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Case Study Report

Education

TOWARDS BETTER EDUCATION QUALITY

Indonesia's promising path

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Cover image: Schoolchildren in Bali, Indonesia. Photo: © Mariska Richters

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Abbreviations and acronyms

BOS	Bantuan Operasional Sekolah (School Operational Grants)
BSM	Bantuan untuk Siswa Miskin (Scholarships for Poor Students)
CCT	Conditional cash transfer
ECCE	Early childhood care and education
GMR	Global Monitoring Report (UNESCO)
GoI	Government of Indonesia
HDI	Human Development Index
MIC	Middle-income country
MoEC	Ministry of Education and Culture
MoRA	Ministry of Religious Affairs
PIRLS	Progress in International Reading Literacy Study
PISA	Program for International Student Assessment
PKH	Program Keluarga Harapan (Hopeful Family Programme)
PPP	Purchasing power parity
PTR	Pupil–teacher ratios
SBM	School-based management
TIMSS	Trends in International Mathematics and Science Study
TVET	Technical and Vocational Education and Training
UIS	UNESCO Institute for Statistics
UN	Ujian Nasional (National Examination)
WDI	World Development Indicators
WIDE	World Inequality Database on Education

Abstract

Since 2000, Indonesia has made huge efforts to improve educational outcomes, as measured by increased literacy, progress in international assessment results, and completion of primary and lower-secondary education in line with the government's policy on nine years of compulsory education. As in many other developing countries, it has proved to be a great challenge to move beyond improving access to education and towards achieving meaningful gains in the quality and equity of education, but there have been some positive trends in this regard.

The Government of Indonesia (GoI) has enacted a series of reforms to improve the quality of education, motivated and enabled by the transition to democracy following the East Asian crisis and the fall of Suharto in 1998, which saw a new emphasis on the need for a skilled workforce and also a shift in power towards the lower and middle classes. The reforms and key drivers of progress discussed in this report include strengthening the teaching force, reforming the curriculum and pedagogy, progress in decentralisation and school-based management, and increased expenditure alongside targeted support intended to address inequities.

Gains achieved in terms of enhancing the quality of education remain work in progress – improvements in educational outcomes have not overcome persistent regional and socio-economic inequities (although maths and reading scores improved across all socio-economic deciles between 2003 and 2009). There are also questions concerning the financial sustainability of teaching reforms; early childhood care and education (ECCE) have not received sufficient attention; and the overall quality of basic education still fails to equip students for employment.

The diversity of reforms that have been tried and the use of research and evaluation to inform policy make Indonesia's experience a particularly interesting case study with some useful lessons to offer, particularly for decentralised middle-income countries (MICs) looking to move from improved access to education towards a focus on better quality.

Schoolgirls in Timoeran, Yogyakarta, Indonesia. Photo: © Martin Ruddock

1. Introduction

Improving educational outcomes represents a massive challenge in Indonesia, a vast and diverse country that is the fourth most populous in the world, comprising 33 provinces and over 500 districts with roughly 55 million students, 3 million teachers, and 236,000 schools (MoEC 2013). Despite this, over the past few decades, Indonesia has made strong progress in improving educational outcomes, placing a particular emphasis on access to primary and junior-secondary education, in line with the government's policy on nine years of compulsory education. Gross primary enrolment rates increased from below 70% in 1970 to near-universal levels by the mid-1990s, which have since been generally sustained even through periods of economic crisis. Enrolment rates beyond the primary level have also risen, with average junior-secondary enrolment currently standing at over 80%, and gender parity has also been achieved at this level, although disparities persist across regions and socio-economic groups.

As in many other developing countries, moving beyond gains in access to education to making meaningful gains in its quality has been more difficult, although there have been some notable positive trends since Indonesia began taking part in international assessment tests (TIMSS, PIRLS and PISA) in 1999. There have been some significant gains in recent years particularly in PISA reading scores, which steadily increased over the 2000–2012 period, for instance. While Indonesia has not reached the top of these rankings in either overall or regional groupings, its gains stand out against comparable countries that had significantly stronger starting points and higher rates of economic growth. Moreover, achieving such gains and indeed holding steady in these assessment tests is especially impressive alongside greater access, which has increasingly been inclusive of more marginalised groups.

The Organisation for Economic Co-operation and Development (OECD) (2012) also highlights that Indonesia was one of only a few countries whose PISA performance improved significantly between 2000 and 2009, while also narrowing the gap between the highest and lowest performing students. Improvements in the quality of education may have been equitably distributed, but they have not yet reversed entrenched inequities across regions and socio-economic groups.

This report therefore focuses on improvements in the quality of education in Indonesia while recognising that achieving it remains work in progress. Given the interdependence between the quality of education and issues of access and equity, these elements are examined as part of the overall quality picture. The diversity of reforms and the use of research and evaluation to inform policy-making make Indonesia's experience a particularly interesting case study, which offers some useful lessons.

Indonesia has prioritised reforms in the teaching profession as an important element of the overall strategy to enhance teaching quality and learning outcomes. There has been a strong emphasis on upgrading Indonesia's teaching body, including initiatives to raise teachers' salaries and skills, with salaries and allowances representing nearly half of the total education budget (MoEC 2013). These reforms are particularly interesting in the light of UNESCO's 2014 Global Monitoring Report (GMR), which emphasises the role of teachers in improving the quality of education and identifies four major strategies: attracting the best teachers, providing strong teacher training, improving the distribution of teachers, and ensuring retention of the best teachers. Many elements of these strategies have been prioritised in Indonesia, as explored in Section 3.1, and this case study provides an insight into both the potential of these reforms and the difficulties of implementing them in a coherent and consistent manner, particularly in a decentralised system. One of the main lessons to be drawn from Indonesia is that increasing teacher salaries alone may not be enough to improve the quality of education – it is also necessary to focus on improving and evaluating teachers' competencies as part of such reforms.

This report also examines a range of other potential drivers of progress in achieving access to and the quality of education. In particular, there have been considerable reforms in the areas of curriculum and pedagogy, with an increasing emphasis on more child-centred techniques that focus on skills and competencies. There have also been extensive efforts to decentralise power to local governments, school administrators, and parents through school-based management reforms, accompanied by the provision of funding at the school level. Finally, strong GoI commitments to education have been a key factor in achieving improvements over the past decade, including a reform-oriented institutional environment and a constitutional commitment made in 2002 to allocate 20% of the national budget to education. This was fully realised in 2009 and represents a doubling of spending in real terms compared to 2001. While greater expenditure alone is unlikely to improve the quality of education, it has been a major factor in enabling many reforms.

Indonesia therefore illustrates clear and emerging progress in some areas, while demonstrating the need for continuing efforts to raise the absolute quality of education and to address persistent inequities. However, various reforms are still in the process of realisation and the political will and enthusiasm for reform based on an evidenced-based approach to policy-making presents many reasons for optimism about the future.

1.1 Suharto's rule and the economic crisis

This report focuses on the profound changes in the governance and management of education that Indonesia has achieved since becoming the world's third-largest democracy after the fall of the Suharto government in 1998. However, the policies and progress achieved during the 'New Order' Government (1965–1998) form an important backdrop, as does its fall from power.

Improvements in education during this era were led by the central government and included both expanded coverage and restructuring. Indonesia undertook one of the largest documented school-building initiatives at the international level, doubling the number of schools and constructing over 61,000 between 1973 and 1978. Enrolment rates significantly increased among children aged to seven to 12 from 69% in 1973 to 83% by 1985 (Duflo 2000).[1] Islamic education was integrated into the state school system in 1975 with the aim of greater equality between secular and religious schools.[2] In 1984 the government introduced a six-year compulsory education policy, raised to nine years in 1994.

The steady expansion of the Indonesian economy was an important factor supporting Indonesia's gains in education during this period and the school-building programme in particular benefited from an oil boom that saw a large growth in government expenditure between 1973 and 1980. Growth was accompanied by significant investments in infrastructure, and combined with rising living standards to dramatically reduce poverty while also improving school enrolment, infant mortality and life expectancy.

The end of Suharto's 'New Order' regime was precipitated by the 1997–1998 Asian economic crisis, which saw Indonesia's Gross Domestic Product (GDP) per capita fall by more than half from US$1078 to US$470.[3] The Suharto government fell in May 1998 and ushered in a period of democracy and decentralisation known as 'Reformasi'. This transition was associated with a change in the balance of power in Indonesia, allowing middle-class and poorer groups to mobilise more freely and so creating incentives for political actors to give greater priority to reforms in areas such as education. These altered priorities were also accompanied by a new emphasis on the importance to Indonesia's future economic prosperity of closing skills gaps and maintaining a highly educated workforce.

1.2 About this case study report

The research project on which this report is based aims to develop a detailed understanding of the factors that have driven the pattern of improvement in the quality of basic education in Indonesia. Basic education here refers to six years of primary school and three years of junior-secondary school, although the report focuses mainly on primary education. The research is part of a broader set of case studies examining the factors that drive progress across a range of dimensions of well-being.

The choice of Indonesia as a case study followed an analysis of absolute and relative improvement in education indicators, including those focused on quality and on other areas, across a wide range of countries. The process was also informed by consultation with a number of experts and a review of key literature on the quality of education. The selection process was particularly challenging as very few countries presented clear and persistent evidence of having improved the quality of education. The selection of Indonesia was therefore motivated in part by the limited but credible evidence of improved learning outcomes in some areas alongside considerable expansion in access, and also by the fact that there has been a strong drive to improve the quality of education through a range of reforms undertaken in the 2000s. Indonesia therefore stands out as a country that is beginning to improve the quality of education and illustrates many of the challenges that other countries may face in the course of seeking such improvements.

Following the selection of Indonesia, a team of researchers based in the UK and Indonesia undertook an extensive review of existing literature, analysed available qualitative and quantitative evidence and held interviews with range of experts, policy-makers, and education practitioners based in Indonesia. This research aims to complement existing studies on Indonesia's progress in education by synthesising existing analyses and contextualising progress in the broader national and sectoral political economy.

The remainder of the report is structured as follows. Section 2 describes the background context and enabling environment for the achievement of progress in education outcomes. It explains in detail the nature of the progress that has been achieved by examining a range of indicators related to access to and the quality of education. Section 3 identifies and analyses several factors behind the progress achieved while Section 4 discusses some of the challenges faced. Section 5 concludes with a summary of lessons learned.

1 The programme was explicitly aimed at addressing inequities through a clear allocation rule: the number of schools to be built in each district was proportional to the number of primary-aged children not yet enrolled. A rigorous evaluation of the school-construction initiative found that it had significant positive impacts on both the quantity and quality of schooling: school construction led to increases in the number of years of education children received as well as increased lifetime wages with estimated economic returns of 6.8% to 10.6%.

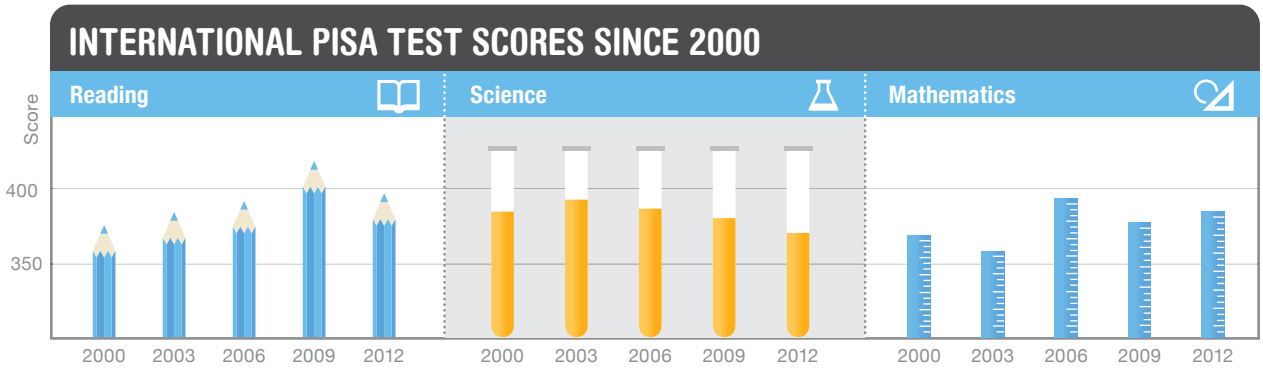
2 The agreement improved equality between Islamic and state schools by enabling students from Islamic schools to enter non-Islamic schools and vice versa. In addition, a law was passed stipulating that 70% of the curriculum in Islamic schools should comprise the national secular curriculum with the remaining 30% for religious education – this policy remains in effect to date.

3 Data are in current US$. Source: World Bank – World Development Indicators.

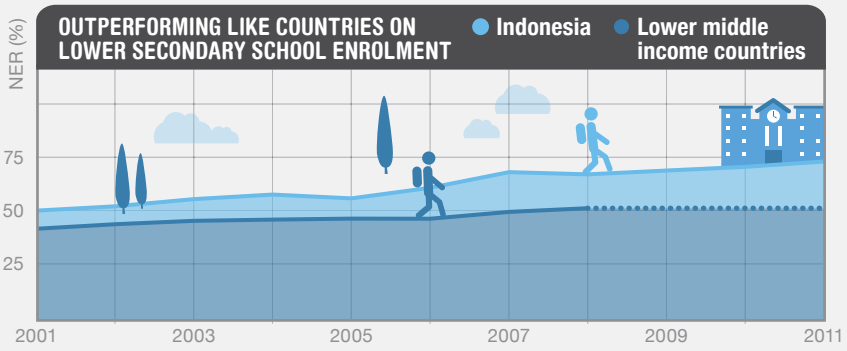
Children learning geography in West Java, Indonesia. Photo: © IFPRI

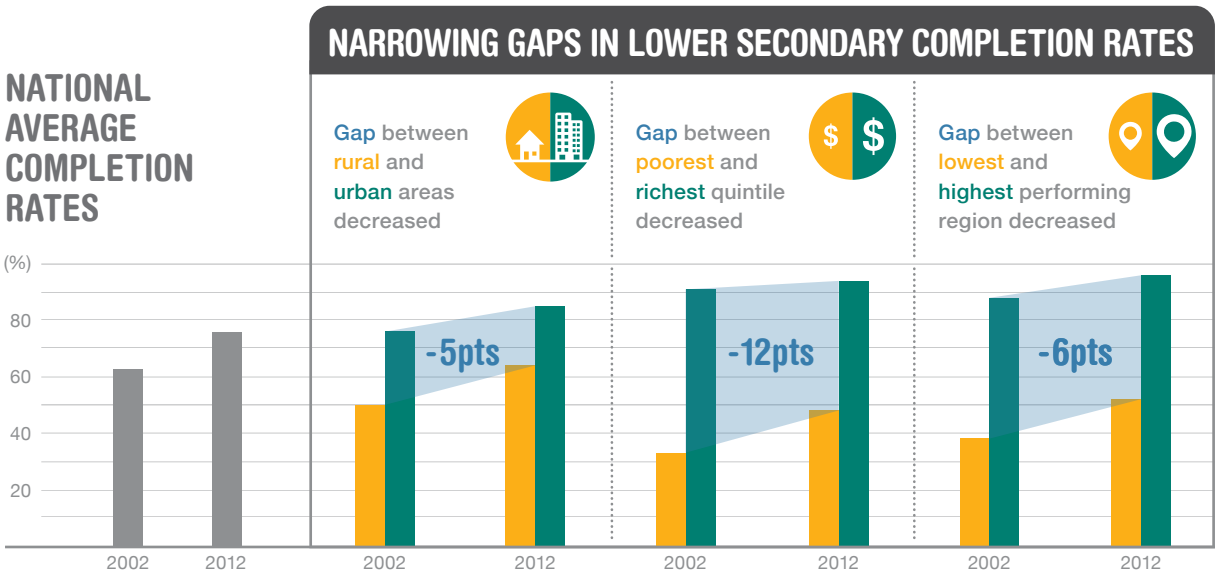
Indonesia

Scale of progress in basic education



Net enrolment rates in lower secondary education grew steadily, outperforming other lower-middle income countries throughout the 2000s.





Sources: World Bank, EdStats and PISA (2013) | World Bank / UNESCO Institute for Statistics (UIS) | World Inequality Database on Education (WIDE)

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2. What progress has been achieved?

Since emerging from the economic crisis of the late 1990s, Indonesia has undertaken a series of major education reforms and investments that have been associated with improvements across a range of indicators regarding access to and the quality of education.

