Reviews of National Policies for Education

Education in Indonesia

RISING TO THE CHALLENGE

OECD

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Foreword

Indonesia is one of the major economies of Southeast Asia and the government has set itself ambitious goals for its social and economic development, for which human capital development is crucial. Despite great regional divergences which limit access to quality education for many, Indonesia has made impressive progress on many fronts in the education sector since the 1997-98 Asian crisis such as coverage of basic education. Many challenges remain including expanding enrolment in secondary and tertiary education, increasing quality and relevance and making governance and finance more responsive.

This report covers the full range of education from early childhood through to tertiary education, including aspects of non-formal education, across both the system of the Ministry of Education and Culture and the Islamic system of the Ministry of Religious Affairs. It uses information from the *Country Background Report* prepared by the Education Sector Analytical and Capacity Development Partnership (ACDP) at the request of the Indonesian authorities, as well as information supplied in the course of site visits to Jakarta, East Kalimantan, South Sulawesi, South Sumatra and West Java. This review offers an in-depth study and recommendations on the structure and scale of provision, student access and inclusion, student progression, teaching and learning, standards and accreditation, financing, and governance of the pre-primary, basic, secondary, vocational and higher education sectors. Other recommendations cover assessment, education and skills formation and the changing labour market, relevance, the transition from education to work, and adult learning.

This review of education policy was undertaken within the framework of the programme of work of the OECD Directorate for Education and Skills. Grant financing for the review was provided by the Analytical and Capacity Development Partnership, a facility supported by the Government of Indonesia, the Government of Australia, through Australian Aid, the European Union (EU) and the Asian Development Bank (ADB). Additional in-kind support was provided by the Care Inspectorate, Scotland and the Islamic Development Bank (IDB).

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This volume is published on the responsibility of the Secretary-General of the OECD.

Andreas Schleicher

Director for Education and Skills
OECD

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List of acronyms

ADB	Asian Development Bank
ACDP	Education Sector Analytical and Capacity Development Partnership
AK	Community colleges (*akademi komunitas*)
ASEAN	Association of Southeast Asian Nations
ASEM	Asia-Europe Meeting
AUN	ASEAN University Network
BAN-PT	National Board for Higher Education Accreditation (*Badan Akreditasi Nasional- Perguruan Tinggi*)
BAPPENAS	National Development Planning Agency (*Badan Perencanaan Pemgangunan Nasional*)
BCE	Before Common Era
BKPM	Indonesia Investment Co-ordinating Board (*Badan Koordinasi Penanaman Modal*)
BLK	Vocational centres (*balai latihan kerja*)
BLU	Public service concept (*badan layanan umum*)
BOS	School operational assistance grant (*bantuan operasional sekolah*)
BOSDA	Local school grants (*bantuan operasional sekolah daerah*)
BPS	Statistics Indonesia (*Badan Pusat Statistik*)
BSM	Poor students assistance programme (*bantuan siswa miskin*)
BSNP	National Education Standards Board (*Badan Standar Nasional Pendidikan*)

CBR	Country Background Report
CBT	Computer-based testing
CE	Common Era
CSR	Corporate social responsibility
DAU	General Allocation Fund (*Dana Alokasi Umum*)
DKI	Special Capital Region (of Jakarta)
EBTANAS	Indonesia national exam (*evaluasi belajar*)
ECCE	Early childhood care and education
EGRA	Early Grade Reading Assessment
EU	European Union
FDI	Foreign direct investment
GDP	Gross domestic product
GER	Gross enrolment ratio
GRALE	Global Report on Adult Learning and Education
HDI	Human Development Index
HI-ECD	Holistic Integrated Early Childhood Development
ICT	Information and communication technology
IDB	Islamic Development Bank
IDR	Indonesian rupiah
INAP	Indonesian National Assessment Programme
IPB	Bogor Agricultural University (*Institut Pertanian Bogor*)
ISCED	International Standard Classification of Education (UNESCO)
ISO	International Organization for Standardization
ITB	Bandung Institute of Technology (*Institut Teknologi Bandung*)
KB	Playgroups (*kelompok bermain*)
KIP	Smart card – *kartu Indonesia pintar*
KKBP	Co-ordinating Ministry of Economic Affairs (*Kementerian Koordinator Bidang Perekonomian*)

KKG	Primary school teacher clusters (*kelompok kerja guru*)
MA	Islamic secondary school (*madrasah aliyah*)
MAK	Islamic vocational secondary school (*madrasah aliyah kejuruan*)
MBS	School-based management (*manajemen Berbasis Sekolah*)
MGMP	Secondary school subject teacher clusters (*musyawarah guru mata pelajaran*)
MI	Islamic primary school (*madrasah ibtidaiyah*)
MIC	Selected Districts of Papua Multiple Indicator Cluster Study
MOEC	Ministry of Education and Culture
MOMT	Ministry of Manpower and Transmigration
MORA	Ministry of Religious Affairs
MORTHE	Ministry of Research, Technology and Higher Education (*Kementerian Riset, Teknologi dan Pendidikan Tinggi (Kemenristekdikti)*)
MP3EI	The Master Plan for the Acceleration and Expansion of Economic Development of Indonesia (*Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia*)
MPR	People's Consultative Assembly
MT	Islamic schools (*madrasah tsanawiyah*)
NAEP	National Assessment of Educational Progress (United States)
NEB	National Examination Board
NFE	Non-formal education
NQF	National qualifications framework
NSE	National Standards in Education
OECD	Organisation for Economic Co-operation and Development
P4TK	Center for the Development and Empowerment of Teachers and Education Personnel (*pusat pengembangan pemberdayaan pendidik dan tenaga kependidikan*)

PCE	Per capita expenditure
PHLN	Public Health Laboratory National (*Pinjaman dan Hibah Luar Negeri*)
PIAAC	Programme for the International Assessment of Adult Competence
PIRLS	Progress in International Reading Literacy Study (International Association for the Evaluation of Educational Achievements)
PISA	Programme for International Student Assessment (OECD)
PKH	Family hope programme (*program keluarga harapan*)
PKI	Indonesian Communist Party
PNS	Civil Servant (*pegawai negeri sipil*)
PPP	Principal Preparation Programme
PT	Higher education (*perguruan tinggi*)
PTN-BH	State legal entities (*perguruan tinggi badan hukum*)
R&D	Research and development
RA	Islamic early childhood education (*raudhatul athafal*)
RPJMN	National mid-term development plan (*rencana pembangunan jangka menengah nasional*)
SD	General primary schools (*sekolah dasar*)
SEZ	Special economic zones
SMA	Senior secondary school (*sekolah menengah atas*)
SMK	Vocational senior secondary school (*sekolah menengah kejuruan*)
SMP	Junior secondary school (*sekolah menengah pertama*)
SPM	Minimum service standards (*standar pelayanan minimum*)
Sukernas	National Labour Force Survey (*Survei Angkatan Kerja Nasional*)
Susenas	National Socioeconomic Survey (*Survei Sosial Ekonomi Nasional*)
TALIS	Teaching and Learning International Survey (OECD)

TIMSS	Trends in International Mathematics and Science Study (International Association for the Evaluation of Educational Achievements)
TK	Kindergarten (*taman kanak-kanak*)
TPA	Childcare centre (*tempat penitipan anak*)
TVET	Technical and vocational education and training
UIS	UNESCO Institute for Statistics
UN	National Examinations (*Ujian Nasional*)
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	United States dollar
UT	Open University (*Universitas Terbuka*)
VET	Vocational education and training

Executive summary

Education and skills are central to Indonesia's growth prospects in the next decade. It now has the opportunity to capitalise on the very substantial progress that has been made in expanding access to education. At the turn of the century, over 1.5 million students were out of school but today, Indonesia is close to achieving universal basic education. These efforts have involved relatively high levels of investment on educational facilities, teaching personnel and learning materials.

The challenge is to consolidate these gains and develop an education system that will better support the needs of a rapidly emerging economy in its transition towards high-income status. This requires Indonesia to turn its attention to three main goals: raising quality, widening participation, and improving efficiency.

Raising quality and enhancing relevance

PISA shows that Indonesian students are performing some three years behind the OECD average. Over 50% of Indonesian fifteen year olds do not master basic skills in reading or mathematics. Raising performance in Indonesian education is crucial to meeting the challenge of reaching a high income status.

The top priority for Indonesia is therefore to improve learning outcomes and to enable students to form core skills and understanding. Additional support will be needed to address low levels of student readiness and motivation. The key to success will lie in addressing teaching and school leadership standards. Teachers need support in order to develop greater professional capacity and be held more accountable for the results they achieve. Pre-service teacher education and especially in-service professional development of teachers need major improvement.

Assessment processes should inform teachers, parents and policy-makers about how well students are learning, and how different schools are performing against a national framework of educational standards. National

public examinations need to be improved but more diverse assessment methods are also necessary, especially formative assessment in classrooms.

In school and beyond, closer attention should be paid to the relevance of education to employment and economic development. Indonesia needs a more diversified and nationally co-ordinated system of vocational education with a high level of employer engagement. It will also require new steering mechanisms to increase linkages across government portfolios and between levels of government, and raise community esteem for technical education and training.

Indonesian universities attract fewer foreign students than other ASEAN countries. Many higher education institutions are unaccredited and there is an acute shortage of advanced human capital. Accreditation capacity must be strengthened and stronger regulation is needed to address low quality providers. In view of the high costs involved and the relatively low strengths of Indonesian institutions against world benchmarks, it will be necessary to take a focused approach to investment in and internationalisation of research capacity among universities and institutes of technology.

Improving equity at all levels

In line with the government's commitment to equality, a concerted effort will be required to further improve access and offer more and better opportunities in communities where participation in basic education is low. Indonesia needs to begin by extending access to early childhood education and improving quality through nationally promulgated standards, stronger provider licensing, and the development of a specialist cadre of supervisors for this level of education.

Increasing participation in senior secondary education is vital for Indonesia: currently fewer than one-third of Indonesians complete secondary education. Increasing this proportion necessitates increasing its relevance to the life, work and further learning prospects of students. This in turn means paying greater attention to the development of cognitive and interpersonal skills. It will also be necessary to allow students flexibility to enter, exit and re-enter education depending on their financial and social circumstances, and to create pathways between academic and vocational tracks.

The increasing scale and diversity of student demand for higher education requires a more diversified structure of supply. The expansion of polytechnics and community colleges is an important step in the right direction. Funding sources will also need to be diversified and incentives created for higher institution collaboration with business and industry. An

expansion of scholarship support is required to increase access for students from poorer backgrounds.

Increasing efficiency and effectiveness

Indonesia devotes 20% of government expenditure to education. Capitalising on this investment implies increasing efficiency. This will require a more transparent and data-driven basis for assigning resources, better tailoring of provision to local needs and circumstances, and stronger performance management. It will also require further efforts to build capacity at regional and district levels to implement and monitor education reform. The recent decision to expand universal participation in education from 9 to 12 years will necessitate careful trade-offs, calling for much greater effectiveness in the deployment of teachers alongside a better alignment of the breadth of programme offerings with the scale of student enrolments at district levels.

A concerted effort will enable Indonesia to build on past progress and develop a more advanced, diversified and inclusive economy, which will be more competitive on the global stage. This is essential if Indonesia is to meet the needs and aspirations of its large, diverse and dispersed population.

Assessment and recommendations

Indonesia is well-positioned geographically in terms of world trade flows, with extensive natural resources and immense potential, deriving not least from its large young population – some 43% of its 250 million people are under 25 years old. It will not realise its potential as one of the world's major emerging market economies, however, if it relies merely on exploiting its natural resources and its demographic structure. It will need to develop its human capital through education that leads to effective learning and skills formation. It must do so urgently, given the lead that comparator and competitor nations, especially in the Association of Southeast Asian Nations (ASEAN) but also in other regions, have over Indonesia on many indicators of physical infrastructure, educational attainment and performance, advanced human capital and research capacity, and the pace and scale at which they are moving ahead.

Managing multiple transitions

Indonesia is in transition simultaneously on several fronts. It is evolving from an authoritarian legacy to a democratic tradition. It is shifting from a planned to a market-based economy. It is moving from a centrally driven to a decentralised approach to service delivery that is more responsive to local needs and circumstances. It is changing from a largely agricultural economy to a more industrialised economy with diverse manufacturing and advanced services. It is continuing to urbanise. Managing all of these transitions in such a large, diverse and dispersed society is particularly challenging.

Achieving impressive gains

The nation has made impressive gains over the last few decades in improving population health and life expectancy, in reducing adult illiteracy, and in widening young people's access to education. Indonesia has made notable progress in raising attainment levels in primary and secondary school. More than 1 million more students graduated from high school in 2012 than in 1999, and graduation rates are expected to increase further. Major efforts are being made throughout the system to improve learning outcomes, ensuring that graduates are more knowledgeable and have developed a range of useful skills.

The imperative to achieve more

Yet much remains to be done in reducing poverty and social and economic disparities, particularly on a geographic basis. Higher levels of health and functional literacy are important to sustaining social cohesion in such a plural society. More than 40% of the population live on less than USD 2 a day but this proportion is over 90% in some areas. The Human Development Index for Indonesia has improved from 67.7 in 1996 to 73.3 in 2012 although in Papua it was only 65.86 despite some improvement there. Pro-poor policies, such as improving rural infrastructure, and expanding access to quality education and labour market mobility, would boost the earnings of vulnerable families and help combat inequality.

Less than half the workforce participate in the formal sector and the formal unemployment rate is close to 6%. Informal employment is significant both in the agricultural sector (around 90% of employment) and non-agricultural sector (around 50%). Strategies are needed both to expand opportunities for more secure income, greater productivity and better working conditions within the informal sector, and to equip more people to make the transition from the informal to the formal sector.

Indonesia will increasingly depend on greater levels of educational attainment and a more highly skilled workforce if it is to develop a more advanced and diversified economy and improve its international competitiveness. The trend towards greater open trade within ASEAN and with People's Republic of China and other nations, will intensify the need for Indonesia to catch up. Resorting to protectionist economic policies would only hold Indonesia back by sheltering its firms from competition that drives innovation, reducing its attractiveness to foreign investment, and encouraging an outflow of its most highly skilled people.

A comprehensive and ambitious master plan was adopted by the previous government to expand and accelerate Indonesia's economic development (*Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia*, or MP3EI). Over the period 2011-25, the plan aims to raise per capita income from USD 3 500 to USD 15 000 and sustain a growth rate in GDP of 8-9% per year on average. It targets a number of sectors and economic corridors which will require a much higher level of highly-skilled, skilled and semi-skilled workers than presently available to Indonesia from its domestic workforce. The review team understands that Indonesia's future development goals will involve enhancements to MP3EI to be determined by the new government in 2015. Some shift in development sector priorities may affect the relative demand for professional and technical personnel in particular fields. Nevertheless, the imperatives of contemporary, globally integrated economies demand larger proportions of well-educated and highly skilled personnel, and increasingly people with adaptive abilities.

Focusing public investment in education

Indonesia faces important decisions as to the most cost-effective balance of future investment across the different education sub-sectors. The review team examined each of the education sub-sectors with a view to identifying the promising areas for future investment.

There are concurrent imperatives to raise educational quality and relevance, increase effectiveness, improve efficiency, and expand equity of opportunity in all education sub-sectors. Gains made in one sub-sector will benefit the others. For instance, increased readiness of children through early childhood learning will raise the success rates of their participation in basic education, reduce dropout and grade repetition rates, and widen the participation of young people from under-represented groups and regions. The increasing success rates in basic education will lead progressively to higher rates of participation in senior secondary education and tertiary education, both academic and vocational. Graduates of tertiary education who are roundly educated and skills relevant to the job market will boost productivity and economic growth, thereby increasing capacity for greater investment in education and other services. Improvements in teacher education, in part resulting from better-prepared entrants to pre-service training, will promote better teaching and learning at all levels of education.

Nevertheless, concurrent growth in all education sectors will impose significant costs on the Indonesian budget. Thus it will be necessary to determine relative priorities among the sectors, find efficiencies in future expansion whilst raising quality, and, where appropriate and possible, shift a proportion of the costs from the public to the private sector. In the view of the review team, the top priority is to raise the quality of basic education. While sustaining efforts to achieve universal access, renewed attention should be given to improving teacher quality and student learning. Over the decade ahead, the decline in the population cohort aged 7-12 years should make it possible to redirect resources towards such qualitative improvements. The review team would also recommend increased public investment in early childhood education, where participation most significantly improves individual learning and social equity. A strong case can be made furthermore for focused public investment in longer-term research that industry typically will not fund. However, the review team would not recommend an overall increase in public funding for higher education, where participation tends to be dominated by the more advantaged sectors of society who have enjoyed good schooling and who then go on to gain greater private benefits as graduates.

Indonesia has decided to expand universal participation in education from 9 to 12 years. The next decade, therefore, will be one largely of growth in senior secondary provision and participation. While this decision is to

be welcomed, it will be important to ensure that quantitative growth does not occur at the expense of quality. This will require greater efficiency in the deployment of teachers and a better alignment of programme offerings with school size. Enlarged participation in senior secondary school will also require greater attention to the relevance of education to the life, work and further learning prospects of students. There could well be much frustration and discontent – among students, parents and employers – if upper secondary and tertiary education is not reconstructed and made more relevant to Indonesia's economic circumstances.

Education sub-sector opportunities and challenges

To optimise the use of available resources, Indonesian policy makers should consider the following observations and proposals in respect the education sub-sectors.

Early childhood education

Early childhood education lays the foundations for greater success in learning further down the education pipeline, greater equity of opportunities and outcomes, and more efficient use of education system resources overall. Significant steps have been taken to widen access to and improve the quality of early childhood education, building on initiatives since 2001, and following the 2010 "Grand Design", a blueprint for the development of early childhood care and education (ECCE). Much more rapid expansion is needed, however, if Indonesia is to realise the targets it has set in its Grand Design blueprint. The allocation of funding to early childhood development and education remains relatively low at some 1.2% of the education budget, compared with the international benchmark of 4-5%.

The review team considered the option of recommending a period of compulsory early childhood education but decided against it at this stage. First, before mandating any expansion of ECCE, the arrangements for provision, access, quality assurance, supervision, and performance monitoring and reporting need to be regularised. Second, it is not evident that the Indonesian budget could afford structured expansion of public ECCE provision at the same time as senior secondary education is enlarged. Much could be done over the next decade, however, to advance different models of provision and funding, including through donor support, and to design and put in place the policy and regulatory framework for gradual expansion of an ECCE system with a workforce of professional educators and carers.

The bulk of growth in provision and participation of ECCE has been in the for-profit private sector which is accessed by parents who can afford to pay for this provision. Children from the poorest families, who could benefit

most from early learning and care, are the least able to gain access and the most likely to fall behind in the subsequent stages of schooling.

At the local level, many new early childhood institutions are authorised without any clear criteria or standards. Some operate without a licence. Many early childhood educators do not yet meet the required qualifications standards. Indonesian ECCE lacks a quality assurance mechanism. Many supervisors currently work across both basic education and pre-school establishments.

As funding for aspects of childhood development and care is sourced from different departments it is difficult to gauge the collective impact of individual initiatives to combat poverty and malnutrition, and improve immunisation, social welfare and education. Investment in the 0-6 age group will need to be monitored for its cost-effectiveness and responsiveness to varying needs and circumstances. Funding for projects that support integrated health, social care and education tends to be for up-front development costs and can be difficult to sustain. These one-off injections of resources, while welcome, can create capacity and build some aspects of infrastructure but they are not reliable over the longer term.

Parents need greater awareness of the importance of early childhood education and care, and more encouragement to enrol their children in pre-primary schools at the age of 5-6 years.

Recommendation 1. Give increasing priority to early childhood education.

- The government should increase provision and participation in early childhood care and education (ECCE), and progressively raise its budget expenditure on ECCE as a proportion of its total outlays. The increased expenditure should include provision for growth in recurrent costs as well as for capital works.
- Priority should be given to expanding pre-school and school readiness programmes for children from poor households. The Government of Indonesia should progressively increase its spending on the public provision of early childhood education services that can be accessed by poorer families.
- The government should establish, promulgate and enforce strict provider licensing standards, and take steps to put in place a robust quality assurance regimen for both private and public ECCE providers. The threshold licensing standards should be common across the nation. A set of minimum service standards should be developed for ECCE along the lines of those developed for the school and madrasah sectors.
- The government should consider appointing a dedicated professional cohort of early childhood education supervisors.

- The relevant ministries should work together to develop a joined-up and systematic approach to data collection, recording, analysis and reporting in respect of ECCE.
- The government should consider developing a public awareness campaign designed to increase participation in ECCE.

Basic education

A number of policies and initiatives, not least the school operational assistance (*bantuan operasional sekolah*, or BOS) grant, "One Roof" primary and junior secondary schools housed in the same building in remote areas, and local school grants (*bantuan operasional sekolah daerah*, or BOSDA) have contributed to improving the access, availability and affordability of basic education. Indonesia is now close to achieving universal primary education. Good progress has been made towards targets for achieving qualified teachers and the provision of classrooms and teaching materials. Indonesia has made faster progress than several comparator countries in raising junior secondary enrolments over the last decade. The review team observed instances of good teaching practice and group learning, with dedicated teachers and motivated students.

However, regional and district disparities remain in student access, educational quality, and teacher certification in remote and poor areas. The difficulty of providing access to education in remote areas compounds the problem of young people's participation in schooling, particularly among communities with traditionally low educational aspirations. While there is no overall shortage of teachers, those in remote and rural areas are less qualified and too often absent from their schools and classrooms. Rates of teacher absenteeism are highest in districts with the highest proportion of children not at school.

Indonesia performs well below the OECD average on literacy and numeracy skills assessments, though at a level comparable with other countries of similar economic development, albeit not as well as other ASEAN member nations. Early learning among school children in schools outside Jakarta is a serious problem, with around one-quarter of enrolled children not achieving Grade 2 reading proficiency.

The new curriculum is designed to develop critical thinking and creativity in students as well as to provide them with more contemporary knowledge options. Teachers told the review team that they want training in various aspects of the new curriculum, including content knowledge, theme teaching, interactive pedagogy and group learning. Unless teachers have confidence in their own competence to deliver to the goals of the new

curriculum they are likely to default to the traditional recitation method in their classrooms, and thus the new curriculum will not achieve its intended outcomes.

Indonesia's education system is a "leaking pipeline", with considerable wastage through student dropping out, especially in the transition from primary to junior secondary and also through the junior secondary years.

Students are tracked into general or vocational streams at 15 or even earlier. Tracking students too early can restrict learning experiences and skills formation opportunities and subsequently limit their work and life options. The practice is invidious when the bases for track-assignment decisions lack objectivity and validity, when the nature of what is taught in any of the various tracks is too narrow, and when options for further learning at the end of any track are truncated or closed off.

There are reported shortfalls against minimum service standards, with some 75% of schools not meeting them. The critical shortfalls are not just in the physical elements of schooling that have been of primary concern to administrators, but in important educational processes especially in areas such as supervision, lesson planning and student assessment. Incremental improvements in low-cost activities can make big differences.

District-level processes to allocate resources to primary and junior secondary schools typically lack transparency. In some areas there are concerns about skimming or politicisation, leading to inadequate provision and reduced discretion at the school level. Districts vary in their capacity to manage budgets, and there is no expectation that they report on the cost-effectiveness of resource usage.

Inconsistent resource-allocation processes at district level have given rise to non-payment or delays in payments to teachers of various allowances, including those linked to teachers upgrading their qualifications and certification. Teachers have been disappointed and distracted from their core teaching role by having to follow up on the payment of their entitlements.

The per capita formula for BOS and BOSDA allocations has failed to account for the fixed costs of small schools although from 2014, a base enrolment of 120 students has been assumed for all schools. Nevertheless, per-student allocations do not adequately reflect differences in school net operating costs.

Private *madrasah* cater for the children of the poorest families yet receive less support than public *madrasah* and public schools.

Recommendation 2. As a first priority, improve participation, learning and teaching in basic education, and take measures to improve the efficiency of resource allocation and usage.

- The Government of Indonesia should reaffirm its commitment to universal basic education, and take the necessary steps and make the required investment to give effect to that undertaking. It should design a well- targeted programme to improve access to education for those currently not participating at the primary and junior secondary levels.
- To strengthen school-based management, the responsible ministries, in co-operation with local communities, should trial strategies in several districts to better engage parents and families in supporting the education of their children.
- A dual approach to improving student-teacher contact should be considered. On the one hand, teachers should be provided with sufficient support to do their work in an orderly and professional way, including additional support to address issues with young people and families with low levels of readiness and motivation for school-based education. On the other hand, a more rigorous approach to supervision should be adopted, where school principals have performance agreements with individual teachers, and teacher performance on the job is regularly monitored, recorded and reported.
- The responsible ministries should continue to invest in developing the capacity of teachers to implement competency-based curricula, in ways that cause teachers to examine the impact of their practice on student learning outcomes. Teachers working in areas where there are low levels of enrolment should be skilled in multi-grade teaching. The ministries should invest in capacity building, with an increased focus on teacher accountability, including credible inspections and accreditation processes, transparent data on performance, and tangible consequences for poor performance.
- School principals should set goals for increasing student engagement and achievement in literacy and numeracy, based on diagnosis by classroom teachers of the range of student proficiency in these core skills. These goals should be aggregated into a district plan to raise performance, which can be used to inform the allocation of resources to support the efforts of schools.
- The responsible ministries should survey the teaching workforce to ascertain their training needs in relation to the new curriculum –

with particular regard to more active, interactive and higher-order student learning – and establish relevant training programmes that can be readily accessed by teachers.

- The responsible ministries should conduct an audit of where and in what numbers students are dropping out along the education pipeline, in aggregate and on a district level, broken down by student characteristics including location, gender, ethnicity and socio-economic status.
- The responsible ministries should review their policies relating to tracking students into academic and non-academic streams from an early age. Students should have access to pathways enabling them to cross from an academic to a vocational orientation and vice versa, and the boundaries between provider types and qualifications programmes should be permeable.
- Every district should be required to design a targeted programme to ensure all schools reach the set minimum service standards. They should provide differentiated support to help schools reach the standards in remote and disadvantaged areas. Districts should be accountable for achieving the standards and required to report publicly each year on any shortfalls against the standards along with the measures they propose to improve capacity and performance.
- The Ministry of Education and Culture (MOEC) should develop and issue a set of resource-allocation guidelines, including a policy for transparent resource allocation, criteria for decision making, and core data requirements against which to apply the criteria, and report on the cost-effectiveness of resource use. MOEC should arrange for training in the application of the policy and guidelines at district level.
- The responsible ministries should take concrete steps to ensure that systems and processes for paying teacher allowances are efficient and minimise distractions for teachers.
- To achieve greater equity between districts, a review of the allocation of BOS and BOSDA grants should be undertaken with a view to improving their sensitivity to varying revenue capacities and greater costs of schools according to their location, size, and student mix.
- The government should consider increasing support for students enrolled in accredited private madrasah.

Senior secondary education

Since 2000, there has been significant expansion in the numbers of senior secondary schools, students and qualified teachers. Private secondary schools provide an alternative for many students who cannot gain access to public schools. The government has committed to achieving universal participation in senior secondary education, extending the current period of compulsory education from 9 to 12 years, which the review team broadly supports. However, the further expansion of senior secondary education will involve considerable budgetary outlays. Simply expanding the current pattern of public sector provision, which may appear desirable on grounds of equity of opportunity, could, however, be well beyond Indonesia's means. Nor might it cater well for the greater diversity of the future senior secondary student body.

A traditional supply-side model of replicated provision across the nation may prove to be both inappropriate and unsustainable. A more diversified approach that is more responsive to the needs and circumstances of local communities may offer better prospects. Offering a comprehensive curriculum to students in small schools can lead to inefficient deployment of teaching resources. Greater efficiency in the deployment of teachers could lead to greater student access without diminishing educational quality. More investment in classroom resources, including textbooks and information communications technology (ICT), could improve student learning. A move away from uniformity towards greater diversity, however, would need to be based on extensive public consultation to determine priority needs and student interests and the extent of "comprehensiveness" in study options, with consideration given to specialisation in some subject areas – such as in design, languages, media, sciences or sports – that may be accessed by students from other districts.

The key challenge is to effect the necessary change from a didactic to an interactive approach to education where students gain knowledge which widens their mental horizons and they develop cognitive and social skills for citizenship, work and further learning. Whereas teachers seem to be familiar with the wider knowledge aspects of the new curriculum they appear to be less aware of the importance of a more active pedagogy and can lack confidence in their ability to encourage and support higher-order learning.

The review team considered the desirability of persisting with the current dual track system of general and vocational secondary education and training in Indonesia, or shifting to a system of more comprehensive secondary education for all. On the one hand, the dual track system appears to only serve a very few well. Too many graduates of senior secondary schools, both academic (*sekolah menengah atas*, or SMAs) and vocational (*sekolah*

menengah kejuruan, or SMKs) are under-educated and unemployable. In the SMAs, the foundations for learning are so academically narrow that, while students may gain skills for further study, they may not develop broader skills for life and work. In the SMKs, students are subject to a "dumbed-down" curriculum in intellectual terms, yet often not given adequate hands-on learning to develop practical skills relevant to future jobs, technical know-how, adaptability to change and interpersonal skills. On the other hand, Indonesia lacks a structured provision of post-secondary technical education and training. There is also considerable sunk investment in the current secondary schooling structure, a pipeline of current enrolments, and a social base of expectations that will not be shifted in a short time frame. On balance, the review team has concluded that progress towards universal senior secondary participation ought to proceed on the basis of the dual-tracked secondary school system but with variants permitted if not encouraged, where diverse models of more comprehensive secondary education can be offered on a district basis.

