countries to bridge gaps in education when physical access to infrastructure is a constraint. Teachers can also be made available through virtual classrooms. Today, Myanmar has around one teacher for every 30 schoolchildren, indicating that its teachers are already quite stretched and, in some rural areas, may not always be present. In Indonesia, the teacher-to-pupil ratio is 1 to 17, in Malaysia 1 to 13, and in Vietnam 1 to 20. Using technology to deliver education could allow teachers to reach more students effectively. Self-directed learning and assessments can also be used by the government to reach remote agrarian populations.

Just a few examples illustrate the types of opportunities that Myanmar could capture. One mobile-based scheme is MoMaths—the Mobile Learning for Mathematics Project—led by Nokia in conjunction with the government of South Africa.¹¹⁰ In 2009, MoMaths served 4,000 grade 10 mathematics students in 30 schools, and has since expanded the program to cover grades 10, 11, and 12 and 200 schools. The students are able to do maths homework and revision on Mxit, a mobile social networking platform used by millions of young people around South Africa. The students receive immediate feedback on multiple-choice practice exercises and can compare results with classmates in their school, in other provinces, and nationally. A great advantage is that the service is embedded in the social network that they use to chat with their friends. The results have been promising. In the Philippines, Text2Teach, which uses a 3G-enabled device, allows teachers to download short videos to a mobile device and screen them in the classroom.

109 Human development report, UNDP, 2013.

110 *MLearning: A platform for educational opportunities at the base of the pyramid*, Groupe Spéciale Mobile Association (GSMA), November 2010.

In Pakistan, mobile operator Mobilink partnered with UNESCO and Bunyad, a non-governmental organisation, on a pilot project in a rural area of a southern Punjab province that helps women and girls with basic literacy on a prepaid mobile phone. Users receive text messages on a variety of topics including religion, and health and nutrition, and they practise reading and writing down the messages and responding to their teachers via SMS.¹¹¹ At the higher educational level is the African Virtual University, founded in 1997 and now expanding into its second phase with a \$15.6 million grant from the African Development Fund. The grant is intended to enable participating African countries and institutions to improve their infrastructure and programmes and to provide technical assistance on their ICT in education policies and strategies. The grant will also support R&D, open educational resources, and women's development through the award of scholarships to women enrolled in science programmes.¹¹²

Health care is another public service that can be delivered quickly and cost-effectively using mobile technology

Health expenditure in Myanmar was among the lowest in the world in 2011 at only 2 percent of GDP. As comparison, health spending was 3.9 percent of GDP in Thailand, 6.8 percent in Vietnam, and 5.6 percent in Cambodia.¹¹³ In countries with a large share of their populations living in rural areas, many of them remote, the delivery of professional health-care services is difficult. In 2006, the World Health Organization reported that, in Southeast Asia, the ratio of health-care providers to people was 1 to 269, compared with 1 to 70 in the Americas region and 1 to 76 in Europe.¹¹⁴ Myanmar's ratio was 1 to 1,700 in 2011, indicating an extreme shortage of health-care workers.¹¹⁵

Myanmar can learn from the experience of using mobile telephones to enable the spread of health-care services in countries without well-established health-care systems and with budget limitations. For instance, Malawi is using mobiles to gather information on child malnutrition. Health-care workers send information about their patients via mobile to an SMS server; the information then goes into a database that can compare the information not only with the child's medical history but also with predetermined standards that flag cases for follow-up. Any need for further attention is sent to the health workers by SMS. In Mali and Senegal, a person on the ground—with no medical expertise—weighs a child and texts the weight to a doctor. A Java programme converts the text message into a weight chart and plots it against norms. This simple system allows one doctor to monitor up to 2,000 children.¹¹⁶

111 Ibid.

112 Ibid., Enock Yonazi et al., eds., *The transformational use of information and communication technologies in Africa*, World Bank and African Development Bank, 2012.

113 *Public health expenditure*, World Development Indicators, World Bank, 2011.

114 We calculated the ratio of health-care providers to the population combining Southeast Asia and Western Pacific geographies. See *The world health report 2006: Working together for health*, World Bank, 2006.

115 This is the number of health-care workers, doctors, nurses and midwives to the total population. See *ibid.*, *Statistical yearbook 2010–2011*, Central Statistical Organisation, Myanmar.

116 Engineering Social Systems website (www.hsph.harvard.edu/ess/).

In Uganda, only one child in five is registered at birth, but UNICEF is working to increase this number to four out of five by 2014 through registration on mobile devices. The solution, called MobileVRS, can complete the registration in minutes rather than the months it currently takes. By tracking birth registrations, the government aims to protect children from child labour, underage military service, and child marriage. More broadly, as in other African countries, Uganda is now on track to receive SMS health reports from 900 health facilities and 4,000 community-level health workers.¹¹⁷ Engineering Social Systems, part of Harvard University, is working in Kenya to eradicate malaria through predictive modelling of “hot spots” where the disease is being imported.¹¹⁸

In India, patients can call directly from a personal or communal mobile phone to reach a health-care provider. Since 2007, the service has received more than 50 million calls, of which over 20 million patients have been provided with help.¹¹⁹ Patients calling an advice line are triaged as stable, serious, or critical by trained operators at call centres using customised algorithms that sort through 165 diseases. The service supports 50,000 calls per day answered by 400 doctors and paramedics.¹²⁰ The average cost per consultation for telemedicine service typically varies from \$0.20 to \$1—another example of how mobile technology can cut the cost of health care even while increasing access to it.¹²¹

Myanmar is a strong candidate for leapfrogging to mobile and Internet financial services

An efficient, secure, and reliable payment system reduces the cost of exchanging goods and services. It is also the channel for the settlement of all other types of transactions, including cross-border financial flows.¹²² Developing such a system would require setting standards for e-payments and regulatory support that enable banks and telecommunications providers to work together. In Myanmar, where transactions are largely completed in cash, bringing people’s savings into the monetary system would allow that money to be used for investment into Myanmar’s growth. Today, only a very small proportion of citizens in Myanmar have access to banking services, but this could change very rapidly with the advent of mobile and Internet banking that is transforming many other emerging economies.¹²³

The best-known example of the transformative impact of mobile banking is Africa’s M-Pesa mobile money service from Safaricom in Kenya, which gives access to simple banking services to anyone who can afford a mobile phone. M-Pesa provides a vehicle for savings, domestic money transfers, airtime purchases, and limited options to pay bills and is being expanded to enable card-free withdrawals at ATMs as well as simple loans. According to the IMF, M-Pesa provides mobile-banking facilities to more than 70 percent of the country’s adult population.¹²⁴ With

117 UNICEF Uganda (www.unicef.org/uganda/9903.html).

118 A. Wesolowski et al., “Quantifying the impact of human mobility on malaria”, *Science*, volume 338, number 6104, October 12, 2012.

119 Health Management and Research Institute website (www.hmri.in).

120 Center for Health Market Innovations website (<http://healthmarketinnovations.org>).

121 University of Pennsylvania website (<http://knowledge.wharton.upenn.edu/>).

122 *Payment systems outlook 2012*, World Bank.

123 *Ibid.*, Eric Duflos et al., *Microfinance in Myanmar*, IFC and the Pacific and Consultative Group to Assist the Poor, January 2013.

124 *Regional economic outlook: Sub-Saharan Africa—Sustaining growth amid global uncertainty*, IMF, April 2012.

more than 14 million customers, the service has inspired more than 108 telecom companies and banks to launch mobile money in emerging markets.¹²⁵

However, not all mobile banking systems have been able to gain the scale of M-Pesa. Of more than 100 operations set up in emerging markets, only a handful of launches, such as Telenor in Pakistan, MTN in Uganda, and Vodacom in Tanzania, have successfully reached scale. Several factors increase the likelihood of success: a sizeable network of agents; a focused range of services during the early years; and longer-term commitment from a private-sector player, given that it usually takes three to five years for mobile banking to become profitable.¹²⁶

Traditional banks will also be able to use mobile and Internet banking—and indeed cloud technology—to their benefit. The Japanese government is already assisting the Central Bank of Myanmar in developing a \$384 million cloud-based, high-speed network to support financial transactions throughout the country. The network will initially connect Nay Pyi Taw, Yangon, and Mandalay.¹²⁷ This technology could significantly benefit traditional banks and help support alternative channels, such as Internet banking, for reaching customers. Internet banking increases operational efficiency and minimises costs, while at the same time increasing bank profitability.¹²⁸ For example, a bank in Ghana used Internet banking to supplement its branch network. Branches were used as advisory locations that could also showcase and provide guidance for customers on using Internet banking services. By opting for investing in Internet banking, the bank saved the cost of putting in bricks-and-mortar branches and ATMs.¹²⁹

E-commerce is another large opportunity for Myanmar as a way to develop retail

E-commerce not only provides consumers choice in purchasing goods and services, especially outside large cities, but also leads to more competitive pricing and price transparency in both online and offline retail outlets. Online research also allows consumers who prefer to purchase offline to make more educated purchasing decisions.

In Myanmar, e-commerce and online retail is currently very limited, largely because there is no modern system of electronic payments. However, in the mid to long term, as the use of credit and debit cards increases and a secured online payment system is put in place, there is little doubt that online retail could be an important way to reach the country's consuming class, which we estimate could total 19 million people by 2030. Myanmar has the advantage of being able to observe how this retail channel is developing in other economies, many of which face, or have faced, hurdles similar to those Myanmar could encounter. Vietnam's e-commerce potential is constrained because of fears that online shopping is not secure. Half of the respondents in a survey of Vietnamese Internet users said that

125 Ibid.

126 Ibid., Eric Duflos et al., *Microfinance in Myanmar*, IFC and the Pacific and Consultative Group to Assist the Poor, January 2013.

127 Ibid.

128 Ceylan Onay and Emre Ozsoz, "The impact of Internet banking on brick and mortar branches: The case of Turkey", *Journal of Financial Services Research*, January 2012.

129 Richard Boateng and Alemayehu Molla, "Developing e-banking capabilities in a Ghanaian bank: Preliminary lessons", *Journal of Internet Banking and Commerce*, volume 11, number 2, August 2006.

shopping online would provide them with access to a wide variety of products, but only 13 percent said they thought it was safe.¹³⁰

Overall, e-commerce is at a relatively early stage of its development in the emerging world but is growing very rapidly. In the 11 “aspiring” economies of Argentina, Brazil, China, Hungary, India, Malaysia, Mexico, Poland, Russia, Taiwan, and Vietnam, business-to-consumer e-commerce has grown by 31 percent a year since 2005, and the size of the e-commerce market in about one-third of these countries had tripled by 2010.¹³¹

In Malaysia, e-commerce grew at an average rate of 16 percent a year between 2005 and 2010 to reach \$1.3 billion. McKinsey analysis estimates that growth will continue at 10 percent a year between 2011 and 2015. One of the reasons that e-commerce has taken off in Malaysia is that consumers are happy to use online payments—and the system is more developed—because of high levels of legal protection.¹³²

In Nigeria, a number of online retailers have found clever ways of overcoming constraints. Cashless payments are uncommon in Nigeria, but booksng.com, the country’s first online bookstore, got around this by allowing customers to buy books with an ATM card. Another e-tailer—234world.com—allows consumers to pay online by depositing cash at any branch of three designated banks. The company’s website even speaks to local consumer preferences by offering an option to “eHaggle”—letting buyers negotiate the price of a product with the seller.¹³³ To overcome a lack of trust among consumers in Mexico’s postal service and in online payments, e-tailer PlazaVIP permits customers to buy goods online but pay for them at a branch of a nationwide chain convenience store—where they also collect their purchases. Like Myanmar, Mexico’s credit-card penetration is rather low, but PlazaVIP has dealt with this problem through a partnership with Telmex that allows customers to charge their purchase to their phone bill as long as their payment record is good.¹³⁴

Within Asia, China is the pre-eminent example of the significant and rapidly growing role that e-commerce is beginning to play—and may well become the model for other emerging economies in Asia. Growth has been so rapid that, seemingly overnight, China has become the world’s second-largest online retail market with an estimated revenue in 2012 of more than \$190 billion. Compound annual growth in e-tailing has been 120 percent since 2003. This exponential growth has occurred despite the fact that broadband penetration in China is only around 30 percent. Chinese e-tailing is already profitable with margins that are slightly higher than those of the average physical retailer, according to a 2013 MGI report.¹³⁵

130 International Data Corporation, 2010; *ibid.*, *Online and upcoming*, McKinsey High Tech Practice, January 2012.

131 *Ibid.*

132 *Consumer lifestyles in Malaysia*, Euromonitor International, July 2011; Soumitra Dutta and Irene Mia, eds., *The Global information technology report, 2010–2011: Transformations 2.0*, World Economic Forum and Insead, 2011.

133 *Ibid.*, *Online and upcoming*, McKinsey High Tech Practice, January 2012.

134 *Ibid.*

135 *China’s e-tail revolution: Online shopping as a catalyst for growth*, McKinsey Global Institute, March 2013.

Two features of China's e-tail market stand out—and may be a useful template for Myanmar. First, about 90 percent of Chinese e-tailing takes place on advertising-funded virtual marketplaces where manufacturers, retailers, and individuals offer products and services to consumers through online storefronts.¹³⁶ This approach is similar to eBay or Amazon Marketplace and is quite different from the model that dominates in the United States, Western Europe, and Japan, where around 70 percent of the market is composed of e-tailers running their own sites. Second, MGI's research finds that e-tailing is not simply a replacement channel for purchases that otherwise would have taken place offline; instead, it seems to be enabling incremental consumption. Incremental spending is even higher as a share of the whole in China's underdeveloped less wealthy cities where many retailers have yet to establish a presence and online shopping is providing access to products and brands simply not previously available.

Beyond increasing overall consumption, e-tailing in China has lowered retail prices and spurred the development of a \$13 billion service provider industry encompassing online advertising and marketing, payment systems, warehousing, express delivery, and IT services.¹³⁷ Strong growth in e-tailing may lower demand for commercial real estate and also create incentives for investment in technological innovation.

MYANMAR NEEDS TO DEVELOP ITS TELECOMMUNICATIONS INFRASTRUCTURE TO CAPTURE THE DIGITAL LEAPFROGGING OPPORTUNITY

Myanmar could benefit in the myriad ways we have described if it boosts the penetration of telecommunications services. Today, that penetration is low.¹³⁸ Internet penetration is the second lowest of 187 countries reported by the World Bank, while mobile penetration is the lowest of 189 countries.

Myanmar's government has ambitious targets for the penetration of mobile telephony, aiming to increase penetration from 3 percent to 75 percent from 2011 to 2016 (Exhibit 18). Recent estimates indicate that the 2012 penetration rate had already increased to 9 percent.¹³⁹ In the region, only Vietnam has achieved such a rapid penetration increase in a five-year time frame, and it may be difficult for Myanmar to emulate this feat given its lower population density and lower per capita GDP compared with Vietnam between 2003 and 2008, the years in question. To hit its target, Myanmar still needs to achieve both high mobile coverage and competitive pricing.

Various combinations of fixed and mobile technologies can be deployed to meet Myanmar's communications needs. While a national fixed network would be costly and take a long time to roll out, targeted deployment of fixed and Wi-Fi solutions should be considered. Because of the high cost of rolling out a national fixed broadband network, many analysts believe that the mobile phone could be the point of access to the Internet for people in emerging markets. Indeed, mobile technologies have evolved from the most stable and cost-effective 2G technologies that provide voice and SMS, to 3G that has faster data speeds but more expensive handsets and shorter battery life. More recently, fourth-

136 Ibid.

137 *China's e-tail revolution*, McKinsey Global Institute, March 2013.

138 World Cellular Information Service; World Bank, 2012.

139 Myanmar newspaper reports.

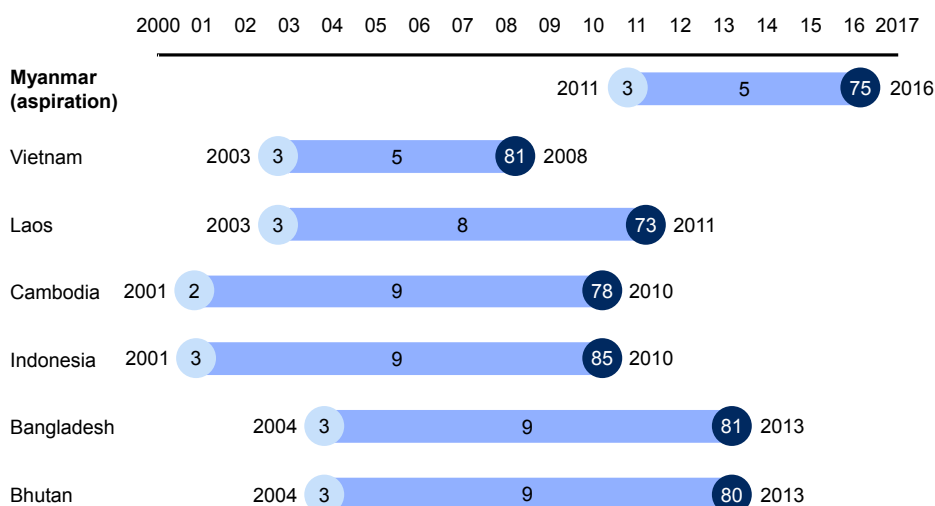
generation high-speed mobile technology has emerged but devices are still expensive. Given the availability of different technology options, Myanmar should decide on the most appropriate and cost-effective mobile technology, both in terms of the operator's network roll-out and the total cost of ownership for consumers, to quickly achieve its penetration targets.

Exhibit 18

The government's aspiration to increase mobile phone penetration to 75 percent by 2016 is ambitious

● Mobile phone penetration (%)

Approximate number of years to increase mobile penetration from 3 to 75 percent



SOURCE: World Cellular Information Service; World Bank; national governments; McKinsey Global Institute analysis

In early 2013, Myanmar was holding tenders for two licenses for foreign players with the winners expected to be announced on June 27, 2013.¹⁴⁰ Previously, foreign companies were not allowed to run telecommunications services, and the main operator was state-owned Myanmar Post and Telecommunications. Many telecommunications policy decisions have already been made or are under way as part of this tender decision. To ensure Myanmar meets its targets, the government and regulator would need to implement a comprehensive set of regulatory policies that would increase coverage levels of telecommunications services while reducing their cost.

Although policy choices need to be geared towards Myanmar's particular context, the government can look at the experience of other countries that have already developed their telecommunications sectors. There are trade-offs between the government's revenue objectives, consumer benefits, and the private telecommunications sector. Regulation that aligns the private sector's incentives with the governments objectives is a prerequisite for the sector's development.¹⁴¹ Our analysis suggests that there are four key policy areas that Myanmar could consider as it embarks on the development of its telecommunications infrastructure: the level of competition, the roll-out of infrastructure, interconnection and number portability, and universal access.

¹⁴⁰ Ibid.

¹⁴¹ World Economic Forum, "Unshackled: How regulation can amplify mobile service benefits in emerging markets", in Soumitra Dutta and Irene Mia, eds., *The global information technology report 2008–2009: Mobility in a networked world*, World Economic Forum, 2009.

Level of competition

A country must ensure a sufficient level of competition among fixed and mobile operators to achieve the necessary scale and cost efficiencies. Because the telecommunications industry is capital-intensive and requires significant up-front investment, competition among a few players, rather than many players, may lead to better results.¹⁴² India and the Philippines are interesting—but contrasting—examples that showcase the importance of getting regulation right.¹⁴³ With 900 million wireless subscribers, India is the second-largest mobile market by subscribers in the world after China.¹⁴⁴ In January 2013, India's wireless sector was crowded with 13 operators, although the top four accounted for 65 percent of subscribers.¹⁴⁵ Many smaller mobile operators focus on more profitable urban areas and lack the resources to roll out their services to rural areas—and therefore, counter-intuitively perhaps, competition in the sector is undermined by having too many fragmented players. The uptake of 3G has been slow, with only around 35 million subscribers so far and no single operator with a nationwide 3G spectrum license. Active user penetration for wireless service in India is 86 percent. The Philippines, meanwhile, started with eight mobile licenses, but open market competition has led to market consolidation with just two major players remaining. This model has resulted in low prices and high 3G coverage at 80 percent. Active user penetration for wireless service in the Philippines is currently at 99 percent.¹⁴⁶

As Myanmar contemplates how best to structure the level of competition in the telecommunications industry, one interesting model that it could consider is structural separation between the network operator that builds the fixed or mobile telecommunications network and the services operating companies that offer communications services to businesses and consumers. The structural separation model has been used in the roll-out of fixed broadband in Australia, Qatar, and Singapore. In these cases, the government owned the network operators or substantially funded its roll-out. Recently, Mexico has announced that it is considering creating a single wholesale wireless broadband infrastructure that will be funded through public-private partnership. In the case of Myanmar, the government could use revenue from licensing and spectrum auctions as well as donor funding and loans to finance the network operator. Other options could include a privately funded network operator or a public-private partnership network operator that would build and roll-out a wholesale network, which could then sell wholesale fixed or mobile capacity to services operating companies.

142 Telegeography data; World Cellular Information Services; Telecom Regulatory Authority of India.

143 Telegeography data; World Cellular Information Services; Telecom Regulatory Authority of India.

144 GlobalComms Database, TeleGeography 2012.

145 Ibid.

146 Telegeography data; World Cellular Information Services.

Roll-out of infrastructure

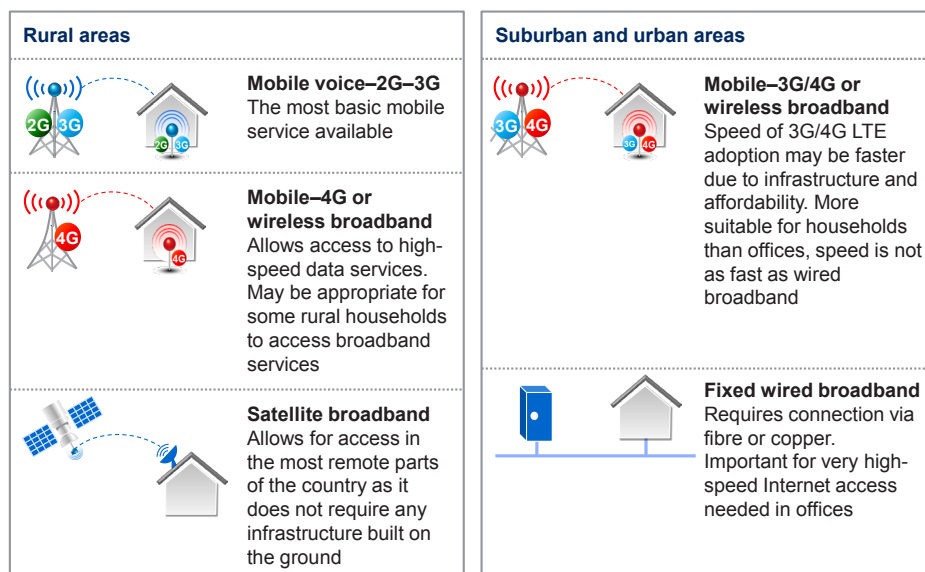
Because Myanmar has limited existing telecommunications infrastructure, it should roll out infrastructure that meets its current needs, while maintaining flexibility for future enhancements. To maximise capital expenditure, it may also make sense to lay electrical wiring and fibre cables at the same time. We estimate the cumulative infrastructure investment in telecommunications to total \$45 billion to \$50 billion through 2030.¹⁴⁷

The approach to rolling out infrastructure will tend to vary depending on whether the area is rural, suburban, or urban, and on the needs of Myanmar's population (Exhibit 19). In many rural areas of the country, a 2G network could provide the best initial coverage and penetration. In most urban and suburban areas, mobile 3G or 4G wireless broadband may be a preferred option. However, to provide the bandwidth and speed needed for a modern office or industrial park, fixed broadband would still be the best option. Satellite broadband is another option for remote areas but it is a very expensive service and is normally reserved as a back-up system or used in highly mountainous terrains.¹⁴⁸

Exhibit 19

Myanmar needs to tailor its telecommunications infrastructure to the information and communication technology needs of different areas

Suitable technologies and descriptions



SOURCE: TeleGeography; Pyramid Research; McKinsey Global Institute analysis

As an example, Malaysia has rolled out various fixed and mobile technologies according to the needs of consumers, their incomes and the country's topography. While LTE is still in a very nascent stage, fibre, 3G, and Worldwide Interoperability for Microwave Access (WiMax) are deployed in highly urban areas and economic zones while DSL, 3G, and WiMax are deployed in suburban and rural areas.