During this period Indonesia has made significant improvements in enrolment rates at the primary and secondary levels, as well as in repetition, retention and completion rates. There is also evidence that these improvements are successfully expanding access to education by poorer social sectors. Although reforms since 1998 have undoubtedly played an important role in these achievements, these gains are part of a long-term pattern of improvement that has been sustained despite the considerable disruption of the East Asian financial crisis and the transition to democracy.

Improvements in the quality of Indonesian education have been most consistent in international assessments of reading levels, with both PISA and PIRLS scores rising significantly since 2000. There is also some evidence that over the 2000–2009 period Indonesia made significant improvements in this area while also narrowing the gap between high- and low-performing students (OECD 2012). Patterns of achievement in mathematics and science have been more ambiguous, with no statistically significant overall improvement appearing in PISA or TIMSS since 2000. However, in the face of the significant increases in enrolment that Indonesia achieved during this period, the fact that test scores have not declined can in some ways be regarded as an indication of progress.

The following section offers a detailed analysis of the progress achieved by first outlining the background of education reforms in the democratic era and then examining several key indicators related to the quality of education. This is followed by an examination of evidence of changes in education access and equity and finally a subsection looking at accompanying socio-economic changes. Most of the education trends analysed in the following sections refer to progress achieved since 2000, in part due to less consistently available data before then, although some of the historical trends from the 1980s and 1990s are noted where evidence exists. Unless otherwise stated, the data in the following subsections are drawn from the UNESCO Institute for Statistics (UIS) database.

2.1 Education reforms since the transition to democracy

The end of the 'New Order' government in 1998 saw a major alteration in power relations in Indonesia that strengthened the middle-class and poorer social sectors and created political rewards for the strong prioritisation of education. This, combined with a growing emphasis on an educated workforce, was seen as being crucial to Indonesia's economic future, and so created the space and willingness to increase funding to the education sector and engage in broader reforms.

The transition to democratic rule in the late 1990s served to reduce the power of Indonesia's centralised politico-bureaucracy and major businesses, and, according to Rosser et al. (2011), also boosted the relative power of the middle-class and poorer social sectors. While large businesses were not opposed to education as such they had a vested interest in limiting spending in the sector and in preferring areas that were more directly connected to visible drivers of economic growth and large contracts that offered easier access to rents. Business lobbying therefore concentrated on low levels of corporate taxation and high fuel subsidies. In contrast, parents from middle-class and poorer social sectors were interested in removing fees for basic education and in improving its quality, but had found it particularly hard to mobilise at a national or local level under the 'New Order' government. The transition to democracy opened up political space for these groups as well as for NGOs to begin to organise for improving access to quality education.

Indonesia's first directly elected President, Susilo Bambang Yudhoyono, responded to this growing and organised demand for education with a campaign platform in 2004 that emphasised 'improving access to quality education', especially for poor and disadvantaged people (Yudhoyono and Kalla 2004: 62–3). Rosser et al. (2011) argue that reforms in the education sector, and particularly advertising of the removal of fees for basic education, helped to enhance President Yudhoyono's popularity among crucial voting blocs before his re-election in 2009. The potential for political rewards arising from a focus on education was also augmented by an increasing identification of Indonesia's national and economic aspirations with having a skilled and well-educated workforce (World Bank 2013b). Together these helped to build commitment for substantial reform in the sector.

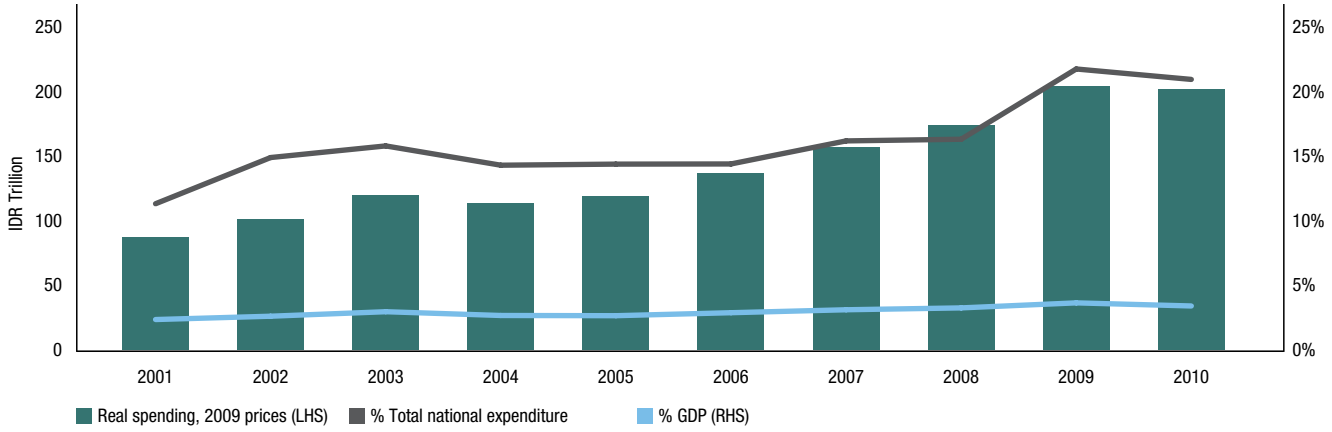
A Grade 1 student in West Kalimantan, Indonesia. Photo: © Ramadian Bachtiar courtesy of CIFOR

A major sign of the priority given to education was the fulfilment in 2009 of the constitutional commitment, originally made in 2002, to dedicate 20% of the national budget to the sector. In order to reach this target, public spending on education increased by over 60% in real terms between 2005 and 2009 (see Figure 1, overleaf) and by 2012 represented US$35 billion or nearly 4% of GDP (World Bank 2013a). These significant increases occurred within a broader environment of economic growth and opened up space for the Ministry of Education and Culture (MoEC) and the Ministry of Religious Affairs (MoRA) to develop and expand a range of education initiatives, with the largest share of the additional spending going towards teachers' salaries and a programme of school operational grants (Bantuan Operasional Sekolah – BOS). Basic education also absorbed a significant proportion of these resources – making up around 60% of the total education budget in 2008 and absorbing around 45% of the additional allocation in 2009. Despite these rapid increases in public expenditure on education, however, Indonesia's spending in this area still represents a smaller share of GDP (3.7%) than other MICs in the region, including Malaysia, Thailand and Vietnam (World Bank 2013a).

The GoI has also issued a series of ministerial decrees on Minimum Service Standards, which provide a benchmark for basic education services at the district and school levels. The regulations cover facilities, teachers, curriculum content and quality-assurance elements (e.g. management, financing, assessments and graduation competency) with the aim of ensuring minimum conditions for learning at all schools (MoEC 2013). Compliance remains incomplete in some areas but the decrees have helped to establish a clear set of benchmarks of progress, and are an important initial step. Indonesia's 2003 Education for All National Action Plan also emphasises the quality of education as defined by three elements: skills, fostering of creativity and innovation, and moral elements. The plan lays out multiple components of the strategy to improve the quality of education including revising the basic curriculum to provide students with minimum essential skills, improving teachers' qualifications, and setting standards for the quality of school facilities and the provision of textbooks (UNESCO 2005).

In the past decade, a range of other major education reforms have been pursued, which will be examined in later sections as drivers of progress in education quality. These include a focus on the decentralisation of education management to the local government and school level; curriculum reforms that emphasise student-centred approaches to learning; and programmes that allocate funds to more marginalised groups. We also analyse the 'cornerstone' of these efforts – a sustained effort to upgrade and professionalise Indonesia's teaching

Figure 1: Public spending on education in Indonesia, 2001–2010



Source: World Bank (2013a)

Box 1: Structure of the Indonesian education system

The Indonesian education system is managed by two ministries: the Ministry of Education and Culture (MoEC), which is responsible for over 80% of all students, teachers and schools, and the Ministry of Religion (MoRA), which is responsible for the remainder including Islamic schools or madrasah. In addition to their support to public schools, both ministries also support private schools through funding civil-servant teachers and providing block grants directly to schools through the Bantuan Operasional Sekolah (BOS) initiatives, among other initiatives.

The Indonesian education system has a diversity of providers, with private schools estimated to serve 31% of all students and to employ 38% of all teachers (World Bank 2010b). Private education and household contributions are an important element of Indonesia's education system and expenditure, and it is noteworthy that increased public spending has been met with increased private spending on education. Household contributions rose from 20% to 30% of the total expenditure on education between 2001 and 2010 (World Bank 2013a), largely due to the expansion of senior-secondary and higher education. This trend has been supported by overall economic growth, rising incomes, and falling poverty levels. Private schools play an important role in Indonesia in complementing state education and helping to meet demands that the public school system has been unable to meet, particularly in poor and rural areas and at levels of schooling above basic education. However, the quality of education offered in private schools is generally lower than in public schools, with the exception of elite private schools catering to wealthier families.[i]

Despite these interesting trends this report focuses largely on public and secular schooling. While private education comprises over 30% of upper-secondary enrolment and over 80% of tertiary enrolment it has relatively little presence at the primary and lower secondary level on which this case study focuses. Private schooling makes up less than 9% of enrolment in primary school and around 19% of lower-secondary enrolment, with the figures for state madrasahs at 5.5% and 11.5% at primary and secondary respectively. Secular, state education under the MoEC dominates these levels of education and so this sector is the main focus of our research. However, many of the reforms we examine apply to multiple types of schooling, despite originating mainly in the MoEC. For example, BOS school grants are issued to all schools – secular, madrasah, state and private. Similarly the BSM (Bantuan untuk Siswa Miskin) scholarship system provides money for individual students and so contributes resources to all forms of schooling. In the case of reforms to teachers' conditions and the national curriculum we focus on the reforms conducted by the MoEC in secular schooling (public and private), as a full analysis of the separate reforms enacted by the MoRA is beyond the scope of this report.

i. For example, at the primary level, 68% of teachers in public schools have obtained a degree higher than the high school diploma level (D1, D2, D3, or 4-year degree) compared to 54% of teachers in private schools (World Bank 2010b).

profession by raising teachers' salaries and introducing a teacher certification programme initiated through the 2005 Teacher Law that sets minimum standards and rewards teachers who meet them. Although these reforms have demonstrated some promising initial progress, ensuring that spending more on teachers leads to improvements in teaching and in the quality of education without precluding other investments in education is a major challenge for the future.

2.2 Improvements in the quality of education

While there is a consensus among Indonesian policy-makers regarding the importance of the quality of education, there is as yet no similar consensus or official definition of how best to measure it. Respondents interviewed during our research noted that international test scores are one of the main measures relied upon, particularly since the national education testing system has come under increasing criticism in recent years. While it is clear that international assessment tests are constrained by a relatively narrow focus on a few subject areas and the limitations of paper-and-pencil tests there is a lack of readily available alternative measures. Literacy rates can provide more long-term data on educational levels but are inherently a narrow measure. Similarly pupil–teacher ratios (PTR) are often used as a proxy for quality, but are largely an input rather than an output measure. Recognising these constraints, this section paints a picture of improved education quality in Indonesia using the available data for a range of proxy and outcome measures.

Literacy rates

There are indications of long-term improvements in the general level of education in Indonesia based on striking improvements in literacy rates, particularly during the 1980s and 1990s. Table 1 shows that adult literacy increased from 67.3% in 1980 to 81.5% in 1990, reaching 90.4% in 2004 and 92.8% in 2011, for example. These data also provide some evidence for a shrinking gender gap in education. While adult literacy rates still show a significant gender gap, this has shrunk from almost 20 percentage points in 1980 to only 5.5 percentage points in 2011 and the gender gap in youth literacy rates had almost disappeared in the data by 2004.

Pupil–teacher ratio

Indonesia has seen a clear reduction in pupil–teacher ratios (PTR) (a common proxy for education quality) for pre-primary, primary and lower-secondary education since the early 1990s, as shown in Figure 2, overleaf. The PTR for pre-primary to upper-secondary have all been below 20:1 since 2003, although the ratios have risen sharply at the secondary level since 2010–2011. There are also considerable variations in PTR across Indonesia's districts and regions, meaning that this aggregate measure does not give an accurate representation of classroom conditions in many areas. These issues are explored in greater depth in Section 3.1.

International test results

As noted earlier, the OECD (2012) highlights that Indonesia is one of only a few countries[4] to simultaneously achieve improvements in PISA reading performance over 2000–2009 while also narrowing gaps between the best- and worst-performing students. Although Indonesia has continued to score relatively low overall compared to other countries participating in the main standardised international tests, some noteworthy improvements have been achieved in recent years.

Improvements in reading standards have been sizeable and relatively consistent, particularly PISA results over 2000–2012 (see Figure 3, overleaf) and PIRLS over 2006–2011. PISA improvements in reading amounted to 25 points over 2000–2012 (from 371 to 396), a statistically significant annualised change of 2.3 points (OECD 2014).

Patterns of achievement in mathematics and science have been more ambiguous. Figure 3 suggests that science performance as measured by PISA appears to have slightly declined between 2006 and 2012, but the annualised

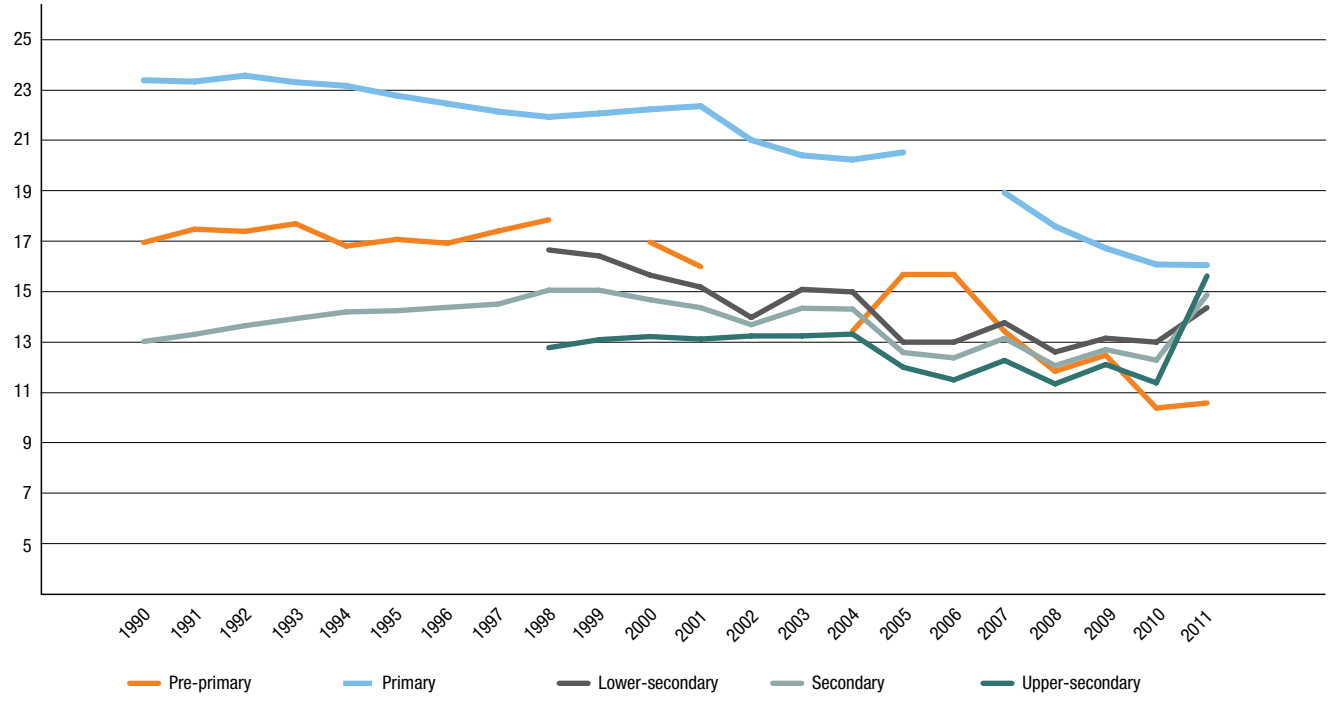
Table 1. Literacy rates for adults and youth, 1980–2011

		1980	1990	2004	2006	2008	2009	2011
Literacy rate, adult total (% of people aged 15 and above)	All	67.3	81.5	90.4	92.0	92.2	92.6	92.8
	Female	57.7	75.3	86.8	88.8	89.1	89.7	90.1
	Male	77.5	88	94	95.2	95.4	95.7	95.6
Literacy rate, youth total (% of people aged 15-24)	All	85.4	96.2	98.7	96.7	99.5	99.5	98.8
	Female	81.7	95.1	98.5	96.3	99.4	99.4	98.8
	Male	89.6	97.4	98.9	97	99.5	99.6	98.8

Source: World Development Indicators

4 Albania, Chile, Indonesia and Peru showed improvements in reading performance among students at all proficiency levels across 2000–2009. Over the same period in Chile, Germany, Hungary, Poland, Portugal, Indonesia, Latvia and Liechtenstein, overall performance improved and variation in performance declined, although there were not improvements across all proficiency levels (OECD 2010:14).