Recommendation 3. The expansion of senior secondary participation should cater expressly for the increasing diversity of student cohorts, involve close attention to the relevance of learning to individuals' aptitudes and prospects, and achieve efficiency improvements in the allocation and use of public resources.

- The responsible ministries should take concrete steps to improve teaching efficiency by putting in place training and support for schools and school supervisors to ensure that classes are timetabled well, and that all teachers are engaging in teaching during their paid contact time. In some instances, they will need to remodel existing schools and build new schools of the right size to provide broad student choice whilst making efficient use of teacher time and classroom space.
- The provincial governments should conduct policy reviews into the efficiency of staffing and the appropriate balance between providing curriculum breadth and choice for students in schools with low enrolment.
- In districts with relatively small student numbers, integrated academic and vocational education should be encouraged. This approach can complement Recommendation 3.2, by concentrating, on the one hand, on fields of knowledge of particular relevance to local communities and, on the other hand, by broadening the skill sets that individual students can develop for citizenship, work and further learning. This approach should be seen as a means of

exploring the possibilities for blurring the distinctions between academic and vocational secondary education, and possibly dismantling the current dual-track approach.

- Greater responsibility should be given to school principals and senior teaching staff for quality assurance and improving learning and teaching. This will mean ensuring that standards for the competence of schools leaders including principals, senior staff and school supervisors are set and met.
- A serious effort should be made to find efficiencies in the school system to free up funds for additional school resources, including using ICT to access teaching in fields that cannot be delivered on a cost-effective basis locally.
- Teachers should have access to databases, guidance, support and training to enable them to assess how well students are progressing in their learning. It will be necessary to establish a quality assurance system which gives teachers and managers tools for evidence-based self-evaluation linked to the learning outcomes of their students. It would be useful also to maximise opportunities for peer sharing and collegiate working among teachers both within and across senior secondary schools.
- The responsible ministries should survey the teaching workforce to ascertain their training needs in relation to the new curriculum – with particular regard to more active, interactive and higher-order student learning – and establish relevant in-service training programmes that can be readily accessed by teachers (see also Recommendation 2.6).

Initial technical and vocational education and training

The government plans to increase participation in senior secondary education and raise the share of vocational education at that level while aligning it more closely with its national development goals. Aligning SMKs with the national development objectives is complicated by the fact that the economic corridors identified encompass multiple districts. The market-based provision of TVET services means there are some gaps in sectors targeted by the national development plan.

Giving Indonesia the skills it needs to seize its economic growth opportunities will require a concerted effort to harness all available resources. The current system of supply-driven provision of TVET, fragmented across numerous ministries and the private sector, results in duplication of effort, gaps in service provision, and policy inconsistencies that

can disadvantage learners. There is an urgent need to improve co-ordination and employer involvement, and make TVET more industry-driven.

One major initiative has been the establishment of community colleges (*akademi komunitas*, or AKs) intended, in part, to increase the proportion of SMK graduates progressing to further education and training, from the current low level of 15%.

Giving Indonesia the skills it needs to seize its economic growth opportunities will require a concerted effort to harness all available resources. The current system of supply-driven provision of technical vocational education and training (TVET) is fragmented across numerous ministries and the private sector. This has resulted in duplication of effort, gaps in service provision and policy inconsistencies that can disadvantage learners. There is an urgent need to improve co-ordination and employer involvement, and make TVET more industry-driven.

Although steps have been taken to enhance the quality of initial TVET, the majority of SMK graduates enter low-paying lower-skill jobs, particularly in the informal sector. While there is a need to improve employability, this does not mean adopting a policy of producing narrowly-trained graduates for specific job segments. A resilient workforce that can adapt to changing labour market requirements needs to have a mix of generic and specific skills at all occupational levels.

Second chance students often need flexible arrangements to accommodate their varying circumstances.

TVET students are mostly being trained by teachers who lack practical experience in modern workplaces. These students are not developing the hard knowledge, soft skills and practical know-how needed in the emerging job market.

Linking SMK to national development objectives is complicated by multi-district coverage along the designated “economic corridors”. There are some gaps in the market-based provision of TVET services in targeted sectors.

Technical and vocational education generally is held in low esteem as a second-best option for those who have not been successful academically in the schooling system. The enrolment of girls in SMKs is declining and they remain concentrated in a few “female” subject areas. The financial burden on SMK students is higher than for SMA students, yet SMK targets the three poorest quintiles of the population.

Quality TVET provision is typically costly, especially when it involves small groups learning on sophisticated equipment with well-qualified and

experienced trainers. Given the high cost structure of TVET, continuous efficiency improvement is essential. It will be necessary also to mobilise non-government sources of income to achieve the level of investment required.

Recommendation 4. Develop a modern system of technical education and vocational training with strong employer engagement and national co-ordination.

- The government should establish a national body with responsibility for integrated TVET policy and provision across all economic sectors, regions and ministries. The proposed "President's TVET Council" (PTVETC) should include balanced representation from employers, government ministers, and TVET providers, including SMKs, AKs, vocational centres, polytechnics and universities providing TVET. The role and functions of the PTVETC might evolve over time, possibly into an independent authority or commission with powers over public financing, the establishment of public providers, the licensing of private providers and performance monitoring. Initially, however, given no precedent arrangements, the PTVETC should be established as the chief advisory body to the President, with a remit to develop a national TVET strategy that is industry driven and linked to national development priorities, as a basis for co-ordinating investment, re-orientating training, raising standards, monitoring supply and demand balances, and reporting on performance. The reports of the PTVETC should normally be made public, following Cabinet consideration of them, as a means of informing the community. The PTVETC should be supported by a high-powered professional secretariat (*Skills Indonesia*) located in the Office of the President of Indonesia.
- Consideration should be given to ways and means of better aligning the skills of the systems' graduates with labour market opportunities, not only in the expanding services sector but also in the modernising agricultural and manufacturing sectors.
- The government should consider assigning co-ordination responsibilities to the provincial education offices to link SMK and AK education and training services in designated economic corridors to the industries targeted for growth. It should also consider providing subsidies to SMKs that train in key occupations identified for strategic industries, in identified economic corridors, not presently covered by the private SMKs.
- The government should resuscitate the multi entry/exit system, particularly for SMK students, allowing them the flexibility to enter,

exit and re-enter formal education and training depending on their financial and social circumstances (see also Recommendation 8.2).

- Consideration should be given to offering shorter courses and employing instructors/teachers on short contracts so that they can move in and out of the workplace and school. Consideration should be given also to providing vocational training close to workplaces or on commuter transit corridors, so that part-time trainees, especially those from poorer backgrounds, can keep working while acquiring further skills.
- Industrial attachments and other forms of work-based learning should become standard practice across all vocational programmes.
- The government should launch a major and long-term public communications campaign to raise awareness of the value of TVET. The campaign should reach into homes and schools throughout Indonesia, and involve employers.
- Consideration should be given to recruiting a higher proportion of female TVET teachers to occupations with low female representation in the workforce, as one means among others of promoting the necessary diversification of training opportunities for women and girls.
- The government should progressively raise the level of financial support for SMK students.
- The relevant ministries should establish a framework for activity-based costing in the Indonesian TVET sector, which can function at the institution level, alongside a set of cost-effectiveness benchmarks and a performance management system.
- Consideration should be given to ways and means of raising income from non-government sources including: training levies on employer payrolls, user fees paid by students and/or their employers, the production and sale of goods and services by schools and colleges, and community support and donations, including from foreign donors.

Tertiary education and university research

The current tertiary education enrolment rate of around 32% of the relevant age cohort represents significant growth from around 21% five years ago, with student numbers increasing from some 4 million to 6 million. Further expansion is likely over the next decade and beyond from the greater flow of young people through secondary schooling. Greater and more diverse student demand for higher education will require a more diversified,

financially sustainable and quality-assured structure of supply in higher education as well as in post-secondary technical education. It will also require greater attention to reducing regional disparities in access to tertiary education opportunities. The government has accordingly been building diverse tertiary education capacity via new universities and institutes of technology outside Java along with polytechnics and community colleges across the nation.

There are several clear leading national universities which have international links with some world-leading universities, but no Indonesian university is highly placed among the various rankings of world universities. Many of the 92 public universities would be rated fair to middling along with a few, perhaps 20, of the more than 3 000 private universities. The bulk of the private institutions, however, would be rated poor, and many very poor. Academic teaching staff are underqualified by international standards, and their remuneration rates and conditions are relatively poor. Facilities and equipment are inadequate. The quality of education, with a few exceptions, is poor, particularly in institutions with insufficient scale to mount broad degree programmes. Many graduates fare poorly in the job market.

There is a significant backlog of unaccredited higher education institutions and study programmes. This problem jeopardises the quality of student learning, the job prospects of graduates and the credibility of Indonesian higher education qualifications.

New study programmes are being developed, and existing offerings modified to align more closely with the attributes required of future graduates. These developments need to take into account the pathways available for students coming into higher education from diverse backgrounds, including school leavers and adults, and for those seeking to upgrade their qualifications or cross over between technical and professional occupations. To avoid the problem encountered in the United States where community college students often find they have reached a dead end, it will be important to ensure that students exiting community colleges have clear pathways with credit into post-secondary technical and higher education. Indonesia's national qualifications framework (NQF) which is under development could be a useful mechanism to guide curriculum reform and recognition of prior learning (see Recommendation 8.2). Some NQF models in other countries, however, have been found to reduce flexibility and stifle innovation, and the review team heard concerns about such prospects in Indonesia.

Most Indonesian degree programmes have not yet caught up with industry demands. Graduate supply is out of sync with emerging labour market requirements: only 16% of graduates studied engineering, manufacturing and construction. A persistent complaint of employers is that graduates lack relevant knowledge and skills. An insular approach to higher

education can result from institutional governance being disconnected from the community it serves.

Only a very small proportion of the Indonesian workforce, including in higher education and research, are qualified to PhD level. The shortage is acute outside Java. Both the achievement of national development goals and the expansion of higher education across the nation will require much more such advanced human capital.

In contrast to the policy framework for universities in many other countries, Indonesian universities have low levels of substantive and operational autonomy, and thus are less free to respond and adapt to changing environmental conditions than their counterparts and competitors elsewhere.

Expansion of higher education without diminution of quality will require substantial investment. Reliance on government financing alone will not be sustainable as the system expands. Funding sources will need to be diversified, including from students, industry and benefactors. The current financing structure is inequitable in that most students from poorer backgrounds pay at private institutions while those students from more advantaged backgrounds attend superior institutions at less cost to themselves or their families yet gain higher personal benefits generally as graduates. Increasing the number of students from poorer families in public institutions, indeed raising their share to 20% of total enrolment, will require an expansion of scholarship support for the students by means of tuition fee waivers or loans, and stipends.

The current financing model for higher education is based on a negotiated budget model derived from historic costs. The model lacks transparency, does not recognise differential costs and carries no incentives for performance improvement.

Innovation at the level of the firm depends largely on the general skills of its workforce in applying known technologies. For Indonesia to develop breakthrough technologies, more investment in R&D will be needed, including research in universities. It will also need a stronger and more consistent system of intellectual property rights protection. It will be necessary to raise spending on research above the currently low level of 0.09% of GDP.

Teaching and learning in higher education continues to rely for the most part on traditional lectures. For graduates to acquire higher-level reasoning, problem-solving abilities and teamwork skills, teachers in universities, institutes, polytechnics and colleges will need to adopt more active and interactive approaches to teaching and learning. These include inquiry-based teaching methods with more use of project work and teamwork to

foster creative and transversal skills. Many higher education teachers are underqualified to perform these roles confidently and competently.

The extent of internationalisation of higher education in Indonesia is low by comparison with neighbouring countries. There are very small inward flows of foreign students. The review team saw only a few instances of internationalisation in curriculum development, benchmarking, co-operative degree programmes (such as twinning arrangements, cotutelle and joint or double degrees), and structured student and staff mobility programmes.

Recommendation 5. Undertake a major programme of diversifying tertiary education and improving its quality, along with greater selectivity over research, concentrating on areas based on international strengths and more closely aligned with national development priorities.

- The government should adopt a differentiated approach to the development of tertiary education. The base of the system should be broadened to accommodate a greater proportion of those leaving senior school cost effectively. Expansion should mainly be via teaching-oriented institutions with different but well-defined profiles and missions, providing society and the labour market with relevant knowledge and skills, and should support the goals of social inclusion and geographical equity. The expansion of community colleges and polytechnics is a promising step in this direction. The top of the system should comprise a small number of high-quality, internationally reputable research- based universities which can act as engines for the development of Indonesian society, the economy and the higher education sector. In the middle should be a range of institutions variously engaged with their local communities, and business-facing in the production of graduates and the application of knowledge, know-how and technology.
- The Ministry for Research and Technology and Higher Education should conduct a review of the optimum scale of tertiary education providers on a district basis, taking into account the breadth, depth and quality of programme offerings, with a view to establishing minimum benchmarks for institutional accreditation. It should then consider offering incentives for buy-outs and mergers, and public-private partnerships to tackle the weakest institutions. It should continue the moratorium on the establishment of new private higher education institutions.
- The government should urgently expand the accreditation capacity of the National Board for Accreditation of Higher Education (BAN-PT), and ensure that sector-specific accreditation for professional fields (LAM-PT) is established effectively.

- The responsible ministries should work together to ensure that the national qualifications framework for Indonesia clearly articulates the learning outcomes expected for each level of qualification in terms of what graduates awarded that qualification are expected to understand and be able to do. Caution should be exercised in adopting "volume of learning" indicators or "credit hour" prescriptions, to avoid erecting arbitrary barriers to learners and unduly limiting the flexibility of different institutions to design programmes to cater for diverse students and varying graduate destinations (see also Recommendation 8.2).
- The government should extend the discretion available to the top tier autonomous institutions (*perguruan tinggi badan hukum,* or PTN-BH) through broader block funding of their teaching and research activities. The PTN-BH institutions should have access to a dual funding system for research, comprising a competitive grants scheme for discovery projects and a block grant for research infrastructure.
- The responsible ministries should promote growth in PhD enrolments in the PTN-BH universities in the first instance, and target niche growth in doctoral enrolments in the second tier public service concept (BLU) institutions. These enrolments should include candidates for industrial and professional doctorates.
- The responsible ministries should develop a programme to support institutional capacity building to enable greater degrees of autonomy over staffing and financing to be conferred gradually on a wider range of universities, institutes and polytechnics. A majority of the appointments to boards of trustees for public higher education institutions should be external.
- The government should permit greater pricing flexibility for tuition in public higher education institutions. Institutions should be required to provide a proportion of their increased tuition fee income to provide scholarships and stipends for students from poorer backgrounds.
- The responsible ministries should jointly commission a comprehensive international review of university research, to provide an audit of Indonesia's capacity and performance against international benchmarks, to map a direction for raising the university research effort to international standards, and to identify priority areas for research investment linked to national development goals.
- The Directorate General for Higher Education should continue and augment its programme of upgrading lecturers' qualifications to master's and PhD levels.

- The government should consider continuing and enhancing incentives to promote good teaching in tertiary education and reward and disseminate good practice.
- Tertiary educators should be rewarded for undertaking periods of work in industry relevant to their fields of teaching. Practical industry experience should be mandatory for appointment and promotion in polytechnics. Industry work experience should be valued and formally recognised alongside research experience in promotion and appointment selection criteria for university teachers.
- University rectors should take the lead in building a culture of internationalisation on their campuses, with concrete actions to increase the internationalisation of the student body, the teaching workforce, the curriculum, and co-operative degree programmes.
- The government should review its visa policies relating to the entry of academic faculty and post-doctorates from other countries. Ideally, Indonesia should offer an attractive package of scholarships to encourage talented academics, especially early and mid-career researchers, to work in Indonesia.

Adult learning

Over half the Indonesian post-school population have attained only primary level education or less. Fewer than 30% of adults aged 25-64 have attained senior secondary education or higher, with that proportion down to less than 10% for those over 35 years of age. Literacy rates for women over 40 are around half of those for men. Enhancing adult knowledge and skill is important in harnessing the full potential of the population, and improving economic development, inter-generational equity and social inclusion. Raising literacy rates among women also has the further advantage of improving conditions for the upbringing of children and their persistence at school.

There is a paucity of data about the participation of Indonesian adults in further learning, outside basic literacy programmes. The available data indicate fragmented provision and uneven participation.

Recommendation 6. Give increased attention to the education and training needs of adults.

- The responsible ministries should work in collaboration with donors and employers to develop an integrated approach to the assessment and enhancement of adult learning throughout Indonesia.
- Consideration should be given to ways and means of expanding and diversifying the range of learning options for adults, including:

evening classes in vocational schools and community colleges, designing an adult learning programme for delivery via the Open University, and dedicating a proportion of the employer levy to adult training and retraining.

- Consideration should be given to the provision of training packages geared towards upgrading the skills of workers in the informal sector with a view to their integration in the formal economy.
- Continuing attention needs to be paid to raising levels of adult literacy.
- Further attention should be paid to empowering women through skills formation across a range of competencies, including personal health and safety, financial management, advocacy, and legal recourses.
- Attention should be given to parental education, including child development, health and nutrition, child safety, active exercise, interactions through talking, listening, reading and play, managing defiance, and stimulating creativity.

Cross-cutting challenges and opportunities

In addition to the sub-sector issues and proposals outlined above, there are several thematic matters that warrant the consideration of policy makers: appropriate assessment; education and labour market transitions; teaching and educational leadership; and coherent planning, implementation and monitoring of reform.

Appropriate assessment

Indonesia's education assessment practices require further improvement if the system is to deliver the educational outcomes required by the emerging economy and the changing society, and offer fair educational opportunities. Without a broader assessment framework designed to underpin Indonesia's expressed educational goals, it will not be possible to adequately monitor progress in student learning, modify learning experiences and teaching practices where necessary, and evaluate the effectiveness of teaching at the classroom, school, district and national levels.

The review team formed the view that the direction of the step-by-step reforms under way has the potential to shape into a broader and more integrated framework for assessment in Indonesia. The key components of this emerging framework are:

- Lowering the currently high stakes of the public examinations by separating the UN from the school completion certificate.

- Improving the technical validity and reliability of the UN.
- Capturing more higher-order cognitive skills in the UN assessment forms.
- Continuing to participate in international assessments.
- Expanding the capacity of the National Assessment Centre to build a suite of national sample surveys in primary and junior secondary school, building on the Indonesian National Assessment Programme (INAP).
- Building capacity for classroom assessment and opportunities for sharing practice among teachers.
- Incorporating training on diverse types of assessment in pre-service teacher education and in-service professional development.
- Focusing supervisors on effective learning in schools, and performance information aligned with curriculum goals.
- Improving reporting to parents, including shifting from marks to competence bands that describe the characteristics of students' abilities.
- Encouraging higher education institutions (universities, polytechnics and community colleges) to diversify their bases for student admission and make them more transparent.

Recommendation 7. Continue the comprehensive reform of educational assessment to evaluate the effectiveness of education and monitor the progress of student learning at the classroom, school and stage of education levels at national and district levels .

- Significantly expand the capacity of Indonesia's national Assessment Centre. The Assessment Centre needs to be able to work as an independent, authoritative agency in collaboration with MOEC, MORA and the new Ministry for Research and Technology and Higher Education. The Assessment Centre needs to take responsibility for the management, development, administration, analysis, scoring and reporting of all national examinations, both sample-based and those administered to all students on a national basis (such as the National Examination). The budget for the Assessment Centre should allow for staff to be trained in test development and psychometric analysis, as well as sufficient ICT and logistical infrastructure to manage the administration and handling of secure examinations, the analysis of large data sets, and public reporting of results and trends. In addition it would be highly desirable for the budget and planning process to be separate from

the annual MOEC budget and planning processes in order to allow long term planning and resource commitments beyond one year (e.g. multi-year contracts) as test development and implementation usually have to span more than one budget year.

- Strengthen national assessment through a two-pronged approach. Initially, adopt a system of sample-based testing in fourth, sixth and eighth grades, similar in design to the United States' National Assessment of Educational Progress (NAEP) programme. Sampling, administration, and test design should be similar to NAEP, and built upon the Indonesian National Assessment Programme (INAP) of the Assessment Centre. At a later stage, adopt a two pronged system with controlled sample-based testing and census-based examinations, to maximise the benefits and feedback to the educational system and policy makers.
- Teachers should be formally prepared in educational assessment, so that they can implement adequate formative assessments in the classroom within the framework of curriculums that emphasise critical thinking skills in teaching and assessment. Diagnostic assessment should be embedded in the formative approach.
- Indonesia should continue to participate in international assessments of student achievement.
- All new assessments must comply with all the professional standards in educational assessment regarding validity in terms of the use of the scores to certify outcomes from the secondary cycle, other state-of-art psychometric properties, and proper studies indicating their validity to inform the admissions process to the university level in general, and the requirements and expectations for each field of higher education.

Education and labour market transitions

There is a paucity of reliable and readily accessible labour market information for SMK graduates, SMA students, tertiary education graduates and adult workers and the unemployed.

There are limited skills formation pathways in Indonesia, and individuals often waste effort repeating what they already know because their prior learning is not recognised, or they give up on further learning. The development of a national qualifications framework including vocational qualifications could assist with recognition and credit being given for prior learning, assessment of competencies, and the diversification of pathways for learners.

There appears to be limited and uneven provision of careers information and guidance services for students looking to enter the labour market or progress to further studies with a view to employment or self-employment.

Recommendation 8. The government, in collaboration with employer bodies, should implement a major national programme to provide up-to-date labour market information for students, teachers, careers advisers and parents.

- The government, with assistance from employer groups, should establish a Labour Market Information Service. Initially, this could be a portal on the website of the Ministry of Manpower and Transmigration (MOMT). It should include: trends in demand and supply for jobs by industry and occupation, and by province and district; indicators of areas of skills shortage and surplus; statistics on employment and unemployment by level and field of qualification, and average graduate earnings; positions vacant, including remuneration packages and skills, qualifications, experience and other requirements for appointment. The website should be designed for ease of use by diverse users.
- The development of an Indonesian Qualifications Framework should include the articulation of the knowledge and abilities expected at each level of educational qualification, including TVET qualifications, in ways that can facilitate the assessment of learner readiness to progress to the next qualification level, or crossover to a parallel qualification, without redundant re-learning (see also Recommendation 5.4).
- The responsible ministries should jointly develop a programme for making careers guidance available to all secondary school and tertiary education students. Ideally, careers guidance services should be available to students at the point of transition from junior secondary to senior secondary, at the subsequent points where students are vulnerable to dropping out, when students are preparing to make application for admission to tertiary studies, and when tertiary students are graduating. In order to ensure impartial and professional guidance, schools and colleges should be able to obtain guidance services for their students from well-trained professionals and/or careers guidance companies.

Teaching and educational leadership

Since 2005, steps have been taken to professionalise teaching at the basic and senior secondary levels. All teachers are to be qualified to at least bachelor's degree level and to have satisfactorily completed a certification

programme. Better-equipped teachers and better teaching make for better student learning, and better remuneration for teachers is helping to raise the status of teaching and its attractiveness as a career .However the higher costs of certified teachers are adding significantly to the salary bill, especially as decentralised arrangements have encouraged districts to hire more teachers. Variable patterns of teacher attendance and time on task compound the problem, along with the absence of an effective performance-based accountability system.

The 2013 curriculum requires a shift from teacher-centred instruction to more interactive teaching and team-based learning, to foster higher-order cognitive skills and the development of character and behavioural skills. This shift challenges traditional teaching practices and culture, and will require a concerted effort involving an extensive programme of continuing professional development and mentoring; support from principals, supervisors and lead teachers; external facilitation; and peer clustering. However, school principals are typically not appointed on merit and also lack the structured support they need to manage their responsibilities and be leaders of learning in their schools. Supervisors, too, need support to undertake their wider roles as champions of the new curriculum.

Indonesia has 32 public and 342 private teacher training institutions, with variable quality of student intake, teacher training and graduate output. There are not only supply imbalances relative to demand but serious deficiencies in readiness to teach effectively and help students learn.

Recommendation 9. The government should continue its concerted efforts to improve teaching productivity and raise the professional capacities and status of teachers through more rigorous entry standards to the profession, enhanced supervision, more relevant pre-service teacher education and enhanced teacher professional development.

- The responsible ministries should: *1*) remove the threshold provision of nine teachers per school; *2*) allocate teachers according to student teacher ratios rather than student groups; *3*) reduce the number of very small schools; and *4*) encourage multi-grade teaching, not only as an efficiency measure but also as a means of shifting from didactic teaching and rote learning to more interactive learning.
- The responsible ministries should encourage and financially support primary teachers and secondary subject teachers to use their networks of professional learning communities to focus on practical ways of improving their teaching to advance the learning of their students, share their experiences and evidence about "what works", and systematically trial and evaluate new approaches. Consideration

should be given to extending access to the Open University's "smart teacher" online portal which offers a place where teachers can share exemplars of good teaching and accounts of their efforts and successes, and a repository of evidence from classroom and school-based research.

- The responsible ministries should develop and resource a programme of continuing professional development for teachers, linked to a programme of teacher performance appraisal (see also Recommendation 3.2).
- School principals should be appointed through an open, formal merit process. Newly appointed principals should undertake an induction programme before taking up their duties.
- School principals should have access to continuing professional development and mentoring.
- The responsible ministries should, as a priority, develop a programme for the professional development of school supervisors, oriented to the competencies expected of supervisors.
- The educational attainment bar for entry to teacher education programmes should be raised by MOEC or the institutions themselves. Selection of students into teacher education programmes should include assessment of literacy and numeracy competencies, interpersonal and communications skills, a willingness to continue to learn, and a motivation to teach.
- Consideration should be given to limiting the number of students going in to pre-service teacher education programmes and reducing the number of pre-service teacher education institutions.
- The responsible ministries should initiate an international review of pre-service teacher education in Indonesia, reporting against international benchmarks. This should cover: student admission; the appointment and training of teacher educators; and the curriculum balance between disciplinary knowledge, education-related theoretical knowledge; skills in diagnosing student learning needs and assessing learning progress; student-centred teaching skills, and teaching practicum.
- Teacher training institutes should consider forming extended twinning or other co-operative arrangements with reputable international institutions with up-to-date teacher education programmes. Such an arrangement could involve study visits and interchange of teacher educators.

Supplementing the effort

To be effective, many of the envisaged education improvements require broader reform in public policy and to the culture and practice of public administration in Indonesia. In particular, there is a need to improve the frameworks for accountable governance, transparent budgeting, and performance management.

The successful implementation of education reform requires adequate capacity at all levels of administration, and in the context of the decentralised character of Indonesia's public administration, especially at district levels. For purposes of equity and efficiency, there is an evident need for greater transparency of decision making at district levels based on clearly articulated principles and documented evidence. There is a particular need for stronger data management, analysis and reporting, and professional budget management, including resource allocation.

There is extensive goodwill towards Indonesia on the part of donor nations and non-governmental organisations. They seek to focus their contributions on those actions which offer best prospects of making a positive difference to the lives of the Indonesian people. At best, these efforts can address the most challenging areas of community need and spur innovative models for wider adoption into mainstream practice, thereby complementing and strengthening governmental and community initiatives. The understandably fragmented nature of their separate efforts, however, can result in episodic rather than sustained interventions, leaving gaps alongside overlaps in service provision and, at worst, undercutting the direction of mainstream reform. Mechanisms are necessary for aligning donor efforts with government goals and strategies in more integrated and sustainable ways.

Recommendation 10. A systematic and joined-up approach to education reform should be adopted.

- A coherent education reform agenda should be planned, implemented and monitored across all relevant government ministries, as part of a broad project of public sector reform.
- A concerted programme should be collaboratively designed and delivered to build capacity at regional and district levels to implement and monitor education reform.
- The responsible ministries should initiate more regular and structured dialogue with donors, with a view to improving the alignment and co-ordination of donor contributions with the educational improvement goals of the government.

Chapter 1

The Indonesian education system in context

Indonesia in the world

Indonesia is an archipelago stretching some 5 000 kilometres between the Indian and Pacific Oceans and encompassing three time zones from its western to its eastern end. It comprises 17 508 islands, only around 6 000 of which are inhabited, and is the fourth largest country in the world, with a widely distributed population totalling more than 250 million. It also has the 16th largest economy in the world, and the largest economy in the Association of Southeast Asian Nations (ASEAN). One of the world's major emerging market economies, Indonesia is a member of the G20 group of major economies. It is also the world's most populous Muslim nation.

A large percentage of world trade transits the strategically important straits of Malacca that link the Indian and Pacific Oceans. Indonesia is rich in natural resources, minerals, oil and fertile agricultural land. These resources, together with the islands' central location between India and Southeastern Asia, have long made Indonesia attractive to foreign traders and investors.

Table 1.1 shows that Indonesia is the third largest Asian nation in terms of land mass and population.

Table 1.1. **Comparative indicators for selected Asian nations**

Nation	Total land surface area ('000 km²)	Total population (2013)	Average annual population growth rate 2008-13	Population density (2012)	Age dependency ratio (2012)[1]
China (People's Rep. of)	9 597	1 361	0.5	142	36
India	3 287	1 233	1.3	375	53
Indonesia	1 905	249	1.5	131	52
Korea	100	50	0.5	503	37
Malaysia	331	30	1.7	91	47
Pakistan	796	184	2.1	232	63
Philippines	300	97	1.5	325	62
Singapore	0.7	5	2.2	7 540	36
Thailand	513	65	2.4	126	39
Viet Nam	331	90	1.1	271	42

Note: [1] Those younger than 15 and older than 64 as a proportion of the working-age population.

Source: Asian Development Bank, Basic Statistics 2014.

