MAKING IT HAPPEN

TECHNOLOGY, FINANCE AND STATISTICS FOR SUSTAINABLE DEVELOPMENT IN ASIA AND THE PACIFIC

Asia-Pacific Regional MDGs Report 2014/15

UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

ADB

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Resilient nations

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ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries substantially reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to the majority of the world's poor. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration. Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

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FOREWORD

This is a historic year: the end of 2015 is the target date for the Millennium Development Goals. Since 2001, governments across Asia and the Pacific have been striving to meet ambitious goals that aimed to improve the lives of more than half the world's people.

As this report points out, mostly the news is good. In 2001, it may have seemed a daunting task to halve the 1990 poverty rate – the proportion of people living on less than $1.25 per day. In fact Asia and the Pacific has cut that poverty rate by more than two-thirds. The region has not achieved all the goals, and some subregions and countries have made faster progress than others. Moreover, because of inevitable lags in gathering the most recent information, this report, whose data largely correspond to 2014, should perhaps be seen as the final milestone rather than the finishing post. Nevertheless, even at this stage it is clear that the MDGs have spurred heartening levels of commitment and achievement.

As one era draws to a close, so another opens. This year, world leaders will assemble to consider a proposed post-2015 agenda, expected to be formulated as the Sustainable Development Goals (SDGs). This will offer a fresh opportunity to build on the MDGs – completing "unfinished business" in such vital areas as maternal and child mortality, while addressing other major concerns that have risen to the top of the global agenda, notably climate change and rising levels of inequality. This proposed new agenda can also make up for weaknesses in the MDGs, notably in Goal 8 which fell far short of its potential for strengthening a global partnership for development.

Since 2004, these Asia-Pacific MDGs efforts have been supported by a unique multilateral partnership between ESCAP, ADB and UNDP. Working together, we have produced a regular series of *Asia-Pacific Regional MDGs Reports* that have presented concise graphical scorecards of achievement, while also highlighting challenges and opportunities for accelerating progress towards the goals.

This 2014/15 report, *Making It Happen*, follows the same principle. It assesses the state of progress on the MDGs, but then considers how we can move towards the SDGs. The report is based on a series of Asia-Pacific consultations with governments, civil society and academia. These meetings focused on "implementation" – on how we can embark on this new agenda and do so in an inclusive way that extends the benefits of development to the most marginalized groups and regions.

For this purpose, the report zeroes in on three key issues. The first is technology. In an era where much economic growth is impelled by rapid technological change, how can Asia and the Pacific ensure that these new technologies drive human development not just for a fortunate few, but for everyone? It argues that the priority is not so much to "transfer" technologies from developed to developing economies but to identify and disseminate the most productive technologies, some of which may be found on our own doorsteps.

The second issue is finance. Achieving these new ambitions will require political commitment, but also significant financial resources. In the past, the necessary investment in developing countries might have come largely from the public purse. But today, the financing landscape has changed – while the strategic initiative needs to be backed by greater public funds, the largest sums are in private hands. In the years ahead sustainable development will need to be financed from a more diverse range of sources – public, private and joint financing options, both domestic and international, recognizing not only the need to move more funds towards financing investments in sustainable development but also to build capacities and mechanisms to help countries attract money from all possible sources. A shared agenda suggests how key constituents can work together to make money work for a development where benefits are not only more equitably shared but will last for generations to come. And such partnerships will look beyond the traditional North-South flows, recognizing that Asia and the Pacific offers major opportunities for South-South cooperation.

The third issue is statistics. The need to monitor the MDGs has already stimulated governments to generate a broader and richer flow of data. The SDGs will be even more demanding. Countries across Asia and the Pacific must find better ways of tracking both old and new priorities – and at a level of detail and disaggregation that reveals the lived experience of the region's most marginalized people. More important still, however, such statistics should serve as a launching pad for evidence-based policymaking.

Over the 15-year period of the MDGs, Asia and the Pacific became a driving force for the global economy and wider human progress. In the post-2015 era, this region has opportunity to steer its development towards a more sustainable and inclusive path and to ensure prosperous future for all.

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OVERVIEW

MAKING IT HAPPEN

TECHNOLOGY, FINANCE AND STATISTICS FOR SUSTAINABLE DEVELOPMENT IN ASIA AND THE PACIFIC

With more than half the world's population, and some of its most dynamic economies, the Asia-Pacific region has helped drive the world towards the Millennium Development Goals. To maintain this momentum for the post-2015 agenda, and the Sustainable Development Goals, the region will need to address three key areas of implementation: extending the benefits of technologies to all; mobilizing the necessary financial resources; and building statistical systems that can monitor the progress of the poorest groups and ensure that no one is left behind.

Over the past 15 years the Millennium Development Goals (MDGs) have made a major contribution to development in Asia and the Pacific. They have helped to focus attention and resources behind common objectives and have spurred action and achievement on a wide range of important issues. Across the region, governments recognized the value of a clear set of goals and many have incorporated the MDGs framework into their national development planning.

For all its strengths, the framework also had some weaknesses. In particular, Goal 8 on the global partnership for development did not live up to expectations, and its potential for strengthening regional and global partnerships for development remained underutilized. The current debate on the post-2015 development agenda offers a fresh opportunity to review the global partnership for development.

Towards the Sustainable Development Goals

In an increasingly globalized world it is clear that sustainable development cannot be based on national action alone, but requires a compelling and supportive international framework of development cooperation. The contours of such a framework have started to emerge. The UN Intergovernmental Open Working Group has outlined a new set of objectives: the Sustainable Development Goals (SDGs). These could form part of a broader and more integrated agenda that addresses all aspects of sustainable development – a combined environmental, social and economic pathway to a better world. This will also be an agenda that aims to reach excluded or marginalized people – building on the principle of "leaving no one behind". These objectives have received strong support across Asia and the Pacific. Many countries have already expressed readiness to embrace the new agenda and tackle higher levels of ambition.

In 2012 an Asia-Pacific expert meeting, on "Goal 8: what's next", identified three key development enablers that will be crucial for the implementation of the post-2015 agenda – finance, technology and statistics. These will be core and interrelated components of implementation – whatever goals are chosen for the post-2015 agenda. The 2014/15 *Asia-Pacific MDGs Report* therefore has two main parts. First it looks back at the experience of the MDGs. Second it considers these three areas of implementation and how they relate to each other.

The report considers technology in its broadest sense – encompassing all dimensions of the origins, flows and uptake of know-how, experience and equipment. It takes a similarly comprehensive view of the region's options for raising the necessary finance, not just for disseminating technology but also for achieving the SDGs as a whole. Finally it considers how all of these activities can be measured and monitored through a more rigorous collection and analysis of statistics, combining old and new sources of data.

MDGs – the final milestone

Over the past 15 years, the Asia-Pacific region has taken dramatic strides and is expected to meet 13 of the 21 MDG targets tracked for this report. The greatest success has been for poverty. Between 1990 and 2012, the proportion of the

region's population living on less than $1.25 per day fell from 53 to 14 per cent, and by 2015 it is projected to fall to 12 per cent. The MDG target was to halve the poverty rate, and of the countries with sufficient data, all except two are expected to meet that target.

A second notable achievement concerns water. More than two-thirds of countries are expected to meet the target of halving the proportion of the population without access to safe drinking water. For the region as a whole, that proportion has fallen from 28 to 7 per cent. The region has also met other important targets. Nearly all primary-aged children now complete school, and students at all levels of education benefit from gender parity. On the health front, the region has reduced the incidence and prevalence of tuberculosis. And among the environmental targets, the region has maintained the proportion of land covered by forests, and increased the proportion that has protected status. Asia and the Pacific has also reduced CO_2 emissions per unit of GDP.

It is also important to note that even where the targets have not been reached there have often been impressive advances towards them. The rates of under-five and infant mortality, for example, fell short of the required two-thirds reduction, but still more than halved. And often the most rapid progress was registered in the countries that started furthest behind.

This still leaves however, an extensive "unfinished agenda". In 2012, 569 million people were still living on less than $1.25 per day, 21 million children were not enrolled in primary school, and more than one-fifth of under-five children – 75 million – were underweight. In addition, 1.2 billion people in rural areas, and 480 million in urban areas, still lacked access to safe sanitation.

Did the MDGs make a difference?

To what extent was progress over the past 15 years a response to the challenge of the MDGs? Without counterfactual evidence, this is impossible to prove, but some indications can be gleaned from the average annual rates of change in indicator values before and after the Millennium Declaration. Between these two periods, as reported in the *2012/13 Asia-Pacific MDG Report*, most countries did indeed accelerate their progress.

This 2014/15 report builds on that exercise by considering what happened specifically in the countries that started with the highest levels of deprivation. Overall, for the most-deprived countries progress accelerated for 15 indicators but slowed for the other six. In the case of $1.25-per-day poverty, for example, for the most deprived countries the annual rate of reduction increased between the two periods from 5.6 to 9.4 per cent. Moreover, for around half the indicators, progress in the high-deprivation group was faster than in the low- and medium-deprivation groups.

Transformation through technology

Governments that accept the challenge of the Sustainable Development Goals will have to identify the best ways of achieving them. Critical to these efforts will be the ways in which they are able to use technology. Most people think of technology in terms of digital gadgets or machines, but technology should be considered in a broader sense – encompassing all dimensions of the origins, flows, uptake and transformation of know-how, experience and equipment.

Technology was addressed by Millennium Development Goal 8, though only to a limited extent. The Sustainable Development Goals can establish a more comprehensive agenda. This will not be straightforward, because there are multiple competing interests and challenges: most technology is privately owned by companies, and each country will have different economic and political priorities. Countries will have to identify the best technology for their particular needs in different sectors and adapt them to local circumstances. Then there are problems of measurement: technologies, especially digital ones, evolve rapidly and require frequent revisions to product classifications which makes it hard to quantify the effects, and particularly the social impacts. Moreover, for a number of subject areas there are few reliable data, especially regarding the differentiated use and needs of women and men and for systems of indigenous knowledge or those that emerge from the informal sector.

Creating public goods

Technology has boosted many aspects of human development. But some technologies have also had negative consequences. Industrial production and urban transportation, for example, have made a major contribution to living standards, but have often polluted city air. And intensive agriculture that has boosted food security has in some cases also degraded agricultural land. For the Sustainable Development Goals, countries in the Asia-Pacific region will need to deploy technologies that reconcile economic growth with broader social and environmental objectives.

For this purpose they will need to work more closely together. In a globalized economy, the technologies pursued in one country can have rapid knock-on effects in many others. Countries therefore need to consider new technologies that will avoid cross-border problems and build up a healthy stock of public goods that sustain the regional and global commons.

Disseminating ideas, old and new

Throughout history technology has travelled – as a result of emulation, or imitation or education, or just investment by companies seeking new opportunities or markets. The movement, or replication, of these ideas is commonly referred to as 'technology transfer', and typically has been between developed and developing countries. However, the regional consultations for this report concluded that in many cases, and particularly in the LDCs, it is not necessarily advanced technologies protected by patents that are most needed, but simpler and more appropriate technologies which, in most cases, are already in the public domain.

All Asia-Pacific countries have endogenous, indigenous and traditional technologies – for food production, for example, or housing construction, or small-scale manufacturing. Most have proved useful and productive, while being environmentally friendly, and socially and culturally appropriate. But knowledge about these is often scattered and fragmented. The Asia-Pacific region could document these technologies more consistently and develop the capacity to use and adapt them on larger scales.

For manufacturing industry, companies from developed countries have generally transferred technologies via foreign direct investment – as final products or production machinery. But they have also engaged in joint ventures, thus offering their equity partners greater potential for learning and capacity building. Another approach is to enter into strategic alliances: major US corporations, for example, have made alliances with many Asian firms. The latter have acted as 'original equipment manufacturers', and subsequently used this experience to build up their own capabilities for design, production and export.

Technology may also be shared via licensing agreements. This is most appropriate for standardized, relatively simple and mature technologies, particularly for recipients in small and medium enterprises. The example most commonly cited is that of developing countries requiring such licenses for lifesaving medicines. But developed countries have also required compulsory licenses for technologies in strategic industries. Critical for developing countries is identifying the essential technologies needed for development and then assessing the most cost effective means for acquiring and adapting those.

Given the different levels of development in source and recipient countries, transferring technology is rarely smooth or automatic. But new obstacles have arisen in recent years as a result of additional measures to the WTO-administered agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). Such 'TRIPS plus' measures are now embedded in many bilateral trade agreements that are tying some Asia-Pacific countries to unfavourable terms. They have been reinforced by aggressive patenting – a particularly acute problem in various types of green technology.

As an alternative, enterprises can seek technologies closer to home. Many Asia-Pacific countries have a wealth of technical knowledge that they could share with other countries in the region. China, India or the Republic of Korea, for example, can offer assistance to other countries. But this should be a two-way exchange: China and India, for example, can learn from other countries in the region, especially those in ASEAN with which they have set up various forms of collaboration.

Governments can also share experience through 'build-operate-transfer' models. These have been used for the construction of infrastructure such as tollways but can also be employed to disseminate technology, particularly through other large-scale projects. In addition, technological cooperation can take place at the level of individual companies. Many firms in developing countries possess valuable knowledge on how to adapt technologies to local conditions, an exchange that could be backed by donors through South-South cooperation.

Transforming technology

Developing and disseminating the best forms of technology for the Sustainable Development Goals will require action on a broad front, and at many levels, global, regional and national. This report recommends the following:

- *Global commitments* – The post-2015 agenda should include clear commitments on reforms in international governance, and rules to remove barriers for technology dissemination. Following the principle of 'common but differentiated responsibility', the developed countries should formulate technology policies that also support the efforts of developing countries. The international community can foster creative partnerships among public institutions, the private sector and civil society organizations. It can also reassess international agreements related to technology, especially trade agreements that incorporate measures on intellectual property rights. Commitments should also include publicly funded technologies, such as low-carbon technologies for developing countries.

- *Regional cooperation* – Asia and the Pacific could establish a regional forum to share experiences on national science, technology and innovation policies. They can also engage in collaborative R&D projects and build regional databases, on social technologies, for example, and on instances of inter-firm technological cooperation.

- *National governments* – Countries can establish specific technology policies, including mechanisms for experience-sharing by smaller firms, with particular attention for poor and excluded groups. And before signing trade agreements,

governments will want to carefully consider the potential negative impacts and explore all available opportunities for flexibility. For this assessment they can draw on the perspectives of many government departments, not just those concerned with trade, foreign affairs and commerce, but also those for health, agriculture, and the environment.

Finance for the future

Meeting the proposed Sustainable Development Goals will take considerable financial resources. Governments, development partners, municipalities, businesses, and civil society groups will have to explore all possible sources of finance, and see how these can best be combined to make every investment work. Dramatic changes in the landscape of finance require moving forward from an aid-centric approach on development finance to much wider financing for development. Although firmly anchored in domestic fiscal space, it should expand beyond it.

Domestic public resources

Even in countries that receive significant official development assistance, the most important source of financing for many of the proposed SDGs remains to be national government revenues. Developing Asia could do more to collect taxes – progressively. It lags behind much of the developing world in its ratio of tax revenues to GDP, averaging at 18 percent compared to 29 percent worldwide. Most poor people are below the income tax thresholds, while many wealthier individuals find ways to evade income tax. In these circumstances, while stepping up enforcement, governments could also make greater efforts to tax capital gains while introducing taxes on wealth. They could also raise more non-tax revenues such as from fees and licences. For indirect taxes the best option is value added tax, which has already boosted incomes in a number of Asia-Pacific countries.

With rapid urbanization there are now greater revenue opportunities at the municipal level – through a range of fees and charges. In principle, local authorities that raise and spend their own resources should be more accountable and responsive to local demand. They can also use these charges to support local policies – for example, by offering incentives to recycle trash. Another potential local source is municipal bonds. These are common in some developed countries but they have only been used in Asia more recently.

Developing Asia loses sums that average 3.8 percent of its GDP in illicit financial outflows. Governments need to do more to reduce such leakages. Such efforts would benefit from close regional and international cooperation to end harmful tax competition.

International partnerships

Official development assistance has never reached the internationally agreed target by donors of 0.7 per cent of gross national income. In 2013, this meant a shortfall of about $43.9 billion for Asia-Pacific countries alone. ODA is and will continue to be the most significant source of international development finance, for it not only applies programmatic funds towards development but it is also a signal towards international commitment towards the global development agenda. The poorest developing countries in Asia-Pacific shall continue to rely on official development assistance (ODA). When aligned with international norms, ODA can also promote equity and sustainability and focus attention on issues such as human rights and gender equality.

Asia and Pacific countries have a good track record of repaying concessional and other loans. This history, along with high rates of poverty, even within upper middle-income countries, should encourage continuing ODA, especially since these funds are directly programmable and indicate a global stake in sustainable development.

There is growing focus on the strategic use of concessional finance. ODA remains critical in funding basic needs, infrastructure gaps, and building capacities especially in LDCs and fragile states. But as its relative share comes down in many of the middle-income countries, the use of ODA can shift towards enhancing the quality of growth, influence pro-development social norms like equity, sustainability and gender equality, support risk-management, encourage innovation, advance regional cooperation and the stewardship of cross-border public goods.

Increasingly, aid flows are also coming from partners in the South. Compared to traditional ODA, new donors generally attach fewer strings and conditions. Newer South-South sources could benefit from more transparency to help clearer reporting and stronger consideration of international safeguards.

New international financial institutions like the Asian Infrastructure Investment Bank and the New Development Bank can complement existing public and private financial institutions, and help foster greater cooperation in financing for development, as well as broader development cooperation.

Climate change economic implications differ by subregions and are the starkest for the Pacific. If business continues as usual, climate related costs for the Pacific region are projected to rise up to 3.5 per cent of GDP by 2050, compared to a 2.3 per cent in South Asia.

Countries may draw from emerging climate funds given significant overlaps with development needs, but must note that better alignment of climate finance with development finance requires unlocking the complex web of sources and synching them to country priorities. Climate finance must be accurately tracked and additionalities to existing ODA commitments made clear.

Private investment for public benefit

In most developing countries strategic investments are made by governments, while investment for economic activity comes largely from the private sector. In response to the needs of sustainable development, private businesses should not be seen as entirely separate, but rather as part of a broad social alliance with responsibilities not just to themselves but also to society at large. Moreover, fulfilling these responsibilities is in their own self-interest: all businesses ultimately depend on sustainable development.

For this social alliance to work in the public interest, however, states need to establish and enforce the necessary legal and regulatory frameworks – covering such basic issues as workers' rights, gender equality, health and safety, product safety, and control of environmental pollution. States can also go further and impose social obligations on enterprises. In addition, governments can influence businesses using more indirect 'nudge' techniques that discourage undesirable activities and spur desirable ones. This type of cooperation can extend across borders, supported by regional and international organizations that can set benchmarks to maintain certain standards and prevent regulatory arbitrage between countries.

As well as being obliged or nudged by governments, businesses can also find themselves under pressure from civil society. NGOs have been influential in shaping the behaviour of private business. Consumers around the world are increasingly calling on companies to stop harmful activities, such as producing pollution, using sweatshop labour, or perpetuating gender wage gaps. The private sector has shown it can make a positive contribution to supporting women's leadership and employment of persons with disabilities for example.

At the same time, private businesses have themselves been taking the initiative and asserting their credentials through policies for 'corporate social responsibility'. To a large extent, this is a matter of self-interest, since a reputation for corporate responsibility enhances shareholder value. But many businesses have gone further, aiming for deeper levels of corporate responsibility – instituting transparent business practices, based on ethical values and on respect for employees, communities and the environment.

Flows through financial markets

Asia Pacific in 2012 had $7.0 trillion in private savings, received $212 billion in remittances and reported $1.3 trillion in insurance premiums – sums far larger than official development finance. Unlocking private sources of monies through public policy and market intermediation will be critical to achieving the ambitious post-2015 agenda. This will mean aligning capital markets more closely to sustainable and inclusive schemes. It will also involve a broader view on pricing and products affiliated to human needs, infrastructure and cross-border public goods. There could also be efforts to integrate regional equity markets. In addition, governments could cooperate to monitor and stabilize private flows of capital.

An important complement to equity markets is bond markets. Generally bonds have been used for long-term financing of infrastructure, but they are also used for social programmes. And if they are issued as publicly-traded securities they can pool small sums from diverse individuals and institutions. The entry into bond markets can be eased through "special purpose vehicles" which allow bond-financed to be managed separately from other government activities. In addition to national bond markets there can also be regional markets which can establish common standards for bond issuance, develop cross-border clearing, depositary, and settlement and payment systems, and create regional credit rating agencies. Bonds, as debt instruments, need to expand and diversify to bridge financial gaps that exceed lending capacities of banks. A variety of bonds including public, private, diaspora and municipal bonds should be considered.

A further potential source of funds is taxation on financial transactions. Globally, a tax of 0.005 per cent on trading in the four major currencies could yield $40 billion per year, while a tax of 0.01 per cent on stocks, bonds and derivative transactions could raise over $200 billion annually.

Banking for sustainable development

In Asia and the Pacific most finance to individuals is provided by banks. In 2014, developing Asia's bank deposits equaled 60 per cent of regional GDP. They continue to grow and provide services to a broader range of people. In the Pacific, with more depositors than borrowers, banking regulations will need to include supportive financial infrastructure that attracts borrowers.

While developed countries are currently concerned primarily about the stability and governance of their banks, in Asia and the Pacific a more pressing concern is to ensure that banks provide services to a broader range of people, including women entrepreneurs. Options for more 'inclusive' banking include branchless and mobile services and operating through local agents such as business correspondents and

banking facilitators. In addition, postal networks, which already provide savings and payment services for poor consumers, could offer credit and insurance and be used to pay social welfare and protection benefits to excluded groups.

Millions of poor communities have also turned to institutions offering microfinance. These have provided valuable services, but there have also been questions about the way they operate – generally outside the banking regulatory framework. One concern is that they might be encouraging excessive household debt; another is that they are overly reliant for funding on banks and development financial institutions and could look more to mainstream capital markets.

Poor households can also make more use of specialized housing finance companies. Often supported by private equity firms and social investors, they have developed models based on cash flow assessments and personal discussions with customers.

Improving lending to SMEs will require stronger regulatory frameworks and supportive financial infrastructure, along with sound payments systems and well-functioning frameworks for credit information. This would require changing the current financial architecture to accommodate different assets and collateral for the poor and particularly for women.

Opportunities for insurance

Insurance can play an important part in financing sustainable development. First, because it provides individuals and small businesses with greater security. To do so effectively it will need to cover the appropriate risks and shocks. Thus, causes of accidental death need to include events common in poor rural areas, such as snakebites or falling into a well. Rural households should also have access to crop insurance. Another priority is weather risk insurance, covering events such as floods or tropical cyclones.

Insurance companies can also contribute to sustainable development as investors. In 2013, these companies gathered in nearly $1.3 trillion in premiums. These flows could be directed in part towards sustainable development particularly for long-term requirements such as infrastructure.

Moving remittances towards development

As of 2012, remittances in the Asia-Pacific region were $211 billion. Remittances fluctuate according to the state of the global economy, but they provide important long-term development benefits. Not only do they support low-income households and families, they also provide the migrants with overseas exposure that helps foster new ideas, skills and knowledge. In addition migrants can invest in national development: countries can encourage these overseas citizens to park small amounts in local bond markets – thus pooling significant amounts of dispersed savings for use in development projects in infrastructure, education and health.

Funds from philanthropy

Asia has a long history of family philanthropy. Generally the donors want to see their contributions have a social impact, though they may also be seeking family and personal recognition. This social focus has meant that family philanthropies have financed MDG-type priorities such as health, education and poverty reduction.

In the past, philanthropists have generally made direct one-off donations. More recently, however, they have taken an ongoing, hands-on approach. There has also been a generational shift. Today's philanthropists are starting at an earlier age and more of them are women. Better educated than their parents, and with more international outlooks, they are attuned to social media, open to collaboration, and are more likely to volunteer themselves. At the same time, there is now a new breed of "social entrepreneurs" – socially conscious individuals and organizations who work creatively across traditional disciplines and sectors. Other entrepreneurs are "social impact investors" who provide equity capital or loans. Many investment banks have now moved into this area.

International development in Asia and the Pacific is also being financed by powerful international foundations. Mostly making grants, they have clear and ambitious goals and are willing to invest heavily. These foundations bring welcome extra funds, but there are concerns that their financial weight is now swaying some national and international policies, while short-circuiting established processes of consultation.

Alliances for a shared future

The notion of public funds for public goods and private funds for private goods does not hold since development deficits affect both categories. There is increasing recognition that these challenges may not be met by either sector acting alone. An alliance for a shared future will be critical to progress. One of the most common forms is the public-private partnership (PPP) which is often used for long-term finance for transport infrastructure but can also be used for building schools or hospitals.

PPPs are complex arrangements, requiring expert management and risk assessment, backed by stable legal and regulatory frameworks. All governments will need therefore

to develop the appropriate capacities for managing them and ensuring accountability. But the private sector too needs to reassess PPPs.

Another form of public-private cooperation is through publicly backed development banks. In many countries such banks have lent for investment in agriculture, industry and infrastructure. During crises they can also have a counter-cyclical function by offsetting a drop in private lending. In recent decades, development banks have been issuing more bond finance, taking advantage of their implicit sovereign guarantees.

Both private and public interests often come together in the extraction and/or management of natural resources. These can yield large sums, but may be exhaustible and non-reproducible. Private investments in extraction and management can be backed by businesses committed to operating in line with sustainability and inclusion objectives. On the other hand, countries with access to significant export revenues from natural resources can act to prevent early exhaustion.

The new global agenda for sustainable development will require all resources, public and private, new and existing, to work together. The region has the funds at hand – even if they are in many different hands. This calls for political choices beyond elections, and private choices beyond entries on a balance sheet.

Support for statistics

To make informed decisions based on solid evidence, governments require accurate, disaggregated and timely data. This became even more evident with the introduction of the Millennium Development Goals which increased the demand for regular data on a wide range of indicators. Between the early 1990s and 2009-2011, for the 39 MDG indicators the number of data points from the 58 regional economies increased from 600 to 1,000.

Statistical systems will be burdened still further by the more ambitious framework of the Sustainable Development Goals. They will also have to engage with more diverse data sources. The world is now in the era of 'big data', as private sector companies gather vast quantities of information based on electronic transactions and records. This creates new opportunities for government statisticians. For tracking the consumer price index, for example, they can take advantage of supermarket databases, or 'scrape' prices from websites. They can also use social media to harvest complementary information that can serve as a real-time proxy for price statistics. Data disaggregated by sex, age and other factors are important for efficient planning to ensure resources go where they are needed most.

But to achieve truly integrated and seamless information flows, data producers, public and private, will need to update their computer systems and work more closely together to adopt standards for efficient data exchange. Ideally, official data should be presented through online databases or other electronic formats that permit users to extract information based on their own queries.

The bedrock of official statistics

The Asia-Pacific region has some of the world's most advanced official statistical systems, as in New Zealand, for example. But it also has some of the weakest. Some countries do not maintain comparable long-term surveys that comply with international standards. For health, for example, only half the developing countries of the region have comparable data on the prevalence of underweight in children, or on the rate of skilled birth attendance – and even these data generally refer to 2008 and 2009.

Moreover, many surveys in developing countries undercount the poorest and most vulnerable. Household surveys and population censuses often fail to register people who are homeless or living in institutions, such as prisons, hospitals or refugee camps. Household surveys in particular fail to capture intra-household distribution of power, income and wealth, masking root causes of gender inequality. Similarly, they may miss out slum dwellers – either because they are hard to reach, or because the authorities are reluctant to reveal the true extent of such populations. The lack of sex-disaggregated data neglects the differentiated impact of policies on men and women. Excluding these groups significantly reduces the accuracy of estimates of key development indicators, particularly those related to poverty, gender and health.

Harnessing administrative data

Developing countries could also make better use of data collected as a by-product of administrative processes such as the registration of births and deaths. Unfortunately, in many countries these vital registration data are almost unusable. Weaknesses include barriers to reporting births and deaths, poor cooperation between key agencies, inadequate technology, and a lack of skilled staff. Countries across the region are making efforts to improve vital registration, though this process will be complex and expensive and will take significant time and effort.

Some countries are now exploring the use of administrative data as a cost-effective complement, or alternative, to surveys and censuses. This is partly driven by cost advantages, but also by the potential for improving data quality and accessibility. Using administrative data in this way would enable developing countries to improve data availability, particularly for subjects for which data are missing or collected infrequently.

Maintaining independence

Official statistics should be free from political interference. At present, statistical offices in most Asia-Pacific countries enjoy a high level of independence. But this needs to be sustained by constant vigilance, along with the necessary systems and institutional safeguards. To build trust and credibility, data producers should follow professional codes and international standards. A basic requirement is to publish the information, or "metadata", that outlines precisely how the statistics were produced. This duty extends beyond national statistics offices. Many key development data are gathered by other agencies, such as ministries of education or health.

Building statistical capacity

One of the greatest barriers to the better use of statistics is a lack of local capacity. The basic skill set of all professionals should include a broad understanding of how statistics are compiled, as well as their strengths and limitations, and how to interpret and apply them. Learning about data should start young, during school and university, so that people enter the workforce with a basic understanding of the principles of good data production and management.

For many of their statistical programmes, developing countries often depend on foreign advisors. This should also be a training opportunity. Generally, the experts can be shadowed by local staff who not only learn how the surveys are conducted but are also directly involved in the work. Producers and users of statistics can also take advantage of online training platforms – though these typically use streaming video lectures that demand high internet bandwidth.

Asia-Pacific countries can also take advantage of institutions such as the Statistical Institute for Asia and the Pacific. This offers training workshops and is adapting its training to an online approach. It already has some e-learning courses, mainly on the production of national accounts, which serve as preliminary exercises before face-to-face training.

A number of countries are improving their capacity through "national strategies for the development of statistics". Almost half the developing countries in Asia and the Pacific are currently implementing such strategies, and others are planning to do so.

Improving presentation

Data producers also need to make existing data more readily available and easier to interpret. It is also important to consider presentation. In many cases statisticians present data in complex tables that are difficult to understand. As a result, major collections such as population censuses can collect dust on shelves. Users are generally less interested in data collections and more in issues, so rather than just releasing data from particular surveys or censuses, statistical providers can also collate data from multiple sources, and link these to policy issues.

Developed countries have long recognized the importance of disseminating and communicating this type of information, so their national statistical offices employ communications professionals, such as journalists, graphic designers and marketing experts.

Encouraging active users

At present, data in developing countries are largely underused. In fact the biggest consumers of national statistical information are typically international organizations. Local organizations and businesses make much less use of national data, either because they are unaware of what is available, or they are sceptical of its quality, or they are discouraged by the form in which the data are presented.

User involvement is necessary at all stages of statistical production: identifying the data requirements; designing methods and classifications; and carrying out subsequent evaluations. Systematic user-producer cooperation can be achieved through representative committees, for example, or focus groups, stakeholder briefings, training workshops, or user satisfaction surveys.

Users too have a responsibility to cooperate with producers. Policymakers, for example, can request training or briefings on statistical methods and concepts, and also invite statisticians to observe or participate in policy and programme development. If users can make direct contact with statistical offices or data-producing agencies, they will not only become better informed but also help improve statistical quality.

Policymakers can also work closely with statisticians when preparing various national reports. Both will then better understand the issues and can explore how they can be better monitored in future. They could also work together at the regional level. There is already a proposal for a World Forum on Development Data. There could be a corresponding regional forum to support statistics development for the SDGs across Asia and the Pacific.

Finding the funds

All countries in the region need to invest more in their statistical systems. This may seem costly; one estimate is that between 2015 and 2030 it will be necessary to spend $254 billion globally on strengthening statistics. But weak or unreliable statistics will misdirect policies and programmes, and ultimately cost far more in wasted expenditure. The

most effective way of making a case for better domestic funding is to build local demand. If policymakers and development practitioners recognize the importance of data and use them to guide their decisions, they will become advocates for better quality statistics.

International collaboration

Countries across the world have generally collected data on the same issues, so have had a strong incentive to collaborate. Statisticians have, for example, worked together in the United Nations Statistical Commission – as well as through regional platforms such as ESCAP's Committee on Statistics.

The central repository for development information is the UN's global database. This has never been more than 70 per cent complete. A persistent problem is that some countries still use non-standard definitions. The situation could be improved by greater use of information management standards. When developing such standards, it is important to consider how countries with weaker statistical systems can apply these within national limitations.

Making it happen

Countries across the region recognize the value of a robust international framework that sets new levels of ambition and have already shown strong support for the proposal for the Sustainable Development Goals. But as the consultations for this report demonstrated, they are also determined to embrace the policies needed for implementing sustainable development – for "making it happen."

ACKNOWLEDGEMENTS

This is the ninth report that has been prepared under the ESCAP/ADB/UNDP regional partnership programme on achieving the Millennium Development Goals in Asia and the Pacific. The reports under the partnership continue to be the most authoritative source of regional assessment on the progress made in achieving the MDGs in Asia and the Pacific. Following past practice in which each report would explore one or two key aspects of MDGs in greater detail, this report endeavours to contribute to the debate and discussions on implementing the post-2015 development agenda.

The report has been prepared under overall direction and guidance of Shamshad Akhtar, Under-Secretary-General of the United Nations and Executive Secretary of ESCAP; Bindu N. Lohani, Vice President, ADB; and Haoliang Xu, UN Assistant Secretary-General and UNDP Assistant Administrator and Director, Regional Bureau for Asia and the Pacific.

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ACRONYMS

ABMI	Asian Bond Market Initiative
ADB	Asian Development Bank
ADBI	Asian Development Bank Institute
AIIB	Asian Infrastructure Investment Bank
AGF	Advisory Group on Climate Change Financing
AIDS	acquired immunodeficiency syndrome
ASEAN	Association of South-East Asian Nations
ASEAN+3	ASEAN Plus Three
Basel III	Third Basel Accord
BRICS	Brazil, Russia, India, China and South Africa
CDIP	Committee on Development and Intellectual Property
CDM	Clean Development Mechanism
CO_2	Carbon dioxide
CV	converted value
DESA	Department of Economic and Social Affairs
DHS	Demographic and Health Survey
EUROSTAT	Statistical Office of the European Communities
ESCAP	Economic and Social Commission for Asia and the Pacific
FDI	foreign direct investments
FAO	Food and Agriculture Organization
G20	The Group of Twenty
GCF	Green Climate Fund
GDP	gross domestic product
GNI	Gross National Income
HIV	human immunodeficiency virus
WIPO	World Intellectual Property Organization
IFMR	Institute for Financial Management and Research
ILO	International Labour Organization
IMF	International Monetary Fund
LDC	least developed country
LICs	low income countries
LLDC	landlocked developing country
LMICs	low and/or middle income countries
MDGs	Millennium Development Goals
MICS	middle income countries
NDB	New Development Bank
NGO	non-governmental organization
NSDS	national strategies for the development of statistics
ODA	official development assistance
OECD/DAC	Organization for Economic Cooperation and Development/ Development Assistance Committee
PPP	public-private partnership
R&D	Research & Development
SAARC	South Asian Association for Regional Cooperation
SDGs	Sustainable Development Goals

SIDS	small island developing States
SMEs	small and medium-sized enterprise
TB	Tuberculosis
TPP	Trans-Pacific Partnership
TRIPS	Trade Related Intellectual Property Rights
TRP	total reference population
UMICs	upper middle income countries
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO-UIS	UNESCO - Institute for Statistics
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNHABITAT	United Nations Human Settlements Programme
UNICEF	United Nations Children's Fund
UNU-EHS	United Nations University for Environment and Human Security
VAT	value added tax
WB	World Bank
WDI	World Development Indicators
WTO	World Trade Organization

CHAPTER I

THE FINAL MILESTONE

Countries across Asia and the Pacific have been working hard to achieve the Millennium Development Goals. The MDG target date is 2015, so this 2014/15 report represents a final milestone along the way. Although the data for the most recent years are not yet available, the overall picture is already clear. Asia and the Pacific, with more than half of global population, and some of its most dynamic economies, has helped drive the world towards major successes. And where the targets have been missed there has been substantial progress that can serve as a launching pad for the Sustainable Development Goals.

Over the past 15 years, the Asia-Pacific region has taken dramatic strides in human development. This is reflected in many of the MDG indicators. Between 1990 and 2015, the proportion of people living on $1.25 a day or less fell by more than two-thirds, as did the proportion of those without access to safe drinking water. The same period also saw maternal mortality and under-five mortality rates fall by more than half – along with declines in the incidence and prevalence of tuberculosis.