Figure 2: Pupil–teacher ratios by level of education (1990–2011)

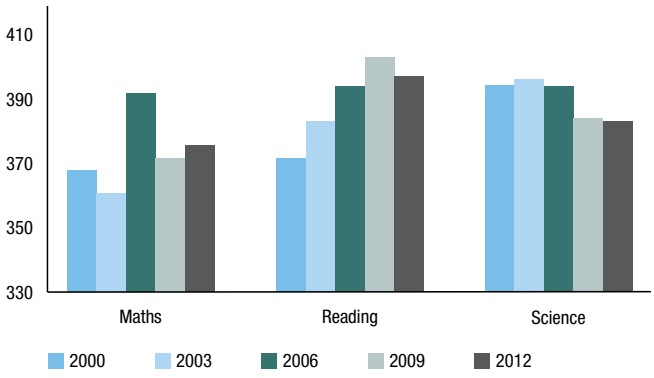


Source: World Development Indicators, accessed 13 June 2014

declines are not statistically significant so this graph should be interpreted with some caution (OECD 2014). TIMSS results also support a decline in science performance over this period, with a statistically significant fall in average test scores of 21 points across 2007–2011 (IEA 2012a: 55).[5] Student performance in mathematics based on PISA scores has improved overall across 2003–2012, but the annualised change over the period of the PISA study is statistically insignificant. Within this period, average mathematics scores reached a peak in 2006 but subsequently declined. The reasons for this decline are unclear and may raise some questions about the reliability of the data. Measures of competence in mathematics according to TIMSS ranked Indonesia 34th out of 38 countries in 2000 and 38th out of 45 countries in 2011. Trend data from TIMSS also suggest a lack of change overall; there is a decline of 11 points in average test scores across 2007–2011 but this change is not statistically significant (IEA 2012b: 56).[6]

When considering Indonesia's relatively low overall performance on these tests it should be noted that Indonesia is one of only a few developing countries that take the PISA and TIMSS tests. In the 2011 TIMSS and PIRLS assessments Indonesia actually outperformed several countries that are considerably wealthier in GDP per capita terms, including Botswana (science), Qatar (reading), Oman (mathematics

Figure 3: PISA test scores in maths, reading, and science, 2000–2012



Source: World Bank EdStats and OECD (2014)

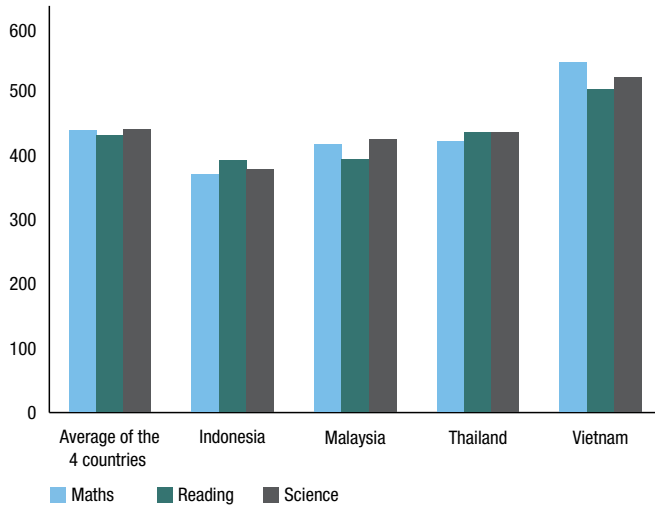
and reading) and South Africa (science and mathematics). However, its scores are below those of Vietnam in the 2012 PISA and it has also generally scored worse than comparable, if slightly wealthier, countries in the region such as Malaysia and Thailand (see Figure 4, overleaf).

The impacts of better quality on the equity of learning outcomes between 2000 and 2012 have been varied. An analysis of PISA results disaggregated by socio-economic

5 Comparable data for Indonesia are only available for these years.

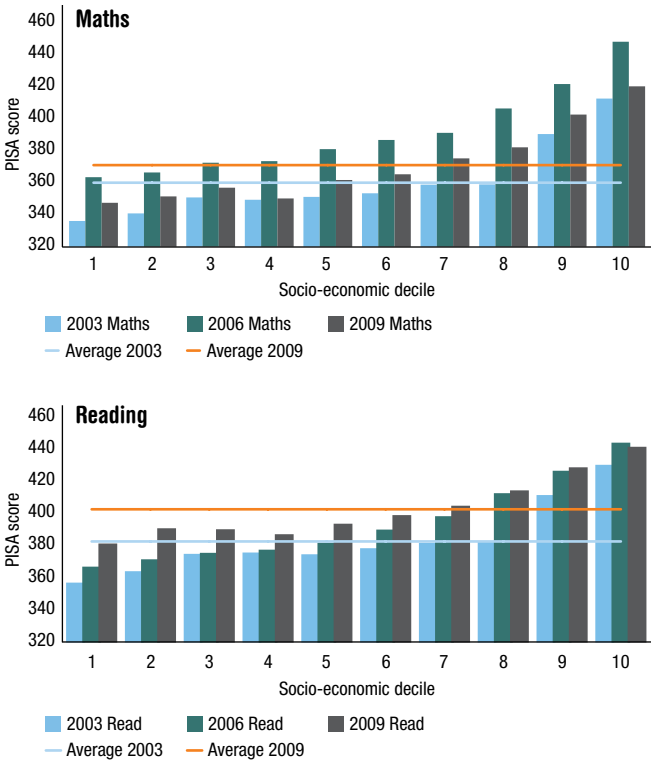
6 Comparable data for Indonesia are available only for these years and the IEA analysis also notes reservations regarding the accuracy of the 2011 figures.

Figure 4: 2012 PISA test scores in maths, reading, and science for selected countries in Southeast Asia



Source: World Bank EdStats

Figure 5: PISA scores in maths and reading by socio-economic decile, 2003–2009



Source: World Bank (2013a)

decile across the 2003–2009 period demonstrates that Indonesia's results in maths and reading improved across all income groups (see Figure 5). However, an analysis of the learning gaps between the highest- and lowest-income quintile groups and across the urban–rural divide shows little evidence of narrowing across the 1999–2012 period in any subject area or international test type, and a slightly expanding gap in a socio-economic analysis of TIMSS. Slightly more positive evidence is found in terms of the gender gap, which has fallen for maths and science for both PISA and TIMSS, as well as for reading in PISA.[7] There is also likely to be considerable variation in performance by region, although there is a lack of disaggregated data. Overall, while improvements in quality may have been equitably distributed, they have not yet reversed existing and entrenched inequalities.[8]

National test results

Indonesia's education system assesses students with a National Examination (Ujian Nasional – UN) administered by the MoEC. This currently covers maths, natural sciences and Indonesian language. The exam is conducted at the end of classes 6, 9, and 12 as a prerequisite to move to a higher grade. While over time the exam results show some improvement in education performance, serious concerns have been raised about the validity and reliability of the tests in measuring student learning, particularly given issues with the administration of the tests and the security of exam papers (MoEC 2013). The national media has frequently highlighted accusations of institutionalised cheating at the school level and several commentators have called for the exam system to be radically overhauled.[9] In response to these issues and adverse publicity, the system is being reformed and currently appears to be heading towards abolishing the national test at the primary level while allowing local governments to administer their own exams.

2.3 Improvements in access and equity

Enrolment rates

Indonesia has a long history of high primary enrolment rates – net enrolment has not fallen below 93% since 1981 and gross enrolment rates declined sharply in the 1980s before a more gradual reduction from 112% in 1993 to 109% in 2011.[10] Analysis of enrolment data by socio-economic

7 Data are from the World Inequality Database on Education (WIDE) regarding the percentage of children achieving minimum international learning standards in the tests in question.

8 Unless otherwise stated, data in this section are taken from the World Development Indicators database.

9 See, for example, 'Stop corruption: Abolish the national exam', *The Jakarta Post*, 12 December 2013; and 'Corruption in Indonesia fuelled by cheating culture at schools, critics say, *South China Morning Post*, 1 June 2013.

10 Gross enrolment rates are calculated as the number of children of any age enrolled in primary school as a percentage of the number of children of official primary-school age. Net enrolment rates are calculated as the percentage of children of official primary-school age that are enrolled in primary school. Thus gross enrolment rates may exceed 100% where children repeat grades or enter primary school late, whereas net enrolment rates cannot exceed 100%.

quintile conducted by the World Bank (2013) (Figure 6) suggests that Indonesia is making strong progress in improving equity of access to education, with improvements in enrolment rates during the 2000s being most pronounced in secondary enrolment among the poorest quintile. The data also indicate that Indonesia has achieved gender parity in primary and junior-secondary school enrolment rates. The average figures mask significant regional variation especially in junior-secondary enrolment rates, however, with progress in some regions lagging significantly behind the rest of the country, particularly in Eastern Indonesia. For instance, while net enrolment rates at the junior-secondary level were over 90% in the provinces of DKI Jakarta and Yogyakarta in 2010–2011, in provinces such as Papua and Papua Barat the rates were only 63% (MoEC 2013). Similar issues of equity are also apparent at the primary level – according to official education statistics for 2012–2013, 72 districts have net primary enrolment rates of less than 90%.

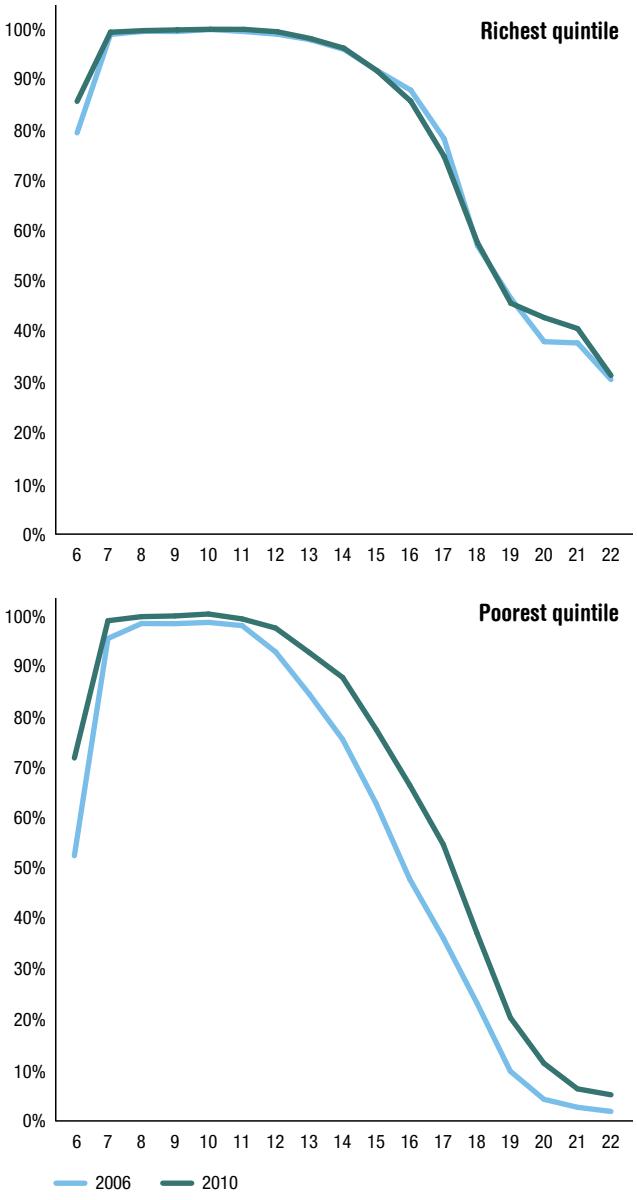
Repetition, survival and completion rates

Primary school repetition rates[11] in Indonesia have fallen relatively consistently since the mid-1980s and decreased from 6.2% to 2.9% between 2000 and 2011. This decline compares well to average rates for other lower middle-income countries (LMICs), which fell from 6.1% to 4.3% between 1999 and 2010 (UNESCO 2014). Declining repetition rates suggest that more students are meeting the standards required to move to higher grades and thus can be viewed as a quality-related achievement.

Indonesia has also shown long-term improvements in rates of survival to the last grade of primary school, with these gains being more gradual but stable in the 2000s. Since 1990, survival rates[12] have never fallen below 79%, rising from 79.7% in 1990 to 85.9% in 2001 and to 88% in 2010. These trends show clear progress while also suggesting that Indonesia still has some way to go in order to achieve universal primary school completion rates among the remaining 12% of students.

This pattern of improvement is also reflected in completion rates, with rapid improvements in the early 1980s followed by more gradual gains. Data from the World Development Indicators (WDI) show an increase in gross completion rates[13] over the 2000s from 94.9% in 2001 to 99.7% in 2010. Data from the DHS survey also support an upward trend with primary completion rates rising from 91% in 2002 to 95% in 2012.[14] The data also indicate a narrowing, but still substantial, gap between socio-economic groups. The lowest quintiles saw

Figure 6: Share of children enrolled in school by age and socio-economic quintile, 2006–2010



Source: World Bank (2013a)

increases of six percentage points (the lowest quintile from 79% to 85%) while the highest quintile completion rates also rose, but at a slower rate, from 97% to 99%. Rural–urban disparities have also narrowed, from 87% and 94% in 2002 to 92% and 97% in 2012. Regional disparities appear to have narrowed overall, but this trend

11 Repetition rates are the percentage of students in primary education who are enrolled in the same grade as in the previous academic year.

12 Survival rates are the percentage of a cohort of students enrolled in the first grade of primary who subsequently complete the final year of primary education.

13 The gross primary completion rate is the ratio of the total number of students successfully completing (or graduating from) the last year of primary school in a given year as a percentage of the total number of children in the population who are of official graduation age.

14 Data from the World Inequality Database on Education (WIDE) (retrieved 26 May 2014).

is complicated by changes in administrative boundaries. If Papua is excluded from the 2012 data then the gap between the highest and lowest performing regions fell from 22% (98% against 76%) in 2002 to 16% (99% to 83%) in 2012.[15] Gender parity in completion rates had been achieved by 2002 with male completion rates at 94% and female at 96% in 2012.

Lower-secondary education and school life expectancy

Accelerating rates of students transitioning from primary to secondary school are also a major indication of progress in the 2000s. WDI data show that rates of progression to secondary education rose from 78% in 2001 to 89.6% in 2010. This is also supported by UNESCO Institute for Statistics (UIS) data that show gross secondary enrolment ratios rising gradually from 47.3% in 1990 to 55.8% in 2000 and then sharply to 81.2% in 2010. Again, however, there are some regional disparities. For instance, while transition rates to junior-secondary school are over 90% in several provinces, a number of provinces such as West Kalimantan, East Nusa Tenggara, Papua and West Papua have rates below 70% (UNESCO 2014).

An alternative measure for progress in this area is given by completion rates for lower-secondary education. DHS data[16] show that these rose from 2002 to 2012 from an average of 63% to 76%. Gaps between socio-economic sectors have shrunk but remain substantial. The difference between the highest- and lowest-income quintile fell from 58 percentage points (91% to 33%) to 46 percentage points (94% to 48%). Regional disparities also show improvements but remain considerable. The gap between the highest- and lowest-performing region in 2002 was 50 percentage points (88% compared to 38%) compared to 44 percentage points in 2012 (96% to 52%). The urban–rural gap shows a similar pattern, falling from 27 percentage points in 2002 to 21 percentage points in 2012, but remains significant with only 64% of rural children graduating from lower secondary, compared to 85% of urban children. Gender disparities, however, have been negligible in both periods.