Historical trajectory

Around 700 BCE (Before Common Era), Indonesian villagers learned to make bronze and iron, and cultivate wet rice. Gradually trade developed with the People's Republic of China, India and other peoples, and Hinduism and Buddhism were introduced to Indonesians.

Among the kingdoms that marked Indonesian civilisation in the eighth century CE (Common Era) were the Indianised kingdoms of Java, influenced by Hinduism and Buddhism, including Sailendra (eighth-ninth centuries), Mataram (752-1045), Kediri (1045-1221), Singhasari (1222-1292) and the great Buddhist kingdom of Sriwijaya in south Sumatra. Sriwijaya, a maritime Malay empire, prospered and came to control western Java and part of the Malay Peninsula up until its fragmentation in the late 13th century. It was also a centre of Buddhist learning, Indonesia's first recorded educational establishment (Lambert, 2012).

Meanwhile Islam was brought to Indonesia by Indian merchants, initially in Aceh in north Sumatra. Between 1200 and 1600, Islam spread from coastal cities into Muslim states, such as the Sultanate of Demak (1475-1518) and the Mataram Sultanate (1500s–1700s). In the 13th and 14th centuries the Majapahit Empire, a Hindu kingdom, flourished from 1293 until 1500.

In the early 16th century the Portuguese seized Melaka and the Moluccas (the "Spice Islands"), the chief source of spices such as nutmeg, ginger, cinnamon, cloves and mace, for which there was great demand in Europe. The Portuguese brought Catholicism to the area. In 1602 the States General of the newly independent Dutch republic formed the Dutch East India Company, with a tax-free monopoly of the eastern trade for 21 years. It was authorised to build forts, establish colonies, mint coins, and maintain a navy and army as required. With these powers the company took only a few decades to deprive Portugal of the spice trade. The Dutch established a capital at Batavia (now Jakarta), in Java, in 1619, and brought Christian Protestantism (Calvinism) to the area. During the 17th century the Dutch gradually extended their power over Java and the Moluccas. When the Bandanese attempted independent trade with the English, the East India Company's response was to decimate the native population of the Banda Islands, sending the survivors fleeing to other islands, and then installing slave labour to work in the nutmeg groves. Similar policies were used in other areas. For instance, in 1659 the Dutch burned the port city of Palembang on Sumatra, ancient site of the Sriwijaya Empire, in order to secure control of the pepper trade.

During the Napoleonic wars in Europe, when Holland was occupied by France, the British and Dutch went to war in 1806, and by 1811 the British had captured all the Dutch possessions in Indonesia. The British East India Company took control of Java and its dependencies under Thomas

Stamford Bingley Raffles as Lieutenant Governor. Raffles abolished slavery, introduced a land tenure system and divided the country into areas of partial self-government. However, after the fall of Napoleon and the end of the French occupation of Holland, the British agreed in 1815 to return Dutch colonial possessions dating from 1803 onwards, including the Dutch Administration in Batavia. A five-year war of resistance by the Javanese to Dutch rule, led by Prince Disponegoro, ended in Dutch victory in 1830, extending their reach into Sumatra and, in the early 20th century, into Aceh, Bali, Lombock and Sulawesi. This enabled the Dutch to unify Indonesia.

Japan militarily occupied the islands from 1942 to 1945. Upon the Japanese surrender to the allied forces in World War II, Sukarno and Mohammad Hatta declared Indonesian independence on 17 August 1945, and Sukarno was appointed as first president. He led Indonesians in resisting Dutch re-colonisation efforts via diplomatic and military means until the Dutch acknowledgment of Indonesian independence in 1949.

After a chaotic period of parliamentary democracy, Sukarno established an autocratic system called "Guided Democracy" in 1957 that successfully ended the instability and rebellions which were threatening the survival of the diverse and fractious country. The early 1960s saw Sukarno veering Indonesia to the left by providing support and protection to the Indonesian Communist Party (PKI) at the expense of the military and Islamists. The 30 September Movement led to the destruction of the PKI and Sukarno's replacement by one of his generals, Suharto.

From 1967 until 1988, President Suharto ruled Indonesia with his "New Order" authoritarian government. Suharto gave technocrats room to run the economy with considerable success, quadrupling per capita income and significantly reducing poverty. His policy of allowing army involvement at all levels of government, from top-level state-owned enterprises down to village level fostered corruption, however, and his "transmigration" programmes – which moved large numbers of landless farmers from Java to other parts of the country – fanned ethnic conflict. The mid 1997 financial crisis originating in Thailand had its most severe effect on Indonesia: the economy contracted by over 13% in 1998, the exchange rate plummeted, the financial sector came close to collapse and there was widespread social distress. After rioting toppled Suharto in 1998, free and fair legislative elections took place in 1999.

Post-Suharto Indonesia has made the transition to democracy. The first direct presidential elections were held in 2004. Various powers of central government have been devolved to provincial and district levels, including the administration and financing of schools. Indonesia's economy has undergone a resurgence since the 1997 Asian financial crisis, becoming one of the world's major emerging economies.

Ethnically, Indonesia is a highly diverse country, with 722 languages used as a first language, of which 719 are indigenous languages. The national language is Indonesian, or *Bahasa Indonesia*, based on the Malay language of northeast Sumatra. President Sukarno established *Bahasa Indonesia* not merely as a *lingua franca*, but as the unifying national language of Indonesia.

Sukarno also gave rise to the *Pancasila*, a set of five key principles enunciated in the preamble to the 1945 Constitution and embodying the core tenets of the independent Indonesian state. The principles resulted from a complex and sophisticated appreciation of the ideological needs of the new nation, particularly the vast cultural differences of the heterogeneous population. The *Pancasila* principles are: *1)* belief in one supreme God; *2)* humanitarianism; *3)* nationalism expressed in the unity of Indonesia; *4)* consultative democracy; and *5)* social justice. Like *Bahasa Indonesia*, the *Pancasila* did not come from any particular ethnic group but was intended to define the basic values for an "Indonesian" political culture. *Pancasila* promotes a belief in monotheism as a religiously neutral and tolerant statement that puts Islam on an equal basis with the other religious systems: Christianity (Catholicism and Protestantism), Buddhism and Hindu-Balinese; beliefs which the government officially recognises. Freedom of religion is guaranteed under the 1945 Constitution.

Government

Indonesia is an independent republic. The 1945 Constitution of the Republic of Indonesia provides for the separate and independent exercise of executive, legislative and judicial powers and functions. The highest authority is the People's Consultative Assembly (MPR), which meets annually to hear accountability reports from the president and government agencies and provide policy guidance. The MPR includes the House of Representatives, which has 560 members, and the Council of Regional Representatives which has 132 members. Members are elected for five-year terms. The president and vice-president are elected by direct popular vote. The president is the Chief Executive, the Head of State and Commander-in-Chief of the Armed Forces. The president and vice-president are elected for five-year terms (eligible for a second term) by direct vote of the citizenry. The president appoints cabinet ministers.

The current president is Joko Widodo (elected on 20 October 2014) and the vice-president is Jusuf Kalla.

There are 34 provinces comprising 502 regencies, 6 543 districts and 75 244 villages. (North Sumatra).

Population composition, distribution and growth

The Indonesian population in 2014 was estimated at 252.2 million, half of whom (51%) resided in urban areas. This represents a substantial internal migration: the urbanisation rate was just 17% in 1967. The major urban areas are the capital Jakarta (population 9.769 million), Surabaya 2.787 million, Bandung 2.429 million, Medan 2.118 million, Semarang 1.573 million and Palembang 1.455 million. The urban population is growing at an average annual rate of 2.4%.

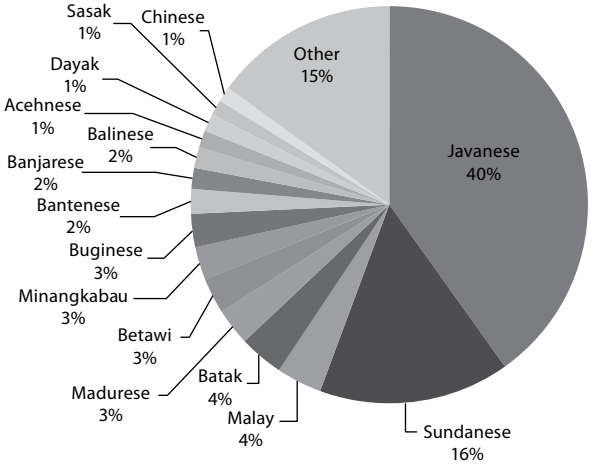
The composition of the Indonesian population by ethnicity is shown in Figure 1.1.

The composition of the Indonesian population by religious affiliation is: Muslim 87.2%, Christian 7%, Roman Catholic 2.9%, Hindu 1.7%, other 0.9% (includes Buddhist and Confucian) and unspecified 0.4% (CIA Factbook).

Table 1.2 shows the age distribution of the Indonesian population in 2014. More than one-quarter are school-aged or pre-school aged. Some 45% are under 25.

The World Bank estimates that Indonesia's total age dependency ratio (those younger than 15 and older than 64 as a proportion of the working-age population) was 52% in 2013, with a youth dependency ratio of 43% and an elderly dependency ratio of 8% (World Bank, 2014a).

Figure 1.1. **Indonesian population by ethnicity**



Source: CIA Factbook, https://www.cia.gov/library/publications/the-world-factbook/geos/id.html.

Table 1.2. **Age composition of the Indonesian population, 2014 estimate**

Age group	0-14 years	15-25 years	25-54 years	55-64 years	65 years and over
Percentage in each age group	27.6	17.2	42.8	7.2	5.3

Source: UNFPA (United Nations Population Fund, 2010-2035 Indonesian Population Projection, http://indonesia.unfpa.org/news/2014/11/indonesia-population-projection-2010-2035, accessed May 2014.

A demographic dividend?

The *Country Background Report* (CBR) suggested that Indonesia has been experiencing declining fertility over the last 40 years, reaching 2.1 births per woman in 2012, which is close to the level required simply to maintain the population (ACDP, 2013). The CBR also noted that the Population Census data for 2010 show that the population grew from more than 206 million in 2000 to over 237 million in 2010. It suggested that the explanation for this population growth is the significant increase in life expectancy from 52.2 years in 1976 to 70.7 years in 2006. The CBR commented that among the structural advantages that result in optimism for Indonesia's economic growth and performance, is the very favourable population structure:

> In common with other Southeast Asian countries such as Viet Nam and Thailand, Indonesia is beginning to enjoy a "demographic dividend" stemming from a rapid reduction in birth rate in the late Suharto period, ushering in a particularly favourable current decade, when the proportion of population of productive working age is expected to peak around 2020 (ACDP, 2013).

The notion of a demographic dividend refers to a period – usually 20 to 30 years – when fertility rates fall due to significant reductions in child and infant mortality rates. As individuals realise that fewer children will die during infancy or childhood, they begin to have fewer children to reach their desired number of offspring, reducing the proportion of non-productive dependents. This fall is often accompanied by an increase in average life expectancy that increases the proportion of the population who are working age. Consumption spending on dependents falls and capital is increasingly allocated to investment, thus spurring economic growth and increasing gross domestic product (GDP) per capita. It also enables greater spending on education per student, advancing the human capital formation which underpins economic development.

Australian demographer Peter McDonald has noted a range of deficiencies in the collection of population data in Indonesia, including the

key components of population change: fertility and mortality rates, and net international migration. These deficiencies, along with particular flaws in the 2000 census (in contrast to the carefully executed 2010 census) give rise to uncertainty about the trend of population growth. McDonald suggests that fertility may not have declined as quickly as the official statistics indicate, and concludes that Indonesia will need to rely on more than a demographic bonus. It will have to deepen the skills base of the workforce to deal with future rather than current labour market requirements:

> In economic terms, as fertility in Indonesia seems to have declined more slowly than previously thought, the potential advantages deriving from a population concentrated in the working ages (the demographic dividend) are smaller than in the comparator countries in Asia with higher levels of development. Indonesia must therefore focus even more intently on developing its human capital and not rely on an illusory bonus from its age structure. It must consider the skills that will best serve its economy not just today but over the next 20 years, by which time the labour requirements will have shifted (McDonald, 2014).

Nevertheless, on the basis of the 2010 population census data, the total number of children aged 7-12 years will fall by about 628 000 over the next 7 years. This significant demographic change should free up financial resources which can be used to make the investments necessary to improve educational quality and increase access to pre-school and senior secondary education. At the same time, significant economic growth should help to ensure more funding for the education sector as a whole, including tertiary education.

The CBR suggested that in view of the decrease in school-age population, and taking into account the very high participation rate at primary level, the current school infrastructure for primary education should be sufficient to absorb future learners. This means that there is likely to be only a limited need to construct new primary schools and classrooms in the years to come. The main outstanding task is rehabilitation of the existing school infrastructure.

Human development

Indonesia has seen considerable improvement across a range of human development indicators over recent years (UNICEF, 2014). Life expectancy, for instance, improved from 69 years in 2004 to 71 years in 2012. The national Human Development Index (HDI) improved from 67.7 in 1996 to 73.3 in 2012 (BPS – Statistics Indonesia), although in Papua it was 65.9, despite some improvement there.

Income distribution

While the official poverty rate declined from 17.7% in 1996 to 11.3% in 2014, that statistic is based on a national poverty line of USD 1.13 day, significantly below the now widely recognised poverty line of USD 2 a day. The share of the population living on less than USD 2 per day fell from 91% in 1987 to 51% in 2009 and then to 43.3% in 2012.

Table 1.3 shows 2014 data on the distribution of poverty as defined by Statistics Indonesia. More than 28 million people, or over 11% of the Indonesian population, are reported to be poor by the official definition, with almost one-quarter of the Papuan people falling into that category.

While in absolute terms, ™most of the population on low income are on Java (15.5 million), in proportional terms eastern Indonesia has the highest concentration of poverty. In March 2014, the official poverty rate in the Special Capital Region (DKI) of Jakarta was reported to be 3.9% whereas in Nusa Tengarra and Timur the rate was 19.8% and in Papua 30%. The concurrent economic boom and persistence of poverty has also led to increasing levels of inequality. Whereas Indonesia's Gini index score of 36.8 gives the country a middle ranking in terms of overall inequality, the wealth concentration index value gives a very different picture: at 6.22, this is 25 times higher than Singapore's and 3 times greater than Malaysia's. Indonesia's 40 richest citizens are far wealthier than those of Thailand, Malaysia or Singapore, collectively holding USD 71.3 billion in 2010 (Berelsmann Stiftung, 2014).

Table 1.3. **Number and percentage of low income people by island, March 2014**

	Number of low income people (000 people)			Percentage of low income people		
Island	Urban	Rural	Urban + rural	Urban	Rural	Urban + rural
Sumatra	1 990.71	4 084.23	6 074.94	9.34	12.42	11.21
Java	7 162.16	8 349.83	15 511.99	8.47	14.25	10.83
Bali and Nusa Tenggara	570.42	1 430.27	2 000.69	10.43	17.03	14.42
Kalimantan	283.23	701.08	984.31	4.47	8.11	6.57
Sulawesi	388.52	1 766.98	2 155.50	6.24	14.50	11.71
Maluku and Papua	112.16	1 440.42	1 552.58	5.63	30.55	23.15
Total	10 507.20	17 772.81	28 280.01	8.34	14.17	11.25

Source: Based on National Socio Economic Survey 2009 updated March 2014, (BPS) Statistics Indonesia (Badan Pusat Statistik), http://catalog.ihsn.org/index.php/catalog/4803/study-description#page=overview&tab=study-desc.

As shown in Table 1.4, Indonesia compares favourably with other ASEAN nations for adult and youth literacy, and primary education survival rates. Its student teacher ratios are also comparable, being much lower than Cambodia and the Philippines, on a par with Thailand and (for primary level) Singapore, but higher than Malaysia. The proportion of the adult population with tertiary education in Indonesia is much lower than in Malaysia and Singapore. These comparisons suggest that there is a much more compelling need for Indonesia to spend on strengthening its tertiary education capacity and enlarging participation than on further reducing student teacher ratios.

Educational attainment

Table 1.5 shows the educational attainment of the Indonesian population of 15 years of age and over in 2011. Some 10.8% of rural females and 5.3% of urban females aged 10 years and over have never attended any form of education, compared with 4.9% of rural males and 1.8% of urban males (BPS – Statistics Indonesia). Almost 20% of rural females had not completed primary schooling. Whereas some 10% of the urban population had a university degree only 3% of rural males and females had. The level of educational attainment appears to correlate with poverty levels and the availability of services across Indonesia.

Table 1.6 compares Indonesia with some other Asian nations on a number of human development indicators. While Indonesia performs relatively well on children's weight, school progression and youth literacy, the country performs less well on dietary energy and internet usage.

Economy

Like many countries in East Asia, Indonesia is in transition from a predominantly agricultural economy to a more industrialised economy, and from a tradition of state planning towards a more market-driven model. Indonesia has undergone a process of industrialisation and urbanisation over the past 50 years.

From 1967 to 2009, manufacturing's share of GDP increased by 19 percentage points while agriculture's share fell by 35 percentage points. Nevertheless, agriculture remains an important part of the Indonesian economy accounting for 16% of output in 2009. As at 2012 Indonesia was the world's 10th largest agricultural producer, the major palm oil producer, the second-largest natural rubber producer, and the third-largest rice producer and consumer after the People's Republic of China and India (OECD, 2013).

Table 1.4. **Comparative education indicators, ASEAN countries**

Scorecard indicator	Brunei Darussalam	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	**Thailand**	**Viet Nam**
Total adult literacy rate (%)	95.98	77.19	93.88	79.86	94.64	93.09	96.29	96.76	96.67	94.51
Youth (15-24) literacy rate (%)	99.85	91.48	98.98	90.23	98.42	96.32	97.94	99.85	98.24	98.06
Student teacher ratio, primary	10.6	45.7	18.6	27.1	12.5[a]	28.2[b]	31.4[c]	17.4[c]	16.3	19.4
Student teacher ratio, secondary	10.1	28.9[e]	16.6	19.9[a]	13.6[a]	34.1[b]	34.8[c]	14.9[c]	19.9[a]	
Mean years of schooling		3.70[e]	7.51[a]		7.65[f]		7.56[g]		7.32[b]	
Expected years of schooling from primary to tertiary	14.53	10.90[d]	12.99	10.33	12.73[f]	8.63[e]	11.28[c]		13.47	
Expected years of schooling in tertiary education	1.24	.79[a]	1.57	.95	1.86[a]	.69[a]	1.41[c]		2.56	1.23
Net enrolment rate (%)										
Primary education	91.66	98.38	92.22	95.88	97.03[f]		88.22[c]		95.61[c]	98.06
Secondary education	94.74	38.15[d]	76.10	41.37	66.32[a]	46.99[b]	61.40[c]		79.47	
Secondary education, lower	80.8	40.09		41.42		51.04[b]				87.10
Secondary education, upper	88.40	17.48[d]		20.26		27.50[b]				
Tertiary education, gross	24.34	15.83[a]	31.51	16.73	35.97[a]	13.81[a]	28.20[c]		51.23	24.60
Educational attainment of population aged 25 years and older (%)										
Primary		35.58[c]	74.44[a]		91.22[b]			84.40	59.97[b]	
Lower secondary		15.48[c]	44.48[a]		68.22[b]		64.82[d]	77.39	38.12[b]	65.00[c]
Upper secondary		6.25[c]	28.93[a]		50.90[b]			67.70	26.97[b]	25.68[c]
Tertiary			7.88[a]				24.20[d]	39.56	11.79[b]	6.70[c]
Post-secondary (non-tertiary)		2.04[c]			16.37[b]		29.72[d]	48.67	12.73[b]	12.08[c]

Notes: Net enrolment is the enrolment of the official age group for a given level of education, expressed as a proportion of the population of that age group.

Data are from 2012 unless otherwise stated.

a. data refers to 2011; b. data refers to 2010; c. data refers to 2009; d. data refers to 2008; e. data refers to 2007; f. data refers to 2005; g. data refers to 2000.

Source: UIS (UNESCO Institute for Statistics) (2014), UIS Data Centre, Montreal, Canada, accessed 12 January 2014.

Table 1.5. **Educational attainment 2011 by gender and urban/rural classification**

Urban - rural classification	Sex	Educational attainment (%)					
		Not/ never attending school	Have not yet completed primary school	General/ vocational primary school	General/ vocational junior secondary school	General/ vocational senior secondary school	University
Urban	Male	2.01	9.11	21.62	21.58	35.03	10.65
	Female	5.93	11.44	22.87	21.41	28.16	10.20
	Male + Female	4.00	10.29	22.25	21.49	31.55	10.42
Rural	Male	5.51	18.57	36.25	20.88	15.89	2.89
	Female	12.21	19.79	34.36	19.07	11.53	3.04
	Male + Female	8.87	19.18	35.31	19.97	13.71	2.97
Urban + Rural	Male	3.76	13.82	28.91	21.23	25.50	6.79
	Female	9.02	15.55	28.52	20.25	19.97	6.67
	Male + Female	6.41	14.69	28.72	20.74	22.72	6.73

Source: BPS (Badan Pusat Statistik) (*Statistics Indonesia*), SUSENAS 2009 – 2011.

Table 1.6. **Comparative human development indicators for selected Asian nations**

Nation	Prevalence of underweight children aged under 5 years, (%), (2010)	Proportion of population below minimum level of dietary energy consumption (2011-13)	Proportion of pupils starting Grade 1 who reach last grade of primary school (2011)	Literacy rate of 15-24 year olds (2011)	Internet users per 100 population (2012)
China (People's Rep. of)	4	11	81	99.6	42.3
India	43	17	61	81.1	12.6
Indonesia	18	9	88	98.8	15.4
Korea	-	<5	99	-	84.1
Malaysia	13	<5	99	98.4	65.8
Pakistan	32	17	61	70.7	10.0
Philippines	22	16	76	97.8	36.2
Singapore	3	-	99	99.8	74.2
Thailand	7	6	94	98.1	26.5
Viet Nam	12	8	98	97.1	39.5

Source: Asian Development Bank, Basic Statistics 2014.

From the mid 1960s to the mid 1980s the percentage of Indonesian land area used for agriculture stayed constant at around 21% of Indonesia's total land area. By the late 1990s agricultural land had risen to almost 25% of the land area. From 1998, the establishment of large-scale palm oil plantations raised the level of agriculture-related land use to 30% (OECD, 2013). The agricultural sector in Indonesia comprises large plantations (both state-owned and private) and smallholder production modes. The large plantations tend to focus on important export commodities such as palm oil and rubber, while the smallholder farmers focus on rice, soybeans, corn, fruits and vegetables.

In provinces where employment is highly concentrated in the agricultural sector, incomes are considerably lower than in major urban centres such as Jakarta, reflecting the low labour productivity of parts of Indonesia's agricultural sector. There is considerable scope for productivity in the sector to improve, particularly if modern farming techniques become more widely adopted on Indonesia's outer islands and irrigation systems are improved.

While the manufacturing sector's share of the economy has grown over the past 50 years – in common with other countries in East Asia – Indonesia's manufacturing industry has developed differently from manufacturing sectors elsewhere in the region. Production has focused on food, tobacco and textiles rather than elaborately transformed manufactures as in the rest of the region.

Between 2011 and 2013, Indonesia's GDP passed the USD 1 trillion threshold, marking a milestone in the country's economic development (Bertelsmann Stiftung, 2014). Exports are a significant driver of the Indonesian economy, accounting for some 25% of GDP. Roughly half of Indonesian exports are still made up of natural resources – mainly oil and gas, coal, palm oil, and minerals.

GDP growth has been mostly above 6% per year since 2006, with the exception of a period in 2009 and 2010 while the country recovered from the global financial crisis. In purchasing power parity terms, GDP per capita was over USD 9 300 in 2012. The official unemployment rate stood at 5.7% in April 2014, down from 11.24% in October 2005. The government debt-to-GDP ratio decreased to 25% in 2013. Foreign direct investment (FDI) grew significantly due to demand by foreign investors for Indonesia's vast natural resources. The BKPM (Indonesia Investment Co-ordinating Board) reported FDI in 2013 of IDR 270.4 trillion (equivalent to USD 22.8 billion), an increase of 22% compared with the previous year.

However, alongside the economic boom, Indonesia has adopted an increasingly protectionist posture. The outgoing government issued regulations imposing new import and export taxes, banned various mineral exports in a bid to force companies to build processing plants in Indonesia,

and strengthened the role of state-owned enterprises. This increased state intervention in the economy followed public concern about opening Indonesian markets to greater competition with the People's Republic of China following ASEAN's 2010 Free Trade Agreement with the People's Republic of China. Additionally, the government has been slow to address the country's most serious economic deficiency, its aging and underdeveloped infrastructure (Bertelsmann Stiftung, 2014).

Indonesia will need economic growth of considerably higher than 5% to escape the threat of a middle-income trap, where growth is not fast enough for per capita incomes to converge with those of advanced economies. Boosting economic growth through increasing labour productivity would bring higher value-addition to the labour force, reduce workers' vulnerability to job losses and enhance private-sector competitiveness (World Bank, 2014b).

Labour market

Indonesia's labour force

Statistics Indonesia reports a total labour force of 125.3 million in February 2014 of whom 118.2 million were working and 7.2 million (5.7%) were unemployed. In 2014 the population aged 15-64 totalled 252.2 million. Thus the labour force participation rate was 49.7%. (BPS – Statistics Indonesia, 2013)

Table 1.7 compares the employment figures by sector for 2013 against those for 2004. It should be noted that some people work across more than one industry. Both the total number of people employed in agriculture and its share of the workforce declined over the period, largely reflecting the opening of job opportunities in other sectors. There was also an absolute decline in transport and communications, and a proportional decline in electricity, gas and water. There was growth in manufacturing employment (up 3.7 million or 33%), in construction (up 2.4 million or 52%) and in mining (up 0.5 million or 50%). The greatest growth was in services which collectively increased from 38.6% in 2004 to 44.3% in 2013, with employment growth totalling 14.3 million.

Alongside these changes in the structure of employment by industry were shifts in the employment status of the workforce. Table 1.8 shows that the major shift was towards employment growth in the formal sector of the economy, notably among people classified as employees. Their numbers grew by 16 million (63%) over 2004-13. Employers also grew by 1 million and the self employed by 0.8 million, although their share fell. At the same time, the number of unpaid workers and casual employees increased.

Indonesia has only 18.1 million registered individual taxpayers, with only 11 million individuals submitting an income statement, a compliance rate of 62%, (Lestyowati, 2011).

Table 1.7. **Employment by sector, Indonesians 15 years and older, 2004 and 2013**

Main industry	Persons 2004	Share (%)	Persons 2013	Share (%)
Agriculture, forestry, hunting and fishery	40 608 019	43.3	39 959 073	35.1
Mining and quarrying	1 034 716	1.1	1 555 564	1.4
Manufacturing industry	11 070 498	11.8	14 784 843	13.0
Electricity, gas and water	230 869	0.3	254 528	0.2
Construction	4 540 102	4.8	6 885 341	6.0
Wholesale and retail trade, restaurants and hotels	19 119 156	20.4	24 804 705	21.8
Transport, storage and communications	5 480 527	5.8	5 231 775	4.6
Financing, insurance, real estate and business services	1 125 056	1.2	3 012 770	2.6
Community, social and personal services	10 513 093	11.2	17 532 590	15.3
TOTAL	93 722 036	100	114 021 189	100

Source: BPS (Badan Pusat Statistik) (*Statistics Indonesia*), National Labour Force Survey, 2004 and February 2013.

The informal sector

Indonesia's informal sector is large, accounting for around 64% of the total workforce in 2006 and over 50% of total non-agricultural employment (ADB and BPS – Statistics Indonesia, 2011, p viii). Informal employment in the agricultural sector can exceed 90% of total agricultural employment, with that share fluctuating according to cyclical movements in the formal economy. Table 1.9 shows the scale of non-agricultural employment in Indonesia's informal sector relative to other developing economies. Informal employment in Indonesia is well below that of southern and southeast Asian region and all other regions but higher than in Thailand.

The characteristics of the informal sector are discussed more fully in Chapter 7.

Development future

Indonesia adopts an economic planning approach, under the purview of several competing agencies, notably the National Development Planning Agency (BAPPENAS: *Badan Perencanaan Pembangunan Nasional*) and the Co-ordinating Ministry of Economic Affairs (*Kementerian Koordinator Bidang Perekonomian*). Interdepartmental communication has been growing

over the recent years, allowing for the formulation of coherent long-term economic planning that takes into account the broad scope of Indonesia's national economy. However, problems central to economic policy making remain: lack of civil service reform, lack of strong oversight within the planning process, high incidence of corruption, and difficulty in co-ordinating between the regions and the centre (Economist Intelligence Unit, 2013).

Table 1.8. **Main employment status, Indonesians 15 years and over, 2004 and 2013**

Main employment status	Persons 2004	Share (%)	Persons 2013	Share (%)
Self-employed	18 309 300	19.5	19 139 344	16.8
Self-employed assisted by family member/temp. help	21 512 400	23.0	19 380 757	17.0
Employer with permanent workers	2 965 900	3.2	4 026 097	3.5
Employee	25 459 600	27.2	41 561 419	36.5
Casual employee in agriculture	4 449 900	4.7	5 001 220	4.4
Casual employee not in agriculture	3 732 800	4.0	6 423 026	5.6
Unpaid worker	17 292 100	18.4	18 489 326	16.2
TOTAL	93 722 000	100	114 021 189	100

Source: BPS (Badan Pusat Statistik) (*Statistics Indonesia*), National Labour Force Survey, 2004 and February 2013

Table 1.9. **Share of employment (%) in the informal economy to total non-agricultural employment by regions and selected countries, 2005-2010**

Regions/countries	2005-2010
Indonesia	54.0
India	84.2
Pakistan	73.0
Philippines	73.3
Thailand	41.1
Southern & southeast Asia	69.7
Northern Africa	58.4
Sub-Saharan Africa	65.9
Latin America	57.7

Source: Charmes, J. (2012), "The informal economy worldwide: Trends and characteristics", *Margin: The Journal of Applied Economic Research*, Vol. 6(2), pp. 103-132 and BPS (Badan Pusat Statistik) (*Statistics Indonesia*) for the Indonesia estimate.