147 Telecommunications infrastructure stock estimated at 2 percent of GDP based on the infrastructure stock of Brazil, China, India, Indonesia, Poland, Russia, and South Africa from 1992 to 2012 and incremental investment associated with GDP increase.

148 Australia National Broadband Plan.

Many of the technological innovations that we have discussed have been developed and continue to operate on 2G networks; 2G is a stable and relatively inexpensive technology with a good price-to-performance ratio, using frequency or bandwidth that is relatively cost-effective for rollout. Moreover, 2G handsets are highly affordable and there is a strong second-hand market that could help make them even more so. Myanmar could start with a 2G network and carefully consider the roll-out of 3G or 4G infrastructure in areas and situations where higher bandwidth is necessary. In the short term, the cost of rolling out a 4G network and the affordability of associated handsets currently pose significant challenges. A potential approach for Myanmar could be to deploy parallel networks of 2G and 4G on a 700/800/900 MHz band in areas where high speed is needed. Given that the incremental cost for rolling out a “thin 2G” network using multi-generation base stations compared to only rolling out a 4G infrastructure is small, the country should analyse whether a hybrid 2G plus a 4G roll-out would provide the best combination of accelerated voice communications and Internet applications. Such a strategy could be made cost effective with the correct spectrum policy.

- **Design effective policies for spectrum management.** Effective spectrum management can help to ensure a level playing field and create efficiency gains in the roll-out of infrastructure. In addition, competitive and transparent spectrum allocation with clear policies that ensure fair distribution of bandwidth is necessary to maintain a healthy mobile sector. Myanmar could consider allocating a substantive amount of low-frequency spectrum to minimise the cost of roll-out. Low-frequency spectrum allows operators to build fewer cell sites because it enables wider coverage area per cell site. The country could also consider following the International Telecommunication Union for spectrum standardisation. In addition, Myanmar could look at its neighbours' spectrum band plans, particularly the Asia Pacific Telecommunity's proposals in the use of the 700 MHz band for 4G. Adopting a spectrum plan that is common with the rest of the region would help minimise future costs of rolling out the network by taking advantage of a larger equipment and handset ecosystem.
- **Put in place network-sharing policies.** Establishing network-sharing policies can help operators save upfront on infrastructure deployment and operating costs. Network sharing is increasingly popular around the world because it can save 40 percent on network capital expenditure. In Malaysia, mobile operators are involved in active network sharing because of increasing demand for data and regulatory requirements. Operators are expected to compete on quality of service rather than on infrastructure and coverage. The trend is likely to continue with the deployment of 4G. In India, passive network sharing has been actively pursued by operators to reduce costs, making Indian operators some of the most cost-efficient players in the world. With falling average revenue per user, most operators are entering into tower-sharing agreements to control costs. Thus, putting network-sharing policies in place early would allow Myanmar to capture these benefits.

Interconnection and number portability

Interconnection and number-portability policies can help ensure healthy competition among telecommunications players and benefit the end consumer. Interconnection allows two people on different networks to communicate with each other. An effective interconnection regime should result in competitively neutral, economically efficient inter-carrier compensation and minimal regulatory intervention. It would be positive if Myanmar were to strive for symmetrical interconnection rates to ensure that new players have a level playing field on which to compete. In addition, Myanmar should consider allowing subscribers to maintain their allotted mobile numbers when switching mobile phone providers. Mobile number portability lowers the barrier for consumers to switch service providers, allowing them to shop around for better deals, thus promoting healthy competition. Most importantly, in the context of all e-services, a person's mobile phone number could essentially become a bank account or even a personal ID number. Thus, it is important for Myanmar to make number portability a component of its overall telecommunications policy right from the start.

Universal access

Indonesia, Malaysia, Thailand, and many other countries have universal access policies, but Myanmar's highly dispersed population is likely to make this goal more challenging (Exhibit 20).¹⁴⁹ Our analysis suggests that it is not currently commercially viable to provide mobile phone services to between 11 and 18 percent of the population.¹⁵⁰ However, there are large potential social benefits from achieving universal access. Universal access has been found to improve education through distance learning, equality through empowering the "voiceless", and health care through remote diagnosis and monitoring.¹⁵¹ Many other emerging economies have faced similar issues with accessibility and overcome them.

There are two ways for the government to ensure operators serve rural markets: the Universal Service Fund and scheduled build-out. With a Universal Service Fund system, rural infrastructure is paid from a fund to which operators, government, and donors contribute. This approach results in the most efficient build-out of rural infrastructure, but the government needs to monitor rural infrastructure provision. In scheduled build-outs, operators are given deployment schedules for sections of rural areas in exchange for licenses, as well as incentives such as tax breaks and cheap spectrum. Telecommunications companies can choose to forgo build-out in rural areas if they subsidise funding for another company to provide rural service. Alternatively, the government can decide to let the private sector determine the build schedule, as in the case of the Philippines and Thailand. According to Groupe Spéciale Mobile Association (GSMA), the Universal Access Fund has played a limited role so far in coverage achievements in the Philippines and Thailand. Both countries established

149 Ibid., *Universal access*, GSMA, 2006.

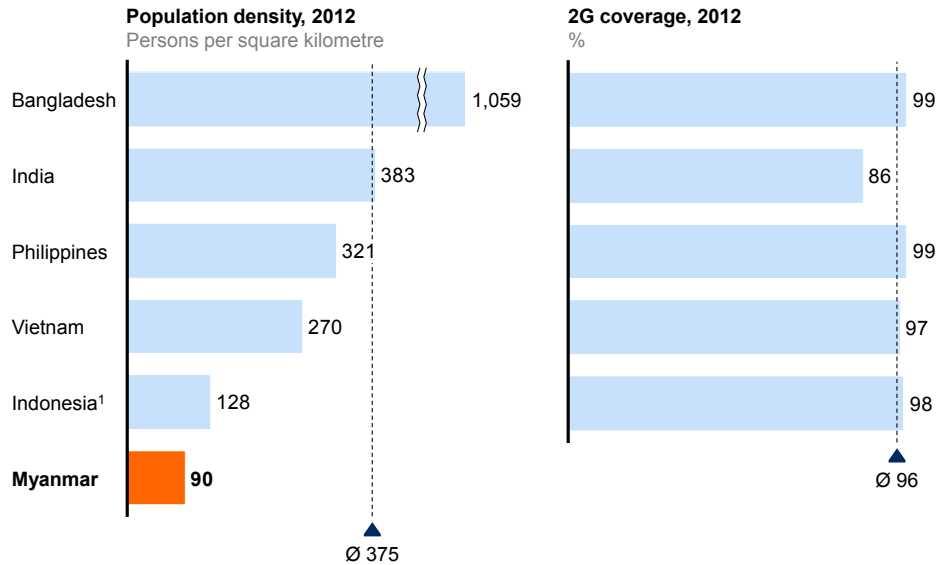
150 We amortised annual capital and operational expenditure over ten years. We calculated the coverage area in square kilometres for both low- and high-frequency areas and the number of subscribers per cell site to make the construction feasible. Using population data from the Myanmar government, we estimated that 11 percent of the population lives in areas with a density of fewer than 36 people per square kilometre and 18 percent in areas with a density of fewer than 67 people per square kilometre. The low population density of these areas means that it is not commercially viable to serve them with mobile telecommunications.

151 *The socio-economic impact of bandwidth*, European Commission, 2013; A. G. Calvo, *Universal service policies in the context of national broadband plans*, OECD digital economy paper number 203, OECD Publishing, 2012.

Universal Service Funds by law, but they do not appear to be operational or to have influenced coverage.¹⁵² In the Philippines, mobile coverage has recently reached 99 percent of the country's 102 million people.¹⁵³ In Thailand, five mobile operators reach more than 97 percent of the population, which is slightly above average among other countries with the same income levels.

Exhibit 20

Providing universal service will be difficult due to Myanmar's low population density, but many countries have overcome this challenge



¹ 2011 data.
SOURCE: TeleGeography; IHS Global Insight; McKinsey Global Institute analysis



Myanmar has an exciting opportunity to accelerate its development through the use of digital technology. The country would need to consider investing in the right telecommunications infrastructure and pick a viable business model that suits its situation. If it does so, it has the opportunity to reap potentially enormous rewards from innovative applications and services such as telemedicine, e-commerce, online education, social networking, and mobile financial services. All of these have the potential to help accelerate growth—and in a way that includes people across the nation, even those in rural areas and on low incomes, and provides them with new economic opportunities as well as social services.

¹⁵² Ibid., *Universal access*, GSMA, 2006.

¹⁵³ Teleography data, 2013.

Structural sector shift: Moving into manufacturing

Myanmar is unusual among developing countries because the structure of its economy has remained virtually static for decades. There has been no discernible shift out of agriculture into manufacturing and services, the first stepping-stone away from an agrarian economy.¹⁵⁴ Indeed, agriculture's share of GDP has actually risen in Myanmar while it has fallen in other developing Asian economies that have moved first into manufacturing and eventually into service sectors. To accelerate growth, boost productivity, and increase employment opportunities, the normal developmental curve suggests that Myanmar needs to shift out of agriculture and into manufacturing.¹⁵⁵ It does this at an opportune moment as some low-end manufacturing is moving from China. In advanced economies, a strong manufacturing sector may create well-paying jobs and drives technological innovation. In developing economies, manufacturing can be a powerful engine of development that provides the jobs required for agrarian populations to move out of poverty and, through exports, connects them to the world.

Manufacturing's contribution to employment rises in the earlier stages of economic development before peaking and then declining as economies become more oriented towards services and less labour-intensive manufacturing (Exhibit 21). In Myanmar, manufacturing's share of employment in 2010 was 6 percent. In 2030, we estimate that manufacturing could contribute up to 20 percent of the country's employment.¹⁵⁶

Manufacturing is also a significant contributor to countries' economic value. In 2010, manufacturing made the largest contribution to GDP in the developing economies of China, South Korea, and Indonesia at 33 percent, 28 percent, and 25 percent, respectively. But it was also an important economic driver in large developed economies, contributing 19 percent of GDP in Germany and 12 percent of GDP in the United States.¹⁵⁷ Where does Myanmar stand in this picture? According to official government statistics, manufacturing in Myanmar already accounted for more than 20 percent of GDP in 2010, a much larger share than seen in other countries when they were in a similar stage of development.¹⁵⁸

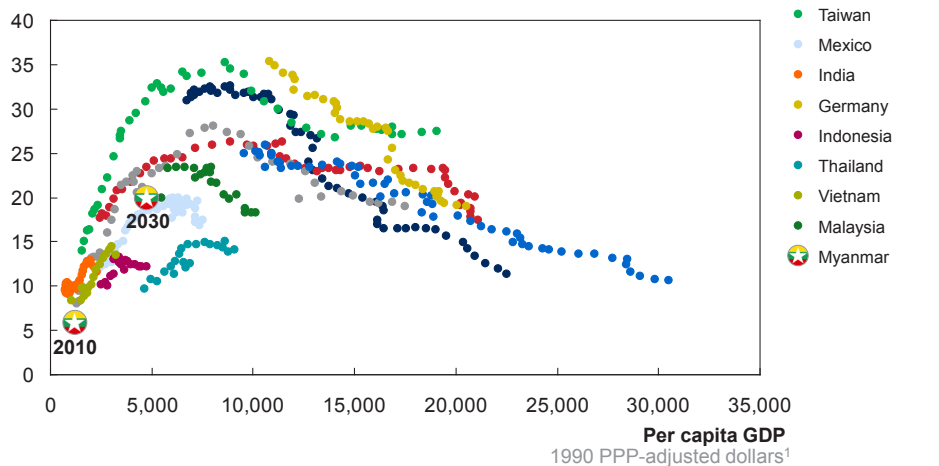
154 World Development Indicators, World Bank; Myanmar Central Statistical Office, *Statistical yearbook 2010–2011*.

155 For an extensive discussion of the role of manufacturing in the world economy, see *Manufacturing the future: The next era of global growth and innovation*, McKinsey Global Institute, November 2012.

156 Employment sector share data come from *ibid.*, *Integrated household living conditions survey*, UNDP et al., June 2011. The estimate for 2030 is based on manufacturing employment divided by total estimated employment.

157 *Ibid.*, *Manufacturing the future*, McKinsey Global Institute, November 2012.

158 *Statistical yearbook 2010–2011*, Central Statistical Organisation, Myanmar.

Exhibit 21**Manufacturing's share of total employment falls as economies grow wealthier, following an inverted U pattern****Manufacturing employment/total employment**
Percent

1 Adjusted using the Geary-Khamis method to obtain a 1990 international dollar, a hypothetical currency unit that allows international comparisons adjusted for exchange rates and PPP.

SOURCE: GGDC 10-Sector Database; Marcel Timmer and Gaaitzen J. de Vries, "Structural change and growth accelerations in Asia and Latin America: A new sectoral data set," *Cliometrica*, volume 3, issue 2, 2009; Conference Board Total Economy Database, January 2012; International Labour Organization; McKinsey Global Institute analysis

LOW LABOUR COSTS OFFER MYANMAR A COMPETITIVE ADVANTAGE IN MANUFACTURING—FOR NOW—BUT PRODUCTIVITY IS WEAK

In absolute terms, Myanmar's manufacturing sector is small compared with those of other developing economies.¹⁵⁹ The sector's output was about \$9.8 billion in 2010, roughly 57 percent the size of that in Bangladesh and about 47 percent of that in Vietnam.¹⁶⁰ Looking elsewhere in the region, Myanmar's manufacturing is dwarfed by that of Asia's manufacturing giants. In 2010, it was only 9 percent the size of the manufacturing sector in Thailand, 4 percent of that in India, and less than 1 percent of China's. Moreover, most manufacturing in Myanmar currently centres on low-value-added sectors including textiles, apparel, processed foods, beverages, wood products, and minerals. Even the few capital-intensive industries present today focus on low-value-added functions such as assembly.

The easy availability of low-cost labour can be a competitive advantage as Myanmar begins a transition to a modern economy. Average costs for factory labour in the country are among the lowest in the region. For example, the average wages of a Myanmar factory worker are about \$3 a day, compared with \$4 in Indonesia, \$5 in Vietnam, and \$18 in China and Thailand. In addition, Myanmar has a large working-age population, just slightly smaller than Thailand's. The country's endowment of natural resources—oil, gas, water, semi-precious gems, and agricultural crops—could provide the basis for value-added downstream manufacturing.

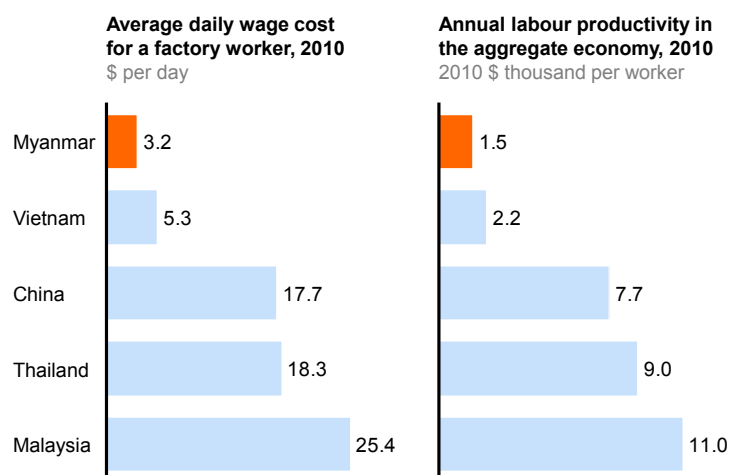
159 Ibid., *Statistical yearbook 2010–2011*, Central Statistical Organisation, Myanmar.

160 This is in real 2010 dollars.

However, while Myanmar's labour costs may be low, output per worker is also very weak. There are methodological issues with cross-country sector productivity comparisons, such as whether countries include informal labour in their estimates and the lack of sector-specific exchange rates. However, overall labour productivity appears significantly lower in Myanmar than in other Asian countries, so the cost advantage of Myanmar in output terms is likely to be significantly lower than that implied by the difference in labour costs. It is therefore crucial that any increases in minimum wage levels in Myanmar be accompanied by productivity improvements if Myanmar is to maintain a cost advantage in labour-intensive manufacturing sectors (Exhibit 22).

Exhibit 22

While low labour costs give Myanmar manufacturing a potential competitive advantage, this could be undermined by low labour productivity



SOURCE: International Monetary Fund; Sein Htay, *Burma Economic Review 2005–2006*, Burma Fund; International Labour Organization; *The Economist*; IHS Global Insight; interviews with embassy trade representatives in Yangon; McKinsey Global Institute analysis

MYANMAR CAN USE INTERNATIONAL EXPERIENCE TO GUIDE ITS APPROACH TO DEVELOPING MANUFACTURING

Labour-intensive, low-value-added manufacturing, including that of textiles, apparel, leather, furniture, and toys, is a natural next step for workers moving from farms into cities and looking for higher-paying jobs.¹⁶¹ The required skills are only slightly higher than needed for agricultural work, making the transition easier for urban migrants.

While the challenges facing Myanmar should not be underestimated, other countries have overcome similar obstacles, and their experience can act as a guide. In recent decades, Asian countries in particular have diversified their manufacturing sectors rapidly and moved towards higher-value-added activities (Exhibit 23). Countries that have successfully launched strong domestic manufacturing sectors have generally begun by carefully identifying areas with a clear potential for comparative advantage. For instance, Malaysia opted to take

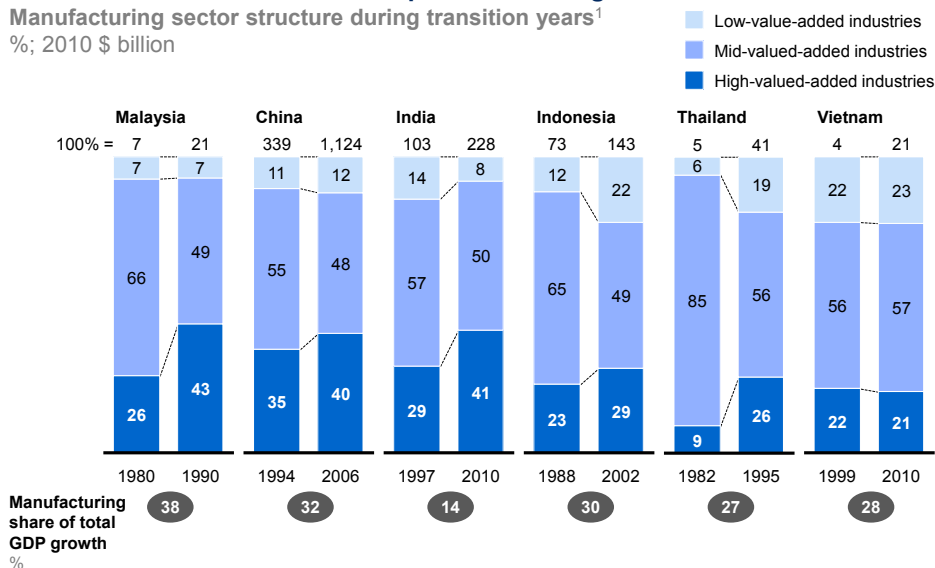
161 Low-value added refers to labour-intensive manufacturing such as apparel and furniture. Medium-value added refers to commodities-driven manufacturing such as food and beverages, and basic metals. High-value added refers to innovation and R&D-intensive manufacturing such as automobiles and pharmaceuticals.

advantage of its significant oil and natural gas reserves and Singapore of its strategic advantage in international shipping lanes. Such countries first leveraged their comparative advantages and then gradually moved to higher-value-added manufacturing and service industries. Most Asian countries have diversified their industry mix with higher-value-added manufacturing accounting for a greater share of the sector.

Exhibit 23

Asian countries diversified manufacturing towards higher-value-added industries and achieved 25 to 30 percent sector growth

Manufacturing sector structure during transition years¹
 %; 2010 \$ billion



¹ Years of per capita GDP journey similar to Myanmar between 2010 and 2030, with available data. Malaysia reached Myanmar 2010 levels pre-1980; India and Vietnam are not yet at Myanmar's 2030 potential GDP.
 SOURCE: IHS Global Insight; McKinsey Global Institute analysis

Thailand started from a base similar to Myanmar's today, using its agrarian economy for the raw materials to feed manufacturing activities such as food processing, textiles, handicrafts, and furniture, and taking advantage of labour costs that were lower than those of Japan and South Korea, Asia's leading manufacturers at the time. Similarly, Vietnam capitalised on the advantage of its low-cost labour and focused on sectors that attracted significant domestic demand. As a result, its manufacturing sector grew at a compound annual growth rate of 9.3 percent between 2005 and 2010, and labour productivity increased by 3.1 percent a year. Looking at the performance of various manufacturing sub-sectors, Vietnam's production of motor vehicles—primarily the import of complete knock-down kits for domestic assembly and sale—grew at an annual rate of 16 percent in this five-year period, ready-made clothes by 12.9 percent, and electrical equipment by 12 percent.¹⁶² Much of the success in Vietnamese manufacturing has been attributed to supportive government regulations and the removal of barriers to both foreign and domestic private investors.¹⁶³ Vietnam has implemented policies to ease restrictions on imports and put in place enterprise laws encouraging domestic private entrepreneurs. It has also reduced or removed state control in large state-owned enterprises (SOE).

¹⁶² *Vietnam autos report Q1 2012*, Business Monitor International, 2011; *ibid.*, *Sustaining Vietnam's growth*, McKinsey Global Institute, February 2012.

¹⁶³ Dwight Perkins and Vu Thanh Tu Anh, *Vietnam's industrial policy: Designing policies for sustainable development*, Ash Center for Democratic Governance and Innovation, Harvard Kennedy School, January 2010.

After their initial development phase, countries such as Malaysia, South Korea, Taiwan, and Thailand guided their economies to manufacturing and service sectors that were more sophisticated and diversified, required higher productivity and greater skills, and created greater value. After 1985, for example, Thailand actively promoted a strategy that supported growth in higher-value-added manufacturing sectors, favouring exporters. Policy measures included simplified regulation of processes and improved higher education. As a result, Thailand became an attractive location for assembly activities, especially in electronics used for machinery and transport and particularly for Japanese and South Korean manufacturers. During this phase of Thailand's development, the country's industrial base shifted to more capital-intensive and higher-value-added sectors including machinery, computers and computer parts, automobiles and automotive accessories, and electrical appliances, especially those with integrated circuits.

Not all aspects of industrial strategy were successful; the countries all made some mistakes. However, we believe that Myanmar can learn from their focus on education policy and on enabling a competitive level playing field through exposing local firms to international competition. Myanmar can also take into consideration lessons on safety and worker protection.

MYANMAR MAY BENEFIT FROM CONSIDERING A PHASED APPROACH TO DRIVING THE GROWTH OF MANUFACTURING

By understanding how other countries have succeeded in building a vibrant manufacturing sector, Myanmar can accelerate its own progress through the critical phases of development.

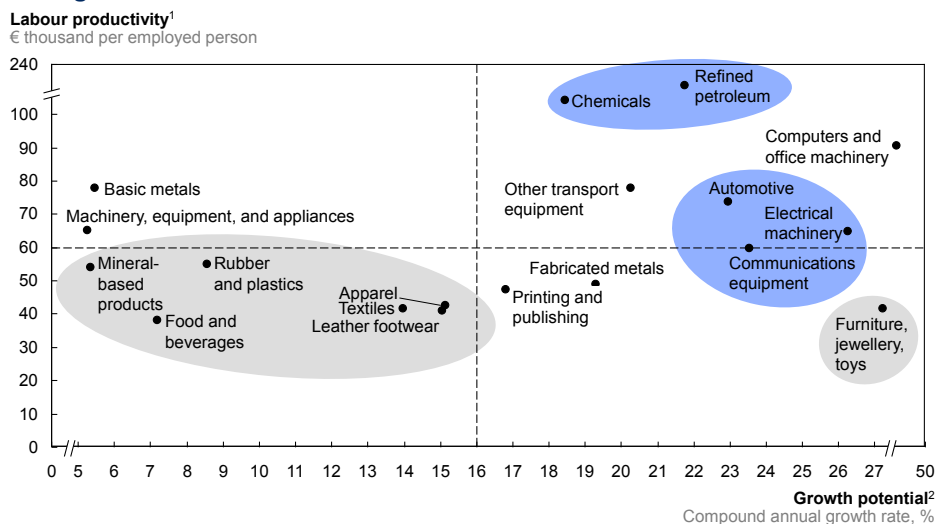
In the short term, Myanmar could focus on industries supported by significant domestic demand and with latent export potential, following a path similar to that taken by Thailand. Food and beverages, mineral-based products, textiles, apparel, footwear, furniture, jewellery, toys, and various rubber and plastic products all match the country's current capabilities and would benefit from high domestic demand. In addition, Myanmar could support the nascent development of an automotive industry, shifting more aggressively into assembly and potentially small parts manufacturing. As in other ASEAN countries, international players such as Suzuki have expressed interest in setting up assembly plants in Myanmar. Myanmar could usefully take advantage of technology and knowledge transfers from these global giants to nurture a domestic automotive industry. Industries with high export potential based on current comparative advantages include textiles, apparel, and wood products.