Overall regional progress

For selected indicators, based on trends since 1990, the report places each country or country group into one of four categories:

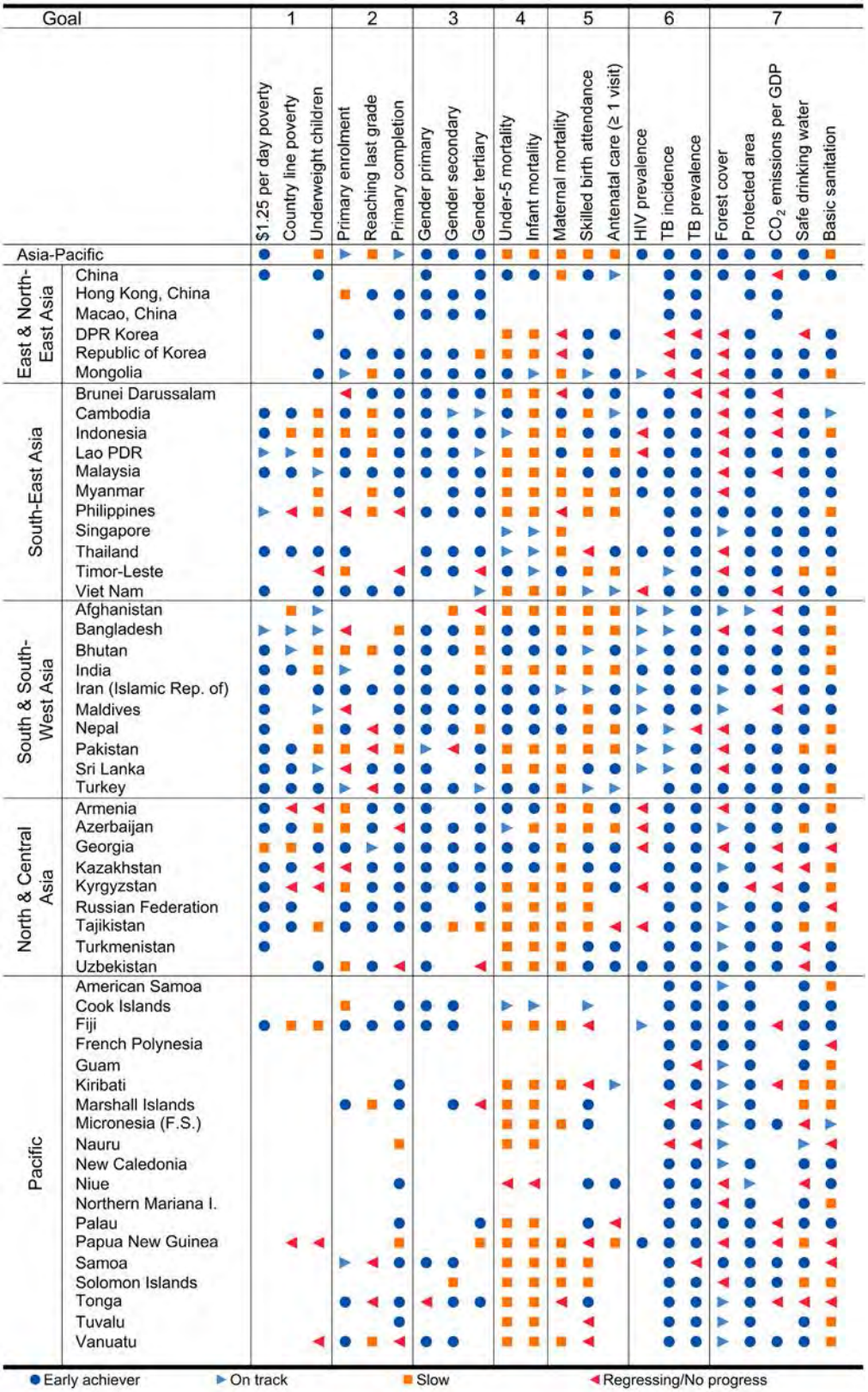
- ● *Early achiever* – **Already achieved the 2015 target**
- ▶ *On track* – **Expected to meet the target by 2015**
- ■ *Off track: slow* – **Expected to meet the target, but after 2015**
- ◀ *Off track: no progress/regressing* – **Stagnating or slipping backwards**

Table I-1 shows the aggregate outcome for the region as a whole, and for individual countries. These assessments are based on the United Nations global dataset. It should be noted that these data, which are adjusted to be internationally comparable, may for certain countries differ from those published by national statistical offices.

By 2015 the Asia-Pacific region as a whole is expected to reach the target in 13 of the 21 indicators tracked for this report. One of the greatest successes has been for poverty. Between 1990 and 2012, the proportion of the region's population living on less than $1.25 per day fell from 53 to 14 per cent, and by 2015 it is projected to fall to 12 per cent. The MDG target was to halve the poverty rate, and of the countries in the region with sufficient data, all except one are expected to meet this target.

The second notable success concerns access to safe drinking water. Between 1990 and 2015, the proportion without access is expected to have fallen from 28 to 7 per cent. Again the target was to halve this proportion, and more than two-thirds of the countries with data are expected to meet the target. The region has also been successful in meeting other targets. Nearly all primary-aged children are enrolled in and complete school, and students at all levels of education benefit from gender parity. On the health front, the region has reduced the incidence and prevalence of tuberculosis. And among the environmental targets, the region has maintained the proportion of land covered by forests, and increased the proportion that has protected status. Asia and the Pacific has also reduced CO_2 emissions per unit of GDP.

Table I-1 Asia-Pacific economies on- and off-track for the MDGs

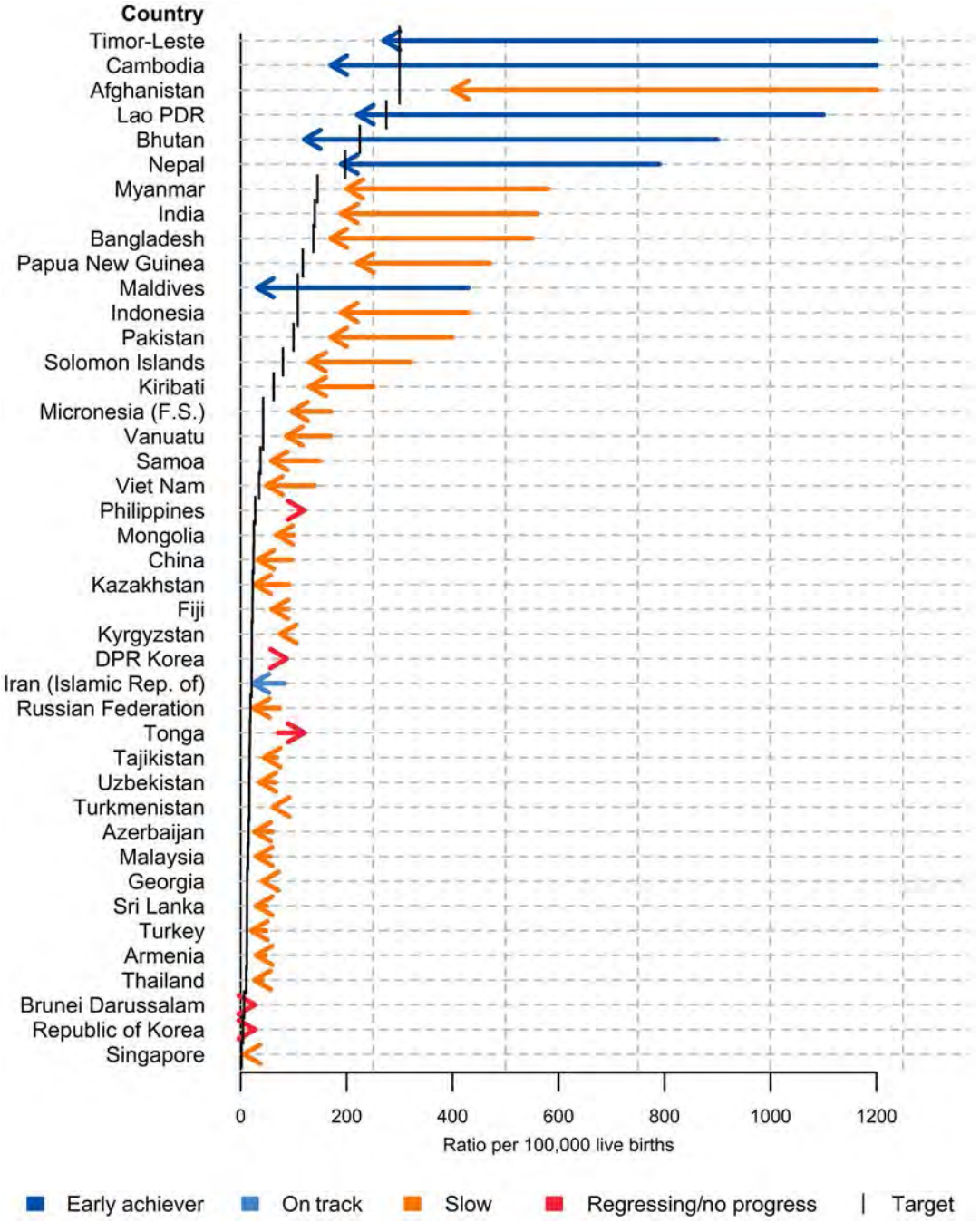


Source: ESCAP calculations based on the United Nations MDG database (accessed 15 April 2015); and World Bank Poverty and Inequality database for poverty-related indicators under Goal 1 (accessed 15 April 2015); UNESCO Institute for Statistics for the education-related indicators under Goals 2 and 3 (accessed 24 February 2015).

Note: For more information on the targets and classification method, please see technical note 1.

The Asia-Pacific region has also dramatically reduced mortality rates. Between 1990 and the latest available year, under-five mortality fell by 58 per cent, and infant mortality by 54 per cent – though this fell short of the MDG target of a two-thirds reduction. There was also major progress in maternal mortality which fell by 61 per cent. Nevertheless, this too fell short of the MDG target of a three-quarters reduction. Most countries in the region saw their rates fall by 50 per cent, including those that had the highest rates in 1990 (figure I-1).

Figure I-1 Progress in reducing the incidence of maternal mortality



Source: ESCAP calculations based on the United Nations MDG database (accessed 15 April 2015).

However for a number of other indicators, the region not only failed to hit the targets but also made slow progress.

- *Sanitation* – The proportion of those without access to basic sanitation fell by only 37 per cent, far short of the 50 per cent MDG target. Around 1.7 billion people region-wide – 42 per cent of the population – still lack access to basic sanitation.

- *Nutrition* – The region has also struggled to reduce the proportion of children who are moderately or severely underweight. More than one-fifth of under-five children – 75 million – are underweight.

- *Maternal health services* – The proportion of live births not receiving skilled birth attendance fell by 36 per cent, and the proportion of expectant mothers not receiving antenatal care fell by 57 per cent, but still fell far short of the MDG target of universal coverage. As a result, 27 per cent of births occur without any qualified medical attention.

Achievements by subregion

For many goals, these patterns are repeated across the Asia-Pacific subregions (table I-2). Thus, all subregions have achieved the envisaged reductions in poverty, as well as the required progress in TB prevalence and the extent of protected areas. For Asia and the Pacific as a whole, no sub-region is expected to meet the targets for maternal, child or infant mortality. However, for some indicators, including those related to malnutrition and primary completion, around half the subregions achieved the targeted reductions.

South Asia – Of the 21 targets for which it is possible to assess progress, South Asia is expected to meet 11. Its main successes parallel those of the Asia-Pacific region as a whole: halving extreme poverty, ensuring universal enrolment, primary completion, and gender parity in primary schools, and halving the proportion of those without access to safe drinking water. The subregion is distinctive, however, in three key domains: unlike the Asia-Pacific region overall, South Asia is not reducing the incidence of drop out and is not expected to achieve gender parity in secondary and tertiary education. Since the results for this subregion are heavily swayed by the performance of India, it is also useful to consider the outcome if India is excluded. In this case, the achievement is higher on one and lower on four additional indicators: while the "reduced" subregion is expected to achieve gender equality at the tertiary level, it is not expected to meet any of the primary education goals. Nor has it managed to reverse the incidence of tuberculosis or deforestation.

Table I-2 Country groups on- and off-track for the MDGs

Goal	1		2			3			4		5			6			7				
	$1.25 per day poverty	Underweight children	Primary enrolment	Reaching last grade	Primary completion	Gender primary	Gender secondary	Gender tertiary	Under-5 mortality	Infant mortality	Maternal mortality	Skilled birth attendance	Antenatal care (≥ 1 visit)	HIV prevalence	TB incidence	TB prevalence	Forest cover	Protected area	CO_2 emissions per GDP	Safe drinking water	Basic sanitation
Asia-Pacific	●	■	▶	■	▶	●	●	●	■	■	■	■	■	●	●	●	●	●	●	●	■
Excluding China and India	●	▶	■	■	■	●	●	●	■	■	■	■	■	●	●	●	◀	●	●	●	■
South-East Asia	●	▶	■	■	●	●	●	●	■	■	■	■	▶	●	●	●	◀	●	●	●	▶
South Asia	●	■	▶	◀	▶	●	■	■	■	■	■	■	■	●	●	●	●	●	●	●	■
Excluding India	●	■	■	◀	■	●	■	▶	■	■	■	■	■	●	◀	●	◀	●	●	●	■
Pacific Islands		◀	●	■	■	●	●	■	■	■	■	◀	■	●	●	●	◀	●	●	■	■
Excluding Papua New Guinea			●	■	●	●	●	●	■	■	■	◀			●	●	●	●	◀	●	■
North and Central Asia	●		▶	●	●	●	●	●	■	■	■	■	▶		●	●	●	●		■	■
Excluding Russia	●	●	■	●	●	●	●	●	■	■	■	■	▶	●	●	●	●	●		■	●
Asia-Pacific LDCs	●	▶	■	■	■	●	●	■	▶	■	■	■	■	●	●	●	◀	●	●	●	■
Asia-Pacific Low Income	●	▶	■	■	■	●	●	■	▶	■	■	■	■	●	●	●	◀	●	◀	●	■
Asia-Pacific Middle Income	●	■	▶	◀	●	●	●	●	■	■	■	■	■	●	●	●	●	●	●	●	■

● Early achiever ▶ On track ■ Slow ◀ Regressing/No progress

Sources: ESCAP calculations based on the United Nations MDG database (accessed 15 April 2015); World Bank Poverty and Inequality database for poverty-related indicators under Goal 1 (accessed 15 April 2015); UNESCO Institute for Statistics for the education-related indicators under Goals 2 and 3 (accessed 24 February 2015).

South-East Asia – This is the most successful subregion and is expected to meet 14 of the 21 MDG targets. Notably it has achieved three targets missed by the region as a whole, namely the reduction in the proportion of underweight children and the target for access to basic sanitation and antenatal care. However, unlike the region as a whole, South-East Asia is not expected to meet the goal of increasing forest cover, which between 1990 and 2010 declined from 57 to 49 per cent of total terrestrial area, or of achieving universal primary enrolment.

North and Central Asia. This subregion is expected to meet 12 of the targets. It will exceed the region's overall progress for two indicators. It is the only subregion to achieve the full range of education indicators – having ensured that all children who start primary school reach the last grade without interruption. It is also one of two subregions to achieve universal antenatal care. North and Central Asia, however, is one of the few subregions not to meet the goal for safe drinking water.

Pacific – Tracking progress in Pacific island countries is hampered by a lack of data. Notably, of the 19 countries covered in this report only one has data on the $1.25-a-day poverty rate. As a result, for the Pacific as a whole this report can only track 17 targets, of which the subregion is expected to meet eight. The subregion has not been able to achieve universal completion of primary school, gender parity at the tertiary school level, increase its forest cover, or ensure access to safe drinking water. And for births attended by skilled health personnel, the proportion has fallen – from 63 per cent in 1990 to 61 per cent in 2011, and in 2015 it is expected to be 60 per cent. Nor has the subregion made progress in reducing the proportion of under-five children underweight. Since the results for this subregion are heavily swayed by the performance of the most populous country, Papua New Guinea, it is also useful to consider the outcome if Papua New Guinea is excluded. This reduced subregion performs better, and is expected to achieve 10 of the 17 indicators. Unlike the whole subregion, the reduced subregion has achieved universal primary completion, and all gender-related goals, as well as the targets for safe drinking water and forest cover. However, it is not making progress on reducing CO_2 emissions per unit of GDP.

Performance by country group

As indicated in table I-2, the Asia-Pacific middle income countries, which started with higher initial achievements in 1990, are expected to achieve 13 of the 21 targets. The low-income countries will achieve only 10 of the targets and the least developed countries only 11. However, in some respects these groups perform better than the region as a whole. They are, for example, expected to achieve both the poverty indicators, including that of halving the proportion of underweight children, which was not met by the region overall. However, low-income countries are not expected to meet the education-related targets, nor are they expected to have increased forest cover or reduced CO_2 emissions per unit of GDP.

The unfinished agenda

While Asia and the Pacific has made enormous progress, this still leaves millions of people deprived of the most basic requirements for human development (figure I-2).

Poverty – Between 1990 and 2012, the number of people living on less than $1.25 per day fell from 1.7 billion to 569 million. But if the poverty line is set at $2.00 per day the achievement was less impressive: the number of people living on between $1.25 and $2.00 increased from 764 million to 872 million.

Education – Between 1990 and 2014, the number of pupils not enrolled in primary school fell from 74 million to 21 million, yet some countries in the region have the highest numbers of out-of-school children in the world.

Gender equality - Three countries in the Asia-Pacific region have reached a proportional representation of 30 per cent women in national parliament. In 2012, the share of women in non-agricultural wage employment was estimated to be 32 per cent – far short of the target of 45 per cent.

Infectious disease – Between 1990 and 2013, the number of people living with HIV rose from 2 million to 7.1 million. The highest prevalence is in South-East Asia – although the prevalence is falling in Thailand it is rising in Indonesia and Viet Nam. For TB, in 2012, around 8 million people are affected.

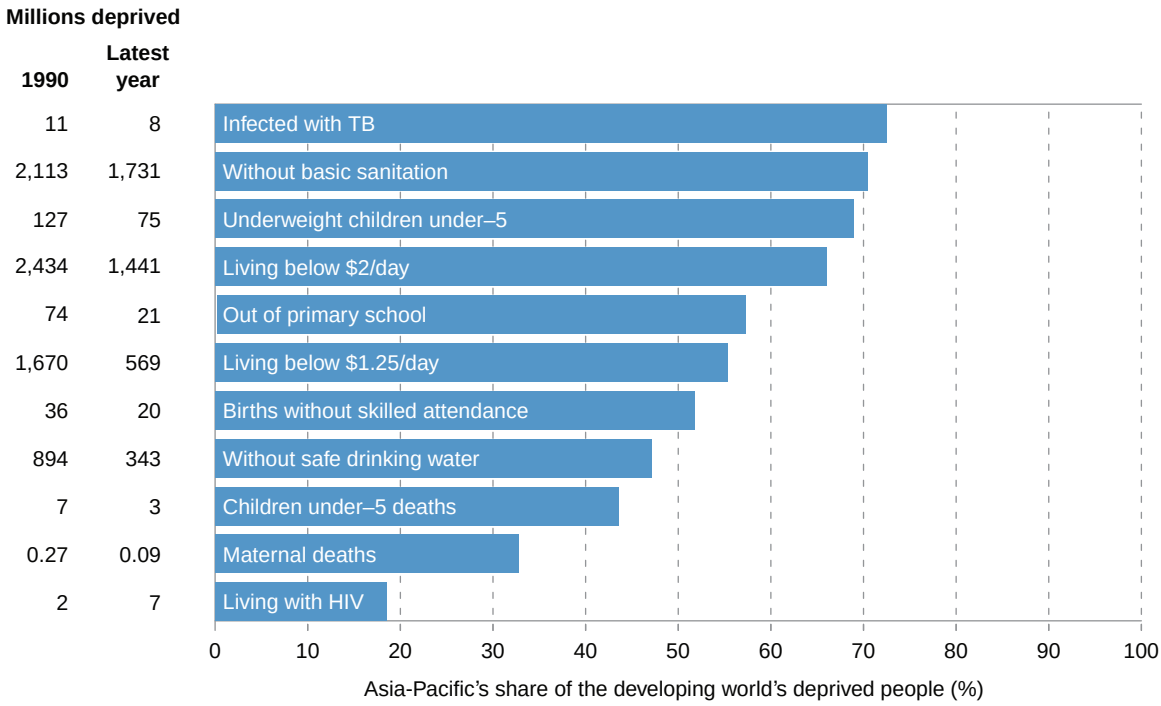
Safe drinking water – In rural areas the number of people without safe drinking water fell from over 826 million in 1990 to around 293 million in 2012. However, over the same period the number of deprived urban dwellers experienced a slower reduction, from 63 million to 56 million.

Safe sanitation – The number of rural dwellers without access to basic sanitation fell between 1990 and 2012 from 1.7 billion to 1.2 billion, while the number in urban areas rose from 380 million to 480 million.

Rural-urban disparities

Since 1990, the Asia-Pacific rural population has remained relatively steady, while the urban population has expanded rapidly. Of today's 28 mega-cities, 16 are in Asia. Around 48 per cent of the Asia-Pacific population live in urban areas – 2 billion people – and by 2050 this proportion is expected to

Figure I-2 Asia and Pacific share of the developing world's deprived people



Sources: ESCAP calculations based on the United Nations MDG database (accessed 15 April 2015); World Bank Poverty and Inequality database for poverty-related indicators under Goal 1 (accessed 15 April 2015); UNESCO Institute for Statistics for the education-related indicators under Goals 2 and 3 (accessed 24 February 2015) and Population data from World Populations Prospects 2012 Revision (accessed 8 January 2015).

rise to 64 per cent. The largest urban growth will be in India, which by 2050 will add 404 million urban dwellers, and in China which will add 292 million. The rise of cities is changing the demands for service provision. While services have been improving in both rural and urban areas, the provision in the cities has barely kept pace with urban population growth.

For most countries access to sanitation differs greatly between urban and rural areas. But this is almost entirely due to wealth factors. Households with similar levels of wealth have similar access to improved water and basic sanitation, wherever they live. This is illustrated in figure I-3 for the Philippines and Indonesia. In the Philippines, for example, households with similar levels of wealth have similar access to improved water and basic sanitation, regardless of whether their residence is urban or rural. Average access to safe sanitation is 79 per cent in rural areas and 94 per cent in urban areas. But the wealthiest 40 per cent of rural households have better access to improved sanitation and water supplies than do the poorest 40 per cent of urban households.

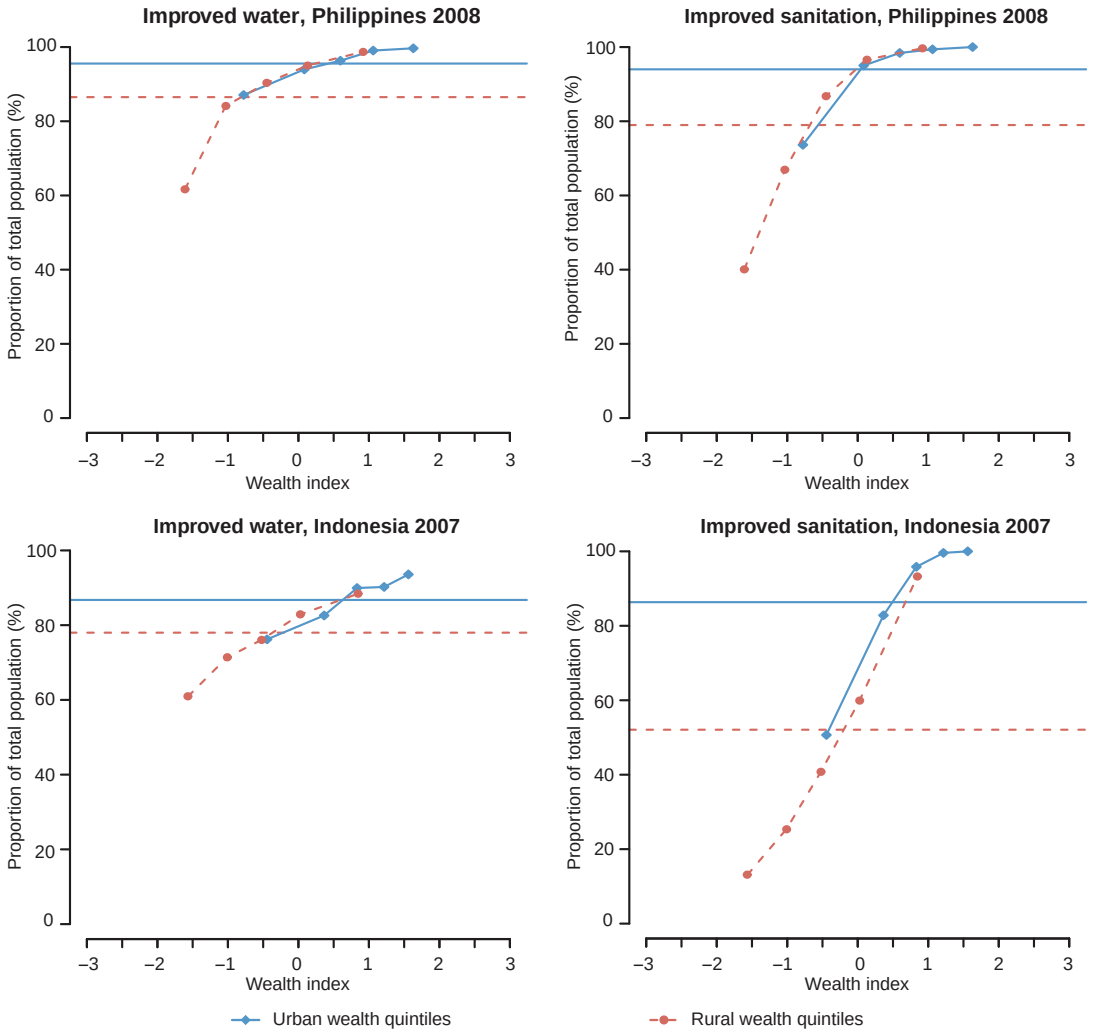
Nevertheless, rural households overall are more likely to have significantly less wealth than urban households. This is illustrated in figure I-4. In Bangladesh, 55 per cent of the urban population was in the highest quintile nationwide, while only 9 per cent of the rural population was in the highest quintile. Conversely, only 6 per cent of the urban population was in the lowest quintile, while 25 per cent of rural Bangladesh was in the lowest quintile. The pattern is similar in Indonesia, and is in fact widely observed across the Asia-Pacific region.

Official development assistance

Goal 8 is concerned, among other things, with official international development assistance (ODA). The 2002 International Conference on Financing for Development held in Monterrey, Mexico re-affirmed that the UN target of 0.7 per cent of GNI should be dedicated to official development assistance to developing countries. Levels of ODA, however, remain well below that target. In 2013, the principal LDC recipients in the Asia-Pacific region were Afghanistan ($5.3 billion) and Myanmar ($3.9 billion) followed by Bangladesh ($2.7 billion), Nepal ($871 billion) and Cambodia ($805 billion). The other LDCs in the region received very little ODA (figure I-5).

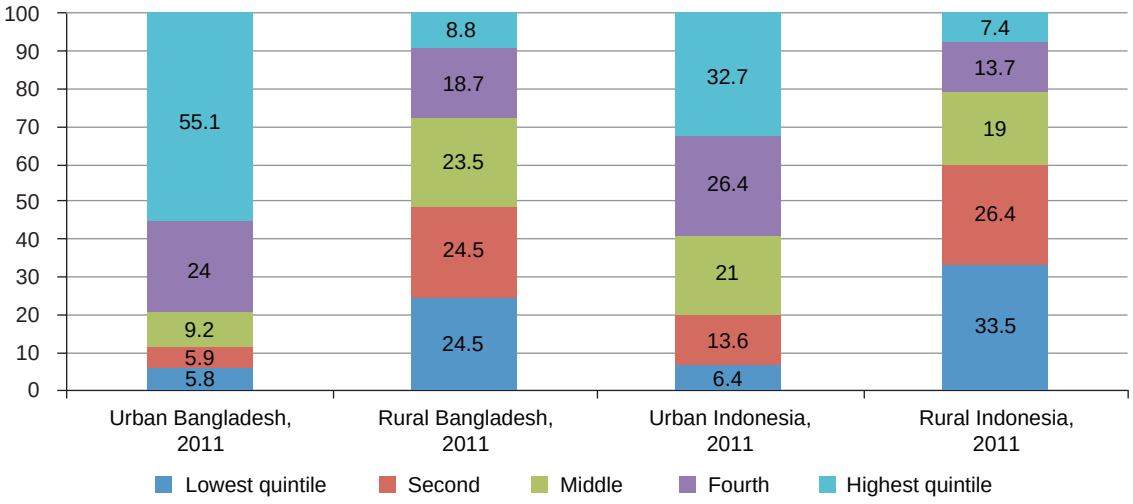
Overall, dependence on foreign aid is falling. Over the last decade aid dependency has dropped on average by a third in the poorest countries – many of which, through economic growth, are now better able to mobilize their own resources. On the other hand some LDCs still depend significantly on aid. ODA is considered in greater detail in chapter III of this report.

Figure I-3 Effects of wealth residence on access to safe water and sanitation, Philippines and Indonesia



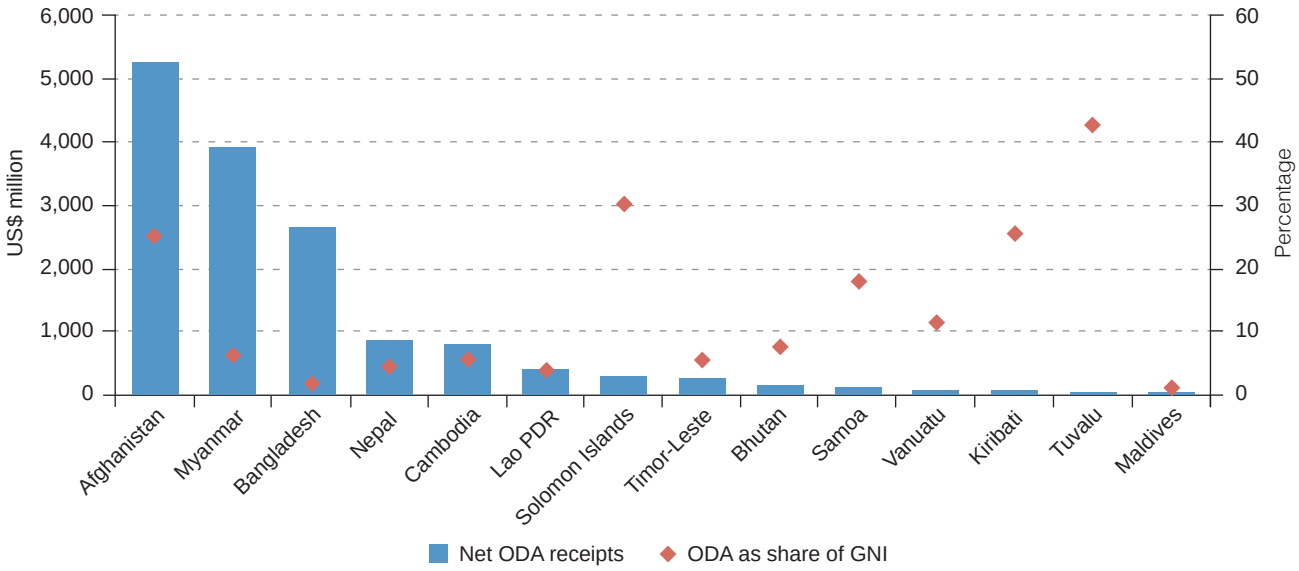
Source: *Asia-Pacific Regional MDG Report 2011/12.*

Figure I-4 Population distribution, by wealth quintile and residence



Source: DHS Programme, final reports for Bangladesh (2011) and Indonesia (2012) (accessed March 2015).

Figure I-5 Net ODA receipts (disbursements) in Asia-Pacific LDCs, 2013



Source: ESCAP based on data obtained from the OECD (accessed April 2015).

Note: Data in $ million at 2010 constant prices.

Information technology

The MDGs coincided with the growth of the internet and mobile technologies. Mobile phone telephony – still an emerging technology in 1990 – has become widely available, with 88 subscriptions per 100 inhabitants. Only two countries have mobile phone networks that cover less than 85 per cent of the population.

In contrast, only one in three individuals in Asia and the Pacific uses the Internet. Here there is a clear divide. In the the region's eight more advanced economies, around 75 per cent of the population uses the internet, compared with only 29 per cent in the remaining countries.

Moreover, the quality of internet connectivity varies dramatically across the region. Several landlocked countries saw internet download speeds in excess of 12,000 kbps, while an equal number saw internet speeds below 4,000 kbps. Access to the internet and other forms of technology is considered in greater detail in Chapter II of this report (figure I-6).

Did the MDGs make a difference?

When assessing MDG outcomes, a key question is the extent to which outcomes were driven by the goals. Were countries making greater efforts in response to the challenge of the MDGs? Ultimately, this is impossible to prove, given the lack of counterfactual data. However some clues can be derived from a simple before-and-after analysis. This exercise was carried out in the 2012/13 edition of this report by considering the average annual rate of change in indicators before and after the Millennium Declaration. This concluded, for example, that most countries accelerated their rates of progress for a number of targets, not just those which they will meet, such as for poverty, but also for those which they will miss, such as infant and under-five mortality.

This report builds on that exercise by considering what happened specifically in the most deprived countries. For this purpose it divides countries into three groups based on their starting levels of deprivation for each indicator – low, medium or high. The summary of the results is shown in table I-3, while the complete tables are provided in Annexes 1 and 2. For selected indicators, the average starting, midpoint and endpoint data in are presented as charts in figure I-7.

The position of the most-deprived countries for each indicator is summarized in table I-3. This shows that for the most-deprived countries, progress accelerated for 15 indicators but slowed for the other 6. This table also highlights the fact that even for the indicators for which targets will be missed, progress accelerated on 6 of the 8 indicators. Moreover, for around half the indicators, progress in the high-deprivation group was faster than in the low- and medium-deprivation groups.

In case of safe drinking water, most-deprived countries made faster progress post-MDGs. Before the MDGs, the access to safe drinking water increased from 67.3 per cent to 79.5 per cent, with an annual rate of increase of 4.6 per cent. After the MDGs the annual rate of increase accelerated to

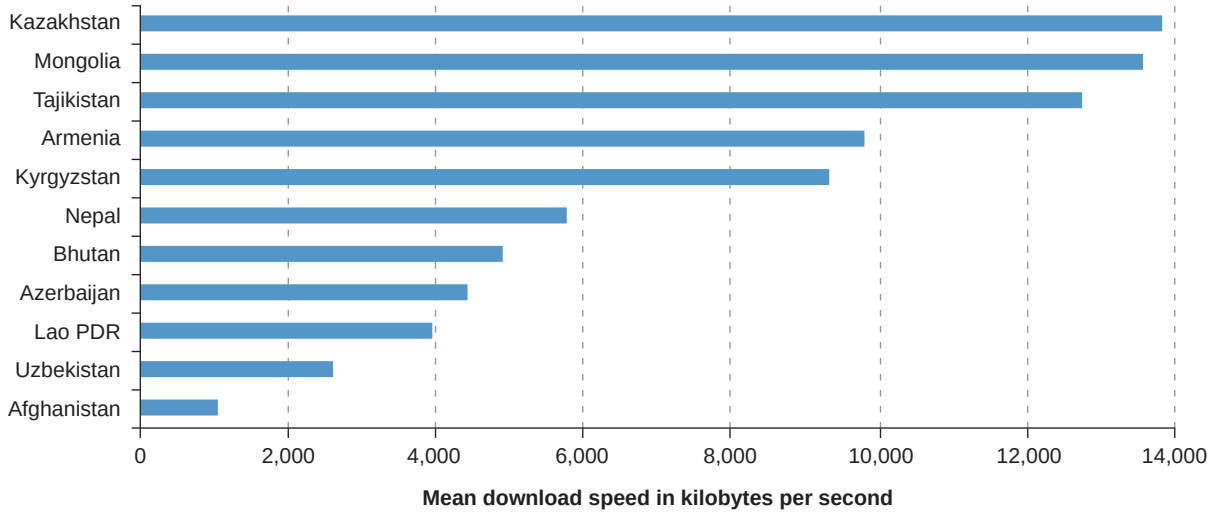
Table I-3 High-deprivation group, progress before and after the MDGs

	For these indicators, progress accelerated	For these indicators, progress slowed
For these indicators showed faster progress than medium and low deprivation groups	Maternal mortality	Reaching last grade
	Antenatal care	Primary enrolment
	Gender primary	Primary completion
	Gender secondary	Protected area
	Gender tertiary	CO_2 emissions
	Safe drinking water	
For these indicators, did not show faster progress than medium and low deprivation groups:	Under-5 mortality	Underweight children
	Basic sanitation	
	Infant mortality	
	Skilled birth attendance	
	$1.25 per day poverty	
	HIV prevalence	
	TB prevalence	
	TB incidence	
	Forest cover	

Source: ESCAP calculations based on data from the UN MDG database (accessed 6 January 2015).