The government's Master Plan for the Acceleration and Expansion of Indonesia's Economic Development, 2011–2025 (MP3EI) seeks to address challenges that persist due to Indonesia's vast size, geographical spread and rapid urbanisation. Its main goal is to ensure the sustainable development of Indonesia's resources and labour, aiming to grow per capita income to USD 15 000. This goal calls for an average economic growth rate of 8-9% from 2015 to 2025 while seeking to rein in inflation from 5-6% currently to an average of 3% by next decade.

MP3EI calls for increases in production optimisation, process intensification and productivity, requiring a combination of improved managerial and organisational skills, a greater use of technical and technological skills, and a more adaptable and highly skilled workforce. Greater investment in productive capacity and infrastructure linked to the primary and secondary industry growth objectives of MP3EI will raise the demand for unskilled and semi-skilled labour. Additional demand for skilled industry managers, engineers and individuals with the requisite technical and theoretical experience in the various subsector specialities, should increase as production becomes more intensive and sophisticated. Eventually, as Indonesia moves towards a more indigenously innovative economy there should be new openings for research and development positions and a potential flourishing of talent in highly specialised, highly skilled positions.

The stages of development leading to the National Long Term Development Plan vision were as follows.

- The First National Medium-Term Development Plan (*rencana pembangunan jangka menengah nasional*) (or RPJMN 2005-2009) was the first step of reform undertaken by the government.
- The Second National Medium-Term Development Plan (or RPJMN 2010-2014) aimed to consolidate reform by emphasising efforts to increase the quality of human resources and strengthen economic competitiveness.

Strategic priorities for education, whether under the Ministry of Education and Culture (MOEC) or the Ministry of Religious Affairs (MORA), are set within the framework of the overall national plans. Education was the second priority after public sector reform, in the 2010-2014 National Medium-Term Development Plan. The MOEC's Strategic Plan for 2010-2014 has five missions which serve as the basis of all educational programmes. They are:

1. improve **availability** of education services;
2. improve **affordability** of education services;

3. improve the **quality and relevance** of education services;
4. improve **equality** in obtaining education services;
5. improve the **assurance/guarantee** of obtaining education services.

The Third National Medium-Term Development Plan (or RPJMN 2015-2019) will be directed at achieving economic competitiveness on the basis of natural resources and the quality of human resources, and increasing capability to master science and technology.

The Fourth National Medium-Term Development Plan (or RPJMN 2020-2025) aims to realise an Indonesia that is self-reliant, advanced, just and prosperous through the acceleration of development on the basis of solid economic structures, supported by high-quality, competitive human resources.

The Indonesian government has designated six regions as "economic corridors". Economic corridors are meant to host intensive centres of development based around designated industries. Their establishment is meant to attract investment and development of specific industrial clusters and special economic zones based on perceived regional strengths and advanced commodities and resources. The six corridors are: Bali-Nusa Tenggara, Java, Kalimantan, Papua-Kepulauan Maluku, Sulawesi and Sumatra. These regions are targeted for large, government-directed infrastructure investment to aid in their development and exploitation of regional commodities. Such a programme of regional economic development is intended to provide a more balanced economic base, given that nearly half of Indonesia's GDP is generated currently in only three provinces: DKI Jakarta, East Java (Jawa Timur) and West Java (Jawa Barat) (ILO, 2012).

Since the writing of this review of education in Indonesia, the third RPJMN has been presented which contains a number of initiatives in the areas of education and human capital. Other areas of the report that have been affected include the postponement of the 2013 Curriculum and modifications to the National Examinations (*Ujian Nasional*).

Implications of the ASEAN free labour market

The Association of Southeast Asian Nations will pilot an internal market for highly skilled labour in 2015, allowing for the free movement of individuals in selected professions. Under the new system, individuals in white-collar professions will be allowed to move between participating nations to seek employment. A free labour market will progressively expand opportunities for employers and employees. The new system might,

theoretically, help to meet the demand of highly skilled labour if quality emigrants from the more developed nations like Malaysia and Singapore were keen to seek opportunities throughout ASEAN. However, the Economist Intelligence Unit warns it is more likely that the best graduates from Indonesia, the Philippines, Thailand and Viet Nam will be drawn to higher-paying jobs in the most advanced ASEAN cities, while employers in their home countries will find it even harder to recruit adequately skilled graduate staff. This might give governments an additional incentive to focus on skills training and development, especially at the high end. In order to protect the interests of domestic employers, and avoid a "brain drain", it is in their best interests to launch specific policy measures aimed at sharpening the professional, managerial and generic skills of their graduates, while emphasising the importance of English as the regional language of business (Economist Intelligence Unit, 2012).

Closing Indonesia's skills gap will require improving education quality at all levels, as well as expanding and improving training centres. Graduates and workers should be equipped with the technical skills they need as well as behavioural skills valued by employers (discipline, reliability, teamwork and leadership) (World Bank, 2014b).

Education system

The Indonesian education system is immense and diverse. With over 60 million students and almost 4 million teachers in some 340 000 educational institutions, it is the third largest education system in the Asia region and the fourth largest in the world (behind only the People's Republic of China, India and the United States). Two ministries are responsible for managing the education system, with 84% of schools under the Ministry of Education and Culture (MOEC) and the remaining 16% under the Ministry of Religious Affairs (MORA). Private schools play an important role. While only 7% of primary schools are private, the share increase to 56% of junior secondary schools and 67% of senior secondaries.

The new president Joko Widodo appointed a new Minister for Research and Technology and Higher Education, Dr M. Nasir, in November 2014, with a new ministry for policy and programme administration. The president also appointed Dr Anies Baswedan as Minister for Primary and Secondary Education, served by the Ministry of Education and Culture.

The development of schooling in Indonesia

Indonesia's education system today continues to reflect aspects of its past: its diverse ethnic and religious heritage, its struggle for national

identity, and the uneven access different communities have to human and capital resources. Before the modern education system was introduced by the Dutch, the *pesantren* was the only educational institution available in Indonesia.

Pondok pesantren (Islamic boarding school)

The *pesantren* system comprises three main elements: the *kiai*; the *santri*, the students who learn Islamic knowledge from the *kiai*; and the *pondok*, shared dormitories provided by the *kiai* to accommodate his students. The *pesantren* typically use the traditional teaching techniques of *bandongan* and *sorogan*. *Bandongan* is a form of religious instruction on the *kitab* (book) conducted by either the *kiai* or his senior *santri* in lecture mode for those who have already attained a basic understanding of the Arabic language and the Qur'an. *Sorogan* is provided either for beginner *santri* or those who want to have more explanation of the problems discussed in the *kitab* (Endang, 2003).

Usually in rural areas and under the direction of a Muslim scholar, *pesantren* are attended by young people seeking a detailed understanding of the Qur'an, the Arabic language, sharia, and Muslim traditions and history. Students could enter and leave the *pesantren* any time of the year, and the studies were not organised as a progression of courses leading to graduation.

The Dutch dual system

Elementary education was introduced by the Dutch in Indonesia during the colonial era. Initially, it was reserved solely for the Dutch and other Europeans. In 1870, with the growth of Dutch Ethical Policy formulated by Conrad Theodor van Deventer, some of these Dutch-founded schools opened the doors for pribumi (native Indonesians). They were called *sekolah rakjat* (folk schools), the embryo of the contemporary *sekolah dasar* (primary school) today.

The Dutch system had the following levels:

- ELS (*Europeesche lagere school*) – primary school for Europeans;
- HIS (*Hollandsch-Inlandsche school*) – primary school for Natives;
- MULO (*meer uitgebreid lager onderwijs*) – middle school;
- AMS (*algeme(e)ne middelbare school*) – high school or college;
- HBS (*hogere burger school*) – pre-university.

The segregation of Dutch and Indonesian in education pushed several Indonesian figures to start educational institutions for local people. Arab Indonesians founded Jamiat Kheir in 1905, Ahmad Dahlan founded Muhammadiyah in November 1912, and Ki Hajar Dwantara founded Taman Siswa in July 1922. At the same time *pesantrens* were multiplying.

By the 1930s, the Dutch had introduced limited formal education to nearly every province of the Dutch East Indies. The Dutch colonial government also established a number of universities for native Indonesian on Java. These included: *School tot Opleiding van Inlandsche Artsen* (STOVIA), a medical school in Batavia; *Nederland-Indische Artsen School* (NIAS), a medical school in Surabaja; *Rechts Hoge School*, a law school in Batavia; and De Technische Hoges School (THS), a technical institute in Bandung.

The Suharto era

In 1973 President Suharto issued an order to set aside portions of oil revenues for the construction of new primary schools. The Presidential Instruction (INPRES) programme of school construction, which started in 1974, resulted in the construction or repair of nearly 40 000 primary school facilities by the late 1980s.

By the 1990s, Indonesians of between 7 and 12 years of age were required to attend 6 years of primary school. They could choose between state-run, non-sectarian public schools supervised by the Department of Education and Culture and private or semi-private religious (usually Islamic) schools supervised and financed by the Department of Religious Affairs. Islamic schools were included as a recognised part of the formal education system from 1975. However, although 85% of the Indonesian population was registered as Muslim according to the 1990 census, less than 15% attended religious schools. The majority attended state schools, particularly at the primary level, where the mode of education was typically didactic (see Box 1.1).

Madrasah

The marginalisation of Islamic education by the Dutch colonial administration, followed by the Sukarno government of independent Indonesia, resulted in Islamic education being regarded as a *second-class* system. Following the collapse of Suharto regime in 1998, the number of *madrasah* (Islamic school) and *pondok pesantrens* has increased in the major cities. The *madrasah* and *pesantren*s have sought to balance secular and Islamic knowledge. Additionally the *sekolah Islam* (modern Islamic school),

has emerged as a new genre of Islamic education system in Indonesia. The students at *madrasah* usually learn Islamic subjects, but the modernised Islamic system provides the student with a variety of material on Islam and secular subjects which should be mastered within a certain number of years. In contrast to the *pesantren*, students of a *madrasah* need to pass one grade to progress to the next grade, as in the public school system.

Box 1.1. **The traditional Indonesian teaching technique**

Inside the public school classroom of the early 1990s, a style of pedagogy prevailed that emphasised rote learning and deference to the authority of the teacher. Although the youngest children were sometimes allowed to use the local language, by the third year of primary school nearly all instruction was conducted in formal Indonesian. Instead of asking questions of the students, a standard teaching technique was to narrate a historical event or to describe a mathematical problem, pausing at key junctures to allow the students to fill in the blanks. By not responding to individual problems of the students and retaining an emotionally distanced demeanour, the teacher is said to be sabar (patient), which is considered admirable behaviour.

Source: Frederick, W. H. and R.L. Worden (eds.) (1993), *Indonesia: A Country Study*, Library of Congress, Washington, D.C.

Those developments have changed the community's regard for Islamic education. *Madrasah*, *pesantren*, and *sekolah Islam* are no longer considered as marginal but as an acceptable option within the mainstream offerings, with some, indeed, being regarded as "preferred schools" for the Indonesian middle class Muslim community (Makruf, 2011). Islamic education institutions now function not only to produce Muslim scholars, but also have a responsibility to participate in building the new Indonesia and thus have to embrace democracy, civic values and good governance in Indonesia (Makruf, 2011).

The current education system

The current structure of Indonesia's educational system presents an interdependent series of cycles (see Table 1.10) which needs to accommodate the needs of a very diverse population, geographically dispersed, and with wide variations in terms of socio-economic status and opportunities.

The Indonesian education system has to attend the needs of a large, growing, diverse and widely dispersed population and with great disparity in enrolment rates between regions (MOEC, 2014). Table 1.11 shows the current distribution of people, students, institutions and teachers at the various educational levels.

Table 1.10. **The Indonesian education system**

Age	School Year	Education Level	Education Delivery	
			Decentralised	Centralised
Above 22	23 22 21			Doctoral (includes general & Islamic, and vocational, academic & professional)
	20 19			Master (includes general & Islamic, and vocational, academic & professional)
22 21 20 19	18 17 16 15	Higher Education		Undergraduate (includes general & Islamic, and vocational & academic)
18 17 16	14 13 12	Secondary Education	General senior secondary & vocational senior secondary (SMA & SMK)	Islamic general senior secondary & Islamic vocational senior secondary (MA & MAK)
15 14 13	11 10 9		Junior secondary (SMP)	Islamic junior secondary (MTs)
12 11 10 9 8 7	8 7 6 5 4 3	Basic Education	Primary (SD)	Islamic primary (MI)
6 5	2 1	Early Childhood Education	Kindergarten (TK)	Islamic kindergarten (RA)

Source: MOEC (Ministry of Education and Culture (2013). *Overview of the Education Sector in Indonesia 2012 - Achievements and Challenges,* p. 10.

As Table 1.12 shows, the districts carry the bulk of funding responsibility for basic education (61%) and account for just over half of spending on senior secondary education. Importantly, the central government remains

significantly involved, and the cost effectiveness of the expenditure depends on the quality of the inter-governmental interactions in policy setting, progress monitoring and accountability over outcomes.

- A number of key laws and regulations have provided an overall framework for education sector development in Indonesia. These include the following.
- Law 32 of 2004 on Regional Government and Law 33 of 2004 on Central-Regional Financial Balance, which set out the overall framework for the decentralisation of the management and implementation of education, as well as the mechanisms through which decentralised education is funded.

Table 1.11. **Distribution of population, students, educational institutions and teachers, by age and level of education, Indonesia, 2013**

Age group	Population (millions)	Educational level	Students (millions)	Number of institutions	Teachers/ professors
3-6	18.52	Early childhood*	10.60	162 753	517 858
7-12	26.04	Primary	26.77	148 272	1 682 263
13-15	12.78	Junior secondary	9.65	35 527	587 610
16-18	12.57	Senior secondary	8.46	22 780	452 041
19-23	21.19	Tertiary	5.82	3 189	209 830
Total	91.09		61.30	372 521	3 449 602

Note: * includes Play Groups, Childhood Development and Care Centres, and similar Early Childhood Education and Care programmes

Source: Education Statistics 2012/2013, MOEC (Ministry for Education and Culture)

Table 1.12. **Proportion of spending on education by level of government and level of education, Indonesia, 2009 (%)**

	Central	Provincial	District
Early childhood	26	3	71
Basic education (primary and junior secondary)	38	1	61
Senior secondary	41	6	53
Higher education	100	0	0

Source: Al-Samarrai, S. (2013), *Local Governance and Education Performance: A Survey of the Quality of Local Education Governance in 50 Indonesian Districts*, World Bank, Jakarta, Indonesia.

- Law 20 of 2003 on the National Education System, which defines a number of key areas, including the function and purpose of education; the rights and obligations of citizens, parents, communities, and government; national education standards, curriculum, education personnel and their roles and responsibilities; and finance, management, evaluation, accreditation and certification.
- Government Regulation 19 of 2005 on National Education Standards, which defines the national standard in the following eight areas: content, process, graduate competency, teacher standards, school facilities, education management, funding and assessment. It also mandates the establishment of the National Education Standards Board (BSNP: *Badan Standar Nasional Pendidikan*), which is tasked with preparing the detailed education standards and overseeing their implementation.
- Law 23 of 2003 on the Constitutional Court. Over the years, the Constitutional Court has developed into a highly respected and trusted institution and has become the "legislature of last resort" where civil society has the opportunity to defend its rights by requesting the court to change, revoke, or change the interpretation of legislation passed by the House of Representatives. With regard to the education sector, the Constitutional Court has issued important rulings on at least three occasions. These were related to the government's obligation to allocate 20% of the national budget to education, the status of public universities and the provision of education by community-based organisations.
- Law 14 of 2005 on Teachers and Lecturers. This law increased the minimum teacher academic qualification from D2 (two years education after completion of senior secondary education) to an academic bachelor's degree (S1) or D4, a four-year diploma. It also requires teachers to have successfully completed the certification process and that all teachers must meet this requirement by 2015. Further, the law sets minimum competency standards in the areas of professionalism, pedagogy, social skills and personal behaviour. The law not only specifies what teachers should be able to do and how to behave, but also addresses the issue of teacher welfare by introducing a set of new professional allowances for teachers who have successfully completed the teacher certification process and for those who work in remote areas.
- The Law on National Education (No.20/2003) and the Constitution Amendment III emphasise that all Indonesian citizens have the right

to education; that the government has an obligation to finance basic education without charging fees; and that the government is mandated to allocate 20% of its expenditure on education. The Teacher Law (No. 14/2005) introduced important changes to the employment conditions and requirements for the certification of teachers, aiming at improving education quality. The Ministry of Education's strategic plans or *Renstra* (*Rencana Strategis*) for the periods 2005-2009 and 2010-2014 have consistently focused on three main pillars: *1*) increasing access to education; *2*) improving the quality of teaching and learning; and *3*) strengthening governance, management and accountability.

- In 2005 the government launched a massive school operations grant programme, the *bantuan operasional sekolah* (BOS), as a way of injecting funds directly into schools in order to keep children in school and give schools some flexibility in managing their own funds. Further assistance is provided by two other conditional cash transfer programmes, BSM and PKH which are directed at education (see Box 1.2). These programmes have been facilitated by the new KIP (*kartu Indonesia pintu*) smart card which allows recipients to access the funds directly. Supporting this and the decentralisation effort in general, the government has moved to anchor the principles of school-based management, where considerable decision-making authority is transferred to individual schools, in the national education system and also to provide a framework of National Standards for Education.

Box 1.2. **Conditional Cash Transfer (CCT) programmes for education**

There are a number of conditional cash transfer programmes which are designed to increase school enrolment for children from poor families:

BSM (*bantuan siswa miskin*) or poor students assistance programme includes bursaries and scholarships for primary through tertiary education, including vocational education, that are transferred either directly to the student or the school that s/he attends. The transfer is contingent on a number of criteria including enrolment and attendance and can range from IDR 360 000 annually for primary education to IDR for tertiary education.

PKH (*program keluarga harapan*) or family hope programme focuses both on health and education. The amount can range from IDR 600 000 to IDR 2.2 million depending on the number of qualifying dependents in the household. The transfer is contingent on school attendance as well as a number of health related criteria (e.g. pre- and post-natal checks, professionally attended birth, infant weighing and health checks).

Source: OECD, (2014, forthcoming), *OECD Economic Surveys: Indonesia 2014*, OECD Publishing, Paris, pp. 48 and 58.

Table 1.13 shows the progress made over the decade to 2013 across a wide range of education indicators.

Table 1.13. **Selected education indicators, Indonesia, 2003 and 2013**

Education Indicators	2003	2013
PARTICIPATION IN FORMAL EDUCATION	**%**	**%**
School participation rate		
7-12 year-olds	96.42	98.29
13-15 year-olds	81.01	90.48
16-18 year-olds	50.97	63.27
19-24 year-olds	11.71	19.88
Gross enrolment ratio[1]		
Primary school level	105.82	107.62
Junior secondary school level	81.09	89.71
Senior secondary school level	50.89	68.01
Higher education	10.84	22.77
Net enrolment ratio[2]		
Primary school level	92.55	95.47
Junior secondary school level	63.49	73.56
Senior secondary school level	40.56	53.74
Higher education	8.55	17.92
PARTICIPATION IN FORMAL AND NON FORMAL EDUCATION		
School participation rate		
7-12 year-olds	*	98.36
13-15 year-olds	*	90.68
16-18 year-olds	*	63.48
19-24 year-olds	*	19.97
Gross enrolment ratio		
Primary school level	*	107.69
Junior secondary school level	*	89.98
Senior secondary school level	*	68.34
Net enrolment ratio		
Primary school level	*	93.03
Junior secondary school level	*	76.5
Senior secondary school level	*	53.89

Table 1.13. **Selected education indicators, Indonesia, 2003 and 2013** *(continued)*

Education Indicators	2003	2013
Educational attainment (15 year-olds and over)		
Not attending / never attended school	9.62	5.57
Not completed primary school	15.74	13.76
Primary education	33.22	28.46
Junior secondary education	19.00	20.80
Secondary education and above	22.41	31.40
Pre-school participation(attending)		
3-4 year-olds	12.78	17.79
5-6 year-olds	23.79	36.89
3-6 year-olds	18.27	27.27
Pre-school participation (attending and not attending pre-school anymore)		
3-4 year-olds	12.78	21.94
5-6 year-olds	32.39	59.40
3-6 year-olds	22.56	40.54
Illiteracy rate		
10 year-olds and older	9.07	5.25
15 year-olds and older	10.21	5.86
15-44 year-olds	3.88	1.61
45 year-olds and older	25.43	15.24

Note: [1] Gross enrolment ratio is total enrolment, regardless of age, as a proportion of the population of the age group that officially corresponds to the level of education shown.

[2] Net enrolment ratio is the enrolment of the official age group for a given level of education, expressed as a proportion of the population of that age group.

Source: BPS (Badan Pusat Statistik) (*Statistics Indonesia*), 2014

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PART A

EDUCATION SUB-SECTOR OPPORTUNITIES AND CHALLENGES

Chapter 2

Early childhood education in Indonesia

Specific contextual factors

Indonesia has done much to expand access to education for children at all stages of learning. The quality of learning children encounter during the early years of their development will affect their readiness to learn when they enter primary education. This in turn will help or hinder them in junior and senior secondary school.

A good start in life makes all the difference. International research suggests that investment in early childhood education generates high payoffs (Heckman, 2009). Early childhood education is most effective when linked with health services (including nutrition), diagnostics to detect any learning problems, emotional support and family involvement – rather than simply providing spaces and teachers. Money spent on pre-school programmes generates a higher return on investment than the same spending on schooling (Heckman and Masterov, 2007). The OECD's work on the social outcomes of learning shows that high-quality early childhood education and care brings about a range of social benefits to individuals. These include better health, reduced likelihood of individuals engaging in risky behaviours and stronger "civic and social engagement" (OECD, 2011).

International research highlights the importance of early intervention and spells out the advantages of investing early in education and childhood development. The OECD found that in most countries, 15-year-olds who had attended pre-primary school education and care for more than one year outperformed those who had not in the Programme for International Student Assessment (PISA) reading assessment results. The difference remained even after accounting for socio-economic differences (OECD, 2011). It is widely established that early intervention and the impact of early education and childhood development can have a significant impact on children's chances throughout their lives. A longitudinal study in the United Kingdom found that attendance at pre-school education had an effect on test scores for children at 11, 14 and 16 years of age. This benefit was most marked in children from disadvantaged backgrounds (Apps, Mendolia and Walker, 2012). Programmes of care and education in the early years sustain growth and development and can mitigate some of the effects of poverty and deprivation. This includes not only pre-school education but very early intervention in family and community services to provide early childhood development and support to young children and their families. Having largely succeeded in achieving universal basic education, policy makers in Indonesia are now looking to expand the opportunities for children to access learning and care in the early years, covering the physical, social and intellectual development of children.

However, in Indonesia investment in early childhood education is well below investment in basic and upper secondary education. There is also a

major divide between rich and poor in terms of access to and the quality of early childhood education provision. Those children who have access to high-quality learning and social development before entering primary school have an advantage over those who do not.

Early childhood care and education lays the foundations for greater success in learning along the education pipeline, greater equity of opportunities and outcomes, and greater efficiency in the use of education system resources. Greater investment in early childhood care and education would help underpin Indonesia's achievement of its social and economic development goals.

Structure and scale of provision

Much of the early-years provision in Indonesia is provided outside the formal education and health sectors. Whilst it has not always been a policy priority in the past there are strong indications that it is becoming a more prominent priority in education and health policy. Since 2010, policy progress has been made with the introduction of the "Grand Design", a blueprint for the development of early childhood care and education (ECCE), building on a programme dating back to 2001. The Grand Design sets outcomes, targets and principles for the expansion of early-years education and care from 2011 to 2025 as part of an ambitious and far reaching set of goals to be realised by 2045.

The goal for early education in Indonesia is to provide interventions which will help children grow and develop physically and mentally and to help them move on to the next level of education. Increasingly the period from birth to six years is being seen in a more holistic way, bringing together health, social care, childcare and education. This more integrated approach is being developed and promoted but is still quite limited in scope and reach.

Presidential Regulation No. 20 of 2013 on Holistic Integrated Early Childhood Development (HI-ECD) aims to provide a strong foundation for improved implementation and co-ordination. It established a multi-agency task force to facilitate co-ordination in implementing HI-ECD. At the national level, the Task Force is chaired by the Coordinating Ministry for People's Welfare (Kemenkokesra) and jointly co-chaired by the National Planning Agency (BAPPENAS) and the Ministry of Home Affairs. The membership comprises eight ministries including Ministry of Education and Culture (MOEC) and Ministry of Religious Affairs (MORA).

The further development of such an ambition would benefit all children and in particular those who have a poor start in life.

The "Grand Design" plan sets out the basis for early-years education. Law 20, 2003 on the National Education System sets out three types of programmes for pre-school provision.

- Kindergarten (*taman kanak-kanak* or TK) and Islamic early childhood education (*raudhatul athafal* or RA) for 4-6 year-olds. The latter is managed by the Ministry of Religious Affairs.
- Playgroups (*kelompok bermain* or KB) and childcare centres (*tempat penitipan anak* or TPA) for 2-4 year-olds.
- Integrated care centres (*pos pelayanan terpadu, posyandu*) where health and care services are provided in an integrated way for children aged up to 6 years old.
- In addition to those listed above there are other non-Islamic, faith-based institutions which provide some aspects of childcare and some elements of education to varying degrees.

Currently provision is mainly through communities and private providers of early childhood care and education. Resources are still limited in this sector. Private for-profit and community services (faith-based and secular) are the main direct providers of playgroups and kindergartens. Despite significant growth in this sector there are still a number of challenges to the provision of a more universal and consistent service for pre-school children. These challenges include the need for: greater guidance and co-ordination at national and regional levels, improved understanding of the nature and purpose of the early years education, better co-ordination and data collection, and enhanced quality assurance.

Student access and inclusion

As a result of the government's active promotion of early childhood development programmes, there appears to have been a rapid increase in the number of children participating in playgroups, kindergartens and childcare services. Growth has been further driven by parental demand, reflecting increasing awareness of the benefits of early years education and high quality care. This progress in expanding provision for children across all types of early-years provision represents the result of considerable efforts on the part of all partners.

The greatest proportion of early-years education is provided in kindergartens, followed by playgroups. The number of kindergarten institutions more than doubled in the period from 2000 to 2011[1] (ACDP, 2013). The number of teaching staff in this area has also increased very dramatically to four times the original number. Much of this growth has

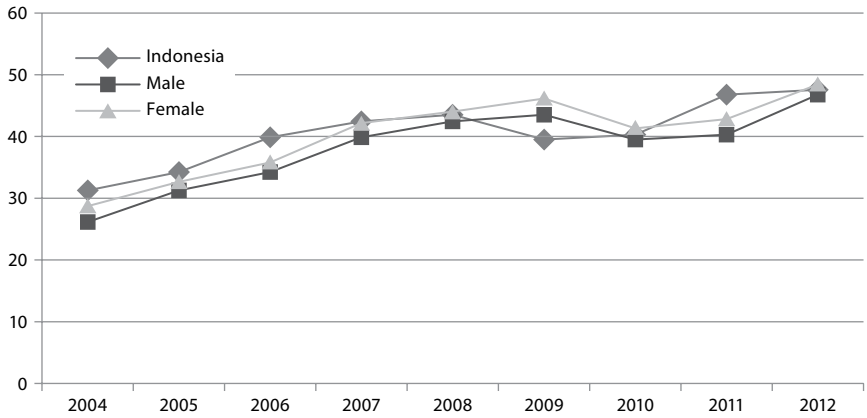
been in the for-profit private sector and accessed by parents who can afford to pay for this provision. There is still some way to go to ensure that all children can access pre-school education and care where it is desired, however. In 2012 it was reported that approximately 15 million children aged 0-6 years are not participating in any early child development programme (Hawadi, 2012). While earlier data is hard to collate, it is the general consensus of officials and practitioners that this figure has improved but there is still much to do. Figure 2.1 compares the government's expectations and the existing number of early childhood education institutions in 2013. It demonstrates a continued need to accelerate the implementation of the policy.

Figure 2.1. **The gap between supply and demand in early childhood education, Indonesia, 2013**

Source: MOEC (Ministry of Education and Culture) (2013)

The number of children enrolled in kindergarten in particular has been constantly increasing. MOEC enrolment has increased by 30% from 2007-08 to 2011-12 with 3.6 million children enrolled in kindergarten. The gross enrolment ratio (GER)[2] for 5-6 year-olds increased from 27% in 2004 to 47% in 2012 (see Figure 2.2). Girls' enrolment at pre-primary level exceeds that of boys, with a GER of 48.4% compared with 46.8% in 2012 (UIS). The total number of children in any type of early childhood education institutions for 0-6 year olds is around 10.5 million. The kindergarten sector experienced the third fastest growth in student numbers over this period after vocational senior secondary schooling and higher education.