School life expectancy[17] has risen alongside the expansion of secondary education. The figures for primary to secondary education mirror the changes in enrolment rates, rising slowly during the 1990s from 9.8 years in 1990 to 9.97 years in 2000, before rising rapidly to 11.37 years in 2011. Primary to lower-secondary school life expectancy, net of repetition, also rose from 8.4 years in 2002 to 9.7 years in 2011. DHS data[18] demonstrate that these increases were found across socio-economic sectors, but that there has been little improvement in terms of equity. The gap in years of education between the highest and lowest socio-economic quintiles went from 5.1 years in 2002 (6.7 compared to 11.8) to 5.7 years in 2012 (7.4 compared to 13.1). Gains have also been consistent among girls and boys, and the gender gap has been eliminated with average female years of schooling in 2012 at 10.3, compared to 10.2 for males. Rural–urban and regional differences remain substantial and largely unaltered across the decade. This may, however, be due to survey data having concentrated on those of between 20 and 24 years of age who would be too old to have benefited substantially from reforms made in the 2000s.

2.4 Broader socio-economic progress

The progress in achieving greater quality, access and equity in education has occurred in the context of a relatively supportive economic environment, falling rates of absolute poverty and improvements in other socio-economic indicators. Taken together these factors have provided Indonesia with the necessary resources to invest in education and have also ensured that individual citizens are better placed to take advantage of these opportunities.

Indonesia has experienced strong growth and rising GDP per capita since being badly hit by the East Asian financial crisis in 1997–1998, a period which saw its GDP per capita more than halve in a year. Annual GDP growth averaged 5.4% between 2000 and 2012, comparable with the 5.3% average of neighbouring countries (Malaysia, Thailand and Vietnam) over the same period, and remarkable given that Indonesia suffered a far greater blow from the East Asian crisis. This growth has been a major enabling factor for the country's substantial investments in education, while the significant rise in per capita incomes (from US$2679 to US$4272 over the 2000–2010 period) has contributed to the expansion of a stronger middle class and the potential for increased private investment in education, although as stated earlier this is less important at the primary level.

This steady growth has also been translated into improved living standards. Indonesia's Human Development Index (HDI) rating rose from 0.54 to 0.63 between 2000 and 2012 and shows the largest average annual growth in HDI of its comparable neighbours during that period.

These gains can also be seen in increases in life expectancy, which has been on a smooth upward trajectory

15 Data for Papua in 2012 show only a 71% completion rate and it is unclear how far this disaggregation has contributed to the overall narrowing trend.

16 Data retrieved from WIDE and representing the percentage of children aged between three and seven years above lower-secondary school graduation age who have completed lower secondary school.

17 School life expectancy measures the average number of years of education a child of school-entry age would receive on the assumption that school enrolment rates remain static. Data can be disaggregated by looking only at primary to secondary or from primary to tertiary, or by removing additional years spent in school due to repetition of grades (net of repetition).

18 Data are retrieved from WIDE and represent mean years of education for those aged 20–24 at the time of the survey.

'If the quality of education is assessed by international tests such as PISA, then it is not good in comparison with other countries. However, we are optimistic that we will catch up since the trend shows an increasing pattern' – Ministry of Education Official

in Indonesia since the first records in 1960, and continued to rise from 65.7 years in 2000 to 69.3 years in 2011; and in declines in child mortality rates, with under-five mortality falling from 52.5 per 1000 live births in 2000 to 31.8 in 2011, while infant mortality fell from 37.6 to 24.8 per 1000 live births over the same period.

Following major progress in reducing poverty during the Suharto years, the 1997 economic crisis pushed many people back into poverty. After peaking at around 33% at the end of 1998, poverty levels returned to pre-crisis levels of around 15% by the end of 1999 (Suryahadi et al. 2003). Poverty has generally continued along a gradually declining trajectory during the first decade of the 2000s, with the exception of temporary increases associated with shocks to the international and domestic economies in the 2005–2006 period and in 2008. The poverty headcount ratio at the purchasing power parity (PPP) US$2.25 line fell from 81.6% in 1999 to 43.3% in 2011, and similarly at the PPP US$1.25 line from 47.7% to 16.2%. Alongside this the prevalence of malnutrition[19] has also fallen from 25.8% in 1998 to 18.6% in 2010, although it still remains above the MIC average of 16.6%. This decline in absolute poverty and particularly the reduction in malnutrition levels are likely to have contributed to the school-readiness of the poorest in Indonesia, thus making it easier for them to take advantage of the improved quality of and access to formal education.

Overall Indonesia has made strong and steady socio-economic progress over the decade on which this research focuses, and while this has not been spectacular in comparison with its immediate neighbours it has nonetheless been substantial and impressive given the considerable economic damage Indonesia suffered during the East Asian financial crisis and the political upheaval that followed it. This progress has played a major role in enabling efforts to improve the quality of education – in terms of greater opportunities to increase government revenue, rising household investment in education and the ability of individual students to benefit from better and easier access to formal education. Although there remain considerable levels of poverty these improvements are nevertheless steps in the right direction.

19 Data from World Development Indicators – percentage of under-fives who are underweight for their age.

Indonesia

Factors contributing to improved education quality

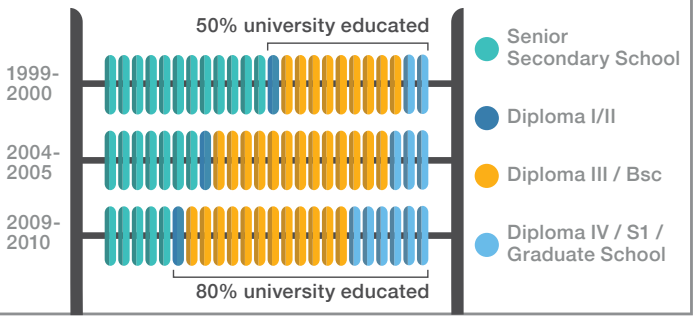
TEACHERS ARE BETTER QUALIFIED

Teachers with university education

2000 — 50%

2012 — 80%

Proportion of teachers by education level

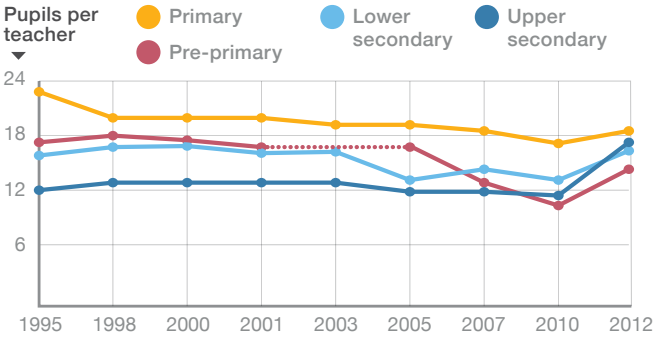


FALLING PUPIL-TEACHER RATIOS

Primary education pupil-teacher ratio

1995 — 23:1

2012 — 19:1



CHANGES IN THE CURRICULUM

From content-based to competency-based

From teacher-centred rote learning to student-centred active methods

From a centralised system for determining content to a decentralised one

Sources: Suharti (2013) | UNESCO Institute for Statistics (UIS)

Infogr8

3. What are the factors driving change?

This section analyses some of the factors seen to be driving the achievements in improving the quality of education, and to some extent access, noted in the previous section. The factors discussed are:

- Strengthening the teaching force
- Reforming the curriculum and pedagogy
- Decentralisation and school-based management
- Increased budget for education and targeted support to address socio-economic inequities

3.1 Strengthening the teaching force

Recognising that teaching quality is a key determinant of learning outcomes, Indonesia has prioritised reforms that aim to strengthen the teaching force. Here we focus on two of the main mechanisms used: first, a concerted effort to improve the quality of teachers through training and certification, and second, improvements to the size and distribution of the teaching force. Section 3.2 focuses on a third mechanism: reform of the curriculum and teaching methods. The priority given to teaching reforms as part of the GoI's overall strategy to improve the quality of education can be seen in the share of the education budget allocated to these measures. The largest proportion of the government's increased education spending in recent years has gone on employing more teachers, particularly at the primary level, and raising teachers' salaries, including through the introduction of a new certification process.

These priorities are particularly interesting in the context of UNESCOs 2014 Global Monitoring Report (GMR), which focuses on teachers as crucial to improving student outcomes and whose proposed strategies echo many of the reforms undertaken in Indonesia. In particular, the GMR emphasises the importance of good salaries, decent working conditions, and clear incentives in terms of pay schemes and career progression, which align with several of the core dimensions of Indonesia's strategic reforms to the teaching force.

Overall, Indonesia's experience in introducing teacher certification suggests that combining minimum teaching standards with salary incentives can potentially improve educational outcomes. However, evidence from recent evaluations of Indonesia's teacher certification programme suggests that it is unlikely that salary increases alone will lead automatically to improvements in teachers' performance – there is a need for incentives to be closely linked to demonstrated competence.

Teacher upgrading and certification

Indonesia has had two waves of reforms aimed at upgrading the qualifications of the teaching force by enforcing minimum standards of competency. The first wave was in the 1990s and required primary, junior-secondary, and senior-secondary school teachers respectively to have a two-year, three-year, and four-year post-secondary diploma. The second wave, on which we focus here, was ushered in with the 2005 Teacher Law, which established a new system of teacher certification as its cornerstone.

The certification system aims to improve teachers' competencies while addressing the related issues of low pay and poor motivation. In order to obtain certification, teachers must meet a set of requirements, including having a four-year diploma or an undergraduate degree and teaching for a minimum of 24 hours per week. Teachers who pass the certification requirements are entitled to a doubling of their salary. The programme has been introduced gradually. The most experienced and qualified teachers have been given priority, with the aim of ensuring all teachers will obtain certification by 2015. At the time the 2005 Teacher Law was passed, fewer than 40% of teachers in Indonesia held a bachelor's degree and so were not eligible to apply for certification right away (World Bank 2010b). In response to this situation, there has been a large effort to enable these teachers to upgrade their academic qualifications. By 2011, roughly 500,000 teachers had enrolled in the Open University, which runs distance-learning courses to upgrade teachers' skills at a relatively low cost to teachers (World Bank 2012d).

The professional allowance for certified teachers creates a strong financial incentive for them to upgrade their academic skills and seek certification, but has also put considerable pressure on the implementation of the programme, particularly given the political importance of the teaching force. As a result, the task of agreeing and enforcing high standards for certification has been particularly challenging, as is explored below.

The political drive to improve teaching quality was motivated in part by the disappointingly low results in a teacher aptitude test undertaken by the Ministry of Education in 2004. Reform efforts have been framed not only in the context of a national need to improve education but also in the context of a need to improve teachers' welfare. Historically, teachers in Indonesia have had relatively low social status and pay compared to

other civil servants. This fed into poor performance in the education system as candidates applying for teacher training were usually too few and lacked the necessary skills, and once recruited many teachers gave their jobs a low priority. Absenteeism was high and a high proportion of teachers held second jobs that took their attention away from teaching. The absenteeism rate among primary school teachers was about 19% and higher in remote areas (Usman and Suryadarma 2007). The MoEC also found that the cadre of teachers in post in the early 2000s was ageing, lacked in-service training, and had few incentives to improve due to a lack of career progression. When faced with the major impending teaching and curriculum changes the MoEC feared that these teachers would not respond to the reforms. There was also a recognised need to recruit a new, higher quality and more professional cadre of teachers as high turnover of staff was anticipated since so many existing teachers were reaching retirement age.

'The teacher certification program has significantly upgraded the quality of teachers. The programme allows for compensating certified teachers by giving them additional allowance. Thus, teachers are more eager in upgrading their knowledge and teaching skills' – Academic

On the basis of these arguments and needs, the MoEC was able to build a consensus across a wide range of actors including different branches of the GoI (Ministry of National Education, Ministry of Finance and National Planning Board), political parties, parliamentarians and the leading teachers' associations. While support for improving teachers' conditions was relatively easy to secure, initial attempts to enforce improvements in the quality of teaching staff proved controversial. Teachers' associations were strongly opposed to competency testing and secured a parliamentary majority against their use as a prerequisite for certification. As a result, when the reforms were first implemented in 2007, the initial cohorts of teachers entering the process were able to be certified based on an assessment of a portfolio of their past experience and training and/or based on passing a 90-hour training course. The MoEC's recent introduction of competency testing through the Ujian Kompetensi Awal as a requirement for certification from 2012 is a positive step to tighten the links between certification and better teaching. However, the new policy currently faces implementation challenges and the competency tests have used a low pass threshold of 30%. The evolution of the current system reflects a political compromise between more experienced teachers who tend to prefer portfolio-based criteria for certification, and the newer generation of teachers who tend to prefer competency-based criteria, in line with the MoEC.

Despite these difficulties the massive effort to upgrade teachers' qualifications nationwide demonstrates an important GoI commitment to improve teaching skills and student learning. There have also been a number of immediate positive outcomes, although the long-term impact on education remains unclear.

The GoI recently partnered with the World Bank to evaluate the early impacts of the certification programme (see Box 2, overleaf). While this research is continuing promising outcomes have been documented in terms of the level of teachers' qualifications. The percentage of teachers with a university degree has increased in recent years as a result of the fact that this is a criterion for certification (see Figure 7, overleaf). However, existing data show that teachers with a university degree do not perform significantly better in tests on subject matter than those without, suggesting that a university degree alone may not be an adequate criterion for selecting high-quality teachers at least at the level of basic education.

There are also some early indications that higher pay and the certification system are attracting better-qualified candidates to enter the teaching profession. For example, research on college entry test scores indicates that better high-school graduates are now entering teacher-training colleges than before (World Bank 2010b). It is hoped that these improvements in the quality of trainee teachers will lead to higher teaching standards and so to better student outcomes in the long term.

Overall, the decision to link teacher upgrading with very large pay increases can be seen a politically feasible strategy for the government to make more rigorous requirements of teachers. However, there has been criticism of the policy as focusing too much on salary increases without enough emphasis on teaching quality. The interaction of this programme with decentralisation has also been problematic, as explored in Section 3.3.

Working towards efficient management and distribution of teachers

During the 2000s Indonesia saw a rapid and significant expansion in the recruitment of teachers, and undertook reforms to improve their distribution and management. While pupil–teacher ratios (PTR) in primary schools were relatively stable from 1995 to 2000 there were sharp declines in the 2000s, with PTR falling from 22.4 in 2000 and to 15.9 in 2011 (see Figure 2). Since then there have been signs of increasing ratios, although only in the case of upper-secondary do the data suggest a negative trend overall. This is a considerable and remarkable improvement, placing Indonesia on par with the average for high-income countries including Japan and Singapore (MoEC 2013). The GoI is also taking action to improve teachers' effectiveness by addressing the issue of their distribution across different regions, in view of the fact

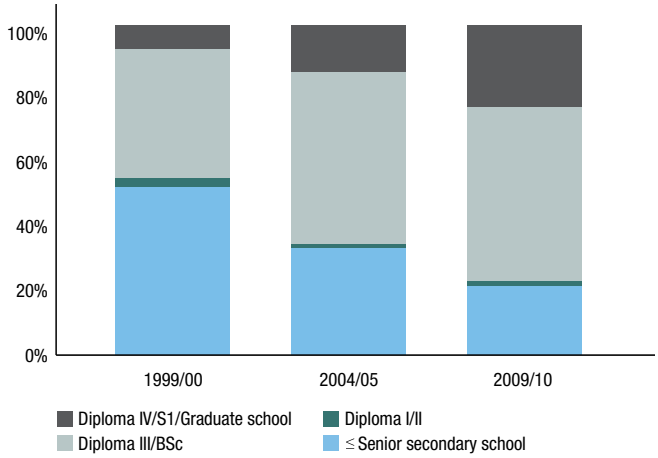
Box 2: Evaluating Indonesia's Teacher Certification Reforms

In order to measure the impacts of Indonesia's massive teacher-certification programme, the World Bank and the MoEC recently undertook a joint large-scale randomised evaluation of the reforms. The evaluation is based on a survey of 90,000 students and 3,000 teachers from 360 public primary and junior-secondary schools across 22 districts. The study measured the impact of teacher certification (which was accompanied by a doubling in salary) on several outcomes related to teachers' behaviour and skills, and student learning.

Initial findings from the evaluation show that Indonesia's certification helps to reduce the pressure on teachers to take on additional jobs that could distract from their main teaching responsibilities: teachers who are certified are 27 percentage points less likely to have a second job and are 38 percentage points less likely to experience financial problems (World Bank 2012d). To date, the reforms have been unable to demonstrate clear improvements in teachers' subject knowledge, hours spent teaching, teacher absenteeism, or student learning outcomes.