Note: Shaded indicators are those whose targets will be missed.

Figure I-6 Broadband speeds for selected LLDCs



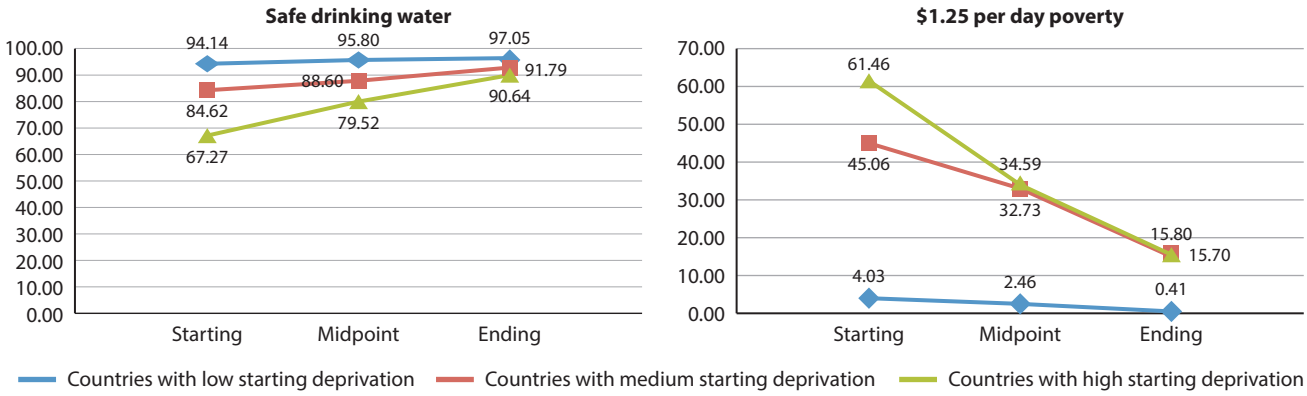
Source: ESCAP based on data from Speedtest.net (accessed June 2014).

6.9 per cent. In the case of $1.25-per-day poverty, for example, for the most deprived countries the annual rate of reduction increased from 5.6 per cent to 9.4 per cent – implying that poverty was falling more rapidly, halving not every 12 years, but every 7 years.

For two of the education indicators, however, there was no acceleration, with progress slowing as countries approached the limits of 100 per cent. For primary enrolment, the two-thirds of countries with the highest rates of primary enrolment had already exceeded 95 per cent at the time of the Millennium Declaration. For primary completion, two-thirds of the countries in the region had values within a few percentage points of 95 per cent.

One of the most important targets that will be missed, by the region as a whole as well as by each subregion, is that for maternal mortality. Indeed, of the 42 countries with data, only 7 are expected to reduce maternal deaths by three-quarters. Nevertheless, there has been substantial progress: between

Figure I-7 Pace of progress by starting level of deprivation, selected indicators



Source: ESCAP calculations based on the United Nations MDG database (accessed 6 January 2015); and World Bank Poverty and Inequality database (accessed 8 January 2015).

1990 and 2013, for the region as a whole maternal mortality fell from 326 to 126 per 100,000 live births – a 61 per cent reduction. It is also encouraging that the fastest progress was in the third of countries that started with the highest rates – with an average annual rate of reduction of 5.3 per cent compared with 2.2 per cent for the third of countries that started with the lowest rates.

This progress is also apparent when viewed from another perspective – that of cross-country disparities. Figure I-8 presents the distribution of maternal mortality rates, for 1990 and 2013. This shows that by 2013 no country had more than 400 deaths per 100,000 live births. Over this period, the median value fell from 98 to 64 and the Gini coefficient of dispersion of maternal mortality rates fell from 0.58 to 0.45.

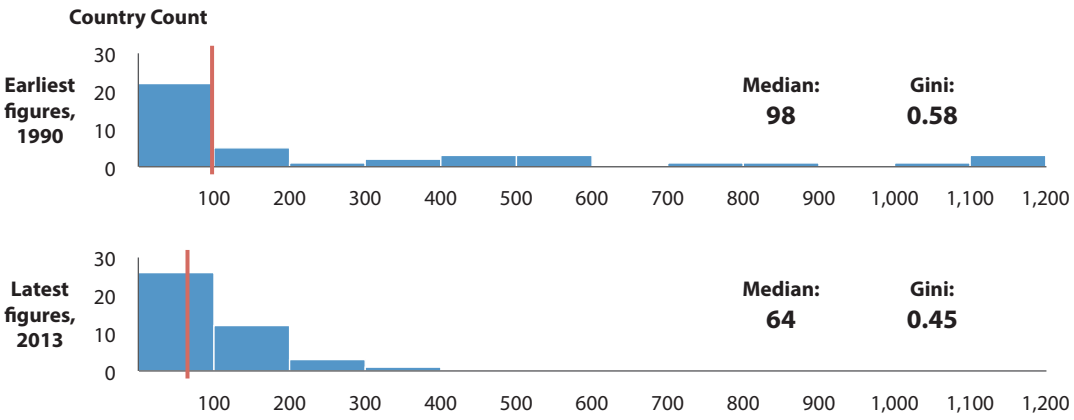
It may seem surprising that countries were reducing mortality at such rapid rates yet missing the target. After all, countries were reducing poverty at similar rates, yet reaching the target. This is because the target for poverty was a 50 per cent reduction while for maternal mortality it was a 75 per cent reduction. Reducing a target by 50 per cent over the 25 years between 1990 and 2015 would require an annual rate of reduction of 2.7 per cent, but a 75 per cent reduction would mean halving twice, and thus require an annual rate of reduction of 5.4 per cent.

In fact for poverty, the average annual rate of reduction was 5.7 per cent and for more than half of the countries with data, it was 10 per cent per year. But this outcome is sensitive to the choice of poverty line. If this is set at $2.00 per day then the average rate of reduction would be 3.6 per cent – much less than the average annual reduction in maternal mortality.

Uneven progress towards gender equality

The MDG framework seeks to measure gender equality and women's empowerment through indicators related to gender parity in education, the share of women in wage employment

Figure I-8 Distribution of countries across maternal mortality rates



Source: ESCAP calculations based on the UN MDG Database.

outside the agricultural sector, and the proportion of seats held by women in national parliaments. While the region is performing well in achieving gender parity in education, gender gaps remain in relation to employment and political representation.

Asia and the Pacific as a whole is on track to reach the targets of gender parity at all levels of education. Only one country is not on track to meeting the primary education target, and at the secondary level, the gender imbalance actually favours girls in 13 countries. Enrolment in tertiary education reveals a more diverse picture. Tertiary enrolment rates for women still lag behind those of men in many countries in South and South-West Asia. In other subregions, young women outnumber young men in many countries.

Progress in other indicators measuring Goal 3 is less favourable. Throughout Asia and the Pacific, women are less likely than men to be in the labour force, and are more likely to be in vulnerable employment lacking social protection. For example, in 2012 the share of women in non-agricultural wage employment was estimated to be 32 per cent – far short of the target of 45 per cent. While 11 countries in the region are expected to achieve the target by 2015, another 14 countries are not, and in at least nine countries in the region, women constitute less than 30 per cent of those employed in the non-agricultural sector.

In relation to the indicator on the proportion of seats held by women in national parliaments, in 2014 only three countries – Nepal, New Zealand and Timor-Leste – have reached a proportional representation of 30 per cent women in national parliament. In approximately one third of countries in the region, in particular those in South Asia and the Pacific, women constitute less than 10 per cent of national parliamentarians.

The effects of income and wealth

A major concern across the region is the extent of disparities in income and wealth. These not only affect achievements in poverty, they also influence the outcomes for many other indicators. This is particularly important for access to improved sanitation. This is illustrated in figure I-9 which is based on data from household surveys. In this chart, the distance between the dot and the zero level represents the difference in the probabilities of lacking access to safe sanitation between two population groups – between urban and rural dwellers, for example, or between the top and bottom income quintiles. Thus in Mongolia, the greatest disparities in access to sanitation are found between the top and bottom income quintile groups, followed by urban or rural dwellers and levels of education. On the other hand household size does not appear to be an important factor.

Typically all these characteristics will overlap. The better-educated households are also likely to be the richest and to be living in urban areas. So just improving one characteristic (say moving everyone to urban areas) while keeping the others constant may make very little difference. However, as explained in the *2011/12 Asia-Pacific MDG Report*, it is also possible to extract more information by modelling various possible scenarios. This suggests that in certain cases, it would be possible to bring about significant change by addressing one factor in isolation. This potential is illustrated by the lengths of the arrow-tipped lines. In Nepal, for example, if household education levels were made equal then the disparity in access to basic sanitation would fall by an amount corresponding to the length of the arrow. As is clear from figure I-9 most of the long arrows are found under the wealth index. In most countries, changing wealth disparities alone would have a major impact on access to sanitation.

Data availability

Analysis of the MDGs in Asia and the Pacific has benefited from greater availability of data. This can be tracked by monitoring the number of available data points. Between the early 1990s and 2009-2011, for the 39 MDG indicators and the 58 economies of the region the number of data points increased from 600 to 1,000. The improvement was most impressive in the least developed countries which saw an 80 per cent increase.

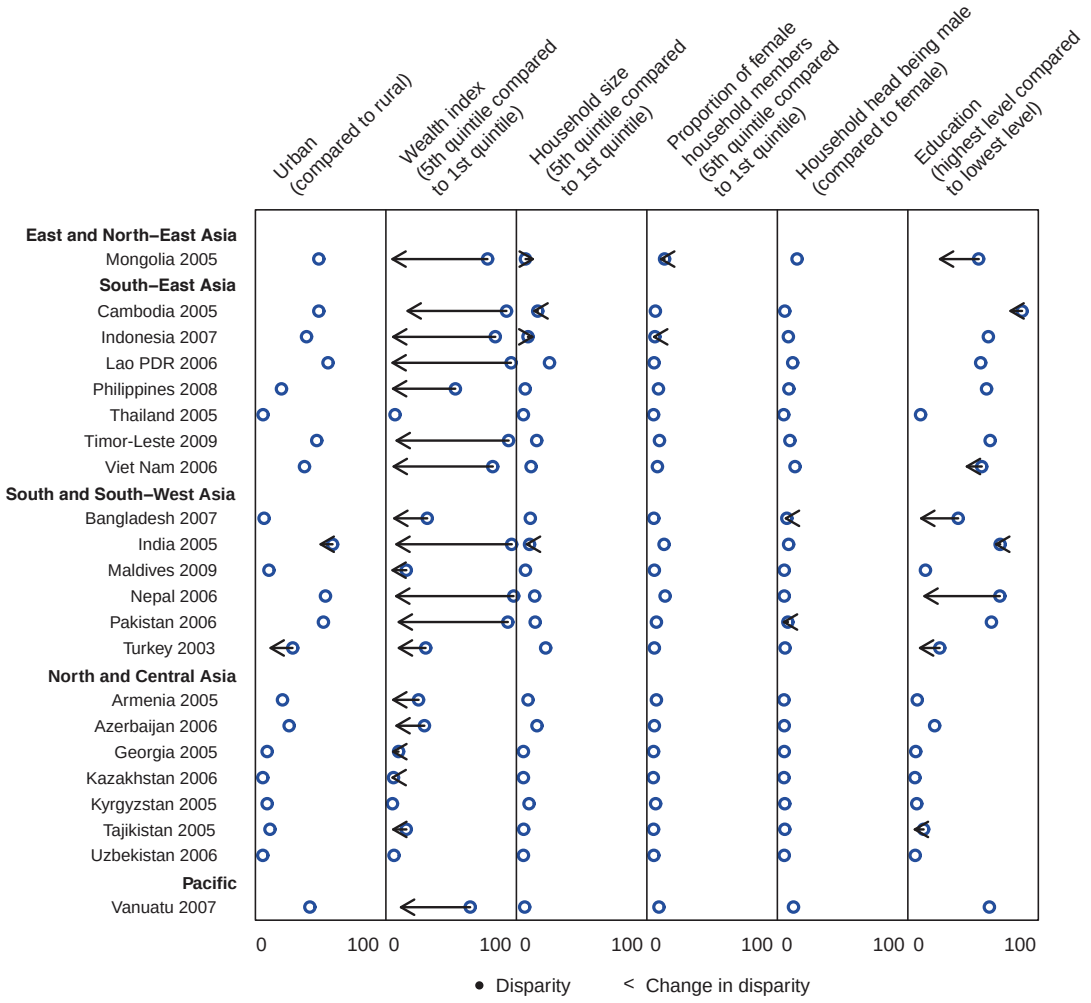
However these data points are spread unevenly across the indicators. This is evident from figure I-10 which shows the increase in the number of indicators for which there were sufficient data points to enable a trend analysis. The criteria are at least three data points for the period 1990-1999 and for the period 2003-2012.

It should, be noted, however, that some of the additional data may have been derived from modelling. This is the case, for example, for under-five and infant mortality rates which are modelled based on survey data. Such information may be of limited use for national policy making.

On the other hand, the global MDG database, may have fewer data than those presented by national governments. For example, there are national poverty data for 14 Pacific Island countries, but the global MDG database has poverty data for only three of these. Moreover, for these countries on a number of indicators there were large discrepancies between the global and national data.

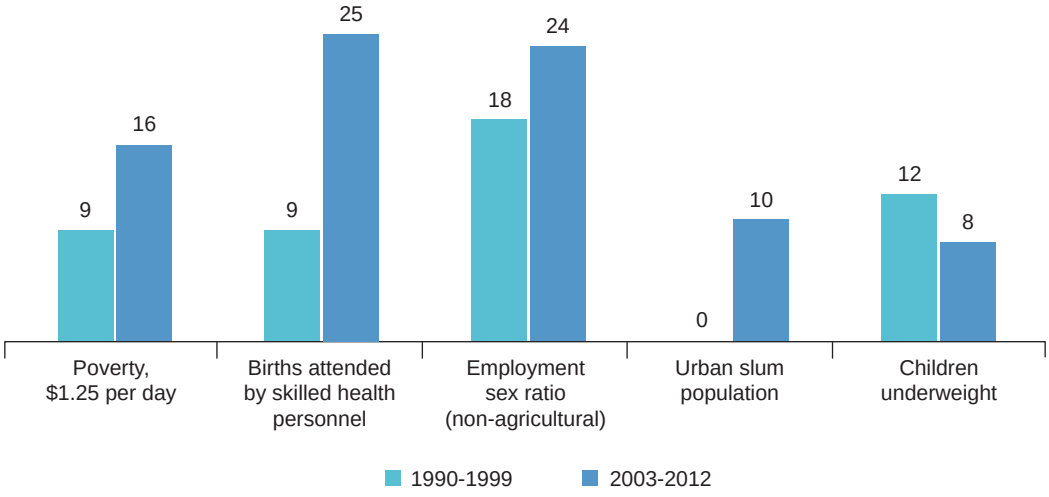
Data availability will be a crucial issue for the Sustainable Development Goals, which is a subject considered in greater detail in chapter 4 of this report. Data availability is also a major concern for tracking progress in the dissemination of technology, which is the subject of the next chapter.

Figure I-9 The importance of wealth in access to sanitation



Source: ESCAP calculations based on DHS data from respective countries and years; graphic previous produced for the *Asia-Pacific Regional MDG Report 2011/12*.

Figure I-10 Number of countries for which trend analysis is possible, 1990-1999 and 2003-2012



Source: UN MDG database (accessed 6 January 2015).

Note: The years 2013 and 2014 have been excluded in order to provide sufficient time for data to become available from DESA global database used as reference.

Annex 1 Average annual rates of reduction for targets that will be met, by level of deprivation

Indicator	Countries whose starting values were in the	Average values			Average annual rate of reduction, %		
		Starting	Midpoint	Ending	Pre-MDG	Post-MDG	Overall
$1.25 per day poverty	Least-deprived third	4.1	2.5	0.4	6.1	18.1	12.6
	Middle third	45.1	32.7	15.8	3.1	7.0	5.1
	Most-deprived third	61.5	34.6	15.7	5.6	9.4	5.1
Primary enrolment	Least-deprived third	97.7	97.3	98.4	0.2	-0.1	-0.1
	Middle third	93.4	95.1	98.0	-1.8	-0.3	-0.4
	Most-deprived third	85.6	89.4	99.1	-2.2	-1.2	-1.3
Primary completion	Least-deprived third	98.9	100.7	101.2	-0.9	-0.1	-0.2
	Middle third	91.0	92.1	98.0	-1.2	-0.7	-0.7
	Most-deprived third	69.0	72.0	96.8	-4.4	-3.8	-3.8
Gender primary	Least-deprived third	1.0	1.0	1.0	0.6	0.2	0.2
	Middle third	1.0	1.0	1.0	-0.7	-0.2	-0.2
	Most-deprived third	0.9	0.9	1.0	-0.8	-1.6	-1.5
Gender secondary	Least-deprived third	1.1	1.1	1.1	-0.1	0.3	0.2
	Middle third	1.0	1.0	1.1	-3.9	-0.7	-1.0
	Most-deprived third	0.7	0.7	0.9	-1.1	-2.6	-2.3
Gender tertiary	Least-deprived third	1.2	1.2	1.3	0.0	-1.2	-1.0
	Middle third	0.8	0.9	1.0	-4.6	-1.7	-2.0
	Most-deprived third	0.5	0.5	0.7	-2.0	-2.9	-2.7
HIV prevalence	Lowest third	0.1	0.1	0.2	-2.4	-4.4	-3.4
	Highest third	0.7	1.3	0.9	-7.1	3.4	-1.5
TB incidence	Least-deprived third	48.1	95.2	65.4	-7.1	3.4	-1.5
	Middle third	152.0	114.4	82.0	2.8	3.0	2.9
	Most-deprived third	234.5	233.0	202.8	0.1	1.4	0.7
TB prevalence	Least-deprived third	71.4	149.7	86.6	-7.7	4.9	-0.9
	Middle third	217.5	185.7	115.9	1.6	4.2	3.0
	Most-deprived third	522.3	484.8	300.6	0.7	4.7	2.7
Forest cover	Least-deprived third	67.6	59.3	56.7	1.0	0.6	0.8
	Middle third	36.2	37.1	37.8	-0.2	-0.2	-0.2
	Most-deprived third	5.4	5.3	5.3	0.1	0.0	0.1
Protected area	Least-deprived third	7.2	11.5	11.9	-3.2	-0.5	-2.2
	Middle third	2.4	3.7	4.2	-3.0	-1.8	-2.6
	Most-deprived third	0.6	3.7	3.9	-13.6	-0.9	-9.4
CO_2 emissions per GDP	Least-deprived third	0.2	0.3	0.2	-1.7	2.4	0.4
	Middle third	0.4	0.5	0.4	-0.8	0.8	0.0
	Most-deprived third	1.4	0.9	0.8	3.7	1.6	2.7
Safe drinking water (without)	Least-deprived third	5.9	4.2	2.9	3.3	3.2	3.2
	Middle third	15.4	11.4	8.2	3.0	2.9	2.9
	Most-deprived third	32.7	20.5	9.4	4.6	6.9	5.8

Annex 2 Average annual rates of reduction for targets that will be missed, by level of deprivation

Indicator	Overall regional progress to target, %	Countries whose starting values were in the	Average values			Average annual reduction, %		
			Starting	Midpoint	Ending	Pre-MDG	Post-MDG	Overall
Under-5 mortality	89.57	Least-deprived third	25.1	16.2	10.4	4.3	4.4	4.3
		Middle third	55.1	38.3	20.0	3.6	5.7	4.7
		Most-deprived third	118.9	87.9	61.8	2.7	3.2	2.9
Basic sanitation (without)	88.87	Least-deprived third	2.7	2.3	2.0	1.4	1.5	1.4
		Middle third	27.6	22.4	16.3	2.1	2.8	2.5
		Most-deprived third	71.4	61.8	48.4	2.1	2.2	2.2
Maternal mortality	84.15	Least-deprived third	59.3	41.4	31.3	3.0	3.4	3.1
		Middle third	128.8	62.3	44.5	5.9	4.1	5.2
		Most-deprived third	623.4	348.5	220.1	4.7	6.4	5.3
Infant mortality	83.08	Least-deprived third	21.1	16.2	10.2	2.6	4.1	3.4
		Middle third	42.1	30.2	16.5	3.3	5.4	4.4
		Most-deprived third	85.1	65.2	48.2	2.4	2.7	2.6
Antenatal care (= 1 visit)	71.41	Least-deprived third	84.7	88.2	92.5	-0.6	-0.7	-0.6
		Middle third	70.8	89.2	93.8	-2.9	-0.5	-1.6
		Most-deprived third	30.0	40.2	63.9	-3.7	-5.9	-4.8
Underweight children	70.36	Least-deprived third	14.7	10.3	6.6	3.5	4.9	4.2
		Middle third	33.3	25.5	18.5	2.6	4.0	3.2
		Most-deprived third	48.8	36.7	32.4	3.5	1.1	2.1
Skilled birth attendance (without)	52.67	Least-deprived third	0.8	0.9	0.3	-0.8	10.1	4.3
		Middle third	7.7	5.8	1.5	2.9	14.0	8.3
		Most-deprived third	69.0	57.7	46.3	1.8	3.6	2.5
Reaching last grade	13.36	Least-deprived third	99.1	97.8	98.7	1.2	-0.1	0.0
		Middle third	94.7	96.0	96.1	-0.5	0.0	-0.2
		Most-deprived third	80.8	85.1	91.2	-5.4	-0.8	-1.2

Source: ESCAP calculations based on the United Nations MDG database (accessed 6 January 2015); and World Bank Poverty and Inequality database for poverty-related indicators under Goal 1 (accessed 8 January 2015).

CHAPTER II

TRANSFORMATION THROUGH TECHNOLOGY

While governments are establishing the post-2015 agenda they also have to consider the best ways of implementing it. Critical to these efforts will be the ways in which they deploy technology. This will mean looking beyond strategies for technology transfer from the more advanced countries, and instead considering a much richer range of technology options, many of which may be closer to home – and exploring how these can best be developed and adapted.

If the world is to achieve sustainable development it will need to transform the ways in which it develops, shares and uses technology. Much of the 20th century's unprecedented human development came largely from technological breakthroughs. If countries are to make similar gains in the 21st century they will need to make progress on a much broader front.

Most people think of technology in terms of digital gadgets or machines. But this chapter addresses technology in a wider sense – encompassing all dimensions of the origins, flows and uptake of know-how, experience and equipment.[1] The United Nations System Task Team on the post-2015 development agenda considers these components as part of a science technology and innovation "ecosystem". Such an ecosystem would also need to include, among others, "political stability and well-functioning institutions, an educated workforce; sound research and education infrastructure and linkages between public and private innovation actors; enterprises committed to research and development; as well as a balanced intellectual property rights framework".[2]

Technology was addressed by the Millennium Development Goals – in Goal 8 – but to a limited extent. This goal included commitments to "provide access to affordable medicines" and to "make available the benefits of new technologies". "Make available" might have been interpreted as technology transfer; and new technologies could have included all technologies. In practice, however, there was little attention to technology transfer, and the indicators under Goal 8 were confined to information and communications technology. Furthermore, Goal 8 overall was not well implemented, and lacked specific mechanisms for accountability.

There has been more concrete language on technology transfer in other international agreements, notably the WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). Article 66.2 of this agreement provided for a globally-agreed and legally binding framework to facilitate technology transfer specifically to LDCs.

"Developed country Members shall provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country Members in order to enable them to create a sound and viable technological base." This article placed no limitations on the field of technology, and established a clear obligation for developed countries. However, it has scarcely been implemented.

The post-2015 agenda represents an opportunity to establish the dissemination of technology as a cornerstone of the overall objectives of sustainable development and poverty reduction. However, implementation will still not be simple. Most technology is privately owned by companies that are competing against each other. And the economic and political interests of each country will be different. In

addition, countries will have to identify the best technology for their particular needs in different sectors and adapt them to local circumstances. Then there are problems of measurement: technologies, especially digital ones, evolve very rapidly and require frequent revisions to product classifications which makes it hard to quantify impacts. And for a number of subject areas there are few reliable data, especially for systems of indigenous knowledge or those that emerge from the informal sector.

A key question is whether the means of implementation, and the related technology components of the new post-2015 agenda, will provide a more effective framework. New goals and targets set in general terms are unlikely to stimulate the required actions. And even if the goals and targets are more concrete, implementation will depend a lot on effective mechanisms, including for accountability. So far, the implementation of global commitments has been weak and they have made only a limited contribution to the transfer and dissemination of technologies to developing countries under MDG 8 as well as in other instruments such as TRIPS Article 66.2. There need to be new thinking on how to operationalize international commitments and build mechanisms for follow-up, including through the framework of South-South cooperation.

Some progress has been made at the global level to establish more concrete follow-up mechanisms. The Rio +20 Outcome Document, for example, recommended the establishment of a "technology facilitation mechanism". And the fourth decennial United Nations Conference on the Least Developed Countries, endorsed by the United Nations General Assembly, agreed on the establishment of a technology bank for LDCs. In addition, the United Nations Framework Convention on Climate Change has a technology mechanism that approved its first project in 2014. Further steps on technology dissemination have been made through regional or South-South cooperation mechanisms, or at a bilateral level.

Choosing a different technology path

Technology has made a major contribution to economic growth and has boosted many aspects of human development, notably helping reduce poverty. But there have also been negative consequences, particularly for the environment.[3] Major cities provide millions of jobs but if city growth is not properly managed it can increase congestion and pollution heightening the risk of cardiovascular and respiratory diseases.[4] Even some technologies that have contributed to poverty reduction and food security have had sometimes damaging side effects. For example, the green revolution that tranformed agriculture and boosted food production in some cases also degraded agriculture land and watersheds, through increased soil erosion and the overuse of chemical inputs.

For the implementation of the post-2015 agenda, countries in the Asia-Pacific region can reassess their development path. They have an opportunity to identify the technologies that, combined with science and innovation, can help reconcile economic growth and profit motives with environmental and social objectives (**box II-1**).

Box II-1 A different path

Neglected tropical diseases

In the field of public health, one of the problems is a lack of attention to diseases that almost exclusively affect the poor and poor countries, often called neglected tropical disease. They include tuberculosis, malaria, leprosy, and river blindness. For example, in a 30-year period, between 1975 and 2004, only 21 drugs targeting neglected diseases were introduced into the market, out of a total of 1,556 new drugs, or only 1.3 per cent.[a] In contrast, these neglected diseases account for 11.4 per cent of the world's disease burden.[b]

Ducks instead of herbicides

In the area of rice production, more and more farmers in Asia and the Pacific are taking up the practice of using ducks instead of herbicides for weeding paddy fields, and an aquatic fern (*Azolla microphylla*) to balance nitrogen and provide shelter for the fish which feed on duck faeces, daphnia and worms. The fish and ducks also provide manure to fertilize rice seedlings, thereby replacing synthetic pesticides, and help aerate the water and strengthen root systems that build resilience to storms. This system also has a positive effect on soil fertility and the conservation of biodiversity. The method of duck weeding produces the same yields as more input intensive practices, but is more cost effective and does not add nitrogen to streams, lakes and rivers that flow into the ocean and contribute to dead zones.

Innovations in basic sanitation

Recent evidence shows variation in economic returns from different technologies and approaches in the area of basic sanitation. A study by the World Bank shows that, in rural areas, improved pit toilets/latrines provide the best value for money, as they are generally low-cost and long-lasting, and provide a range of quantifiable benefits.[c] Innovations include pan-trap squat toilets that use a two-pit system minimizing both odour and water waste. Additionally, findings from the World Bank Economics of Sanitation Initiative demonstrated that pit toilets had a more favourable benefit-cost performance than septic tanks.

[a] Chirac and Torrede (2006). [b] Ioset and Chang (2011).
[c] World Bank (2012).

This will be much more feasible if countries work together. Not only can they learn from each other, in a globalized economy, the technologies pursued in one country have rapid knock-on effects in many others. Air pollution and CO_2 emissions, for example, have no respect for national borders. Countries therefore need to consider new technologies that will avoid public "bads" and build up a healthy stock of public goods that sustain the global and regional commons.

Much of the technology transfer and dissemination in the Asia-Pacific region may not meet the objectives of the next development agenda – indeed it may inhibit sustainable development and reverse gains in areas such as food security. While the Clean Development Mechanism (CDM)[5] under UNFCCC, for example, created parameters for what technologies were considered environmentally sound, technology dissemination outside such international development tools may be less effective. For the next development agenda, countries must consider the parameters of technology dissemination that can contribute to sustainable development.

Disseminating technology

Throughout history technology has travelled. It has percolated through national economies in many ways – as a result of emulation, or imitation or education, or just investment by companies seeking new opportunities or markets. Different technologies have spread around the world, transmitted by travellers' tales, or by scholars, or by international trade or by foreign direct investment. For example, paper from China, textiles from India, steam engines from Europe.

The movement, or replication, of these ideas is commonly referred to as "technology transfer", with such having broad social and cultural impacts.

Most discussions of technology transfer have focused on the movement of a physical object, followed later perhaps by the transfer of manufacturing equipment and technical information. Much less attention has been paid to emulating and extending existing indigenous technologies that could benefit more people. All Asia-Pacific countries have endogenous, indigenous and traditional technologies – for food production, for example, or housing construction, or small-scale manufacturing. Most of these have proved useful and productive – while being environmentally friendly, and socially and culturally appropriate.[6] However, the knowledge is often scattered, fragmented and not well documented.

In the regional consultations for this report participants said that in many cases, and particularly in LDCs, it is not advanced technologies protected by patents that are most needed, but simpler and more appropriate technologies, which are, in many instances, already in the public domain. The problems lie in finding out about these technologies and in developing the capacity to use them, including on a larger scale.

People should thus have access to technology from multiple sources which they can adapt and diffuse throughout their societies. Some of the most important for health, for example, could involve improvements in basic sanitation.

Technology stages

Technology transfer and dissemination does not merely mean the import or purchase of machines and other hardware at commercial rates. A central aspect is the building of local capacity so that people and institutions in developing countries can design and make technologies that can be diffused into their societies. Developing countries need to be able climb the technological ladder.

Within the prevailing economic model, the development and deployment of technology can be considered in five basic stages: research; development; market-focused design; early deployment; and commercialization. At present, developing countries are largely involved, as target markets, only when it comes to the commercialization phase. Instead they should be able to participate in all stages. In particular, they need to be involved at the early stages to ensure that technology is tailored to their natural resource endowments, their geography, demographic profile, or their vulnerability to particular diseases. The problem for developing countries is that the early stages require greater government financing and risk taking, even if the actual research is carried out in private institutions.

In the subregional consultations for this report, it was noted that the prevailing economic model is incompatible with sustainable development, and does not take into account informal modalities and technologies, including indigenous knowledge. In this context the transfer and dissemination of appropriate technology will continue to be highly constrained.

For the successful transfer and uptake of environmentally sound technologies, for example, the United Nations Environment Programme identifies seven "C's": context, challenge, choice, certainty, communication, capacity, and commitment.[7] UNEP also emphasizes that the suite of measures for successful technology transfer will always depend on local circumstances.[8]

The impact of investment

Studies on innovation and industrialization undertaken in developed and some developing countries have demonstrated that technology needs vary as firms and industries evolve. These studies are particularly relevant in

the context of the Asia-Pacific region, given the differences in the level of economic and technological development.

Initially, technologies can be transferred as final products or production machinery. At the early stages of industrialization this may be a consequence of foreign direct investment. But not all investments have the same types of benefit for local producers. The outcome may depend on the product and on the market. For example, a study in China indicated that domestic firms benefited more from technology "spill overs" if they were producing for local consumption, rather than for export, producing traditional rather than new products, and employing unskilled workers rather than skilled workers.[9] Moreover, the spillovers may not be to local businesses at all. In the Indian pharmaceutical industry, for example, the spillovers have largely been among multinational companies themselves and have only rarely reached local firms.[10]

An alternative mode for technology transfer is joint ventures. Generally involving equity participation by the recipient party, this has greater potential for learning and capacity building. Foreign firms have used joint ventures, for example, to enter the former socialist countries of Eastern Europe, and China as well as other Asia-Pacific countries. For example in the mid-1960s, Japanese companies owned most of the textile industry in Thailand, but by the 1980s, most were owned by Thai firms. It has been demonstrated that Japanese firms are likely to be the partners in these foreign linkages – and are not only more likely to enter into joint ventures, they are more likely to be using technology that is transferable to partners at the skill levels present in South-East Asia.[11]

Foreign investors need incentives to source their component supplies locally, and South-East Asian governments have been actively promoting joint ventures as a mechanism for the transfer of skills. For example, General Motors' largest China joint venture plans to establish a new plant in Indonesia, in the latest example of an automaker in the world's biggest car market venturing overseas.[12] The joint venture shows the continuing movement of technology from regions such as North America to China and now Indonesia.

However, joint ventures have had mixed results for technology transfer.[13] The technology holder may not be committed to the success of the venture or to transferring know-how.

The situation is also changing now as a result of the quickening pace of technological change. Access to state-of-the-art technologies has more recently involved strategic alliances. Such alliances have been used by major corporations to manufacture US-designed goods in Asia. Firms in the Republic of Korea, for example, have acted as subcontracting and original equipment manufacturers for many US companies, and have used this experience as a way of building up their capabilities for design, manufacture and export. Technology holders entering such alliances, however, risk nurturing potential competitors and may wish to confine technology transfer to subsidiaries or associated companies.

Learning from licenses

One useful mechanism for transfer is a licensing agreement. This can be appropriate for standardized, relatively simple and mature technologies, particularly for recipients in small and medium enterprises that lack the resources to be joint-equity partners. The license can cover the use of patents or trademarks, as well as know-how, and can also come with technical assistance.[14]

For some critical products, governments may require compulsory licences. These not only help transfer technology they can also make products available more cheaply while stimulating competition and innovation. Compulsory licenses are allowed by the TRIPS agreement. The example most commonly cited is that of developing countries requiring such licenses for lifesaving medicines.

But compulsory licenses are also used by developed countries. In the early years of industrial development, many countries took measures to enhance the technological bases and competitiveness of domestic industries. In Japan for example, competition authorities used to review international licensing agreements for local companies.[15] But even today developed countries regularly compel licencing. In the US, for example, the Atomic Energy Act allows for compulsory licenses "if the invention or discovery covered by the patent is of primary importance in the production or utilization of special nuclear material or atomic energy." Also in the US, the Clean Air Act contains a provision for devices for reducing air pollution. The Variety Protection Act similarly provides for the compulsory licensing of seed-bearing plants that are protected by plant variety certificates.[16] Compulsory licenses have also been used in the US in the defence, space, and other industries.[17]

These examples highlight the importance of defining intellectual property regimes, using all available measures, and striking the right balance between private rights and public interests in accordance with national development circumstances. Knowing that even developed countries are using compulsory licensing, or at least have created such policy space, may also encourage developing countries to take appropriate measures despite strong industry and government pressures from others.

Constraints to technology transfer

Given the different stages of technology development, the diversity of contexts and needs of countries and the variety of actors, there are many challenges for technology transfer and dissemination for sustainable development. One is the task of upgrading developing country technological capabilities – for example, through effective national education and

innovation systems that match and build upon existing local conditions.

In principle, and with goodwill in both source and destination countries, it should be possible to diffuse technologies around the world. In practice such transfers are rarely smooth or automatic. The United Nations *World Economic Survey* in 2011 identified some of the main constraints. These included over-dependence on the private sector, inadequate investment and financing, restrictions created by international trade and investment regimes, and weaknesses in international governance.

In the past much of the impetus for technological change in developing countries came from governments. Nowadays it is assumed that change will be driven by the private sector. As a result, technology transfer has been heavily dependent on foreign direct investment flows. Yet freely operating markets are unable to provide sufficient incentives conducive to large-scale investment in the transfer of technologies for sustainable development, such as in green technologies in developing countries. Furthermore, finance from governments is restricted by tight fiscal policies, so that technology transfer has to compete for resources with other government priorities. The official channels for transfer to poorer developing countries have largely been through technical cooperation provisions in external assistance grants and loans, or the result of conditions in export credit agreements.[18]

International trade regimes

The use of technology in developing countries is also profoundly affected by international trade regimes. The WTO framework in particular has created conditions conducive to foreign investment and the use of imported technologies, rather than encouraging supplier countries to accelerate technology transfer. Indeed the WTO has at times discouraged local production of high-tech goods even in developed countries. A Canadian province, for example, wanted to expand its production of photovoltaic panels by imposing local content requirements, but lost its case at the WTO – a clear demonstration that WTO trade obligations take precedence over national industrial policies that might be more conducive to sustainable development.