Figure 2.2. **Gross enrolment ratio in pre-primary education, by gender, Indonesia, 2004-12**



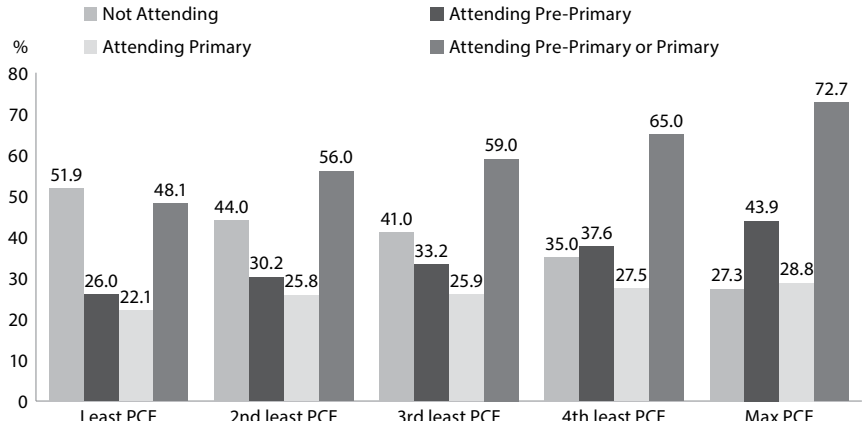
Source: UIS (Unesco Insitute for Statistics), www.uis.unesco.org/Pages/default.aspx.

Disparities in access by region, geographical area and wealth

Despite rapidly increasing participation in ECCE in recent years, significant regional disparity remains. Among the provinces, Yogyakarta has the highest level of participation in kindergarten, at 59%, while Papua has the lowest rate, of just 18%. MOEC statistics for 2012-13 show that the gross enrolment rate for early childhood education in 24 out of 34 provinces was below the national average of 65% for preschool provision. Children in urban areas are more likely to attend pre-primary education than in rural areas (38.6% against 28.4% in 2011). This may be as a result of better availability, accessibility and affordability of pre-primary education in urban areas (UNICEF, 2013).

Participation in early childhood development, whether through community-based, private or public-sector institutions, remains influenced by the wealth of households. Figure 2.3 shows the difference in enrolment among children aged 5 and 6 years old by household per capita expenditure (PCE) on goods and services. While the attendance rates among that age group for primary education are similar regardless of family wealth, attendance at pre-primary education differs by their PCE profile (UNICEF, 2013). Children in the highest quintile families are 1.5 times more likely to attend pre-primary or primary education than those from the poorest quintile. This suggests that children from poor households not only have less chance of attending any level of education at pre-primary age, but are also

Figure 2.3. **School attendance of pre-primary age children by socio-economic quintile, Indonesia, 2011**



Source: UNICEF (2013), "Indonesia socio economic survey 2011: Inequalities in education", unpublished draft, UNICEF.

less likely to benefit from early childhood education adapted to their age and more likely to enter primary education without ECCE experiences. The data also demonstrate a high attendance rate in primary education by children at officially pre-primary age of 5-6, from both poor and rich households. One of the reasons could be the affordability and accessibility of primary schools compared with kindergartens, encouraging parents to enrol children in primary school at an early age.

Access to ECCE relies heavily on the participation of families and communities in its provision. Only 4% of pupils enrolled in kindergarten are in public kindergartens and the rest of the pupils are in kindergartens run by the private sector or in community-based institutions (MOEC, 2012). There is a divide in perception among communities with a belief that more formal settings are for wealthier families and informal settings are for poorer communities and families. Participation is lower among 3 and 4 year-olds and higher for those aged 5. Mothers' education is also an influencing factor, with the children of mothers who have completed at least primary education much more likely to participate in early-years education.

Improved data would help policy makers and professionals to ensure equal access for all children and families to early-years education and care. Due to the lack of data on non-formal ECCE, particularly community-based programmes such as playgroups, childcare centres and integrated health centre-based ECCE activities, it is difficult to gain an overview

of access to these types of services among children of six years old and under, except for some data on kindergartens (CBR). This data shortage makes it difficult to identify the gaps in detail and thus to plan and target provision.

The review team saw some very good practice in kindergartens which combined playgroups, formal kindergarten and in one case a childcare centre. This very good practice was characterised by highly qualified, knowledgeable and committed professional staff, clear curriculum guidelines and quality learning through play. In one childcare centre the impact of the local community alongside commitment at district level was very positive and care, education, health and social work staff were making a real difference to the lives of some very vulnerable children. Extending this sort of practice from model institutions to all early-years settings and building up good practice in health, social care and education will have a significant impact on children's learning and development and their readiness to learn in school. Tackling inequality and economic disadvantage in this way is a key strand of national policy and there is much still to be achieved. The speed of implementation of this policy will have a direct effect on the overall achievement of children in school.

Student progression

The development of a curriculum that addresses the academic, pastoral and health aspects of childhood development should provide a coherent pathway for children from early years to senior secondary. The new curriculum should go some way to improving coherence and progression from kindergarten to elementary school. As the new curriculum is developed there is the intention to provide further guidance on the early years curriculum and methodology, however, this is still in the early stages of development. Children leaving early years provision and moving on to elementary school may have to apply to a range of different elementary schools. There is no arrangement in place for the transfer of knowledge about children's prior learning across all the possible elementary schools they may eventually be placed in.

A UNICEF study on out-of-school children found that at pre-primary age (5-6 years old), the greatest reason for children not attending school is that 92.2% of parents consider their children "not old enough". This indicates that parents are not aware of the benefits of early childhood education (UNICEF, 2013). Parents need more information about the importance of early childhood education and care adapted to younger children, and should be encouraged to enrol their children into pre-primary education at 5 to 6 years of age.

Teaching and learning

The review team visited a number of early childhood development centres. Whilst practice was variable there are clearly some well-qualified practitioners with an excellent understanding of the curriculum and the care pathways needed in an effective early childhood development programme. Building on this type of expertise and understanding, early year practitioners and teachers engaged in peer learning would greatly enhance the overall effectiveness of the system. Good practice case studies and peer to peer training would enable the best practice to be shared across the early years sector. Children's learning and development would be improved by enhancing the qualification level, expertise and competence of those directly providing early-years programmes.

The national development programme for early childcare and education recognises that investment is needed not only in infrastructure but also in the quality of teachers and in the quality assurance system for continuous improvement in early-years education. In general, staff in ECCE are not highly qualified. Statistics from 2011 provided by MOEC showed that the qualifications and competency of most ECCE teachers and educational personnel was not yet sufficient, especially among teachers, with many childhood educators not yet meeting the level of qualification specified in the existing regulations. Just under 16% of teachers were S1/D4 graduates, i.e. with a bachelor's degree or a four-year diploma, while most were high school graduates or below D2 (two-year diploma) graduates. Not all educational personnel in pre-school education have to be qualified to graduate level but they should all be moving towards having specific qualifications in child care and childhood development. An appropriate mix of teachers, pre-school professionals at diploma level and ancillary care staff can create an excellent mix. This has implications for the pre-service and in-service training of those working in early childhood centres in all settings.

Parental involvement in playgroups and in kindergarten can be highly effective and can be provided on a voluntary basis. The review team saw little direct involvement of parents in pre-school settings. Parents are an untapped resource which could complement professional and para-professional staff.

Standards and accreditation

Indonesia needs to work towards three goals: improving qualifications and standards of practice among staff, ensuring that standards and criteria are met and maintained, and ensuring effective licensing of new providers setting up centres. These goals are likely to have a significant impact on the quality of children's learning and development.

The early childhood care and education sector has not been regulated in a systematic way. Much early childhood provision has developed in an organic way and the oversight and quality assurance of standards and programmes is variable across and within regions. At a local level many new early childhood institutions are authorised without any clear criteria or standards. Some operate without an official licence to do so.

Supervisors often work across both basic education and pre-school establishments. The deployment of experts in childhood development as supervisors would have a positive impact in sharing best practice, raising standards and ensuring high quality provision. The role of supervisors and the need for them to be independent, highly skilled and recognised leaders is discussed elsewhere in this report (see Chapter 8). It is equally important in early childhood care and education that supervision should drive up improvement and add value to the work of the education establishments.

Financing

The expansion of early childhood education has concentrated on expanding provision generally. Consequently it has not yet been fully effective in targeting those families and children most disadvantaged and furthest from accessing formal and high quality early-years provision. The allocation of funding to early childhood development and education remains relatively low at around 1.2% of the education budget, compared with the international benchmark of 4-6% (UNICEF, 2012).

The financing model is complicated. In recent years, there has been significant public investment aimed at expanding overall provision. Districts and villages are funded through national transfers and devolution has been used to enable local communities to target this funding more effectively to local circumstances. Funding for projects that support integrated health, social care and education tends to be for up-front development costs and can be difficult to sustain. These one-off injections of resources are welcome and can create capacity and build some aspects of infrastructure but they are not reliable over the longer term. Community development grants have also been available for specific projects and initiatives. As funding for aspects of childhood development and care has come from different departments it has been difficult to understand the collective impact of individual initiatives to combat poverty, malnutrition, immunisation, social welfare and education. The recent moves by the national government to streamline and to promote a holistic approach to child and family support is welcome and could improve both the transparency and the impact of the wide range of funding sources for early-years provision.

National support for early childcare and education has resourced some significant elements of the programme. This can be summarised by the following quotation from BAPPENAS: to show some results.

> However, there has been an acceleration of growth in the provision of centre-based programmes and new guidelines and tools (training, curriculum, support materials) have expanded the focus from school readiness to a more comprehensive child development, active learning and learning through play approach. MOEC regulation 58 demonstrates a developmental approach consistent with the HI ECD [Holistic Integrated Early Childhood Development] vision. MOEC has also produced supporting materials for children and teachers and provided training consistent with this HI ECD framework. In addition to this, in 2011 and 2012 the national education budget provided operational subsidies for about 1.9 million children (per year) and invested in model programmes throughout the country in terms of improvement of facilities and programme development. (BAPPENAS, 2013)

The national strategy for childhood development sets out an ambition to extend early childhood care and education so that it reaches all areas and communities and within this to improve equality by reaching isolated areas, villages and borderline areas. Based on the government's figures, the cost of expanding early childhood care and education would require almost doubling expenditures from 2010 to 2015.

Governance

Alongside the national strategy for holistic-integrated early childhood development, the government has also developed general guidelines in the National Strategy for Childhood Development. Each responsible ministry and department also have their own guidelines. Policy makers recognise that they need to undertake further work to cover all aspects of early years development and to co-ordinate this on a national level. There is no mechanism to co-ordinate early childhood development provision and no data to track and evaluate its impact. This is likely to hamper policy makers and remedying this lack will be essential to systemic reforms in this sector.

Issues and options

The ambition to expand provision for early childhood care and education is to be welcomed. Already significant steps have been taken at national, regional and district level to advance access and to begin to improve quality. Much more rapid expansion is needed if Indonesia is to

realise the targets agreed in this aspect of education, social and health care. It seems likely that public early-years provision will need to be expanded as well as private partnerships encouraged. A quality assurance system that is applied equally to both the public and private sector will be key if this expanded provision is to make a real difference to children's lives and to ensure they become effective learners and contributors to the society of the future.

Investment in the 0-6 age group will need to be monitored. Having effective reliable data which can be collected in a secure way will be essential to policy development and to ensuring quality. Research from around the world attests to the importance of early intervention. Studies such as the OECD PISA study, the Early Childhood Longitudinal Study from the US Department of Education (NCES, 2012) and the Growing Up in Scotland study which is a longitudinal study of childhood started in 2003 that reports regularly (Scottish Government, 2014), look at the later impact of early care, support and learning. In order to evaluate the effectiveness of investments in early-years care and education in Indonesia and to identify which strategies work best and where, the team recommends establishing fuller baseline data and carrying out longitudinal studies. These will give an early indication of success in learning and child development but will also track over time the effectiveness of long-term strategies and investment. The excellent report by BAPPENAS, *Early Childhood Development Strategy Study in Indonesia* (2013), forms a very good basis from which to develop such a longitudinal study. In particular the focus of that report on multi-agency working and the holistic approach to educational development, health and social care for very young children could be an area of key investment to support both social cohesion and economic development in the future.

Observations and recommendations

Early childhood education lays the foundations for greater success in learning further down the education pipeline, greater equity of opportunities and outcomes, and more efficient use of education system resources overall. Significant steps have been taken to widen access to and improve the quality of early childhood education, building on initiatives since 2001, and following the 2010 "Grand Design", a blueprint for the development of early childhood care and education (ECCE). Much more rapid expansion is needed, however, if Indonesia is to realise the targets it has set in its Grand Design blueprint. The allocation of funding to early childhood development and education remains relatively low at some 1.2% of the education budget, compared with the international benchmark of 4-5%.

Funding for projects that support integrated health, social care and education tends to be for up-front development costs and can be difficult to sustain. These one-off injections of resources are welcome and can create capacity and build some aspects of infrastructure but they are not reliable over the longer term.

The bulk of growth in provision and participation of ECCE has been in the for-profit private sector which is accessed by parents who can afford to pay for this provision. Children from the poorest families, who could benefit most from early learning and care, are the least able to gain access and the most likely to fall behind in the subsequent stages of schooling.

At the local level, many new early childhood institutions are authorised without any clear criteria or standards. Some operate without a licence. Many early childhood educators do not yet meet the required qualifications standards. Indonesian ECCE lacks a quality assurance mechanism. Many supervisors currently work across both basic education and pre-school establishments. As participation in early childhood education expands, the sector will need to have a dedicated cadre of supervisors. It will also need an effective but not overly complex quality assurance system.

Indonesia's devolved arrangements allow for a variety of models for early childhood education and care to be explored, whether in health centres or attached to schools, or stand-alone ECCE centres including public-private partnerships. The review team saw examples of good practice in kindergartens combining playgroups, formal kindergarten and in one case a childcare centre. The diffusion of local innovation can help lift the overall performance of the national system.

As funding for aspects of childhood development and care is sourced from different departments it is difficult to gauge the collective impact of individual initiatives to combat poverty and malnutrition, and improve immunisation, social welfare and education. Investment in the 0-6 age group will need to be monitored for its cost-effectiveness and responsiveness to changing needs and circumstances.

Parents need greater awareness of the importance of early childhood education and care, and more encouragement to enrol their children in appropriate early childhood education and care services.

Recommendations

- The government should increase provision and participation in early childhood care and education (ECCE), and progressively raise its budget expenditure on ECCE as a proportion of its total outlays.

The increased expenditure should include provision for growth in recurrent costs as well as for capital works.

- Priority should be given to expanding pre-school and school readiness programmes for children from poor households. The government should progressively increase its spending on the public provision of early childhood education services that can be accessed by poorer families.
- The government should establish, promulgate and enforce strict provider licensing standards and take steps to put in place a robust quality assurance regimen for both private and public ECCE providers. The threshold licensing standards should be common across the nation. A set of minimum service standards should be developed for ECCE along the lines of those developed for the school and madrasah sectors.
- The government should consider appointing a dedicated professional cohort of early childhood education supervisors.
- The relevant ministries should work together to develop a joined-up and systematic approach to data collection, recording, analysis and reporting in respect of ECCE.
- The government should consider developing a public awareness campaign designed to increase participation in ECCE.

Notes

1. 'Kindergarten' here refers to formal pre-primary education including both kindergarten (TK) and Islamic early childhood education (RA). Other forms of non-formal early childhood education and care such as playgroups and childcare centres are not included.
2. The gross enrolment ratio is the total enrolment, regardless of age, in a particular level of education as a proportion of the population of the age group that officially corresponds to the level of education shown.

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Chapter 3

Basic education in Indonesia

Specific contextual factors

A number of government policies have contributed to improving the access, availability and affordability of basic education in Indonesia, and the country is now close to achieving universal primary education. The school operational assistance (*bantuan operasional sekolah* or BOS) grant, introduced in 2005, enabled free education in primary and junior secondary schools and had a significant impact on increasing access to basic education. It helped all schools but particularly those in poor and more remote areas, many of which previously lacked an education budget. "One Roof" primary and junior secondary schools, which share a building, have also been important in increasing equitable access to basic education particularly in remote areas. A school rehabilitation programme has helped improve learning environments and strengthen school-based decision making.

Indonesia has also made good progress on building the foundations needed to improve the quality of basic education. Good progress has been made towards targets for achieving qualified teachers and the provision of classrooms and teaching materials across the country, but there are still some regional and district disparities in both student access and teachers' certification in remote and poor areas.

At the same time pockets of quality teaching practice and innovation are emerging in some primary and junior secondary schools. The review team observed instances of good teaching practice where motivated students were engaged in group learning and where there was two-way communication between students and teachers. The team was impressed by the commitment of the teachers and students interviewed. Teachers wanted to make a difference for students and students wanted to learn.

While there is strong progress to celebrate, and most students are now receiving a basic education, equity of access and outcomes remains a critical issue. There is still huge variation in the quality of learning that students receive across the country and overall achievement is low. It will be difficult to spread excellence across the system until effective assessment tools and transparent data are used to guide decision making and action at classroom, school, and district levels. The challenge is to keep up the drive for continuous improvement in quality across all provinces and districts in line with the framework for quality improvement set out in Indonesia's National Education Standards.

Structure and scale of provision

Basic education in Indonesia covers nine years. It is divided into two levels: six years of primary school and three years of junior secondary school. The official entry age is 7 years old, but it is common to find many 6-year-olds enrolled in the first year of primary school.

Formal education is provided by a combination of public and private schools. There are two types of private schools: faith-based schools and private schools for profit. The majority of private schools are faith-based Islamic schools. Faith-based Islamic schools are centrally managed and governed under the Ministry of Religious Affairs (MORA), while districts are mainly responsible for the management of public schools with the Ministry of Education and Culture (MOEC) responsible for their overall governance.

MOEC's strategic objective for basic education for 2010-14 is to "guarantee to obtain basic education services of high quality, relevant and equal in every province district and city" (Ministry of National Education, 2012). Given the decentralised management of state schools, the successful implementation of this plan requires regional and local capability.

While the majority of primary schools are public (80%) the private sector plays a key role in Indonesia's education system. Private primary schools make up 20% of primary schools in Indonesia (2009/2010 data, see Country Background Report (CBR)) and the government subsidises their operational costs, provides teacher subsidies, and in some cases, teachers (ACDP, 2013a). Most Islamic primary schools are private (92.5%) but only 9.1% of primary schools administered by MOEC are private.

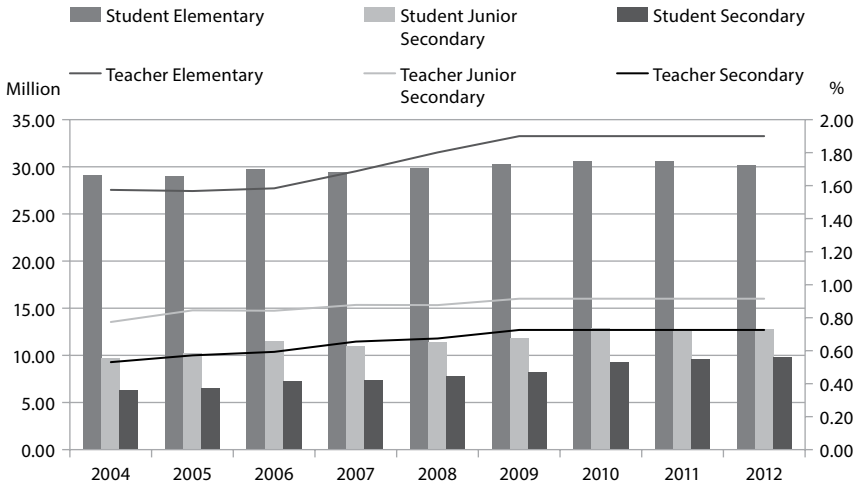
There are more private schools in junior secondary education where 57% of all schools are private. As with primary schools most Islamic schools (*madrasah tsanawiyah*, or MT) are private (90.3%), while 40.8% of MOEC junior secondary schools (*sekolah menengah pertama*, or SMP) are also private.

The ratio of students to full-time teaching staff in primary education in Indonesia was 18.6 in 2011. The ratio is higher than the OECD average of 15.4 and of most of Association of Southeast Asian Nations (ASEAN) countries, such as Thailand (16.3) and Malaysia (12.5) (OECD, 2013; UIS). While this figure suggests reasonable class sizes and numbers of full-time teachers, the trend over time suggests that the number of teachers is growing faster than the number of pupils, particularly for primary schools (see Figure 3.1). This is a significant issue and is discussed further in Chapter 8.

Teacher shortages

The 2012 PISA school background survey indicated that teacher shortages have all but been eradicated in Indonesia. In 2003 54% of schools reported a shortage of qualified mathematics teachers, but this proportion had decreased to 16% in 2012 and the results for science and language teachers are similar. More principals in private schools reported teacher shortages than those in public schools, and principals of disadvantaged schools and/or schools in rural areas reported more teacher shortages than those of advantaged and/or urban schools (PISA, 2012).

Figure 3.1. **Growth of student enrolments/numbers of teachers, primary and junior secondary, 2004/05-2012/13**



Source: Trend of Education Data 2002-03 – 2007-08 and 2007-08 – 2012-13, MOEC (Ministry of Education and Culture), (2009 and 2013) Indonesia.

While there is clearly no shortage of teachers, teachers in remote and rural areas are less qualified and they are often absent from school. Chapter 8 provides a fuller discussion on these issues.

Distribution of resources

Higher-performing countries tend to distribute schools' educational resources more equally between socio-economically advantaged and disadvantaged schools. In Indonesia, the principals of schools located in rural and disadvantaged areas reported more shortages or inadequate resources than the principals of schools in town and advantaged areas. In addition, principals of lower secondary schools reported more shortages or inadequate resources than principals of upper secondary schools (PISA, 2012).

Parents and school committees

Neither parents nor school committees are currently actively involved in school decision making and activities, making them a largely untapped resource. Principals tend to see school committees as just an intermediary to inform parents of school decisions and, in turn, the attitude of their members was one of no interference and deference to school staff (Vernez et al., 2012).

The review team did not observe parents helping inside classrooms (as is the norm in many high-performing systems), but the team did observe many parents waiting outside primary school gates for long periods of time.

For all children, their parents and family are their first and most important teachers. Building learning-focused relationships and connections between parents, family and teachers is therefore vital for each child's ongoing learning and success. Engaging parents in school decision making and activities is also likely to strengthen the demand for quality education. The review team was told by many that "parents and community don't really pay attention to quality, what they want for their children is the certificate". In other words, it's OK if children receive a poor education so long as they graduate and pass.

Genuine home/school collaboration can lift children's achievement significantly. Research (e.g. Biddulph et al., 2003) indicates that the following partnership practices are important in achieving these positive impacts on children's achievement:

- families are treated with dignity and respect;
- school practices add to family practices (not undermine them);
- teachers offer specific suggestions rather than general advice;
- schools offer supportive group opportunities as well as opportunities for one-to-one contact (especially informal contact).

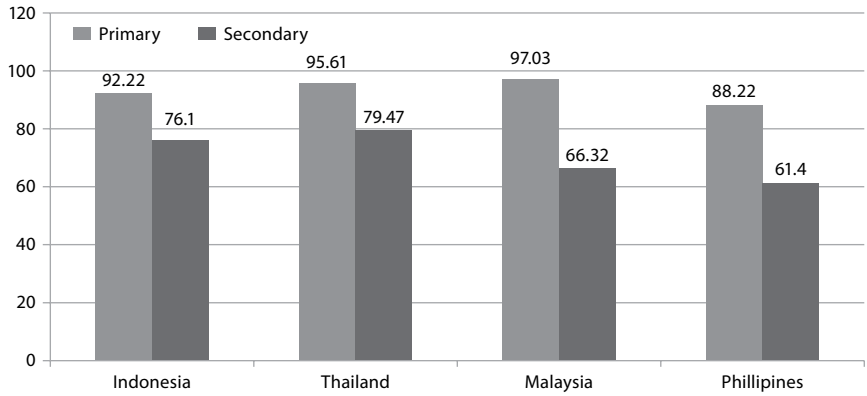
Student access and inclusion

Access to basic education has improved over the last decade and Indonesia is now close to achieving universal primary education. The gross enrolment rate for primary education was over 100% in 2004 and there has been a slight increase during the last decade. According to the most recent national data, in 2013-14, the gross enrolment rate was 110.68% and the net enrolment rate was 93.30%.[1]

There has also been a significant improvement in junior secondary school enrolment during the last decade. National data show that the net enrolment rate increased from 58.6% in 2001 to 76.5% in 2013 and the gross enrolment rate from 76.1% in 2001 to 96.9% in 2013.

However, comparison among ASEAN countries shows that enrolment in both primary and secondary education is below that of neighbouring countries Thailand and Malaysia, though above that of the Philippines (see Figure 3.2).

Figure 3.2. **Total net enrolment rate in primary and lower secondary schools, 2012 or latest year available**



Source: UIS (UNESCO Institute for Statistics) data http://www.uis.unesco.org/Pages/default.aspx

Special needs students

Indonesia has been shifting towards more inclusive education. The goal is to develop an inclusive education system that provides quality education for all children including children with disabilities and to decrease the number of students in special schools. While this goal is in line with international best practice, it is difficult to provide an overview of the degree and the progress of integration of special needs students in regular schools because currently the government only collects statistics on special needs schools.

In 2013/14, the number of students enrolled in special needs schools was 75 426 for primary schools and 17 157 for junior secondary schools (MOEC, 2012). This represents 0.25% and 0.13% of the number of students enrolled in regular primary and junior secondary schools respectively, counting both MOEC and MORA schools (based on the CBR and MOEC 2012 statistics), (ACDP, 2013a). In contrast to the relatively good gender balance for regular primary and junior secondary schools, special needs schools show a higher enrolment of boys than girls. This suggests that girls with special needs are more disadvantaged than boys with special needs and that traditional perceptions of gender roles and functions contribute to these results. There are huge disparities between provinces in the provision of special needs education. While East Java and West Java provide 457 and 331 special needs schools respectively, several provinces have fewer than 10 special needs schools and in West Papua there are only

4 special needs schools (MOEC, 2012). Inequality of access persists and reaching the "unreached" is a challenge in regard to the provision of special needs schools.

Gifted students

The review team noted that only a few of the schools visited made any provision for students who were gifted. This provision was only for students who were academically gifted and it took the form of either accelerant classes, where top students could skip a grade, or enrichment, where top academic students stayed at the same grade level, but worked in a separate classroom with a good teacher. Where gifted children were provided for, their classroom seemed better resourced (rather than differently resourced) when compared with other classrooms in the same school. Research (Brody, 2004) indicates that enrichment and/or accelerant classes should both be considered when providing for gifted and talented students. It may be also be worth considering developing policies in these areas to boost the numbers of students achieving at the top end of international benchmarks.

Provincial disparity

Although Indonesia has made remarkable progress in improving access to basic education, 6.7% of primary school age children and 23.4% of junior secondary school age children are not enrolled in schools corresponding to their age according to the most recent national data (MOEC, Statistics, 2014). The national data also masks serious regional disparities between and within provinces. At primary school level the net enrolment rate ranges from 94.7% in Bali to 83.1% in West Papua. For lower secondary school enrolment, the provincial disparity in net enrolment rates is wider, from 94.7% in the Special Capital Region (DKI) of Jakarta to 31.6% in Papua. The provinces with lower enrolment rates are mostly located in the eastern part of Indonesia, including Papua which is often referred as a "remote" area.

Within provinces, the chances of children enrolling in basic education is influenced by geographical context (urban/rural) and the socio-economic status of the household. Children living in urban areas are more likely to attend primary schools. The net enrolment rate for primary school in urban areas was 98.5% while the rate in rural areas was 96.8%. The geographical disparity becomes wider in lower secondary schools: 85.7% of lower secondary school-aged children attend schools in urban areas whereas only 74.4% attend in rural areas, a gap of more than 10 percentage points (UNICEF, 2013).

Current enrolment policies within districts may also lead to disparities in opportunities for students. Despite scholarships for the poor, the best schools have the best teachers and then select the best students and this has serious implications for achieving better equity of outcomes. The students who need the most skilled support often experienced the least skilled, in the least well-equipped schools.

Student progression

Transition and dropout rates

For primary schools the dropout rate was 1.09% in 2011/12. Among those who complete primary education, 95.3% move to junior secondary schools and 4.7% do not continue to the next level of education.

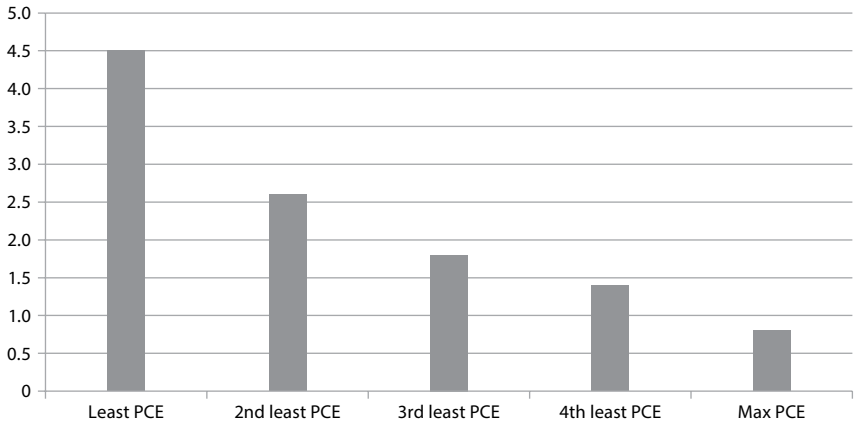
Dropout rates are more significant at junior secondary level. In the course of junior secondary education 1.74% of pupils drop out and 8% of pupils who successfully complete this level do not continue to upper secondary education (MOEC, 2012).