In the longer term, it would be beneficial if Myanmar were to begin to develop a few core industries with high growth potential and higher productivity, and where the country could feasibly develop the capabilities to compete successfully. Based on the experience of Thailand, these might include chemicals, refined petroleum, electrical machinery, and communications equipment, which are high-growth and high-productivity industries (Exhibit 24). Myanmar would benefit from actively seeking foreign investment in these industries. Thailand's largest foreign investment over the period from 1982 to 1995 was in electrical appliances, chemicals, metal products, and petroleum products.¹⁶⁴

¹⁶⁴ We use Bank of Thailand data for FDI by manufacturing industries from 1982 to 1995.

Exhibit 24

In the long term, Myanmar should consider aiming for fast-growing, high-productivity industries with strong consumer demand



1 German statistics used as an example of high-value-added manufacturing sectors in an advanced economy.
 2 Thailand's weighted average growth from 1982 to 1995 when per capita GDP growth was similar to Myanmar's estimated potential growth between 2010 and 2030.

SOURCE: IHS Global Insight; EU KLEMS; McKinsey Global Institute analysis

As well as looking at how other Asian countries with similar starting positions managed the evolution of their manufacturing sectors, Myanmar could usefully look at global demand for manufacturing products to ascertain which sub-sectors would be worth supporting. Fortunately, the sub-segments that Thailand focused on—and that suggest themselves for Myanmar—are expected to benefit from continued strong global demand.¹⁶⁵ In 2030, for example, the global market was projected to be \$8.5 trillion for chemicals, \$6.7 trillion for communications equipment, \$5.8 trillion for automobiles, and \$5.1 trillion for refined petroleum.

Developing a manufacturing sector during a resources boom can be challenging, given the risk of Dutch disease—the adverse effect on manufacturing exports of an appreciated exchange rate resulting from higher capital inflows from resources revenue. However, several countries have avoided Dutch disease. Norway established a sovereign wealth fund to mitigate the impact on its currency from the oil sector. Malaysia successfully adopted an export-led growth strategy in which its manufactured exports were not crowded out by economic windfalls from natural resources. Malaysia pulled this off by using resource revenue to finance economic diversification, maintaining an open economy, and practising tight monetary policy management. Government policy promoted export-oriented manufacturing industries through tax holidays, higher depreciation allowances, and resource revenue to develop industrial clusters and free trade zones. At the same time, Malaysia attracted FDI through an open economy, gradual liberalisation, and support for infrastructure.¹⁶⁶ Malaysia's example may prove to be useful to Myanmar as it seeks to balance growth across its manufacturing and resources sectors.

165 *World consumer demand 2030*, IHS Global Insight, April 2013

166 Paul Collier and Anthony J. Venables, eds., *Plundered nations? Successes and failures in natural resources extraction*, Palgrave Macmillan, 2011.

MYANMAR NEEDS SOLID FOUNDATIONS AND SUPPORT FOR INVESTMENT AND INNOVATION

The challenges Myanmar will face as it seeks to develop its manufacturing sector should not be underestimated. Our interviews suggest that Myanmar's government will have to play an active role in establishing the solid foundations needed for the sector and creating a supportive environment for investment and innovation.

Myanmar needs to create solid foundations to facilitate the development of its manufacturing sector

Manufacturers today face several obstacles to establishing operations in Myanmar, and the country would need to actively assist companies to overcome these obstacles if it hopes to build this sector. As part of our research, we conducted site visits and a survey at 30 local manufacturing firms in the Yangon region. We found that many companies faced similar challenges, including logistics and infrastructure, skills and education gaps, inadequate land provisions, scale challenges, and management quality.

Logistics and infrastructure

In 2012, Myanmar ranked 129th, lower than any of its Asian neighbours, of 155 countries on the World Bank's Logistics Performance Index.¹⁶⁷ Currently, Myanmar lags behind on all aspects considered, including the quality of infrastructure (e.g., ports, railroads, roads, IT) and its capabilities in logistics services. Consider one example to illustrate the challenges Myanmar faces on these dimensions. Primarily because of poor logistics and infrastructure, it costs about \$2,000 to ship a container from the Thai border to Yangon, but only \$500 to ship a similar container from the border to Bangkok, which is about 35 to 55 percent further depending on the starting point at the border.¹⁶⁸

Myanmar's manufacturing sector needs a more extensive and better functioning transport sector and logistics infrastructure. Well-developed roads, railways, waterways, seaports, and airports ease the production and distribution of manufactured goods. Transport infrastructure also offers indirect benefits by enabling sophisticated supply chains and growth in small businesses and consumer sales, as well as offering social benefits related to the development of communities, and access to jobs, shopping, and leisure opportunities. Any public and private investors in these fields would need to make long-term commitments.

167 The highest-ranked country was Singapore, and the lowest was Burundi.

168 Dwight Perkins, *Industrial policy reform in Myanmar*, Ash Center for Democratic Governance and Innovation at Harvard Kennedy School and Rajawali Foundation Institute for Asia, April 2012. We measured distance using the distance calculator of Google maps. Information about border towns comes from Pitch Pongsawat, *Border partial citizenship, border towns, and Thai-Myanmar cross-border development: Case studies at the Thai border towns*, University of California, Berkeley, 2007.

Stable electricity is one of the few absolute prerequisites for a manufacturing economy, but Myanmar's electricity supply is insufficient and unreliable. Only 13 percent of the population in Myanmar has access to electricity, although major urban centres have higher rates of electrification. This is compared with 24 percent in Cambodia, 41 percent in Bangladesh, 65 percent in Indonesia, 98 percent in Vietnam, and 99 percent in China, Malaysia, and Thailand.¹⁶⁹ None of the factory operators we interviewed had uninterrupted electricity from the power grid. Most have grid power for only four to five hours a day and use generators to supply power for an additional four to five hours, which leads to unnecessary costs, low asset utilisation, and lower productivity, eroding any competitive advantage gained from low labour costs. Daily single shifts are often just eight to nine hours, further contributing to weak productivity in the sector compared with the more common practice of running two or three shifts per day. Myanmar needs to consider how it can best provide reliable, constant power from the national grid to its manufacturers, businesses, and households.

Skills and education gaps

While low-cost, low-skill labour could give Myanmar manufacturing an immediate boost, future growth could be dampened by a shortage of skilled workers, especially as the sector rises up the value-added curve. In 2010, only 5 percent of the country's workers had tertiary and higher education credentials, and only 15 percent had finished secondary education. This is a poor record compared with other developing Asian peers. For example, about 30 percent of workers in Vietnam and Thailand have a secondary education; in Indonesia, the share is almost 50 percent, and in China and Malaysia, it is about 60 percent.¹⁷⁰ Employers in Myanmar also complain that many workers are not adequately prepared for jobs and that vocational and technical training is lacking. Skilled technical workers and service professionals such as lawyers and accountants are especially scarce. Our survey found that less than 15 percent of these companies had any employees with advanced degrees.

The government can play a useful role in raising the long-term supply of skills to meet demand by boosting the output of the education system; eliminating barriers to job creation, especially in sectors that employ low- and semi-skilled workers; and creating a vocational training system that helps new job entrants as well as workers changing jobs in mid-career. Innovation is also necessary to raise the productivity of the education sector and thereby maximise scarce resources (see Box 8, "The skills gap in Myanmar").

169 David Dapice, *Electricity in Myanmar: The missing prerequisite for development*, Ash Center for Democratic Governance and Innovation at Harvard Kennedy School and Rajawali Foundation Institute for Asia, May 2012.

170 We used data for Myanmar and all comparison countries from World Development Indicators, World Bank, 2010; *percentage of population by educational attainment*.

Box 8. The skills gap in Myanmar

Drawing on a recent MGI study on global labour markets, the experience of other economies, and our discussions and research on the ground in Myanmar, we estimate that the number of semi-skilled and skilled workers in Myanmar could double from almost 6 million in 2010 to about 12 million in 2030.¹ However, these projections, which already assume an increased government focus on public education, would still fall 13 million workers short of expected demand in 2030 (Exhibit 25). Our estimates suggest that demand for higher-skilled employees is likely to be 26 million in 2030. Projected demand for low-skilled workers is likely to fall—by what amount depending on how much and how quickly Myanmar moves away from agriculture towards higher-value-added industries. However, although we expect the share of low-skilled workers in Myanmar’s workforce to fall from 80 to 69 percent, the absolute number of these workers could rise from 24 million in 2010 to 26 million in 2030.² This means that as many as 11 million people with low skills levels—or about half the total of such people—could be left unemployed.

Closing the skills gap would require significant investment and innovation with the government working in partnership with the private sector. In 2011, for example, public expenditure on education in Myanmar was less than 1 percent of GDP, compared with about 3 percent in both Laos and Cambodia and 4 percent in Thailand.³ Myanmar clearly needs to invest in schools at all levels of the educational system, but at the same time it needs to improve the quality of education. Among the lessons arising from international experience of education reform are to make teaching careers more attractive by creating a more tailored and appealing teacher value proposition; to raise the bar on what it takes to become a teacher; to improve pre-job and on-the-job training for teachers; and, finally, to align the educational system with demand for skills by businesses more carefully, an aspect on which the private sector can provide valuable input.⁴ At the same time, vocational training needs to be bolstered to cater to the large numbers of people who are working but who will not reap the rewards of educational reform and whose skills still need to improve.

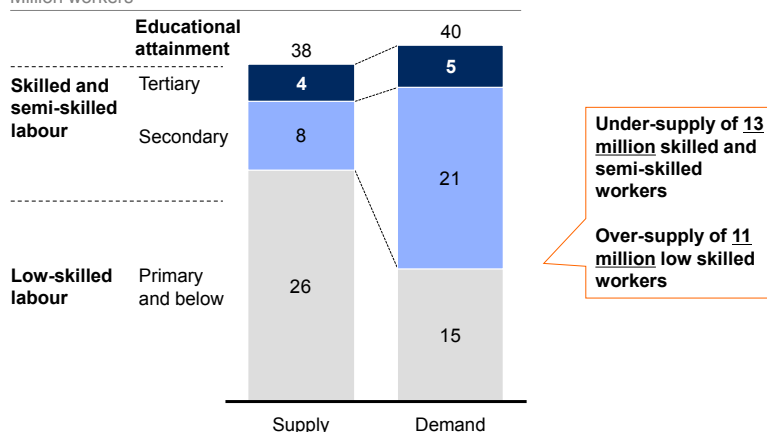
Exhibit 25

Myanmar could have too few semi-skilled workers and not enough jobs for those with low skills

2030 estimates

Workforce supply vs. demand

Million workers



NOTE: Numbers may not sum due to rounding.

SOURCE: Central Statistical Organisation, Myanmar; United Nations Population Division; US Census Bureau; World Bank; McKinsey Global Institute analysis

- 1 To aid in comparison across countries, we use as a proxy for “semi-skilled” and “skilled” workers those with secondary or tertiary educational qualifications. See *The world at work: Jobs, pay, and skills for 3.5 billion people*, McKinsey Global Institute, June 2012.
- 2 We use as a proxy for “low-skilled” workers those who have completed a primary education or less.
- 3 *Public spending on education, total (percent of GDP)*, World Development Indicators, World Bank, 2011.
- 4 *The archipelago economy: Unleashing Indonesia’s potential*, McKinsey Global Institute, September 2012.

Inadequate land provisions

Local and foreign businesses in Myanmar are today disadvantaged by the soaring price of industrial land in Myanmar. In particular, land surrounding SEZs such as Thilawa and Dawei has dramatically increased in price—five-fold in the case of Thilawa—because of high demand.¹⁷¹ These price increases largely reflect the activity of speculators who are buying land simply to resell it at a higher price. It is often the case that many plots are owned by a single person, creating monopoly-type conditions. For now, existing industrial parks in Myanmar offer low rentals of around \$0.20 to \$0.30 per square metre.¹⁷² This is slightly higher than is the case in Vietnam at \$0.10 per square metre and much lower than in Indonesia at \$3.90, China at \$4.00 per square metre, and Thailand at \$6.90.¹⁷³ However, if speculation continues, the prices in Myanmar could soon rise.

Another land-related issue that hampers manufacturing is the inadequacy of access rights and ownership registries. Poor records and regulations that leave land ownership unclear and inadequate housing in both rural and urban areas contribute to difficulties faced by companies trying to find adequate building sites. Moreover, if disputes arise over land, Myanmar currently offers no meaningful legal recourse and no national legal-aid programme to ease access to the justice system.¹⁷⁴ Certifying land rights in a way that is fair and equitable, particularly those relating to customary and communal use, is a major challenge and a familiar issue for other countries that are making the transition to become modern economies.¹⁷⁵

Any land reform needs to address taxation, land valuation, and zoning. A new land taxation regime for Myanmar could focus first on taming speculation and second on raising revenue. There are various models for assessing the value of land. Several Asian countries use independent assessors; Singapore uses rentable value for buildings and market value for development land. Both systems depend on there being a sufficient number of reported transactions in the location, which could prove challenging in Myanmar. One option would be to use a set formula based on land area, property type, and land class, as Malaysia does for its Quit Rent tax.¹⁷⁶ Another land issue Myanmar needs to address is that of zoning. International experience suggests an explicit zoning regime is an effective way to allocate land for industrial use, as is demarcating land for industrial parks and SEZs.

171 “Some industrial land zone prices are among the highest in the world”, *Eleven Media Group*, January 14, 2013.

172 *22nd survey of investment related costs in Asia and Oceania*, Japan External Trade Organization, April 2012.

173 *Ibid.*

174 *Myanmar at the HLP crossroads: Proposals for building an improved housing, land and property rights framework that protects the people and supports sustainable economic development*, Displacement Solutions, October 2012.

175 *Ibid.*, *The archipelago economy*, McKinsey Global Institute, September 2012.

176 Pejabat Daerah & Tanah Jasin website (www.pdtjasin.gov.my/en/online-services/e-calculator/computation-of-yearly-land-tax-rate.html).

Scale challenges

Almost all of Myanmar's manufacturers are small companies with ten employees or fewer, which implies that the sector in Myanmar does not have the benefit of scale advantages today and also lacks access to capital. The lack of more modern equipment in the country is evidence that this is the case. About 80 percent of the machinery in use is imported, mainly from China, India, Japan, Singapore, South Korea, Taiwan, and Thailand, according to our interviews, and about half this equipment is ten to 20 years old and has never been modernised. Attracting foreign investors, which tend to be large businesses and therefore able to enjoy economies of scale, especially in capital-intensive industries such as automotive parts and assembly, chemicals, communications equipment, and electrical machinery, would be an effective way not only to gain access to capital, but also to support skills development and technology transfer as well as improve capital productivity.

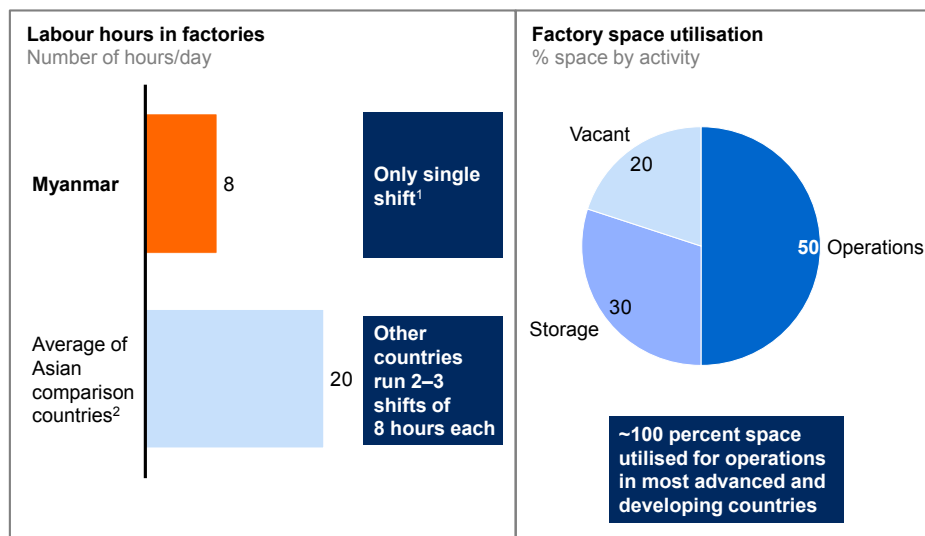
Management quality

Management quality in Myanmar's manufacturing sector is yet to be developed. There has been only limited adoption of proven best-practice techniques in areas such as product development and engineering, channel management, and operations. Because of a combination of gaps in management productivity and infrastructure bottlenecks such as insufficient electricity supply, the average daily labour hours in Myanmar manufacturing firms worked are only around 40 percent of the levels in other Asian economies. Most firms in Myanmar operate only single shifts; in the rest of the region, two or three shifts are common. Asset utilisation is therefore low.¹⁷⁷ Furthermore, in about half of the factories of those firms, less than 50 percent of the total factory floor space was used for operations, and less than one-third had separate warehouses for storing inventory (Exhibit 26). By implementing best practices in these areas, productivity could be significantly improved using existing capacity.

Exhibit 26

Myanmar can improve productivity with better use of existing capacity

Average of 30 firms surveyed



¹ Factory hours limited in Myanmar due to insufficient electricity to run multiple shifts.

² Comparison countries include China, India, Indonesia, Malaysia, Thailand, and Vietnam and are based on interviews with McKinsey experts

SOURCE: Focus group of Myanmar manufacturing firms, April 2013; International Labour Organization; McKinsey Global Institute analysis

Supporting SMEs and SEZs would help to spur investment and innovation

As Myanmar seeks to encourage a transition to higher productivity sectors, it needs to consider how to build up the country's investment and innovation capacity. Establishing competitive trade policies and simplifying trade processes are important (see our discussion of the globally connected economy later in this chapter). A focus on supporting the growth of SMEs and developing nascent SEZs could also prove effective.

Other countries have improved SMEs' access to financing, instituted programmes to develop entrepreneurship and management capabilities, and simplified the business environment to develop a strong SME sector. Regulation is particularly important. The World Bank has found that economies that rank highest on the ease of doing business are not those where there is no regulation but those where governments have created rules that facilitate interactions without unnecessarily hindering the development of the private sector.¹⁷⁸

Well-planned industrial parks have been an integral element in the successful development of the manufacturing sector in many countries including China, India, Indonesia, Malaysia, South Korea, Singapore, Taiwan, Thailand, and Vietnam. Industrial parks are typically industrial clusters with dedicated infrastructure, while SEZs may also offer a favourable regulatory environment that often includes customs exemptions. Whichever of the two a country favours, they both help to create economies of scale for their tenants and commercial network effects that reach across entire value chains.

Myanmar already has plans for several SEZs and might want to keep the following key principles in mind to help ensure their successful development:

- **Clear strategy with quantified and prioritised objectives.** Zones should have a clear priority such as technology transfer or job creation.
- **Defined focus on specific industries or sectors and final markets.** Morocco, for instance, developed several industrial zones, each dedicated to a specific industry cluster, with ample access to transport infrastructure. The country identified the products in which it had a competitive advantage in cost and strategic capabilities and decided to focus on the automobile industry.¹⁷⁹
- **Attractive location.** Efficient access to domestic and international markets through seaports, airports, and other transportation nodes, as well as physical and technological infrastructure, can all encourage investment.
- **Favourable regulatory regime.** Among the inducements that attract foreign investors to an industrial park are general incentives such as beneficial taxation and financial flows, support for training, fast and smooth administrative processes, and measures specific to the particular focus of the park such as intellectual property protection, assisted regulatory approval processes, and other incentives that target large investors.

¹⁷⁸ *Doing Business 2013: Smarter regulations for small and medium-sized enterprises*, World Bank, 2013.

¹⁷⁹ Fouad Sefrioui, "Industrial zones experience in Morocco", *Journal of Economic Cooperation among Islamic Countries*, volume 20, number 1, 1999.

- **Performance-based governance model.** The best type of governance and business model has clear performance targets that are enforced. The model can vary. In Shenzhen, a professional SOE developed, operated, and promoted the SEZ. In Turkey, organised industrial zones are governed by public regulations and overseen by decision-making bodies made up of private stakeholders.¹⁸⁰
- **Simplified organisation and processes.** Zones could, for example, offer one-stop shops to handle needs such as taking out leases, making utility connections, and providing relocation services; provide specialised and general services; and help to recruit and retain talented workers. Morocco provides specialised services to the automobile manufacturing sector, including a metrology/inspection lab and International Organization for Standardization (ISO) certification.¹⁸¹

□ □ □

To build the manufacturing sector, Myanmar would need to actively consider how to remove a range of barriers that today impede growth and do all it can to encourage investment and innovation. In stages, this would allow the sector to rise up the value chain and make an even more valuable contribution to the economy.

180 Esen Çağlar, *Turkey's economic transformation and role of Organized Industrial Zones*, Economic Policy Research Foundation of Turkey, April 2010.

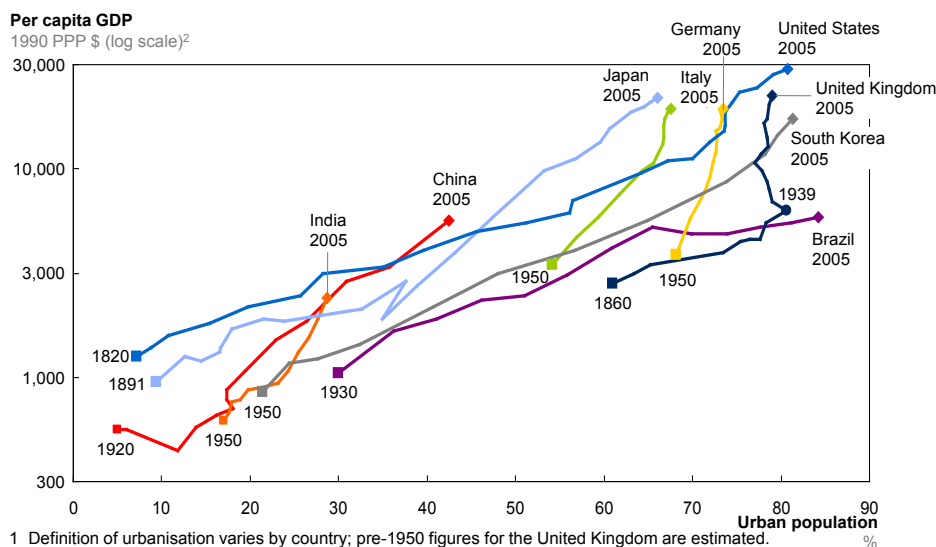
181 Alexander Böhmer, *Key lessons from selected economic zones in the MENA region*, MENA-OECD Investment Programme, March 2011.

Urbanisation: Anticipating and managing the shift

The world is experiencing a wave of urbanisation that is unprecedented in its speed and scale—and Asian cities are in the vanguard of this seismic shift. Globally, the population of cities is growing by 65 million people every year. By 2025, the burgeoning cities of Asia are on course to being home to 2.5 billion people—more than half of the world's entire urban population. As economies develop, their population move to the cities. There is a close relationship between per capita GDP and urbanisation—they move in tandem with different speeds and scales (Exhibit 27).¹⁸²

Exhibit 27

Per capita GDP has risen in tandem with increases in the urbanisation rate Per capita GDP and urbanisation¹



1 Definition of urbanisation varies by country; pre-1950 figures for the United Kingdom are estimated.
 2 Historical per capita GDP series expressed in 1990 Geary-Khamis dollars, which reflect PPP.
 SOURCE: Population Division of the United Nations; Angus Maddison via Timetrics; IHS Global Insight; census reports of England and Wales; Gail Honda, "Differential structure, differential health: Industrialization in Japan, 1868–1940", 1997; Paul Bairoch, *The economic development of the Third World since 1900*, Methuen, 1975; McKinsey Global Institute analysis

While Asia has developed and urbanised, Myanmar has largely remained rural. The lack of lights viewed from space illustrates this in a striking way (Exhibit 28).