The final results of the evaluation are still being analysed, however, and so other findings may emerge. Similar findings emerged from the University of Padjajaran, which evaluated the impact of certification using propensity score matching and difference-in-differences methods (Fahmi et al. 2011). The study found no impact of teachers' certification on students' achievement, as measured by national exam scores.

Figure 7: Educational attainment of primary school teachers



Source: Suharti (2013)

that substantial differences in PTR across the country have serious equity implications.

Although smaller class sizes tend to be associated with better learning outcomes, existing evidence shows that this relationship is driven mainly by excessively large classes, with diminishing returns as class sizes become smaller (see, for example, Cho et al. 2012). Further, employing more teachers does not necessarily imply smaller classes; in fact this relationship is relatively weak in Indonesia, where low PTR are often the result of teachers working part-time and sharing workloads (World Bank 2010b). Indeed, rather than regarding the rapidly declining PTR as a sign of progress, some analysts have argued it is a significant cause for concern, particularly in light of the perverse incentives for over-staffing built into the Basic Allocation Fund (DAU) mechanism (Al-Samarrai and Cerdan-Infantes 2013). It is relevant to consider, for instance, that while the number of primary school students increased by only 5% between 2000 and 2010, the number of teachers rose by 47% (MoEC 2013). These differences have been less marked at the junior-secondary levels where the rise in student enrolment has been more significant. Even so, the increase in the number of teachers (46%) has still been twice as high as the increase in students (23%) at this level.

There are also concerns that some of the increased employment of teachers results from incentives for over-staffing built into the DAU mechanism. Transfers from the central government to local governments are based in part on the number of civil servants in each district, and local governments are responsible for employing teachers while the central government bears most of the costs. This situation does not in itself undermine the potential for falling PTR to contribute to improved learning, but the hiring of teachers may not have as powerful an effect if they have poor discipline, low skills or high levels of absenteeism.

The Indonesian government is taking positive action to improve the effectiveness of the teaching force by addressing the issue of distribution across different regions. Unequal PTR across and within different regions of Indonesia are significant, with schools ranging from 10 to 60 students per teacher at the primary level in 2010 (World Bank 2013a). The World Bank estimates that 340,000 teachers – or about 17% of the total teaching force – would have to be transferred within districts, across districts and between regions to meet GoI guidelines on PTR (World Bank 2013a). The GoI has made some efforts to allocate teachers more efficiently through establishing standards related to school staffing levels. For example, the maximum number of students per class stipulated in the government's guidelines on minimum standards for basic education rose from 28 in 2007 to 32 in 2011 (World Bank 2013a). The 2005 Teacher Law also attempts to deal with these issues by providing allowances to teachers working in remote areas, in an effort to help attract and motivate teachers in these locations. There are also interesting strategies evolving at the district level.

For example, the municipality of Surabaya has developed an innovative teacher-rotation scheme to

help avoid the tendency for teachers to be concentrated in favoured schools and desirable locations.[20] While decentralisation has made it easier for teachers to be redeployed within districts, it is reported to have made it more difficult for teachers to be transferred between districts. For this reason and to better address inequities across districts, the government is considering re-centralising responsibility for the deployment of teachers.

These improvements in policies for the employment and distribution of teachers are likely to have positive effects on the quality of education, provided that they are combined with effective strategies to improve teachers' skills and reduce work-sharing. An emerging lesson from Indonesia's experience is that employing new teachers seems to have more potential to improve the quality of education when there are carefully targeted efforts to deploy teachers to underserved regions and schools. Prioritising schools with low PTR may be a cost-effective strategy for deploying teachers compared to increases in PTR across the board, since the additional value of increasing PTR may diminish once a certain level is reached.

The experience of Indonesia's reforms in teaching supports the findings of the 2014 GMR, while simultaneously demonstrating how difficult it can be to implement coherent and consistent strategies to improve the teaching force, particularly in a decentralised system.

3.2 Curriculum and pedagogy reforms

During the 2000s, Indonesia made a series of alterations to the national curriculum and teaching methods. It attempted to move from a content-based to a competency-based curriculum; from teacher-centred rote-learning methods to student-centred active methods; and from a centralised system for determining content to a decentralised one. There have been considerable challenges to overcome in implementing these reforms but they are seen to be starting to play a role in driving progress in improving the quality of education, particularly as teaching improves.

Examining them in the context of the existing international literature, there are grounds for optimism regarding the future impact of these curriculum and pedagogy reforms. While there is no single ideal form of teaching there are strong indications that in order for a curriculum to be most effective it should be adapted to the specific cultural and classroom contexts in which it will be taught, and that teachers need to be well trained and sufficiently flexible to adapt their teaching methods to suit their mix of students (UNESCO 2005; Glewwe and Kremer 2006; OECD 2012). Large class sizes and poor teaching skills have also been found to undermine attempts to implement many learner-centred education reforms (DFID 2010; UNESCO 2005; Freeman and Faure 2003). The curriculum and pedagogical reforms enacted thus establish a strong enabling framework for Indonesia's teachers and schools to adapt teaching methods as necessary, while the attempts to improve the quality of teachers and the significant progress achieved in reducing class sizes should begin to allow schools to take full advantage of these freedoms and improve the overall quality of education.

Indonesia's recent curriculum reforms began in 2002 with the implementation of a new competency-based curriculum. This was augmented and then superseded by the establishment of the Board of National Education Standards in 2005 which established curriculum guidelines and standardised national exams, feeding into legislation in 2006 that retained the competency-based focus of the curriculum but gave schools much greater powers to design their own teaching plans and determine curriculum content in certain areas.

The major emphasis of these changes was to move the focus of education away from the memorisation of facts and theoretical knowledge, and towards students being able to achieve competencies that combined 'integrated skills, knowledge, attitudes and values' demonstrated by task performance (MoEC 2013). In order to facilitate this change there was also a shift in teaching methods away from rote-learning and teacher exposition and towards a greater focus on student-centred activities while allowing teachers greater discretion in the classroom. Government Regulation 19/2005 articulates this vision: 'The teaching process in schools shall be conducted in a way that is interactive, inspiring, fun, and challenging, motivates students to participate actively, and provides sufficient space for initiatives, creativity, and independence in line with the talents, interest, and physical and psychological development of the students' (MoEC 2013).

Following the publication of the 2007 TIMSS results, the MoEC and the World Bank worked together on a video study of 100 schools in 17 provinces to gain a better understanding of what goes on in Indonesian maths classrooms.[21] While the study revealed several positive aspects of teaching and learning, it also highlighted the teacher-centred nature of many classrooms. The use of videotaping was a useful means to inform central-level policy-makers about teaching conditions throughout the country. An analysis of teaching methods and student outcomes conducted by TIMSS and reported by the World Bank (2013b) suggests that, at least in the case of Grade 8 mathematics, Indonesian students whose teachers used methodologies in line with these reforms performed significantly better in assessments, while a higher proportion of lessons spent on teacher-centred methods,

20 Source: Notes from field work in Surabaya conducted for this report.

21 WB TIMSS video study.

Students at Sentarum elementary school West Kalimantan, Indonesia. Photo: © Ramadian Bachtiar courtesy of CIFOR

chiefly exposition and teacher-only work, was negatively correlated with assessment results.[22]

It is widely recognised, however, that there have been serious issues with implementation of the new curriculum and teaching methods. The MoEC (2013) acknowledges that despite several studies showing a positive impact of these reforms there have been flaws in the quality of implementation and in teacher training. Ironically, a major issue cited is the tendency for training in student-centred teaching methods to be conducted in lecture form to large numbers of teachers with little follow-up or support. This matches World Bank (2013b) research cited earlier that found almost no difference in teaching practices between teachers who had undergone the certification process, which includes training in student-centred teaching methods, and those who had not.

There have also been attempts to improve the quality of education through introducing a degree of decentralisation into the curriculum. The School-Based Curriculum (Kurikulum Tingkat Satuan Pendidikan) was intended to shift responsibility for curriculum development closer to the school level, although its overall impact has been limited due to urban and elite schools being best placed, in terms of resources and capacity, to assume these responsibilities. The reforms, which began in the early 2000s, enabled schools to have considerable discretion over their education plans – including lesson planning, learning burdens, vision, school calendar and curriculum development – provided that they remain broadly within national guidelines. These new powers were accorded along with the MoEC's formulation of a model curriculum for schools to adopt or adapt as they chose, and the publication of a range of textbooks and teaching guides that respect the national competency framework, produced by private educational publishers.

The combination of these elements may be positive in that, as acknowledged by the MoEC (2013), there is often a lack of capacity and resources at the district and school level that restrains curriculum innovation, which means that off-the-shelf models may be beneficial for assuring the quality of education, particularly in poorer districts. At the same time, however, the availability of these models can also act as a disincentive for schools to spend time and effort on adapting their methods and content to their context, with the vast majority of schools choosing to use a single curriculum based on that of the central government. There are several cases where schools have used the opportunity to incorporate their own content to provide additional classes in English or to incorporate additional syllabi both for students with special needs and for high achievers. However, the overall impact of these efforts may be limited due to their concentration in a small number of urban and International Standard Schools (MoEC 2013).

The successful implementation of these changes is also crucial to ensuring that Indonesia's labour force has the skills needed to ensure the country's economic success. McKinsey's 2012 analysis of the Indonesian labour sector notes that 41% of employers reported gaps in the ability of their skilled workers to think creatively and critically, 47% reported a lack of sufficient computer literacy, and 48% reported a lack of proficiency in English.

3.3 Supporting decentralisation and school-based management

As part of Indonesia's political decentralisation process, which began in the early 2000s after the transition to democracy, there has been a gradual devolution of responsibilities in education planning and decision-making to the local government and school level. By bringing decisions related to education management closer to communities, decentralisation can support a range of improvements in the quality of education. In particular, decentralisation can help to ensure that spending priorities (e.g. on teachers or books) and curricular decisions are better aligned with local needs. It also has the potential to help improve accountability in the system through greater community participation and community oversight over school spending and other decisions. This section reviews Indonesia's recent progress in decentralising education. While hard evidence on the links between decentralisation and the quality of education are relatively limited, there are some interesting lessons emerging from Indonesia's experience.

District-level education offices are now playing a significant role in providing education services through planning, implementing and monitoring education programmes in their regions. Regional and district governments are a particularly important driver of educational outcomes given their responsibility for around 52%[23] of the education sector budget (MoEC 2013). Although most of the funding for public primary and secondary schools is raised by the central government, district governments are responsible for managing schools and teachers, including hiring and firing. This shift in power has had complicated effects on accountability relationships, as while teachers are now more accountable to local elected leaders, the ability of the central MoEC to discipline teachers has been reduced and there are concerns that in some areas favouritism and political patronage are driving recruitment and decisions regarding teachers' certification, thus reducing the effectiveness of these programmes.

22 The reforms stipulate a higher proportion of lesson time should be spent on classroom-based investigation, practical questions, problem-solving and interaction between teachers and students.

23 In 2012 transfers to regions from central government made up 60% of the total education sector budget, of which 7.5% was block grants to schools under the BOS programme.

Table 2: Breakdown of 2012 national education budget (revision)

Description	Trillion IDR
Total State Budget	1548.3
Total Education Budget	310.8
Total Budget Central Government	117.2
Ministry of Education and Culture	77.2
Ministry of Religious Affairs	33.4
Other Ministries	6.6
Total Budget Transfers to Regions	186.6
BOS (School Operational Fund)	23.6
DBH (Revenue Sharing Fund)	1
DAK (Special Allocation Fund)*	10
DAU (General Allocation Fund)†	147.3
Teacher salaries	103
Non-teacher salaries	10.8
Teachers' Professional Allowance	30.6
Additional Teachers' Allowance (PNS)	2.9
DID (Regional Incentive Fund)	1.4
Dana Otonomi Khusus (Special Autonomy Fund)	3.3
Education Development Fund	7

*Source: MoEC (2013) Note: * Earmarked for non-salary expenditures † Proportion earmarked for teacher salaries and allowance*

Decentralisation has also empowered schools and community members to be more involved in local education management and decision-making. School-based management (SBM) was mandated in Ministerial Regulation 44/2002, which delegates responsibilities such as school planning and budgeting, staff management, and curriculum development to principals and school committees. The SBM model, which encourages student-centred learning, community participation, and effective school management, has now been adopted widely in Indonesia although some implementation challenges remain, particularly related to the limited capacity of some local governments and schools to fulfil their new functions effectively.

Central government is the main source of revenue for district government budgets (APBD) – accounting for 88% of district budgets and 44% of provincial budgets in 2009, for example (British Council 2012). However, local governments play an important role in directing how these resources are used and have been delegated a growing number of responsibilities over school and teacher management. Under PP no. 38/2007, local governments have a mandate to be involved in setting district education policies such as teacher management, curriculum development and facilities management.

'Decentralization is good because we don't need to wait for a decision from the central government or Ministry. If we wait for instructions or decisions from central government it will take longer. Furthermore, those who know best are those who are closer' – District Education Official

As Indonesia deepens its political decentralisation, local governments, which are subject to the same national requirement of allocating 20% of their overall budgets on education as the central government, are providing increasingly important sources of funding. The MoEC reports that a majority of districts allocate 30–40% of their budgets to education, including central funding, although 85% of this spending goes on personnel costs, leaving limited room for spending on educational development (MoEC 2013). In fact, 90% of non-salary spending on basic education is still at the central level (World Bank 2013a). Although there are limitations in the available data on subnational education spending, recent efforts to

make data available on education spending at the district level are an important step towards enabling analysis and evaluation of trends and effectiveness of this spending, including its impact on equity issues.

Much of the resources and efforts focused on decentralisation have been through the government-funded School Operational Grant (BOS) programme described below. This overarching programme has played a central role in the decentralisation process by equipping schools with the necessary resources to enable effective school-based management and, as we explore further below, this combination of decentralisation and education grants aimed at the school and regional level has been associated with rising enrolment and completion rates, as well as improved learning outcomes at the primary level.

School Operational Grants

The School Operational Grant (Bantuan Operasional Sekolah – BOS) programme began through a flagship piece of legislation initiated in 2005 by the MoEC under President Yudhoyono. It played a major role in supporting both decentralisation and the government's nine-year compulsory education policy by enabling the removal of school fees for parents at the primary and lower-secondary levels. The BOS aims to empower school committees and parents to be more involved in school decision-making since they are able to direct funds received from the central government in the form of block grants towards priorities identified at the school level such as payments for teachers (e.g. topping up their regular salaries or hiring part-time contract teachers), learning activities, school supplies and/or books. As of 2012, the BOS programme provides block grants to 228,000 public and private schools covering over 44 million students, of whom about two-thirds are primary-level students and the remainder are at the junior secondary level.

The implementation of the BOS programme is in many ways symbolic of the shift in power and political priorities that occurred with the fall of the New Order regime. It channelled large amounts of public money into the education system with the aim of reducing the costs faced by poor and middle-class Indonesians and was financed by reducing the fuel subsidies that had historically benefited large businesses and the Indonesian elite. From a political perspective, it helped to maintain and secure President Yudhoyono's support among these increasingly important groups, and the policy was also carefully considered based on its technical merits, with the MoEC seeking inputs from international organisations (Datta et al. 2011; Rosser et al. 2011).

BOS supports schools and parents by lowering school fees in order to expand access to education. It also aims to improve the quality of education by introducing school-based management approaches. In recent years, BOS has represented about 8% of the roughly US$35 billion of total education expenditure (World Bank 2012b) and 20% of basic education spending. BOS funds are channelled to schools based on a simple per-pupil formula of IDR 580,000 (about US$60) per student at the primary level and IDR 710,000 (about US$74) for lower-secondary students in 2012.[24] In 2009 the World Bank estimated that the average-sized primary and junior-secondary school received US$8000 and US$18,000 respectively in BOS funds.

The central government has encouraged local governments and parents to contribute additional funds to help to meet school costs in cases where BOS funds are insufficient to cover all expenses. A 2009 survey undertaken by the Ministry of National Education found that roughly half of all districts and provinces were providing assistance to some schools through regional BOS schemes, referred to as BOSDA (BOS Daerah). Local governments provide less financial support for BOSDA than that provided by the central government for BOS in almost all areas, but they still represent a significant contribution to school operational funds. Particularly in rural and remote areas, BOS and BOSDA sometimes represent the main sources of funding to cover schools' operational costs.