The difference in the dropout rate between general primary schools (*sekolah dasar* or SD) and Islamic primary schools (*madrasah ibtidaiyah* or MI) is significant. In 2010/11, the dropout rate for SDs was 1.61% while for MIs it was 0.18%. For junior secondary level, the difference is even more acute. The dropout rate of general junior secondary school was 1.41% whereas that of Islamic junior secondary school (MT) was 0.06% (MOEC, 2012).

Among children of primary school age, national data show that 2.4% do not attend school of any level. UNICEF's study of out-of-school children found that family wealth has the most significant impact on access to school for primary and lower secondary school age children. The distribution of the out-of-school population by household per capita expenditure (PCE) quintiles illustrates the wide variation in attendance rates according to family wealth (Figure 3.3). Children from the lowest PCE quintile are almost five times more likely to be out of school than those from the highest PCE. This trend is similar for children of lower-secondary school age (UNICEF, 2013). While the provision of BOS funding to junior secondary schools and subsidies for poor students have contributed to a significant increase in enrolment rates, a lack of financial resources is still the most important barrier for families enrolling their children in basic education.

Other major causes of non-attendance include distance to school and children's disabilities, especially for primary school children (UNICEF, 2013). The shortage of school facilities in remote areas, especially in eastern Indonesia, makes the distance to school too far for many

Figure 3.3. **Primary out-of-school rate by per capita expenditure (PCE) quintiles**



Source: UNICEF (United Nation's Children Fund) (2013), "Indonesia socio economic survey 2011: Inequalities in education", unpublished draft, UNICEF.

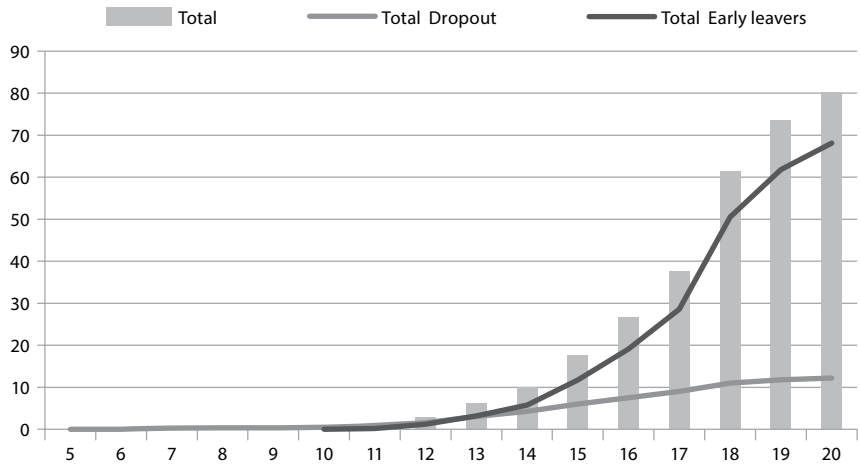
communities. High rates of teacher absenteeism in disadvantaged areas is also considered to be one of the main reasons for low enrolment rates in remote areas (CBR).

The dropout rate is relatively low throughout primary school but it starts to increase significantly at the age of thirteen which is the beginning of junior secondary schooling (see Figure 3.4). In order to achieve universal basic education, the government needs to address two challenges. The first is to ensure the availability of schools and teachers so that all children can access school regardless of their socio-economic background. Second, the government and schools need to engage and better support the pupils at greater risk of dropping out, especially at the point of transition from primary to junior secondary and then throughout the junior secondary education.

It may also be useful to investigate the factors that lead to the dropout rate in Islamic primary and junior secondary schools being almost non-existent. The review team's discussions with teachers and principals of Islamic schools indicate that a good relationship between teachers, pupils and parents and the integration of the schools into the community may contribute to the retention of pupils.

As well as the loss of instructional time experienced by students, teacher absenteeism also influences the school dropout rate. For children

Figure 3.4. **Percentage of children dropping out**



Source: UNICEF (United Nation's Children Fund) (2013), "Indonesia socio economic survey 2011: Inequalities in education", unpublished draft, UNICEF.

to experience quality teaching, teachers must first and foremost be present in the classroom. A study on teacher absenteeism in Papua found that rates of teacher absenteeism are highest in districts where the proportion of out-of-school children is also the highest. In remote areas like Papua and West Papua, teacher absenteeism is a severe problem affecting the access and retention of children in school as well as the quality of education. The same study shows that the overall rate of teacher absenteeism is 37% in Papua province (UNCEN et al. 2012). In the highland districts, almost one in two teachers are absent. This does not include teachers who are at school, but are absent from their classrooms.

Stratification

In well performing systems the repetition rate is close to 0%. Some 3% of Indonesian students overall repeat a grade and the repetition rate is higher for children from the most disadvantaged backgrounds which creates an added disadvantage for them. Research (Jimerson et al.) has shown that grade repetition negatively impacts on all areas of a child's achievement (reading, maths and language) and socio-emotional adjustment (peer relationships, self-esteem, problem behaviour and attendance). The available evidence also suggests that retained students (those held back to repeat a class) are more likely to have poorer educational and employment outcomes during late adolescence and early adulthood (Jimerson, 2001). Most high-performing educational systems "socially promote" almost all students so that they

progress through school with their peers of the same age. They then provide appropriate differentiated teaching (such as using multi-grade teaching practices) and targeted remedial interventions for small groups of students where necessary.

Another form of stratification that occurs in Indonesia is that students are selected for a particular schooling "track" as early as the age of 15. The latest PISA results found that 80% of students are enrolled in a general curriculum programme while the rest are enrolled in the pre-vocational or vocational curriculum. Students also gain entry into a junior high school according to their academic performance or the recommendations of their feeder schools, meaning most students attend "selective schools" (PISA, 2012). These forms of stratification can undermine attempts to achieve equitable outcomes, because they lead to an uneven distribution of learning experiences and uneven access to resources, based on perceptions about students' ability to learn.

Teaching and learning

Indonesia has participated in a number of international educational assessment programmes since 1999. These assessments provide benchmarks for the performance of students and the success of teaching and learning over time. While there have been small improvements in reading and, among 15 year-olds, understanding of mathematics since 2006, declining achievement in mathematics and science at eighth grade, and declining achievement in science at the end of junior secondary school are of concern.

In the 2011 Trends in International Mathematics and Science Study (TIMSS), mathematics testing of eighth grade students, Indonesia scored below the "Low" level for international benchmarking and was ranked 38th out of 45 countries. Indonesia performed poorly in comparison with Singapore, Malaysia and Thailand. Given the fundamental importance of mathematics for achievement in other areas of school and in employment, these results are of serious concern (TIMSS 2011 International Results in Mathematics).

In the TIMSS 2011 eighth-grade science assessment, Indonesia ranked 40th out of the 45 countries participating, and showed a decline in performance when compared with results from 2007. Low levels of achievement at eighth grade are likely to be one of the reasons that students drop out at age 13 (TIMSS 2011 International Results in Science).

In the 2011Progress in International Reading Literacy Study (PIRLS) fourth-grade reading assessment, Indonesia saw a 12% increase in fourth

graders reaching the "Low" international benchmark, a 7% increase in those reaching the "Intermediate" international benchmark and a 2% increase in those reaching the "High" international benchmark in comparison to the 2006 results. Despite this small improvement there is still some way to go as Indonesia was ranked 42nd among the 45 participating countries. (PIRLS 2011 International Results in Reading).

PISA evaluates the skills and knowledge of 15-year-old pupils. In Indonesia, the formal age of junior secondary education is 13-15 years old. Although some 15-year-old pupils are enrolled at senior secondary level, the PISA results provide a good indication of the performance of students and thus the results of teaching and learning at the end of their basic education.

Indonesia performs well below the OECD average on all of the skills measured in PISA. Performance in mathematics improved a little between 2003 and 2012, and there was also a small improvement in reading, but science performance declined between 2006 and 2012. Across all the tests Indonesia has a very small percentage of students in the highest performing groups and a large proportion of students in the low achievement group. In mathematics in 2012, for example, a worrying 76% of students were low performers, well above OECD average of 23% of students in the low performing group. At best, students who are low performers can extract relevant information from a single source and can use basic algorithms, formulae, procedures or conventions to solve problems involving whole numbers.

The PISA results also found no significant difference between the results achieved by MORA and MOEC junior secondary schools (see Table 3.1). These results are interesting given MORA schools' negligible dropout rate and may be worth exploring further.

Table 3.1. **PISA 2012 results of cohort enrolled in junior secondary schools**

Junior secondary school		Mathematics	Reading	Science
MOEC (SMP)	Mean	360	376	366
MORA (MT)	Mean	357	380	363

Source: Data provided by Board of Research and Development, MOEC (Ministry of Education and Culture), Indonesia.

The new curriculum and its implementation

At the time of the review team's visit, Indonesian teachers were being asked to implement a new curriculum that was developed in 2013. The new curriculum aims to improve the quality of instruction in schools and

madrasah throughout Indonesia. Providing the right support to help teachers and leaders to change their practice will be critical in achieving a lift in teaching quality and student outcomes.

Teachers told the review team that the support they needed to help them achieve better results was more training in content, interactive teaching methods and thematic approaches to teaching the curriculum. To date few teachers have received training on how to apply the 2013 curriculum in their classrooms. If teachers try to implement new practices without fully understanding what they entail, they could feel overwhelmed and the result could be poorer instruction. Indonesia's national curriculum is developed at central level and MOEC has also been developing textbooks at national level since 2013. This arrangement has allowed the government to rapidly introduce a new direction for learning while at the same time providing coherence across a vast country. Despite the advantages of consistency and operational efficiency offered by centralised control of the curriculum, the curriculum reform of 2013 is facing a number of challenges. If the new curriculum is to make a difference to student outcomes, then its intent needs to be fully understood at school level. Although the curriculum is developed and disseminated centrally, teachers are trained, monitored and supported at the district level. This creates a challenge in ensuring the national curriculum is well understood and used by teachers and that they also understand the extent to which they can adapt the curriculum to ensure it is relevant to their local context. The review team noted that the teachers and principals the team met were often aware of the organisational change in terms of students' choice of subjects and orientation, but that they rarely talked about the core changes that the government intended to introduce, such as the teaching of critical thinking and creativity. The relevance of learning is an important driver for equity in learning outcomes as it helps pupils, in particular those from disadvantaged backgrounds to make sense of and apply their learning. Other issues related to the 2013 curriculum and teacher professional development are explored more fully in Chapter 8.

Seeking written feedback from students

Systems where more students attend schools which get written feedback from students regarding lessons, teachers or resources, tend to show less impact of student socio-economic status on performance. On average across OECD countries, schools seeking written feedback from students are also more likely to perform better, even after accounting for the socio-economic status of students and schools (PISA, 2012).

In Indonesia, some 85% of students are in schools whose principal reported that their schools seek written feedback from students regarding lessons, teachers or resources, aimed at quality assurance and improvement

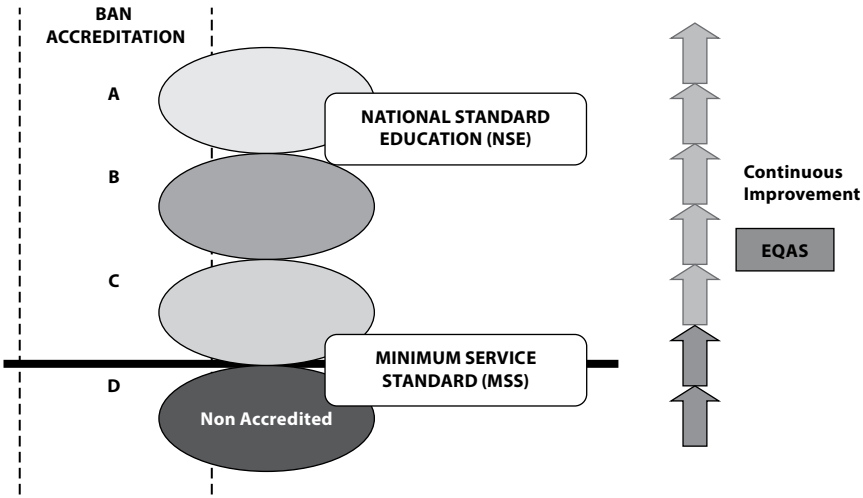
(PISA 2012). This was above the OECD average of 60.5%. Indonesian schools seeking written feedback from students performed better by 11 score points in the latest PISA assessments than those which do not, even after accounting for the socio-economic status of students (PISA, 2012). This is in line with "student voice" research (Education Alliance, 2004), which indicates that student achievement and engagement increases when students have more ownership and say in their classroom and school. Students have untapped expertise and knowledge that can bring renewed relevance and authenticity to classrooms and school reform efforts. Students also benefit from opportunities to practise the problem solving, leadership and creative thinking required to participate in giving feedback that helps decision making in their school.

Standards and accreditation

Indonesia's National Education Standards include both minimum service standards (*standar pelayanan minimum* or SPM) and a comprehensive aspirational framework for quality improvement. The minimum service standards for basic education aim to ensure that every school and *madrasah* provides at least the minimum conditions needed for quality teaching and learning to occur. These include: providing classrooms, qualified competent teachers who are supported by principals and supervisors, high quality lesson plans, effective assessment practices, sufficient books and equipment, and a range of other requirements (Regulation No. 15, 2010). The minimum service standards are the first step towards implementing the National Standards in Education (NSE) (see Figure 3.5). However, school accreditation standards and minimum service standards seems to be misaligned, as around 98% of schools pass accreditation, 83% A/B (in 2013) but very few if any schools meet the minimum standards (BAN, 2013).

A baseline survey carried out in 2010 indicated that there are some major challenges to be met in getting all schools to meet the minimum standards (ADB 2010). The survey found that for primary and junior secondary schools there was weak demographic planning and weak supervision with less than 20% of schools receiving effective supervision from the district. The survey also found that while there was adequate provision in terms of the number of teachers and classrooms, the quality of both was very variable and many junior secondary classroom were crowded. The level of educational print resources was low in both primary and junior secondary schools and about 50% of principals were not able to provide any evidence that they regularly visited classrooms and provided feedback to teachers.

Figure 3.5. **Relationship of minimum service standards to National Education Standards**



Source: ADB (Asian Development Bank) (2010), *Baseline Survey Minimum Standards in Education, ADB.*

Financing

Education finance is particularly complex in Indonesia with two separate education systems (MOEC and MORA) with multiple layers of responsibility and roles, and with funding conduits involving other ministries and government agencies (Ministry of Finance, Ministry of Home Affairs and the Reserve Bank to name but a few), provincial, district offices and schools dispersed across the many settled islands. The education budget is also highly volatile. Constitutionally, since 2009 the government has committed itself to spending at least 20% of its national budget on education. This commitment applies to both central and local government budgets. It means that unexpected revenue windfalls through increases in energy prices can escalate the budget significantly within a single financial year. Expenditure of these new inflows into education are not well reported by the respective ministries.

Resource mobilisation

The majority of the national educational budget is allocated to providing basic education. The education budget is split between the Ministry of Education and Culture (66%), the Ministry of Religious Affairs (28%), with

the remaining 6% being distributed to other ministries providing education and training. MOEC transfers the majority of the national budget (60%) to sub-national governments whereas MORA centrally manages its fund allocations directly with schools, the majority of which are private. Under MOEC, the General Allocation Fund (*Dana Alokasi Umum,* or DAU) transfers funding primarily for paying teacher salaries and allowances, and this consumes 79% of the sub-national level expenditure. The next significant line item in the budget is the school operational assistance grant (*bantuan operasional sekolah*, or BOS) which is allocated to schools on a per student basis, via the provincial offices (see Table 3.2).

The BOS programme, Indonesia's most significant policy reform in education finance, was introduced in 2005 as measure to relieve the financial burden on parents of sending their children to school in light of the government's free basic education policy. It is paid for all children enrolled in basic education schools, private or public, under both MOEC and MORA. The school block grants are based on a per-pupil formula, which provides incentives for headmasters and teachers to focus on maintaining and increasing enrolment; funds are directly channelled to the schools, which empowers school managers by allowing them to choose how to best allocate the BOS grants.

The BOS programme was upgraded in 2009 to address "quality enhancing" investments, including facilitation of more intensive teaching and learning activities through the provision of teaching aids, teaching materials, books, and improved teaching methods; supporting teachers' continuous professional training; and the recruitment of more specialised teachers to teach subjects such as computer training and local content. These quality enhancing measures are expected to affect the enrolment, dropout and transition rates of students.

Theoretically the BOS grant is meant to cover the non-salary development costs of a child in school but the review team was told that in most instances it is insufficient. Schools use the funds to manage operational issues. Delays in disbursements (see below) mean schools often rely on parent contributions to bankroll them. However, the BOS programme also has the perverse effect of making parents reluctant to contribute to school costs. Some schools have rejected the BOS funding offered by the government as they prefer to gain more resources by charging parents tuition fees (MOEC, 2014). However, schools in poor communities have significantly benefited from having an operating budget.

It is notable that beyond the age of 15, the share of the poorest quintile enrolled in school drops dramatically – this can be attributed in a large part to the level of funding the BOS programme provides which ensures children remain in school until the end of junior secondary. Thereafter

Table 3.2. **Education sector budget 2012**

Central government	IDR in trillions	%
MOEC	77.2	66%
MORA	33.4	28%
Other ministries	6.6	6%
Total	**117.2**	**38%**
Transfers to regions		
BOS (School Operational Fund)	23.6	13%
DBH (Revenue Sharing)	1.0	1%
DAK (Special Allocation)	10.0	5%
DAU (General Allocation)	147.3	79%
Teacher salaries	103.0	
Non-teacher salaries	10.8	
Teacher professional allowances	30.6	
Additional civil servant teachers (PNS) allowance	2.9	
Other transfers	4.7	
Total	**186.6**	**60%**
Education Development Fund	7.0	2%
	310.8	

Source: MOEC (Ministry of Education and Culture) Statistics 2014 and ACDP (Education Sector Analytical and Capacity Development Partnership) (2013), *Overview of the Education Sector in Indonesia 2012. Achievements and Challenges*, background report prepared at the request of the Indonesian authorities for the 2014 OECD Review of National Policies for Education in Indonesia, Ministry of Education and Culture, Jakarta; authors' calculations.

the BOS grant diminishes proportionately to the parent contribution expected at senior secondary level. Education expenditures increase exponentially with each level of education. While the average primary student from the poorest quintile spends about IDR 205 000 (Indonsian rupiah, about USD 26) on education per year, the average poor student in senior secondary education spends IDR 1.2 million (about USD 150) a cost that represents a prohibitive 50% of per capita household consumption (World Bank, 2012). Notably, the poor students assistance programme (*bantuan siswa miskin*, or BSM) which provides a cash transfer of up to IDR 450 000 for primary students to the families of vulnerable and poor students, also ensures children are retained in school. It is also available for secondary education.

Resource allocation

Currently, only basic education schools receive the BOS funds through regional transfers as senior secondary schools receive their funds directly from central government. The BOS grant is released to schools every three months and is based on the precise number of students in every school.[2] In 2011, the regional disbursement mechanism for BOS via provincial MOEC offices was changed as it was perceived to be ineffective. With the new legislation, the disbursement of BOS came under the authority of districts who would allocate the funds directly to schools. The theory was that by getting closer to schools, disbursement would reach schools faster. In reality, grants were being disbursed more slowly – only 87% of schools actually received their full allocation.

The review team was told that some districts behave like "kingdoms" and politicised the grant allocations. Schools found that they could not protest about district inefficiencies without jeopardising themselves and the late or non-arrival of the BOS grant disrupted their smooth operations. As a result of lobbying by schools, the system was changed back to a provincial transfer system in 2012 and schools now report that they are receiving their full allocation. In order to improve efficiencies, government had decided to use the provincial reserve bank offices to transfer directly to schools. Unfortunately, this institutional arrangement is unconstitutional as the regulations dictate that it should be the responsibility of districts.

Decentralisation, theoretically, should improve the allocation of education funds by ensuring that spending on education is in line with the needs and priorities of the local communities. Indeed, the majority of districts allocate more than the compulsory 20% of their total funds on education – sometimes spending 30 or even 40% by topping up their budgets with locally derived funds from other sources, either internally generated at the regional level or through the Ministry of Home Affairs under which the district falls. Some of these internally generated funds are known as local school grants (*bantuan operasional sekolah daerah*, or BOSDA). These have been known to improve school performance but little data is available on them. This makes tracking education expenditure difficult. The decentralisation of funding can also disadvantage local education expenditure as some newly formed districts are too poor to even allocate the obligatory 20%. Additionally, as mentioned by national and regional officials to the review team, districts have different levels of maturity so their ways of spending are different. Some districts have very limited capacity to raise and manage resources. Finally, the further districts are from the centre, the less control there is on funding compliance. It was reported to the team that huge numbers of 2010/13 certified teachers have not received the allowances they are entitled to on certification which suggests districts are skimming their budgets inappropriately.

Efficient use of resources

There is a need for an effective system for expenditure tracking. Not enough accurate disaggregated data is being made available for informed planning at district, provincial and national levels. Huge efforts have been made to improve the MOEC's database with unique numbers being given to individual students and identifiers for schools with their GPS co-ordinates. More recently, certified teachers in MOEC schools have been assigned an identifying number but non-certified teachers, civil servants, contract and honorary staff, are not tracked, except in a very aggregated manner, in the expenditure system. Further, key informants indicate the level of accuracy of the data is questionable, with duplication across the different directorates, and that districts are not making schools accountable for poor information. The review team was unable to access statistical information for the MORA schools which cover some 6 million students. The system for the management of education finances needs to be simplified, streamlined and data captured more accurately if funds are to be spent in a transparent manner based on long-term development objectives and linked to specific programme needs.

At a macro level, the World Bank (2013) argues that the allocative efficiency of Indonesia's education financial arrangements are decreased by its rigid rule earmarking 20% of spending to education, regardless of whether the system is performing or not. Any increase in government spending in any sector raises the overall government budget and causes an increase in the education budget. This increases the marginal costs of allocating resources to non-education activities, creating an unnecessary bias in government allocations of resources across other sectors. Additionally, earmarked allocations reduce technical efficiency by undermining managerial incentives and planning capacity of districts in particular. When resources beyond the education sector increase dramatically, education planners, under pressure to spend the increased resources, may not face the right incentives and spend the money in ways that easily absorb the new funds such as by adding new staff or quick programme fixes.

The CBR notes that the current education allocation system makes it difficult to obtain a complete picture of how money is being spent, where spending is short, and how to improve efficiency and equity (ACDP, 2013a). They also note that the planning and budget is more focused on the needs of the organisational units within the bureaucracy than on the schools themselves. In some districts, it has been found that non-salary spending decreased despite there being an overall increase in the budget for education.

While districts are responsible for both teachers and schools, 80% of their spending goes on salaries. Schools, therefore, are left with only a small portion, if any, of district funds. Almost half of schools report receiving

no funds from district or provincial governments. It is a matter of concern that discretionary funding has been decreasing at the district level and this situation is predicted to worsen. Districts mandated to pay for staff hires will find their budgets consumed by the escalating teacher certification programme which will lead to increased spending on teacher salaries and allowances (see Chapter 8 for further details). Additionally, schools are using their BOS funds for the payment of salaries of teachers that they have hired directly, leaving little or no funding for non-salary purposes. This has important implications for funding for school development and quality teaching and learning inputs.

Theoretically, school committees exercise their mandated role over BOS grants to approve the annual school budget plans and receive expenditure reports. In reality, it appears that they seldom understand their role and tend to "rubber stamp" decisions taken by the principal and teachers. This is particularly so in rural and remote areas where parents are less educated than school principals. This allows schools to adopt strategies which may not be in the interests or meet the needs of their children. These include strategies such as using the BOS grant to employ additional teachers rather than supporting existing teachers' continuous professional training and purchasing teaching aids and materials.

On the other hand, as previously mentioned, many districts use their own resources to supplement school grants provided by the national BOS programme – mostly in the form of additional funds per student, known as local school grants or BOS Daerah (*bantuan operasional sekolah daerah* – BOSDA). While the amount provided for each student differs across districts, it tends to be lower than amounts provided under the BOS programme (i.e. between IDR 575 000 and IDR 710 000 per student in 2012). Survey data show that schools in districts or provinces with BOSDA get an average of IDR 150 000 more per student than non-BOSDA schools, mainly from district governments. In most cases, regional governments follow the BOS national guidelines in allocating BOSDA. For example, many BOSDA guidelines include the same 14 eligible expenditure categories as the BOS programme.

A challenge with both BOS and BOSDA allocations, is that using a per-student formula does not take into account the differences in operating costs schools face due to the particular populations they serve and their locations. Schools in remote areas serving poor households are likely to require more resources to provide a level of education similar to a school in a wealthier area. The cost of school supplies can also vary significantly between accessible and more remote areas because of the associated transportation costs. Then there are also fixed costs, such as having an electrical supply, a water point, having an administration office, a library, etc., which are roughly

the same for schools no matter what the size. This tends to disadvantage small schools and nearly half of all primary schools in Indonesia have fewer than 150 students. The per capita formula of these block grants needs to take into account the fixed costs of small schools.

Increased spending has not translated into increased quality of learning in basic education schools. This is particularly apparent when broken down by quintiles of household wealth, as the children in the bottom three quintiles are performing worse. Since 2003 there has been no narrowing of the gap in mathematics achievement between rich and poor students. MOEC officials told the review team of recent research which indicates that certified teachers do not score significantly better on subject knowledge than uncertified teachers. These are serious efficiency issues that need further investigation into the value for money the government is obtaining from some of its major interventions.

Equity

Law 20/2003 on the National Education System enshrines the concept of "compulsory basic education" under one integrated education system and reflects the constitutional right to free basic education. This is the equity imperative driving the policy of providing all students enrolled in formal schools access to the BOS funds, even in private schools. Nevertheless, the current structure of the two separate ministries and their institutional arrangements discriminate against private Islamic schools.

Private *madrasah* are not only discriminated against at district levels but also at national levels. The funding for private *madrasah* is inadequate when compared to funding for state schools, including state *madrasah*. Public *madrasahs*, which are the minority of schools, are compensated by a skewed allocation in their favour by MORA leaving them in a better situation (even compared to public general schools on average). At primary level, for example, government funding for state Islamic primary schools (*madrasah ibtidaiyah*, or MIs) is on average five times greater than government funding for private MIs. Central government provides funding for private *madrasah* to cover operational costs through BOS, but it is estimated that this covers only about one-fifth of total funding needs. As a result private *madrasah* largely rely on parental contributions, even though in general, private *madrasah* cater to the poorest segments of society. The majority of funding for private *madrasah* comes from those who can least afford to pay (ACDP, 2013b).

Although there are important exceptions, the majority of the private *madrasah*, funded primarily by their communities, have a lower income base, fewer resources and poorer facilities than their state-funded counterparts

under MOEC. The transfers to regions listed in Table 3.2 above do not reflect any expenditure on *madrasah* schools, whose funds are managed under MORA. Technically speaking, under Law (UU) No.32/2004 on Local Government, Government Regulation (PP) No.38/2007 on Functional Assignment Among Levels of Government, *madrasah* schools are excluded from district government responsibility, including funding. This has been interpreted to mean that local governments are prohibited from providing grant funding to *madrasah* on a regular basis. Private *madrasah* have no right of access to support or funding from the governments of the districts in which they are situated. Often districts raise additional revenues which they could use to support the *madrasah* school but are legally prevented from doing so.

Scholarships for the poor are critical to increasing enrolment. The former government's cash transfer programme for poor students, the BSM, addresses equity by ensuring that disadvantaged and vulnerable children receive conditional cash grants to support their continued enrolment in school. Some 16.6 million children are beneficiaries of these scholarships (ACDP, 2014). The new government has recently announced a new programme of social assistance which includes the smart card – k*artu Indonesia pintar* (KIP) for education. The KIP will provide assistance to poor and "near poor" families with the costs of education to address demand-side factors. The KIP is likely to deliver expanded/ increased assistance compared with that provided through the BSM.

In sum, Indonesia's education financing needs to be streamlined and simplified to enable greater allocative and technical efficiencies. This would need to be underpinned by a better expenditure tracking system based on accurate, comprehensive and relevant data. Government spending has had a significant impact on improving access to education but the concern is whether it has created perverse incentives in earmarking 20% of all government allocations to education and the manner in which regional transfers incentivise districts to employ additional staff. Equity concerns are being addressed through various programmes, in particular the BOS and to a lesser extent the BSM. Without appropriate funding, Indonesian society as a whole may underinvest in basic education, not only because the poorest households face financial constraints but also because private investment decisions fail to take into account the social returns and positive externalities of basic education.

Observations and recommendations

A number of policies and initiatives, not least the school operational assistance (BOS) grant, "One Roof" primary and junior secondary schools, and local school grants (BOSDA) have contributed to improving the access,

availability and affordability of basic education in Indonesia which is now close to achieving universal primary education. Good progress has been made towards targets for achieving qualified teachers and the provision of classrooms and teaching materials. Indonesia has made faster progress than several comparator countries in raising junior secondary school enrolment over the last decade. The review team observed instances of good teaching practice and group learning, with dedicated teachers and motivated students.

However, regional and district disparities remain in student access, educational quality, and teacher certification in remote and poor areas. The difficulty of providing access to education in remote areas compounds the problem of young people's participation in schooling, particularly among communities with traditionally low educational aspirations. While there is no overall shortage of teachers, those in remote and rural areas are less qualified and too often absent from school. Rates of teacher absenteeism are highest in districts with the highest proportion of children not at school.

Some 3% of students overall repeat a grade and the repetition rate is higher for children from the most disadvantaged backgrounds. Repeating can adversely affect learning and socio-emotional adjustment, flowing on to later problems in life. A more effective strategy is peer progression by age with differentiated teaching, and remediation where necessary.