But this picture could change quickly, and Myanmar needs to prepare proactively for its urbanisation. Experience from around the world shows that well-managed urbanisation is likely to enhance growth and living standards; badly managed urbanisation could lead to under-performance and social stress. Myanmar has the opportunity to learn from the successes and failures of others.

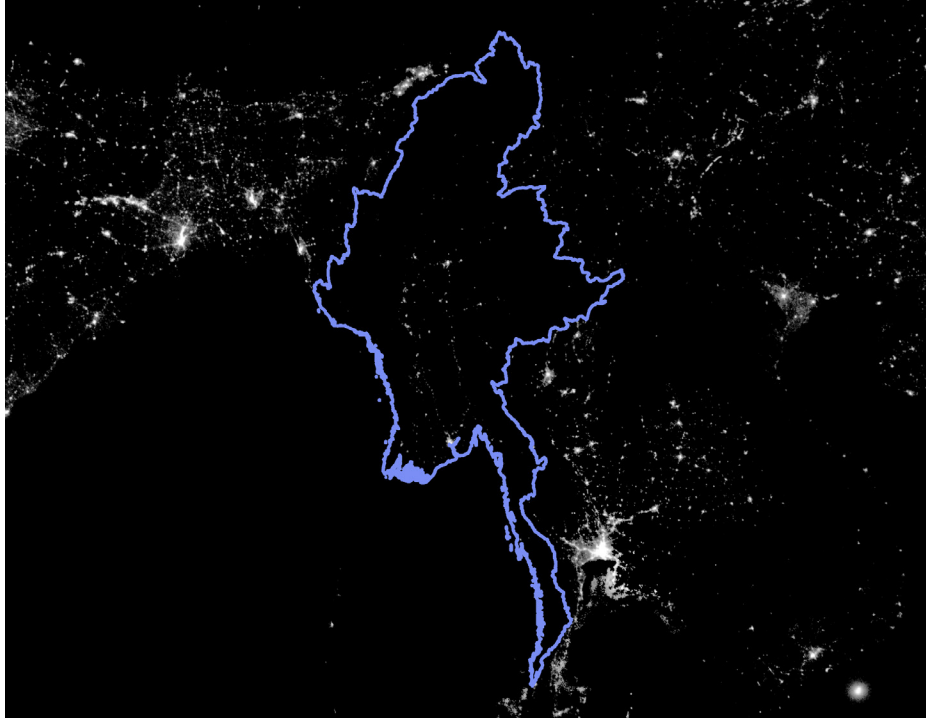
182 MGI has published extensively on urbanisation. See *Preparing for China's urban billion*, March 2009; *ibid.*, *India's urban awakening*, April 2010; *Urban world: Mapping the economic power of cities*, March 2011; *Building globally competitive cities: The key to Latin American growth*, August 2011; *Urban America: US cities in the world economy*, April 2012; and *ibid.*, *Urban world: Cities and the rise of the consuming class*, June 2012.

Exhibit 28

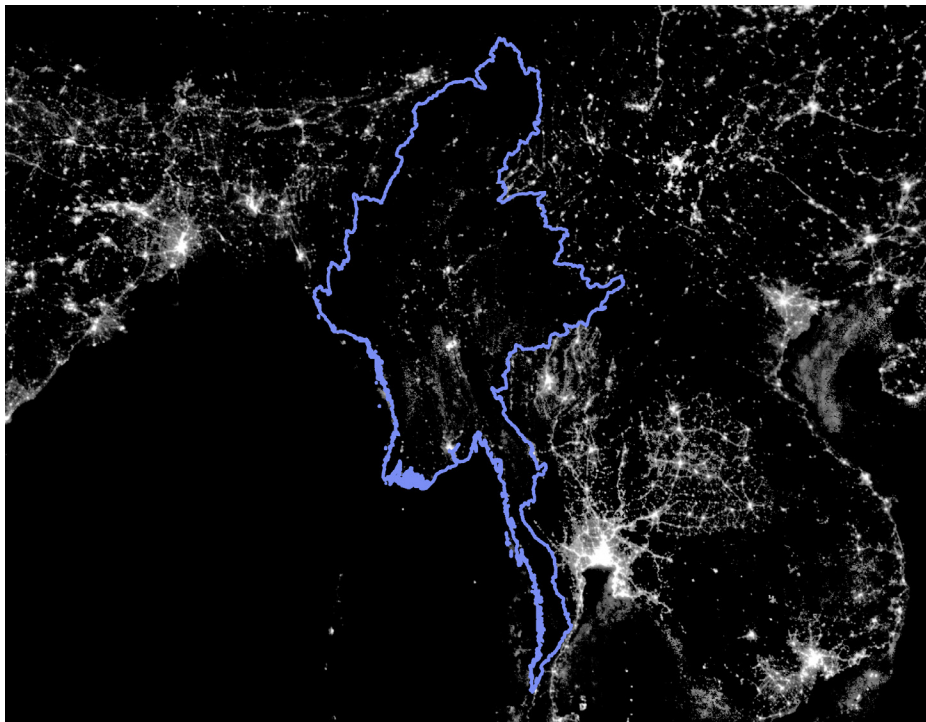
The amount of light from Asian cities has grown as they have developed between 1992 and 2010, while Myanmar has remained dark

Night-time satellite image

1992



2010



SOURCE: National Geophysical Data Center; National Oceanic and Atmospheric Administration; US Air Force Weather Agency; McKinsey Global Institute analysis

BY 2030, TEN MILLION MORE PEOPLE COULD LIVE IN MYANMAR'S LARGE CITIES

Myanmar today is largely a rural country. Although data on the rate of urbanisation are difficult to verify given that there has not been a census since 1983, what data are available suggest a very low level of urbanisation.¹⁸³ In 2009, only eight million people, or 13 percent of Myanmar's population, lived in large cities, which we define as having more than 200,000 inhabitants.¹⁸⁴ By comparison, 37 percent of the population in regional benchmark countries lived in large cities. Aside from the two large cities Yangon and Mandalay, only eight cities in Myanmar have reached population levels exceeding 200,000, compared with 32 such cities in Thailand and 16 in Vietnam.

However, our analysis suggests that the population living in large cities could grow at an average annual rate of 4.1 percent between 2010 and 2030, compared with just 0.2 percent in smaller cities and in rural areas and 0.9 percent in Myanmar overall. The number of large cities in Myanmar could increase from ten today to around 25, and they could be home to around 18 million people, or one-quarter of the total population (Exhibit 29). This addition of ten million people—due to a combination of rural to urban migration, births in cities, and immigration from overseas—is equivalent to adding the entire populations of two cities the size of Yangon (Exhibit 30).¹⁸⁵

Both “pull” and “push” factors will drive urbanisation in Myanmar

Many factors could determine the exact extent and nature of urbanisation over the next 20 years. Millions of households throughout the country—and those currently residing overseas—are likely to make decisions based on myriad factors that are impossible to predict with any certainty. It is nevertheless useful to anticipate the “pull” and “push” factors that might determine the speed and breadth of Myanmar's urbanisation.

183 Because of different definitions, there is a wide variety of ways that individual countries report their rural and urban populations to the United Nations. “Urban” can be defined as agglomerations of more than 600 people (as in Laos) or 50,000 people (as it is in Japan)—and, indeed, any number in between. There is no publicly available data set on urbanisation that has a common definition. The United Nations suggests that Myanmar's urban population today accounts for 32.1 percent, which appears to be high given the country's comparatively low stage of development. For this reason, we chose to base our analyses on cities with a population above 200,000, the definition used in McKinsey Global Institute's Cityscope 2.0—a database of more than 2,600 cities around the world and, to our knowledge, the largest of its kind. This allowed us to compare data on cities across a set of relevant regional countries with data on cities in Myanmar, which were provided by the Department of Human Settlement and Housing Development. These data include ten urban centres in Myanmar with populations above 200,000 in 2009. For more detail, please see the technical appendix.

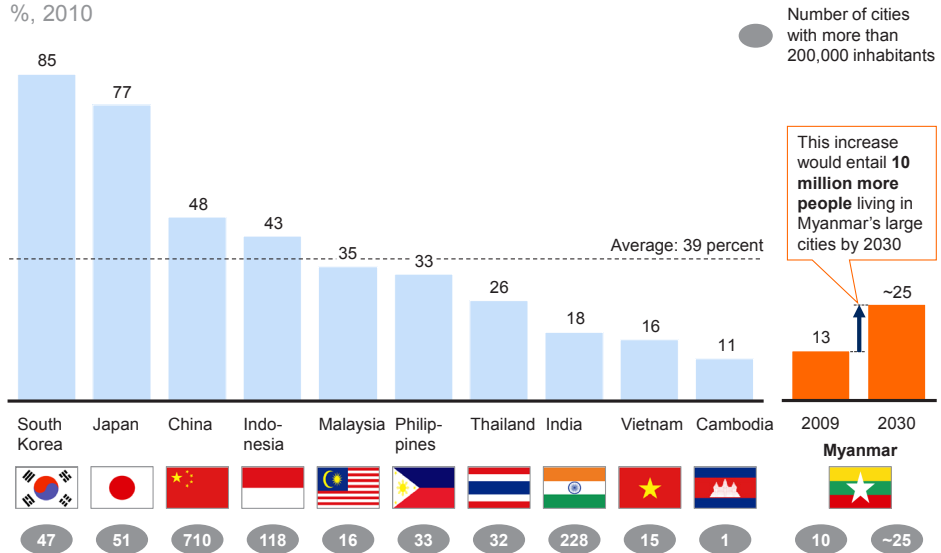
184 Department of Human Settlement and Housing Development, Ministry of Construction, Myanmar, compiled from data provided by the Ministry of Immigration and Manpower, Myanmar, September 2011.

185 We base these projections on an analysis of the relationship between economic growth and urbanisation in Asian countries during periods when their per capita increased from the level in Myanmar today to the level that would be reached if Myanmar's GDP were to grow at an annual rate of 8 percent in the period to 2030. See the technical appendix for more detail on our methodology.

Exhibit 29

Myanmar’s population living in large cities with 200,000 plus inhabitants, could double from just 13 percent to one-quarter of the population in 2030

Share of country population living in cities of more than 200,000 inhabitants
%, 2010

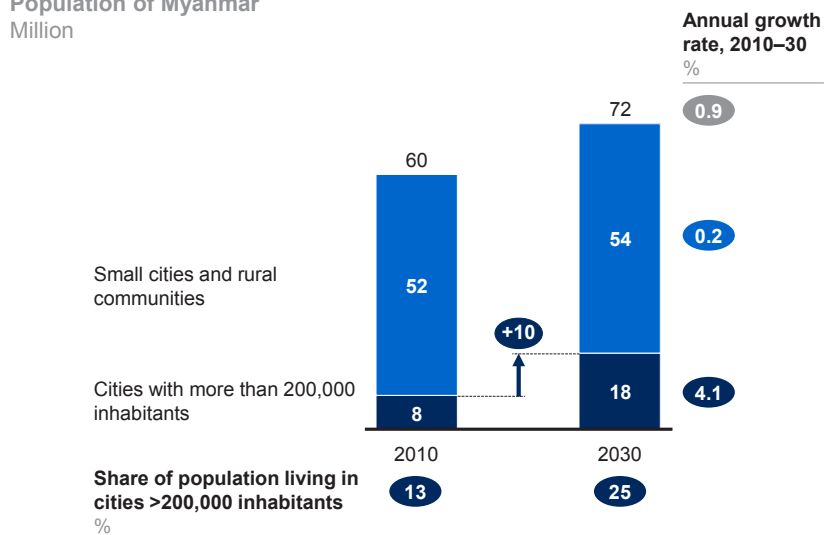


NOTE: Share of country population living in cities of more than 200,000 is not the same as the urbanisation rate.
SOURCE: McKinsey Global Institute Cityscope 2.0 database; Department of Human Settlement and Housing Development, Ministry of Construction, Myanmar; McKinsey Global Institute analysis

Exhibit 30

Between 2010 and 2030, ten million more people could live in Myanmar’s large cities—equivalent to two cities the size of Yangon

Population of Myanmar
Million



SOURCE: United Nations, *World population prospects: The 2010 revision*; national statistical offices; IHS Global Insight; The Conference Board Total Economy Database; Department of Human Settlement and Housing Development, Ministry of Construction, Myanmar; McKinsey Global Institute Cityscope 2.0 database; McKinsey Global Institute analysis

Pull factors attract people from rural communities to make the move to urban areas in search of economic opportunity and a better life, as we have observed in so many other countries.¹⁸⁶ If Myanmar succeeds in building its manufacturing sector, the majority of the jobs created are likely to be in, or close to, cities. The same is true of jobs in the construction industry and in service sectors as they develop. If jobs or entrepreneurial opportunities are available, migrant workers could return from overseas, too.

In addition, push factors could cause people to move to Myanmar's cities even if there is no certainty of making a better living in the city.¹⁸⁷ Any improvement in agricultural productivity through investment in more productive capital and machinery could mean that many agricultural workers would be able to leave rural areas to look for jobs and higher incomes in other sectors and in cities. Large families with small farms often have no other choice but to pass on the farm to one child, while the others tend to seek a life in the city. Around one-quarter of Myanmar's rural households do not have title to their land and are often under-employed.¹⁸⁸ This might persuade them to try their luck in one of Myanmar's cities even without solid assurance of a job. The lack of social services in rural communities is another push factor. Experience from other countries suggests that people from rural communities move to cities because they have the perception that they are more likely to have access to health care, education, and other services there.

Historically, the impact of push factors on urbanisation in Myanmar was limited by the government's strict enforcement of the requirement for people to live in the place noted on the household registration list. However, anecdotal evidence suggests that the enforcement of this system is beginning to weaken.

If push factors are the main driver of urbanisation rather than the pull factor of clear opportunities for a better livelihood in the city, urbanisation could pose big challenges. Investing in rural development at the same time as urban development may offer a way to avoid overwhelming cities with migrants who are pushed off their land rather than attracted by the city. Fortunately, the evidence suggests that rural and urban development go hand in hand (see Box 9, "The connections between urban and rural development").

Large cities could deliver more than half of economic growth to 2030 and facilitate social progress

Myanmar's urban areas could be centres of economic growth. Our analysis suggests that the nation's large cities alone are likely to deliver around 54 percent of overall GDP growth between 2010 and 2030, and the quarter of Myanmar's population living in these cities will account for roughly half of Myanmar's GDP in 2030 (Exhibit 32). Once Myanmar has a functioning tax regime, the majority of tax revenue is likely to come from cities, too. In India, for instance, cities generate between 80 and 85 percent of all tax income.¹⁸⁹ Experience from other countries

186 *Myanmar agriculture in 2011: Old problems and new challenges*, Ash Center for Democratic Governance, Harvard Kennedy School, November 2011.

187 Cecilia Tacoli, *Rural-urban linkages and pro-poor agricultural growth: An overview*, prepared for the OECD DAC POVNET Agriculture and Pro-Poor Growth Task Team in Helsinki, June 17–18, 2004.

188 *Ibid.*, *The integrated household living conditions survey*, UNDP et al., June 2011.

189 *Ibid.*

Box 9. The connections between urban and rural development

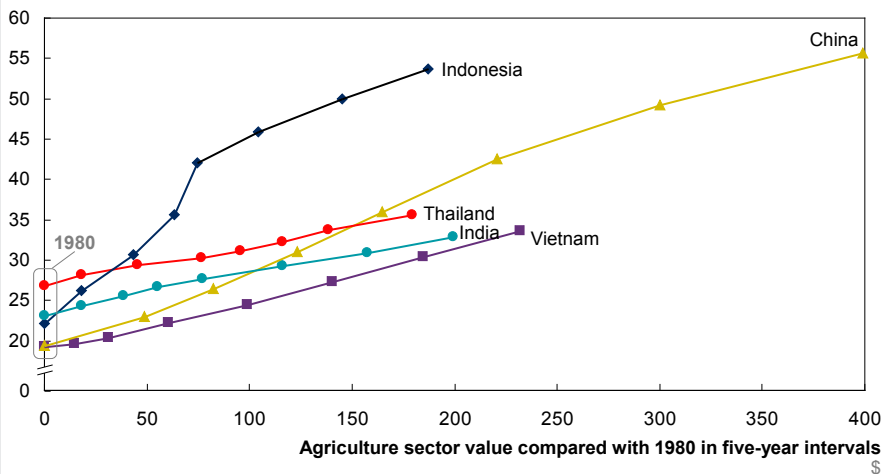
Historically, Myanmar's urban and rural populations have always had tight links. While the primary social unit for rural communities in many countries is the village, in Myanmar it has been the regional town where the ruling family had its fortress.¹ Today, travel, business, and communication among rural communities and regional towns remain commonplace. This strong economic and social connection between Myanmar's urban and rural populations is expected to increase further during urbanisation and will contribute to rural development as the country shifts towards more city living. Across countries, a shift towards cities tends to be accompanied by increased agriculture sector value (Exhibit 31).

Exhibit 31

In Asia, increasing rates of urbanisation have gone hand-in-hand with large increases in the value of the agricultural sector

Urbanisation rate

Urban/total population (%)



NOTE: First data point per country, 1980; last data point per country, estimated for 2015.

SOURCE: IHS Global Insight; United Nations, *World population prospects: The 2010 revision*; national statistical offices; McKinsey Global Institute analysis

Two particularly important dynamics are at play.² First, urbanisation helps to finance productivity improvements in agriculture. Rural communities often urbanise in stages. The first urban arrivals tend to send remittances back to family members in the countryside, enabling them to afford better inputs and machinery. As agricultural productivity increases, it frees up more farm workers, many of whom will opt to try out life in cities—a mutually beneficial cycle. Second, urbanisation increases demand for agricultural products. With fewer people living directly off the land, the quantity of traded crops increases. When people migrate from rural to urban areas, their incomes and consequently diets tend to improve, and this boosts demand for higher-value and perishable crops. The value of agricultural production tends to rise most strongly in areas near fast-growing cities.³ MGI research on India has found that the per capita GDP of the rural population living close to cities is 10 to 20 percent higher than that of those who live in rural areas farther away from urban centres.⁴

1 Thant Myint-U, *The river of lost footsteps: A personal history of Burma*, Farrar, Straus and Giroux, 2006.

2 For further discussion on this point, see, for example, Hermann Waibel and Erich Schmidt, *Feeding Asian cities: Food production and processing issues*, presented at the CityNet, AFMA, FAO Regional Seminar on "Feeding Asian Cities" in Bangkok, November 27–30, 2000; *ibid.*, Cecilia Tacoli, *Rural-urban linkages*, June 17–18, 2004.

3 *Ibid.*, *India's urban awakening*, McKinsey Global Institute, April 2010.

4 *Ibid.*

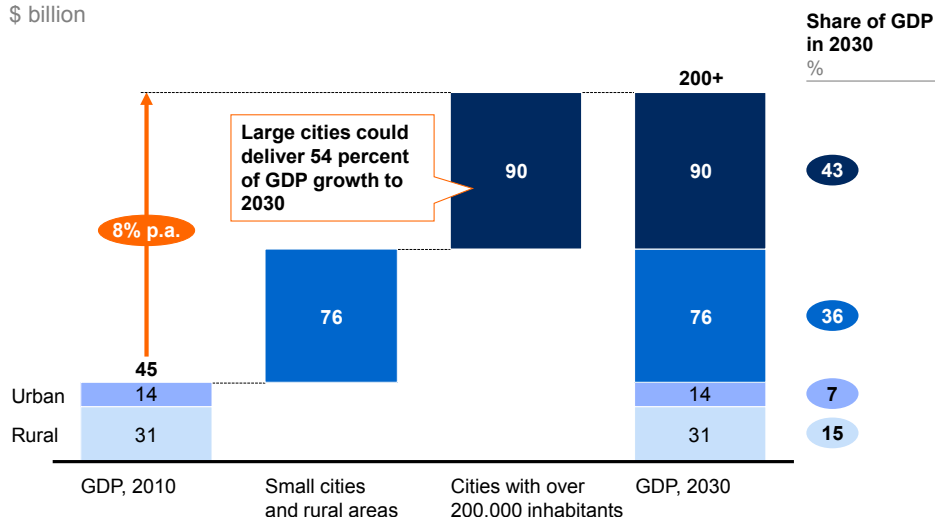
suggests that smaller cities will emerge as spokes around larger hub cities, creating dynamic economic clusters.¹⁹⁰

Exhibit 32

Assuming Myanmar's GDP grows at 8 percent per year to 2030, large cities could potentially generate more than half of national GDP growth

Myanmar's economic growth to 2030

\$ billion



SOURCE: United Nations World Population Prospects: The 2010 Revision; national statistical offices; IHS Global Insight; The Conference Board Total Economy Database; Department of Human Settlement and Housing Development, Ministry of Construction, Myanmar; McKinsey Global Institute Cityscope 2.0 database; McKinsey Global Institute analysis

Given that today the vast majority of the population of Myanmar makes a living in the countryside, it may seem counterintuitive that more than half of economic growth is likely to come from large cities. However, there is ample evidence from urbanisation throughout world history—and particularly strikingly since the Industrial Revolution in Britain in the 19th century—that cities drive rising incomes. Economic historians tell us that the per capita GDP of people living in cities is two to three times that of the average of those who live in the countryside.¹⁹¹ Currently, per capita GDP in Asia's large cities is on average 2.9 times that of the rest of the country.¹⁹²

The economic and social power of cities may be a great opportunity for Myanmar. Successful cities are centres of economic growth because their density offers significant economies of scale and network effects. Many social services can be provided more efficiently in an urban setting. McKinsey research has found that the delivery of a number of social services, like piped water, is up to 50 percent less costly in large cities.¹⁹³ Businesses have direct access to a broader base of customers, employees, suppliers, and capital. In emerging markets, international companies have large cities on their strategic radar much sooner than smaller cities that are less well known. Once there is a critical mass of companies in a city, more tend to cluster around them. Often, satellite cities emerge beyond the city limits, with strong business and transport links, creating powerful network effects. Finally, economic activity thrives in cities because of knowledge spill-over—the exchange of ideas among individuals and firms that occurs in more

190 Ibid., *Preparing for China's urban billion*, McKinsey Global Institute, March 2009.

191 Ibid., *Urban world: Cities and the rise of the consuming class*, McKinsey Global Institute, June 2012.

192 McKinsey Global Institute Cityscope 2.0 database.

193 Ibid., *India's urban awakening*, McKinsey Global Institute, April 2010.

dense population centres—that spurs on innovation and the performance of the private sector.¹⁹⁴ Because cities tend to have better educational facilities and a disproportionate number of skilled workers, they attract businesses that create jobs, and, in turn, attract more people. In India, attainment of higher education is increasing five times as fast in urban households as in rural households. Shanghai alone produces 100,000 or more graduates every year from 60 institutions; more than one-quarter of the city’s labour force has been to college.¹⁹⁵

Myanmar’s urban future lies beyond just Yangon

The pattern of urbanisation—or the distribution of cities around the nation—varies from country to country and among regions. Often, urban growth happens organically, reflecting a country’s political framework, resource endowment, and external forces. For instance, in Germany and the United States, both of which have federal systems with powerful states, there are many major cities across the nations—a dispersed pattern.¹⁹⁶ Latin America’s very largest cities are often the capitals of the region’s constituent countries—a concentrated urban shape.¹⁹⁷

The shape has consequences. Although concentration captures greater economies of scale, it also creates greater challenges for governance as there is a higher risk that cities become too big to carry their own weight. Some of Latin America’s megacities (with populations of ten million or more—twice the size of Yangon today) have not been able to manage their expansion and have run into diseconomies of scale such as congestion and pollution, which start to outweigh scale benefits, diminish the quality of life for citizens, and sap their economic dynamism.¹⁹⁸

Myanmar’s urban structure today is heavily dominated by the municipal area of Yangon, which has a population of around five million. The second city, Mandalay municipality, has only about one million inhabitants, and the third, Mawlamyine, only around half a million. Of course, Yangon is nowhere near large enough yet to run into the diseconomies of scale that some of the world’s megacities face. Nevertheless, while Yangon is likely to continue to dominate Myanmar’s urban structure, an exclusive focus on the nation’s commercial centre would not necessarily confer the most economic and social benefits. One spatial economic analysis of Myanmar suggests that a uni-polar development model would not

194 There is a large body of literature on urban economics focused on assessing the nature and size of urban economies of scale. See, for example, Edward L. Glaeser and Joshua D. Gottlieb, *The wealth of cities: Agglomeration economies and spatial equilibrium in the United States*, NBER working paper number 14806, March 2009; *World development report 2009: Reshaping economic geography*, World Bank, 2008; and Indermit S. Gill and Chor-Ching Goh, “Scale economies and cities”, *World Bank Research Observer*, volume 25, number 2, August 2010. As early as 1920, English economist Alfred Marshall noted that due to knowledge spill-overs in local regions, “the mysteries of the trade become no mysteries; but are as it were in the air”; see Alfred Marshall, *Principles of economics*, Macmillan, 1920. On the link between knowledge spill-overs in cities and innovation and firm performance, see, for example, D. Audretsch and M. Feldman, “Knowledge spillovers and the geography of innovation”, in *Handbook of urban and regional economics*, J. V. Henderson and J. F. Thisse, eds., Elsevier, 2004.