BOS and BOSDA are widely considered to be important in underpinning Indonesia's progress in achieving universal basic education by increasing primary enrolment and completion rates (World Bank 2010a). The World Bank has found some evidence of better learning outcomes among students in primary schools receiving BOSDA grants compared to those not receiving the funds: schools receiving BOSDA funds scored 6% and 9% higher on language and maths tests respectively (World Bank 2013a).[25] At the same time, criticisms of the BOS programme have been that funds are most frequently directed towards paying teachers (e.g. topping up the salaries of regular teachers or employing part-time contract teachers) rather than on other educational development priorities that may yield greater benefits to students. The BOS programme is, however, reported to have increased the accountability and transparency of school financing and budgeting processes through increased community oversight over funds, although the extent to which this has occurred in practice has varied.

The use of a simple, transparent per-student formula to determine the amount of funds a school receives has several benefits. It has enhanced understanding and political buy-in to the programme among students, parents, teachers, school administrators, and other government

24 See: http://www.worldbank.org/en/news/press-release/2012/07/13/BOS-transforms-lives-of-children

25 Although these results do not necessarily imply a causal relationship, the differences remained significant even after controlling for student, teacher, and school characteristics.

Jannatin gives a mathematics lesson in West Kalimantan, Indonesia. Photo: © Ramadian Bachtiar courtesy of CIFOR

Box 3: Innovative education data and information systems

Better design and management of data and information systems have been important in supporting improvements in planning, policy-making, and monitoring of the education sector. Several recent GoI initiatives have helped to improve the collection and analysis of data relevant to education planning and management.

One example is the online NUPTK teacher database established by the Directorate General for Quality Improvement of Teacher and Education Personnel (PMPTK) at the MoEC. The database includes information on teachers such as their date of birth, sex, educational qualifications, employment status, certification status, and competency test scores. Another database called the Essential School Data (Data Pokok Pendidikan – DAPODIK) is the main data collection undertaken by Ministry of Education and Culture. DAPODIK collects detailed, essential information on students, school personnel and facilities. The Ministry of Religious Affairs collects data from Islamic schools through the Education Management Information System (EMIS), which contains information about school facilities, equipment, personnel and students in public and private madrasahs aggregated at the school level. Another interesting initiative is the development of Padati Web, an online system that allows schools to regularly report on key indicators, which can immediately be viewed by district officials to inform planning. Some of these efforts have faced challenge related to poor infrastructure and limited capacity for data-collection/analysis in some areas but they are increasingly achieving wider geographic coverage.

Finally, the Indonesian Bureau of Statistics collects several nationally representative surveys and censuses that are useful resources for education policy-makers to measure progress and analyse gaps. Other relevant datasets include the quarterly SUSENAS household survey, which tracks a range of socio-economic indicators over time including education statistics, and the PODES village census which in 2011 included a short questionnaire focused on education infrastructure that covered nearly all schools in the country. Finally, the availability of the new Unified Database for Social Protection Programs at TNP2K, which includes detailed socio-economic data on the poorest 40% of the population, has the potential to support better targeting of education programmes. The database encompasses a ready-to-use registry (including names and addresses) of potential programme target groups such as poor students and out-of-school children.

officials, thereby supporting its greater accountability and sustainability. At the same time, the use of per-pupil formulas and reliance on local government funding has generated some concerns related to equity, particularly among poor and remote districts and schools. Actual operating unit costs vary significantly and may be much higher than the BOS fixed per-student rate, particularly in remote areas like Papua and Maluku, and smaller schools may be disadvantaged by per-pupil formulas.

While the vast majority of operational grants are from the GoI, donors including the World Bank and AusAID have provided substantial support and technical assistance, including training to help clarify programme goals and encourage the effective use of funds. One example is that the World Bank has recently collaborated with the GoI in initiating some BOSDA pilots designed to adjust the allocation formulas in order to better address inequities in financing between schools, and to create performance-based incentives by rewarding schools that demonstrate better learning outcomes.

As Indonesia continues to further decentralise, an important challenge is to build the role of local governments in supporting education. Another challenge is to enhance intergovernmental communication and coordination between central and local government in relation to the implementation of education policies in the regions. One of the emerging lessons is that encouraging local government efforts to implement education policies that complement the central government efforts holds promise, particularly through strategies such as offering matching grants to districts willing to invest their own resources to top up central funding and/or performance-based incentives to reward districts that have demonstrated success in achieving results. At the same time, such approaches may carry the risks of perpetuating inequalities by rewarding those who are already performing well. This underlines the need for complementary programmes and policies to address gaps and inequities, as discussed in the following section.

3.4 Increased budget and targeted support to address inequities

As shown in Figure 1, spending on education in Indonesia has significantly increased between 2001 and 2010, with real spending more than doubling in this period. The latest available data show that this trend has continued, with spending of IDR 310.8 trillion (equal to US$35.3 billion) in 2012, representing an increase of nearly 50% in nominal terms over spending in 2009 (MoEC 2013). This pattern largely reflects overall budget growth, as the share of education spending has remained roughly constant at around 20% (3–4% of GDP) since 2009. Rising revenues are in part related to stable economic growth but the major boost to education financing has come from the decision to cut high fuel subsidies specifically in order to remove school fees and improve education through programmes such as BOS and BSM. The subsidies

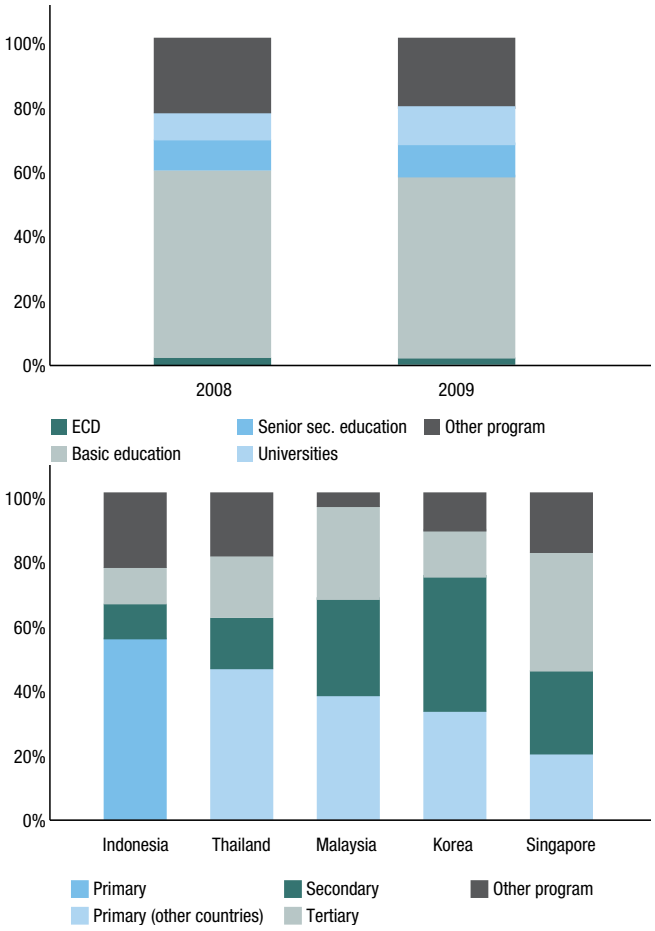
had disproportionately benefited the wealthy and large corporate interests, and were a major focus of their lobbying. Their removal relates closely to the emergence of new social coalitions following the democratic transition, which created political rewards for President Yudhoyono and his coalition to undertake these reforms. As explored further below, the additional spending on basic education was directed largely towards the certification programme and teachers' salaries, with relatively little investment in either school infrastructure or teaching resources.

In line with the GoI's policy of compulsory formal education for the first nine years of school, government spending in Indonesia has prioritised basic education (primary school and lower-secondary school) (see Figure 8). The vast majority of funding for public schools at the primary and junior-secondary levels comes from central government. At the senior-secondary and higher-education levels, public support is more limited and private spending plays a greater role. This trend is in line with the larger proportion of students enrolled in private secondary schools and universities. The prioritisation of basic education has supported important gains in educational outcomes at this level, but there is a growing focus on the need to devote greater resources to higher levels of education. Compared to its neighbours in Southeast Asia, the share of GDP invested in secondary education in Indonesia is particularly low, standing at 0.73% of GDP in 2010 compared to 1.73% in Malaysia, 1.07% in Thailand and 2.4% in Vietnam (UIS, World Bank 2013a).

The GoI's strong commitment to prioritise education by allocating significantly increased funding has been an important component of education reforms. However, one of the key lessons to be drawn from Indonesia's experience is that pouring more money into the education system does not automatically lead to better quality. Many criticisms have been raised about whether the government's increased spending on teachers is sufficiently linked with performance and quality, for instance, as discussed previously. Research has emphasised that public funding in Indonesia has stronger potential to improve education in areas where there is good governance to support sectoral reforms (Suryadarma 2011), and there is growing recognition of the importance of ensuring that public spending initiatives in the education sector build into their design effective incentives for performance and accountability.

Indonesia's education finance system has many complex layers and multiple mechanisms for transferring funds from the central government budget (APBN) across government offices at central and regional levels. Aside from BOS, funding mechanisms include the General Allocation Fund (DAU), the Special Allocation Fund (DAK), and direct funding from MoEC/MoRA, among others. Addressing this fragmentation of financing mechanisms, which complicates education planning and makes it difficult to monitor overall spending in the sector, remains a challenge for the future.

Figure 8: Distribution of the budget by level of education, 2008–2009

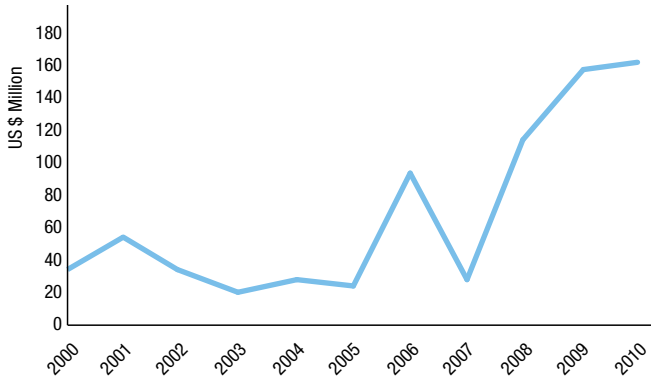


Source: World Bank calculations using MoF, SKID for Indonesia; Edstats for international comparisons

In addition to the main government-based sources of funding, international donor contributions to primary education have increased in recent years, reaching US$163 million in 2010 (see Figure 9, overleaf). While this represents a small fraction of total spending on education, donors and NGOs have played an important role particularly in helping to provide evidence on the effectiveness of some of the government reforms described throughout this report.

Analysis of the changes in expenditure associated with funding increases to meet the 20% target show that, at the basic education level (i.e. primary and lower-secondary school), roughly two-thirds of additional expenditure went to general increases in teachers' salaries and increases associated with teacher certification; in contrast higher education saw increased expenditure on capital, as well as goods and services (World Bank 2013a:12). By comparison, investment in school infrastructure and teaching resources appear to have had a relatively limited role in Indonesia's recent progress in improving the quality of education. This may in part reflect the fact that

Figure 9: Donor contributions to primary education in Indonesia



Source: Data from aiddata.org
Note: This graph shows a general positive trend during the 2000–2010 period, especially after 2007. In 2010, the commitment reached US$163.12 million.

improvements in school infrastructure had been the focus of earlier education reform drives. For instance, data from Indonesia's 2011 village census (PODES) show almost universal physical access to primary education with 89% of the population living in villages with access (within six kilometres) of a junior-secondary school. The data also indicate that 80% of primary and secondary schools have electricity, while 75% have a toilet with water supply (Sparrow and Vothknecht 2012). Broadly, these spending priorities are consistent with a strategy of focusing on teachers as the main channel for improving the quality of education, with gaps in school infrastructure being less of a focus for investment.

Addressing equity and targeting the poor

Efforts to reduce gaps in access to and the quality of education have been an important component of the government's strategy for improving basic education. Several initiatives have aimed specifically to direct resources towards those regions, schools, and families with the highest poverty levels and/or poorest education levels. Reaching these needy populations is seen as important to raising overall educational standards while also supporting Indonesia's broader national social-protection and poverty-reduction strategies.

The report has previously described some of the efforts aimed at reducing inequities between schools and regions in terms of education resources and outcomes, including efforts to increase PTR in the most needy schools and incentive schemes for teachers working in remote areas. In addition, the recent development and expansion of different cash-transfer programmes has been effective in directing benefits to some of the country's neediest students, families, and communities in order to support improvements in education and poverty reduction. This includes the Scholarships for the Poor (BSM) programme and two cash-transfer programmes that address education, health and poverty-reduction goals (Hopeful Family Programme – PKH, and the National Community Empowerment Programme – PNPM Generasi). While recent evaluations have not yet demonstrated improvements in the quality of education resulting from the programmes, there is some evidence that they have helped to improve other educational outcomes such as enrolment, particularly among poorer students.

While primary and lower-secondary education are officially provided free to all students in Indonesia, there are costs associated with schooling in terms of forgone earnings, incidental expenses (e.g. transport, books, uniforms) and voluntary contributions or informal fees that schools may still charge. These costs tend to have the harshest effect on poorer families, who are most at risk of dropping out, particularly at higher levels of education. Thus, BSM, PKH, and PNPM Generasi all have the potential to address these issues by channelling funds directly to needy families and communities. While these programmes are mainly aimed at improving access to education, through building demand-based pressures on the education system, the approach might eventually contribute to improvements in the quality of education and student learning outcomes. Given that programmes such as BSM, PKH, and PNPM have each evolved separately under the management of different ministries, one future challenge for Indonesia will be to improve the coordination and complementarity of these different programmes in contributing to Indonesia's social-protection and education goals.

Scholarships for the Poor (BSM)

Indonesia's Scholarship for the Poor (BSM) programme can be traced to a series of social safety-net programmes piloted to help protect poor households against the economic shocks associated with the East Asian crisis in the late 1990s. The current version was launched in 2007 and aims to improve enrolment rates among the poor, which lag behind near universal enrolment among wealthier groups, particularly above the primary level. The BSM specifically aims to provide scholarships for poor students in order to help cover the costs of schooling. Funds are delivered through central government agencies

'Education has become more important politically as shown by the enactment of the law that requires the Government of Indonesia to provide 20% of the government budget for education' – Ministry of Education Official

directly to the student or to schools, and are used to cover expenses such as registration and tuition fees, books, uniforms and transport.

There has not yet been a large-scale quantitative evaluation of the impact of the current BSM programme on education or other issues such as poverty. However, an evaluation of the earlier variants of the programme found that it was effective in preventing enrolments from dropping as a result of the East Asian crisis and that its positive effects were strongest among primary school-aged children from poor rural families (Sparrow 2004).

The current BSM programme has considerable coverage and financial implications. By 2013 it had nationwide coverage and was providing scholarships to roughly 6 million students, with plans for further expansion. In 2012, the BSM programme represented over 1.5% of central government education expenditure, accounting for IDR 5.4 trillion (over US$500,000), financed in part from cuts in costly fuel subsidies that disproportionately benefited the wealthy.

Conditional Cash Transfer (CCT) programmes

Conditional cash transfers (CCTs) to individuals and communities have been an important component of the GoI's strategy to address education gaps and reduce poverty. In 2007, the GoI launched two programmes: the Hopeful Family Programme (Program Keluarga Harapan – PKH) and the National Community Empowerment Programme – Healthy and Smart Generation (PNPM Generasi). The PKH is currently being expanded to reach 3 million households nationwide by 2014, while PNPM Generasi currently reaches over 5 million people.

Managed by the Ministry of Social Affairs, the PKH provides cash to extremely poor households that include pregnant women or children of primary or secondary school age. The benefits are conditional on meeting basic requirements in health and education that are regularly monitored, including school attendance.