Of particular concern is the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) which is administered by WTO. This requires WTO members to protect intellectual property rights in a wide range of circumstances, and is now also being applied to many other agreements. Trade-oriented countries in Asia and the Pacific seeking to maintain a "welcoming reputation" to foreign companies have been signing bilateral and regional treaties that require stronger-than-TRIPs intellectual property protection, with potentially detrimental effects on their economic development.[19] Some developing countries like Viet Nam that have limited negotiating power, have entered into lopsided agreements that demand a great deal from them, while requiring few legislative changes from the counterparty.[20] For Thailand, the cost of some proposed TRIPS+ provisions related to essential medicines has been estimated at around $5 billion over ten years.[21]

There are similar concerns about proposed regional agreements such as the Trans-Pacific Partnership (TPP). As presently envisaged, this has provisions on intellectual property rights that could significantly erode national policy space beyond the requirements of the TRIPS Agreement. There are also concerns about the Regional Economic Comprehensive Partnership and the Free Trade Area of the Asia-Pacific, which reflect provisions of the TPP and could significantly limit the space for dissemination of technology.

All these measures have been reinforced by very aggressive patenting. This problem is particularly acute in various areas of green technology. Countries like China and India have successfully made their own investments in wind turbines and solar panels without technology transfer from developed countries. For example, China, accelerated solar power installations in the first half of 2014, adding 3.3 gigawatts of solar capacity and having 23 gigawatts of solar power supply, almost seven times as much as Australia, which is described by its own government as the world's highest recipient of radiation per square meter.[22] However, many developing countries are unable to afford these technologies, while already experiencing the adverse impacts of climate change.

Prospects for strengthening technology dissemination

Transferring and disseminating technology for sustainable development is may not always be straightforward. Many actions need to be taken simultaneously, and by many actors. Nonetheless, there are clear opportunities. Many Asia-Pacific countries have a wealth of technical knowledge that they could share with other countries in the region. The Republic of Korea, for example, in 2013 established the Green Technology Center-Korea, a government-funded thinktank that aims to diffuse green technologies to developing countries. These are technologies that address food production, for example, or offer smart traffic and logistics systems, or IT-based smart grids. They also cover technologies related to weather forecasting and climate changes.

There is also bilateral assistance from other Asia-Pacific countries. China, for example, has established in Cambodia a laboratory for food testing through which it shares its food examination technologies and helps Cambodia enhance food security. India also has a number of bilateral arrangements, including one with Fiji for sharing new technologies and innovations on copra production.

At the same time, China and India can learn from other countries in the region, especially those in ASEAN with which they have set up various forms of collaboration. One is the China-ASEAN Centre for Technology Transfer which aims to help enterprises cooperate and transfer applicable technologies between China and ASEAN member States.

While China has had substantial experience in research and development, some ASEAN States have more expertise in applying scientific and technological knowledge to production processes, as well as in marketing. China and ASEAN can thus be mutually complementary.

Similarly, an ASEAN-India Technology Fund has been established to undertake collaborative research and development in areas of common interest, including biotechnology, pharmaceuticals and agriculture. There is also an ASEAN-India Virtual Institute for Intellectual Property to promote capacity building on intellectual property and share international developments in relevant legislation.

Governments can also share experience through "build-operate-transfer" models. These have often been used for construction of infrastructure such as tollways but can also be employed to disseminate various types of technology particularly on large-scale projects – for waste water, energy and agro-industry (**box II-2**).

In addition, technological cooperation can take place at the level of individual companies. Many firms in developing countries possess valuable knowledge on how to adapt certain technologies to local conditions, an activity that could be backed by donors through South-South cooperation.

Transformation through technology

Developing and disseminating the best forms of technology for the implementation of the post-2015 agenda and the Sustainable Development Goals will require action on a broad front, and at many levels, global, regional and national.

Global commitments

1. The post-2015 agenda: The post-2015 agenda should include clear commitments on reforms in international governance and rules to remove barriers for technology dissemination. Technology transfer and dissemination is essential for achieving sustainable development and by agreeing to the post-2015 agenda and its objectives, all countries are inherently committing to support the necessary action, beyond any specific targets included. For the implementation of the post-2015 agenda countries should also consider the parameters of appropriate technology to ensure that it contributes to sustainable development.

Box II-2 Transferring technology on chicken production

Technology can be disseminated using the build-operate-transfer model. For example, one of the world's largest agribusinesses, Charoen Pokphand (CP), which is headquartered in Thailand, has partnered with the Chinese Government, a farmers' cooperative, and the Bank of Beijing to construct the largest and most advanced layer chicken facility in Asia.

CP is renting the project's property and its assets, as well as operating the entire business including production and marketing, for 20 years before turning it over to the farmers' cooperative. The facility houses 3 million layer hens and produces 840 million eggs a year. To deal with the huge amounts of chicken faeces, the site also makes natural fertilizer from manure dried by technology that recovers the body heat generated by the chickens.

CP and the local government each own 15 per cent of the $113-million project, with the majority share, 70 per cent, being held by 1,900 local families who make up part of a government-funded cooperative, grouping local land-rights holders and persons with disabilities. Families, as cooperative members, currently receive a $3,500 annual income during the first 14 years, increasing to $9,500 a year thereafter. Those families with land rights also earn another $6,300 a year for every 0.16 acre they hold. While the villagers are owners, they can earn more by taking jobs at the plant. Before the introduction of the layer farm, villagers had relied on revenues from growing peaches and on government subsidies as their primary sources of livelihood.[a]

[a] United Nations Centre for Sustainable Agricultural Mechanization (UNCSAM), site visit at Pingu, China, September 2011.

Renewing the Global Partnership for Development as part of the post-2015 agenda would also imply that in formulating their domestic policies, developed countries would take into account the effects they have on developing countries, and that they would formulate policies that are supportive to the global effort and to developing countries' efforts in particular when it comes to technology transfer and dissemination for sustainable development.

2. Funding – The international community should find more public funding to foster creative partnerships among public institutions, the private sector and civil society organizations.[23] This is needed in order to counterbalance the predominantly private ownership of technology and to encourage the development and use of technologies that are compatible with sustainable development.

3. International agreements – The international community should reassess international agreements related to technology, especially trade agreements that incorporate measures on intellectual property rights. Aside from assessing the implications of trade agreements on access to technology, another approach would be to establish a monitoring system to promote compliance with the obligations for transfer of technology under TRIPS Article 66.2. Given the lack of implementation under this provision, the international community can assess the means for ensuring compliance, both within the framework of the WTO and beyond.

4. New institutions and mechanisms – These could include, for example, the Technology Facilitation Mechanism and the Technology Bank for LDCs currently under discussion in the United Nations General Assembly. There could also be global research partnerships on the model of CGIAR (**box II-3**). Other models such as the Clean Development Mechanism could be replicated for other issues (**box II-4**).

5. Publically funded technologies – Commitments on technology should also include expanding the space for technologies in the public domain, as well as transferring publicly-funded technologies to developing countries, such as for certain health issues, agriculture and low-carbon technologies (wind turbines for example) that are key to greenhouse gas emissions reductions from the European Union.[24]

6. Better indicators – Although many technology-related activities are difficult to measure, it will be important to establish reliable indicators on technology transfer and dissemination. In addition to indicators to measure technology transfer, there should be a process for the identification and development of appropriate innovation indicators. Current indicators for innovation or technology focus on issues such as the number of patents or number of researchers trained, but there is a need to consider the means of capturing the progress in technology access and innovation in countries, as well as gender dimension, which would better represent the national, regional and global needs and priorities.

Box II-3 A global agricultural research partnership

CGIAR unites organizations engaged in research dedicated to reducing rural poverty, increasing food security, improving human health and nutrition, and ensuring sustainable management of natural resources. The 15 research centres that make up the consortium are financed by a multi-donor trust fund and have close to 10,000 scientists and staff. They house the world's most comprehensive collections of genetic resources. In Asia, the overall benefits of CGIAR research are estimated at $10.8 billion a year for rice, $2.5 billion for wheat and $0.8 billion for maize.[a] This is recognized as a successful partnership bringing different actors together and mobilizing public funding.[b]

[a] Correa (2012). [b] Available from www.cgiar.org/who-we-are/.

Regional cooperation

Some gaps and constraints in technology transfer can be overcome by closer regional cooperation. The Asia-Pacific region already has a number of institutional mechanisms that facilitate science and technology cooperation through ASEAN and SAARC – though little is known about their impact.

Box II-4 Technology transfer and dissemination through the Clean Development Mechanism

A well-documented example of technology dissemination is the Clean Development Mechanism (CDM) under Article 12 of the Kyoto Protocol. While not visualized at the time of conception, technology dissemination was one of many co-benefits of the investment in climate change mitigation projects. As the CDM matured it became one of the most successful elements of the Kyoto Protocol. Some key lessons of the CDM are: technology transfer frequency declines as the number of projects of the same type in a host country increases, indicating that technology dissemination often occurred beyond the CDM projects; technology dissemination was more common during the initial years of the CDM suggesting that the CDM helped by contributing to early awareness of the mitigation technology in the host country and that technological capacity was being developed in, or transferred to, developing countries through non-CDM channels; energy efficiency (industry), HFCs, N_2O, transportation and wind projects are more likely than average to involve technology dissemination; and the host country plays a very significant role in technology transfer. Given that technology dissemination was not a mandate of the CDM, the findings highlight dissemination processes that are not part of any technology specific designed international tool. The next agenda could benefit from the same factors that made CDM successful. The primary technology host countries in the region under the CDM are China, India, Japan and Malaysia.

1. A regional forum – Developing countries have much to share and could benefit from a new regional exchange forum. This could maintain an annotated bank of globally available technologies for sustainable development. The forum could undertake and document technology assessments, including obstacles to accessing to these technologies. It would also offer government policymakers a platform where they could share experiences on national science, technology and innovation policies. In Europe these kind of exchanges happen often, based on analyses done by the OECD. They could also discuss options that are still on the table under existing international rules, such as financing basic research to promote local capabilities, investing in education and using procurement to stimulate innovation in domestic firms.

2. Regional databases – Technological cooperation at the firm level could also be further explored and encouraged. Developing country firms possess valuable knowledge on the adaptability of certain technologies to local conditions, which could provide an incentive to seek South-South cooperation. Governments could support such cooperation through information sharing, for example, through a technology database. Governments could take similar steps for specific public areas, such as technology for climate change mitigation and adaptation, sustainable energy, public health and food security. This could be a central database, similar to what India and other countries have asked the World Trade Organization to set up.

3. Collaborative R&D projects – Collaboration and pooled financing for R&D could be harnessed for projects in the regional commons, such as the Ganga basin in South Asia and the Mekong river basin in South-East Asia.

National governments

1. *Technology policies* – At national level countries would benefit from in-depth technology assessments, and the design of specific technology policies and plans to address the different stages of technology development and modalities. Specific mechanisms for experience sharing and learning could be considered where firms and individuals can develop absorptive capacity. Attention should also be paid at technology dissemination for poor and excluded groups, recognizing that there are technological inequalities within countries, as much as there are between countries.

2. *TRIPs commitments* – Countries should explore all available opportunities for flexibility. LDCs for example, received an extension of the grace period until 2021, allowing them to make amendments that may result in lesser protection. It is also important to incorporate into domestic legislation all safeguards and flexibilities available under the TRIPS agreement – so that they can be invoked when necessary.

3. *New trade agreements* – Before signing trade agreements, governments will want to carefully assess and minimize their potential negative impacts. For this purpose they can draw on the perspectives of many government departments, not just those concerned with trade, foreign affairs and commerce, but also those for health, agriculture, and the environment. These efforts to transform technology will require not just political action but adequate funding.

The opportunities for financing technology transfer and other sustainable development goals are considered in detail in the next chapter.

Endnotes

1 UNEP (2003).
2 United Nations (2013).
3 Available from www.greengrowth.org/?q=static-page/sat-10012011-1104/about-green-growth.
4 WHO (2014).
5 Daño, Wetter and Ribeiro (2013).
6 UNEP (2003).
7 Ibid. p. iii.
8 Tian (2007).
9 Feinberg and Majumdar (2001).
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CHAPTER III

FINANCE FOR THE FUTURE

Meeting a more ambitious and transformative post-2015 agenda will take considerable financial resources. Governments, development partners, municipalities, businesses, and civil society groups will have to consider all possible sources of finance, and how these can work together.

This chapter on finance for the proposed Sustainable Development Goals has emerged from wide-ranging discussions across the region. These included a series of expert-led technical papers and multi-stakeholder consultations that highlighted potential areas for regional and global cooperation.[1] There was also a survey of experts and development practitioners from governments, civil society and international agencies. This identified implementation issues that ranked high in the minds of stakeholders (table III-1).[2]

These discussions indicated that the potential sources of finance for sustainable development are very diverse. They include governments that are mobilizing domestic tax and non-tax revenues, as well as external aid, and international institutions that are disbursing grants and low-cost loans. But increasingly the resources will come from households who are earning incomes or receiving remittances, corporations that are reaping profits, and sovereign wealth funds that are accruing investment returns. Equity and bond markets too have important roles – for raising funds, lowering costs and pooling funds for specific investments. In fact, while national government revenues remain the most important source of funds, even for countries receiving significant official development assistance, the largest sums are in private hands.

What will it cost?

How much will these sources be expected to finance? This is difficult to estimate, but as a starting point for indicative figures, the funding requirements can be divided into three parts: how much for infrastructure; how much for eliminating poverty; and how much to meet the other SDG goals (figure III-1).

It should be noted that these categories of expenditure inevitably overlap. And they will also be mutually self-supporting: boosting incomes will also improve access to water and sanitation; investing in education will also increase household incomes; and investing in roads will also improve access to health centres and schools. Thus, the three categories of investment should not be summed to give a grand total, but rather considered as related and interlinked categories.

Infrastructure – One estimate suggests a total financing requirement for infrastructure in Asia and the Pacific of nearly $8.3 trillion including national and cross-border infrastructure, from 2010 to 2020 – or about $750 billion per year.[3] Excluding infrastructure needs for water and sanitation which is also estimated separately as part of MDG needs, the amount comes down to $718 billion annually.

Poverty reduction – Based on 2011 estimates, ending the income deficit and achieving zero extreme poverty, defined as living on less than $1.25 a day, would call for $51 billion. Raising the poverty standard to $2 per day would boost the sum required to $323 billion.[4]

Other MDG indicators – Closing the gaps on nine MDG indicators[5] between 2010 and 2015 has been estimated

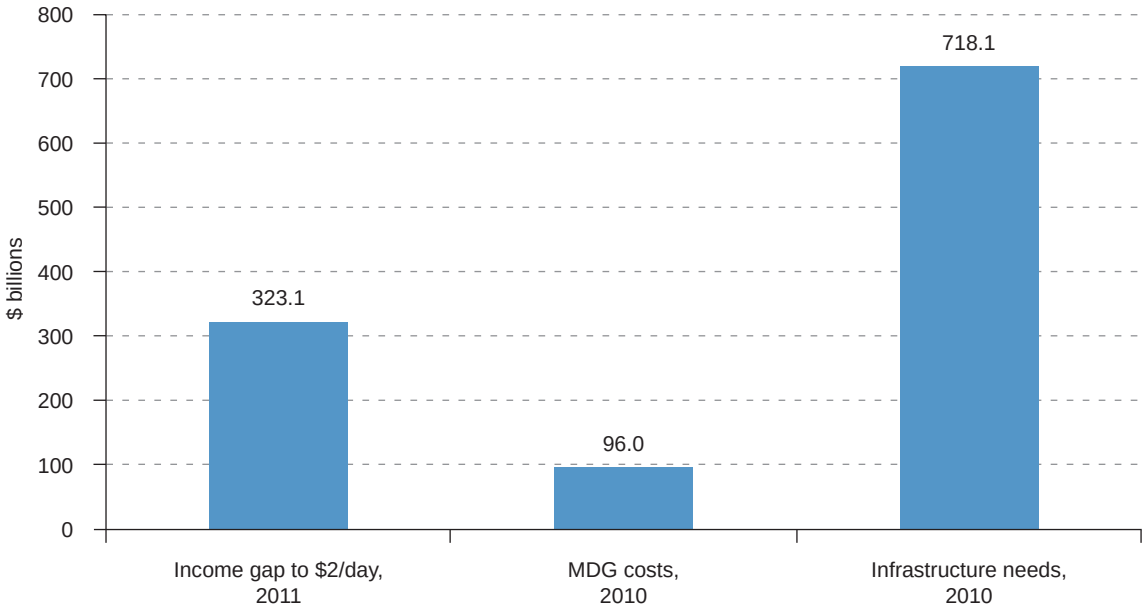
Table III-1 Priorities for development financing, 1 = highest priority, 10 = lowest priority

Implementation challenges	Asia-Pacific	South-East Asia	South Asia	Central Asia	Pacific
Inefficiencies in public expenditure management	1	1	2	1	1
Low tax effort	2	6	1	2	2
The full potential of businesses and the for profit sector has not been leveraged for sustainable development gains	3	4	4	5	3
Underdeveloped domestic capital markets	4	2	5	8	5
Inability of developed countries to meet their ODA commitments, e.g. (i) provide 0.7 per cent of their GNI for ODA; and (ii) give 0.15 to 0.20 per cent of GNI for ODA to LDCs	5	5	3	3	8
Earmarked multilateral and bilateral ODA, e.g. for climate finance, global health funds, results in aid fragmentation	6	6	6	4	4
Natural resource revenues and sovereign wealth funds have not delivered their full potential.	7	2	7	7	7
Illicit financial flows across borders	8	8	8	9	10
New donors (philanthropy, emerging economies), South-South and triangular cooperation need to mature.	9	10	9	6	9
High costs of overseas worker remittances and weak capacity to leverage worker remittances for development	10	9	10	10	6

Source: Rajivan and Francisco (2015).

Note: Darker shades represent higher priority.

Figure III-1 Asia-Pacific investment needs, $ billions



Note: Infrastructure needs exclude those for water and sanitation which are estimated as part of MDG needs.

at costing $636 billion – $96 billion in 2010, rising to $117 billion in 2015.[6] In addition, there have been estimates for individual countries (table III-2).

The sums are large; but the challenge is not the magnitude per se. Rather, two bottlenecks need to be addressed: (a) many activities that contribute to sustainable development

are not profitable or inadequately profitable, and therefore not attractive to the private sector, which controls the bulk of the resources; and (b) the funds are in dispersed hands, disproportionately concentrated in the more developed countries. The task is to move more of them to where SDG needs are greatest.

Table III-2 Country costs for the MDGs

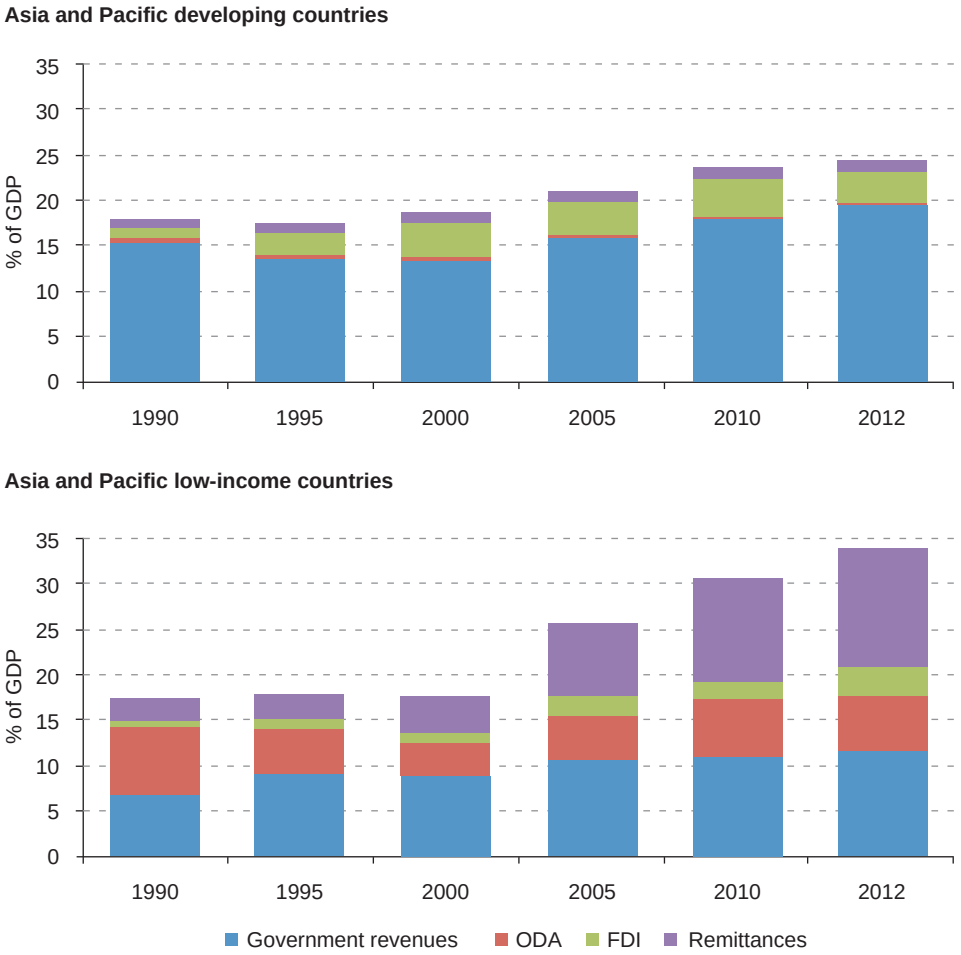
Country	Annual cost estimates (current $ billion)
Bangladesh (2009)	2009-2015: 14.9
Bhutan (2007)	2006-2015: 0.25 (in 2005 prices)
Lao PDR (2010)	2010-2015: 1.1
Nepal (2010)	2011-2015: 3.8
Tajikistan (2005)	2005-2015: 1.2

Source: UNDP reports on MDG needs estimates.

Sources of finance

Where could the necessary finance come from? The main flows of development finance are indicated in figure III-2. For the developing countries of the region, the most important sources will be government revenues, though the low-income countries are likely to rely more on official development assistance and flows of remittances.

Figure III-2 Finance flows in Asia-Pacific developing countries, % of GDP



Source: ADB calculation using data from OECD DAC; Asian Development Bank, Key Indicators for Asia and the Pacific 2014; and World Bank, World Development Indicators online database.

Note: GDP=gross domestic product; FDI = foreign direct investment; LICs = low-income countries; MICs = middle-income countries; ODA = official development assistance. Low-income countries classification uses the World Bank income classification as of July 2014. The indicated categories of finance flows are illustrative and do not imply a comprehensive sweep of finance potentially available to countries for development.

Finance can also come from various accumulated funds. The largest categories for this purpose are $6.2 trillion in domestic savings, $2.7 trillion in sovereign wealth funds, $1.3 trillion in insurance funds, and $756 billion in pension funds.[7]

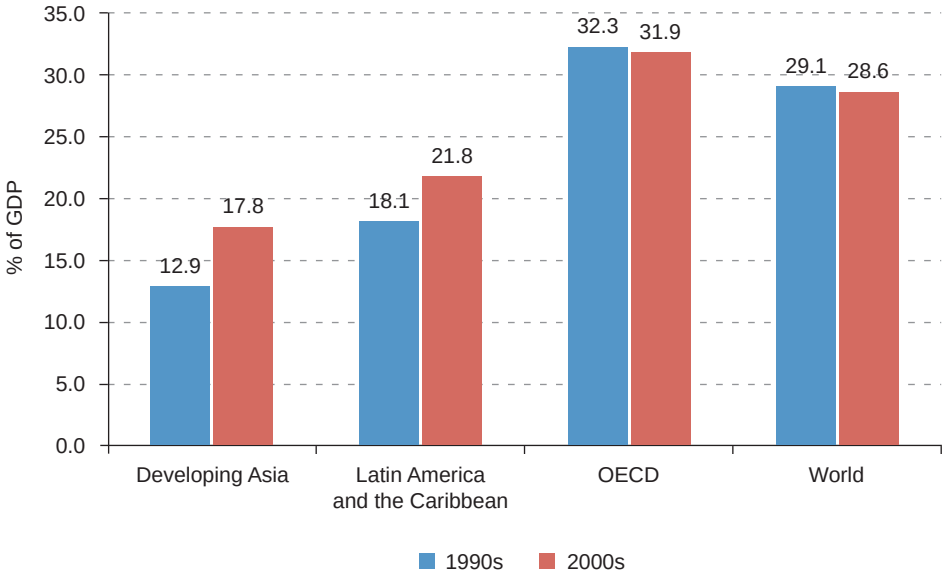
To finance the region's increased development needs official development assistance at $27 billion annually is small compared to, for example, remittances at $212 billion or FDI flows at $626 billion. But while ODA is programmable, the question of how more private flows can be drawn-in development remains to be addressed. Dramatic changes in the landscape of finance will require moving beyond the aid-centric approach of the past, and seeking ways to not only pump in more money but also direct more of it towards development. While national government revenues remain the most important source of funds for investments in sustainable development, the largest sums will increasingly be in private hands. For example, FDI can be negotiated towards socially-linked investments, while well governed financial markets can establish diaspora bonds to pool remittances towards development needs.

Domestic public resources

The primary sources of finance, even in countries that receive substantial amounts of development assistance, will be national government revenues. Asia-Pacific governments get most of their income from taxes – across all subregions the proportion is at least 75 per cent.[8] In addition, they have non-tax revenues such as those from licenses and levies on trade or natural resource extraction. Instead of perpetuating existing income inequalities, taxes if designed progressively could contribute to income redistribution.

For tax collection, however, Asia lags behind much of the rest of the world. In the 2000s worldwide tax collections were around 29 per cent of GDP but for developing Asia they averaged only 18 per cent (figure III-3).[9] This highlights a huge untapped potential. One estimate suggests that 17 Asia-Pacific countries, most of which were developing states, could between them raise an additional $440 billion a year.[10]

Figure III-3 Tax revenues, % of GDP, 1990s and 2000s



Source: ADB estimates based on revenue data from International Monetary Fund.

Note: Data are weighted averages. OECD = Organisation for Economic Co-operation and Development.

Income taxes – Asia-Pacific countries have relatively small tax revenues because only a small proportion of the population pay income tax, at both ends of the income spectrum. Many poor people, most of whom work in agriculture or the informal sector, fall below income tax thresholds, and in any case it is difficult to apply taxes to informal activities. However, many wealthier individuals, who could and should be paying income taxes, commonly evade them.

Gaps in tax revenues come from poor collection efficiency, which in some countries in the region is below 50 per cent. Governments have encouraged investment by offering tax exemptions and concessions. But this has often reduced revenues without providing adequate development – in terms of more jobs, better labour standards, technology transfer or a cleaner environment.

Value added taxes – A number of countries in the region have boosted revenues through taxes on goods and services, particularly via value added tax (VAT). It is fairly widespread in Asia and imposes relatively low economic costs. VAT can be progressive if it is charged at higher rates for goods and services considered luxuries. Broadening coverage to as many goods as possible would reduce distortions and inefficiencies.

Corrective and other consumption taxes – These are "sin" taxes levied on goods and services such as alcohol and cigarettes that are deemed to be bad for individuals and society. These provide a double dividend – both revenues and curbs on undesirable behaviour. In addition, luxury items can be taxed, such as yachts and private planes. These can be an easy source of revenue for the State.

Capital gains taxes – Governments could make more efforts to tax capital gains. They have been reluctant to do so because of concerns about competitiveness, although some countries, including China, have now introduced the necessary mechanisms.[11]

Wealth taxes – Wealth has been rising faster than incomes, so many governments are considering taxes on wealth. This would have the advantage not only of raising more funds but also of encouraging more productive use of capital.[12] In addition, it would reduce inequality which in turn should boost economic growth.

Carbon taxes – Beyond emissions trading, as considered later in the chapter, significant funds could be tapped through carbon taxes, phasing out of fossil fuel subsidies, and applying industry-specific pricing such as for aviation and shipping. Chile, for instance, approved a carbon tax to start in 2018 that will target large thermal power plants, which will pay $5 for every metric ton of CO_2 they emit. Similarly, Mexico in 2014 initiated a carbon tax, also has a voluntary carbon market, and is exploring innovative approaches to carbon pricing.[13] Countries in the region are exploring emission trading schemes.

A sustainable and resilient development oriented tax system should be progressive and include categories of taxes that have significant importance to ecological and environmental balances. The Russian Federation, for example, has a mineral extraction tax.

Non-tax revenues

Non-tax revenues can come from various types of license – ranging from certificates to own a car, as in Singapore, to tuna fishing licenses, as in Kiribati. These revenues generally have neutral or positive impacts on economic growth. Globally, non-tax revenues average 4.5 per cent of GDP, but in developing Asia only 2.5 per cent. Another under-exploited source of non-tax revenue is the profit from state-owned enterprises. In China, India, Thailand and Viet Nam, these enterprises contribute more than 20 per cent of GDP.[14] Boosting productivity in such enterprises could deliver substantial amounts of tax.

Local government funds

The above sources of funds are typically raised by national governments. But, with rapid urbanization there are now greater opportunities at the municipal level. Local governments are already responsible for much expenditure: many central governments allocate a proportion of centrally raised revenues for spending by local governments. China, for example, allocates 20 per cent of central revenue to local governments, for whom it accounts for 50 per cent of their budgets (table III-3). How well they use these funds will depend on their capacity for administration. If they use transfers primarily to meet budget deficits, they will have less incentive to spend efficiently or to raise local resources.

Table III-3 Central government transfers to local government

Country	Proportion of central revenues spent locally	Proportion of local expenditure derived from central transfers
Japan	20%	40%
Republic of Korea	20%	40%
China	20%	50%
India	33%	33%
Pakistan	28%	5%
Cambodia	19%	2%
Philippines	11%	14%
Indonesia	7%	28%

Source: Brosio (2014).

But many local governments are increasingly seeking to raise their own funds – through a range of fees and charges. Local governments in Thailand, for example, levy user charges on garbage collection, public utilities, mass transportation and childcare. The Philippines has more than 33 different types of local user fees and charges, ranging from animal and civil registration to garbage collection fees.

In principle, local authorities that raise and spend their own resources should be more accountable and more responsive to local demand. They can also use these charges to support local policies – for example, by offering incentives to recycle trash (box III-1). In addition, they can make the fee structure

Box III-1 Bottom-up finance: localities take the lead

Municipalities are well positioned to act on climate change. Some governors, mayors and community leaders are therefore mobilizing efforts to expand public transportation, encourage fuel efficiency and setting up "green banks" to use private capital for clean energy.

In Kazakhstan, for example, the city of Almaty is working to control air pollution through a cap-and-trade programme (a form of an emissions trading system, see box III-5). Each of 1,200 industrial companies will have an emissions allowance, and will be required to operate under it, purchase additional allowances, or sell allowances it does not use once it has reached a minimum 7 per cent reduction per year. The companies will pay fees to hold, bank and trade allowances, with revenues used to finance monitoring and enforcement. The city aims for an annual reduction of up to 10 per cent per year.

Sources: ESCAP (2014); Esty (2014).

progressive, for instance, by waiving charges for lower-income groups. On the other hand, if they raise large amounts from non-tax fees and charges they can distort incentives, disrupt markets, and create opportunities for corruption.

To maximize the benefits of local revenue gathering, most countries have limited what local governments can collect. The Republic of Korea, for example, specifies that local governments can levy property, vehicle, residence and other taxes. Similarly, Indonesia in 2009 passed a law that defined the types of revenues subnational governments could raise and prohibited tapping certain additional sources.

Another potential local source of funds is municipal bonds. These are common in some developed countries but they have only been used in Asia more recently. Viet Nam, for example, has had a robust municipal bond market since 2009, operating through agreements with commercial banks and financial institutions. Thailand has approved regulations that will take effect in 2015.[15]

Bonds need to attain a minimum rating from an authorized credit-rating agency so they depend on reliable information – on local budgets, balance sheets, debt service obligations and intergovernmental fiscal flows. With this information, local governments should then be able to issue bonds backed by income streams from various sources such as property taxes, which can be credited to an escrow account. Several municipal borrowers with small requirements can also come together to issue a single pooled bond. In some cases bonds can also be sold to users, who can monitor service delivery (box III-2).

Plugging leaks

While looking for new sources of revenue, governments also need to reduce leakages from existing sources. These include:

Over-generous tax provisions – Governments often offer corporations preferential tax rates on capital gains and qualified dividends. These can be costly, unproductive and regressive.

Transfer pricing – This involves corporations under- or over-invoicing so as to move profits to lower-tax jurisdictions. A number of Asian countries have lost income in this way to the European Union and the United States. Between 2005 and 2007, Pakistan, for example, lost $577 million, Bangladesh $350 million and Viet Nam $475 million. To avoid this, 20 Asian countries have now adopted transfer-pricing rules in their tax codes, mostly along OECD lines.[16]

Illicit financial outflows – These result from transferring financial capital out of a country while contravening national or international laws. They generally involve practices such as bribery, money laundering, trade mis-invoicing, and tax evasion. Illicit financial outflows from Asia between 2003 and 2012 averaged around 3.8 per cent of GDP, close to the global

Box III-2 When bondholders are users

Local governments can raise funds for urban infrastructure services by offering user rights to bondholders. This flexible debt instrument can be sold to different segments of the public – pure investors, investor users or pure users. The bond offers no interest during the construction period and defers the user right to a stage when revenues can be collected. This helps mitigate spikes in cash outflows upon the maturity of bonds, align costs with revenues, and improve net present value. Bondholders who are users can also monitor the services, which enhances accountability. Liquidity comes through trading in exchanges, yielding a liquidity premium.

average of 3.9 per cent. Asia is the region with the greatest volume of illicit flows comprising 40 per cent of the world total over the period 2003-2012. Five of the top ten countries for illicit flows are in Asia and account for 67 per cent of the total volume.[17]

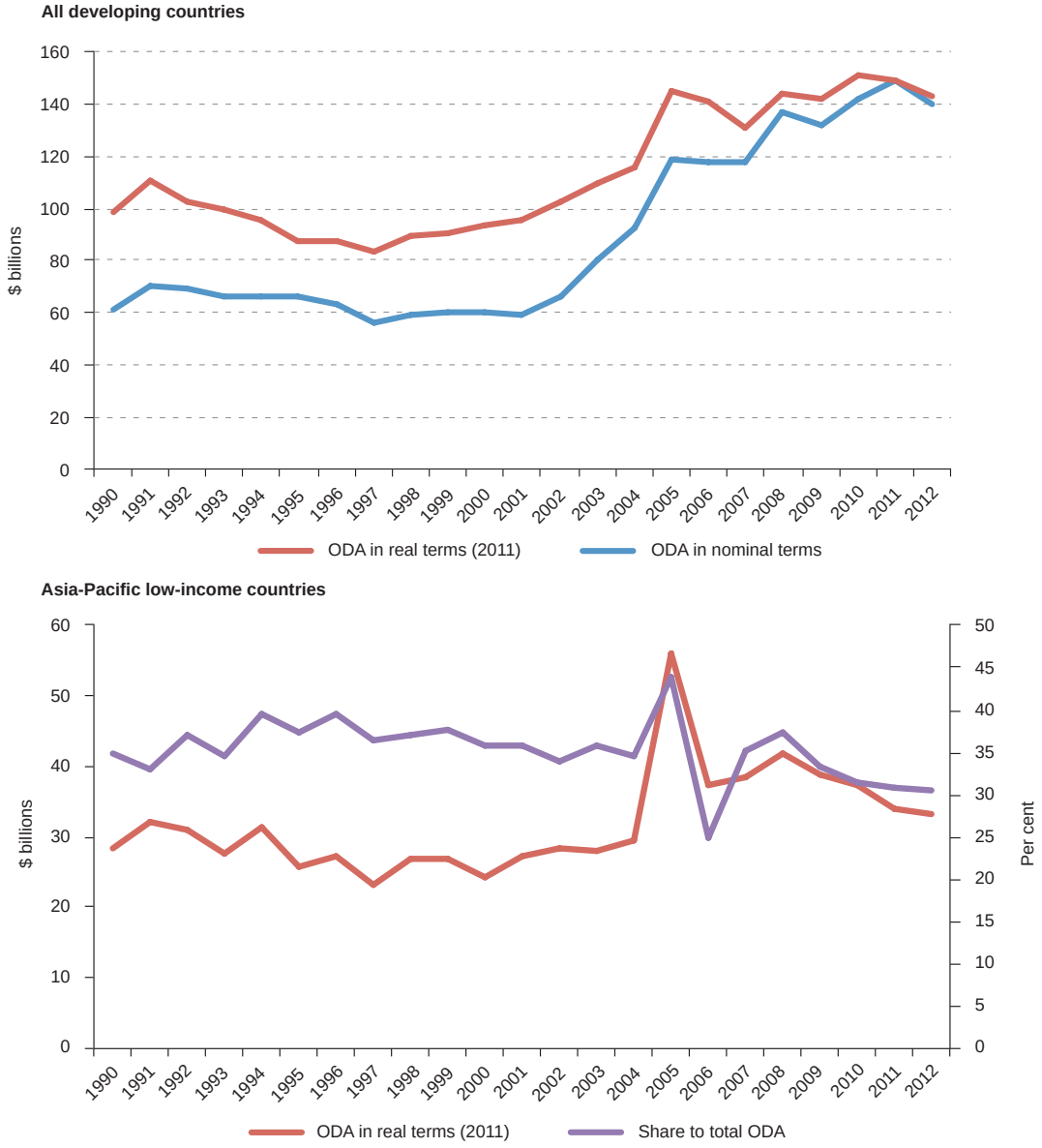
Stemming major losses will require national and international action – strengthening tax administration while clamping down on illegal activities. Accounting practices too could be more stringently regulated. Ending harmful tax competition needs to be based on cooperation between countries, while respecting their rights to design national tax regimes.