195 Ibid., *Urban world: Cities and the rise of the consuming class*, McKinsey Global Institute, June 2012.

196 Ibid., *Urban America*, McKinsey Global Institute, April 2012.

197 Ibid., *Building globally competitive cities*, McKinsey Global Institute, August 2011.

198 Ibid., *Urban world: Cities and the rise of the consuming class*, McKinsey Global Institute, June 2012.

yield the optimal economic and social effects.¹⁹⁹ In other countries, MGI has found that medium-sized cities can grow faster than the capital. In Indonesia, for example, GDP growth in Jakarta is estimated to remain significantly weaker than in Indonesia's other cities with populations of 150,000 or more.²⁰⁰

If the same holds true in Myanmar, some medium-sized cities could grow rapidly in the coming decades, but it is not easy to predict which ones. Aside from Yangon, Mandalay, and Mawlamyine, Myanmar currently has seven more large cities—Bago, Monywa, Meiktila, Patheingyi, the new capital Nay Pyi Taw, Sittwe, and Myingyan—and an additional 64 cities with populations of more than 50,000 (Exhibit 33).²⁰¹ The growth of each city will depend on many factors and will happen organically to a large degree. The government could follow and facilitate these growth trends as they emerge, supporting dynamic urban centres and clusters through the allocation of budgetary resources, infrastructure spending, SEZs, and SOEs.²⁰² While Myanmar's big cities are likely to lead the urbanisation trend in its early stages, Myanmar's urban future lies beyond just Yangon.

MYANMAR WOULD BENEFIT FROM PLANNING PROACTIVELY FOR ITS URBANISATION

While urbanisation is a proven force for GDP and rising living standards, those benefits are not assured. But Myanmar is at a very early stage in its urbanisation and can avoid the stresses of urban expansion if it plans proactively and emulates how other countries have managed the process.

There are three imperatives: investing ahead of the curve of urban expansion, putting in place effective local government, and jumpstarting modern urban planning. There are examples of effective approaches in all three. In the early days of its urbanisation, China largely kept pace with the expansion of cities by allowing them to buy surrounding land and sell it to businesses and investors at a profit (recently, because of worries about the rapid loss of arable land around urban centres, the authorities have put limits on the monetisation of land). Cities around the world benefit from effective local governance. London, for instance, has a powerful directly elected mayor who works with corporatised agencies to implement policy. Johannesburg has consolidated previously independent municipalities under a mayor supported by a professional city manager. Kolkata has a mayor-commissioner system at the municipal level and an effective

199 Toshihiro Kudo and Saturo Kumagai, *Two-polar growth strategy in Myanmar: Seeking "high" and "balanced" development*, IDE (Institute of Developing Economies) discussion paper number 371, November 2012.

200 Ibid., *The archipelago economy*, McKinsey Global Institute, September 2012.

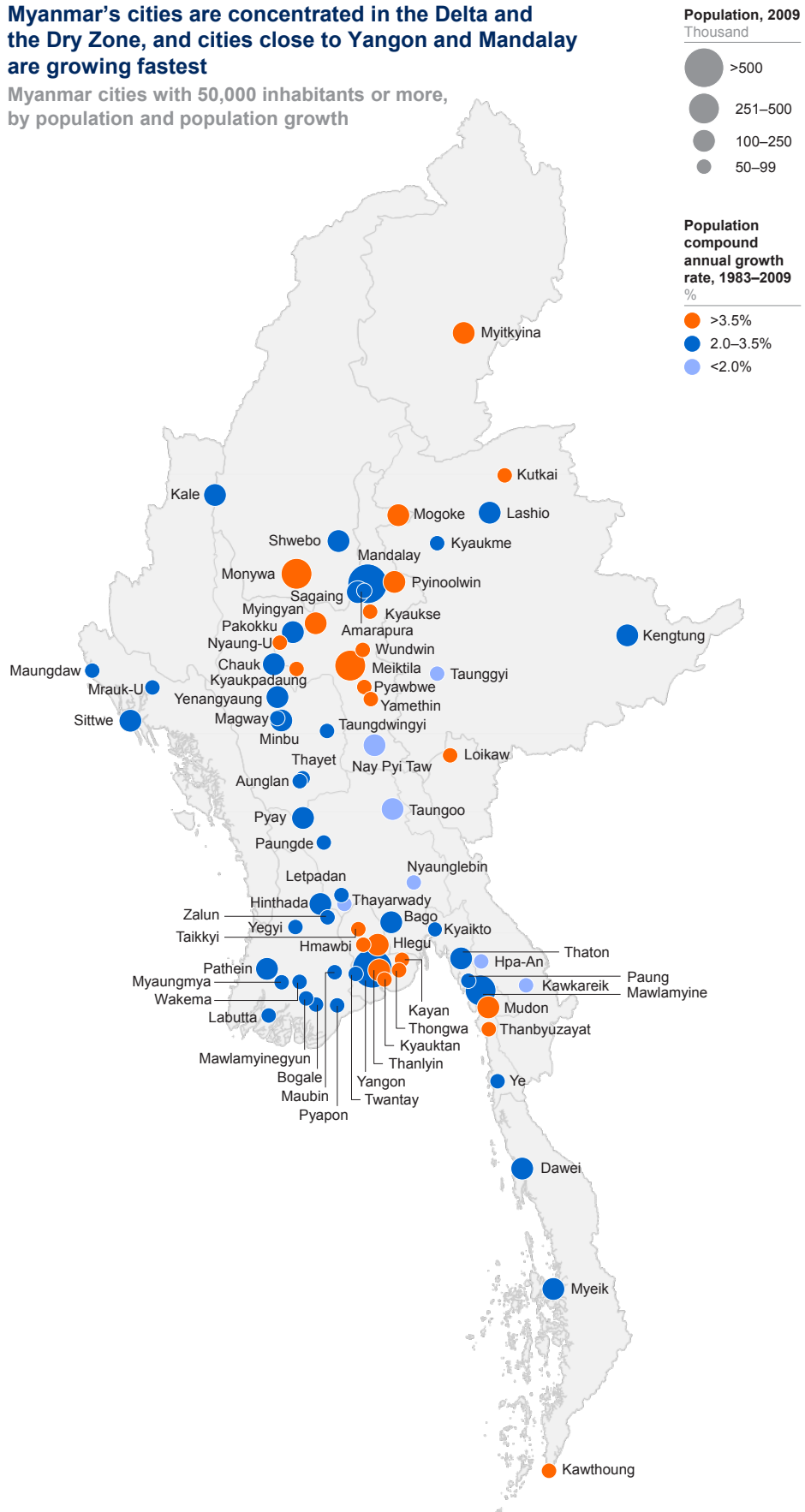
201 All population figures are for 2009, the last year for which comparable data are available, and are sourced from the Department of Human Settlement and Housing Development in the Ministry of Construction, and compiled from data by the Ministry of Immigration and Manpower. The full list of our data sources is in the technical appendix.

202 The shape of China's urbanisation has been, to an extent, centrally determined by Beijing. For instance, the rise of the powerful urban clusters on its eastern seaboard was due in no small part to the government's setting up of SEZs in the Yangtze and Pearl River areas. Later, cities in the interior to the west started to grow faster when the government put in place its Great Western Development Strategy to spread economic activity inland. The government has also influenced the evolution of cities by locating SOEs in them, examples including Harbin and Wuhan. Infrastructure strategy—strategic decisions on where and how to develop road networks or airports, for instance—has also played a role. See *ibid.*, *Preparing for China's urban billion*, McKinsey Global Institute, March 2009.

Exhibit 33

Myanmar's cities are concentrated in the Delta and the Dry Zone, and cities close to Yangon and Mandalay are growing fastest

Myanmar cities with 50,000 inhabitants or more, by population and population growth



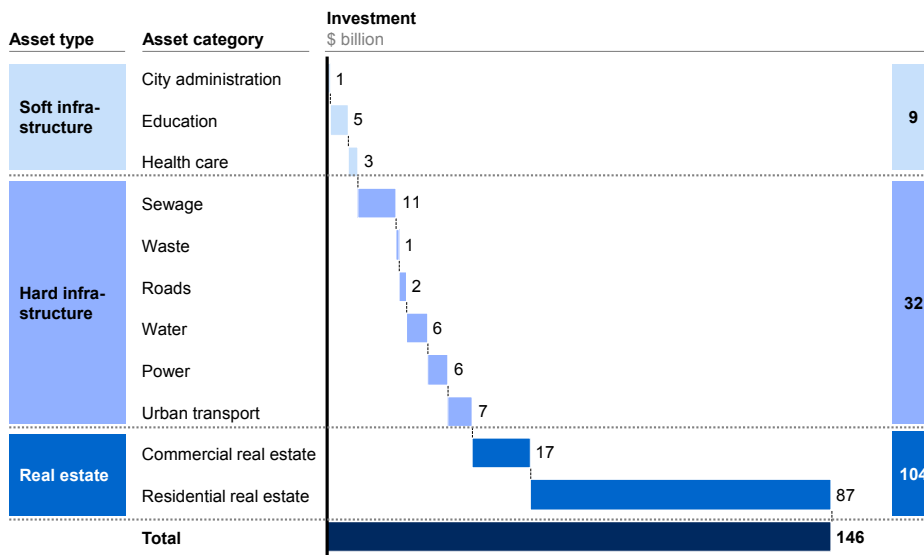
SOURCE: Department of Human Settlement and Housing Development (DHSDD), Ministry of Construction, compiled from data provided by Ministry of Immigration and Manpower (Myanmar); McKinsey Global Institute analysis

metropolitan governance structure.²⁰³ Planning successes also include London which, for instance, plans 20 years in advance to deal with peak morning traffic.

Successful urbanisation would require an estimated investment in urban infrastructure of \$150 billion to 2030

The infrastructure investment necessary to support global urbanisation is large. MGI recently estimated that cities around the world, the majority of them in the emerging world, will together need annual physical capital investment to more than double from nearly \$10 trillion today to more than \$20 trillion by 2025.²⁰⁴ For Myanmar to keep pace with its impending urbanisation, we find that the country would need to invest around \$146 billion in its large cities alone between 2010 and 2030 (Exhibit 34). This amounts to about half the total infrastructure investment required in Myanmar's economy to achieve a GDP growth rate of 8 percent per year through to 2030.

Exhibit 34
Large cities would likely need to invest \$146 billion from 2010 to 2030 to upgrade infrastructure for existing population and new arrivals



NOTE: Numbers may not sum due to rounding.
 SOURCE: McKinsey Global Institute Cityscope 2.0 database; Pike Research; Japan International Corporation Agency; McKinsey Infrastructure Practice benchmarks per asset type; McKinsey Global Institute analysis

Almost 60 percent of the urban capital investment is likely to be required for residential housing; more than 10 percent for commercial real estate; over 20 percent for hard infrastructure such as water, sewage, power, waste, roads, and mass transit; and more than 5 percent for soft infrastructure including health care, education, public administration, and social services such as fire brigades and police buildings. These estimates assume that Myanmar's large cities reach infrastructure levels in 2030 similar to what we see today in cities of comparable size in China, Indonesia, South Africa, and other developing countries. To illustrate the potential scale of necessary additions to Myanmar's urban infrastructure, we estimate that Myanmar's large cities alone would need to build around eight or nine power plants with 500 megawatts of capacity between now

203 *India's urban awakening*, McKinsey Global Institute, April 2010.

204 *Ibid.*, *Urban world: Cities and the rise of the consuming class*, McKinsey Global Institute, June 2012.

and 2030; roughly 10,000 kilometres of paved roads; around 113 million additional square metres of residential buildings, equivalent to the residential floor space in Bangalore and Vancouver in 2010; around 27 million additional square metres of commercial floor space of the amount in Bangalore and Glasgow in 2010; and about 140 new hospitals, each with 200 beds.²⁰⁵

Given the huge amount of necessary investment in infrastructure and constrained finances, Myanmar needs to ensure that investment is as productive as possible. Based on 400 case studies from around the world, recent research by MGI and the McKinsey Infrastructure Practice found there is scope to realise savings of 40 percent on infrastructure investments by rigorously limiting investments to sensible projects, streamlining their delivery, and making the most of existing infrastructure through demand management and productive maintenance.²⁰⁶ Further resource efficiency can reduce the required build-up infrastructure. MGI research in Indonesia finds that energy demand could be reduced by 15 percent by adopting basic efficiency measures and saving nearly 40 percent of water demand.²⁰⁷ Infrastructure choices today will determine the state of Myanmar's infrastructure for decades to come—Myanmar could secure savings and a more sustainable urban future if it applied the lessons learned from other countries that have had to grapple with the construction of urban infrastructure.

Tapping many sources of finance to fund urban infrastructure is likely to be necessary

The overall investment in urban infrastructure that we have estimated will be needed in Myanmar's large cities alone amounts to eight times the Myanmar's government's total budget of \$19 billion in 2013–14.²⁰⁸ That implies that Myanmar would need to consider a wide range of financing options to achieve the required investment, even if a majority of funding comes from the government. Another important consideration will be mortgage finance availability. Even more importantly, the magnitude of the programme requires support from the best of both the public and private sectors, as well as international development organisations, in order to deliver hoped-for outcomes.

To ascertain the right funding mix for an asset type in Myanmar, it is useful to consider two key aspects of infrastructure funding. First is the ability to “monetise” an infrastructure asset—in other words, make money from it by charging users. Second is the technical, operational, and investment risk that an infrastructure project is likely to pose. In broad terms, private-sector investors are more likely to be willing to invest in low-risk, high-monetisation projects, leaving any high-risk, low-monetisation projects to the government, using public money.

205 McKinsey Global Institute Cityscope 2.0 database.

206 Ibid., *Infrastructure productivity*, McKinsey Global Institute and the McKinsey Infrastructure Practice, January 2013. The report highlighted three approaches that can deliver these savings: (1) build the right infrastructure; (2) streamline delivery; and (3) make the most out of existing infrastructure.

207 Ibid., *The archipelago economy*, McKinsey Global Institute, September 2012.

208 *Bi-weekly analysis of political and economic developments*, Vriens & Partners, March 2013.

The initial construction of infrastructure is only one call on the public purse—governments also need to find on-going sources of funding to meet the operational expenses of cities. The experience of other countries suggests that there are three major types of funding sources that Myanmar could tap.²⁰⁹ Which one to use depends on the type of infrastructure and the type of contract struck with private-sector partners:

- **Fees and taxes.** Cities can charge user fees for some infrastructure assets such as roads, mass transit, and utilities. Other infrastructure needs to be funded through city tax revenue, such as local and state sales taxes.
- **Property-value capture and capital recycling.** Myanmar's cities could raise substantial funds for capital expenditure through established methods of property-value capture such as land-use conversion charges, auctions of developed greenfield sites, impact fees, and betterment charges. Capital recycling is another option. This works in three ways—either the government sells part or all of an infrastructure asset, leases it, or sells it and leases it back.
- **Long-term public debt.** The government could borrow on a long-term basis and at favourable rates from supportive bilateral creditor countries and multilateral development banks, or it could issue its own revenue or general obligation bonds to finance urban infrastructure investment.

Myanmar needs to consider reforming urban governance and jumpstarting urban planning

If Myanmar's cities are to prepare proactively for urbanisation and efficiently deliver this unprecedented infrastructure investment, the government needs to quickly put in place effective city governments and empower them to boost urban planning.

A hallmark of most well-run cities around the world is that they are run by empowered and accountable mayors with significant political clout.²¹⁰ Even China, which many observers assume is a highly centralised country in terms of political governance, has in fact devolved many responsibilities, but not targets and priorities, to the city level. City mayors have a great deal of autonomy.²¹¹

Myanmar's urban governance structure currently suffers from two main shortcomings. First, power is not sufficiently devolved to the city level. Only three of Myanmar's cities have mayors—Yangon, Mandalay, and Nay Pyi Taw—and even they have limited authority and accountability.²¹² While Myanmar's Union Government could retain a role in creating oversight and transparency and in setting performance indicators for Myanmar's cities, it could set up local governments in all large and medium-sized cities and devolve substantial power to them as part of its on-going efforts to decentralise governance and enhance

209 For further discussion of funding sources for infrastructure, including in cities, see, for example, *ibid.*, *Infrastructure productivity*, McKinsey Global Institute and the McKinsey Infrastructure Practice, January 2013; *ibid.*, *India's urban awakening*, McKinsey Global Institute, April 2010.

210 For an extensive discussion of urban governance, see, for example, *ibid.*, *India's urban awakening*, McKinsey Global Institute, April 2010.

211 *Ibid.*, *Preparing for China's urban billion*, McKinsey Global Institute, March 2009.

212 The chair of Nay Pyi Taw Council is a de facto mayor who reports directly to the president, while the mayors of Yangon and Mandalay report directly to the chief minister of the regional government.

the effectiveness of local management.²¹³ Second, the governance of cities is highly fragmented between regional and state governments, the Department of Human Settlement and Housing Development, and township officers who report to district officers who, in turn, answer to the Department of General Administration in the Union Ministry of Home Affairs as well as their respective regional governments. Myanmar urgently needs to clarify the responsibilities of the different layers of government and ensure clear responsibility for the substantial challenge of urban planning that lies ahead.

In addition to designating accountable urban governments, it would be useful if the national and regional governments were to act decisively to jumpstart urban planning in Myanmar's large and medium-sized cities. Experience around the world suggests that the following components are necessary for effective urban planning:

- **Develop a vision for the city.** Successful cities have a strategic sense of direction, based on a clear assessment of the city's competitive advantages, and focus their urban development and efforts to attract investors accordingly. The vision of a city can embrace broad macroeconomic considerations such as job creation—the major imperative for most cities—and specific considerations such as the preservation of cultural heritage (see Box 10, “The potential of Myanmar's urban heritage”).
- **Develop multi-year master plans for cities and their regions.** Myanmar's major cities and their regions could usefully embed their vision in a concept plan that anticipates long-term changes to population, GDP, transport demand, and high-level land use. To be effective, this concept plan should cascade down to a 20-year master plan that includes sector-specific strategies firmly based on the competitive positioning of the city and its region, and then to plans for individual departments that address the sequencing and financing of individual projects. It is important that these plans be concrete but allow for course corrections along the way.²¹⁴ In Myanmar, only Yangon has begun to develop such master plans—with substantial assistance from the Japanese International Cooperation Agency. Other cities need to do the same.²¹⁵
- **Build planning capacity.** Myanmar's large and medium-sized cities urgently need urban planning departments. It is a welcome development that Yangon has set up the first unit of this kind. However, the unit would be most effective if it were empowered as a department that reports directly to the mayor and receives the resources to match the challenges ahead. Currently more than 100 staff members work with barely more than a dozen computers and have little relevant experience and training. Successful cities around the world give high prominence to their urban planning units and staff them with diverse and highly educated employees. Singapore's Urban Redevelopment Authority has 300 professionals including urban planners, economists, architects, designers, and sector engineers, and a budget of about \$160 million a year.²¹⁶ In Myanmar, capacity building in urban planning is already under way in Yangon,

213 Expert interviews.

214 Ibid., *India's urban awakening*, McKinsey Global Institute, April 2010.

215 *The project for the strategic urban development plan of the greater Yangon*, Japan International Cooperation Agency, February 2013.

216 Ibid., *India's urban awakening*, McKinsey Global Institute, April 2010.

Box 10. The potential of Myanmar's urban heritage

Myanmar's urban heritage is rich. Religious sites such as the Shwedagon Pagoda have been centres of spiritual life for thousands of years, and every city has monasteries, sometimes cheek by jowl with churches, mosques, and temples. Yangon and Mawlamyine have some of Asia's most intact colonial-era architecture, and many cities have parks, lakes, waterfronts, and other splendid natural heritage.

Rapid urbanisation risks this heritage and its potential unless it is carefully managed. In a speech in 1995, Lee Kuan Yew of Singapore reflected: "We made our share of mistakes in Singapore. [...] In our rush to rebuild Singapore, we knocked down many old and quaint Singapore buildings. Then we realised we were destroying a valuable part of our cultural heritage".¹ Singapore halted the demolition, but much had already been lost. Many other centuries-old Asian cities have modernised so quickly that urban heritage has given way to what critics have called "soulless agglomerations of generic architecture".²

Maintaining its urban heritage should be a priority for Myanmar. First, it is a key draw for tourism, a labour-intensive sector that will provide significant opportunities for low-skilled workers and the poor to improve their livelihood.³ In India, for example, cities such as Agra with world-renowned heritage sites contribute disproportionately to job creation and tax revenue.⁴ The link between investment in urban heritage and economic growth and job creation is well documented.⁵ Second, as Myanmar's economy develops, its cities need to compete with cities around Asia for a highly mobile, skilled workforce.⁶ If Myanmar's cities protected and promoted their urban heritage while modernising, they could become uniquely liveable and attractive—a potentially significant comparative advantage.

Before urbanisation gains pace and scale, Myanmar could usefully put in place a balanced blend of regulation and incentives to preserve its urban heritage—and would need to do so urgently given the state of disrepair of much of it.⁷ Ultimately, Myanmar's urban heritage will survive only if civil society is committed to it. It is a positive step that organisations such as the Yangon Heritage Trust have started to promote this cause.

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- 1 Heng Chye Kiang, *From architectural heritage to identity in Singapore*, paper presented at "The conservation of urban heritage: Macao Vision" conference in Macao, China, 2002.
 - 2 Martin Rama, "Investing in the sense of place: The economics of urban upgrading projects with a cultural dimension", in *The economics of uniqueness: Investing in historic city cores and cultural heritage assets for sustainable development*, Guido Licciardi and Rana Amirtahmasebi, eds., World Bank, 2012.
 - 3 Ibid.
 - 4 Ibid., *India's urban awakening*, McKinsey Global Institute, April 2010.
 - 5 Guido Licciardi and Rana Amirtahmasebi, eds., *The economics of uniqueness: Investing in historic city cores and cultural heritage assets for sustainable development*, World Bank, 2012. A World Bank project in Macedonia illustrates the economic impact of investments in urban heritage. The World Bank studied the revitalised Old Skopje Bazaar and a comparable bazaar and found that the number of customers in restaurants, cafés, and shops increased by about 50 percent in the heritage zone, the number of employees increased by 70, and workers enjoyed significantly higher wages.
 - 6 John O'Brien, "Livable historic city cores and enabling environment: A successful recipe to attract investment to cities", in *The economics of uniqueness: Investing in historic city cores and cultural heritage assets for sustainable development*, Guido Licciardi and Rana Amirtahmasebi, eds., World Bank, 2012.
 - 7 Ibid., Guido Licciardi and Rana Amirtahmasebi, eds., *The economics of uniqueness*, World Bank, 2012.

but other cities need to follow suit with the help of international development agencies and funding from the global community.²¹⁷

- **Plan for new urban arrivals.** One of the key challenges of growing cities is the integration of new migrants. The two main imperatives are job creation and the provision of affordable housing. In the case of affordable housing, success rests on government acting as enabler and coordinator, planning adequate capacity for expanding populations, earmarking land as part of the city master plan, making the economics work, and ensuring flexibility on house size, format, and ownership.²¹⁸ Many cities around the world struggle to provide affordable housing on a sufficient scale and of a type that meets the needs of new urban arrivals. When those efforts come up short, slums develop. The government can turn slums into effective transitional neighbourhoods for migrants if it improves their ability to progress economically and socially, for example by providing facilities such as power, plumbing, and schools.²¹⁹

□ □ □

Cities are one of the most powerful forces of rising incomes and prosperity in the world today. But they also pose myriad challenges. Managing cities, particularly when they are expanding rapidly, is a task of enormous complexity that requires highly motivated and talented planners and politicians. Myanmar is fortunate that it has time to prepare, although the window could be short, and that its urbanisation is at an early stage, which offers a greenfield advantage as leaders in Myanmar decide what urban infrastructure cities need, develop the most effective governance model, and jumpstart urban planning capacity.