Indonesia performs well below the OECD average, and below many countries at comparable stages of economic development, on literacy and numeracy skills assessments at the age of 15. Early learning among school children in schools outside Jakarta, however, is a serious problem, with around one-quarter of enrolled children not achieving Grade 2 reading proficiency.

The new curriculum is designed to develop critical thinking and creativity in students as well as to provide them with more contemporary knowledge options. Teachers told the review team that they want training in various aspects of the new curriculum, including content knowledge, theme teaching, interactive pedagogy and group learning. Unless teachers have confidence in their own competence to deliver to the goals of the new curriculum they are likely to default to the traditional recitation method in their classrooms, and thus the new curriculum will not achieve its intended outcomes.

Indonesia's education system is a "leaking pipeline", with considerable wastage through students dropping out, especially in the transition from primary to junior secondary school and also through the junior secondary years.

Students are tracked into vocation or general programmes at 15 or even earlier. Tracking students too early can restrict learning experiences and

skills formation opportunities and subsequently limit the work and life options of individuals. The practice is invidious when the basis for assigning students to tracks lack objectivity and validity.

There are reported shortfalls against minimum service standards, with some 75% of schools not meeting them. The critical shortfalls are not just in the physical elements of schooling that have been of primary concern to administrators, but in important educational processes especially in areas such as supervision, lesson planning and student assessment. Incremental improvements in low-cost activities could make big differences. These issues are further discussed in Chapter 8.

District-level processes to allocate resources to primary and junior secondary schools typically lack transparency. In some areas there are concerns about skimming or politicisation, leading to inadequate provision and reduced discretion at the school level. Districts vary in their capacity to manage budgets, and there is no expectation that they report on the cost-effectiveness of resource usage.

Inconsistent resource-allocation processes at district level have given rise to non-payment or delays in payments to teachers of various allowances, including those linked to teachers upgrading their qualifications and certification. Teachers have been disappointed and distracted from their core teaching role by having to follow up on the payment of their entitlements.

The per capita formula for BOS and BOSDA allocations fails to account for the fixed costs of small schools, although from 2014, all schools have an assumed base enrolment of 120 students. Nevertheless, per-student allocations do not adequately reflect differences in school net operating costs.

Private *madrasah* cater for the children of the poorest families yet receive less support than public *madrasah* and public schools.

Recommendations

- The Government of Indonesia should reaffirm its commitment to universal basic education, and take the necessary steps and make the required investment to give effect to that undertaking. It should design a well- targeted programme to improve access to education for those currently not participating at the primary and junior secondary levels.
- To strengthen school-based management, the responsible ministries, in co-operation with local communities, should trial strategies in several districts to better engage parents and families in supporting the education of their children.

- A dual approach to improving student-teacher contact should be considered. On the one hand, teachers should be provided with sufficient support to do their work in an orderly and professional way, including additional support to address issues with young people and families with low levels of readiness and motivation for school-based education. On the other hand, a more rigorous approach to supervision should be adopted, where school principals have performance agreements with individual teachers, and teacher performance on the job is regularly monitored, recorded and reported.
- The responsible ministries should continue to invest in developing the capacity of teachers to implement competency-based curricula, in ways that cause teachers to examine the impact of their practice on student learning outcomes. Teachers working in areas where there are low levels of enrolment should be skilled in multi-grade teaching. The ministries should invest in capacity building, with an increased focus on teacher accountability, including credible inspections and accreditation processes, transparent data on performance, and tangible consequences for poor performance.
- School principals should set goals for increasing student engagement and achievement in literacy and numeracy, based on diagnosis by classroom teachers of the range of student proficiency in these core skills. These goals should be aggregated into a district plan to raise performance, which can be used to inform the allocation of resources to support the efforts of schools.
- The responsible ministries should survey the teaching workforce to ascertain their training needs in relation to the new curriculum – with particular regard to more active, interactive and higher-order student learning – and establish relevant training programmes that can be readily accessed by teachers.
- The responsible ministries should conduct an audit of where and in what numbers students are dropping out along the education pipeline, in aggregate and on a district level, broken down by student characteristics including location, gender, ethnicity and socio-economic status.
- The responsible ministries should review their policies relating to tracking students into academic and non-academic streams from an early age. Students should have access to pathways enabling them to cross from an academic to a vocational orientation and vice versa, and the boundaries between provider types and qualifications programmes should be permeable.

- Every district should be required to design a targeted programme to ensure all schools reach the set minimum service standards. They should provide differentiated support to help schools reach the standards in remote and disadvantaged areas. Districts should be accountable for achieving the standards and required to report publicly each year on any shortfalls against the standards along with the measures they propose to improve capacity and performance.
- The Ministry of Education and Culture should develop and issue a set of resource-allocation guidelines, including a policy for transparent resource allocation, criteria for decision making, and core data requirements against which to apply the criteria, and report on the cost-effectiveness of resource use. MOEC should arrange for training in the application of the policy and guidelines at district level.
- The responsible ministries should take concrete steps to ensure that systems and processes for paying teacher allowances are efficient and minimise distractions for teachers.
- To achieve greater equity between districts, a review of the allocation of BOS and BOSDA grants should be undertaken with a view to improving their sensitivity to varying revenue capacities and greater costs of schools according to their location, size, and student mix.
- The government should consider increasing support for students enrolled in accredited private *madrasah*.

Notes

1. The gross enrolment rate is the total enrolment at a given level of education, regardless of age, as a proportion of the population of the official age group for that level of education. Net enrolment is the enrolment of the official age group for that level of education, expressed as a proportion of the population of that age group.
2. Central government does sample auditing of these statistics at school level.

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Chapter 4

Senior secondary education in Indonesia

Specific contextual factors

Senior secondary education is provided in a variety of ways in Indonesia: formal, non-formal and informal. It builds on the nine years of basic education (six years of primary school and three years of junior secondary school). Students entering senior secondary school can attend either a more academically oriented school or vocational school. This applies in both the Islamic and non-Islamic systems. Formal senior secondary education comprises general education (*sekolah menengah atas*, or SMA), vocational education (*sekolah menengah kejuruan*, or SMK), Islamic senior secondary schools (*madrasah aliyah*, or MA) and Islamic vocational education (*madrasah aliyah kejuruan*, or MAK). This chapter concentrates largely on the provision of academic senior secondary education, while Chapter 5 considers the vocational side.

After completing senior secondary education students can progress to a range of different types of tertiary education including public, private and Islamic universities and training institutions. Work is under way to develop community colleges and alternative routes to further and higher education. Typically students attend senior secondary school between the ages of 16 and 18, making up the tenth, eleventh and twelfth grades in the overall schooling system.

Law No 20 of 2003 confirms that general and Islamic schools are part of one national education system. It also forms the basis for educational development at national, regional and district levels. It outlines the key functions and purposes of education and sets out the rights and responsibilities of both the providers of education and parents and communities. Standards are also set out in regulation and are used as the basis for school accreditation.

Indonesia's free education policy aims to improve access to basic education for children from all families and applies to primary education and junior secondary schools. At the senior secondary level private enrolments accounts for around 55% of provision. The government can provide support to community-based institutions at the senior secondary level but is not required to do so.

Structure and scale of provision

Expansion of senior secondary education

Over the last 15 years there has been a significant expansion in senior secondary education. This has been achieved through the establishment of new schools and increasing the number of teachers qualified to work in this

sector. Private senior secondary schools have continued to dominate the provision in this sector in terms of the numbers of schools, but this is not reflected in the number of students. Whilst 70% of senior secondary schools are privately run they tend to have much lower enrolment than public schools, with just over half of senior secondary students attending a private school.

Of the 12 million students enrolled in general senior secondary education and vocational secondary education (SMA, SMK, MAK and MA), just 27.8% are enrolled in private schools, even though 62% of SMAs and SMKs are private institutions. The share of private institutions among Islamic schools is higher at 88% of MAs – see Country Background Report (CBR) – (ACDP, 2013a). Private schools employ 58% of senior secondary teachers, suggesting that their teacher-pupil ratios are less efficient than in public schools.

The expansion of senior secondary education can be seen in both student enrolment and teacher employment. In the period from 2001/02 to 2011/12 the total number of school establishments (private and public) doubled from 12 415 to 26 896, with student enrolments expanding by 82%. Over the decade to 2014, the number of teachers increased by more than 1 million (Table 4.1). This demonstrates how the national commitment to increasing access to education has had a significant impact over the last decade.

Table 4.1. Growth in teacher numbers 2005-14, Indonesia

School type	2005	2014
Pre-school	145 611	282 447
Special school	1 384	15 291
Primary school	1 052 661	1 639 856
Junior secondary	478 153	583 408
Senior secondary (academic)	214 903	268 514
Senior secondary (vocational)	152 442	225 799
Total	2 057 610	3 015 315

Source: NUPTK, (Nomor Unik Pendidik dan Tenaga Kependidikan) 2014, (*Unique number of teachers and educational personnel*), BPS DMPKPMP (Kementerian Pendidikan Dan Kebudayaan) (*Human Resources Development Agency*), MOEC (Ministry of Education and Culture). School enrolment and choice.

Many students' first choice is to attend public secondary school. Many enrol in private schools only after failing to reach the level required to enter public senior secondary school through the national examination (see Chapter 9 for more details about assessment and selection). Those entering private schools in this way tend therefore to have lower levels of academic

achievement. This will have some influence on the overall achievement of pupils in the private sector.

School size and teaching ratios

On average, public schools have double the school roll of private schools. The average public school has 513 students whereas the average private school has 235. As Table 4.2 shows, MA schools take just 11% of all senior secondary students, a small subset of the students in senior secondary schools. Four times as many learners are enrolled in SMAs.

A review of senior secondary education found relatively low student / teacher ratios (MOEC, 2014b). Senior secondary *madrasah* have particularly small class sizes with an average of seven learners per teacher. Although on the face of things SMAs look to be more cost effective in terms of their pupil/teacher ratios and school sizes, even here their pupil/teacher ratios of 16:1 are not financially sustainable in the medium term. As students mature and progress through their studies they should have acquired the basic learning skills for self-study and be capable of learning more independently. Other stages of schooling in Indonesia, including the early years of primary education and pre-school, might benefit more from a transfer of resources. This merits a policy review into the overall use of resources across the educational system to maximise benefits and efficiency. Improving the use of teachers and raising pupil/teacher ratios in both SMAs and MAs will create significant savings that could be used to invest in access and quality. Chapter 8 considers this issue in more detail.

Table 4.2. Profile of senior secondary education

	SMA	SMK	MA *
No. of schools	12 107	10 673	6 919
Enrolment	4 272 860	4 189 519	1 064 148
% in public schools	67.16%	37.48%	33.56%
Teachers	264 512	187 529	158 229
Pupil/teacher ratio	16	22	7
Pupil/school ratio	353	393	154
Graduates	1 280 186	1 169 218	295 474

Source: Senior Secondary Education Statistics 2012/2013, MOEC (Ministry of Education and Cutlure); and EMIS (Education Management Information System) Data 2012/2013, MORA (Ministry of Religious Affairs).

Despite lower student/school and student/teacher ratios in private education, the Programme for International Student Assessment (PISA) found that public schools at the senior secondary school level performed better than private schools (Table 4.3). This suggests that public schools are using fewer resources to deliver better results. This is likely to have an impact on the competencies of students as they move to the next stage of education.

The low student/teacher ratios at senior secondary school level may be the result of trying to ensure choice across the curriculum for students. Providing choice and depth is a key ambition for the curriculum but coupled with small schools it comes at a high cost and is inefficient. As more students take up their right to senior school education, teacher absences and the inability to fully timetable staff to the minimum number of contract hours is unsustainable (see Chapter 3 for further discussion of the impact of high levels of teacher absence).

Table 4.3. PISA 2012 results of cohort enrolled in senior secondary schools

		Mathematics	Reading	Science
Public	Mean	379	401	388
Private	Mean	368	389	373

Source: Data provided by Board of Research and Development, MOEC (Ministry of Education and Culture).

The government aims to provide universal access to senior secondary education for all young people by 2019. Whilst the progress towards this has been very positive there is still some way to go to achieve this across the nation. Greater efficiency in the size of schools and teacher-pupil ratios could make it possible to accelerate progress towards this aim even within current resources. The current inefficient deployment of teachers means that the net cost per student is high, reducing the capacity to open up more places for students. Creating more efficient deployment of teachers and focusing any new infrastructure development on the optimum school size for both choice and efficiency is likely to produce benefits in the medium term.

Student access and inclusion

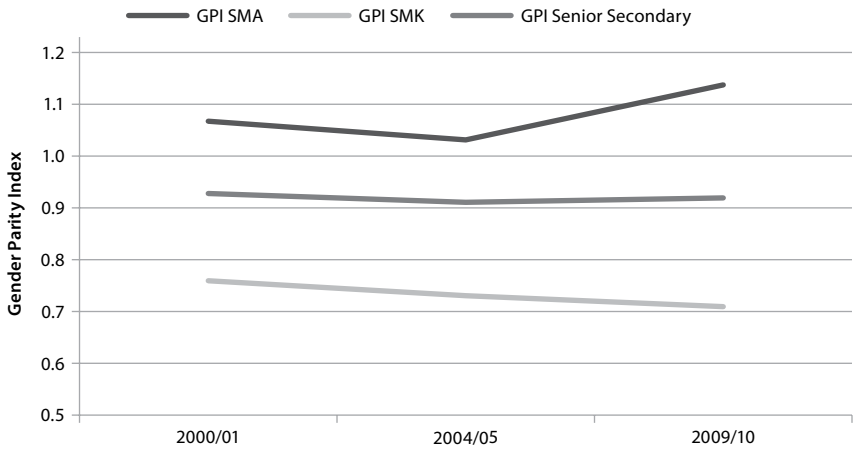
The senior secondary education sector has achieved a remarkable improvement in access during the last decade. National data show that the gross enrolment rate has increased from 42.8% in 2000/01 to 76.4% in 2011/12. Despite the steady increase in the enrolment rate, Indonesia is still

a long way from reaching its ambition to achieve universal access to senior secondary education. In 2012, the government launched its grand design for universal senior secondary education and set the goal of a gross enrolment rate of 97% by 2020, making senior secondary school part of mandatory education. In order to reach this goal, Indonesia will need to accelerate the provision of services and to prevent student drop out, and achieve growth of 2% per year in its gross enrolment rate.

Gender differences in access

The total gender parity index of female to male students, including both general senior secondary education (SMAs and MAs) and vocational senior secondary education (SMKs and MAKs), was 0.98 in 2009/10. There has been little change over the past decade in overall gender parity at senior secondary level but the picture changes when looking more closely at different types of schools (Figure 4.1). Over the period 2000 to 2010, the proportion of female students in SMAs declined slightly and then grew so female students outnumbered males by 14%. Meanwhile, female enrolment in SMKs is very low and declining, with the gender parity index of 0.76 in 2000/01 falling to 0.71 in 2009/10. It may be that vocational schools offer more courses in subjects that young men are currently interested in, or for which there is a cultural assumption that they are for men rather than women. It would be reasonable to assume that this could disadvantage young

Figure 4.1. Gender parity indices in senior secondary schooling



Source: MOEC (Ministry of Education and Culture) (2014), Ikhtisar Data Pendidikan Nasional (*Highlights of National Education*) 2000-10.

women who are unable to take up or are disinclined towards academic study. Chapter 5 discusses this issue in more detail.

Student economic background

Students can be misdirected if they are tracked early into a particular educational path, based on their performance, particularly if the approach to assessing students is not reliable or valid. Excluding students from particular pathways is unlikely to maximise their potential and makes the system very difficult for parents and students to access. In general secondary education 67% of students are enrolled because of the students' assessed achievement or by recommendation of their feeder schools. Despite efforts to target some funding on to poorer students, it is clear that lack of financial advantage means these students often cannot access the school or pathway of their choice. In visits to senior secondary schools the team learned that schools "ring fence" places for able, local students from poorer backgrounds, but not all of these places were being taken up. This would suggest that parents are not able to use the system effectively and that national and regional aspirations for poorer students are not being achieved.

Regional differences in enrolment rates

Behind the overall picture of significant expansion of senior secondary education noted above, there are important regional differences. Figures for 2010/11 show the differences across regions with a very high gross enrolment rate in Jakarta contrasting with a significantly lower rate for Lampung. Even within provinces, enrolment rates vary widely across districts. Several provinces have districts with a gross enrolment rate below 30% (MOEC, 2012b).

Additional support needs

Provincial governments in Indonesia are required to provide special education for each of a set of specified "impairments" and cities and districts should provide inclusive education for all learners in the formal school system. Qualifications in specialist education for meeting special needs have largely been provided by a single university but this situation is now being improved as other universities establish bachelor's and master's programmes in special education needs. In some regions the education of children with special educational needs is still not a priority. There are examples of good education being provided in special schools in Indonesia and some regions are working to develop more inclusive approaches to education across all stages but there is still much to do. Enrolment of students with additional support needs in senior secondary schools remains very low. The team did, however,

see some interesting and effective practice in providing appropriate vocational education for senior secondary students on visits to special schools.

Student progression

The higher rates of enrolment in basic education have led to increases in transition rates between junior secondary and senior secondary schools. In the period from 2000 to 2011 Indonesia saw a significant increase from 68% transition to 90%. The average level of educational attainment remains relatively low but as further progress is made in increasing the transition from junior to secondary school the level of educational attainment among the population will continue to rise.

Transition and dropout rates

The transition from junior secondary to senior secondary education is a time when many pupils risk dropping out. Among the pupils who successfully graduated from junior secondary schools, 10% do not continue to senior secondary education. Students repeating grades is another significant factor in transition from junior secondary to senior and represents a cost to the system that is inefficient for both the school and the student.

Once pupils are enrolled in senior secondary education, they still face higher dropout rates than in basic education. The total dropout rate for all types of senior secondary schools is 3% per year, which is double the rate for junior secondary schools. The disparity in dropout rates between provinces is significant and some provinces such as East Nusa Tenggara (7.7%) and West Kalimantan (7.2%) have much higher rates than the national average. The dropout rate for Islamic senior secondary schools appears to be significantly lower with a rate of 0.05% in 2010/11. However, the apparent rate for Islamic schools is skewed by the transfer of students from state schools, which offsets the fall in numbers caused by drop out.

Progression from junior secondary school

How well students perform at junior secondary school has a crucial role to play in whether they chose to progress to senior secondary school or indeed whether they have the qualifications to do so.

In reading, the average PISA performance of 15-year-old students preparing to enrol in senior secondary school was well below the OECD average. Some 55% of students did not reach the PISA baseline Level 2 in reading proficiency, which means that they will be ill-equipped for further study through either the academic or vocational route. Similarly,

in mathematics and science the PISA data show a poor performance for Indonesian 15-year-olds, with 76% and 67% respectively failing to reach basic proficiency (OECD, 2014). These results in language, mathematics and science need to be improved if students are to be well prepared for senior secondary education and beyond. Even for those not progressing to senior secondary school, this is too low a level of performance to be able to adapt to a changing and competitive world.

The data on general senior secondary education found that 8.5% of pupils are over 18 years old, which is older than the formal enrolment age of 16-18 years old for senior secondary education. This problem of "over age" students is most apparent in remote areas such as Papua and Nusa Tenggara where over 17% of pupils are over 18. This could be one of the results of the high repetition rates throughout basic and senior secondary education in these remote areas.

Teaching and learning

A new curriculum for Indonesia

The government has recognised that Indonesia's performance in international educational assessments has not been improving at the rate that it hoped. It set in motion the creation of a new curriculum which took account of these factors. The 2013 curriculum has been developed to take account of the internal challenges facing Indonesia and the external and global challenges also affecting the nation and its economy.

Internal challenges included ensuring the achievement of the eight educational national standards for the system. These standards set out expectations and measurement in relation to levels of graduation competence, content of the curriculum, process of learning and teaching, teaching personnel, facilities and infrastructure, management, education financing, and education assessment. They are to be welcomed.

External and global challenges have created the need to ensure that education provides the best possible advantages for young people in relation to pressures on the environment, advances in technology, a need for creativity and innovation and the development of education in other modern economies.

This new curriculum is built on some key principles, one of which is a move from a content-based to a competency-based approach, with students no longer simply memorising content but demonstrating their ability to do things. Putting students at the centre of learning is another key feature. This modernising approach should enable a more rapid pace of change in

the classroom but its implementation will need to be monitored carefully to ensure that a real cultural change takes place.

The senior secondary school curriculum

At the senior secondary level the curriculum structure has been developed so it can be delivered in both general senior (SMA) and Islamic (MA) senior secondary schools. It comprises a core structure including basic competencies, and elective choices. It provides academic choices in SMAs and MAs and vocational ones in vocational general (SMK) and Islamic schools (MAK)

The SMA/MA curriculum structure consists of:

- Group A (religion, manners, civics, Bahasa Indonesia, mathematics, history, and English) and Group B (arts, health and sports, and craft and entrepreneurship) compulsory subjects.
- Group C, which consists of interest-based subjects namely mathematics and science, social science, languages, and culture.
- specifically for MAs, in addition to the interest-based subjects, MORA can add other interest-based subjects.

The national government develops the content for Group A and Group C subjects. Group B subject content is developed by the national government and further completed by the regional government. The national curriculum also sets out the number of lessons that students must take in a week and over the year and prescribes the lesson time.

In order to develop parity of esteem between academic and vocational learning at senior secondary school a consistent structure was developed which consists of voluntary subjects and electives in vocational education. There are 9 compulsory subjects, taking up 24 lesson hours per week. The contents of the curriculum (core and basic competences) for SMA/MAs and SMK/MAKs are the same for all schools in Indonesia. Students can select subjects based on their interest.

Increased take up of vocational education

Vocational education and training has been rapidly expanding in Indonesia over the last decade. This has particularly been the case at senior secondary level where enrolment in vocational education increased by 158% between 2001 and 2010. The government has focused on this growing component of the education sector as a key strategy for economic development. Its challenge is to match the skills of the students to current and future economic demand. See Chapter 5 for more details.

Teacher qualifications and competence

At the core of the new curriculum is the requirement for teachers to adopt approaches which are interactive, student centred, innovative and creative. This shift from a teacher-led process to a more active approach will require a significant shift in teaching practice for many teachers. It requires a high degree of teacher autonomy and the corresponding need for quality assurance. The changed expectations about learning have significant implications for teacher education both in the pre-service phase and in terms of ongoing professional development.

The quality and qualifications of teachers are important if students are to learn successfully. The government has a programme to ensure that all teachers in Indonesia are trained to graduate level, a very challenging undertaking that has had both backing and investment. Table 4.4 shows the progress made by 2012. Public schools are making faster progress towards a graduate-level teaching profession at senior secondary level than the private schools.

Teacher development

The support programme underway for the new curriculum includes the production of textbooks and teachers' books. Teachers also have the responsibility to be proactive in preparing learning materials, planning lessons and designing active learning experiences for their students. The speed of change and consequent benefit to students will depend to a certain measure on the postgraduate training teachers receive in this area. The review team spoke to principals and teachers who were working hard to make this happen. There was evidence of some very good practice where teachers were sharing ideas and experiences within their schools and across schools in learning networks which in some instances were subject networks. This type of teacher development is likely to be most

Table 4.4. Teacher qualifications 2012-13

Public schools			Private schools			All schools		
<S1 graduate programme	≥S1 graduate programme	Total	<S1 graduate programme	≥S1 graduate programme	Total	<S1 graduate programme	≥S1 graduate programme	Total
14 957	249 906	264 863	20 027	144 371	164 398	34 984	394 277	429 261

Note: S1 graduates are those with a bachelor's degree.

Source: Senior Secondary Education Statistics 2012/13, MOEC (Ministry of Education and Culture)

effective in the medium and longer term, although teachers welcomed the provision of support through textbooks in the short term. Not all teachers and schools were involved in cross-school or district development activities. The role of the district office and the intervention of school supervisors varied across the areas visited. Where this type of teacher development was promoted and facilitated, teachers reported feeling more confident and better prepared. Some schools were reluctant to share ideas and materials as they felt they were in competition with other schools for the best students and didn't want to give away any advantage. This is a very unhelpful approach and an unintended consequence of the way students are allocated places in senior secondary schools.

The use of data by classroom teachers to inform their practice and to target their teaching is very variable. While some teachers have developed a good understanding of formative assessment and how it can be used to improve pace, challenge and support in the classroom, this is an area which needs further development.

Standards and accreditation

Overall, the average level of educational attainment remains relatively low in Indonesia. In 2010 the average number of years of education among 19-year-olds was only 8 years. This is due in part to student dropout rates and students not moving on to the general or vocational senior secondary schools. School "life expectancy" is increasing, however. As students spend longer in school, then the likelihood is that achievement will rise as long as the improvements in the curriculum, learning and teaching have a positive impact.

The new 2013 curriculum sets out standards for education throughout the education system, including senior secondary stages. These are still in the early stages of development. In its visits to schools the review team saw that teachers and school leaders were positive about the new curriculum principles and welcomed a clarification of the standards. There was still work to do to ensure that the standards are uniformly and consistently understood by teachers both within and across schools and more professional development will help with this. Key to understanding the standards and ensuring that they are applied effectively will be high levels of knowledge and pedagogical skills among teachers. Teachers' knowledge and skills in using formative and summative assessment and using this assessment feedback to raise standards and obtain the best performance from their students will be key.

Accreditation of learning

Accrediting student learning at the senior secondary stages is complex and currently does not effectively support the improvements sought from the new curriculum.

The twelfth grade examinations, taken in senior secondary school, are produced and administered by the National Examination Board (NEB). These exams are set against the curriculum standards. Regulation No. 20 requires the twelfth grade evaluation to be determined by three levels of assessment:

- assessment by teachers;
- assessment by schools;
- assessment by central government.

Final overall marks for twelfth grade students are based on a calculation derived from combining and weighting these elements. These and other aspects of assessment and accreditation are discussed more fully in Chapter 9. It will be important to review and revise the current assessment and examination system to ensure not only the reliability of final assessment but also to introduce measures to improve diagnostic and ongoing formative assessment by teachers to support the new curriculum and to ensure targeted support for students.

Financing

Resource mobilisation

As mentioned above, senior secondary education includes general (SMA) and vocational (SMK) senior secondary schools and Islamic *madrasah* (MAs). SMAs and SMKs are under the co-ordination of the Ministry of Education and Culture (MOEC), while MAs and MAKs are under the co-ordination of the Ministry of Religious Affairs (MORA). The analysis in this section concentrates on the financial arrangements associated with SMA schools in terms of their allocations, the effective use of their resources and issues of funding equity. This is because there is little information available on the financing of MA schools under MORA. The financing of SMK education is covered in Chapter 5.

There are several factors and complexities to the funding of senior secondary education in Indonesia. It also varies across the country. Overall funding depends upon government support for teacher salaries and operational costs. The system depends upon financial contributions from parents and therefore the extent to which parents can make this contribution,

if at all, directly impacts on students' educational and life chances. This in turn affects equity and the quality of schooling.

Variations in cost and revenues available to schools

A study by the Education Sector Analytical and Capacity Development Partnership (ACDP, 2013) found that there were considerable variations in the level of costs and the amount of revenue available to public senior secondary schools. The major cost in any school system is the cost of teachers' salaries. The government meets the salaries of government-service teachers. Teachers who are not engaged as government-service teachers are paid from other sources and these costs generally are met by parents. Table 4.5 shows the numbers of teachers in 2011/12 in both civil servant (government service) and non-civil servant categories. The greater proportion of teachers who are not civil servants are in the private sector. Within these overall figures there is a high degree of variation across provinces. For example in Jakarta, 33% of teachers are civil servants and 67% non-civil servants. This is in sharp contrast to Gorontalo with 84% of teachers on civil service contracts and 16% non-civil servants.

Costs for parents

Parents pay nearly twice as much for senior secondary education than they do for junior secondary schooling (see Table 4.6). Most of the costs are towards money for textbooks, consumables, school uniforms, transportation and school registration. The costs are perceived as significantly higher in schools located in urban areas, particularly for primary schools. Parental contributions are calculated in a variety of different ways and can include direct charges for fees, books, transport and meals. For many families these costs also have to be balanced against the potential earnings of these young people if they were to enter the workplace compared with the advantages of remaining at school until the age of 18 or beyond. The relationship between the levels of funding at different levels of government and the contribution made by parents would point to the need for a more streamlined and targeted approach to funding this stage of education.

Providing sufficient resources

All the funding providers for senior secondary schools face significant challenges in ensuring that there are enough textbooks, materials and resources, and that they meet a sufficiently high standard.

All levels of government are making efforts to increase participation and maximise the impact of funding. Central government is investing in building

Table 4.5. Teachers in senior secondary schools by sector and status

	Number	%
Civil servants	244 418	54.07%
Non-civil servants	207 623	45.93%
Total	452 041	100%

Source: Senior Secondary Education Statistics 2012/2013, MOEC (Ministry of Education and Culture)

Table 4.6. Average unit costs of education paid by parents per year (in IDR), 2011

Level of education	Urban	Rural	% difference of rural to urban unit costs	Average
Primary	1 161 420	714 330	63%	929 130
Junior secondary	1 877 050	1 192 180	57%	1 533 610
Senior secondary	2 816 020	2 053 960	37%	2 475 410

Source: MOEC (Ministry of Education and Culture) (2013a), *The Management of National Education in 2011/12 at a Glance,* Centre for Educational Data and Statistics, MOEC, Jakarta.

schools and subsidises operational costs through a grant for management and quality development. It has also extended the per capita grants for schools (BOS funding). Central government has promoted the participation of poorer students through scholarships. At district level, local governments have provided some funding to schools to try to reduce the burden of school fees.