International partnerships

The poorest developing countries in Asia also rely on official development assistance (ODA). ODA is not just a valuable source of funds. When aligned with agreed international norms, ODA can also help to anchor domestic policy in principles of equity and sustainability, as well as focus attention on issues such as human rights and gender equality.

Since 1990, traditional ODA to all developing countries has been on a rising trend both in nominal and real terms. Net ODA to Asia and the Pacific, however, has been declining since 2008 (figure III-4).

Figure III-4 Net disbursement of official development assistance, 1990-2012



Source: OECD. Available from http://stats.oecd.org/ (accessed 18 August 2014).

Note: Figures represent total net ODA from all bilateral DAC and multilateral donors. Regional classification follows that of OECD. OECD's Oceania region is represented as the Pacific region. GNI and population figures underlying the data in the lower panels are for the recipient countries.

Globally, ODA has never reached the internationally agreed target for donors of 0.7 per cent of gross national income. In 2013, in Asia and the Pacific this resulted in a shortfall of about $43.9 billion.[18] Moreover, although Asia has a majority of the world's most impoverished people it has not received a corresponding share of ODA. In 2013, across all developing countries, ODA disbursement per person living on less than $2 per day was $54, but for Asia it was only $19. This is partly because donors see less need to support people in what may now be middle-income countries.

Nevertheless, ODA remains important across the region. For some of the low income and fragile countries, grants are major sources of public revenue – 15 per cent in Papua New Guinea, for example, 39 per cent in Bhutan, and 53 per cent in Afghanistan. The share is also high in other Pacific countries.[19] In these countries, concessional financing will remain critical not only because of structural limitations, but also until they are better equipped to access financial markets.

ODA can be valuable for projects requiring long-term investment, such as rural education and health care.[20] While this could be based on grants, some countries may be able to partly recover costs through user charges, so they could accept loans on harder terms. But it is important to avoid the "missing middle" syndrome – where the drop-off in concessional assistance is not compensated for by flows from other sources, such as domestic taxes, foreign private flows and market-related public borrowing.

ODA can also be useful in countries that are classified as middle-income yet still have large numbers of poor people. In these cases, national governments can leverage official concessional funds to draw-in other resources for priorities such as gender equality, maternal and child mortality, and social safety nets. Overall, developing Asia-Pacific can make more strategic use of concessional finance, for example, for investments that have cross-country benefits, domestic capacities, control of communicable diseases or transfer of technology. In all cases official concessional finance stays relevant for strategic applications, more nuanced to local conditions to draw-in private funds, combine with domestic fiscal funds, influence norms, build domestic capacities and strengthen overall results.

The High Level Forum (HLF) on aid effectiveness held in Busan[21] argued for broadening the scope from "aid effectiveness" to "development effectiveness". It looked at the different factors at play in any given country – along with aid, this included such issues as foreign direct investment, trade regulations, debt relief, and labour laws. The forum considered how these affected each other and whether they fostered progress when taken together.[22] It also assessed the importance of fundamental development drivers, such as human rights, gender equality, democratic ownership, effective institutions. Busan recognized that the set of indicators previously developed in the Paris HLF[23] had driven positive policy change and ensured accountability, but needed to be revised.

Since Busan, donor countries and multilateral development banks have carried out extensive analysis of results based management – as recognized in Paris and now under the umbrella of "development effectiveness". Increasingly donors are considering such issues as results, impact, and value for money.[24] In the United Kingdom, for example, the Department for International Development has reduced the number of countries receiving bilateral aid from 43 to 27, and is making allocations based on results.[25]

As a group, Asian countries have a good track record of repaying concessional and other loans and improving financial management. This history, along with still high rates of poverty, suggests both efficiency and equity arguments for continuing ODA investment. The OECD Development Assistance Committee (DAC)[26] released a communiqué based on agreements reached by members on redefining ODA based on new calculations. In the new system, only a fraction of the loan amount, i.e. the "grant element equivalent", is counted as ODA.[27] This is to ensure that more concessional loans earn greater ODA credit than less concessional ones. Regarding the calculation of the grant element, the new system introduced discount rates differentiated by country group, which have been set at 9 per cent for less developed countries, 7 per cent for lower middle-income countries and 6 per cent for upper middle-income countries. This is to recognize that lending to poorer countries involves greater donor effort than lending to richer countries. Other things being equal, donors will get higher ODA points for loans to poorer countries. For developing countries a more clarified stance and dialogue on the issues would help them understand the implications, especially since the gain in ODA figures will happen automatically due to the change in methodology without additional efforts by donors, and a more strategic use of ODA will become even more important than before.

The Southern partners

As traditional donors have begun to withdraw, new bilateral sources are emerging from the South – many of whom both give and receive aid (box III-3). Between 2000 and 2012, a number of donors who are not members of OECD DAC increased from 12 to 25.[28] Total "South-South" flows from these countries are difficult to assess, since a number of emerging donors do not report their development assistance to OECD DAC. Estimates from national sources and web-based research are indicated in table III-4. Based only on standardized OECD data, South-South ODA in 2012 was $5.3 billion. In 2013, the total rose to $8.8 billion. But estimates from other sources indicate that total South-South concessional financing in 2012 was between $9.4 billion

Box III-3 Emerging bilaterals pick their priorities

Several emerging bilaterals are seeking to share their own development experiences and successes. China, for example, offers significant assistance in the form of turnkey projects – providing planning, finance, human resources and training to implement projects. Much of Brazil's aid for agriculture is based on its own success in supporting small-scale farmers. India provides assistance for training civil servants, engineers and public sector managers, in line with its own expertise. Much South African aid is focused on peace-keeping and education.

Cooperation among Southern donors is increasing. Through the India-Brazil-South Africa Trilateral Initiative launched in 2003, for example, the three countries have collaborated on capacity-building and agriculture projects.

Sources: Center for Global Prosperity. Available from http://www.hudson.org/policycenters/13-center-for-global-prosperity.

Table III-4 Estimated flows from some key Southern partners, current $ millions

Country	2010	2011
Brazil	482	n.a.
China	2,011	2,470
India	639	731
South Africa	106	147
Indonesia	10	n.a.

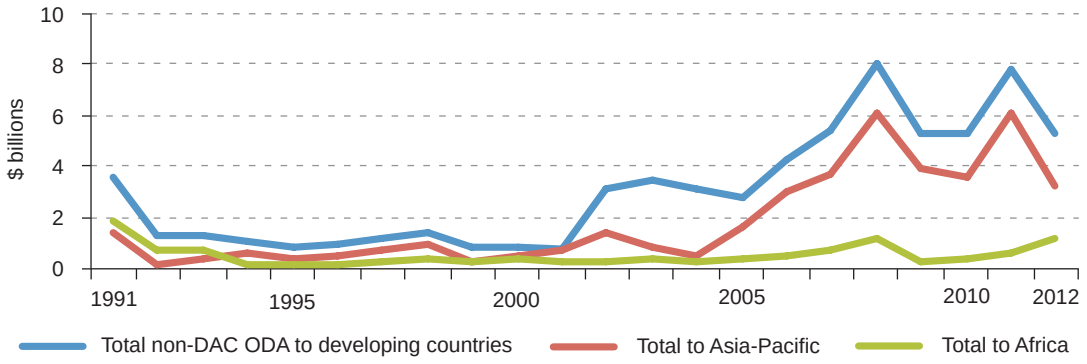
Source: OECD (2013).

Notes: Figures for India and South Africa are based on their fiscal years. These data may not be complete.

and $16.2 billion. And by 2025, this total could climb to $50 billion.[29]

As with traditional donors, Southern donors mix altruism with self-interest. Most are primarily helping neighbouring countries, based perhaps on cultural or religious affinities. They may also have political or security motives, but they generally apply fewer strings and conditions than the traditional donors. Since two of the largest sources are China and India, a high proportion of South-South assistance, around 60 per cent, goes to Asia and the Pacific (figure III-5).

Figure III-5 Aid flows from Southern donors



Source: OECD. Available from http://stats.oecd.org/# (accessed on 18 August 2014).

Moreover, compared to traditional ODA, these donors channel more of their assistance directly into projects and programmes, so a larger share is likely to be available for development purposes.[30] On the other hand, only a small proportion of their funds – around 13 per cent – goes to education, health, and water and sanitation, compared with 26 per cent for traditional donors, and 23 per cent for multilateral ODA. Instead, they are more likely to finance infrastructure, for which they can share their own development experiences and successes.

Another concern is that South-South funds have occasionally been provided without regard to internationally agreed safeguards. Indeed the lack of a centralized coordinating agency, corresponding to the Development Assistance Committee, reduces the transparency of information and data.[31]

Further evidence of the changing architecture of development finance comes from the establishment in 2014, of two new banks: the Asian Infrastructure Investment Bank (AIIB) and the New Development Bank (NDB) (box III-4). Both complement existing public and private financial institutions, and can help foster greater financial and development cooperation.

Existing multilateral banks can see these new arrivals as a stimulus to be more responsive and effective. Borrowing countries now have more choices when it comes to bridging their investment gaps.[32]

Climate finance

The future framework for development financing will need to incorporate climate finance. Some Asia-Pacific countries already devote significant domestic resources to climate change activities. Bangladesh, for example, raises 77 per cent of its climate finance domestically. Others rely almost exclusively on bilateral and multilateral funds: Cambodia, for example, depends on international sources for 86 per cent of its climate-related expenditure.[33] The Pacific island countries too depend heavily on international sources.

Discussions on "climate finance" are hampered by the lack of an agreed definition. This combined with scarcity of accurate data has resulted in widely varying estimates of the sums involved. Bilateral flows from industrialized countries are provided by government bodies and bilateral financial institutions. Developed countries report climate finance to both UNFCCC and OECD. The eligibility of countries, the requirements for financial flows and reporting requirements differ. These systems involve considerable overlap, giving

Box III-4 New banks take the stage

Clear evidence of the changing architecture of development finance comes from the founding in 2014 of the New Development Bank (NDB) and the formal establishment by 2015 of the Asian Infrastructure Investment Bank (AIIB). Both complement existing public and private financial institutions, and can help foster greater financial and development cooperation.

NDB, commonly referred to as the BRICS bank, was set up by Brazil, India, China, the Russian Federation and South Africa in July 2014. Three months later, AIIB was launched in Beijing. Countries associated with it now include Bangladesh, Brunei Darussalam, Cambodia, China, India, Indonesia, Kazakhstan, Kuwait, the Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Oman, Pakistan, the Philippines, Qatar, Singapore, Sri Lanka, Thailand, Uzbekistan and Viet Nam. Since the launch of AIIB, a number of other countries have also indicated their intention to join.

NDB has been mandated to "mobilize resources for infrastructure and sustainable development projects in BRICS and other emerging economies and developing countries." To accomplish this, it will "support public or private projects through loans, guarantees, equity participation and other financial instruments." The initial capital of $50 billion will come from $10-billion contributions from each of the five BRICS members. Total authorized capital will be $100 billion. Membership will be open to all United Nations Member States; each member's voting power will be equal to its subscribed shares in the bank's capital stock. Headquartered in Shanghai, with an African regional centre planned for Johannesburg, NDB is scheduled to start lending in 2016.

The founding members of AIIB also authorized $100 billion in capital for the bank, with an initial sum of around $50 billion. The bank is expected to go into operation at the end of 2015, with its headquarters initially in Beijing. It is expected to play an important role in infrastructure development in Asia and the Pacific, given a need for about $8 trillion in infrastructure financing in the coming decade.

These new international financial institutions can serve as an additional source of funds and knowledge in the face of steep challenges in terms of sustainable development. Existing institutions may see this as an opportunity to be more responsive and effective, while allowing more space for sovereign nations to choose how best to bridge their investment gaps.

Source: ADB (forthcoming).

rise to concerns over possible double-counting and a lack of transparency. Donor countries, for example, in their reports to OECD, tend to report climate finance as part of their overall development assistance – thus making it difficult to determine what is actually "new and additional". Another source of information is the series of national reports to UNFCCC in which donors are required to explain how their contributions are "new and additional". But not all countries do so, and those that do tend to apply different criteria.

For Asia and the Pacific, a complete assessment of international climate finance is not available. For 2011-2012 total public and private climate finance flowing to developing countries has been estimate at between $39 billion and $62 billion (table III-5). Most of this went to investments in mitigation, such as for renewable energy. It is not clear how much is going to Asia and the Pacific but some indicators suggest about 40 per cent.[34] Other data on bilateral support for mitigation to 180 developing countries globally during 1998-2010 show that countries with higher carbon intensity, larger carbon sinks, lower per capita GDP and good governance tend to be selected as recipients of mitigation finance and receive more of it.[35] Since 2012, multilateral development banks (MDBs) have been jointly reporting their annual climate finance using a harmonized approach. Their 2013 report showed financing for Asia and the Pacific was over $6 billion.[36]

Table III-5 Estimated global climate finance, 2011/12

Channel	Low estimate	High estimate	Comments
Multilateral			
Multilateral development banks	15	22	High estimate is total climate commitments to developing countries. Low estimate is the industrialized countries' share of MDB ownership applied to the total commitments.
Multilateral climate funds	1.4	1.4	Capital investment costs and grants
Bilateral			
Government bodies	4	11	Low estimate is ODA where climate change is the "principal" objective. High estimate also includes projects with climate change as a "significant" objective.
Bilateral finance institutions	14	14	Total climate commitments to developing countries by these institutions.
Private			
Private investment in renewables	4	13	Low and high estimates based on different sources
Total	**39**	**62**	

Source: Buchner and others (2014).

Climate finance involves a variety of sources, agents and channels. These include more than 20 government agencies, development banks and programmes, more than 15 multilateral funds and dedicated bilateral initiatives and at least 10 United Nations and regional agencies.[37] This makes it difficult for international partners to plan and respond in an integrated way. Most developing countries trying to access funds have to invest time and effort in understanding the options for integrating climate finance in their development plans. The current move away from the large number of existing channels to the Green Climate Fund as a central mechanism may simplify matters – or add new complexities.

The Green Climate Fund (GCF) is the financial mechanism established under UNFCCC. This aims to stimulate private finance for mitigation and adaptation in developing countries and hopes to raise from the industrialized countries $100 billion per year by 2020 in new and additional resources. Funds may derive from a wide variety of sources, public and private, bilateral and multilateral.[38] So far, countries have pledged around $10 billion. Of the money channelled through the GCF, half is allotted to mitigation and half to adaptation. Of the adaptation money, half goes to small island developing states and least developed countries.

Where could this $100 billion per year come from? There have been two major studies on this issue. The first in 2010 was by the United Nations Secretary-General's High-level Advisory Group on Climate Change Financing (AGF). The second, in 2011, was commissioned by the G20 finance ministers, who asked the World Bank and other institutions to study the options. Both studies concluded that the goal could be reached using a mix of sources, the largest of which would be by selling emissions allowances – assigned amount units (table III-6). They found that even after making contributions to international climate finance the industrialized countries would still have higher revenues.[39]

Table III-6 Sources of funds for climate finance

Potential source of public funds	Projected amount generated in 2020 (2010 $ billion/year)		Share assumed to be dedicated to international climate finance	
	AGF Estimate	G20 Estimate	AGF Estimate	G20 Estimate
Domestic auctioned allowances/Assigned amount units	250-500	250	2-10%	10-20%
Domestic carbon tax[a]	250		4%	
Phase out of fossil fuel subsidies	8	40-60	100%	20-30%
Higher fossil fuel royalties	10		100%	
Wires charge on electricity generation	5		100%	
Extension of the "share of proceeds"	38-50		2-10%	
Carbon pricing for international aviation[b]	6	13	25-50%	33-50%
Carbon pricing for international shipping[b]	16-19	26	25-50%	33-50%

Sources: United Nations (2010); World Bank Group and others (2011).

Note: [a]: The AGF estimates revenue of $10 billion per $1 tax per tonne of CO_2, that is equivalent to potential revenue of $250 billion and a 4 per cent share for international climate finance as reported here.

[b]: The AGF and G20 estimates for international aviation and international shipping assume that a substantial fraction (30 to 50 per cent) of the global revenue is allocated to developing countries and that the specified share of the remaining revenue is used for climate finance.

It is expected that private resources will increase, especially for mitigation. Such climate-friendly investments could be spurred by improved understanding and marketization of low-carbon technologies, and stronger international and national policies and regulations. Since the $100 billion goal includes private sources, some industrialized countries may implement measures to stimulate private climate finance. But scaling up private options will be difficult, in part due to a dramatic decline in activity under the Clean Development Mechanism. On the other hand, emissions trading schemes have been increasing (box III-5).

Climate financing needs in the Asia-Pacific region are increasing. However, the economics differ between subregions. If business continues as usual, by 2050 climate-related costs for South Asia, for example, would be 2.3 per cent of GDP, but for the Pacific they would be 3.5 per cent of GDP.[40] The Asia-Pacific region has emphasized the principle common but differentiated responsibility. This implies that all countries take action on climate issues, but do so in line with their capacities and their contributions to the problem. Thus, some bear greater responsibility than others. Massive investments will be needed to help the transition to low-carbon and climate-resilient development paths.

Emissions of CO_2 per capita have been lower in developing Asia and Pacific (3.37 tons in 2010) compared with the world (4.57 tons in 2010), slightly higher than all developing countries (3.16 tons) and less than half of the developed regions (10.90 tons).[41] They have risen as countries grow and poverty declines, but are declining per dollar of GDP (purchasing power parity), an overall positive trend. While developing Asia and Pacific started with the highest averages per dollar of GDP globally in 1990 (0.94 kg), the number has fallen below (0.51 kg) the developing country average (0.58 kg). Coming closer to the carbon intensity of GDP in developed countries will require climate finance, including exploring options to price carbon.

For both donors and recipients, monitoring finance for development is easier when there is definitional clarity. Any ambiguity undermines the usefulness of finance, limits its outreach, and makes it more difficult to move programmatic resources towards strategic development. This applies to traditional ODA and its new grant considerations, as well as to climate finance for which there can be some double counting.

Private investment for public benefit

Although strategic investments generally come from governments and public institutions, in most countries the principal source of investment is the private sector. Private financing has made many contributions to sustainable development, by providing employment, for example, investing in large-scale infrastructure, and developing innovative technology such as new vaccines.

In principle, private companies operate within the parameters set by government regulations. In recent decades, however, governments have pursued more market-friendly development strategies and have diluted regulations that should have curbed undesirable outcomes. As a result, some of the positive contributions of the private sector have at times been undercut by a drive for short-term profits – adding significantly to public "bads", such as environmental destruction, or the failure to uphold basic safety standards.

Box III-5 Pricing carbon to curtail emissions

The 1997 Kyoto Protocol established carbon markets. Two market-based mechanisms gained prevalence. One was an emissions trading system (ETS) that caps total greenhouse gas emissions, assigns allowances to industries, and allows those with low emissions to sell extra allowances to larger emitters.[a] The EU-ETS in particular was adapted by the countries and regions to meet their targets set under the Kyoto Protocol.

Both systems have met with successes and failures. The EU Emission Trading scheme is the cornerstone of European climate policy. It was established to help meeting its emission reduction targets under the Kyoto Protocol, cost effectively. This is by far the largest carbon market and the centre of global carbon markets. But the recent downturn has resulted in low economic activity and reduced GHG emissions – creating large surpluses of allowances and credits, resulting in a significant decline in carbon prices, and undermining the functioning of carbon markets. Short-term solution (back loading of auctioning of allowances) and structural reform of carbon market was triggered for stabilizing carbon market in the short-term.

The second mechanism was Clean Development Mechanism (CDM). This enables developing countries to sell credits for emissions reductions to companies and governments in industrialized countries. CDM has achieved emissions reductions of over 1.4 billion tonnes of CO_2 in less than a decade, but also struggles with the supply of credits exceeding demand. At the current price, virtually no new projects are being implemented. Efforts are underway in the region, to develop emissions trading. China has piloted a subnational scheme in five cities that covers roughly 40 to 60 per cent of total CO_2 emissions. This applies to power and other heavy manufacturing sectors such as steel, cement and petrochemicals. The Republic of Korea launched its own system in January 2015.

[a] World Bank program on pricing carbon, see www.worldbank.org/en/programs/pricing-carbon (accessed 11 February 2015).

Building a social alliance

Businesses must do more to be part of a broad social alliance. They have responsibilities not just to themselves but also to society at large, and in the long term fulfilling these responsibilities is in their own self-interest. All businesses ultimately depend on sustainable development. They cannot operate without a healthy and educated workforce, for example. Nor will they survive if the atmosphere is polluted or environmental resources are destroyed. This presents an opportunity for a new development partnership – led by states, but engaging the private sector on multiple levels so as to realize this partnership systematically and consistently.

The key responsibility should rest with states to establish and enforce the necessary legal and regulatory frameworks – covering such basic issues as workers' rights, health and safety, product safety, and control of environmental pollution. Some of these measures have simply been imposed, but others have evolved through consultative processes involving the private sector, the state and groups affected by private sector operations. The Republic of Korea, for example, has legislation to promote an environmentally friendly industrial structure, with measures to encourage companies to introduce environmental management systems and ensure cleaner production.[42]

What is at issue here, however, is not formal corporate social responsibility adopted by many businesses for reputational reasons, defined for access to tax benefits or often even mandated by law. Rather, it is about doing business differently, going beyond the short-term bottom-line interests of the firm or those required by law.

Legislation can go further and impose social obligations on enterprises. In 2013, India for example, adopted a new Companies Act requiring all public and private companies above a certain size to spend at least 2 per cent of profits on activities that have social benefits. These include livelihood enhancement, rural development, improvement of the status of socially and economically backward groups, and establishing homes and hostels for orphans and women. This unique and controversial initiative has met with strong resistance from companies. But if implemented well, it could deliver significant benefits.

However, governments can also influence businesses more indirectly by "nudge" techniques that discourage undesirable activities and spur desirable ones. Based on principles of behavioural economics, Denmark, France, the Netherlands, Sweden and the United Kingdom, for example, have government departments that explore the use of behavioural economics in public policy – for energy conservation, for example, and reducing tax fraud. Asia-Pacific countries have begun to apply these nudge techniques, but efforts have often been fragmented. They too could establish government entities to apply principles of behavioural economics more consistently.

As well as being pushed or nudged by governments, businesses can also face pressure from civil society. NGOs have been influential in shaping the behaviour of private business. Consumers around the world are increasingly calling on businesses to stop harmful activities, such as producing pollution, using sweatshop labour or perpetuating gender wage gaps. One of the most striking successes has been the Fair Trade movement. For many products such as coffee there is now a system which certifies that the goods come from sources that are environmentally responsible and pay fair wages. Initially these Fair Trade goods were only sold by NGOs; now they are provided by multinational corporations and sold by major retailers.

Corporate social responsibility

At the same time, private businesses have been asserting their credentials through policies for "corporate social responsibility" (CSR). To a large extent, this is a matter of self-interest, since they need to sell their products to more alert and better informed consumers. And they also need to attract high-quality staff who want to be associated with a reputable business. By building a reputation for corporate responsibility they can therefore enhance shareholder value. In some cases this may amount to little more than sophisticated public relations, which in the case of environment claims has sometimes been dismissed as "greenwash".

The starting point of CSR has been to ensure payment of fair wages and provide adequate working conditions. But many businesses have genuinely modified their activities and some have gone further, aiming for deeper levels of corporate responsibility – instituting transparent business practices based on ethical values and on respect for employees, communities and the environment (box III-6). Such businesses can work with governments, development finance institutions, private philanthropies and academia to expand the use of innovative and inclusive business models.

Box III-6 Businesses extend corporate responsibility

A number of businesses have adopted the principles of "shared value" – building their own competitiveness while improving social and economic conditions. This can involve reconceiving products and markets, redefining productivity in each link of the value chain and fostering development in the communities where they operate.

In Sri Lanka, MAS Holdings takes this approach. As a manufacturer of garments, lingerie and fabric, MAS deliberately situated its factories in rural areas so that workers (mostly women) could live at home while contributing to their families' incomes. It has invested in well-ventilated factories operating under safe and hygienic conditions, and in financial literacy training that helps workers make the best use of their salaries for their families' health and education. MAS has also been developing eco-friendly products and production methods – producing, for example, the world's first carbon-neutral bra.

An inclusive business can serve the needs of people who are poor and excluded, and encourage entrepreneurship at the lowest levels of income. In India, Unilever's Project Shakti, for example, has trained a network of women known as Shakti ammas to distribute sachets of personal care products such as soap to rural consumers.[a] The women have been trained in selling and promotion, in the use of the products, and in business practices. They have thus become micro-entrepreneurs and educators, raising community hygiene standards while improving their own economic status and self-confidence. Project Shakti has now spread to Bangladesh and Sri Lanka.

[a] Available from www.hul.co.in/sustainable-living-2014/casestudies/Casecategory/Project-Shakti.aspx.

This type of cooperation can extend across borders, supported by regional and international organizations that can set benchmarks to maintain certain standards and prevent regulatory arbitrage between countries. Intergovernmental organizations could thus become hubs to foster mutual respect and trust between governments, the private sector, the NGO community and academia. One international option would be an enhanced United Nations Global Compact. Under this initiative, companies have so far committed to aligning their operations and strategies, with ten universally accepted principles on human rights, labour, the environment and corruption. It could now go a step further by tapping business contributions in terms of resources, technology and expertise. A growing number of private investors have also signed the Principles for Responsible Investment and the Principles of Sustainable Insurance and are participating in the Sustainable Stock Exchanges programme which advocates responsible, long-term approaches to investment.

As a result, companies and funds are being asked to report not just on economic returns but also on environmental and social impacts.[43] Thus far, such reporting has largely been voluntary but it could become mandatory. Malaysia's

regulatory framework has already moved in this direction, as has that in Brazil and South Africa.[44] Greater regional cooperation may be needed to reduce the temptation for investors to move where the regulatory burden is lightest. Many investors have stressed, however, that the main obstacle to such investment is actually a lack of bankable projects – underscoring the need to expand capacities for project preparation.

Aligning financial markets with sustainable development

Financial markets can channel savings and reserves to productive investments that produce jobs and growth. Asia-Pacific capital markets are still relatively small, but they are set to expand. It has been estimated that by 2030, Asian equity markets will represent around 42 per cent of global market capitalization, and by 2050 the proportion could be up to 72 per cent. At present, however, the financial markets often take quite a narrow view and fail to "price in" some fundamental issues such as climate change. This can benefit less responsible companies that focus on short-term growth who can raise capital more cheaply than companies pursuing longer-term strategies.[45]

Financial markets could instead be aligned more closely with sustainable and inclusive development. One of their main tasks should be to make better use of local savings. Savings rates in Asia and the Pacific are quite high, averaging around 40 per cent of GDP (table III-7). In 2012, the region's "mass affluent", those with assets between $100,000 and $1 million, had $20.5 trillion. However, they often invest these funds in other parts of the world, losing opportunities to finance sustainable development at home.[46]

Equity markets could also move towards regional integration. To do so they will need to overcome a variety of obstacles, including weak links across all aspects of financial infrastructure, the lack of harmonized standards in capital markets, and weak cooperation in financial system development. Private capital flows could be stabilized by economic and financial monitoring mechanisms.[47] This might discourage the tendency for capital to flow without consideration for longer-term costs.

Expanding bond markets

Bond markets are an important complement to equity markets especially for long-term financing of infrastructure, but they can also be used for social programmes. If they are issued as publicly-traded securities they can pool small sums from diverse individuals and institutions. In Asia and the Pacific bond markets are still at a nascent stage. As a percentage of GDP they are some way behind the average for OECD countries but ahead of those in other developing regions (figure III-6).

Table III-7 Savings rates in selected Asia-Pacific economies, % of GDP

Economy	2013
Bangladesh	21
China	52
Hong Kong, China	25
Indonesia	32
India	30
Republic of Korea	34
Malaysia	35
Pakistan	8
Philippines	16
Singapore	52
Thailand	33
Viet Nam	31
Developing Asia	40

Source: World Bank. Word Development Indicators. Available from http://databank.worldbank.org/data/home.aspx. (accessed 15 May 2015).

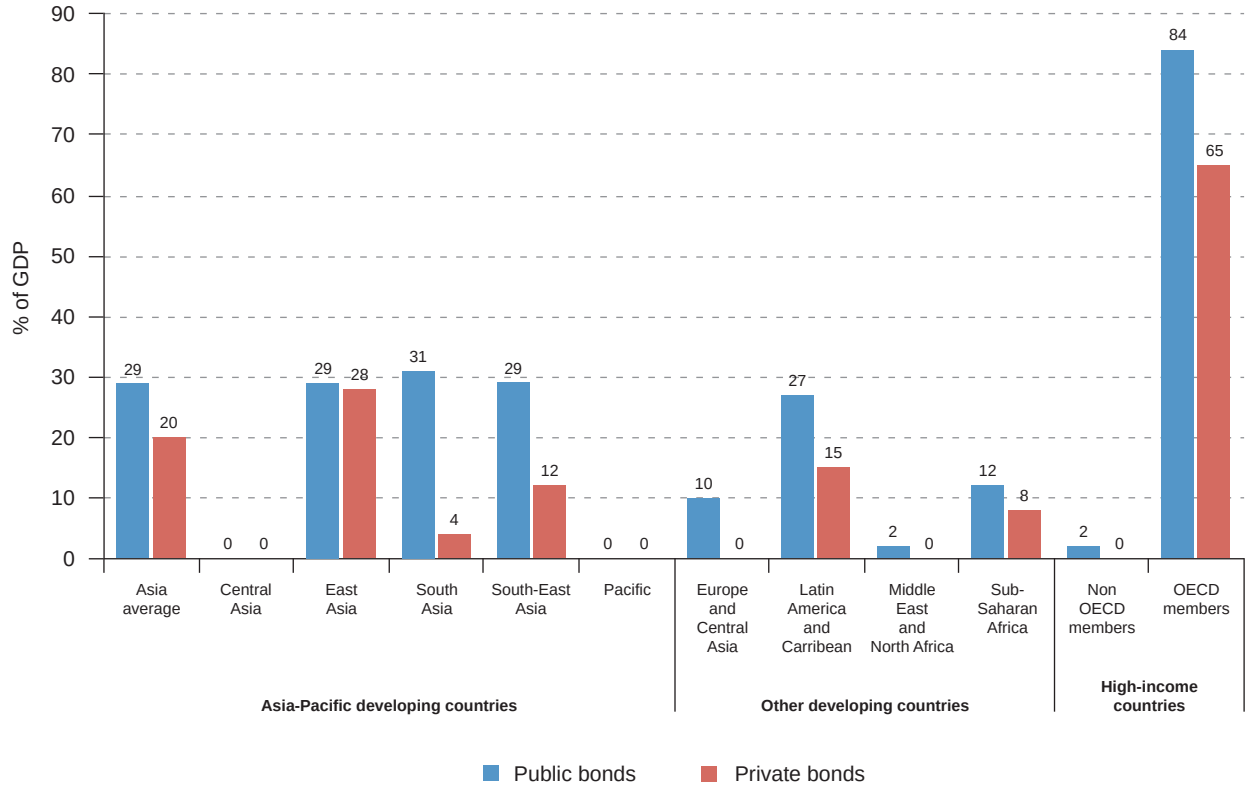
The proportion of foreign currency bonds in developing Asia is quite low at only 4 per cent. Countries with a high proportion of foreign currency bonds include the Philippines at 38 per cent and Indonesia at 26 per cent. In contrast, local currency bonds are more than 90 per cent of the total in China, India, Malaysia, Pakistan and Thailand.[48] A broadened investor base, with both domestic and foreign institutional investors, has driven demand.

In East Asia, China's public and private bond markets are, respectively, 26 per cent and 21 per cent of GDP – similar to the East Asian aggregate. The Republic of Korea has almost the region's largest sovereign bond market, at 47 per cent of GDP, and the largest corporate bond market, at 67 per cent of GDP. In South-East Asia, Malaysia has the largest public bond market at 53 per cent of GDP and second-largest private bond market at 59 per cent.

In South Asia, India's corporate bond market is immature at 5 per cent of GDP.[49] Private bonds are a fast growing segment in China, the Philippines and the Republic of Korea,[50] but across the region, the portion of private bonds exceeds public ones only in the Republic of Korea.[51]

Bond markets tend to be larger in economies that have deeper domestic financial systems, low inflation, larger fiscal deficits, stronger legal protection, and more open capital accounts. In smaller economies the options are limited by high transaction costs, fewer credit-worthy borrowers, less access to markets and investors, and incomplete contractual and legal regulations.

Figure III-6 Global bond markets, 2010, % of GDP



Source: Authors calculation using data from ADB (2015).

One option for easing entry into bond markets is to use "special purpose vehicles" which allow projects financed by bonds to be managed separately from other government projects. These can encourage private investors by making the flow of finance discrete and visible, and allowing creditworthiness to be linked to the project.[52]

In additional to national bond markets there can also be regional bond markets. These could help countries in a number of ways: by establishing common standards for bond issuance; by developing cross-border clearing, depositary, settlement and payment systems; and by creating regional credit rating agencies.[53]

For this purpose, the ASEAN+3 (China, Japan and the Republic of Korea) in 2003 launched the Asian Bond Market Initiative (ABMI). In 2012, a new ABMI roadmap specified measures to promote local currency bonds, strengthen regulations and improve related infrastructure for bond markets. Important measures include: the establishment of the Credit Guarantee and Investment Facility; the dissemination of market information, including through AsianBondsOnline; and the creation of the Regional Settlement Intermediary.[54]

Moving remittances towards development

As of 2012, remittances in the Asia-Pacific region were $212 billion.[55] Globally, the top five remittance-receiving countries included India, the Philippines and China. Remittances fluctuate according to the state of the global economy, but they offer important long-term development benefits. Not only do they support low-income households and families, they also provide the migrants with overseas exposure that help foster new ideas, skills and knowledge. In addition migrants can invest in national development. Countries can encourage these overseas citizens to park small amounts in local bond markets – thus pooling significant amounts of dispersed savings for use in development projects in infrastructure, education and health.

Institutional investors

In future a higher proportion of funds is likely to be managed by institutional investors such as pension funds. In 2011, they held $85 trillion in assets globally, but $70 trillion of this was invested in OECD countries. In a number of developing countries these funds are aiming to diversify their portfolios by investing in infrastructure. In Chile and Mexico, for example, the governments have encouraged such investment by developing infrastructure corporate bond

markets.[56] Since this demands special expertise some investor groups have pooled their resources, as in South Africa, where pension funds have established a joint infrastructure fund.

A financial transactions tax

One important way in which financial markets could generate funds for international development is through taxes on currency trades and other cross-border financial transactions in stocks, bonds and derivatives. A tax of 0.005 per cent on all global trading in the four major currencies could yield $40 billion per year. A tax of 0.01 per cent on stocks, bonds and derivative transactions[57] could raise over $200 billion annually.[58] In addition to raising funds that could be invested in sustainable development, such taxes would also dampen market volatility by reducing the profitability of speculative trading. In the European Union ten member countries have renewed their commitment to an EU-wide financial transaction tax – which is expected to come into force in January 2016.[59] Asia may benefit from a similar regional initiative.[60] In fact, a South Asia consultation in 2014 on implementation challenges for the post-2015 development goals recommended that a financial transaction tax should be explored.[61]

Some Asian countries have already applied such taxes nationally. In the Republic of Korea, for example, between 1990 and 2009 a securities transactions tax yielded revenues equivalent to 0.2-0.7 per cent of GDP.[62] In 2004, India introduced a securities transaction tax on equity markets which in 2010 contributed around $1.5 billion to public funds without reducing liquidity.[63] In 2013, India introduced a transaction tax of 0.01 per cent on domestically traded commodity futures.[64]

Banking for sustainable development

In Asia and the Pacific the majority of financing is still provided by banks. In developing Asia banking systems are quite well developed, with assets equivalent to 60 per cent of GDP, though they are smaller in Central Asia and in the Pacific.[65] In the Pacific, the availability of commercial banking services is generally low and the banking system's total assets as a proportion of GDP is comparable with the proportion in low-income economies in Asia.