217 The EU is funding a two-year capacity-building project for Yangon's Urban Planning Unit due to begin in 2013.

218 Ibid.

219 Doug Saunders, *Arrival City: How the largest migration in history is shaping our world*, Vintage Books, 2011.

A globally connected economy: Stimulating investment, trade and people flows

As Myanmar starts to re-establish political ties with the rest of the world after decades of isolation, it also needs to reconnect its economy. In the past, Myanmar was a considerable trading power and exporter, but that capacity has been lost in recent decades. Myanmar now has a chance to rebuild that capacity, take its place in the world once again, and restore competitiveness.

There is considerable empirical evidence that a globally connected economy—measured in terms of free flows of investment, trade, and people—can create significant economic benefits.²²⁰ Myanmar's re-joining the global economy in this way is important if it is to gain access to investment at home and to provide an efficient and effective means of acquiring modern technology and knowledge. However, making the most of its new openness will require rethinking the way Myanmar engages with the world economically, and taking a range of practical steps to facilitate the flows of investment, trade, and people that it needs.

MYANMAR NEEDS TO FIND SIGNIFICANT FUNDING FOR ITS INVESTMENT THROUGH TO 2030

For Myanmar to achieve annual GDP growth of around 8 percent, international experience suggests that it will need to generate total investment equivalent to around 25 to 35 percent of its GDP every year—cumulative investment of approximately \$650 billion between now and 2030.²²¹ This investment can be funded through both domestic savings and foreign capital. Based on the experience of benchmark countries, Myanmar's cumulative domestic savings between 2010 and 2030 could support approximately \$480 billion of this investment, but only with significant improvements to the banking system. Domestic savings have played a significant role in generating investment for many Asian countries during their high-growth periods. For example, Thailand saved \$675 billion from 1982 to 1995, while Vietnam saved \$370 billion between 1999 and 2011.²²² The remaining \$170 billion would need to be funded through foreign capital, including FDI, equity, loans, and debt.²²³ Improvements to capital productivity will also be important in helping Myanmar to meet its investment needs.

FDI, a sub-component of foreign capital, is a significant lever for many countries in achieving their investment needs. FDI has many economic benefits, including a positive impact on productivity and output in receiving sectors, increased national income, lower prices and a broader selection of services and products available for consumers, capability and skill building of the local workforce, and the exposure of local firms to superior management practices and technology (see Box 11, "The changing FDI game").²²⁴

220 See, for example, Pankaj Ghemawat with Steven A. Altman, *DHL global connectedness index 2012: Analyzing global flows and their power to increase prosperity*, IESE Business School, November 2012.

221 See the technical appendix for our methodology on investment, domestic savings, and foreign capital. We used data from UNCTAD and the World Bank's World Development Indicators to calculate gross fixed capital formation and domestic savings.

222 Gross domestic savings, World Development Indicators, World Bank

223 We used the IMF's Balance of Payments Database to calculate foreign capital flows.

224 *New horizons: Multinational investment in emerging economies*, McKinsey Global Institute, October 2003.

Box 11. The changing FDI game

Historically, FDI strategy focused on attracting investment from large, well-known multinational companies from the United States, Europe, or Japan, often by offering incentives such as tax breaks. But the FDI game is changing—today, it is as much about capabilities as it is about investment. Less-well-known contract manufacturers from South Korea, Hong Kong, Taiwan, and Singapore, and increasingly China that are part of global supply chains are at the forefront of this new development as opposed to global brand names. Governments are also playing a much more proactive role in targeting and recruiting companies that goes beyond fiscal incentives.

The story of Huajian Group and Ethiopia illustrates this change. Huajian Group, while not a household name, is one of the largest shoe export contract manufacturers in China. The company employs around 25,000 people, producing about 20 million pairs of shoes a year for Calvin Klein, Tommy Hilfiger, Guess, and other brands. In March 2011, Meles Zanawi, at the time the prime minister of Ethiopia, approached Huajian, which he said his government had handpicked to set up manufacturing in Ethiopia where the company would have access to high-quality leather. After a series of visits and examination of Ethiopia's growth and transformation plan, the company agreed to open a factory. In turn, the Ethiopian government was highly responsive. "I called a minister at 10 pm at night with a problem. We then met the following day at 7 am to discuss—this was in his office before the cleaners arrived," said Ms. Helen Hai, Huajian's general manager for overseas investment.

Within a year of opening, Huajian was employing around 1,700 workers in Ethiopia. The company is continuously focused on developing skills and is set to provide a year-long training programme at one of its Chinese plants to 50 new recruits each month. Ms. Hai also described her role in attracting other labour-intensive industries to Ethiopia, forming industry clusters, and facilitating the development of local supply chains. The focus on developing these industries could change the economic picture in Ethiopia in years to come.

International economic sanctions, which have been progressively eased since the current government came to power, had dampened the flow of FDI into Myanmar. FDI was only \$40 billion between 1989 and 2012, with the bulk of that coming from China.²²⁵ In 2011, nominal FDI inflows were only \$850 million, not materially higher than those of \$879 million and \$715 million in 1997 and 2007, respectively. To put those flows into context within Asia, in 2011 Thailand received \$10 billion in nominal FDI flows and Vietnam \$7 billion.²²⁶ FDI into Myanmar has also been overwhelmingly directed to the resources sector. Despite some diversification in recent years, the resources sector still accounted for 87 percent of total permitted FDI in January 2012.²²⁷ To achieve a step change in FDI and get closer

²²⁵ We use this period because IMF data are available annually during these years.

²²⁶ *World investment report: Towards a new generation of investment policies*, UNCTAD, 2012.

²²⁷ Permitted FDI is different from actual inflows because it is approved by the government but not necessarily invested by the foreign company. See the website of the Directorate of Investment and Company Administration (www.dica.gov.mm/dicagraph.htm).

to meeting the economy's large need for investment, as well as to continue to diversify the sectors to which FDI goes, Myanmar needs to prioritise two main areas: developing a targeted FDI strategy led by a high-performing agency and improving Myanmar's business environment.

Myanmar could develop a strategy to attract FDI

Myanmar needs to be proactive in its efforts to attract FDI, given its potential need for investment. Any effective FDI strategy needs to start with a clear understanding of the country's current competitive strengths and how they might evolve. We have seen this approach in many other countries. Costa Rica, for instance, had an explicit strategy for developing FDI and charged its investment promotion agency with identifying sectors that were already attracting foreign investment and were likely to derive the most benefit from free trade zones and the island's proximity to the US market.²²⁸

Costa Rica's use of an investment promotion agency is quite typical around the world. In many countries, these agencies are the key institutions that identify and assess potential foreign investors and that market their country's advantages as a place in which to do business. Myanmar's Directorate of Investment and Company Administration (DICA) serves as its investment promotion agency, but that function is not yet fully developed. To play this role successfully, DICA can look at the experience of its counterparts elsewhere. These agencies tend to have four factors in common that drive success. First, they create a culture that is customer-focused, responsive, and flexible, and are staffed with talented people who are able to make the case for the investments and to connect effectively with investors. Second, they have the powers to address the concerns of investors by being firmly embedded in the centre of government. Third, they leverage prominent private- and public-sector representatives to champion the country's offering to investors. Finally, they build connections between foreign investors and local firms.

The business environment needs to improve

As part of the research for this report, MGI conducted extensive interviews with foreign companies that have a presence in Asia to explore attitudes towards investing in Myanmar. One of the major themes that came up repeatedly was concern about the business environment in the country. In light of this, Myanmar needs to focus relentlessly on improving the environment in which businesses can operate in the country. This will be crucial to attracting larger volumes of FDI.

Countries—or even individual cities—that have been successful in attracting large volumes of FDI have made the creation of a business-friendly environment a priority. Their experience suggests four areas that Myanmar would need to get right to help it attract FDI:

- **Rule of law.** Our interviews with many investors and embassy trade representatives indicate that concerns about whether the rule of law is fully established and embedded into the business environment in Myanmar is a major source of uncertainty for prospective investors. Instilling confidence in the sanctity of contracts and ensuring that arbitration is available in the event of disagreements are both important considerations for investors

228 Andrés Rodríguez-Clare, "Costa Rica's development strategy based on human capital and technology: How it got there, the impact of Intel, and lessons for other countries", *Journal of Human Development and Capabilities*, volume 2, number 2, 2010.

contemplating deals with local partners and the government (see Box 7, “The rule of law”, in Chapter 2).

- **Level playing field.** Foreign investors seek a level playing field with domestic firms. In practical terms, this requires limiting the preferential treatment of locally owned companies, as well as the removal of withholding tax on foreign remittances and ceilings on the repatriation of profits and capital by foreign firms. Indonesia achieved a six-fold increase in foreign investment between 2000 and 2011 partly because it allowed foreign investors to repatriate their earnings in the country after 2007.²²⁹ Estonia liberalised its economic policy, and, by the end of 1994, nearly all controls on capital account transactions were removed.²³⁰ This move paid off and contributed to Estonia’s increased FDI inflows; in 2005, FDI inflows were more than 14 times the 1995 levels.²³¹
- **Ease of doing business.** Simplifying and standardising processes, and therefore the costs incurred by business, are important components of creating a business-friendly environment. Many of the companies whose leaders we interviewed said that it takes between one and six months to register a business in Myanmar today. This is comparable to the situation in Cambodia and Laos, where the average is around three months, but much longer than the average of one month in Thailand and Vietnam and less than a week in Malaysia.
- **Quality of life.** The environment of a country in the broadest sense—the quality of life—is often a factor in whether companies decide whether to locate there. A country that offers social benefits such as health care, public safety (low crime rates and an effective police force), schools, and a rich cultural life may be more likely to attract businesses and talented individuals.

MYANMAR SHOULD CONSIDER RECONNECTING RAPIDLY TO GLOBAL TRADE FLOWS AND SUPPLY CHAINS

Trade is important to Myanmar not just as a source of export earnings and imports of necessary goods and services to support growth but also to give consumers in Myanmar greater choice and lower prices. Because of past sanctions, Myanmar’s trade is currently heavily concentrated on just a few economies—87 percent of its trade is with its five top trading partners, much more concentrated than the 60 percent average of Asian countries.²³² While most Asian countries have significant trade volumes with major trading partners outside Asia, non-Asian economies account for only 2 percent of Myanmar’s exports. Trade with Western countries has been of enormous benefit to Cambodia, for instance. A bilateral agreement enacted in 1999 with the United States allowed Cambodia to achieve increased US textile import quotas in exchange for protecting labour rights in Cambodia.²³³ While the importance of intra-Asian trade is increasing, Western economies will remain important trading partners (Exhibit 35).

229 Zsófia Árvai, *Capital account liberalization, capital flow patterns, and policy responses in the EU’s new member states*, IMF working paper number 05/213, November 2005.

230 McKinsey research on attracting FDI.

231 UNCTAD Inward FDI Database, 2013.

232 Comtrade data. We compared Myanmar’s trade with that of Bangladesh, Cambodia, Indonesia, the Philippines, Thailand, and Vietnam.

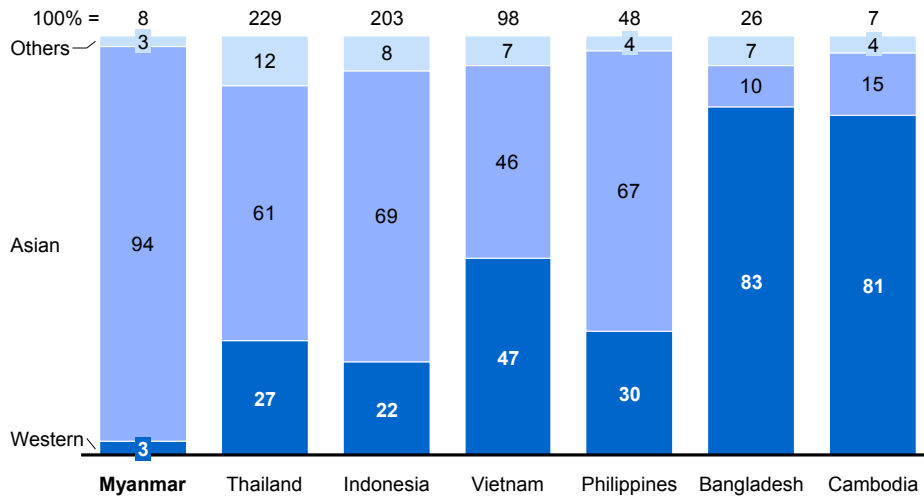
233 Thomas Lum, *Cambodia: Background and US relations*, Congressional Research Service, report to Congress, 2007.

Exhibit 35

To diversify trade, Myanmar would need to build trade ties with Western countries and strengthen existing ones in Asia

Top ten countries by exports, 2011

Total exports (%; \$ billion)



NOTE: Numbers may not sum due to rounding.
SOURCE: Comtrade data; McKinsey Global Institute analysis

Trade policy needs to play a part in efforts to boost trade flows. Through the ASEAN Free Trade Area, Myanmar has achieved significant progress in the reduction of tariffs. Current import and export tariffs faced by Myanmar are already quite low, with applied tariffs on exports decreasing as trade liberalises. Between 2006 and 2009, the trade-weighted average of applied tariffs for exports was only 5.9 percent for agricultural goods and 1.7 percent for non-agricultural products.²³⁴

However, there is still scope for Myanmar to improve its market access. In 2015, the ASEAN Economic Community (AEC) will require zero tariffs and the removal of non-tariff barriers. In addition, Myanmar could benefit from measures to facilitate trade such as the ASEAN Single Window, which would simplify and standardise trade processes of all members as well as push for the application of ICT in all areas related to trade facilitation. Myanmar's share of exports attracting zero duty is relatively small compared with that of East Asia-Pacific countries.²³⁵ The most promising focus for Myanmar would be to expand the number of formal trade agreements it has with other countries and maximise the potential of the existing ASEAN free trade agreements. In 2011, 94 percent of Myanmar's imports and 93 percent of exports were with countries with which Myanmar had such agreements.

234 Witada Anukoonwattaka and Mia Mikic, *Myanmar: Opening up to its trade and foreign direct investment potential*, UNESCAP staff working paper number 01/12, September 2012.

235 World Trade Indicator Database, World Bank.

Beyond the overall policy environment for trade, Myanmar needs to consider where its economy and businesses fit best in the global supply chain. Other countries have specialised in different steps of the value chain.²³⁶ For example, Morocco opted to emphasise specific car-part manufacturing. The trade in parts, components, and accessories has made intermediate goods the most dynamic sector of international trade, representing more than 50 percent of non-fuel world merchandise trade in 2009.²³⁷ Myanmar will need to assess its comparative advantage in the different steps of the global supply chain on an industry-specific basis. Once it has made this assessment, it also needs to ensure that infrastructure services such as transport, telecommunications, finance, and insurance are available at reasonable cost.

MYANMAR COULD RECONNECT THROUGH FLOWS OF PEOPLE

It is not just goods that need to flow in and out of Myanmar—people do, too. A globally connected economy means having healthy flows of people in and out of the country whether they are tourists, business travellers, academics, or students. Welcoming a steady stream of foreigners into the country and sending Myanmar citizens abroad to study, conduct business, or simply explore other parts of the world will showcase Myanmar to investors and tourists and also stimulate the transfer of technology and knowledge that will help to develop Myanmar as a modern, cosmopolitan society. We have explored two major aspects of people flows—talent flows and tourism.

To develop talent, Myanmar can tap its diaspora, use foreign education facilities, and attract foreign expertise

Myanmar has a large diaspora that could play a role in building the economy by contributing much-needed skills and investment—as other diaspora have done. Overseas Chinese, for example, contributed about 70 percent of China's FDI between 1985 and 2000.²³⁸ Not all countries have been successful at creating connections with their diaspora. For example, Thailand's and Cambodia's diaspora played a limited role in their respective countries' development. Myanmar could take several key steps to tap into the experience and skills of its citizens currently living and working abroad. For example, it could learn from other countries that identified and engaged citizens using websites, embassies and other networks. The diaspora could also be a valuable source of foreign remittances as long as these go into the formal banking system and thereby increase Myanmar's savings rate. It would be even more beneficial if Myanmar could encourage members of its diaspora, particularly those with skills that the economy needs, to return home.

236 A common way of assessing trade in intermediate goods is to use the United Nations' Broad Economic Categories. This groups commodities by main end-use, principally distinguishing among consumption, capital, and intermediate goods. See *ibid.*, *Trade patterns and global value chains in East Asia*, WTO and IDE-JETO (Institute of Developing Economies–Japan External Trade Organization), 2011.

237 *Ibid.*

238 Yevgeny Kuznetsov, ed., *Diaspora networks and the international migration of skills: How countries can draw on their talent abroad*, World Bank Institute Development Studies, 2006.

The flow of people should not just be inward but also outward. For example, it is common in Asia and Latin America for the government and the private sector to grant scholarships to help finance students to study abroad with the prior agreement that those students would then use their new-found skills in employment at home. In the short term, it would be useful for Myanmar to send students to vocational schools in Asia and workers to overseas training programmes to acquire new skills or enhance existing ones. For example, Myanmar could send people to schools and vocational facilities in Thailand to train them quickly in tourism. As Myanmar seeks to upgrade its educational system—particularly higher education—it could be useful to collaborate with other countries on special exchange programmes that could educate and train many more citizens than its own system has the capacity to absorb. The relatively high proficiency of Myanmar's citizens in English language skills could be a significant advantage here.

At the same time, Myanmar could accelerate the arrival of foreign talent into the country by simplifying the administrative processes that these overseas visitors have to negotiate their way through today and by “marketing” Myanmar to them. Thailand established a one-stop shop in 1997 that provided foreign companies with streamlined processes to bring in expatriates to work in the country.²³⁹ Singapore made a concerted effort to attract and integrate foreign talent through such bodies as Contact Singapore, which has one-stop centres overseas for foreigners interested in working in the country.²⁴⁰

Beyond its economic benefits, tourism could create a compelling image of Myanmar in the world

Tourism could, as we have discussed, potentially generate \$14.1 billion of GDP in 2030 and provide 2.3 million jobs, alleviating poverty particularly among women and young people with limited skills. But beyond such direct economic benefits, tourism can play a wider positive role in society. For instance, developed in a sensitive and sustainable way, tourism could revitalise Myanmar's culture and traditions, while also helping to preserve the natural environment.²⁴¹

Tourism can also be Myanmar's “shop window”—a display of all the country has to offer—that could develop a compelling image overseas and promote a better understanding of Myanmar's culture and business environment. The government and private sector can work together not only to create an attractive offering to tourists, with all the facilities they would expect when they go on holiday, but also to market Myanmar to attract more visitors. Other countries have done this with great success. In 2013, the World Economic Forum ranked Singapore, Thailand, and Malaysia second, 11th, and 14th, respectively, in the effectiveness of marketing and branding.²⁴²

239 Peter Brimble, Hataichanok Techaratanawiroj, and Atchaka Sibunruang, *Foreign direct investment: Performance and attraction—The case of Thailand*, presented at a workshop on Foreign Direct Investment: Opportunities and Challenges for Cambodia, Laos, and Vietnam, in Hanoi, August 16–17, 2002.

240 Linda Low, *The political economy of Singapore's policy on foreign talents and high skills society*, National University of Singapore, December 2001.

241 “The contribution of tourism to poverty alleviation”, *UNESCAP Tourism Review*, number 25, 2005.

242 These data are derived from an Executive Opinion Survey to the question “How would you assess the effectiveness of your country's marketing and branding campaigns to attract tourists?” See Jennifer Blanke and Thea Chiesa, eds., *The travel and tourism competitiveness report 2013: Reducing barriers to economic growth and job growth*, World Economic Forum, March 2013.

In the case of Thailand, the tourism industry has played a significant role in the country's economic development, earning foreign exchange, generating employment, distributing income, and encouraging more investment.²⁴³ In 1960, Thailand established the Tourist Organisation of Thailand to strengthen Thailand's international image through public statements and marketing campaigns.²⁴⁴ Then, in 1987, Thailand launched the "Visit Thailand Year" campaign, which appears to have played a significant role in increasing the number of tourists to the country. Even more recently, in 1998 and 1999, Thailand built on these successes with a new campaign called "Amazing Thailand" that showcased the country's cultural attractions, its food and its people.²⁴⁵ These are the kinds of approaches that Myanmar could consider to make the most of its current popularity with tourists and its new openness to the world.

□ □ □

In the early years of its economic transformation, Myanmar—and its international development partners—recognises that it will need to rely heavily on foreign investment and trade to drive growth. A greater flow of people in and out of the country will help Myanmar leverage other countries' skills and facilities and shape a compelling image of itself, especially via tourism. Myanmar has every opportunity to turn such dynamic connections to the rest of the world into a true economic asset.

243 Ibid., "The contribution of tourism to poverty alleviation", *UNESCAP Tourism Review*, 2005.

244 Nick Kontogeorgopoulos, "Tourism in Thailand: Patterns, trends, and limitations", *PacificTourism Review*, volume 2, number 3/4, 1998.

245 Ibid., "The contribution of tourism to poverty alleviation", *UNESCAP Tourism Review*, 2005.

4. Implications for the government and the private sector

For both its government and for companies seeking to invest in, or serve, Myanmar's market as it opens up, the potential is significant. But so are the challenges. In this chapter, we suggest some approaches that the government might bear in mind as it seeks to implement reform and transformation, and some imperatives and strategies for local and international companies as they consider doing business in Myanmar. How the government and companies react to the economic opportunity of more than \$200 billion that we have identified in this report will be decisive. Over the next few years, they could together build a platform for one of the fastest economic transformations the world has seen. But the window of opportunity is narrow, and the scope for disappointment is high.

Implementing the transformation: High expectations and major challenges for Myanmar's government

Myanmar's political leaders face about as demanding a reform agenda as a government can aspire to implement. The economic transformation alone is complex and challenging. Every aspect of the economy seems to be a pressing issue in these early pages of the nation's new chapter. Expectations for economic progress are high—among the people, the local business community, investors, and Myanmar's development partners. Overseas companies and the international community are looking intensely at all the developments coming from the government as they continue to judge whether Myanmar is worth a long-term commitment. Faced with a monumental task, the government is working within extremely tight constraints in terms of capacity and time. Above all else, it needs to maintain credibility by continuing its focus on reform and to quickly build capabilities. Our analysis suggests three main implications for Myanmar's government.

KEEP A STEADY COURSE ON REFORM, AND DRIVE THROUGH LEGISLATION AND REGULATION

Myanmar is in the early stages of building a new sense of trust in government—on the part of citizens, political leaders in all parts of the country, local businesses, multinational corporations, and the international community. If this fragile trust breaks down, political and economic progress could quickly come to a halt. Amid all the detail of the reform and development agenda, the most important imperative noted by stakeholders, local and international alike, is for the government to clarify and reaffirm the overall direction and to stay steady on the course of reform. They are looking, in other words, for stability, predictability, and transparency. Sustaining the current collaboration among political leaders across the country will require lasting commitment among individual elected officials in the executive and legislative branches of government to foster inclusive growth and a broad dialogue. The legislative and regulatory agenda ahead is still long and demanding. It will require the government to complete key pieces of

legislation currently under way, including the Financial Institutions Law, Central Bank of Myanmar Law, and the Small and Medium Enterprises Law, as well as to ensure that legislation is turned into effective regulation without delay.