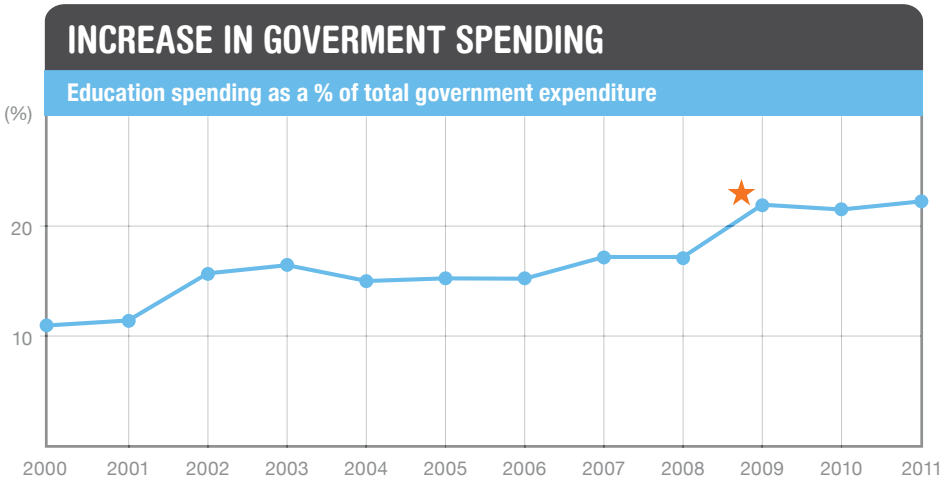
PNPM Generasi, which is managed by the Ministry of Home Affairs, provides block grants to communities who decide how best to spend the funds in order to improve the use of health and education services. Communities may use the funds to focus on demand-side problems (e.g. offering scholarships to encourage children to attend school) or supply-side problems that limit access to services (e.g. improving facilities or paying for additional teachers/health workers). The grants are conditional in the sense that communities are eligible to receive bonus cash payments depending on how much progress they make in meeting a set of key health and education indicators.

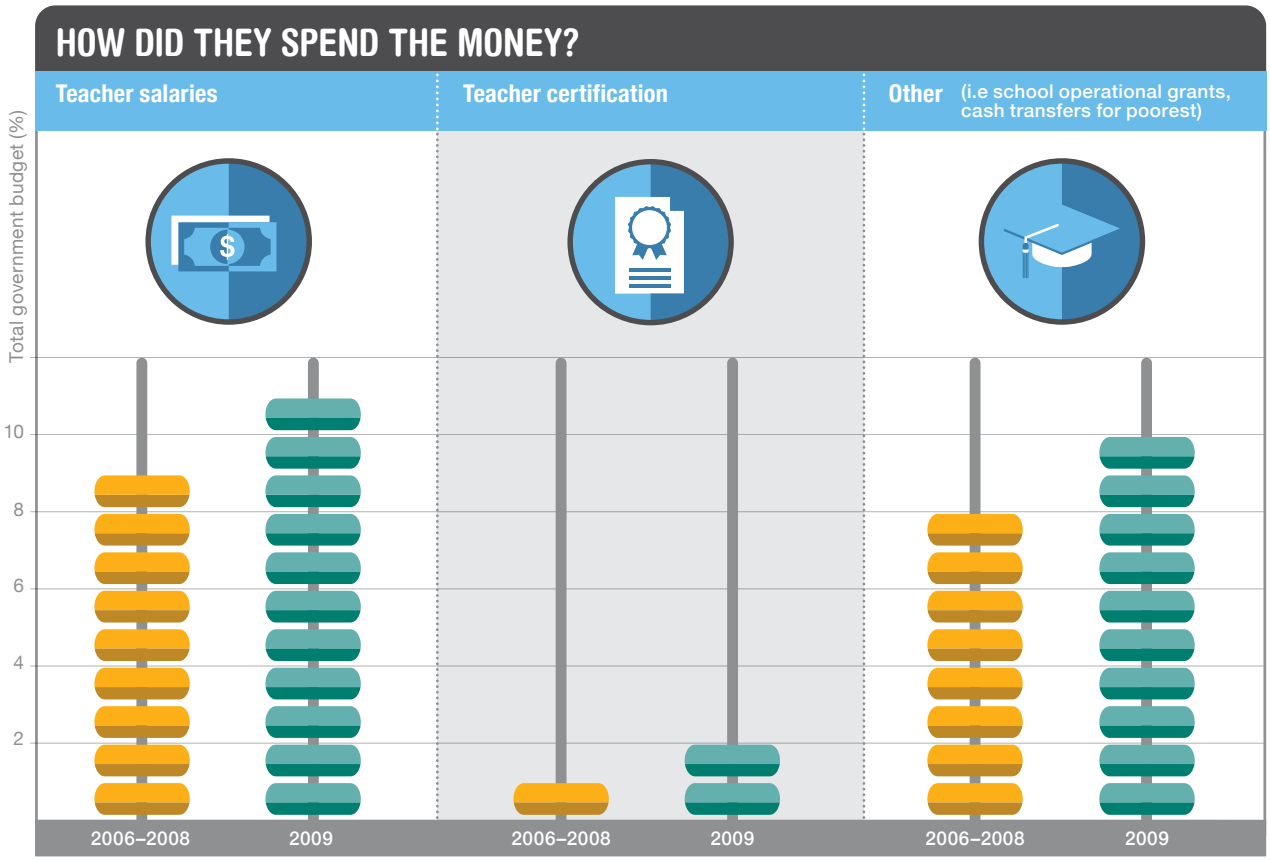
The World Bank supported the GoI in conducting rigorous evaluations of the PKH and PNPM using randomised experimental methods. The evaluation found that PNPM Generasi had a strong impact on improving several health and education indicators. In particular, the programme increased primary attendance rates by eight percentage points, bringing enrolment rates to 98.5% among children aged between seven and 12 years. The effects in terms of higher enrolment were even more dramatic among poorer students and at the junior-secondary level. Unfortunately, the programme has not yet yielded any measurable improvements on maths or language test scores among children aged between seven and 12, and between 13 and 15 years (Olken et al. 2013). PKH was also found to have several positive health impacts and some indications of success in improving educational outcomes although these impacts were less significant, probably due in part to the short timeframe of the study.

Indonesia

Efforts by Indonesia to fund their education system

In 2002, the Indonesian government committed to spend 20% of their budget on education. Seven years later, they reached their goal.





Source: World Bank (2012, 2013)

Infogr8

4. What are the challenges?

As noted in the introduction, Indonesia was selected as a case study in the 'Development Progress' series due to partial indications of quality improvements over the past decade, in addition to its notable progress in increasing access to education. In many ways, the challenge of improving the quality of education remains work in progress. Although direct evidence of concrete improvements in learning outcomes is somewhat limited, as already discussed, there are positive signs and promising reforms underway. Sections 2 and 3 have analysed what has been achieved and the factors driving Indonesia's progress in education. Here, we turn to some of the remaining challenges.

4.1 Variable learning levels and persistent equity concerns, by region and income

Despite the GoI's reform efforts and notable improvements in PISA and PIRLS literacy ratings there is still a need for significant improvements in the quality of Indonesia's education and equity of resource distribution, access and outcomes.

Standard international tests have shown stable levels of achievement in mathematics and science, while in reading performance, where there have been significant recent improvements, Indonesia still lags behind neighbouring countries. Only one in four Indonesian students achieves the international benchmark in PISA mathematics assessments, only half achieve this in reading and fewer than four in ten students do so for science (OECD 2014: 68,196,235). Recent reforms in curriculum, pedagogy, and teacher management may help to tackle the barriers to improving the quality of education, although it remains a challenge to implement them throughout the country.

Regional variations in enrolment, graduation and resource distribution also remain a significant issue. Educational outcomes are lagging particularly in parts of Eastern Indonesia such as Papua, where special attention is needed to help close gaps. According to official statistics for 2012–2013, 72 districts have net primary enrolment rates of below 90% and primary graduation rates exhibit broad variations across states (see Figure 10, overleaf). As discussed in Section 3, there are still particularly strong inequities in the distribution of teachers across districts and regions.

As noted in Section 2.3 there has been a narrowing of many of the gaps in access and graduation across regions and socio-economic groups, although variations remain considerable. Similarly large gaps remain in terms of education outcomes (see Figure 11, overleaf) and in contrast to the access indicators these have shown little sign of narrowing over the last decade.

Tackling these inequities will remain a major challenge. Ensuring that poor and vulnerable social groups share in the gains from education reforms is an important element of the national strategy to improve overall access and quality outcomes. More effective targeting of educational resources to the most needy regions, schools, and students will be a key issue of concern as decentralisation deepens.

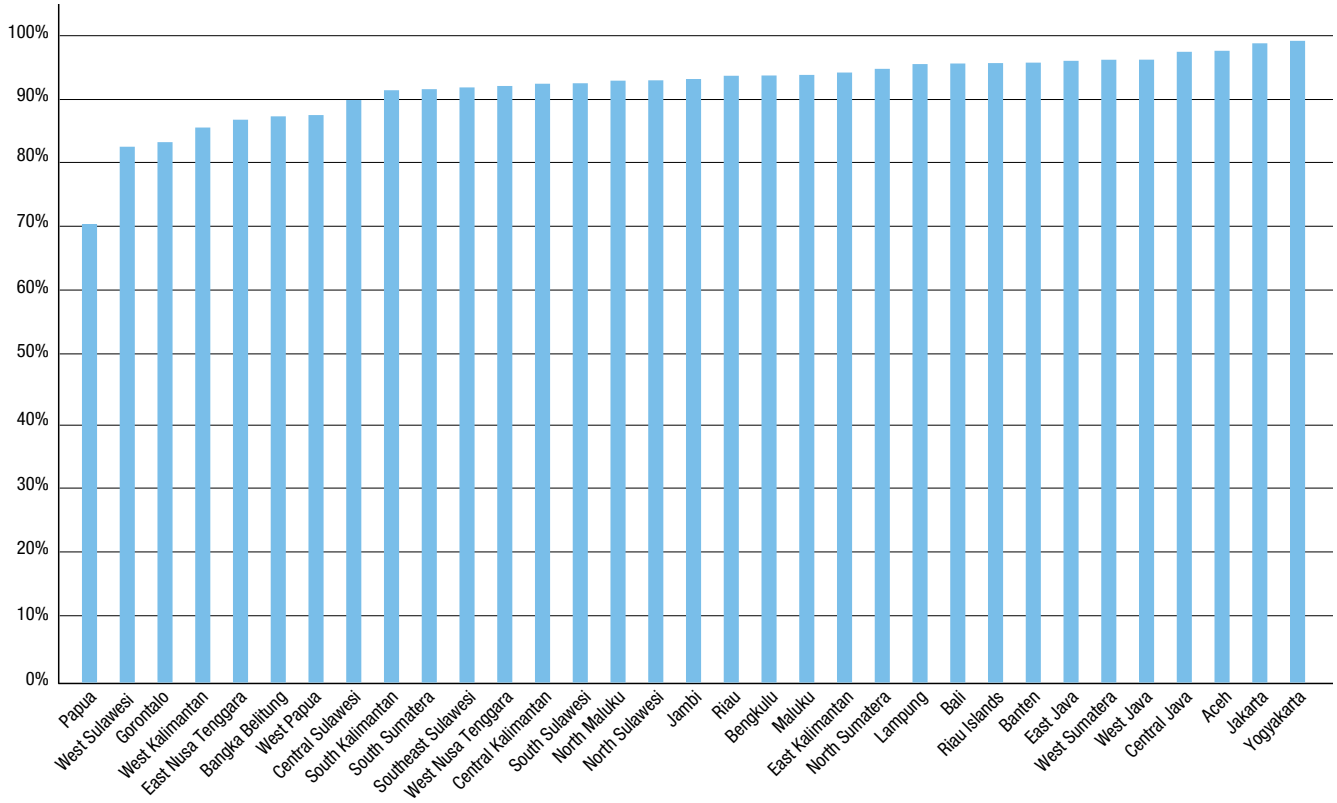
Addressing the underlying incentives for employing too many teachers in some locations and consolidating existing minimum staffing standards into a single, clear set of guidelines to ensure a more efficient and equitable distribution of teachers are among the next issues to be addressed. Technical interventions may also play an important role here, such as the further development of innovative schemes to manage staffing shortfalls in small schools through multi-grade teaching or multiple-subject teachers. Similarly, the recent availability of a reliable national database of poor households in Indonesia may significantly improve the impact of scholarships and cash transfers on educational outcomes. Even with these innovations, ensuring that these initiatives are adequately and sustainably funded, and that benefits are sufficient to have an influence, remains a significant challenge.

4.2 Financial sustainability and cost-effectiveness of reforms

Indonesia currently faces the danger that the continued expansion of teacher certification will place unsustainable pressure on the education budget. By 2012, slightly over a third of all teachers had obtained certification. The programme represented 9% of the total education budget, and this figure will continue to increase if all 3 million teachers are certified by 2015 as planned (World Bank 2012d). If the overall share of government spending on education remains constant at around 20% as it has since 2009, there is a risk that the considerable costs associated with certifying and increasing the salaries of all primary and junior-secondary school teachers will preclude other potential investments to improve the quality of education. In particular, if the proposed plans to convert all contract teachers (non-PNS) to civil-servant status (PNS) go ahead, the financial sustainability of these policies would be a major concern.

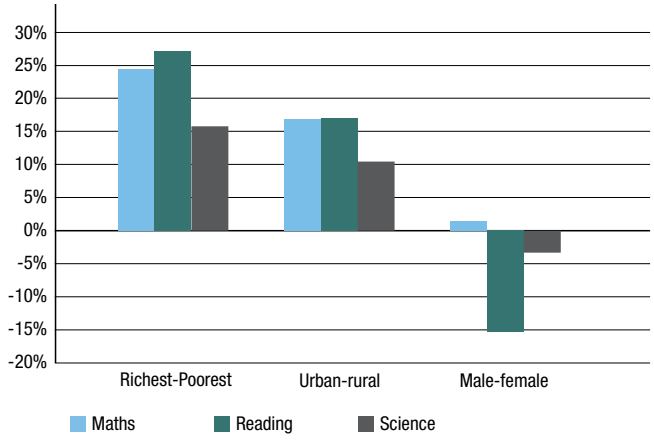
The Indonesian government confronts the challenge of ensuring that certification does not represent only an increase in existing teachers' salaries and no further changes. In order to justify the massive costs associated with the reforms, it will be critical to demonstrate that certification leads to meaningful improvements in teachers' performance and as a result in student learning. Challenges include ensuring that the upgrading of teaching skills will be part

Figure 10: Primary completion rates by state (2012)



Source: Demographic and Health Survey (DHS) – World Inequality Database on Education (WIDE), retrieved June 2014
Note: Data are primary completion rate among children of primary completion age.

Figure 11: Percentage point gap between groups in achieving international benchmarks in PISA 2012

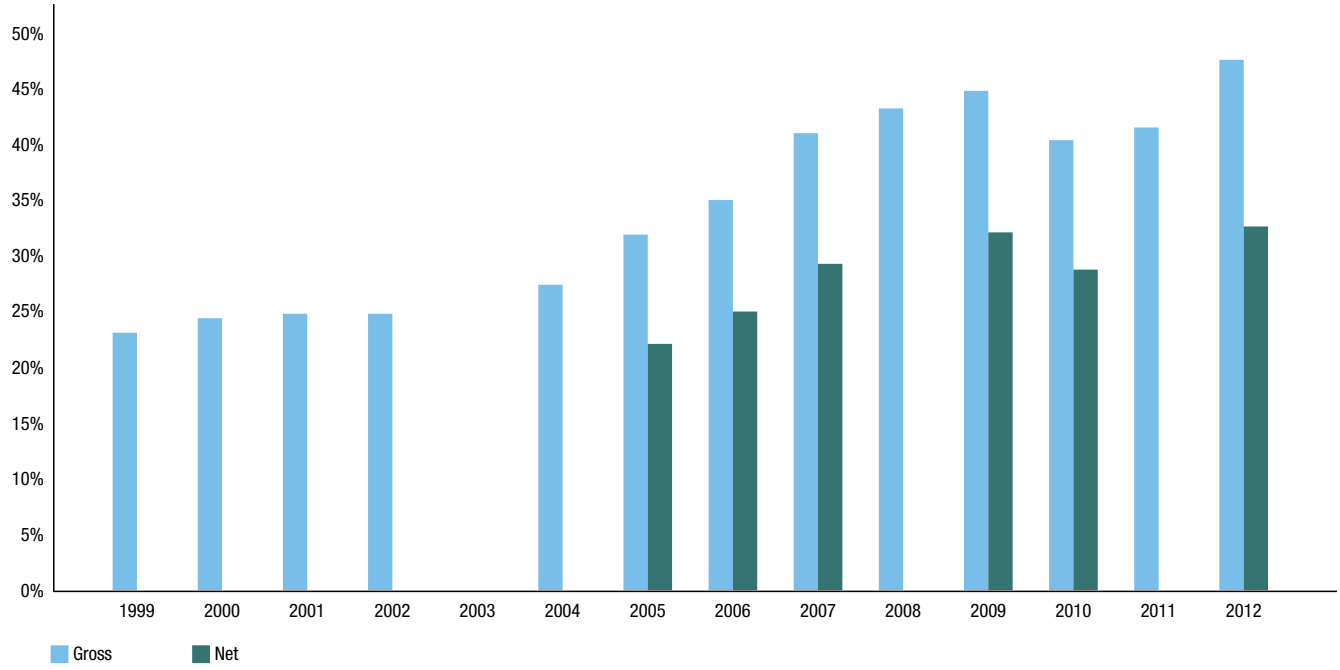


Source: World Inequality Database on Education (WIDE) (retrieved June 2014)

of an ongoing process, with refresher courses and re-testing once the initial certification qualifications have been met, as well as continuing to shift the education system in the direction of granting merit-based rewards to teachers based on successful achievements rather than only on seniority.