Following the global financial crisis, governments in some developing countries became increasingly concerned about the stability of banks. They have therefore been adopting some of the standards of the Basel III process concerning such issues as leverage ratios and capital requirements. In fact, compared with those in some other regions, banking systems in Asia have been relatively stable. Currently, many banks in Asia and the Pacific have capital requirements exceeding those of the Basel III framework, and a number of governments are experimenting with Basel III macro-prudential policies – including Hong Kong, China; Singapore; China; the Republic of Korea; Malaysia and Australia.[66] Some of the smaller countries have also benefited from links to banks in the region's developed countries. Countries in the Pacific, for example, weathered the 2008 financial crisis because their financial systems were linked to major Australian banks.[67] The financial crisis was also responsible for the increased importance of financing institutions that used communal laws to manage assets, for example Islamic finance (box III-7).

Box III-7 Islamic finance

Islamic finance involves banks, capital markets, fund managers, investment firms and insurance companies not just obeying standard industry rules, but also acting according to Islamic law. A fundamental Islamic principle is a prohibition against charging interest, which is regarded as a form of exploitation and greed. Instead, Islamic financial institutions issue loans based on sharing profits and losses. Other important tenets include a ban on speculation, transparency and honesty in transactions, and the avoidance of industries detrimental to community welfare.

In recent years, and particularly in the wake of the 2008 financial crisis, Islamic financing institutions have gained increased acceptance. With more than 700 institutions in 75 countries, their global financial assets as of 2013 were $1.9 trillion, with the sum expected to surpass $6.5 trillion by 2020. In 2014, there were debut sovereign issuances of "sukuk" products, which are similar to bonds, in a number of financial centres, including in Hong Kong, China; Luxembourg; South Africa and the United Kingdom.

Among Asia-Pacific countries, Bangladesh, Indonesia, Malaysia and Pakistan have significant Islamic financing institutions. Sukuk is well suited for financing infrastructure, as has been done recently in Kazakhstan, Malaysia and Pakistan.

Source: Mohammed and Mateo (2014).

While Asia needs to improve the governance of banking risks, a one-size-fits-all approach may be inappropriate. Excessive capital and liquidity requirements, or restrictions on leverage ratios, could be damaging. Stringent controls on liquid assets could penalize bank lending for trade finance to small and medium enterprises.

Inclusive finance

A more pressing concern is to provide more inclusive finance. Billions of adults in Asia and the Pacific still lack access to basic savings, credit and insurance services. In most countries fewer than half of adults have accounts at any formal financial institution. Most likely to be excluded are those who have historically faced discrimination, particularly such as women: in India, for example, women are 41 per cent less likely than men to have a bank account.[68] Access to financial services can encourage innovation and economic growth. However, due to legal, institutional and structural barriers, women entrepreneurs are often denied access to such financial resources.

In some cases this is a consequence of government policy. Credit may have been directed instead to state-owned enterprises, crowding out individual borrowers. Established financial institutions require fixed collateral and formal documentation, which women are less likely to possess. Women can also be dissuaded from accessing formal credit due to lack of experience and financial literacy skills. Small and medium enterprises too may suffer from a poor regulatory structure or inadequate systems for credit reporting.

Some of the other barriers lie within the banks. Aiming to minimize risk they may avoid lending to persons who do not have certain types of collateral and to poorer customers, especially if this adds to costs by generating multiple small transactions. As a result, banks in countries where there is little competition will try to maximize returns by selectively lending to large public and private players. They often have limited experience in lending to small and medium enterprises, which can lead them to avoid the sector, or impose higher interest rates that depress lending.

Strategies to spread services

The best options for financial inclusion will depend on local circumstances. But some have worked well in various Asia-Pacific countries (box III-8). These include:

- *Branchless and mobile banking* – These models can capitalize on information technology to reduce transaction costs and overcome distance problems and a lack of infrastructure. These are viable in otherwise poorly connected Pacific islands where around 60 per cent of people now have mobile phones.[69]

- *Business correspondents and banking facilitators* – These local agents can not only operate without branches but are better informed about their clients and more capable of gathering the information needed for viable lending. Loans are typically for productive purposes as well as for some consumption expenditures or special needs such as emergency health care. The agents often provide guarantees against losses up to a pre-specified proportion of the loans.[70]

- *Microfinance* – This involves small loans to low-income households – for generating income, building assets or smoothing consumption. This can be profitable for the lenders: in 2008, returns in Asia were more than 20 per cent. Asia has the lowest portfolio-at-risk ranking, at 1.5 per cent for under 30 days.[71] But there have been problems. Many lenders are outside the regulatory framework, and there are risks of excessive household debt.[72] Microfinance institutions are also overly reliant on banks and development financial institutions for funding, and could look more to mainstream capital markets.

Box III-8 Finance for remote rural areas in India

India's Kshetriya Gramin Financial Services model is based on a set of small, community-focused financial institutions. They offer comprehensive savings and loan products to individuals, businesses and local governments, as well as a full range of other services such as insurance, investment and pensions.

The programme targets people less by income than by geography – focusing on remote rural communities where poverty rates are high. Branches may serve 70 per cent of residents, both poor and better off, compared with the 10 to 20 per cent that a fast-growing microcredit organization might pick up. In part by achieving economies of scale, the branches can deliver credit at an interest rate equivalent to 12 per cent a year, a third of what Indian microfinance institutions charge, since many of the latter focus on fast profits to reinvest in growth.

Sources: The IFMR Rural Finance website. Available from http://ruralfinance.ifmr.co.in/; and David Roodman. Available from hwww.cgdev.org/blog/ifmr-trust-not-your-parents-microfinance.

- *Affordable housing finance* – Specialized housing finance companies have cultivated expertise on affordable properties. Often supported by private equity firms and social investors, they have developed models based on cash flow assessments and personal discussions with customers.

- *Postal networks* – These have decades of experience in providing savings and payment services for poor consumers. They could be used for additional products, including credit and insurance, as well as the transfer of social welfare and protection benefits to excluded groups.

Reaching small and medium enterprises

Micro, small, and medium enterprises (MSMEs) generally need sums larger than what can be provided by microfinance institutions, but smaller than what is attractive to banks. Many SMEs currently turn to non-banking financial companies. Such companies, which may have equity support from mainstream investors have personal discussions with borrowers and lend based on income and cash flow assessments. These companies focus exclusively on SME lending, often to specific sectors such as education and textiles.[73]

Improving lending to SMEs will require stronger regulatory frameworks and supportive financial infrastructure, along with a sound payments system and a well-functioning credit information framework (box III-9). But in the short term governments could consider direct interventions, such as low-interest loan programmes, and supply-chain finance linked to public procurement and payments. Through state development banks governments can provide concessional funding to commercial banks that they can lend on to SMEs at preferential rates. In some cases, portfolios of loans to SMEs could be securitized. Cooperative, post and savings banks could also offer more diverse services to SMEs.

Resilience through insurance

Insurance has an important part to play in financing sustainable development. First, because it provides individuals and small businesses with greater security, especially in countries where governments assume only limited risks for their citizens. Second, because insurance companies are major institutional investors who can finance long-term requirements such as infrastructure. In fact insurance premiums per capita are higher in advanced Asian markets than in OECD countries, and are also increasing steadily in emerging Asia (table III-8). The most widely used forms are life and health insurance.[74]

Insurance can make an important contribution to poverty reduction if it reaches lower-income people, marginalized groups and women. It also needs to cover the appropriate risks and shocks. Thus, causes of accidental death need to include events that are more common in poor rural areas, such as snakebites or falling into a well. Rural households should also have access to crop insurance, which can be covered as part of agricultural loans. Another priority is weather risk insurance, covering events such as floods or hurricanes. In India, health insurance products for the poor feature cashless services with a third-party administration system, given that cash flow is a significant issue.

Box III-9 Collateral based on movable assets, in China and Pacific Island countries

A common difficulty for small and medium enterprises is that they have a limited range of fixed assets, particularly real estate, that they can use as collateral. Banks will generally not accept movable assets, such as vehicles, since there is a risk, for example, that multiple loans could be taken out against the same item.

One solution is to hold an electronic registry of assets that have been pledged for loans. In China, where over 50 per cent of SME assets would be classified as moveable, the Government in 2004 developed a new property law with an electronic registry for pledging assets, while training lenders on using moveable assets as a basis for lending. The effort soon paid off: in the first two years of the system, total commercial loans involving moveable assets grew by an annual rate of 21 per cent. By 2013, there were 1 million registrations, including loans based on accounts receivable and financial leases, with at least 36 trillion yuan disbursed.[a]

Similar measures have been taken in several Pacific countries which have introduced the legal frameworks and electronic registers needed for borrowers to use movable assets for loans – and for lenders to speedily claim and sell them in case of default. As of September 2013, Palau, the Marshall Islands, the Federated States of Micronesia, Solomon Islands, Tonga and Vanuatu all had modernized secured transactions frameworks. Papua New Guinea and Samoa had introduced new legislation and were implementing registries.

Source: Rao (2014).

[a] IFC (2013).

Table III-8 Insurance premiums

	Premium volume (mn US$)			Premiums per capita (in US$)		
	2011	2012	2013	2011	2012	2013
Asia	1,285,854	1,337,612	1,252,376	310.1	326.4	295.2
Advanced Asian markets	898,723	922,361	793,332	4,212.7	4,504.4	3,690.5
Emerging Asia	347,347	371,247	411,521	96.7	102.2	112.1
World	4,569,380	4,605,095	4,601,169	660.4	657	644.8
OECD	3,830,652	3,807,528	3,744,960	2,989.6	2,978.5	2,682.6
Emerging markets	680,720	727,788	781,421	117.9	120.3	127.9

Source: Swiss Re (2015).

Insurance funds should also be a major source of investment in public goods. In 2013, insurance companies in Asia gathered nearly $1.3 trillion in premiums. These flows could be directed in part towards sustainable development. Unlocking of existing insurance funds towards development use in the region has been limited, despite increase in need for project finance. Examples of domestic insurer infrastructure investments include those by South African insurers in the Pan African Infrastructure Development Fund or the South African Infrastructure Fund, as well as investments in telecoms equity in Cape Verde and telecom bonds in Mozambique.[75] While international providers have begun to flow in, there is some risk of higher premium rates which could limit the reach of insurance services.[76]

Philanthropy: a widening circle of concern

Asia has a long history of family philanthropy, and successful business leaders have increasingly been using their wealth to finance development programmes. While other sources of development financing, particularly foreign aid, are under pressure, private philanthropy appears to be growing. In 2012, for example, while ODA to Asia and the Pacific was $33 billion, and South-South ODA was around $7 billion, private philanthropy finance was around $39 billion.[77] In emerging Asian countries family philanthropies devote around 96 per cent of their funds to Asia,[78] and 70 per cent to their home countries.[79] These flows are predicted to increase by around 10 per cent annually, with the highest growth in China and Japan.[80] Philanthropy comes not only from the rich: in India, for example, the group most committed to charitable giving earns an average of $180 a month.

Family philanthropy is often based on cultural and religious beliefs. Generally the donors want to see their contributions have a social impact. Other considerations include the desire for family and personal recognition, enhancing one's standing in the community, and business interests. This social focus has meant that, compared with other forms of concessional financing, family philanthropists focus more on MDG issues such as health, education and poverty reduction – though more recently they have been funding activities related to the environment and gender equality.[81]

In the past this has taken the form of one-off direct donations. More recently, however, philanthropists have had a more hands-on approach seeking ways to engage with recipients so as to enable them to help themselves. They have thus been stressing targets and results, aiming to improve performance and efficiency, and share their skills, abilities and experience. Private philanthropic organizations linked to businesses are also applying corporate practices and fostering innovations such as crowd-funding, through which people can donate small amounts while gaining a financial return (box III-10). There is also a generational shift. The young philanthropists are starting at an earlier age and more of them are women.[82] Better educated than their parents, and with more international outlooks, they are attuned to social media, open to collaborative philanthropy, and are more likely to volunteer themselves.

Social entrepreneurs

Over the last two decades, a new breed of socially conscious individuals and organizations has emerged, aiming to solve difficult problems using an entrepreneurial approach. These "social entrepreneurs" can work creatively across traditional disciplines and sectors, testing many innovations and scaling up those that work.

Social businesses take many different forms. In the Philippines, for example, Hybrid Social Solutions provides low-cost, durable solar-powered technologies to remote communities. It collaborates with local people when designing its products, such as a waterproof lamp for fishermen to attract fish, and with NGOs, foundations and microfinance institutions to make its products accessible and affordable.[83]

Some models of social entrepreneurship blend non-profit organizations that accept grants with profit-making entities. In Thailand, the Population and Community Development

Box III-10 A family foundation boosts health services in the Philippines

In the Philippines, the Zuellig Family Foundation (ZFF) runs its own programmes to reduce maternal mortality, by applying business experience from the Zuellig Pharma distribution networks. It has set up a network of health centres and services for maternal and child health, and trained mayors, health leaders and frontline health workers to improve health outcomes, and in the process benefitting 4.5 million people.

The foundation has spent $7.8 million on efforts across 231 partner municipalities, trained 1,790 health leaders and 3,537 frontline health workers, and built 82 health facilities.

In 2013, ZFF agreed to help the Philippines Department of Health scale up its programmes to 609 cities and municipalities identified as priorities by the National Anti-Poverty Commission.

Source: Chia (2014). See also www.zuelligfoundation.org.

Association focuses on population planning, education and livelihoods for the rural poor. It has a foundation that accepts donations, even as some of its revenues come from profit-making entities such as Birds & Bees resorts and Cabbages & Condoms restaurants.

Some of these businesses can be financed by "venture philanthropists". Adopting the venture-capital model, they invest their time, expertise and money in social organizations, seeking both social impact and financial return, and often require measurable social and environmental outcomes. They can also use this seed capital to leverage funds from other sources, whether as loans, equity investment or "social bonds".

Other social entrepreneurs are "social impact investors". Unlike venture philanthropists, they do not make grants. Instead, they provide equity capital or loans. Since they may be looking for a decent return, they are likely to take fewer risks. Many investment banks have now moved into this area.

Harnessing CSR activities/funds could also be an option. In India, the government has made it mandatory for companies to spend 2 per cent of their profits on recognized CSR activities that include SD priorities either themselves or by supporting voluntary organizations involved in such activities. This provision is likely to lead to billions of dollars of additional funds annually for SD related activities from 2015 onwards.

International foundations

International development is also being financed by powerful international foundations. Founded by successful corporate entrepreneurs these include the Ford, Rockefeller, Soros and Gates foundations. Mostly making grants, they have ambitious aims, clear goals and are willing to invest heavily. These foundations bring welcome extra funds, but there are concerns that their financial weight is now swaying some national and international policies.[84]

Foundations have, for example, become key participants in "multi-bi financing". This is when they give funds to multilateral agencies but earmark them for use in specific sectors, themes, countries or regions. They may in this way impose their priorities on poorer countries and communities. One concern is that in order to reach high-profile objectives they can short-circuit established processes of consultation, and sidestep goals that are linked to national priorities or stipulated in international agreements. Before engaging with these foundations, countries could therefore consider their standards of accountability and evaluation, perhaps based on indicators already used for international aid.

Alliances for a shared future

Traditionally it has been assumed that public goods should be financed by governments alone. Nowadays, however, it is clear that sustainable development can only be achieved by the public and private sectors working together. This can happen in many ways.

Public-private partnerships

One of the most common forms is the public-private partnership (PPP). This involves a government commissioning private sector companies to deliver infrastructure or services, for example, on the understanding that the private sector will assume some of the risk. Usually, the partnership involves funds from the state and the private sector, skills and capabilities from the private sector, and a return to the private sector from user charges.

Another PPP modality involves "hybrid contracts". Under an "affermage-lease plus" arrangement, for example, the government generally maintains responsibility for

investments and related risks, while operational risks are transferred to the private operator. Examples include the Laem Chabang Port Terminals in Thailand, and the Guangzhou Baiyan Airport in China.[85]

PPPs often work under a build-operate-transfer model, in which, the company builds a bridge, for example, runs it for a certain period, and then passes to the government. Or it could be a build-operate-own model, in which the company retains the asset while the government provides a guarantee that the private partner will recoup capital costs and earn a reasonable return. If the government wants the private sector to set prices below what is warranted for a reasonable return, it must either finance part of the capital cost with a grant or provide an ongoing subsidy to cover the difference.

But the government should not assume all the risk of project failure, nor guarantee purchases at predetermined prices independent of market demand. This can put public resources at risk, and reduce the incentives to ensure that the projects are financially sound and efficiently run.[86] Mechanisms for user payment should not exclude the poorest citizens, and the demands for commercial viability should not deny services to less populated areas. All PPPs should be based on principles of sustainable development. Thus transport projects should stress environmental sustainability – building roads with pedestrian walkways, for example, and installing solar-powered bus and rail stops that feed back to an energy grid.

PPPs are complex arrangements, requiring expert management and risk assessment, backed by stable legal and regulatory frameworks. The chances of failure are high. Even in developed countries, around one third of PPPs fail, due often to delays and cost overruns, and the proportion is likely to be higher in developing countries.[87] All governments will need therefore to develop capacities to create and manage bankable PPPs. For this purpose Bangladesh and Pakistan, for example, have developed national strategies for PPPs and a number of governments including Kazakhstan, Malaysia and the Philippines have dedicated institutions to manage PPPs.[88]

Infrastructure – One of the commonest uses of PPPs is long-term finance for infrastructure. In Asia, as of the end of 2008, 43 per cent of all PPP projects were in the energy sector, followed by transportation with 27 per cent.[89] PPPs are not suitable for all infrastructure projects. They generally work best where user charges help recoup investments.

Education – PPPs can address physical deficits such as school buildings. Commonly, the private partner builds and maintains facilities under a concession arrangement, while the government provides the education services. Alternatively, the government may contract private operators to deliver teaching services or to manage public schools and other educational institutions. Another type of partnership is where a voucher or subsidy programme allows students to pay part of their tuition fees at privately registered schools, training colleges, institutes or universities.

Health – The private partner may provide and maintain hospital buildings or other health facilities, or offer basic services such as catering or gardening. More complex arrangements involve discrete packages of services. For example, in Hong Kong, China for nine new hospitals the Government bundled into PPP the provision of medical equipment as well as the delivery of pathology and pharmacy services.

Ultimately, collaborations between public and private sectors will need to go beyond contracts. For the private sector to become a full-fledged development partner, it needs to embrace new incentives. These include the desire to earn goodwill, fulfil notions of social responsibility, and contribute to public goods with direct benefits for all members of society.

National development banks

Another form of public-private cooperation is through publicly backed development banks. In the absence of other sources of finance these banks can lend for investment in agriculture, industry and infrastructure. They can also have a countercyclical function during crises by compensating for a drop in private lending. They can thus help strengthen capital markets, and leverage public and private investment for sustainable development.

The Korea Development Bank, for example, was set up in 1954 to grant medium and long-term loans to industry. By the end of 1955, it accounted for over 40 per cent of total bank lending. India's experiment with development banks began immediately after independence. By 1994 four institutions were disbursing assistance amounting to 15 per cent of gross capital formation, though by 2011/12 this proportion had fallen to 3 per cent.[90] The largest development bank in Asia and the Pacific, however, is the China Development Bank. Created in 1994 at a time when banks were restrained from lending, the bank found a niche in providing finance for local governments. Following the global financial crisis in 2009, the bank became a leading vehicle for the government's gigantic stimulus package. By 2011, its assets were estimated at $991 billion.[91]

In recent decades, financial liberalization has limited the degree to which governments can directly finance or subsidize lending by these banks. Instead they have been issuing more bond finance, taking advantage of the implicit sovereign guarantee for their borrowing.[92]

Managing natural resources

Both private and public interests often come together in the extraction and/or management of natural resources. These can yield large sums, but may be exhaustible and non-reproducible. Many countries around the world have also suffered a "resource curse" through which extraction for export damages the environment while burdening the rest of the economy with an overvalued exchange rate. Governments need to guard against early exhaustion and aim to mobilize the full value of the gains for social benefits and development.

Private investments in extraction and management can be backed by businesses committed to operating in line with sustainability and inclusion objectives. On the other hand, countries with access to significant export revenues from natural resources can act to prevent early exhaustion. They also need to ensure that extraction for export does not burden the rest of the economy with an overvalued exchange rate and does not have damaging ecological consequences.

One option is to use sovereign wealth funds. In 2005, Timor-Leste, for example, established its Petroleum Fund by law to manage petroleum resources "for the benefit of both current and future generations" and "in a fair and equitable manner." In December 2012, assets amounted to $11.8 billion. There has been some debate on where funds should be invested, balancing safety against returns, and on loosening restrictions on how much can be withdrawn for current budgets, given that Timor-Leste is a very poor country.[93] On the Linaburg-Maduell Transparency Index, Timor-Leste's fund gets a high score of 8 where 10 is most transparent.

Finance for trade

Another way in which governments can cooperate with the private sector is by financing trade. Most trade finance is provided on a fee basis by commercial banks. But this finance generally goes to larger enterprises operating in major markets. Smaller businesses with little collateral, or based in countries with weak banking systems or unfavourable risk ratings, find it much more difficult to get coverage. In 2013, the trade finance gap in developing Asia was estimated at $1.1 trillion.[94]

In fact, for trade finance banks may be unduly cautious. According to the ADB Trade Finance Register which collected data on over 5.2 million transactions, there was only a 0.02 per cent probability of default. Partly because of the register data, Munich Re, for example, a leading reinsurance company, has decided to enter the trade finance business.

Private sector gaps can be filled by national or regional development banks. ADB's own Trade Finance Programme provides guarantees and loans at market rates through partner banks. Between 2009 and 2013, it supported over $16 billion in trade, covering more than 8,000 transactions, half of which were from 4,700 small and medium-sized enterprises. For the smallest companies, another way forward, modelled on microfinance, could be microtrade programmes.

Under the United Nations Global Aid for Trade initiative, commitments reached $41.5 billion in 2012, although almost all went to economic infrastructure and productive capacity, with very little assistance on trade policy and regulatory issues. The Asia and Pacific region is second only to Africa in receiving Aid for Trade commitments, although these have expanded significantly mainly in middle-income countries, far less so in the least developed countries.[95]

A shared agenda

The new global agenda for sustainable development will require all resources, public and private, new and existing, to work together. This will entail large investments, but the region has funds at hand – even if they are in many different hands. Countries need therefore to align many different interests and sources of funds behind sustainable development. This calls for political choices beyond elections, and private choices beyond entries on a balance sheet.

1. *Regional forums and governments*
   - Tackle gaps and mismatches in tax rules based on a progressive tax structure
   - Pool resources to build capacities in smaller countries
   - Explore a subregional financial transaction tax
   - Track all sustainable development finance from multilateral and bilateral channels
   - Clarify and verify ODA and climate funding issues
2. *National governments*
   - Expand domestic tax and non-tax revenues
   - Engage with the private sector to align business incentives with sustainable development
   - Capitalize on insurance premiums, pension funds and remittances
   - Enable municipalities to raise local resources and spend them effectively

3. *Business leaders*
    - Consider new orientations for business models and operations
    - Use chambers of commerce and other platforms to raise awareness
    - Call on business schools to teach new skills
    - Engage with informed consumers to understand their interests
    - Make philanthropic projects more meaningful

4. *Financial markets*
    - Assess investments in line with sustainable development
    - Develop broader measures of success
    - Provide more inclusive services

5. *Multilateral development banks*
    - Accelerate resource transfers
    - Support municipal financing
    - Expand technical assistance

Endnotes

1 There were four multi-stakeholder consultations in 2014: South-East Asia (24-26 June, Vientiane), South Asia (26-28 August, Nagarkot, in collaboration with the South Asian Association for Regional Cooperation), Central Asia (9-11 September, Almaty) and the Pacific (17-19 November, Suva, in collaboration with the Pacific Islands Forum Secretariat).
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35 Ibid.
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CHAPTER IV

SUPPORT FOR STATISTICS

If governments are to meet the Sustainable Development Goals with programmes and policies that "leave no one behind" they will need high-quality disaggregated statistics that reveal variances across geographical areas and socioeconomic groups.

To make informed decisions based on solid evidence, governments need accurate and timely data that are disaggregated at least by sex and age. This became even more evident with the introduction of the Millennium Development Goals which increased the demand for regular data on a wide range of indicators. In order to monitor progress, countries in the region needed statistics in a standardized form that would permit international comparisons. The demand for data will increase still further with the more ambitious framework of the Sustainable Development Goals (SDGs) – which will prompt integrated action across many social, environmental and economic boundaries.

At present, the SDG agenda envisages 17 goals and 169 targets, considerably more than the eight goals and 21 targets of the MDGs. In Asia and the Pacific, tracking progress on all these targets will be beyond the current capacity of many statistical systems.[1] This is the conclusion of the United Nations Statistics Division which has examined the extent to which countries are likely to be able to report on the SDGs (table IV-1). Data are weak on a number of important subjects: water and sanitation (Goal 6); economic growth and work (Goal 8); inequality (Goal 10); sustainable consumption and production (Goal 12), marine resource (Goal 14); forests and land degradation (Goal 15); and peace and justice

Table IV-1 Asia-Pacific data reporting capacity for the sustainable development goals, % of countries

Target #	1	2	3	4	5	6	7	8	9	10
Goal 1	77	77	67	45	55					
Goal 2	92	91	75	77	9					
Goal 3	100	100	90	92	70	92	80	90	73	
Goal 4	100	83	100	67	100	100	42			
Goal 5	91	100	90	73	100	100				
Goal 6	100	79	57	64	36	50				
Goal 7	69	77	77							
Goal 8	75	73	50	60	100	91	70	70	44	50
Goal 9	55	83	27	73	67					
Goal 10	83	50	92	50	10	30	50			
Goal 11	69	64	30	40	64	64	50			
Goal 12	17	62	8	71	71	67	18	27		
Goal 13	75	50	42							
Goal 14	30	50	40	64	40	11	11			
Goal 15	92	75	91	30	75	36	27	36	36	
Goal 16	89	33	56	11	60	44	33	11	75	75

Source: United Nations Statistical Division (2014).
Note: Percentage of 15 Asia-Pacific countries that can produce data for at least one indicator for measuring the targets associated with the respective goal.

(Goal 16). And even the best equipped countries will struggle to provide data on some emerging areas of statistics for which concepts and methods are relatively new or under development – such as environmental management, asset ownership, or entrepreneurship.

Countries are also being faced with many new sources of statistics. The world is now in the era of "big data" (box IV-1). Private sector companies have started to amass vast quantities of information based on electronic transactions and records and are analysing this in multiple ways. Using new technology, individuals and groups can also produce valuable new information, and use social media to quickly organize around an event or idea. This flow of data is growing exponentially as more of the world's population gains access to the Internet.

Governments should also be able to tap into these new opportunities, complementing official statistics with data from non-traditional producers to build up more dynamic national pictures. But to achieve truly integrated and seamless information flows, data producers, public and private, will need to replace outdated and disparate computer systems and work more closely together to adopt standards for efficient data exchange.

Ideally, the data should be presented through online databases or other electronic formats that permit users to extract information based on their own queries. These data can then be fed into other databases, and manipulated and transformed into informative products, such as interactive visualizations.

Rising expectations

Nowadays people want information instantly and on a wide range of issues, with more disaggregated and high quality data. Citizens with access to the Internet expect to be able to find data to hold corporations and governments to account. The impact has reverberated across all information-related fields, not least journalism, an industry that has been transformed by 24-hour news cycles and online news sources. Governments have been slower to respond. Many Asia-Pacific governments do offer national data on their websites. But they often do so using static presentations such as on-screen tables or pdfs from which it is difficult to extract data for subsequent analysis.

Some governments in the region are making data more freely available in machine-readable formats with no restrictions on usage. The leader is New Zealand (box IV-2).[2] Most other countries are also making progress but are still some way behind. India, for example, in 2012 launched a National Data Sharing and Accessibility Policy, along with an Open Government Data Platform, which now hosts more than 13,000 data resources and has 47,000 registered users (data.in.gov). Even so, using open data remains a minority concern: the 2014 Open Data Barometer ranked India 39th out of 86 countries. Other countries in the region, including China, the Russian Federation and the Philippines, have also been slow to take advantage of the potential for open data.

Technological developments have also meant tracking new phenomena. For example, national statistics are now expected to register mobile phone subscriptions and the use of the Internet – concepts that 30 years ago were virtually unheard of, and certainly not measured. Similarly, it has become important to monitor the state of the environment – stimulating a new field of environmental statistics.

The bedrock of official statistics

The primary sources of data will continue to be official statistics. Produced by governments and other public entities through surveys, censuses and administrative sources, these national data are a major "public good". The Asia-Pacific region has some of the world's most advanced statistical systems, while countries with less advanced systems have made good effort to improve (box IV-3). According to the World Bank's statistical capacity indicator, developing countries in the region have an average capacity score of 67 out of a possible 100, and over the last ten

Box IV-1 Dealing with big data

Vast amounts of information are now being automatically recorded and stored as a result of widespread use of the Internet, smart mobile phones, and electronic modes of payment. Such information is often referred to as "big data". This is different from "open data". The latter comprises data that are free from copyright and available in the public domain for sharing and reuse. Big data is not necessarily open. Much of it is owned and controlled by private organizations. Private sector companies are mining big data for market intelligence that can guide their businesses. Governments too are recognizing that big data could provide timely insights for policy. Social media trends, for example, can highlight issues that warrant further investigation. Used in conjunction with traditional data and statistics, big data can uncover hidden patterns and correlations that can guide the design of policies and programmes. Big data can also offer real-time information that could provide early warning of crises and enable better responses.

Source: United Nations Global Pulse (2013).

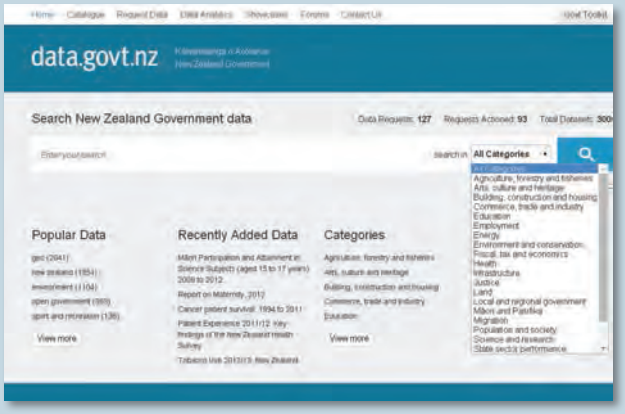
Box IV-2 Open data in New Zealand – a regional leader

In 2008, New Zealand launched an Open Government Information and Data Initiative. The aim was to make government-held non-personal data available for sharing and reuse. Since 2009 the national portal for sharing and accessing government data – data.govt.nz – has assembled more than 2,800 datasets.

This has stimulated innovative applications that combine data to provide new information services. For example, mobile phone apps now present data about schools, including contact details, information about school quality, and indicate enrolment zones using Google maps.

Another valuable outcome is that government departments can work more efficiently now that they can readily access data produced by other government agencies.

New Zealand is now ranked fourth in the world by the *Open Data Barometer* – after the United Kingdom, the United States and Sweden, and alongside France.



Sources: New Zealand (2014; 2015); World Wide Web Foundation (2015).

years there has been little improvement (table IV-2). The highest capacities, with scores of 90 or above are in Armenia, Georgia, Kazakhstan, Thailand and Tonga. The lowest, with scores of 30 or less, are in Kiribati, Nepal, Palau, Turkmenistan, Tuvalu, and Vanuatu.[3]

Some countries do not, for example, maintain long-term surveys that are comparable over time and comply with international standards. For health, only half the developing member States of ESCAP have comparable data on the prevalence of underweight in children, or the rate of skilled birth attendance – and even these generally date back to 2008 and 2009.

Moreover, many surveys undercount the poor and most vulnerable. Household surveys and population censuses often fail to register people who are homeless or living in institutions, such as prisons, hospitals or refugee camps. Similarly, they may undercount urban slum dwellers – either because they are hard to reach, or because the authorities are reluctant to reveal the true extent of such populations. Women may be treated as dependent household members and only men surveyed. Excluding these groups significantly reduces the accuracy of estimates of key development indicators, particularly those related to poverty and health.[4]

Further, national statistical systems (NSSs) need to explore and research how "big data" produced by the private sector can benefit official statistics and supplement traditional data collection. The key is for NSSs to acquire and adapt the tools offered by the technological changes for faster data capture and transmission.

Administrative data

Developing countries could also make better use of data collected as a by-product of administrative processes such as the registration of births and deaths. Unfortunately, in many countries these vital registration data are almost unusable. According to assessments of these systems conducted in 47 Asia-Pacific countries between 2010 and 2012, only 11 were satisfactory, while 36 were found to be dysfunctional, or inadequate.[5] Weaknesses include barriers to reporting births and deaths, poor cooperation between key agencies, inadequate technology, and a lack of skilled staff. Small countries, such as the Pacific island States, may also find it difficult to gather data from remote, hard-to-reach rural communities, particularly in postconflict countries.

In addition, some administrative data are not recorded electronically. In many developing countries immigration officials, for example, collect data on arrival and departure cards but the information is not subsequently entered in databases and therefore not used. This information could serve as the basis for policies on tourism and especially for migration – for understanding the characteristics of people who move for work, where they go, how much money they send home, and whether they return to their country of origin.

Countries across the region are making efforts to improve vital registration. Without good records of births, deaths (and accurate cause of death), planning to respond to health, education, housing and other needs will be poor. But this process will be complex and expensive and will take significant time and effort.

Box IV-3 Monitoring sustainable development in Bangladesh

Bangladesh has made significant investments in strengthening its statistical system. It has implemented a national strategy for the development of statistics and has benefited from increases in donor funding. Nevertheless, there are a number of weaknesses in the operations of the statistical office and the perceptions and priorities of stakeholders.

For example, Bangladesh lacks data for key areas such as energy and infrastructure, governance, environment and global partnerships. Nor does it have the standard of ICT infrastructure or staff skills needed to adopt e-management practices. Access and use of data is also hampered by poor presentation, limited metadata and poor navigability of the Bangladesh Bureau of Statistics website.

Priorities for the post-2015 development agenda will include:

a. Improving ICT software and hardware capabilities
b. Introducing electronic data capture and automation of statistical production processes
c. Establishing a statistical training academy and prioritizing staff development
d. Developing partnerships across government, private sector and development agencies
e. Increasing donor funding
f. Strengthening capacity in survey sampling, data collection, analysis and report writing
g. Adopting international statistical standards and methods

Source: PARIS21 (n.d.).

Table IV-2 Average statistical capacity of developing countries, by region, index 1 to 100

	2005	2010	2014
Asia and the Pacific	**64**	**65**	**67**
South-East Asia	71	72	73
South and South-West Asia	70	72	74
North and Central Asia	76	78	74
Pacific	42	42	47
Europe	77	80	85
Latin America & Caribbean	70	71	71
Middle East & North Africa	62	61	59
Sub-Saharan Africa	57	59	59

Source: World Bank, Statistical Capacity Indicators database, last updated 15 May 2014.
Note: The statistical capacity indicator is a composite measure of a country's statistical system.

Maintaining trust, credibility and independence

Official statistics should be free from political interference. This is one of the ten fundamental principles adopted in 1994 by the international statistical community and endorsed in 2014 by the United Nations General Assembly (**box IV-4**).[6] At present, statistical offices in most countries enjoy a high level of independence. This was confirmed by a survey in 2013 of 82 developing and 44 developed countries.[7]

Almost all reported that they had legislation that provided for independence – enabling statisticians to choose the methodologies, and determine the content and timing of data releases without interference. But this independence needs to be sustained by constant vigilance, along with the necessary systems and institutional safeguards. In the Philippines, for example, the former National Statistical Coordination Board, through strong leadership and decision-making, has identified and addressed a number of threats to statistical independence.[8]

Box IV-4 Fundamental principles of official statistics

The international statistical community has developed ten fundamental principles that embody what is required to produce high-quality official statistics. They provide a framework for developing statistical capacity and for judging the strength of national statistical systems. In summary, they promote:

1. Relevance, impartiality and equal access
2. Professional standards and ethics
3. Accountability and transparency
4. Prevention of misuse
5. Sources of official statistics
6. Confidentiality
7. Legislation
8. National coordination
9. Use of international standards
10. International cooperation

Note: For more information refer to http://unstats.un.org/unsd/dnss/gp/fundprinciples.aspx.

Producers of official statistics should face scrutiny and work openly and transparently so as to build a reputation for unbiased reporting. This duty extends beyond national statistics offices. Many key development data are gathered by other departments, such as ministries of education or health. Since they are registering data that will also determine their budget allocations these departments may have an incentive to understate or overstate progress.[9]

One difficulty for users wishing to assess the validity of official statistics is that these data are hard to replicate. So if sceptical users see findings that are not in line with their expectations or hopes, they will find it difficult to challenge their accuracy. This has been an issue for China, for example, whose officially calculated GDP has been doubted by outsiders. Given the country's scale and socioeconomic complexity, however, it will inevitably be difficult to gather accurate information from so many local governments and enterprises. A study of the accuracy of China's GDP found that while there was scope to falsify data, the GDP conformed to tests of statistical accuracy.[10] To address doubts about statistics, it is critically important to provide detailed information on the methods of data collection, coverage and data quality, have pre-announced dates for release of key statistics, and institutionalize oversight mechanisms.