DEVELOP AND COMMUNICATE AN EXPLICIT GROWTH AND INVESTMENT MASTER PLAN THAT INCLUDES A CLEAR “BUSINESS CASE”

Thus far, Myanmar has worked on putting in place the broad parameters of a “people-centred development” through its Framework for Economic and Social Reform and the National Comprehensive Development Plan. For the economic transformation to succeed, however, a more specific growth and investment strategy will also be required. Such an explicit strategy would improve alignment among all parts of Myanmar’s government on how it intends to achieve growth and investment. The government will need to develop a master plan of priorities, with clear outcomes expected over different time horizons. Given the sheer depth and breadth of the agenda and the severe shortage of qualified resources in the public sector today, focus will be paramount.

Furthermore, an explicit growth and investment master plan would allow Myanmar’s government to articulate a clear “business case”. While many investor and donor delegations are considering Myanmar today, this sign of early interest is no guarantee of actual investment and sustained support over time. Myanmar is likely to require significant amounts of foreign capital, development support from bilateral and multilateral partners, and affordable interest rates from creditor countries. These institutions will not invest in Myanmar in the long term based on mere goodwill or a hope of Myanmar’s realising its potential. They require a clear “business case”. They will want to know what economic areas Myanmar is prioritising and what support the government will provide, especially on regulation and enablers such as infrastructure and skills. Indeed, based on in-depth interviews and a survey of potential foreign direct investors, it is apparent that a growth and investment master plan would greatly enhance Myanmar’s “business case” if it were to include a transparent view of the future regulatory environment, assurances on fundamentals of the business environment such as taxation and the right to repatriate profits, a realistic and detailed road map for the provision of infrastructure, and a clear definition of the role Myanmar sees for foreign investors and its development partners.²⁴⁶ The government could conduct road shows led by high-ranking officials and business leaders to market its growth and investment master plan as part of a proactive effort to target investors and development partners.

²⁴⁶ McKinsey interviews with leading decision makers of global companies conducted in conjunction with CIMB ASEAN Research Institute.

DRIVE THE IMPLEMENTATION OF THE ECONOMIC AGENDA WITH A WELL-DESIGNED AND WELL-EXECUTED DELIVERY PROGRAMME

Of all the challenges facing Myanmar's government, implementation is the most critical. The government's legislative work is important, but ultimately it is the implementation of effective regulation that counts. Private-sector research shows that only around 30 percent of transformations are successful.²⁴⁷ Transformations in the public sector are just as challenging. McKinsey analysis of around 40 transformation programmes found that only around 40 percent of countries met or exceeded the targets they had set themselves at the outset of the programme.²⁴⁸ These are cautionary statistics for Myanmar, especially given its acute lack of governmental capacity currently. The triple transformation rests on a few dozen shoulders. Reformers rely on small and largely informal structures to get things done, while the large government machinery appears overwhelmed by the fast pace of reform.

However, some governments have succeeded in delivering big results quickly even under challenging constraints. In the first year of its transformation programme, Malaysia had connected almost six times more rural households to clean water supply than in previous years, and within three years the country had provided access to power, water, roads, and houses to four million people that did not have them before.²⁴⁹ A South American government reduced hospital waiting lists by more than 80 percent and increased the number of top graduates choosing teaching as a profession by 50 percent.²⁵⁰ These governments, and others around the world, have managed extraordinary transformations because they focused on a well-designed and well-executed delivery programme that applied most, if not all, of the following seven best practices:²⁵¹

- **Clear definition of priority outcomes to be delivered.** Successful governments clearly defined three to six priority outcomes—a greater number is too many—that responded to what people most want and need government to deliver, and then stuck with them for two to three years despite any pressure to modify or expand their scope. For example, the cabinet and top civil servants of one Asian government identified six national priorities—corruption, crime, education, poverty, rural infrastructure, and transport—to be at the centre of the country's transformation programme.
- **The power of “delivery labs” to put actionable detail in plans.** Rather than spending months in government committees, successful governments developed implementation plans in priority outcomes by bringing together 20 to 30 people from all of the relevant departments involved in a key area for full-time, six- to eight-week collaboration. These delivery labs ended when

247 John Kotter's research for *Leading Change* found that the success rate of attempted transformation efforts was only 30 percent. A McKinsey survey on performance transformations of almost 3,000 business executives globally in 2008 showed that only 34 percent of transformations were considered successful or very successful., discussed in Carolyn Aiken and Scott Keller, “The irrational side of change management”, *The McKinsey Quarterly*, April 2009.

248 McKinsey research on government transformations.

249 Eoin Daly and Seelan Singham, “Jump-starting Malaysia's growth: An interview with Idris Jala”, *The McKinsey Quarterly*, October 2011.

250 *Delivery 2.0: The new challenge for governments*, McKinsey & Company, October 2012.

251 Ibid.

defined deliverables were met, which included clear targets, a prioritised set of initiatives, a delivery plan at an actionable level of detail, approved funding requirements, and full stakeholder sign-off. For instance, in a delivery lab on education, one government set the target of bringing the literacy and numeracy of all Grade 3 children to 100 percent within three years, raising the pre-school enrolment rate from 65 percent to 90 percent, and bringing 200 plus schools up to top international standards. The lab participants managed to rank all 10,000 schools nationwide by their performance within four weeks, designed a new performance management system for all principals in the space of six weeks, and designed and rolled out a large-scale literacy and numeracy remedial intervention program within four months. Emulating this approach, Myanmar's government could take targets from such strategies as the Framework for Economic and Social Reform and the National Comprehensive Development Plan and insert them into concrete implementation plans.

- **Delivering more for less.** Successful delivery programmes reallocated resources to priority outcomes, generated revenue through improved tax collection, reduced subsidies, put in place more efficient management of procurement and capital expenditure, leveraged funds from the private sector and donors, and rigorously assessed programmes to make sure that expenditure led to direct improvements in priority areas.
- **Intense internal and external pressure to perform.** Effective governments have established clear accountability for priority outcomes with ministers, permanent secretaries, and frontline civil servants (e.g., teachers, police officers), and have then intensely and regularly reviewed their performance, publishing targets and government performance so that the public, media, and other stakeholders have transparency on government accountability.
- **High-powered “delivery units” focused on problem solving.** Successful government delivery programmes typically involve a small unit close to the head of government with the sole purpose of driving the implementation of priority outcomes across government. Such a delivery unit based in Myanmar could greatly increase the government's ability to implement the economic agenda. The unit's primary focus would be problem solving how best to deliver policy with real discipline and rhythm in conjunction with ministries and agencies. The experience of other countries suggests that a delivery unit in Myanmar would be most likely to succeed if it were headed by a leader with a proven track record for delivering major results and transformations and who knew how to work effectively with the civil service—even without line authority. The delivery unit should stay focused on key outcomes and not drift into doing the work of civil servants. It should also be able to attract highly qualified and driven staff from across the public, private, and social sectors—from Myanmar itself, its diaspora, or the international community.
- **Visible sponsorship from top leaders.** In countries that have implemented transformation well, heads of government played an active role in setting bold aspirations, making tough decisions on priorities, removing obstacles, and engaging stakeholders. They dedicated real time—at the very least eight hours each month—to overseeing delivery.²⁵²

252 Ibid.

- **Two-way stakeholder engagement before and after the plan.** Successful delivery programmes have not just communicated with stakeholders—they engaged them from the setting of priorities through to their delivery. They also developed innovative ways to involve the public, for example by holding open days to share draft plans with all stakeholders and inviting input via text messages prior to finalising a plan. Communicating results on a weekly or monthly basis to demonstrate progress and address sceptics has proved useful.

If Myanmar's government turns its ambition and strategies into a well-designed and well-executed delivery programme based on these seven best practices from successful governments across the globe, it can boost the odds of being able to tackle the tremendous task ahead.

A \$200 billion opportunity: Implications for the private sector

If Myanmar handles its transformation well, Myanmar could offer significant potential to businesses. In this report, we have identified more than \$200 billion of additional output that could come from more than doubling the rate of labour productivity growth, as well as the promise of a consumer market roughly the size of Vietnam's today. Myanmar's companies will need to prepare for a rapidly changing marketplace and economy. Many businesses overseas that see clear potential in this largely untapped Asian economy will also need to overcome considerable uncertainty to capture it. The analysis in this report suggests different implications for domestic and foreign companies.

MYANMAR'S COMPANIES

Myanmar's companies are likely to experience both significant growth potential and intense competitive pressure over the next few years. The environment will be one of enormous change. Market pressures, prices, the regulatory environment, and ways of doing business will all shift as Myanmar integrates into the global economy and the ASEAN Economic Community is realised. Myanmar's companies, which are generally currently small by international standards, are likely to increase their chances of success if they keep three interlinked imperatives in mind:

- **Prepare to compete in Myanmar and abroad.** As Myanmar's market opens up to companies from abroad and the markets of neighbouring countries become accessible to Myanmar's businesses, domestic companies need to invest time and effort in building a solid understanding of the opportunities in different markets as well as the strategies that they will need to deploy to compete domestically, regionally, and internationally—ideally, armed with international best practice in their management and processes.
- **Quickly reach international standards.** To compete at home and overseas, Myanmar's companies need to attain international standards in the quality and price of their goods and services—and to do so quickly. Competitive foreign companies are already entering Myanmar, and market integration across ASEAN in less than three years' time will add to the intensity of competition.

- **Seize the opportunities of foreign partnerships.** One way for Myanmar companies to compete is to form partnerships with successful foreign companies that can give them access not only to capital but also to best practices in management, operations and organisations, and technology and international networking. This way, Myanmar's companies can build capabilities relatively quickly. It is important that they judge a prospective partnership not just on the financial injection it could bring but also on these broader benefits.

Trade associations and chambers of commerce can help companies by opening doors to new contacts and offering advice on the evolving regulatory and market environment.

INTERNATIONAL COMPANIES

International companies need to weigh up the advantages of fast growth in Myanmar, at potentially high margins, with access to cheap labour and natural resources and compare these to the risks inherent in the peace and transformation process and potentially the small-scale of opportunity relative to other Asian markets. For those companies overseas that decide to invest, there are four potentially useful ways of looking at how to approach Myanmar.

- **Move fast to assume a leadership position.** In many sectors, more foreign companies are already active in Myanmar than is often assumed, and the race for leading market positions is already well under way. Foreign companies therefore need to be prepared to move fast. There is still scope for early movers to take advantage of limited competition and first access to assets, resources, government support, and talent. By getting into the market early, companies can be among the first to form business relationships that can last in the long term, as well as shape consumer behaviour and brand recognition in services and consumer sectors. Many companies will be able to use existing operations in the ASEAN region to help them start new operations in Myanmar quickly. Securing local partnership before their competitors is another important reason to move quickly.
- **Be prepared for a long-term commitment.** The opportunity in Myanmar could take time to come to fruition, and the challenges are likely to be formidable especially in the short term. That implies that foreign companies need to be prepared for the long haul and need to invest in building local assets such as brands and distribution networks. They should also be prepared to play an active role in building and shaping the business environment. A commitment to sharing the burden of developing infrastructure capacity and to training people—and, more broadly, a commitment to Myanmar's vision of people-centred development—is necessary, given the limited ability of the government to provide such inputs.
- **Develop a deeper approach than elsewhere.** The market in Myanmar is highly fragmented—there are more than 135 heterogeneous ethnic groups with their own languages and cultural practices, the population is spread across the nation with very few major population centres, and the infrastructure connecting regions is poor. For these reasons, companies need to develop a deeper understanding of this market, potentially more than they usually do for other economies, and develop a set of micro-plans that target specific customer segments and regional markets. They need to profile the potential not just

through a national or regional prism but at the level of individual townships and cities. This effort is all the more important as data are not widely available.

- **Form partnerships with local companies.** One way for overseas companies to achieve more rapid growth in Myanmar is to strike up partnerships with local companies (and vice versa, as we have mentioned). Identifying which partners are likely to be the best fit is still likely to be the most effective way of quickly building up the local resources that will be indispensable in the medium term.

□ □ □

Myanmar, a nation eager to take its place in the world and join its Asian neighbours in today's wave of rising prosperity, has an exceedingly demanding agenda ahead: boosting productivity, building the infrastructure needed to support growth, developing skills, and creating employment—and all with limited funds and governmental capacity. After a series of political and economic reforms, Myanmar has the goodwill of the international community as it embarks on this monumental task. But it needs to maintain a steady course of change and progress, in order to maintain the trust of the businesses and investors—necessary for reaching its potential.

The incentive to do so is compelling. By 2030, Myanmar's economy could be more than four times as big as it is today, with GDP of over \$200 billion. The fact that this underdeveloped economy is embarking on its transformation in the digital age should reinforce that potential. So, too, should the fact that Myanmar is still largely an agrarian nation, but one that is on the cusp of a wave of urbanisation sweeping across Asia and the rest of the developing world. This is Myanmar's moment: seize it and the nation has a chance of becoming one of the most exciting economic transformations the world has seen.

Appendix: Technical notes

This appendix outlines key aspects of the methodology employed in this report under the following headings:

1. Economic potential of key sectors (Chapter 2)
2. Consuming class (Chapter 2)
3. Required total investment and FDI (Chapter 3)
4. Skill gap (Chapter 3)
5. Population increase in Myanmar's large cities to 2030 (Chapter 3)
6. Per capita GDP in large cities and the rest of the country (Chapter 3)
7. Required urban infrastructure investment (Chapter 3)

1. ECONOMIC POTENTIAL OF KEY SECTORS (CHAPTER 2)

Manufacturing

We sized Myanmar's manufacturing GDP and employment by drawing on the experience of Asian countries during similar periods of economic development as they shifted from being predominantly agrarian economies towards ones in which industrial and service sectors have greater weight, and as they increased per capita GDP from Myanmar's current level to the level it would reach in 2030 if the economy were to grow at an average of 8 percent per year.

For manufacturing GDP, we assumed that around 22 percent of GDP comes from this sector. We used statistics on the sector's output from Myanmar's Central Statistical Organisation. Using these data and applying them to the IMF's estimate of Myanmar's total 2010 GDP of \$45.4 billion, we found that total manufacturing GDP was \$9.8 billion in 2010. To estimate Myanmar's manufacturing sector in 2030, we looked at the evolution of the sector's structure in four Asian countries during their comparable per capita GDP transition years—Bangladesh, Malaysia, Thailand, and Vietnam.²⁵³ MGI defines manufacturing sub-sectors as low-value added (e.g., textiles, apparel, leather, and furniture), medium-value added (e.g., food processing, refined petroleum, rubber and plastic products, metals, and metal products) and high-valued added (e.g., automotive parts and assembly, chemicals and pharmaceuticals, and machinery and appliances).²⁵⁴ This segmentation resulted in estimated potential 2030 manufacturing contribution to GDP of \$69.4 billion and annual average sector growth of 10.3 percent between 2010 and 2030.

²⁵³ Years of similar per capita GDP (PPP) movement as we estimate for Myanmar over 2010–2030.

²⁵⁴ *Manufacturing the future*, McKinsey Global Institute, November 2012.

For manufacturing sector employment, we used *Integrated household living conditions survey (2009–2010)*, UNDP, et al. in assuming that around 5.9 percent of workers are employed in this sector. Assuming an overall employed workforce of 29.8 million in 2010 using data from the Asian Development Bank and the Human Development Report Index, this translated into around 1.8 million people working in Myanmar's manufacturing sector in 2010. We estimated future job growth by examining the employment multiples in the sector for neighbouring Asian countries Bangladesh, India, Indonesia, Malaysia, Pakistan, Sri Lanka, Thailand, and Vietnam.²⁵⁵ Applying these estimated employment multiples to the sector's potential GDP contribution in 2030 results in estimated 2030 employment in the manufacturing sector of 7.6 million workers.

Agriculture

Our discussion of the agriculture sector includes the cultivation of crops as well as livestock and fishery but excludes forestry. We estimated the GDP contribution from agriculture using a bottom-up approach based on multiplying production figures by local or proxy prices.

We estimated the GDP contribution in 2010 by multiplying production figures and prices for crops quoted in the Myanmar Central Statistical Organisation's *Statistical yearbook 2010–2011* with the exception of paddy (un-husked rice). For paddy, we assumed the production levels estimated by the US Department of Agriculture, which are around 38 percent less than those provided by the government of Myanmar. When local prices were not available, we assumed crop prices from regional benchmark countries from FAOStat, the statistics arm of the FAO of the United Nations. The total production value of crops resulting from this exercise amounted to \$14.5 billion. Livestock production in 2010 stood at \$1.8 billion, according to FAOStat. Fishery production in 2010 amounted to 3.9 million metric tons, according to FishStat. Assuming a value per ton of \$1,270, in line with the export value per ton from Myanmar in 2009, the value of the fishery sub-sector stood at around \$5 billion in 2010. Overall, the agriculture sector is likely to have contributed around \$21.2 billion to Myanmar's GDP in 2010. This estimate of the agriculture sector's GDP contribution is based on revenue in the sector rather than value added, which seems reasonable as it is similar to the sector size implied by government figures. The Myanmar Central Statistical Organisation's *Statistical yearbook 2010–2011* estimates that agriculture made up 44 percent of Myanmar's GDP in 2010. Multiplied by the IMF's estimate of the total economy at \$45.4 billion, this would yield an agriculture sector size of \$19.9 billion.

To estimate the potential increase in the agriculture sector's GDP contribution in the period to 2030, we analysed six value pools that Myanmar's agriculture sector could develop. First, we estimated that crop yields can be improved by around 70 percent on average to 2030, a calculation based on comparing current yields for all crops as reported in the *Statistical yearbook 2010–2011* with potential yields per crop in Myanmar by the Global Agro-ecological Zones Database of the FAO and the International Institute of Applied Systems Analysis. We assumed that input levels would reach an "intermediate" stage as defined by the FAO and IIASA, and that irrigation would increase from around 25 percent of net sown area today to the Asia Pacific average of 32 percent. Assuming constant crop prices,

255 "Job multiple" is defined as jobs per million dollars of GDP. China is not included due to a lack of reliable government estimates of manufacturing sector employment.

this yield improvement would increase annual revenue in the agriculture sector by around \$10 billion by 2030.

Second, we estimated that Myanmar's farmers could improve earnings significantly by changing the crop mix. The value of Myanmar's current crop mix currently amounts to roughly \$1,300 per hectare. If 25 high-value crops—including fruits and vegetables, some beans and pulses, oil palm, rubber, and coffee—were to double their share in Myanmar's crop mix from 15 percent to 30 percent to 2030, the value per hectare would increase by around one-third to \$1,700 at today's crop prices—almost twice the value per hectare of paddy rice. Annual earnings in Myanmar's agriculture sector would increase by around an additional \$5 billion by 2030—an attractive alternative to the aspiration of becoming a major exporter of comparatively low-value crops such as rice.

Third, we estimated that the area under agricultural cultivation could increase. Carbon mapping suggests that there are around 20 million hectares of low-carbon arable land of which only around 12 million are currently cultivated. If Myanmar increased cultivated land by a mere 0.54 percent a year to 2030—the rate projected by the FAO for developing countries excluding China and India—the area under cultivation would increase by around 1.3 million hectares. This is far less than the 5.6 million hectares reported by the government as arable, but currently not cultivated, land. This modest increase in agricultural area would increase the sector's annual GDP contribution by an additional \$2.4 billion per year by 2030.

Fourth, we assumed that the livestock sub-sector can grow at an average rate of 4.3 percent per year to 2030, as it has on average in Cambodia, China, Indonesia, Laos, the Philippines, Thailand, and Vietnam from 2000 to 2010. Annual GDP contribution would increase by an additional \$2.4 billion.

Fifth, we estimated that Myanmar's fishery sub-sector can grow at an annual rate of 4 percent to 2030, the average growth rate of Bangladesh, China, India, Indonesia, Malaysia, the Philippines, Thailand, and Vietnam between 2000 and 2010, according to FishStat. This would increase the annual GDP contribution by an additional \$6 billion by 2030.

Lastly, based on FAO analysis, we estimated that losses in the agricultural supply chain from agricultural production to post-harvest handling and storage could be reduced considerably, increasing the value of Myanmar's agriculture sector by more than an additional \$1 billion per year by 2030.²⁵⁶

In sum, these pools of agricultural potential suggest that Myanmar's agriculture sector could post an annual growth rate of 4.3 percent from 2010 to 2030 and contribute around \$49 billion per year to GDP by 2030, more than double the 2010 contribution.

²⁵⁶ Jenny Gustavsson et al., *Global food losses and food waste*, Swedish Institute for Food and Biotechnology and FAO, 2011.

On employment, we assumed that around 52 percent of workers are employed in the agriculture sector, drawing on *Integrated household living conditions survey (2009–2010)*, UNDP et al.. Assuming an overall employed workforce of 29.8 million in 2010 using data from the Asian Development Bank and the Human Development Report Indicators of Myanmar's Ministry of Labour, around 15.6 million people worked in Myanmar's agriculture sector in 2010. We calculated that labour productivity per worker was around \$1,360 per worker per year in 2010 and that labour productivity in the agriculture sector will improve by an average annual rate of 4.3 percent, as it did in China, India, Thailand, and Vietnam during comparable periods of economic growth, according to data from IHS Global Insight and the World Bank. This estimated rate of productivity improvement is roughly equal to our estimated rate of agriculture sector GDP contribution, suggesting that the sector will employ about 15.6 million people in 2030, roughly the same number of workers as in 2010.

Infrastructure

Our estimates of the current and future GDP contribution and employment of the infrastructure sector account for both its construction (e.g., building a new port or power plant and on-going capital expenditure on maintenance) and its operation (i.e., operating a port or a power plant). We defined the infrastructure sector as the sum of transportation infrastructure (roads, railways, ports, and airports), utilities (water, waste, and power), and residential and commercial real estate. We excluded telecommunications infrastructure because we size the potential of that sector separately (see below).

Construction

We based our estimate of the GDP contribution from infrastructure construction on MGI research showing that countries usually have an asset stock in transportation, utilities, and telecommunications infrastructure equivalent to roughly 70 percent of their GDP—a rule of thumb that tends to hold true even at different levels of development. We assumed that this rule of thumb applies to Myanmar both in 2010 and in 2030. We assumed that as GDP increases, investment in infrastructure would keep the infrastructure asset base at 70 percent of GDP. Based on research by MGI and McKinsey's Infrastructure Practice, we assume depreciation at 2.5 percent per year, requiring additional capital expenditure of the same amount.²⁵⁷ Assuming an average GDP growth rate of 8 percent for Myanmar between 2010 and 2030, we calculated that total cumulative construction investment on transportation and utility infrastructure would be \$138 billion in this period.

²⁵⁷ *Infrastructure productivity*, McKinsey Global Institute and McKinsey Infrastructure Practice, January 2013.

To estimate the contribution to GDP and employment of real estate construction, we assessed the current stock in square metres of commercial and residential floor space in Myanmar using data from Pike Research's Global Building Stock Database and benchmarked that data against floor space in the McKinsey Global Institute Cityscope 2.0 database for cities in Bangladesh and India, assuming that Myanmar would reach per capita levels of floor space in 2030 found in these benchmark countries today. We assumed that real estate construction costs would be similar to those in Vietnam at roughly \$600 per square metre, drawing on Vietnam data from Turner & Townsend's International construction cost survey 2012. This exercise yielded a cumulative real estate construction total of roughly \$180 billion between 2010 and 2030. This figure includes annual capital expenditure in maintenance of 2.5 percent of the real estate asset base.

Overall, this estimate suggests that a GDP growth rate of roughly 8 percent requires spending on infrastructure construction amounting to around \$318 billion between 2010 and 2030. Assuming that this construction occurs in annual tranches that keep pace with increasing GDP yields, it corresponds to an annual investment in infrastructure construction of \$29 billion in 2030. These investment estimates were then translated into GDP and employment terms by using multipliers from comparable countries where data were available. This approach yielded a contribution to GDP from infrastructure construction of \$16 billion and more than two million construction jobs in 2030. We accounted for direct effects only on GDP and employment (i.e., initial GDP and direct effect on infrastructure companies) and on Tier-1 suppliers. We did not include indirect economic effects to avoid double-counting with the sizing of other sectors.

Operations

To estimate the GDP contribution from operating the infrastructure assets in different sub-sectors (i.e., transportation, utilities, and real estate), we assumed that the ratio of economic activity (value added) in these sub-sectors over the capital expenditure in a given year in Myanmar would be in line with that of China, India, Indonesia, Malaysia, Thailand, and Vietnam between 1980 and 2012. Our data source here was IHS Global Insight. To estimate employment in the operation of assets per infrastructure sub-sector, we used job multiples from comparable countries from the World Input Output Database.