The BSM (scholarship) programme has also faced questions regarding its overall cost-effectiveness, with two major concerns being highlighted. First, there are questions about how accurately the programme is targeting the poor. Recent data suggest that poor students have been only slightly more likely to be nominated as scholarship beneficiaries compared to non-poor students: half of all BSM funds go to students in the poorest 40% of the population while the other half benefits those in the richest 60% (World Bank 2012a). Second, research has found that the cost of education to Indonesian households, including out-of-pocket spending, is far higher than the amount provided by BSM, which may limit the programme's ability to raise enrolment. The GoI is responding to these challenges by using a national Unified Database of poor households (Basis Data Terpadu untuk Program Perlindungan Sosial – BDT) to improve targeting, and is increasing the size of the annual scholarships at the primary level from IDR 360,000 to IDR 450,000 (about US$50) per student. However, removing transfers from richer students while preserving the political support needed for these programmes is likely to be challenging, as is the administrative task of creating and maintaining an accurate national database that can coordinate among the range of national and local actors involved in education provision.

Figure 12: Pre-primary enrolment rates (1999–2012)



Source: UNESCO Institute of Statistics (UIS) (retrieved June 2014) No data are available for 2003.

4.3 Coverage, equity and quality of early childhood care and education

Early childhood care and education (ECCE) are increasingly recognised as an important element of improving learning outcomes and a major element in observed inequities between different socio-economic groups.[26] The ability of parents to obtain access to high-quality early education, both within and outside the formal school system, has a major influence on children's later academic performance and life chances (World Bank 2011; DFID 2010). The effects of initial disadvantages are also extremely persistent and learning disparities in early years are strongly correlated with educational, social and economic disadvantages in adulthood (DFID 2010). Despite recent GoI initiatives this area remains a major challenge in the education system.

During the 2000s Indonesia made several moves to improve the coverage and quality of pre-primary education. The 2003 National Education System Law laid out a definition of and ways to provide ECCE, and established a regulatory framework of minimum service standards. The government also set out to achieve a significant increase in coverage, with a commitment to reaching a pre-primary gross enrolment rate of 75% by 2015.

Achieving these targets and raising the quality of pre-school education has, however, proved difficult. The World Bank (2012c) notes that the ECCE sector in Indonesia has historically suffered from four major issues: (i) low participation rates among the poor; (ii) a lack of government investment; (iii) few options for teacher training; and (iv) low enrolment rates among children of 0–3 years of age.

There has been progress in some areas but it has fallen short of achieving the government's ambitious targets. Enrolment rates for pre-primary education have risen substantially alongside rising net enrolment rates (see Figure 12), but it seems unlikely that the 75% target for 2015 will be met given the current pace of change.

The considerable and widening gap in coverage between socio-economic groups also raises equity concerns. Data from SUSENAS (see World Bank 2012c) shows enrolment of four- to six-year-olds from the poorest quintile rose from 19% to 36% between 2004 and 2010, although over the same period enrolment among the richest quintile increased from 46% to 68%. The MoNE (2007) also notes considerable rural–urban disparities.

The quality of ECCE has also been a matter of concern, with significant diversity of providers and types of provision. Evidence from Hasan et al. (2013) gathered in a study of children's development in ECCE institutions in 310 poor villages across nine Indonesian provinces over the 2009–2010 period found that they had 'not gained foundational, age-appropriate school readiness skills in literacy, math, and other aspects of

26 All data are from the UNESCO Institute of Statistics (UIS) unless otherwise stated.

cognitive problem-solving', and that while their conceptual and cognitive development improves as they get older (particularly from the age of four to five years) their competencies 'remain low compared with children of the same age in other settings'. In addition to quality concerns it is also clear that equity of outcomes is an issue, and the study found a notable lag in the progress of the poorest children and those with the least educated parents.

Taken together this suggests that the coverage, equity and quality of ECCE in Indonesia are likely to remain a challenge.

4.4 Fragile education-to-employment transition

Overall, the Indonesian economy has performed relatively well in terms of labour productivity, which has accounted for 60% of economic growth over the past two decades, with the rest being due to growth in the working-age population (McKinsey 2012). However, it is projected that in order to maintain current annual GDP growth rates of 5–6%, the demand for semi-skilled and skilled workers will double from 55 million to 113 million by 2030 (McKinsey 2012).

In order to meet rising demands for skilled workers and maintain its competitive edge, it will be important for Indonesia to address long-term challenges related to facilitating the education-to-employment transition, demand deficits and skill mismatches more broadly. Despite some recent improvements there are clear long-term and entrenched issues concerning youth unemployment. According to data from the International Labour Organization (ILO), overall youth unemployment rates for the 25–24 age group have fluctuated between 20% and 32% in the 2000–2011 period, with no clear overall declining trend (ILO 2013: 21). Recently, there has been some evidence of the increased prominence of under-employment among youth – for instance, 53.1% of youth surveyed in 2012 said that they would prefer to work more hours (ILO 2013: 22). Further, the ILO (2013) found evidence of continuing difficulties with the school-to-work transition. Those who were most likely to report being unemployed in 2012 had education up to senior high school level, suggesting that this may be due to demand deficits and skill mismatches (ILO 2013: 8). By contrast, there has been a strong decline in unemployment among diploma and university graduates, indicating that Indonesia's economic modernisation is leading to stronger demand for more skilled and educated workers (ILO 2013: 9).

It has also been noted from a range of evidence drawn from surveys of labour demand and employer/employee skills surveys that: 'Primary education remains the building block of worker quality. Primary education remains central as a basis for the acquisition of any further skills across all occupations and sectors, as indicated by the high importance attributed to this education level across the board' (Di Gropello et al. 2011: 78–79). Broader evidence suggests that improving the quality of primary education will need to be accompanied by an expansion of secondary enrolment so that students can then benefit from this additional training and their increased ability to gain skills. An analysis of data on hiring and firing patterns across Indonesian firms showed that job seekers with upper-secondary education fared the best overall, while those with only primary education are losing out across the board, especially in terms of hiring in service industries and small firms (Di Gropello et al. 2011: 72). The skills gained through secondary education are therefore increasingly important. This conclusion is also supported by analysis by McKinsey (2012) which argues for increasing the number of students graduating from secondary and tertiary education, as well as improving the quality and relevance of education at these levels, in order to avoid large shortfalls in skilled workers. Expanding private education may also play an important role in meeting this need as the number of students in private education is projected to nearly double to 27 million by 2030 (McKinsey 2012).

Meeting these challenges requires both an improvement in the quality of education and reforms to Indonesia's Technical and Vocational Education and Training (TVET) system. Vocational schooling begins at upper-secondary level, where students have the choice between general higher-middle schools and vocational middle schools, and so this is where the policy focus to improve the work-related skills and preparedness of students has concentrated. In 2006 the GoI pledged to reverse the current distribution of upper-secondary students so that the ratio of general to vocational enrolment would move from 76:24 in 2007 to 50:50 in 2010 and 30:70 in 2015. This pledge was accompanied by a freeze in construction of general high schools, the conversion of selected general high schools to vocational status and a move to expand the construction of vocational schools (World Bank 2009b). However, there is some scepticism that these measures alone will improve the situation significantly as recent analyses point to the relatively small and narrowing differences between vocational and general school graduates in terms of labour-market outcomes (World Bank 2009b).

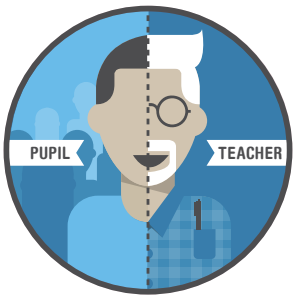
Indonesia

Challenges in education: regional inequalities

MAJOR REGIONAL DIFFERENCES IN PUPIL-TEACHER RATIO

In 2010, pupil-teacher ratios ranged across primary schools from...

10:1 TO 60:1



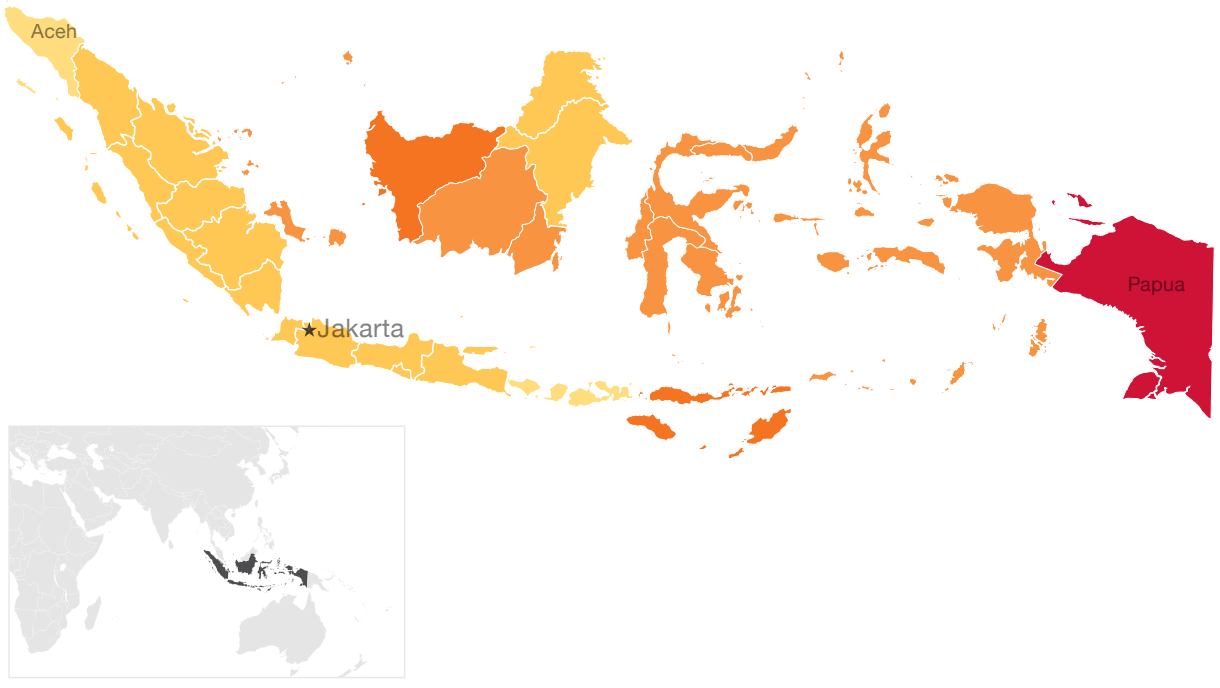
MAJOR GAPS IN ENROLMENT FOR SECONDARY EDUCATION

Enrolment rates by province (2013)

INDONESIA

Enrolment in lower secondary education (%)

80+ 70–80 60–70 50–60 <50



Sources: Statistics Indonesia

Infogr8

5. What lessons can we learn?

Indonesia's drive towards achieving high-quality education is very much work in progress, but the last decade has seen positive improvements in a range of educational outcomes and a narrowing of equity gaps in terms of access to formal education.

- International test results have shown significant improvements in reading levels, and results in mathematics and science have remained relatively stable despite rising enrolment levels.
- Improvements in reading levels have been observed among all socio-economic quintiles, although existing inequities have not been reversed, and there was a narrowing of the achievement gap between high and low achievers over the 2000–2009 period.
- Completion rates for lower-secondary education rose between 2002 and 2012 from an average of 63% to 76%, with negligible gender disparities and incremental gains in equity across socio-economic groups, regions, and urban and rural populations.

These improvements have been rooted in concerted efforts to strengthen the teaching profession, reform the curriculum and pedagogy, a shift to greater decentralisation and school-based management, as well as increased expenditure and support aimed at addressing inequities. Many of these initiatives have faced challenges in implementation and have been in place for a comparatively short period, which makes it possible that more long-term improvements will be forthcoming.

Indonesia faces significant challenges in continuing to improve the quality of education. Absolute levels of learning are low compared to many countries in the region and there are still considerable inequities in access, resources and outcomes among different regions and socio-economic groups. Ensuring that reforms are implemented in a manner which is effective and financially sustainable is also a major challenge given the high costs of achieving certain reforms, and the complex and sometimes counter-productive political incentives surrounding monetary transfers and teaching policy at different levels of government. Accompanying these is a need to focus greater attention on both early education and ensuring smooth school-to-work transitions, with access and uptake being a major issue for the former and the quality and content of primary and secondary education, as well as reforms to the TVET system, being key to the latter.

In conclusion, Indonesia presents an important example for countries seeking to improve the quality of education and looking to understand the challenges they may face. A number of key lessons can be drawn from Indonesia's experience and are summarised as follows:

- **Prioritising the upgrading of teaching skills, along with curriculum and pedagogy reforms, are key to improving teaching quality and student learning.** Indonesia's experience with teacher certification suggests that combining minimum teaching standards with salary incentives has the potential to improve educational outcomes and this may be a politically feasible starting point for reforms. Clearly, salary increases alone will not automatically lead to improved teaching performance – there is a need for incentives to be closely linked to demonstrated competence. Ensuring that competency tests are adequately designed with sufficiently demanding thresholds of success is important in order to protect students from the risk of less competent teachers gaining entry into the education system.
- **Decentralising power to local governments, school administrators, and parents through school-based management (SBM) reforms has the potential to build local involvement and support for improving educational outcomes.** At the same time, decentralisation may introduce some risks of deepening existing inequities and resource gaps between different regions or schools, so it is also important to address equity issues. Indonesia's experience shows that decentralised management of schooling can be a valuable component of strategies for improving the quality of education, particularly when local institutions have the capacity and resources to effectively manage their growing responsibilities in formal education. Block grants to schools have strong potential to improve the effectiveness of education management and support decentralised decision-making, which can be enhanced with training and capacity-building initiatives such as efforts to raise awareness and understanding about the school grants among school committees and parents.
- **Strong high-level commitments to prioritise education, supported by large spending increases, can open the space for reforms – but increased resources alone are unlikely to automatically translate into improvements in the quality of education.** While democratisation can help to generate wider political support for public

spending on education, one challenge is that in contrast to achieving progress in relatively visible indicators of access such as enrolment rates, improvements in the quality of education are usually more difficult to observe and measure. Efforts to make both citizens and policy-makers more aware of what students are actually learning in the classroom (e.g. through monitoring teachers' performance in the classroom and/or publicising exam results that measure student learning) are an important element of reforms aimed at addressing the quality of education. Indonesia's experience also highlights the inter-linkages between access, equity and quality. Programmes and policies aimed at assisting disadvantaged students, schools, and regions (e.g. poor students, under-resourced schools, and remote areas) can be an efficient and effective means of improving educational outcomes through reducing gaps in access and achievement.

- **Collaboration among government, donors, and research institutions can help to build growing support for applying evidence-based approaches to educational policies.** In Indonesia, this support has helped to foster a culture of openness to research and evaluation, which in turn supports continuing processes of reflection and improvements to education policies. Fostering similar dynamics in other countries is likely to facilitate progress in improving the quality of education.

Two schoolboys eating in Amed, Bali. Photo: © Franck Vervial

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