To build trust and credibility, data producers should follow professional codes and international standards. A basic requirement is to publish information, or "metadata", that outlines precisely how the statistics were produced. Many statistical offices now commonly provide this information for surveys and censuses, but less frequently for data based on administrative records.

To supplement official statistics, governments can also make better use of privately gathered data. For tracking the consumer price index, for example, government statisticians could take advantage of supermarket databases, or "scrape" prices from websites. They could also use social media to harvest complementary information that can serve as a real-time proxy for price statistics. In Indonesia, for example, analysis of Twitter feeds between 2011 and 2013 found a relationship between food inflation and the number of tweets about food prices.[11] But it should be noted that the use of alternative data sources also raises many questions of data integrity and privacy.

Smarter presentation

In many cases statisticians list data in complex tables that people unfamiliar with statistics find difficult to understand. Consequently the valuable results of major collections such as the population census often remain untapped in publications that collect dust on shelves. Developed countries have long recognized the importance of disseminating and communicating this type of information, so their national statistical offices employ communication professionals, such as journalists, graphic designers and marketing experts.

Finding the funds

The post-2015 development agenda will require significant investments in the production and use of official statistics. One estimate is that between 2015 and 2030 it will be necessary to spend $254 billion globally on strengthening statistics: almost twice the annual total spent on official development assistance.[12] Unfortunately, in many countries the resources for statistics systems have been declining. Even the most advanced statistical systems, as in Australia, have seen major budget cuts.[13]

Domestic financing of statistics is key to country ownership of data and development of sustainable statistical capacity. However, the poorest developing countries should be able to rely on funds from donors. Over the last decade this external support has increased, but remains a small fraction of the total aid budget: 0.16 per cent of ODA in 2013. Usually, most of these funds go to African countries, but in 2013, 65 per cent went to Asia and the Pacific, mainly due to a major project in Bangladesh as well as continued support to Afghanistan. Per capita, the most aid for statistics went to the small island developing States (SIDS), with Niue and Tuvalu ranked first and second. However this does not translate to large sums: between 2011 and 2013 only six SIDS received more than $1 million in external funding, and none were in the Pacific region.[14]

Since 2008, the bulk of support for statistics in Asia and the Pacific has come from five donors: the World Bank, European Commission/EUROSTAT, the United Kingdom, United Nations Population Fund (UNFPA), and Japan (**figure IV-1**). Recipient governments might want to diversify sources of funding, but may prefer to seek more funds from existing channels – which would keep projects coherent and reduce management and reporting burdens.

External funding in the region tends to be allocated to projects that build capacity simultaneously across several statistical areas (**table IV-3**). For example, in India, the First Statistical Strengthening project supported by the World Bank is improving the reliability and timeliness of data from various sources, strengthening staff skills and institutional capacity, implementing innovative technologies, and reaching more users with high-quality products. In Viet Nam, with funding from UNFPA, a multi-million dollar project aims to collect sex- and age-disaggregated data on population, reproductive health and family planning, and strengthen data analysis, dissemination and use.

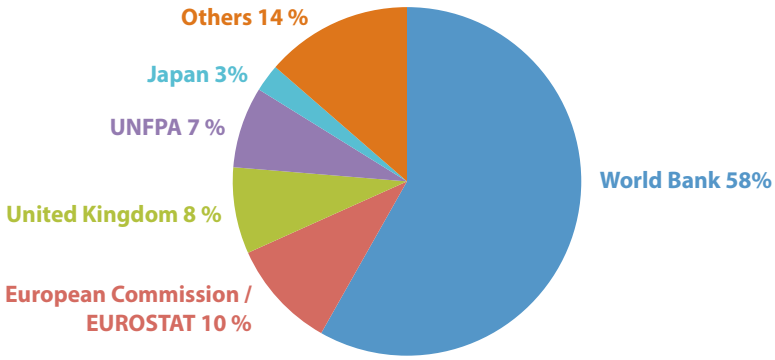
Donors have often supported country-level work that feeds into their international surveys. These include the National Household Survey Capability Programme, the Demographic and Health Survey, the Living Standards Measurement Study, and the Multiple Indicator Cluster Survey. Donors have, however, generally provided less support to improve data derived from administrative systems.

All countries in the region need to invest more in their statistical systems. This may seem costly, but weak or unreliable statistics will misdirect policies and programmes – and ultimately cost far more in wasted expenditure.

Encouraging active data users

Harnessing the data revolution will not depend only on data producers. It must also involve many kinds of data users. Politicians can use data when deciding where to target resources. Government officials can use data when designing policies and programmes to achieve development goals. Institutions can use data for research into particular issues or groups. The press can use data for informing the public,

Figure IV-1 Donors for developing statistical capacity in Asia and the Pacific



Source: PARIS21 (2013).

Table IV-3 Funds allocated to developing statistical capacity in Asia and the Pacific 2010-2013

Statistical area	2010	2011	2012	2013	Total	% of total funds allocated
			($ thousands)			
Demographic and social statistics	1,365	12,939	19,055	18,385	**51,744**	6.6
Economic statistics	117	2,777	17,064	67,685	**87,643**	11.3
Environment and multi–domain statistics	2,083	566	734	2,007	**5,391**	0.7
General items and methods of data collection, processing, dissemination and analysis	39,706	13,615	51,876	18,612	**123,808**	15.9
Strategic and managerial issues (national and international)	13,465	11,432	13,739	16,210	**54,846**	7.0
Multiple areas	116,056	101,857	11,023	226,275	**455,211**	58.5
Total	**172,792**	**143,187**	**113,491**	**349,173**	**778,644**	**100.0**

and many other groups use data when advocating for change. All should be able to understand statistics and use them correctly.

At present data in developing countries are largely underused. In fact, the biggest consumers of national statistical information are typically international organizations. Local organizations and business make much less use of national data, either because they are unaware of what is available, or they are sceptical of its quality, or are discouraged by the form in which the data are presented. While it is difficult to generalize, it is clear that many data users lack the skills to analyse and interpret statistics, or to apply the information effectively. Some of the difficulties derive from the way that data are collected and presented. However, a major issue is statistical literacy. The wider use of DevInfo, for example, is often hampered not just by poor ICT infrastructure, but also by a lack of user capacity in IT and statistics, both within governments and beyond.

There may also be communications gaps. Active users may want to engage directly with the producers of statistics, to ask questions or provide feedback on their experiences. They may, for example, need clarifications about how the data were collected or what the classifications mean. Or they may identify some limitations. When using vital registration systems, for example, they may be frustrated by poor coding of causes of death. Or they may find that labour market data cover a limited range of occupations and industries. If users have opportunities to discuss such issues with the statistical office or data-producing agency, they can not only become better informed but also help improve statistical quality.

Safety in international numbers

Countries across the world have generally collected data on the same issues, so have had a strong incentive to collaborate. Statisticians have, for example, worked together in the United Nations Statistical Commission, as well as the statistical bodies of a range of other international organizations with support by regional and subregional institutions. As a consequence, there are now many common definitions on issues such as poverty, employment and health. There is also a vast range of valuable technical guidance, along with standard questionnaires and tools for data processing and dissemination.

The central repository for MDG is the United Nations global database which aims to combine data from multiple sources into a single cohesive database. Unfortunately, this has never been more than 70 per cent complete.[15] A persistent problem is that some countries still use non-standard definitions. This could be improved by greater use of information management standards such as the Statistical Data and Metadata Exchange and the Data Documentation Initiative.

The international statistical community can provide leadership and guidance on the establishment of SDG indicators. But it will be equally important to involve national stakeholders. This will ensure that the indicators are realistic, compatible with national priorities, and widely supported. Such a two-pronged approach will require open and transparent consultation, with the full engagement of national and international statistical communities.

Realistic statistics for developing countries

The SDGs, as with the MDGs, should provide the impetus to improve statistical capacity in the countries that need it most. It is important, however, when developing new standards and models, to consider how the weaker statistical systems can apply these within national limitations. Care needs to be taken not to place unrealistic demands. In addition, the priority needs of the national statistical systems needs to be respected, and donor support to the SDG agenda should be aligned with national priorities. Countries should also be able to exchange information and learn from the successes and mistakes of others.

Each sector of statistics has its own frameworks and methods – and priorities for improvement. For example, for economic statistics it will be important to strengthen advocacy, coordination, infrastructure and skills. For population and social statistics, the priorities would be to strengthen leadership and management and data sources. But there are also many cross-cutting issues and there is much to be gained by taking an integrated and coordinated approach across different statistics collections.

A number of countries are improving their capacity through national strategies for the development of statistics (NSDS). Almost half the developing countries in Asia and the Pacific are currently implementing an NSDS, and others are planning to do so. They are being supported by the Partnership in Statistics for Development in the 21st Century. NSDS covers such issues as legislation, funding, management reforms, and user-producer dialogues. There have also been recommendations to upgrade the NSDS specification so as to better address such issues as coordination and long-term planning, and identify sources of funds.

In 2014, an independent advisory group commissioned by the United Nations Secretary-General gave recommendations that are an excellent basis for taking statistical capacity development to the next level (**box IV-5**). Priorities for the Asia-Pacific region will include the following actions.

Making the case for domestic funding

The most effective way of making a case for better domestic funding of statistics is to build local demand. If policymakers and development practitioners recognize the importance of data and use them to guide their decisions, they will become advocates for better quality statistics.

Building statistical capacity

One of the greatest barriers to better use of statistics is the lack of local capacity. This is why, for many of their statistical programmes, developing countries often depend on foreign advisors. Countries conducting a national demographic and health survey will often bring in experts to help design the sample, prepare for field work, conduct household interviews, and process, analyse and publish the data. Generally, the experts will be shadowed by local staff who not only learn how the survey is conducted but are directly involved in the work.

Producers and users of statistics can also take advantage of online training platforms. Massive open online courses have been developed by leading universities and are being delivered through websites such as Coursera and edX. Unfortunately, these often involve streaming video lectures that are unavailable to people in developing countries who do not have adequate Internet bandwidth.

Countries in the region can also take advantage of institutions such as the Statistical Institute for Asia and the Pacific. It offers training workshops and is adapting its statistical training to an online approach. It already has some e-learning courses, mainly on the production of national accounts, which often serve as preliminary exercises before face-to-face training.

Harness administrative data

Some countries are exploring the use of administrative data as a cost-effective complement, or alternative, to surveys and censuses (**box IV-6**). This is partly driven by cost advantages, but also by the potential for improving data quality and accessibility. This would enable developing countries to achieve more with less, particularly for subjects for which data are missing or collected infrequently.

Fostering statistical literacy

The basic skill set of all professionals should include a broad understanding of how statistics are compiled, their strengths and limitations, where to access them, and how to interpret and apply them. This requires considerable and ongoing investment. Learning about data should start young, during school and university, so that people enter the workforce with an appreciation of the importance of statistics and know the principles of good data production and management.

Build stronger relations with domestic users

The following are necessary at all stages of the statistical production process: identifying the data requirements; designing methods and classifications; and carrying out subsequent evaluations. Systematic user-producer cooperation can be achieved through representative committees, for example, or focus groups, stakeholder briefings, training workshops, or user satisfaction surveys. Data producers also need to make existing data more readily available and easier to interpret. Users are generally less interested in data collections and more in issues. So rather than limiting data releases to particular surveys or censuses, statistical providers can also respond to user needs by

Box IV-5 Independent Advisory Group on a Data Revolution for Sustainable Development

In 2014 the United Nations Secretary-General asked a group of independent experts for recommendations for closing data gaps, while strengthening national capacities and tapping into new opportunities for harnessing the data revolution. They identified five priorities:

1. *Standards* – Develop a global consensus on principles and standards – bring data producers and users together to build trust and develop standards that will facilitate open sharing
2. *Collaboration* – Share technology and innovations for the common good – bring organizations and experts together to improve monitoring, collaboration and innovation
3. *Funding* – New resources for capacity development – finding new funds to build capacity to produce and use data
4. *Leadership* – Leadership for coordination and mobilization – establishing a United Nations-led global partnership for sustainable development data
5. *Data dashboard* – Create a data lab to support data analysis and visualization and build a dashboard on the state of the world.

These recommendations offer a strong basis for boosting statistical capacity in the Asia-Pacific region.

Box IV-6 Replacing censuses with administrative data

Around the world many countries are looking at ways of using administrative data to reduce the costs of major data collections, such as population censuses. A number of European countries, for example, have already replaced traditional censuses with administrative data stored in population registers.

In the Asia-Pacific region both Australia and New Zealand are exploring how to maximize the use of administrative data. New Zealand, for example, is considering the creation of a national population register and establishing links with administrative sources, such as taxation, education and migration records. Early research has indicated a number of barriers, but that it is worthwhile continuing investigations. Australia is also considering alternatives, especially in view of the cost of censuses – around $440 million in 2011. The 2016 census, which will be paperless, will employ a traditional methodology, but the Government is consulting stakeholders about the best methods for the future.

Sources: Statistics New Zealand (2014); Martin (2015).

presenting data from multiple sources, and linking these to policy issues. They could also increase awareness of the data through marketing campaigns or personal visits.

Users too have a responsibility to cooperate with producers. Policymakers, for example, can request training or briefings on statistical methods and concepts, and also invite statisticians to observe or participate in policy and programme development.

Policymakers can also work closely with statisticians when preparing various national reports (**box IV-7**). Both will then better understand the issues and discover how they can be better monitored in future. They could also work together at the regional level. There is already a proposal for a World Forum on Development Data. There could be a corresponding regional forum to support statistics development for the SDGs across Asia and the Pacific.

Box IV-7 Better data analysis in the Cook Islands

Policymakers can also work closely with statisticians. One of the key sources of statistical information is the national population census data. To capitalize on the breadth and depth of these data, UNFPA has been supporting analysis of census information by particular themes, such as youth, the labour force, migration, and gender. In the Cook Islands, for example, the work was overseen by data users from the responsible ministries who thus not only increased their data analysis skills, but also were then able to use the information immediately to guide policy and programme development.

Endnotes

1 United Nations (2015).
2 World Wide Web Foundation (2015).
3 The statistical capacity indicator is based on a diagnostic framework that assesses methodology, data sources, and periodicity and timeliness. Countries are scored against 25 criteria in these areas, using publicly available information and/or country input.
4 Carr-Hill (2013).
5 Mikkelsen (2012).
6 International Labour Organization (2014).
7 United Nations Statistics Division (2013).
8 Virola (2013).
9 Sandefur for Glassman (2014).
10 Holz (2013).
11 United Nations Global Pulse (2014).
12 Jerven (2014).
13 Onselen (2014).
14 PARIS21 (2013).
15 United Nations (2014).

TECHNICAL NOTE 1

MDG progress classification

Data sources

The data underlying the MDG progress classification tables are from the Global Millennium Development Goals Indicators Database (http://unstats.un.org/unsd/mdg/). This database is updated annually, resulting in revisions of specific data points in some cases. Thus prospects for progress presented in the *Asia-Pacific Regional MDGs Report 2014/15* are not always comparable with those in previous reports in this series. The analyses presented in the *Asia-Pacific Regional MDGs Report 2014/15* are based on data updated on 07 July 2014 and accessed on 15 April 2015. Figures for poverty-related indicators under Goal 1 were obtained from the World Bank Poverty and Inequality database on 15 April 2015. Figures for education-related indicators under Goals 2 and 3 are based on data obtained from the UNESCO Institute of Statistics on 24 February 2015. The tables presented in annex 1 and 2 are based on data obtained from the United Nations MDG database on 6 January 2015.

Reference populations published by the United Nations Population Division *(World Population Prospects: the 2012 Revision)* were accessed on 8 January 2015.

Determining the progress in achieving a MDG target

A country, region or subregion is assigned one of the following four categories of MDG progress towards the targets:

- ***Early achiever:*** **Already achieved the 2015 target**
- ***On track:*** **Expected to meet the target by 2015**
- ***Off track-Slow:*** **Expected to meet the target, but after 2015**
- ***Off track-No progress/regressing:*** **Stagnating or slipping backwards**

Two different procedures are used to determine the categories, depending on whether or not an indicator has an explicit target value for 2015. For indicators without such a target value, such as HIV prevalence, TB prevalence, TB death rate, forest cover, protected area and CO_2 emissions per GDP, only three of the four categories are used: indicators trending in the "right" direction since 1990 are categorized as Early achievers; indicators showing no change at all over the period are categorized as On track; and finally indicators trending in the "wrong" direction are categorized as Off track-No progress/regressing. Countries and regions expected to achieve the target by 2016 were exceptionally classified as on-track instead of slow for the purposes of this final report.

For indicators with an explicit target value, such as $1.25-a-day poverty, mortality rates, school enrolment and the gender parity indices, all four categories are used. To determine the category, the year t* – by which a country is expected to reach its MDG target if the trend since 1990 continued – is estimated (see below). Denote t_{Lst} as the year with the latest available value. If t* is below t_{Lst}, the country is categorized as an Early achiever. If t* lies between t_{Lst} + 1 and 2015, it is categorized as On track. If t* is above 2015, the country is categorized as Off track-Slow. Naturally, no t* can be estimated if a country has a zero trend or trend in the "wrong" direction, i.e. away from the target value. In these cases, the country is categorized as Off track-No progress/regressing.

To estimate t*, the trend since 1990 is estimated first based on at least two data points, which are at least three years apart. In case an indicator is a proportion or a probability, the original value, Y_t is converted into y_t, which is between 0 and 1, by dividing Y_t by the appropriate scale. For example, for $1.25 poverty rate, Y_t is divided by 100; for infant mortality, the indicator is divided by 1,000. A logit transformation is then made on y_t so that the indicator is on the scale of real numbers. For indicators that are odds ratios, such as gender parity, a log transformation is used. For indicators that cannot be interpreted as either a probability or odds ratio, such as CO_2 emissions per GDP, no transformation is applied.

$$L_t = \begin{cases} \log\left(\dfrac{y_t}{1-y_t}\right) & \text{if } y_t \text{ is a probability} \\ \log(y_t) & \text{if } y_t \text{ is a rate of proportions} \\ y_t & \text{otherwise} \end{cases} \quad (1)$$

The year T is adjusted to t by subtracting the mean year $\overline{T}$ from all the years:

$$t = T - \overline{T}$$

The rate of change r_1 is estimated using the following linear equation:

$$L_t = r_0 + r_1 * t + \varepsilon_t \quad (2)$$

For countries in North and Central Asia the impact of the social changes in the early 1990s on many of the MDG indicators is taken into account. The rate of change for all the available data since 1990 is calculated first and then for all the available data except the first year. If the signs of the two estimated rates differ, the trend estimate excluding the observation for the first year is used.

In addition, for indicators such as TB prevalence, TB death rate and CO_2 emissions per GDP, where enough data (more than five observations) are available to detect a reversal of trend, a binomial equation was estimated using the Ordinary Least Square method:

$$L_t = r_0 + r_1 * t + r_2 * t^2 + \varepsilon_t \quad (3)$$

When r_2, the coefficient of t^2, is statistically significant (at 0.02 level) and there are more than three data points to the right of the turning point, estimated at $-r_1/(2 * r_2)$, the binomial model is used in place of the linear model. If $r_2 < 0$, the indicator increased in value first and then decreased. This means that the target has already been achieved. If $r_2 > 0$, there is regression on the indicator. When the linear model is used, the sign of r_1 is used to judge if the country has already achieved the target ($r_1 < 0$), is on track ($r_1 = 0$), or is regressing ($r_1 > 0$).

There are instances of large changes in the value of an indicator, the magnitude of which makes it difficult for the trend to sustain in future years (or extrapolate the trend backwards to as early as 1990). Since a logit transformation for most of the indicators is applied, a restriction to the slope is considered in these cases (to be between -0.2 and 0.2). It is possible to simulate that a slope of 0.2 or larger or -0.2 or smaller can give very drastic results when moving through the 25 years (1990-2015) with the logit transformations. This restriction does not affect the on/off track decision: a country with this rapid change will be early achiever or on track if in the right sign already and regressing if in the wrong sign.

Setting the target value

When an indicator requires a target value, a value for the indicator for the year 1990 is required to calculate it. When the 1990 value is not available, with the exception of the North and Central Asian countries, the first value is used in place of the 1990 value. For the North and Central Asian countries, if the trend estimate excludes the first available value, the second value is then used in place of the 1990 value.

Using cut-off values

The cut-off values depend on the kind of target of the indicator. Some of the MDG targets require an indicator value to increase or decrease by a certain proportion of their 1990 values. The only indicator of this kind that has cut off point is $1.25-a-day poverty, because 2 per cent is the lowest level reported on this indicator. Many other indicators require an absolute level as a target, such as the primary school enrolment. These targets cannot be achieved by the model due to the transformation used. In this case the indicator is treated as achieved if the country has reached this cut-off value. In the case of primary school enrolment, for example, this cut-off value is set at 95 per cent instead of 100. The transformation and cut-off values for indicators are presented in the table below.

Calculating regional and country group aggregates and the affected population

Regional and country group aggregates

The aggregates are estimated by using a weighted average of the actual country values, or imputed country values wherever data are missing for the year required. The reference populations were obtained from *World Population Prospects: the 2010 Revision* (DESA, 2011b). The same models for estimating trends are used to impute missing values for the year for a country (please see below how to calculate the trend).

Table 1 Cut-off values for selected MDG indicators

Indicator	MDG target	Cut-off	Transformation	Quadratic function (when data permit)
$1.25 per day poverty	Half 1990 value	2	Logit	
Underweight children	Half 1990 value	None	Logit	
Primary enrolment	100	95	Logit	
Reaching last grade	100	95	Logit	
Primary completion	100	95	Logit	
Gender primary	1	0.95	Log	
Gender secondary	1	0.95	Log	
Gender tertiary	1	0.95	Log	
Under-5 mortality	One third 1990 value	None	Logit	
Infant mortality	One third 1990 value	None	Logit	
Maternal mortality	Reduce by 3/4 1990 value	None	Logit	
Skilled birth attendance	Reduce by 3/4 (without)	None	Logit	
Antenatal care (= 1 visit)	100	95	Logit	
HIV prevalence	Reverse the trend		Logit	Yes
TB incidence	Reverse the trend		Logit	Yes
TB prevalence	Reverse the trend		Logit	Yes
Forest cover	Reverse the trend		Logit	
Protected area	Reverse the trend		Logit	
CO_2 emissions per GDP	Reverse the trend		None	Yes
Safe drinking water	Half 1990 value (without)	None	Logit	
Basic sanitation	Half 1990 value (without)	None	Logit	

Note: Protected Area and Forest Cover are marked "not applicable" as they tend to stay constant / show very little variation for most of the time and hence quadratic or other polynomial functional forms cannot be fitted.

The aggregate values for a specific indicator are calculated through the following process:

- Estimate the indicator values for the countries (see the previous section, estimating the trend) that do not have data in a year
- Using the reference populations, a weighted average of the country values is calculated to obtain the aggregate value for the region or country group
- If the country was classified as regressing in an indicator, the latest available value will be used as estimate for following years, assuming that the country will maintain at least that level of the indicator and will not get worse.

Affected population

The calculation of the affected population is based on the aggregate value of the indicator for the region and the total reference population for the region. More specifically, the following processes are used for computing the affected population for different types of indicators.

In case a higher value of an indicator represents a worsening outcome (e.g. $1.25-a-day poverty, underweight children), the affected population is calculated by:

$$CV * TRP$$

where CV is the converted value of the indicator at the aggregate level (between 0 and 1) and TRP is the total reference population in the region.

In case a higher value of an indicator represents improvement in outcome (e.g., primary enrolment, births by skilled professionals), the affected population is calculated as:

$$(1 - CV) * TRP$$

In this last category there are some indicators, such as gender primary, gender secondary and gender tertiary, for which the affected population is computed as:

$$\frac{(1-CV)*TRP}{2}$$

Finally, there are some indicators without reference populations, such as forest cover, protected areas, for which it is therefore impossible to calculate the affected populations.

Regional and country group aggregates are reported only when the countries account for more than two thirds of the total reference population in a region or country group.

Data series names and responsible agency

Short indicator name	Original indicator name	Responsible agency
Goal 1		
$1.25 per day poverty	Population below $1 (PPP) per day, percentage	World Bank
Underweight children	Children under 5 moderately or severely underweight, percentage	UNICEF
Goal 2		
Primary enrolment	Total net enrolment ratio in primary education, both sexes	UNESCO-UIS
Reaching last grade	Percentage of pupils starting grade 1 who reach last grade of primary, both sexes	UNESCO-UIS
Primary completion	Primary completion rate, both sexes	UNESCO-UIS
Goal 3		
Gender primary	Gender Parity Index in primary level enrolment	UNESCO-UIS
Gender secondary	Gender Parity Index in secondary level enrolment	UNESCO-UIS
Gender tertiary	Gender Parity Index in tertiary level enrolment	UNESCO-UIS
Goal 4		
Under-5 mortality	Children under five mortality rate per 1,000 live births	UNICEF
Infant mortality	Infant mortality rate (0-1 year) per 1,000 live births	UNICEF
Goal 5		
Maternal mortality	Maternal mortality ratio	WHO, UNICEF
Skilled birth attendance	Births attended by skilled health personnel, percentage	WHO, UNICEF
Antenatal care (≥ 1 visit)	Antenatal care coverage, at least one visit, percentage	WHO, UNICEF
Goal 6		
HIV prevalence	People living with HIV, 15-49 years old, percentage	UNAIDS
TB incidence	Tuberculosis incidence rate per year per 100,000 population	WHO
TB prevalence	Tuberculosis prevalence rate per 100,000 population	WHO
Goal 7		
Forest cover	Proportion of land area covered by forest, percentage	FAO
Protected area	Terrestrial and marine areas protected to total territorial area, percentage	UNEP
CO_2 emissions per GDP	Carbon dioxide emissions (CO_2), kg CO_2 per $1 GDP (PPP) (CDIAC)	Carbon Dioxide Information Analysis Center
Safe drinking water	Proportion of the population using improved drinking water sources, total	WHO, UNICEF
Basic sanitation	Proportion of the population using improved sanitation facilities, total	WHO, UNICEF

TECHNICAL NOTE 2: SELECTED MDG INDICATORS

Goal 1: Eradicate extreme poverty and hunger

	$1.25 per day poverty (%)		Country line poverty (%)		Underweight children (% under age 5)	
	Earliest	Latest	Earliest	Latest	Earliest	Latest
East and North-East Asia						
China	60.7 (90)	6.3 (11)	6.0 (96)	4.6 (98)	12.6 (90)	3.4 (10)
Hong Kong, China	…	…	…	…	…	…
Macao, China	…	…	…	…	…	…
DPR Korea	…	…	…	…	55.5 (98)	15.2 (12)
Republic of Korea	…	…	…	…	…	…
Mongolia	…	…	38.7 (10)	27.4 (12)	11.8 (92)	4.7 (10)
South-East Asia						
Brunei Darussalam	…	…	…	…	…	…
Cambodia	44.5 (94)	10.1 (11)	50.2 (04)	20.5 (11)	42.6 (96)	29.0 (10)
Indonesia	54.3 (90)	16.2 (11)	17.6 (96)	11.4 (13)	29.8 (92)	18.6 (10)
Lao PDR	55.7 (92)	30.3 (12)	46.0 (92)	27.6 (08)	39.8 (93)	31.6 (06)
Malaysia	1.6 (92)	0.0 (09)	12.4 (92)	1.7 (12)	22.1 (90)	12.9 (06)
Myanmar	…	…	…	…	32.5 (90)	22.6 (09)
Philippines	33.2 (91)	19.0 (12)	24.9 (03)	25.2 (12)	29.9 (90)	20.2 (11)
Singapore	…	…	…	…	…	3.3 (00)
Thailand	11.6 (90)	0.3 (10)	58.1 (90)	13.2 (11)	16.3 (93)	7.0 (06)
Timor-Leste	…	…	…	…	40.6 (02)	45.3 (09)
Viet Nam	63.8 (93)	2.4 (12)	20.7 (10)	17.2 (12)	36.9 (93)	12.0 (11)
South and South-West Asia						
Afghanistan	…	…	36.3 (08)	35.8 (11)	44.9 (97)	32.9 (04)
Bangladesh	70.2 (92)	43.3 (10)	56.6 (92)	31.51 (10)	61.5 (90)	36.8 (11)
Bhutan	24.0 (03)	2.4 (12)	23.2 (07)	12.0 (12)	14.1 (99)	12.8 (10)
India	49.4 (94)	24.7 (11)	45.3 (94)	21.9 (12)	52.8 (92)	43.5 (06)
Iran (Islamic Rep. of)	3.9 (90)	1.5 (05)	…	…	13.8 (95)	4.1 (11)
Maldives	25.6 (98)	1.5 (04)	…	…	32.5 (94)	17.8 (09)
Nepal	68.0 (96)	23.7 (10)	…	25.2 (10)	42.6 (95)	29.1 (11)
Pakistan	64.7 (91)	12.7 (11)	30.6 (99)	12.4 (11)	39.0 (91)	30.9 (11)
Sri Lanka	15.0 (91)	4.1 (10)	26.1 (91)	6.7 (13)	33.8 (93)	21.6 (09)
Turkey	1.8 (94)	0.1 (11)	30.3 (02)	2.3 (12)	8.7 (93)	1.7 (08)
North and Central Asia						
Armenia	17.5 (96)	1.8 (12)	27.6 (08)	32.4 (12)	2.7 (98)	5.3 (10)
Azerbaijan	25.2 (95)	0.3 (08)	49.6 (01)	6.0 (12)	8.8 (96)	8.4 (06)
Georgia	17.5 (97)	14.1 (12)	20.1 (07)	14.8 (12)	2.7 (99)	1.1 (09)
Kazakhstan	4.2 (93)	0.1 (10)	46.7 (01)	2.9 (13)	3.8 (99)	3.7 (10)
Kyrgyzstan	18.6 (93)	5.1 (11)	39.9 (06)	38.0 (12)	2.7 (06)	3.4 (12)
Russian Federation	1.5 (93)	0.0 (09)	24.6 (02)	11.0 (13)	…	…
Tajikistan	50.1 (99)	6.5 (09)	96.0 (99)	47.2 (09)	14.9 (05)	12.1 (12)
Turkmenistan	63.5 (93)	24.8 (98)	…	…	…	10.5 (00)
Uzbekistan	…	…	17.7 (10)	16.0 (11)	…	4.4 (06)
Pacific						
American Samoa	…	…	…	…	…	…
Cook Islands	…	…	…	…	…	…
Fiji	29.2 (03)	5.9 (09)	39.8 (03)	35.2 (09)	6.9 (93)	5.3 (04)
French Polynesia	…	…	…	…	…	…
Guam	…	…	…	…	…	…
Kiribati	…	…	…	…	…	14.2 (09)
Marshall Islands	…	…	…	…	…	…
Micronesia (F.S.)	…	31.2 (00)	…	…	…	…
Nauru	…	…	…	…	…	4.8 (07)
New Caledonia	…	…	…	…	…	…
Niue	…	…	…	…	…	…
Northern Mariana Islands	…	…	…	…	…	…
Palau	…	…	…	…	…	…
Papua New Guinea	…	35.8 (96)	37.5 (96)	39.9 (09)	18.1 (05)	27.2 (10)
Samoa	…	…	…	…	…	1.7 (99)
Solomon Islands	…	…	…	22.7 (06)	…	11.5 (07)
Tonga	…	…	…	…	…	…
Tuvalu	…	…	…	…	…	1.6 (07)
Vanuatu	…	…	…	…	10.6 (96)	11.7 (07)

Sources: World Bank, Poverty and Inequality database (accessed 15 April 2015); and United Nations, MDG database for underweight children (accessed 15 April 2015).
Note: The number in parenthesis is the year of the data point.

Goal 2: Achieve universal primary education

	Primary enrolment ratio (%)		Reaching last grade (%)		Primary completion rate (%)	
	Earliest	Latest	Earliest	Latest	Earliest	Latest
East and North-East Asia						
China	…	…	…	…	…	…
Hong Kong, China	…	93.8 (13)	99.3 (02)	99.0 (11)	95.5 (01)	98.3 (12)
Macao, China	85.1 (99)	…	…	98.3 (09)	100.0 (99)	98.4 (08)
DPR Korea	…	…	…	…		…
Republic of Korea	99.2 (99)	99.1 (12)	99.2 (99)	99.2 (11)	104.5 (99)	110.5 (12)
Mongolia	88.1 (99)	94.7 (13)	87.2 (99)	93.0 (11)	86.8 (99)	130.2 (12)
South-East Asia						
Brunei Darussalam	…	91.3 (13)	…	96.4 (11)	117.8 (99)	101.9 (12)
Cambodia	86.4 (99)	98.4 (12)	54.7 (00)	65.9 (11)	41.0 (99)	98.1 (12)
Indonesia	93.2 (01)	92.2 (12)	85.9 (01)	89.0 (11)	95.0 (01)	104.5 (12)
Lao PDR	74.3 (99)	97.3 (13)	54.6 (99)	69.9 (11)	69.0 (99)	95.1 (12)
Malaysia	95.1 (99)	97.0 (05)	97.1 (02)	99.2 (09)	95.0 (99)	100.5 (05)
Myanmar	…	…	55.2 (00)	74.8 (09)	69.8 (99)	95.0 (10)
Philippines	89.1 (99)	88.2 (09)	75.3 (01)	75.8 (08)	86.4 (99)	91.3 (09)
Singapore	…	…	…	98.7 (08)	…	…
Thailand	…	95.6 (09)	81.5 (99)	…	88.3 (99)	…
Timor-Leste	…	91.1 (11)	…	83.6 (10)	76.3 (08)	71.0 (11)
Viet Nam	96.9 (99)	98.1 (12)	82.8 (99)	97.5 (11)	97.9 (99)	101.2 (12)
South and South-West Asia						
Afghanistan	…	…		…	…	…
Bangladesh	…	91.5 (10)	…	66.2 (09)	63.8 (05)	74.6 (11)
Bhutan	55.9 (99)	88.1 (13)	81.5 (99)	94.9 (11)	50.3 (99)	101.3 (12)
India	81.2 (00)	93.3 (11)	62.0 (99)	…	70.0 (99)	96.5 (11)
Iran (Islamic Rep. of)	86.4 (99)	98.5 (13)	97.4 (00)	96.2 (11)	92.7 (00)	102.2 (12)
Maldives	97.7 (99)	94.5 (09)	…	82.8 (11)	183.6 (01)	109.9 (09)
Nepal	69.3 (99)	98.5 (13)	59.0 (99)	55.3 (12)	66.4 (99)	99.8 (13)
Pakistan	56.2 (02)	71.9 (13)	…	61.0 (11)	61.2 (05)	71.9 (12)
Sri Lanka	99.7 (01)	93.8 (12)	97.8 (01)	96.6 (11)	106.5 (01)	96.8 (12)
Turkey	94.3 (99)	94.0 (12)	…	90.0 (11)	97.7 (04)	101.4 (12)
North and Central Asia						
Armenia	84.7 (02)	84.1 (07)	95.8 (02)	95.6 (11)	93.7 (02)	100.1 (08)
Azerbaijan	92.1 (99)	89.1 (12)	96.8 (99)	98.2 (11)	92.2 (99)	92.0 (12)
Georgia	…	96.5 (13)	99.1 (99)	93.1 (11)	84.1 (99)	108.1 (12)
Kazakhstan	88.6 (00)	85.9 (13)	95.0 (00)	99.3 (12)	94.9 (00)	102.2 (13)
Kyrgyzstan	86.8 (99)	90.5 (12)	94.5 (99)	97.1 (11)	93.6 (99)	97.7 (12)
Russian Federation	…	96.2 (12)	94.8 (99)	96.6 (11)	90.4 (99)	97.1 (12)
Tajikistan	93.7 (00)	95.6 (14)	96.7 (99)	98.0 (11)	90.8 (99)	97.6 (12)
Turkmenistan	…	…	…	…	…	…
Uzbekistan	…	88.5 (11)	99.5 (99)	98.1 (10)	96.0 (99)	91.8 (11)
Pacific						
American Samoa	…	…	…	…	…	…
Cook Islands	84.8 (99)	93.3 (12)	…	…	87.9 (99)	102.7 (12)
Fiji	94.3 (99)	96.6 (12)	82.1 (99)	96.5 (11)	100.1 (99)	103.6 (12)
French Polynesia	…	…	…	…	…	…
Guam	…	…	…	…	…	…
Kiribati	…	…	69.4 (01)	…	110.9 (99)	…
Marshall Islands	95.7 (02)	99.7 (11)	…	83.5 (08)	92.5 (99)	99.8 (11)
Micronesia (F.S.)	…	83.1 (14)	…	…	…	…
Nauru	…	75.7 (12)	…	…	87.0 (01)	90.3 (12)
New Caledonia	…	…	…	…	…	…
Niue	…	…	…	…	85.4 (99)	…
Northern Mariana Islands	…	…	…	…	…	…
Palau	…	89.0 (14)	…	…	98.8 (00)	…
Papua New Guinea	…	85.6 (12)	…	…	55.1 (00)	78.1 (12)
Samoa	90.5 (99)	94.8 (12)	90.0 (99)	90.0 (11)	95.1 (99)	102.4 (12)
Solomon Islands	…	80.7 (07)	…	63.4 (11)	…	85.4 (12)
Tonga	91.3 (99)	95.6 (12)	91.1 (00)	90.4 (05)	107.4 (99)	98.6 (12)
Tuvalu	…	74.5 (13)	…	…	101.7 (01)	…
Vanuatu	97.2 (99)	98.9 (05)	68.9 (99)	71.5 (08)	92.1 (00)	83.6 (10)

Source: UIS database (accessed 24 February 2015).
Note: The number in parenthesis is the year of the data point.