Energy and mining

We analysed Myanmar's energy sector by determining the value of Myanmar's production of natural gas, crude oil, and related products in 2010 and 2030 by multiplying potential production volumes by constant 2010 prices. To estimate potential production volumes in 2030, we divided production levels of natural gas and crude oil in 2010 by Myanmar's total reserves to derive the extraction rate—the share of reserves that a country extracts per year. Our data sources for production levels were the Myanmar Central Statistical Organisation's *Statistical yearbook 2010–2011*, and the US Geological Survey (USGS) *Minerals yearbook for Myanmar 2010*. Our source of data on reserves was the *BP statistical review of world energy 2012* and its 2004 review.

We then analysed how quickly regional benchmark countries (Australia, China, India, Indonesia, and Malaysia for natural gas; Australia, Brunei, India, Malaysia, and Vietnam for crude oil) were able to increase their extraction rate. We based this calculation on 2011 reserves and used the *BP statistical review of world energy 2012* report as our source. We examined periods during which these countries grew from similarly low extraction rates as Myanmar's today to a mature extraction rate found across most countries (average of 4.4 percent per annum for oil and 2.9 percent for gas). We assumed that Myanmar would manage a comparable increase in the same time frame (17 years for both oil and gas) and that production levels in the years up to 2030 would remain flat at that extraction rate. Because estimating future energy prices is extremely difficult, we chose to assume that 2010 prices for natural gas and crude oil remained constant at \$7,639 per million cubic feet of natural gas and \$79.91 per barrel of crude oil, using data from Wood MacKenzie. This estimate of the potential of the oil and gas sector depends significantly on the assumed size of Myanmar's deposits. Until prospecting provides better insights, it is very difficult to ascertain with any great certainty the potential of natural gas and crude oil in Myanmar.

To estimate the contribution to GDP and employment based on the estimated value of production, we applied input/output multipliers from Indonesia, which indicate how much economic activity (GDP or employment) is generated by a certain input—in this case the production value in the energy sector. We accounted for only the initial and direct GDP and employment effects on energy companies and Tier-1 suppliers to exclude overlaps with the sizing of other sectors.

To estimate the growth potential of Myanmar's mining sector, we used a slightly different approach. To our knowledge, no robust data on Myanmar's reserves currently exist. Therefore, we estimated future production growth rates by commodity based on a combination of expert interviews and estimates from comparable countries. Our data sources were the Central Statistical Organisation's *Statistical yearbook 2010–2011* and the USGS *Minerals yearbook for Myanmar 2010*. For jade, we assumed a growth rate of 2.5 percent to 2020 and 5 percent to 2030 (assuming that the Chinese import tax would remain an obstacle in the medium term). For precious stones, we assumed constant production levels between 2010 and 2030, as expert interviews suggested that likely deposit levels would not allow for a significant increase in production. For all other minerals that are mined in Myanmar, we assumed a 4.8 percent growth rate to 2020 (based on mining sector growth in benchmark countries in the past) and 8 percent to 2030 (in line with the potential effective annual GDP growth rate for Myanmar).

Multiplying 2010 and 2030 production levels by 2010 commodity prices yields the value of production. Our data sources for production levels were the World Bank, Consensus Economics, USGS, and expert interviews. We kept prices constant as in the energy sector to avoid speculating on future price developments. As in the energy sector, we applied input/output multipliers from Indonesia to convert the value of production to GDP and employment, again accounting for only initial and direct economic effects. In our sizing, we did not take account of the black market, which plays a significant role in most of the precious stones (according to experts, the black market could account for more than 60 percent of the total value in the case of sapphires, for example), but including the informal sector could add significant additional value.

Our estimated figures for the increased GDP contribution of the energy and mining sectors are in line with those of comparable benchmark countries (China, India, Indonesia, and Malaysia for energy, and Chile, China, Indonesia, and Peru for mining) both over 20 years from when the sector was of comparable size to Myanmar's in 2010, as well as over 20 years from when the country had a per capita GDP level comparable to that of Myanmar in 2010.

Tourism

We estimated tourism revenue by multiplying the number of overnight tourist arrivals by average spending per night, length of stay, and spending per day. We gauged future overnight tourist arrivals by using historical data from the UN World Tourism Organization (UNWTO) from 2009 and 2011, which showed that arrivals grew by 27 percent per year, from 243,000 to 391,000, during that period. We then applied that 27 percent growth rate for the first five years. After the first five years, we used a growth rate of 18 percent to 2030 based on the growth rate of overnight tourist arrivals in Cambodia, which was one of the highest in Asia. We applied high growth rates throughout the period because tourism has been artificially depressed in Myanmar. This exercise resulted in an estimated 13.5 million tourist arrivals in 2030. To gauge the average length of stay, we estimated that the length increases slightly from the current seven nights in 2012 to 7.1 nights, based on UNWTO data on benchmark countries. We estimated that spending per day would increase from \$135 in 2012 to \$145, which is an average of benchmark countries of Cambodia, Indonesia, and Panama. We used Cambodia and Indonesia because they were neighbouring countries in the region that had higher average spending of \$115 and \$135 in 2010, again using UNWTO data. This compares with countries like the Philippines and Sri Lanka that had average spending of \$80 to \$90. We used Panama as a benchmark because it recently expanded its tourism sectors and has high spending. We based this comparison on the assumption that Myanmar will continue to attract higher-spending tourist segments.

To estimate the number of jobs tourism could generate, we benchmarked the average number of jobs per million of tourism GDP of Indonesia, Thailand, and Vietnam in 2012, using World Travel and Tourism Council data.

In addition to this sizing of the tourism sector's potential, we estimated the total number of tourism trips of Asians in 2030, in order to illustrate how the rise of the consuming class in Asia could drive tourism in the region. To project the number of trips within Asia made by Asian tourists, we used estimates of the number of upper-middle-class and higher-income individuals in Asian countries in 2010 and 2030, defined as individuals with incomes higher than \$ as estimated from the McKinsey Global Institute's Cityscope 2.0 database. We assumed that individuals in these income categories would be tourists. We then calculated the total trips made from these Asian countries and divided that by each country's total tourists, estimated as described above, to obtain a ratio of trips per tourist per Asian country. We assumed this ratio remains constant to 2030 and applied it to the estimated number of travellers in 2030 to calculate the total number of trips made by Asian tourists in 2030. We then applied the current percentage of trips to Asia by these tourists to arrive at a projection of the number of trips to Asia.

Telecommunications

To assess the potential for telecommunications revenue, we sized potential mobile revenue as well as fixed lines for households and fixed lines for businesses separately. For mobile revenue, we multiplied the expected population by estimates of mobile penetration, and average revenue per user for mobile voice, data, and SMS. We derived the telecommunications services penetration rate from the number of service lines divided by the population. We estimated that the penetration of mobile voice services would increase from 3 percent in 2011 to 150 percent in 2030, the average of Vietnam's and Indonesia's projected penetration in 2017, the last year for which projections exist and the farthest out we could picture the future telecommunications landscape. Penetration rates of more than 100 percent are possible mostly due to the use of dual SIM cards. We then assumed that the average monthly revenue per user for mobile voice, data, and SMS in 2030 would be equivalent to the average of Indonesia's and Vietnam's in 2017 at \$1.90, \$1.40 and \$0.70, respectively. We used World Cellular Information Service and Pyramid data.

For fixed-line household revenue, we multiplied the expected number of households by the penetration of voice and voice average revenue per user, as well as penetration of Internet accounts and Internet average revenue per user. For the number of households, using McKinsey Global Institute Cityscope 2.0 data, we estimated that the number of households would grow from ten million in 2010 to 12 million in 2030. For household voice penetration, we used the average of Vietnam's and Indonesia's penetration in 2017 of 50 percent. For average revenue per user, we used Indonesia, the Philippines, Thailand, and Vietnam in 2017 as benchmarks and arrived at average monthly revenue per user of \$6. For Internet penetration, we again used benchmarks of Indonesia, the Philippines, and Vietnam in 2017 for penetration of 16 percent and average revenue per user of \$18.

For fixed-line business revenue, we used a similar method as with household revenue and multiplied the expected number of businesses by penetration of voice and voice average revenue per user, as well as penetration of Internet accounts and Internet average revenue per user. We estimated the number of businesses in Myanmar by multiplying the average number of businesses per \$1 million of GDP in Malaysia, Thailand, Philippines, Vietnam, and China (in 2010 to 2012 depending on data availability) and multiplied this with the estimated GDP in 2030. This exercise yielded a total of one million businesses,. For business voice penetration and average monthly revenue per user, we benchmarked the average of Indonesia, the Philippines, and Vietnam to get 16 percent and \$22, respectively. For Internet penetration and average monthly revenue per user, we used the same benchmarks to get 55 percent penetration and \$32 in monthly revenue per user.

To estimate the number of jobs generated in telecommunications, we benchmarked the average number of jobs per million of telecommunications GDP of the Philippines and Vietnam in 2010 and 2011 and arrived at a figure of 37 employees per million of GDP earned.

Financial services

We used banking revenue as a proxy for financial services revenue. To estimate banking revenue, we estimated that the ratio of assets in the banking system to total GDP would be 120 percent in 2030. This is based on the average of Indonesia, Malaysia, the Philippines, Thailand, and Vietnam in 2011. If this ratio is applied, the expected total assets in the banking system would be \$250 billion. We then estimated that the risk-adjusted return on revenue would be 4 percent from 2010 to 2030, based on the average of Cambodia's and Laos's risk-adjusted return on revenue, using as our source. To estimate the number of jobs generated in financial services, we used job multiples from Malaysia, the Philippines, Thailand, and Vietnam in 2012.

2. CONSUMING CLASS (CHAPTER 2)

The McKinsey Global Institute's Cityscope 2.0 database includes estimates of income distribution for all countries and the world's largest cities. Sourcing data from Canback Global Income Distribution Database (C-GIDD), it estimates that around 4 percent of Myanmar's population earned more than \$3,600 at 2005 PPP in 2010. Across countries, consumer spending rises steeply at this income level with a higher share of spending on semi-necessities and discretionary items. Therefore, we define those individuals with this income or higher as the consuming class.

Assuming that the economy grows at a compound annual growth rate of 8 percent, we estimate that Myanmar's consuming class could grow to 27 percent of the population by 2030, reaching 19 million consumers in 2030, up from 2.5 million in 2010. This estimate assumes the United Nations' projection for population growth rate for Myanmar at 0.9 percent per year to 2030 and is based on an estimate of income distribution in Myanmar in 2016 by C-GIDD. Since CGIDD assumes a per capita GDP growth rate of 5.6 percent per year for Myanmar, we have adjusted the estimate upward to reflect the per capita GDP growth rate of 7 percent implied by 8 percent overall real GDP growth in Myanmar to 2030. Similarly, we have adjusted the estimate downward to determine how large Myanmar's consuming class could grow to be if productivity improvements remained at historical levels and Myanmar's per capita GDP grew at a rate of 2.8 percent.

3. REQUIRED TOTAL INVESTMENT AND FDI (CHAPTER 3)

We sized total investment needed as a function of GDP growth. We estimated that investment needed to be 25 to 35 percent of GDP based on the average ratio of gross fixed capital formation to GDP of Bangladesh, Cambodia, China, India, Indonesia, Malaysia, Thailand, and Vietnam during years in which they were growing from a similar per capita GDP base as Myanmar's today. This yields a total gross fixed capital investment need of around \$650 billion over the next 20 years. Of the gross fixed capital investment required, cumulative savings could be approximately \$480 billion if Myanmar followed a similar, but somewhat lower, rate of domestic savings as the benchmark countries because of Myanmar's underdeveloped banking system. As a comparison, Thailand accumulated \$675 billion in savings between 1982 and 1995, and Vietnam accumulated \$370 billion in savings from 1999 to 2011. The starting point of savings of 10 percent of GDP is supported by World Bank gross savings data from 2001 and 1991 and is close to Cambodia's current levels, and the end point (savings equal to 30 percent of GDP) is in the lower range of the rest of the benchmark countries' savings rates. This results in just over \$170 billion needed from foreign

capital inflows to fill the remainder of the investment requirements, which will come from a combination of FDI, loans and deposits, portfolio debt, and portfolio equity. Understanding the likely split between these different sources of capital inflows is difficult given that Myanmar is in the process of developing its financial system. However, we expect that FDI is likely to account for the majority of these inflows, possibly up to \$100 billion in total between 2010 and 2030.

4. SKILL GAP (CHAPTER 3)

We define skill levels in the same way as MGI's previous work on global labour markets.²⁵⁸ High-skilled workers are those with a Bachelor's degree or an equivalent degree and higher, semi-skilled workers are those who have completed secondary school but do not have a Bachelor's degree or an equivalent degree, and low-skilled workers are people with primary or no schooling.

To estimate the supply of workers at each skill level, we started with 2010 figures for the working-age population and labour force from the Human Development Report Indicators, the Myanmar Central Statistical Organisation, and the Asian Development Bank. We used educational attainment figures from the World Bank. We applied forecasts of Myanmar's working-age population from the United Nations Population Division, Revision 2, and the US Census Bureau, and workforce participation rates from the International Labour Organisation. This gave us a total labour force for year 2030. We adjusted the figure for long-term unemployment, using the IMF's unemployment rate forecasts, to arrive at the total employable labour supply. Next, we looked at educational attainment growth in neighbouring Asian countries to estimate Myanmar's 2030 education levels. We used India and Thailand as benchmarks because their education levels were similar to Myanmar's 2010 levels when they started a similar per capita GDP transition as we estimate for Myanmar from 2010 to 2030. This gives us a total supply of 38 million workers by 2030, of whom four million are high-skilled workers, eight million are semi-skilled, and the remaining 26 million are low-skilled.

To ascertain estimated demand of workers by skill level, we use the employment numbers that came out of our sizing of seven key sectors of the Myanmar economy. For the remaining sectors, we assumed a similar size as in 2010. Next, we used Indonesia's 2010 demand for skills as indicative of Myanmar 2030 patterns; Indonesia in 2010 had a similar per capita GDP as we estimate for Myanmar in 2030. This exercise resulted in our estimates of total demand for 40 million workers, of whom five million are high-skilled, 21 million semi-skilled, and the remaining 15 million low-skilled workers.

We measured the imbalance of high-skilled, semi-skilled, and low-skilled workers as the difference between supply and demand for workers at each skill level. This resulted in an under-supply of 13 million high-skilled and semi-skilled workers and an over-supply of 11 million low-skilled workers.

258 Ibid., *The world at work*, McKinsey Global Institute, June 2012

5. POPULATION INCREASE IN MYANMAR'S LARGE CITIES TO 2030 (CHAPTER 3)

To our knowledge, there is no publicly available data set on the urban population of countries that uses a common definition of “urban”. The World Urbanization Prospects Database of the Population Division in the United Nations’ Department of Economic and Social Affairs combines data from national statistical offices, but individual countries report their rural and urban populations using very different definitions. “Urban” can be defined as agglomerations of more than 600 people (Laos) or 50,000 people (Japan) and any number in between. Other countries use a purely qualitative definition. In Indonesia, for example, urban agglomerations are vaguely defined as “municipalities, regency capitals and other places with urban characteristics”.

The United Nations reports that Myanmar’s urban population in 2010 accounted for 32.1 percent of the population. However, this appears to be high given the country’s comparatively early stage of development. Data on the population of urban areas in Myanmar from the Department of Human Settlement and Housing Development and compiled from data of the Ministry of Immigration and Population suggest that 23 percent of Myanmar’s population lived in cities with populations over 50,000 in 2010. According to these data, Myanmar had ten large cities with over 200,000 inhabitants and a combined population equivalent to around 13 percent of Myanmar’s total population of around 60 million. These data will be difficult to verify until the results of the new census in 2014 become public.

In this report, we chose to analyse Myanmar’s population in large cities with populations exceeding 200,000. We do not consider this cut-off to represent a definition of “urban population”. Instead, this cut-off allows the use of comparative data from the McKinsey Global Institute’s Cityscope 2.0, a global database on large cities, which allows us to draw on extensive data on cities of this size in Asia and around the world (see Box 12, “McKinsey Global Institute Cityscope 2.0”).

To estimate how many people could live in Myanmar cities with populations of more than 200,000 in 2030, we applied two estimates for annual population growth rates in the urban centres. The approach used in both estimates is to analyse the relationship between economic growth and urbanisation in Asian countries during periods when their per capita GDP increased from the level that we observe in Myanmar today to the level that would be reached if Myanmar’s GDP were to grow at an annual rate of 8 percent in the period to 2030.

The first estimate is based on population data of large cities across Asia during the comparable period of economic growth from the United Nations, *World urbanization prospects: The 2011 revision*. The cities we examined had populations of at least 200,000 inhabitants at the end of that growth period. In total we assessed 242 cities in ten countries: Cambodia, China, India, Indonesia, Laos, Malaysia, the Philippines, South Korea, Thailand, and Vietnam. For each country we derived an average annual growth rate for the large cities from which we subtracted the overall population growth rate in the country during the same period. We averaged that rate across the ten benchmark countries and added the expected total annual population growth rate of Myanmar between 2010 and 2030 of 0.92 percent used in the US Census Bureau/United Nations Population Division, Revision 2 to obtain an estimate of the annual growth rate of Myanmar’s large cities between 2010 and 2030. The result of this calculation is an annual urban growth rate of 3.15 percent. By applying this growth rate to the population of Myanmar’s urban centres in 2009,

Box 12. McKinsey Global Institute Cityscope 2.0

The MGI Cityscope is a database of more than 2,600 cities around the world that allows us to understand the evolving shape of global urban economies; extract many different city rankings and groupings by region, variable, and target market; test the growth momentum from doing business in particular geographies; and develop projections of growth in urban markets of a range of products and services. The database is, to our knowledge, the largest of its kind. It can help answer a range of questions relevant for the decisions that companies and policy makers need to make: Which cities will contribute the largest number of children to the world? Where will most new entrants to the workforce and most senior citizens be? Which cities will experience the fastest expansion among consuming classes?

For each city, the database includes data for 2010 and forecasts for 2025 on population by age group (children below the age of 15), working-age population (aged 15 to 64), and the older population (aged 65 and above), GDP and per capita GDP (at market and at market and PPP exchange rates as well as at predicted real exchange rate, or RER), and number of households by income segment (in four income categories defined by annual household income in PPP terms: less than \$7,500, \$7,500 to \$20,000, \$20,000 to \$70,000, and more than \$70,000). MGI has developed city-specific data from existing public survey data, MGI's city-level data sets developed as part of our previous research, selected data from external providers, and MGI's country- and region-specific models of city growth to 2025.

This report draws from an updated version of the Cityscope 2.0 database, which now has a broader set of variables that shed light on the diversity of urban market growth prospects across different industries. The new Cityscope metrics include a view on markets such as deposits by city, and estimates of residential and commercial floor space, container demand, and municipal water demand.

we found that 28 cities would reach a population of 200,000 or more by 2030. The sum of their populations would be 19.7 million.

In a second estimate of the growth rate of large cities in Myanmar to 2030, we analysed the development of the urbanisation rate (urban population as a share of total population as reported by the United Nations in *World urbanization prospects: The 2011 revision*) of countries during similar periods of economic development. Our sources here were The Conference Board Total Economy Database and IHS Global Insight. Conducting three triangulations for this estimate, we chose the comparison countries and growth periods as follows:

- The growth period starting at per capita GDP of around \$1,300 and ending at about \$5,000
- The 20-year period of growth starting at per capita GDP of about \$1,300
- The 20-year period of sustained high growth, i.e., countries with a per capita GDP growth rate of over 5.5 percent

Although the benchmark countries differed in these three triangulations, the resulting increase in the urbanisation rate was very similar and averaged 2.56 percent per year. Applying this estimated annual growth rate to urban agglomerations in Myanmar in 2009 resulted in 23 urban areas reaching a population of 200,000 or more by 2030. The sum of their populations would amount to 16.5 million in 2030.

In order to avoid a false sense of accuracy in a matter as difficult to predict as the increase in urban populations over two decades, we took a simple average between the two results. This average indicated that about 18 million people would live in Myanmar's large cities larger than 200,000 inhabitants in 2030, of which Myanmar is likely to have up to 25.

6. PER CAPITA GDP IN LARGE CITIES AND THE REST OF THE COUNTRY (CHAPTER 3)

Literature on economic history together with MGI research suggests that per capita GDP in urban areas is two to three times that of rural areas.²⁵⁹ Using MGI's Cityscope 2.0 database, which includes the per capita GDP of every city with more than 200,000 inhabitants worldwide, we estimated how large this difference in per capita GDP between large cities and the rest of the country might be in Myanmar. Choosing China, India, Indonesia, Malaysia, Thailand, and Vietnam as comparable benchmark countries, we calculated the per capita GDP in rural communities and small cities based on the per capita GDP of each country's large cities and their population in 2010 (using the Cityscope 2.0 database) as well as each country's total GDP and total population (using as our sources IHS Global Insight and United Nations' *World urbanization prospects: The 2011 revision*). On average, the per capita GDP in large cities in these countries was 2.9 times that of the rest of the country in 2010. We assumed that this difference in per capita GDP would remain constant over time.

7. REQUIRED URBAN INFRASTRUCTURE INVESTMENT (CHAPTER 3)

To estimate the required urban infrastructure investment in Myanmar's large cities between 2010 and 2030, we analysed three categories of urban infrastructure assets with a total of 11 sub-categories: soft infrastructure (health care, education, city administration); hard infrastructure (sewage, waste, roads, water, power, urban transport); and real estate (residential and commercial). For all 11 asset categories, we drew on a proprietary McKinsey database on infrastructure assets per urban inhabitant based on multiple sources and prior client work to estimate a level of urban infrastructure capacity that Myanmar should aspire to achieve by 2030. For instance, we assumed that Myanmar's large cities in 2030 would need to provide water-treatment capacity of 0.2 cubic metres of water per capita per day. This is in line with benchmark countries like China, India, Morocco, and South Africa, today. For all of the remaining asset sub-categories, the approach was similar although benchmark countries differed for each infrastructure sub-category depending on data availability.

²⁵⁹ Ibid., *India's urban awakening*, McKinsey Global Institute, April 2010.

For each of the 20 asset categories, we estimated three types of investment that Myanmar's large cities would have to make to ramp up their infrastructure between 2010 and 2030: (1) for investment backlog, we assumed that investment in urban infrastructure reached the level of infrastructure provision in 2030 for the existing population of around eight million in Myanmar's large cities; (2) for investment for additional urban population, we assumed that investment would reach the level of infrastructure provision in 2030 for the additional ten million people in Myanmar's large cities by 2030; and (3) for maintenance cost, MGI research has found capital expenditure of 2.5 percent of the total asset base is required per year to maintain an asset stock in infrastructure.

To size the investment backlog, we established a baseline of current urban infrastructure provisioning per capita in Myanmar's large cities based on data for Yangon, mostly based on Japan International Cooperation Agency, *The project for the strategic urban development plan of the greater Yangon*, February 2013. We chose to be deliberately conservative, assuming that all large urban areas in Myanmar already have the same levels of urban infrastructure per inhabitant that Yangon has. Comparing this baseline level with the estimated level of infrastructure provision for 2030 from our proprietary benchmark database determined the gap in the provision of infrastructure per capita. Multiplying this gap by current population in Myanmar's large cities of eight million and with cost assumptions based on McKinsey's proprietary benchmark database resulted in a total investment backlog of \$31 billion.

To calculate the required investment to provide the same level of urban infrastructure for the ten million new urbanites who we estimate could live in Myanmar's large cities in 2030, we multiplied the estimated level of infrastructure provisioning per capita for 2030 by ten million new urbanites and by the appropriate cost. This calculation led to a required investment of \$90 billion in urban infrastructure to cater to the new urban population to 2030. Again, we assumed depreciation of infrastructure at 2.5 percent per year. Between 2010 and 2030, this requires maintenance capital expenditure of an additional \$25 billion.

In total, these three types of investment needed in urban infrastructure suggested that Myanmar would require an infrastructure investment of \$146 billion for large cities between 2010 and 2030—or roughly 44 percent of the total infrastructure investment needed in the country as a whole to 2030.

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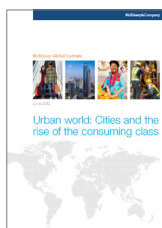
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