Goal 3: Promote gender equality and empower women

	Gender parity index in primary education		Gender parity index in secondary education		Gender parity index in tertiary education	
	Earliest	Latest	Earliest	Latest	Earliest	Latest
East and North-East Asia						
China	0.94 (91)	…	…	…	0.53 (94)	1.13 (12)
Hong Kong, China	1.01 (95)	0.98 (13)	1.03 (96)	1.00 (13)	0.70 (92)	1.13 (13)
Macao, China	0.99 (90)	…	1.14 (90)	1.04 (13)	0.38 (90)	1.28 (13)
DPR Korea	…	…	…	…	…	…
Republic of Korea	1.02 (98)	0.99 (12)	0.97 (91)	0.99 (12)	0.48 (90)	0.75 (12)
Mongolia	1.02 (95)	0.98 (13)	1.34 (95)	1.11 (06)	2.27 (96)	1.42 (13)
South-East Asia						
Brunei Darussalam	0.98 (91)	1.00 (13)	1.12 (91)	1.02 (13)	1.36 (92)	1.74 (12)
Cambodia	0.85 (97)	0.97 (12)	0.55 (98)	0.92 (08)	0.21 (93)	0.61 (11)
Indonesia	0.96 (90)	1.01 (12)	0.86 (95)	1.04 (12)	0.66 (93)	1.03 (12)
Lao PDR	0.87 (92)	0.98 (13)	0.79 (92)	0.95 (13)	0.49 (90)	0.88 (13)
Malaysia	1.00 (94)	…	1.10 (98)	0.95 (12)	1.07 (98)	1.21 (12)
Myanmar	…	…	0.98 (99)	1.05 (10)	1.22 (92)	1.23 (12)
Philippines	0.98 (90)	1.02 (09)	1.10 (98)	1.19 (09)	1.49 (92)	1.24 (09)
Singapore	…	…	…	…	…	…
Thailand	…	0.99 (09)	…	1.06 (12)	1.14 (93)	1.34 (13)
Timor-Leste	…	0.98 (11)	…	1.11 (11)	1.23 (02)	0.73 (10)
Viet Nam	…	…	…	…	0.66 (98)	0.90 (13)
South and South-West Asia						
Afghanistan	0.34 (93)	…	0.37 (93)	0.55 (13)	0.49 (90)	0.33 (11)
Bangladesh	0.86 (90)	1.04 (10)	0.94 (98)	1.16 (12)	0.20 (90)	0.72 (12)
Bhutan	0.87 (98)	1.02 (13)	0.90 (98)	1.15 (12)	0.58 (99)	0.69 (12)
India	0.74 (90)	…	…	…	0.52 (90)	0.78 (11)
Iran (Islamic Rep. of)	0.92 (90)	0.98 (05)	…	0.95 (12)	0.59 (96)	1.00 (12)
Maldives	1.00 (97)	0.99 (09)	1.14 (99)	…	…	1.13 (08)
Nepal	0.77 (99)	1.00 (12)	…	1.06 (14)	0.31 (90)	0.64 (11)
Pakistan	0.68 (02)	0.87 (13)	…	0.74 (13)	0.40 (90)	0.98 (13)
Sri Lanka	1.00 (02)	1.00 (12)	…	1.05 (11)	0.50 (94)	1.66 (12)
Turkey	0.93 (94)	0.98 (12)	0.71 (97)	0.96 (12)	0.50 (90)	0.85 (12)
North and Central Asia						
Armenia	1.03 (02)	1.10 (07)	…	1.16 (09)	1.26 (00)	1.51 (13)
Azerbaijan	0.98 (91)	0.98 (12)	…	0.98 (12)	0.67 (91)	1.05 (12)
Georgia	0.98 (95)	1.01 (13)	0.97 (96)	1.00 (13)	0.91 (91)	1.26 (13)
Kazakhstan	1.01 (00)	1.00 (12)	1.03 (00)	0.99 (12)	1.25 (94)	1.43 (12)
Kyrgyzstan	0.96 (96)	0.98 (12)	…	0.99 (11)	1.33 (93)	1.61 (13)
Russian Federation	1.00 (94)	1.00 (12)	…	…	1.23 (91)	1.26 (12)
Tajikistan	0.93 (00)	0.99 (14)	0.91 (99)	0.90 (11)	0.43 (99)	0.52 (12)
Turkmenistan	…	…	…	…	…	0.64 (14)
Uzbekistan	…	0.97 (11)	…	…	0.82 (99)	0.65 (11)
Pacific						
American Samoa	…	…	…	…	…	…
Cook Islands	0.97 (98)	1.03 (11)	1.11 (98)	0.97 (12)	…	1.36 (12)
Fiji	1.00 (92)	1.01 (11)	1.13 (99)	1.11 (12)	…	1.19 (05)
French Polynesia	1.02 (95)	…	…	…	…	…
Guam	…	…	…	…	…	…
Kiribati	…	…	…	1.11 (05)	…	…
Marshall Islands	0.98 (02)	…	1.06 (02)	1.06 (07)	1.28 (02)	0.92 (12)
Micronesia (F.S.)	…	1.02 (14)	…	…	…	…
Nauru	…	1.03 (12)	…	0.99 (12)	…	…
New Caledonia	…	…	…	…	…	…
Niue	…	…	1.05 (99)	…	…	…
Northern Mariana Islands	…	…	…	…	…	…
Palau	…	0.86 (14)	…	1.15 (14)	2.35 (00)	1.38 (13)
Papua New Guinea	…	0.93 (12)	…	…	0.47 (95)	…
Samoa	1.03 (94)	1.02 (12)	1.17 (95)	1.12 (12)	0.96 (98)	…
Solomon Islands	…	0.97 (07)	0.77 (99)	0.88 (07)	…	…
Tonga	1.02 (90)	…	1.03 (90)	1.07 (12)	1.35 (99)	…
Tuvalu	…	0.97 (13)	…	1.20 (13)	…	…
Vanuatu	0.99 (99)	…	0.84 (91)	1.04 (10)	0.57 (02)	…

Source: UIS database (accessed 24 February 2015).
Note: The number in parenthesis is the year of the data point.

Goal 4: Reduce child mortality

	Under-5 mortality rate (per 1,000 live births)		Infant mortality rate (per 1,000 live births)	
	Earliest	Latest	Earliest	Latest
East and North-East Asia				
China	54.0 (90)	14.0 (12)	42.2 (90)	12.1 (12)
Hong Kong, China	…	…	…	…
Macao, China	…	…	…	…
DPR Korea	43.6 (90)	28.8 (12)	33.4 (90)	22.7 (12)
Republic of Korea	7.1 (90)	3.8 (12)	6.1 (90)	3.3 (12)
Mongolia	106.6 (90)	27.5 (12)	76.2 (90)	23.0 (12)
South-East Asia				
Brunei Darussalam	12.3 (90)	8.0 (12)	9.4 (90)	6.7 (12)
Cambodia	116.4 (90)	39.7 (12)	85.0 (90)	33.9 (12)
Indonesia	83.8 (90)	31.0 (12)	61.7 (90)	25.8 (12)
Lao PDR	162.9 (90)	71.8 (12)	111.5 (90)	54.0 (12)
Malaysia	16.6 (90)	8.5 (12)	14.3 (90)	7.3 (12)
Myanmar	106.4 (90)	52.3 (12)	76.1 (90)	41.1 (12)
Philippines	58.5 (90)	29.8 (12)	41.0 (90)	23.5 (12)
Singapore	7.6 (90)	2.9 (12)	6.1 (90)	2.3 (12)
Thailand	38.2 (90)	13.2 (12)	31.1 (90)	11.4 (12)
Timor-Leste	170.7 (90)	56.7 (12)	128.5 (90)	47.8 (12)
Viet Nam	50.5 (90)	23.0 (12)	36.4 (90)	18.4 (12)
South and South-West Asia				
Afghanistan	176.2 (90)	98.5 (12)	119.5 (90)	71.0 (12)
Bangladesh	143.6 (90)	40.9 (12)	99.5 (90)	33.1 (12)
Bhutan	130.8 (90)	44.6 (12)	91.5 (90)	35.7 (12)
India	125.6 (90)	56.3 (12)	88.2 (90)	43.8 (12)
Iran (Islamic Rep. of)	56.4 (90)	17.6 (12)	43.9 (90)	15.1 (12)
Maldives	94.0 (90)	10.5 (12)	68.2 (90)	9.0 (12)
Nepal	141.9 (90)	41.6 (12)	98.5 (90)	33.6 (12)
Pakistan	138.4 (90)	85.9 (12)	105.9 (90)	69.3 (12)
Sri Lanka	21.4 (90)	9.6 (12)	18.2 (90)	8.3 (12)
Turkey	73.7 (90)	14.2 (12)	55.2 (90)	12.2 (12)
North and Central Asia				
Armenia	49.4 (90)	16.4 (12)	42.2 (90)	14.7 (12)
Azerbaijan	92.8 (90)	35.2 (12)	74.1 (90)	30.8 (12)
Georgia	34.7 (90)	19.9 (12)	30.4 (90)	17.8 (12)
Kazakhstan	54.1 (90)	18.7 (12)	45.8 (90)	16.7 (12)
Kyrgyzstan	70.5 (90)	26.6 (12)	58.0 (90)	23.6 (12)
Russian Federation	26.1 (90)	10.3 (12)	22.0 (90)	8.9 (12)
Tajikistan	104.7 (90)	58.3 (12)	82.4 (90)	49.0 (12)
Turkmenistan	90.4 (90)	52.8 (12)	72.4 (90)	44.8 (12)
Uzbekistan	73.8 (90)	39.6 (12)	60.5 (90)	34.4 (12)
Pacific				
American Samoa	…	…	…	…
Cook Islands	24.9 (90)	10.6 (12)	21.1 (90)	9.1 (12)
Fiji	30.6 (90)	22.4 (12)	25.5 (90)	19.1 (12)
French Polynesia	…	…	…	…
Guam	…	…	…	…
Kiribati	94.1 (90)	59.9 (12)	68.2 (90)	46.3 (12)
Marshall Islands	49.0 (90)	37.9 (12)	38.8 (90)	30.9 (12)
Micronesia (F.S.)	55.2 (90)	38.5 (12)	43.1 (90)	31.3 (12)
Nauru	58.0 (90)	37.1 (12)	45.0 (90)	30.3 (12)
New Caledonia	…	…	…	…
Niue	13.9 (90)	25.1 (12)	11.9 (90)	21.2 (12)
Northern Mariana Islands	…	…	…	…
Palau	34.0 (90)	20.8 (12)	30.4 (90)	14.8 (12)
Papua New Guinea	89.3 (90)	63.0 (12)	65.2 (90)	48.4 (12)
Samoa	30.3 (90)	17.8 (12)	25.2 (90)	15.3 (12)
Solomon Islands	38.5 (90)	31.1 (12)	31.4 (90)	25.9 (12)
Tonga	22.9 (90)	12.8 (12)	19.5 (90)	11.1 (12)
Tuvalu	57.5 (90)	29.7 (12)	44.7 (90)	24.8 (12)
Vanuatu	34.7 (90)	17.9 (12)	28.6 (90)	15.3 (12)

Source: United Nations, MDG database (accessed 15 April 2015).
Note: The number in parenthesis is the year of the data point.

Goal 5: Improve maternal health

	Maternal mortality ratio (per 100,000 live births)		Skilled birth attendance (%)		Antenatal care (≥ 1 visit) (%)	
	Earliest	Latest	Earliest	Latest	Earliest	Latest
East and North-East Asia						
China	97 (90)	32 (13)	94.0 (90)	99.7 (11)	69.7 (92)	93.7 (11)
Hong Kong, China	…	…	…	…	…	…
Macao, China	…	…	…	…	…	…
DPR Korea	85 (90)	87 (13)	96.7 (00)	100.0 (09)	97.1 (00)	100.0 (09)
Republic of Korea	18 (90)	27 (13)	98.0 (90)	100.0 (97)	…	…
Mongolia	100 (90)	68 (13)	97.1 (98)	98.8 (10)	89.8 (98)	99.0 (10)
South-East Asia						
Brunei Darussalam	26 (90)	27 (13)	98.0 (94)	99.9 (09)	100.0 (94)	99.0 (09)
Cambodia	1,200 (90)	170 (13)	34.0 (98)	71.7 (11)	34.3 (98)	89.1 (10)
Indonesia	430 (90)	190 (13)	31.7 (91)	83.1 (12)	76.3 (91)	95.7 (12)
Lao PDR	1,100 (90)	220 (13)	19.4 (00)	41.5 (12)	26.5 (01)	54.2 (12)
Malaysia	56 (90)	29 (13)	92.8 (90)	98.6 (11)	73.6 (03)	97.4 (11)
Myanmar	580 (90)	200 (13)	46.3 (91)	70.6 (10)	75.8 (97)	83.1 (10)
Philippines	110 (90)	120 (13)	52.8 (93)	62.2 (08)	83.1 (93)	91.1 (08)
Singapore	8 (90)	6 (13)	…	100.0 (98)	…	…
Thailand	42 (90)	26 (13)	99.3 (00)	99.5 (09)	85.9 (96)	99.1 (09)
Timor-Leste	1,200 (90)	270 (13)	25.8 (97)	29.3 (10)	70.9 (97)	84.4 (10)
Viet Nam	140 (90)	49 (13)	77.1 (97)	92.9 (11)	70.6 (97)	93.7 (11)
South and South-West Asia						
Afghanistan	1,200 (90)	400 (13)	14.3 (03)	38.6 (11)	16.1 (03)	47.9 (11)
Bangladesh	550 (90)	170 (13)	9.5 (94)	31.7 (11)	25.7 (94)	54.6 (11)
Bhutan	900 (90)	120 (13)	14.9 (94)	64.5 (10)	51.0 (00)	97.3 (10)
India	560 (90)	190 (13)	34.2 (93)	52.3 (08)	61.9 (93)	74.2 (06)
Iran (Islamic Rep. of)	83 (90)	23 (13)	86.1 (97)	96.4 (11)	76.5 (97)	96.9 (11)
Maldives	430 (90)	31 (13)	90.0 (94)	94.8 (09)	81.0 (01)	99.1 (09)
Nepal	790 (90)	190 (13)	7.4 (91)	36.0 (11)	15.4 (91)	58.3 (11)
Pakistan	400 (90)	170 (13)	18.8 (91)	43.0 (11)	25.6 (91)	60.9 (07)
Sri Lanka	49 (90)	29 (13)	94.1 (93)	98.6 (07)	80.2 (93)	99.4 (07)
Turkey	48 (90)	20 (13)	75.9 (93)	91.3 (08)	62.3 (93)	92.0 (08)
North and Central Asia						
Armenia	47 (90)	29 (13)	99.7 (90)	99.5 (10)	82.0 (97)	99.1 (10)
Azerbaijan	60 (90)	26 (13)	99.8 (98)	99.4 (10)	66.0 (00)	76.6 (06)
Georgia	50 (90)	41 (13)	96.6 (90)	99.8 (11)	74.0 (97)	97.6 (10)
Kazakhstan	91 (90)	26 (13)	99.0 (90)	99.9 (11)	92.5 (95)	99.2 (11)
Kyrgyzstan	85 (90)	75 (13)	98.1 (97)	99.1 (12)	96.9 (06)	97.0 (12)
Russian Federation	74 (90)	24 (13)	99.2 (90)	99.7 (10)	…	…
Tajikistan	68 (90)	44 (13)	90.3 (91)	87.4 (12)	77.1 (05)	78.8 (12)
Turkmenistan	66 (90)	61 (13)	95.8 (96)	99.5 (06)	98.1 (00)	99.1 (06)
Uzbekistan	66 (90)	36 (13)	97.5 (96)	99.9 (06)	94.9 (96)	99.0 (06)
Pacific						
American Samoa	…	…	…	…	…	…
Cook Islands	…	…	99.0 (91)	98.0 (09)	…	100.0 (08)
Fiji	89 (90)	59 (13)	100.0 (98)	99.7 (10)	…	100.0 (08)
French Polynesia	…	…	…	…	…	…
Guam	…	…	…	…	…	…
Kiribati	250 (90)	130 (13)	72.0 (94)	79.8 (09)	88.0 (94)	88.4 (09)
Marshall Islands	…		94.9 (98)	99.0 (10)	…	81.2 (07)
Micronesia (F.S.)	170 (90)	96 (13)	92.8 (99)	100.0 (09)		80.0 (08)
Nauru	…	…	…	97.4 (07)	…	94.5 (07)
New Caledonia	…	…	…	…	…	…
Niue	…	…	99.0 (90)	100.0 (11)	100.0 (05)	100.0 (08)
Northern Mariana Islands	…	…	…	…	…	…
Palau	…	…	99.0 (90)	100.0 (10)	100.0 (07)	90.3 (10)
Papua New Guinea	470 (90)	220 (13)	53.2 (96)	53.0 (06)	76.7 (96)	78.8 (06)
Samoa	150 (90)	58 (13)	76.0 (90)	80.8 (09)	…	93.0 (09)
Solomon Islands	320 (90)	130 (13)	83.5 (94)	85.5 (07)	…	73.9 (07)
Tonga	71 (90)	120 (13)	92.0 (91)	98.4 (10)	99 (08)	97.9 (10)
Tuvalu	…	…	100.0 (90)	97.9 (07)	…	97.4 (07)
Vanuatu	170 (90)	86 (13)	87.0 (94)	74.0 (07)	…	84.3 (07)

Source: United Nations, MDG database (accessed 15 April 2015).
Note: The number in parenthesis is the year of the data point.

Goal 6: Combat HIV and AIDS, malaria and other diseases

	HIV prevalence (% ages 15-49)		TB incidence rate (per 100,000)		TB prevalence rate (per 100,000)	
	Earliest	Latest	Earliest	Latest	Earliest	Latest
East and North-East Asia						
China	…	…	153 (90)	73 (12)	215 (90)	99 (12)
Hong Kong, China	…	…	129 (90)	77 (12)	169 (90)	108 (12)
Macao, China	…	…	110 (90)	83 (12)	167 (90)	117 (12)
DPR Korea	…	…	383 (90)	409 (12)	479 (90)	511 (12)
Republic of Korea	…	…	171 (90)	108 (12)	223 (90)	146 (12)
Mongolia	0.1 (90)	0.1 (13)	405 (90)	223 (12)	938 (90)	380 (12)
South-East Asia						
Brunei Darussalam	…	…	64 (90)	68 (12)	78 (90)	90 (12)
Cambodia	0.1 (90)	0.7 (13)	580 (90)	411 (12)	1,667 (90)	764 (12)
Indonesia	0.1 (90)	0.5 (13)	206 (90)	185 (12)	442 (90)	297 (12)
Lao PDR	0.1 (90)	0.2 (13)	492 (90)	204 (12)	1,491 (90)	514 (12)
Malaysia	0.1 (90)	0.4 (13)	127 (90)	80 (12)	242 (90)	101 (12)
Myanmar	0.2 (90)	0.6 (13)	393 (90)	377 (12)	894 (90)	489 (12)
Philippines	…	…	393 (90)	265 (12)	1,003 (90)	461 (12)
Singapore	…	…	61 (90)	50 (12)	82 (90)	73 (12)
Thailand	0.8 (90)	1.1 (13)	138 (90)	119 (12)	227 (90)	159 (12)
Timor-Leste	…	…	498 (02)	498 (12)	817 (02)	758 (12)
Viet Nam	0.1 (90)	0.4 (13)	251 (90)	147 (12)	525 (90)	218 (12)
South and South-West Asia						
Afghanistan	0.1 (90)	0.1 (13)	189 (90)	189 (12)	327 (90)	358 (12)
Bangladesh	0.1 (90)	0.1 (13)	225 (90)	225 (12)	525 (90)	434 (12)
Bhutan	0.1 (90)	0.1 (13)	784 (90)	180 (12)	1,860 (90)	225 (12)
India	0.1 (90)	0.3 (13)	216 (90)	176 (12)	465 (90)	230 (12)
Iran (Islamic Rep. of)	0.1 (90)	0.2 (13)	31 (90)	21 (12)	51 (90)	33 (12)
Maldives	0.1 (90)	0.1 (13)	150 (90)	41 (12)	311 (90)	65 (12)
Nepal	0.1 (90)	0.2 (13)	163 (90)	163 (12)	364 (90)	241 (12)
Pakistan	0.1 (90)	0.1 (13)	231 (90)	231 (12)	589 (90)	376 (12)
Sri Lanka	0.1 (90)	0.1 (13)	66 (90)	66 (12)	118 (90)	109 (12)
Turkey	…	…	52 (90)	22 (12)	51 (90)	23 (12)
North and Central Asia						
Armenia	0.1 (90)	0.2 (13)	18 (90)	52 (12)	28 (90)	79 (12)
Azerbaijan	0.1 (90)	0.2 (13)	305 (90)	95 (12)	744 (90)	124 (12)
Georgia	0.1 (90)	0.3 (13)	280 (90)	116 (12)	704 (90)	158 (12)
Kazakhstan	…	…	79 (90)	137 (12)	116 (90)	189 (12)
Kyrgyzstan	0.1 (90)	0.2 (13)	92 (90)	141 (12)	170 (90)	217 (12)
Russian Federation	…	…	47 (90)	91 (12)	81 (90)	121 (12)
Tajikistan	0.1 (90)	0.3 (13)	70 (90)	108 (12)	121 (90)	160 (12)
Turkmenistan	…	…	95 (90)	75 (12)	152 (90)	99 (12)
Uzbekistan	0.1 (90)	0.2 (13)	125 (90)	78 (12)	262 (90)	135 (12)
Pacific						
American Samoa	…	…	26 (90)	7 (12)	46 (90)	11 (12)
Cook Islands	…	…	… (90)	6 (12)	12 (90)	7 (12)
Fiji	0.1 (90)	0.2 (13)	112 (90)	24 (12)	244 (90)	30 (12)
French Polynesia	…	…	34 (90)	21 (12)	48 (90)	26 (12)
Guam	…	…	50 (90)	48 (12)	67 (90)	66 (12)
Kiribati	…	…	116 (90)	429 (12)	249 (90)	628 (12)
Marshall Islands	…	…	137 (90)	572 (12)	251 (90)	1,079 (12)
Micronesia (F.S.)	…	…	379 (90)	194 (12)	464 (90)	270 (12)
Nauru	…	…	88 (90)	54 (12)	111 (90)	91 (12)
New Caledonia	…	…	98 (90)	17 (12)	123 (90)	21 (12)
Niue	…	…	… (90)	37 (12)	43 (90)	46 (12)
Northern Mariana Islands	…	…	73 (90)	69 (12)	86 (90)	97 (12)
Palau	…	…	45 (90)	24 (12)	50 (90)	65 (12)
Papua New Guinea	0.1 (90)	0.7 (13)	308 (90)	348 (12)	715 (90)	541 (12)
Samoa	…	…	36 (90)	18 (12)	53 (90)	30 (12)
Solomon Islands	…	…	312 (90)	97 (12)	619 (90)	151 (12)
Tonga	…	…	38 (90)	14 (12)	59 (90)	26 (12)
Tuvalu	…	…	536 (90)	241 (12)	921 (90)	377 (12)
Vanuatu	…	…	127 (90)	65 (12)	148 (90)	89 (12)

Source: United Nations, MDG database (accessed 15 April 2015).
Note: The number in parenthesis is the year of the data point.

Goal 7: Ensure environmental sustainability

	Forest cover (% land area)		Protected area (% territorial area)		CO_2 emissions per GDP (kg CO_2 per $1 GDP (PPP))	
	Earliest	Latest	Earliest	Latest	Earliest	Latest
East and North-East Asia						
China	16.7 (90)	21.9 (10)	13.05 (90)	16.12 (12)	1.970 (90)	0.908 (10)
Hong Kong, China	…	…	41.15 (90)	41.88 (12)	0.202 (90)	0.121 (10)
Macao, China	…	…	…	…	0.130 (90)	0.033 (10)
DPR Korea	68.1 (90)	47.1 (10)	1.56 (90)	1.66 (12)	…	…
Republic of Korea	64.5 (90)	63.0 (10)	3.91 (90)	5.26 (12)	0.506 (90)	0.429 (10)
Mongolia	8.0 (90)	7.0 (10)	4.1 (90)	13.78 (12)	1.881 (90)	1.154 (10)
South-East Asia						
Brunei Darussalam	78.4 (90)	72.1 (10)	24.76 (90)	29.58 (12)	0.505 (90)	0.505 (10)
Cambodia	73.3 (90)	57.2 (10)	0.03 (90)	23.76 (12)	0.061 (93)	0.150 (10)
Indonesia	65.4 (90)	52.1 (10)	3.93 (90)	9.05 (12)	0.404 (90)	0.466 (10)
Lao PDR	75.0 (90)	68.2 (10)	1.47 (90)	16.68 (12)	0.059 (90)	0.131 (10)
Malaysia	68.1 (90)	62.3 (10)	12.81 (90)	13.93 (12)	0.452 (90)	0.557 (10)
Myanmar	59.6 (90)	48.3 (10)	2.45 (90)	5.97 (12)	…	…
Philippines	22.0 (90)	25.7 (10)	2.88 (90)	5.06 (12)	0.266 (90)	0.246 (10)
Singapore	2.9 (90)	2.9 (10)	2.47 (90)	3.39 (12)	0.611 (90)	0.051 (10)
Thailand	38.3 (90)	37.1 (10)	10.51 (90)	16.41 (12)	0.427 (90)	0.557 (10)
Timor-Leste	65.0 (90)	49.9 (10)	1.71 (00)	6.25 (12)	0.184 (02)	0.124 (10)
Viet Nam	30.2 (90)	44.5 (10)	3.00 (90)	4.72 (12)	0.358 (90)	0.601 (10)
South and South-West Asia						
Afghanistan	2.1 (90)	2.1 (10)	0.37 (90)	0.37 (12)	0.021 (02)	0.245 (10)
Bangladesh	11.5 (90)	11.1 (10)	0.91 (90)	4.24 (12)	0.198 (90)	0.254 (10)
Bhutan	64.6 (90)	69.1 (10)	14.25 (90)	28.35 (12)	0.133 (90)	0.132 (10)
India	21.5 (90)	23.0 (10)	4.55 (90)	5.00 (12)	0.653 (90)	0.534 (10)
Iran (Islamic Rep. of)	6.8 (90)	6.8 (10)	5.40 (90)	6.96 (12)	0.621 (90)	0.755 (09)
Maldives	3.3 (90)	3.3 (10)	…	…	0.337 (95)	0.460 (10)
Nepal	33.7 (90)	25.4 (10)	7.70 (90)	16.38 (12)	0.047 (90)	0.116 (10)
Pakistan	3.3 (90)	2.2 (10)	9.81 (90)	10.56 (12)	0.378 (90)	0.388 (10)
Sri Lanka	36.4 (90)	28.8 (10)	13.86 (90)	15.40 (12)	0.109 (90)	0.134 (10)
Turkey	12.6 (90)	14.7 (10)	1.79 (90)	2.11 (12)	0.333 (90)	0.326 (10)
North and Central Asia						
Armenia	12.3 (90)	9.3 (10)	6.93 (90)	8.10 (12)	0.757 (92)	0.279 (10)
Azerbaijan	11.3 (00)	11.3 (10)	6.20 (90)	7.36 (12)	2.205 (92)	0.567 (10)
Georgia	40.0 (90)	39.5 (10)	2.55 (90)	3.68 (12)	1.197 (92)	0.308 (10)
Kazakhstan	1.2 (00)	1.2 (10)	2.45 (90)	3.32 (12)	2.675 (92)	1.396 (10)
Kyrgyzstan	4.4 (90)	5.0 (10)	6.36 (90)	6.33 (12)	1.235 (92)	0.580 (10)
Russian Federation	49.4 (00)	49.4 (10)	4.82 (90)	11.35 (12)	1.408 (92)	0.863 (10)
Tajikistan	2.9 (00)	2.9 (10)	1.94 (90)	4.77 (12)	0.697 (92)	0.215 (10)
Turkmenistan	8.8 (00)	8.8 (10)	2.99 (90)	3.18 (12)	1.543 (92)	1.433 (10)
Uzbekistan	7.2 (90)	7.7 (10)	2.12 (90)	3.35 (12)	3.142 (92)	1.328 (10)
Pacific						
American Samoa	90.0 (90)	90.0 (10)	2.08 (90)	16.84 (12)	…	…
Cook Islands	62.5 (90)	66.7 (10)	0.01 (90)	0.06 (12)	…	…
Fiji	52.2 (90)	55.5 (10)	0.28 (90)	5.99 (12)	0.327 (90)	0.361 (10)
French Polynesia	15.0 (90)	42.3 (10)	0.04 (90)	0.11 (12)	…	…
Guam	47.3 (90)	47.3 (10)	3.27 (90)	5.27 (12)	…	…
Kiribati	14.8 (90)	14.8 (10)	0.37 (90)	20.22 (12)	0.158 (90)	0.303 (10)
Marshall Islands	72.2 (90)	72.2 (10)	0.05 (90)	0.71 (12)	…	…
Micronesia (F.S.)	91.4 (90)	91.4 (10)	0.06 (90)	0.09 (12)	0.259 (97)	0.313 (10)
Nauru	0.0 (90)	0.0 (10)	…	…	…	…
New Caledonia	45.9 (90)	45.9 (10)	1.40 (90)	30.50 (12)	…	…
Niue	80.8 (90)	73.1 (10)	1.87 (00)	1.87 (12)	…	…
Northern Mariana Islands	73.9 (90)	65.2 (10)	0.08 (90)	19.95 (12)	…	…
Palau	82.6 (90)	87.0 (10)	0.45 (90)	28.2 (12)	1.043 (91)	0.913 (10)
Papua New Guinea	69.6 (90)	63.4 (10)	0.95 (90)	1.41 (12)	0.305 (90)	0.206 (10)
Samoa	45.9 (90)	60.4 (10)	0.94 (90)	2.34 (12)	0.296 (90)	0.226 (10)
Solomon Islands	83.0 (90)	79.1 (10)	0.01 (90)	1.05 (12)	0.222 (90)	0.155 (10)
Tonga	12.5 (90)	12.5 (10)	0.05 (90)	9.45 (12)	0.272 (90)	0.368 (10)
Tuvalu	33.3 (90)	33.3 (10)	0.06 (90)	0.33 (12)	…	…
Vanuatu	36.1 (90)	36.1 (10)	0.39 (90)	0.45 (12)	0.1393 (90)	0.125 (10)

Source: United Nations, MDG database (accessed 15 April 2015).
Note: The number in parenthesis is the year of the data point.

Goal 7: Ensure environmental sustainability

	Safe drinking water (% population)		Basic sanitation (% population)	
	Earliest	Latest	Earliest	Latest
East and North-East Asia				
China	67 (90)	92 (12)	24 (90)	65 (12)
Hong Kong, China	…	…	…	…
Macao, China	…	…	…	…
DPR Korea	100 (90)	98 (12)	53 (92)	82 (12)
Republic of Korea	90 (91)	98 (12)	100 (90)	100 (12)
Mongolia	62 (90)	85 (12)	47 (92)	56 (12)
South-East Asia				
Brunei Darussalam	…	…	…	…
Cambodia	32 (90)	69 (12)	3 (90)	37 (12)
Indonesia	70 (90)	85 (12)	35 (90)	59 (12)
Lao PDR	40 (94)	72 (12)	20 (94)	65 (12)
Malaysia	88 (90)	100 (12)	84 (90)	96 (12)
Myanmar	56 (90)	86 (12)	53 (91)	77 (12)
Philippines	84 (90)	92 (12)	57 (90)	74 (12)
Singapore	100 (90)	100 (12)	99 (90)	100 (12)
Thailand	86 (90)	96 (12)	82 (90)	93 (12)
Timor-Leste	53 (95)	70 (12)	37 (95)	39 (12)
Viet Nam	61 (90)	95 (12)	37 (90)	75 (12)
South and South-West Asia				
Afghanistan	5 (91)	64 (12)	21 (91)	29 (12)
Bangladesh	68 (90)	85 (12)	33 (90)	57 (12)
Bhutan	86 (97)	98 (12)	34 (97)	47 (12)
India	70 (90)	93 (12)	18 (90)	36 (12)
Iran (Islamic Rep. of)	92 (90)	96 (12)	71 (90)	89 (12)
Maldives	93 (90)	99 (12)	68 (90)	99 (12)
Nepal	66 (90)	88 (12)	6 (90)	37 (12)
Pakistan	85 (90)	91 (12)	27 (90)	48 (12)
Sri Lanka	68 (90)	94 (12)	68 (90)	92 (12)
Turkey	85 (90)	100 (12)	84 (90)	91 (12)
North and Central Asia				
Armenia	91 (92)	100 (12)	89 (92)	91 (12)
Azerbaijan	70 (90)	80 (12)	57 (94)	82 (12)
Georgia	85 (90)	99 (12)	96 (90)	93 (12)
Kazakhstan	94 (90)	93 (12)	96 (90)	97 (12)
Kyrgyzstan	73 (90)	88 (12)	91 (90)	92 (12)
Russian Federation	93 (90)	97 (12)	74 (90)	70 (12)
Tajikistan	58 (93)	72 (12)	90 (93)	94 (12)
Turkmenistan	86 (94)	71 (12)	98 (90)	99 (12)
Uzbekistan	90 (90)	87 (12)	84 (90)	100 (12)
Pacific				
American Samoa	94 (90)	100 (12)	61 (90)	62 (12)
Cook Islands	100 (90)	100 (12)	92 (95)	97 (12)
Fiji	85 (90)	96 (12)	57 (90)	87 (12)
French Polynesia	100 (90)	100 (12)	99 (90)	97 (12)
Guam	100 (90)	100 (12)	89 (90)	90 (12)
Kiribati	50 (90)	67 (12)	28 (90)	40 (12)
Marshall Islands	92 (90)	95 (12)	65 (90)	76 (12)
Micronesia (F.S.)	91 (90)	89 (12)	19 (90)	57 (12)
Nauru	93 (96)	96 (12)	66 (90)	66 (12)
New Caledonia	94 (98)	98 (12)	100 (90)	100 (12)
Niue	99 (90)	99 (12)	69 (91)	100 (12)
Northern Mariana Islands	94 (90)	98 (12)	69 (90)	80 (12)
Palau	90 (90)	95 (11)	46 (90)	100 (12)
Papua New Guinea	34 (91)	40 (12)	20 (90)	19 (12)
Samoa	89 (90)	99 (12)	93 (90)	92 (12)
Solomon Islands	80 (00)	81 (12)	25 (00)	29 (12)
Tonga	99 (90)	99 (12)	95 (90)	91 (12)
Tuvalu	90 (90)	98 (12)	73 (90)	83 (12)
Vanuatu	62 (90)	91 (12)	35 (92)	58 (12)

Source: United Nations, MDG database (accessed 15 April 2015).
Note: The number in parenthesis is the year of the data point.

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The end of 2015 is the target date for the Millennium Development Goals. Governments across Asia and the Pacific have been striving to meet the Goals, particularly on reducing income poverty. Some subregions and countries have made faster progress than others, but it is clear that the MDGs have prompted high levels of commitment and achievement.

As MDGs come to a close and a post-2015 agenda takes shape, to be formulated as the Sustainable Development Goals (SDGs), this report focuses on three key issues for implementation of this new agenda: technology, finance and statistics. It argues that priority should be given to identify and disseminate the most productive technologies; the necessary investment for sustainable development should come from a diverse range of sources, including public and private, domestic and international; and supported by statistics that should serve as a launching pad for evidence-based policymaking.

The report has been produced by ESCAP, ADB and UNDP, and it is a result of wide consultations among policymakers, development practitioners and other stakeholders throughout the Asia-Pacific Region. Other United Nations organizations, funds and programmes participating in the Regional Coordination Mechanism have also contributed.

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