As in all countries however, funding sources are limited and it is important to review the ways in which Indonesian governments at all levels gets best value from the investment in the school system. There are some key factors which affect the impact of funding on pupil experience and access including:

- More efficient pupil teacher ratio.
- Maximising school roll size to ensure efficient timetabling and to enable good curriculum choices for students.
- Reducing teacher absenteeism, which is a significant drain on resources and has a detrimental effect on student experience and performance.
- Rationalising teacher contracts to ensure good quality, high performing teachers within a workforce which is affordable and sustainable.

These factors are also examined in Chapter 8. Improving efficiency in the deployment of teachers would enable the government to get better value out of its current level of investment in education, and enable expansion where needed. Addressing these issues at all levels of government would help accelerate the pace of change for the new curriculum and in ensuring universal education.

One area where further investment is needed is in classroom resources, textbooks and in particular in the development of information and communication technology (ICT) and the infrastructure needed to support it. The team observed good investment and well-planned use of ICT resources in some vocational senior secondary schools but in other schools, resources were scarce and schools struggled to keep up with the pace of technological change.

Resource allocation

In 2011, senior secondary education consumed some 12.33% of the total MOEC education budget (MOEC, 2012), the third biggest area after basic education (25.45%) and higher education (47.61%). Some authors argue that Indonesia spends a disproportionate amount on post-basic education, including senior secondary. There are arguments, however, that compared to neighbours such as Viet Nam and Malaysia, it lags behind on the average per capita spending at the secondary level. (Samer Al Sammarrai et al., 2013).

It is clear that the share of budget going to non-basic education will increase in the near future, in part through the expansion of early childhood education and post-basic education. The allocations to different line items within the sub-sectors are also likely to change with the teacher certification programme and increases in teacher salaries. There are a number of factors driving this increase – the regularisation of contracts to give non-permanent teachers civil servant status, the explosion in teacher hiring and the doubling of existing teacher salaries through the certification programme.

The planned expansion of senior secondary schools also implies the implementation of minimum service standards, yet to be finalised, and this will have important financial implications. The World Bank argues that it is not feasible financially to translate the current service standards for junior secondary education directly to senior secondary education (World Bank, 2013). Several indicators, such as providing sufficient classrooms, and making laboratories, libraries and computers available, have major cost implications. Significant funds from central and provincial governments will be needed to provide these facilities and integrate them into the teaching

and learning process. The standards also imply the equitable reallocation of teachers with specialist subject skills and more investment in in-service training of teachers. One indicator that requires special attention is the availability of textbooks. A political decision needs to be made over whether the purchase of essential textbooks is the responsibility of government or parents. These costs raise the issue of involving other players such as the private sector in investing in secondary education in a more systematic way than is happening currently. It also raises the question of increasing user costs.

The characteristic feature of senior secondary education is its high dependence on household contributions to keep the child in school. Parents are the main source of non-salary operational finance, with the assistance of the central and district governments and – in some cases – the provincial government. The financial role of parents is particularly important because parents also contribute to payment of the salaries of "honorary" or non-civil servant teachers. World Bank research reveals that parents provide more than three-quarters of the funds needed for operational (non-salary) costs of public SMAs (World Bank, 2008). This high level of dependence on parental contributions means that schools vary greatly according to the economic capacity of the families they serve. This is reflected in differences in the quality of teaching and learning.

Efficient use of resources

As with basic education (discussed in Chapter 3), it is difficult to accurately track patterns of expenditure as they are so complex and aggregated from a number of difference sources. Although BOS funding for senior secondary schools are transferred directly from central government, regional governments, especially districts, play a critical role in providing non-salary school support. However, as with basic education, many schools report not receiving this additional financial support from their district governments. This obviously affects students' performance.

The substantive increases in resources to senior secondary education since 2009 might be expected to have brought about significant improvements in education outcomes. It is well known that increases in resources do not necessarily lead to better outcomes, however. Not only are average scores low on international tests, such as the Trends in International Mathematics and Science Study (TIMSS), but the share of students performing at the highest levels is very small. Further there are striking differences between the poorest and richest students in Indonesia. A number of researchers have noted the high unemployment rates of secondary graduates and linked it to the poor quality of education provided (Di Gropello, 2013).

The World Bank's (2010) survey of 50 districts with poorer education outcomes than the national average found that although they scored high on transparency and accountability, they performed less well on information systems, control systems and efficiency of resource use (Di Gropello, 2013). None had databases that tracked student progress or examination scores. Seldom did they create mechanisms to ensure district planning reflected the expressed needs of stakeholders. Failure to do so must seriously hamper the ability of local governments to plan and budget effectively. Furthermore, they seldom included indicative budgets in their annual plans. Allocations were generally based, not on student needs, but on the number of teachers or classrooms in a school. These weaknesses in planning and budgeting resulted in low budget absorption rates and differences between budgeted and actual expenditure. In addition, central government subsidises the costs of hiring additional teachers through its inter-government resource transfers to local government. This perverse incentive inherent in the allocation mechanism is discussed in detail in Chapter 8. It, however, further weakens the capacity of local governments to link activities and resources to education priorities related to the needs of stakeholders.

Equity

Although Indonesia has seen significant increases in the enrolment of children from the poorest quintiles in school, their share of enrolment drops dramatically after the age of 15 (Samer Al-Samarrai et al., 2013). For poor families, the private costs of senior secondary education are major constraints on access. The opportunity cost of senior secondary education is greater than at primary or junior secondary school levels, because the income that will be lost if the child continues to attend school is greater.

Indonesia has introduced several social assistance programmes to keep poor children in school and relieve the financial burden on families and communities to pay for schooling. Major established programmes include the BSM (*bantuan siswa miskin* or poor students assistance programme) and the PKH (*program keluarga harapan* or family hope programme). More recently, the newly-elected government started the rollout of the Indonesia Smart Card (*Kartu Indonesia Pintar* or KIP) which will provide school fees and stipends to poor children of school-age, including those who are out of school.

Such programmes can be an effective way to address the equity concerns of poor students. However, to have a successful impact they needed to be carefully designed and targeted. Currently there is debate on whether BSM should be specifically targeted to assist poor students at junior and senior secondary levels, as BOS relieves student costs at the primary level (MOEC, 2013). One of the challenges of the BSM system is its lack of transparency

and accountability to its deserving beneficiaries. Apparently there are as many "non-poor" recipients of the programme as there are poor ones. Late disbursements of the funds are another perceived problem. A student can wait up to a year to receive the grant. Some argue that some areas, like Papua-West Papua need special rates because of their lack of infrastructure. It is argued by those surveyed that BSM should be linked to regional cost of living standards and that senior secondary students should be allocated higher transfers. The incidence of early marriages for girls could be reduced if BSM was higher for senior secondary students. Despite its shortcomings, some 16.6 million students are benefiting from the system and it has had a noticeable impact on dropout and attendance rates (ACDP, 2014).

Governance and quality assurance

As with other pre-tertiary areas of the education system in Indonesia, senior secondary education is managed under two systems. At governmental level the responsibility for senior secondary education, both public and private, lies within MOEC or MORA while district education offices manage schools at district level. MOEC is responsible for overall government of general schools, while the district level is mainly responsible for educational management. Under the centralised system for Islamic education, MORA is responsible for conducting both management and governance of *madrasah*.

Vocational education at the senior secondary level is provided through the same education laws as other provision and standards are determined by the national standards of education. A Ministry of Education decree in 1997 set up a single type of vocational school and within this system a school may provide a wide range of vocational subjects.

Devolved school management and school leadership

The effectiveness of schools at maximising student achievement is affected by the quality assurance system and the degree of responsibility adopted by teachers and school leaders and managers. All staff, but in particular the principal and the school supervisor, are key determinants of success through leading cultural change, ensuring a systematic plan to implement the change in the curriculum, and close monitoring of classroom teaching and learning. Currently clarification is needed over the role of the school supervisor in relation to the principal, the tenure in post of principals, and their respective roles in assuring effective learning and teaching. Practice was very variable across the schools visited. School leadership and the role of teachers' in securing continuous improvement is as crucial in realising the aspirations of the education system in Indonesia as they in other countries. Curriculum and assessment changes in other school systems have

been successfully delivered through teacher education, improved quality development and quality assurance and high quality leadership. These factors are largely the responsibility of district education offices, and are likely to affect the pace and effectiveness of the curriculum reforms.

Observations and recommendations

Since 2000, there has been significant expansion in the numbers of senior secondary schools, students and qualified teachers. Private secondary schools provide alternatives for many students who cannot gain access to public schools. The government has committed to achieving universal participation in senior secondary education, extending the current mandate for compulsory education from 9 to 12 years, which the review team broadly supports. However, the further expansion of senior secondary education will involve considerable budgetary outlays. Simply expanding the current pattern of public sector provision, which may appear desirable on grounds of equity of opportunity, could, however, be well beyond Indonesia's means. Nor might it cater well for the greater diversity of the future senior secondary student body.

A traditional supply-side model of replicated provision across the nation may prove to be both inappropriate and unsustainable. A more diversified approach that is more responsive to the needs and circumstances of local communities may offer better prospects. Offering a comprehensive curriculum to students in small schools can lead to inefficient deployment of teaching resources. Student-teacher ratios at the senior secondary level are low by international benchmarks, especially in private schools, but do not appear to correlate with improved student attainment. Attempting to offer a comprehensive curriculum to students in small schools can lead to inefficient deployment of teaching resources. Greater efficiency in the deployment of teachers could lead to greater student access without diminishing educational quality. More investment in classroom resources, including textbooks and ICT, could improve student learning. A move away from uniformity towards greater diversity, however, would need to be based on extensive public consultation to determine priority needs and student interests and the extent of "comprehensiveness" in study options, with consideration given to specialisation in some subject areas – such as in design, languages, media, sciences or sports – that may be accessed by students from other districts.

The key challenge is to effect the necessary change from a didactic to an interactive approach to education where students gain knowledge which widens their mental horizons and they develop cognitive and social skills for citizenship, work and further learning. Whereas teachers seem to be familiar with the wider knowledge aspects of the new curriculum they appear

to be less aware of the importance of a more active pedagogy and can lack confidence in their ability to encourage and support higher-order learning.

The review team considered the desirability of persisting with the current dual track system of general and vocational secondary education and training in Indonesia, or shifting to a system of more comprehensive secondary education for all. On the one hand, the dual track system appears to only serve a very few well. For the most part, graduates of SMAs and SMKs are under-educated and ill-prepared for the labour market. In the SMAs, the foundations for learning are so academically narrow that, while students may gain skills for further study, they may not develop broader skills for life and work. In the SMKs, students are subject to a "dumbed-down" curriculum in intellectual terms, yet often not given adequate hands-on learning to develop practical skills relevant to future jobs, technical know-how, adaptability to change and interpersonal skills (see Chapter 5 for more details). On the other hand, Indonesia lacks a structured provision of post-secondary technical education and training. There is also considerable sunk investment in the current secondary schooling structure, a pipeline of current enrolments, and a social base of expectations that will not be shifted in a short time frame. On balance, the review team has concluded that progress towards universal senior secondary participation ought to proceed on the basis of the dual-tracked secondary school system but with variants permitted, if not encouraged, where individual districts can offer diverse models of more comprehensive secondary education.

Recommendations

- The responsible ministries should take concrete steps to improve teaching efficiency by putting in place training and support for schools and school supervisors to ensure that classes are timetabled well, and that all teachers are engaging in teaching during their paid contact time. In some instances, they will need to remodel existing schools and build new schools of the right size to provide broad student choice whilst making efficient use of teacher time and classroom space.
- The provincial governments should conduct policy reviews into the efficiency of staffing and the appropriate balance between providing curriculum breadth and choice for students in schools with low enrolment.
- In districts with relatively small student numbers, integrated academic and vocational education should be encouraged. This approach can complement Recommendation 3.2, by concentrating, on the one hand, on fields of knowledge of particular relevance to local

communities and, on the other hand, by broadening the skill sets that individual students can develop for citizenship, work and further learning. This approach should be seen as a means of exploring the possibilities for blurring the distinctions between academic and vocational secondary education, and possibly dismantling the current dual-track approach.

- Greater responsibility should be given to school principals and senior teaching staff for quality assurance and improving learning and teaching. This will mean ensuring that standards for the competence of schools leaders including principals, senior staff and school supervisors are set and met.
- A serious effort should be made to find efficiencies in the school system to free up funds for additional school resources, including using ICT to access teaching in fields that cannot be delivered on a cost-effective basis locally.
- Teachers should have access to databases, guidance, support and training to enable them to assess how well students are progressing in their learning. It will be necessary to establish a quality assurance system which gives teachers and managers tools for evidence-based self-evaluation linked to the learning outcomes of their students. It would be useful also to maximise opportunities for peer sharing and collegiate working among teachers both within and across senior secondary schools.
- The responsible ministries should survey the teaching workforce to ascertain their training needs in relation to the new curriculum – with particular regard to more active, interactive and higher-order student learning – and establish relevant in-service training programmes that can be readily accessed by teachers.

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Chapter 5

Initial vocational education and training in Indonesia

Specific contextual factors

Any review of the efficacy of the current provision of vocational education and training in Indonesia must consider how successfully it addresses the context of Indonesia as a developing economy, and its vision for the future.

The skill profile of the Indonesian workforce does not appear to have evolved in line with the demands of the labour market. As the Indonesian economy reaches higher growth rates, as is predicted, it will be important to revisit the provision of vocational education, so as to address potential skill mismatches, not only to boost job creation but also to support higher productivity, competitiveness and growth.

Indonesia has some 55 million skilled workers. According to estimates in the Master Plan for the Acceleration and Expansion of Economic Development in Indonesia (MP3EI), it will need 113 million skilled workers by 2030 (some additional 3.2 million per year on average for next 18 years) which is an enormous challenge for the education and training sector. Given youth unemployment accounts for nearly 56% of total unemployment, tackling high rates of youth unemployment will be central to further reductions in total unemployment, which fell steadily from just over 9% in August 2007 to close to 6% in August 2012 (ILO, 2012). This decline has already been attributed in part to significant increases in the numbers of young people enrolling in senior secondary and post-secondary education.

Vocational education tends to be fragmented, even at school level. Responsibility for vocational secondary schooling is shared across two ministries, there are multiple course offerings, and provision is dominated by the private sector. This hinders statistical generalisations and sector analysis. Nevertheless, in line with trends worldwide, access to vocational senior secondary education is affected by the demand for its programmes and the level of resourcing available. Vocational education is typically perceived by Indonesian society as being for the "academic failures" and the poorer classes. It has traditionally been considered a second chance option for the three poorest quintiles of the population. However, there are signs that this perception is changing. In 2013 there were some 1.9 million applicants for 1.5 million places in vocational education and training (VET) institutions, reflecting growing demand (Interview with TVET Director, MOEC). The new vision is to build on that demand by increased investment and expansion of vocational schools widely across the whole of Indonesia.

Structure and scale of provision

There are five types of technical vocational skills providers in Indonesia, offering formal and non-formal education[1] and issuing certificates, diplomas or degrees. These are: *1)* the senior secondary vocational schools known as *sekolah menengah kejuruan* (SMKs) and the Islamic vocational senior secondary schools (*madrasah aliyah kejuruan*, or MAKs); *2)* community colleges or *akademi komunitas* (AKs); *3)* polytechnics; *4)* universities; and *5)* vocational centres known as *balai latihan kerja* (BLKs). At the time of the OECD review team's visit, the Ministry of Education and Culture (MOEC) was responsible for SMKs, which provide secondary education, and the newly established AKs, polytechnics and research universities, which provide post-secondary education. The latter are now under the purview of the new Ministry of Research, Technology and Higher Education (MORTHE) combining the former Directorate General for Higher Education and the Ministry of Research and Technology. The BLKs, which provide non-formal technical and vocational education and training (TVET), fall under the administration of the Ministry of Manpower and Transmigration (MOMT).

BLKs provide training and short certificate courses, offering poor individuals who dropped out of the primary and secondary education a "second chance" at education. AKs also offer vocational certificates and some even diplomas (MOEC, 2014). Like BLKs, AKs can provide second chance opportunities to secondary education graduates, mostly SMK graduates, who did not progress into polytechnics or universities. These latter two formal VET providers were not reviewed by the review team. This section limits its discussion to the provision of formal vocational education and training as provided by schools under the Ministry of Religious Affairs (MORA)[2] and the MOEC.

Formal vocational education and training is offered at the secondary level through SMKs under the management of the Directorate General of Senior Secondary Education. Non-formal vocational education is the responsibility of the Directorate General of Early Childhood Education, Non-Formal Education and Informal Education, also within the MOEC. Operational activities related to formal and non-formal vocational education fall under the responsibility of district or municipal governments.

Prior to 1997, there were six types of vocational senior secondary schools with programmes rigidly specialising in business, home economics, tourism, handicrafts, art and technical training. In 1997, a new system dropped these distinctions and introduced a single school type offering a wide

range of vocational subjects so as to improve economies of scale in service delivery. Ideally, a district could amalgamate vocational provision into one "super" SMK offering a range of subjects. However, nearly all of the SMK schools reviewed by the team remained largely focused on their historical subject offerings. Given the high capital investment required for vocational education, many schools have been constrained in the courses they can offer by their inherited facilities and equipment. A further innovation adopted by the ministry in 2014 was to introduce the Vocational Model School Initiative which establishes a "super" SMK school as a model school, with more resources, which can act as a centre for satellite schools. Currently there are 90 such schools but the intention is to create 1 650 by 2020. Theoretically, this seems a very welcome model but the team was unable to access much information on them.

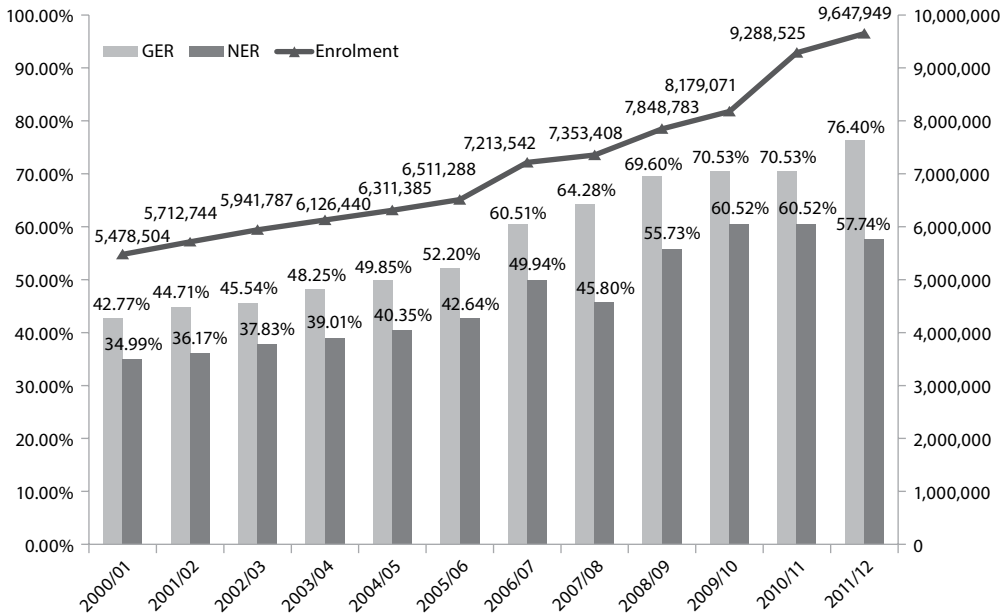
Expansion of vocational education

At the time of the review team's site visits, the MOEC was about to embark upon a game-changing innovation, the provision of a vocationally oriented "Universal Secondary Education". The ministry seeks to address the need for human resources identified in the MP3EI, by increasing the current period of mandatory education from 9 years to 12, to include senior secondary school, and increasing the share of vocational education at this level. Additionally, it plans to increase access to post-secondary VET institutions, such as community colleges, by establishing them across Indonesia. The ministry plans to increase the current 2011/12 gross enrolment rates (GERs) at senior secondary level from 76% to 97% by 2020. The historical trends suggest this is eminently possible if resources allow (Figure 5.1).

MOEC will find it significantly more challenging to accelerate the enrolment rates in SMK schools. Its new vision aims to increase the proportion of learners enrolled in SMK schools to 60% by 2020, with 40% in academic senior secondary schools (*sekolah menengah atas*, or SMAs), compared with the current division of 49% in SMKs and 51% in SMAs. Although enrolment rates in SMK institutions are growing, the tendency is that junior secondary school students are more likely to enter SMA schools. The *Country Background Report* (2014) noted that proportionately fewer students enter SMK schools because of a lack of information on the potential job opportunities their programmes offer.

In 2012, the share of vocational secondary students reached 37% of all secondary school students, after slightly decreasing from 36% in 2001 to 34% in 2006 (World Bank, EdStats 2014). Since 2012, the number of SMK institutions in Indonesia has increased from 10 256 to 11 727. The majority of SMKs are located in Java (57%) and Sumatra (21%). Unlike academic

Figure 5.1. **Gross enrolment rate of senior secondary learners 2005/06 to 2011/12**



Source : MoEC, *Buku Indikator Kunci Keberhasilan 2000/01 – 2011/12.*

senior secondary education, which is predominantly publicly provided, 70% of SMK institutions are private, and they also enrol the largest share of students (Table 5.1). The ministry will need to take this into account in its strategy for accelerating access to SMK schooling. It will need to either build additional public SMK schools or persuade private SMKs to expand their services through funding incentives.

Table 5.1. **General senior secondary enrolment by type**

Senior secondary enrolment in 2011/2012				
Type	Public	%	Private	Total
SMA	2 827 517	67%	1 368 950	4 196 467
SMK	1 494 044	37%	2 525 113	4 019 157
	4 321 561		**3 894 063**	**8 215 624**

Source: MOEC (Ministry of Education and Culture), 2011.

Student access and inclusion

Regional differences

Indonesia has not yet achieved an equitable distribution of SMK schools across the country. There is wide variation in senior secondary provision across provinces. Indonesia has a total of 6 800 sub-districts – of which 5 853 have schools with senior secondary levels (86%). The more urbanised provinces such as Jakarta have approximately 300 students for every SMK school, whereas more rural provinces like Papua Barat average nearly 400 students, suggesting the access to such schools is more problematic in these provinces. This is reflected in the gross enrolment rates for vocational senior secondary schools, which range from around 65% in the more industrialised Yogyakarta and Jakarta to as low as 20% in the more rural and less developed Kalimantan Barat, Aceh and Papua. In more than half of the provinces, the enrolment rates in SMKs were lower than 30%, averaging around 20%. As shown in Figure 5.2, many provinces are a long way from the goal of providing 60% of learners enrolled in senior secondary schools with vocational education. Meeting the goal of providing vocational education evenly in all areas of Indonesia will be a challenge.

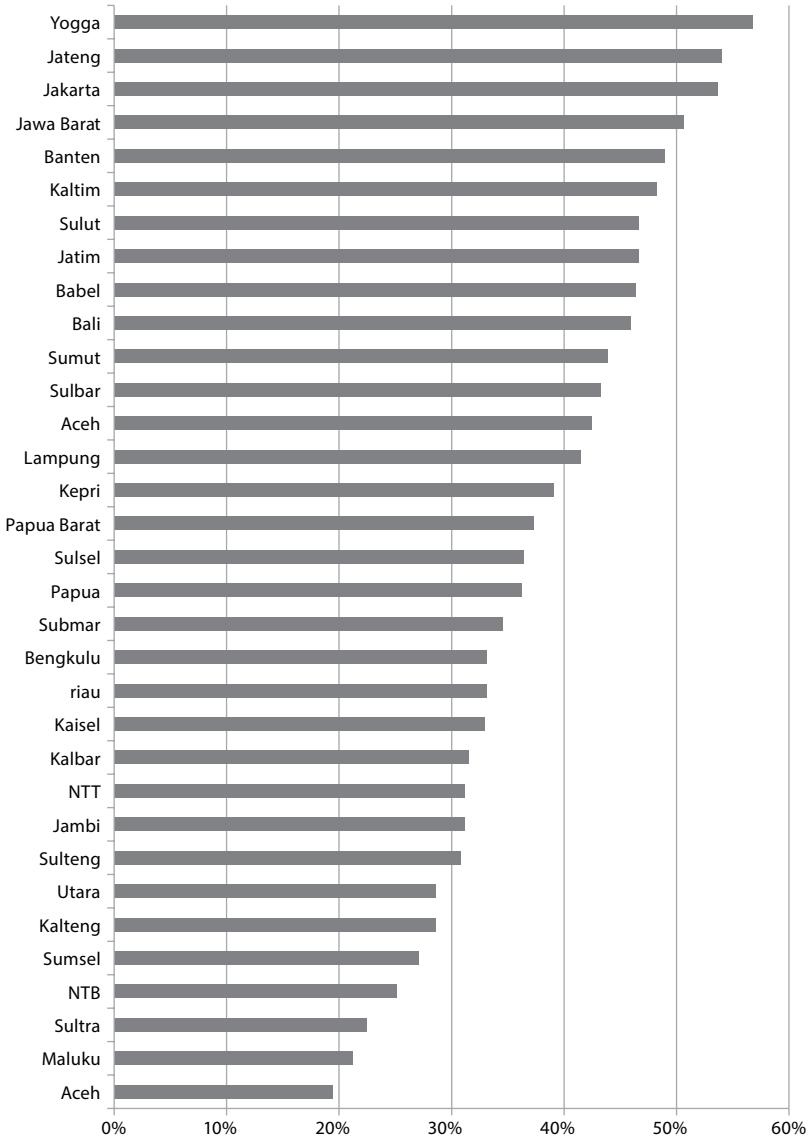
One avenue the ministry needs to explore is the use of information and communication technology (ICT) – particularly mobile technology and the use of distance learning. With the provision of new infrastructure such as high bandwidth fibre optic submarine cables, it could greatly expand the use of ICTs for VET particularly in extending access to rural and remote areas such as in the Papuan provinces (Harding, 2011).

Among some of the district managers the review team interviewed, there were high levels of commitment to re-orientate their district's provision of senior secondary education towards vocational schooling. Balikpapan with its growing manufacturing sector and proximity to the mining industries is modelling itself on becoming a "vocational city". The lack of a feasibility study underpinning its most ambitious project, building a "super" integrated SMK school on its northern outskirts, is of concern, however.

Gender differences in access

Typically, female participation rates decline at higher levels of education in most developing countries. This is true of Indonesia, particularly in vocational schooling where the gender gap has been widening over the past 10 years. A review of gender parity in vocational schools (SMKs) found a decline in the ratio of females to males over the past decade from 0.76 in 2000/01 to 0.71 in 2009/10 (ACDP, 2013a). In contrast, over a similar period, 2000 to 2010, the proportion of female students in SMAs declined

Figure 5.2. **Enrolment in SMKs as a percentage of total senior secondary enrolment, by province (2013)**



Source: Directorate General for Senior Secondary Education Statistics 2012/2013, MOEC (Ministry of Education and Culture) and World Bank (2012) Indonesia: Preparing Indonesian Youth for Transition Issues and Policy Agenda for Senior Secondary Education, The World Bank, Jakarta.

slightly and then grew so female students outnumbered males by 14% (Figure 4.1, Chapter 4). The *Country Background Report* (ACDP, 2013a) suggests that, because many of the courses offered in SMKs are regarded as male-orientated, SMA courses may have attracted more females. However some 47% of VET teachers are female and there appears to be no evidence to explain the decline of gender parity. The review team's discussions with VET teachers suggested that social and cultural norms influence the educational choice of parents and pupils. The issues of gender stereotyping need to be addressed not just in school orientation but also in wider socio-economic policies. This is an area that would benefit from review and further development of the curriculum to ensure equality of choice and opportunity for females in senior secondary education. The review team noted that the ministry has introduced a special scholarship for female students at SMKs.

Competition for entry

Where there are high-quality SMKs, the competition to enter is significant, with access determined by academic results in the ninth grade. Although the team did not see any list of "quality schools" by district, students and parents appear to be very influenced by a school's reputation. The review team was informed by a recognised "quality" SMK school that it attracts 30% of the top 25% of academic achievers in its district. It has some 700 applicants for the 314 places it has available each year.

There was also competition for access at one of the model public SMKs visited by the review team, which had six skill programmes, largely supported by industry. Only 300 candidates are chosen from 500 applicants every year and the industries associated with the school are involved in the selection process of the students. Only 16 students can enrol in the heavy equipment machinery course, which is supported by industry. A representative from industry is involved in the lessons, providing oversight in classes. The school head argued that the reason for this co-operation is to match the school's output with industry's needs. However, despite this collaboration, graduates from the school still have to go through a validation test and interview to secure a job with that industry. Afterwards, they can be employed by partner companies. A further 10% of students from the school go on to higher education opportunities.

This cameo provides insight into the challenges of opening up access to vocational education while simultaneously addressing the specific skill needs of industry. The industry-demand led model of VET provision has its drawbacks and strengths. The ministry will need to balance the needs of students to become the "smart and competitive Indonesian" as espoused in its 2025 education vision with the changing demands of the labour market.

Student progression

The dropout rate for senior secondary education is high in general, but more so for vocational education. In 2011/12, the dropout rate of students in senior secondary schools (both SMAs and SMKs) was 1.5% while the rate for SMKs alone was 3.3% (MOEC, 2012a). SMK students tend to come from families with lower economic status than their SMA counterparts and are more likely to drop out for financial reasons (ACDP, 2013a).

According to MOEC's Secondary School Directorate, dropout rates are highest during the first semester of enrolment. This suggests there may be a gap between students' expectations and what schools actually offer. A critical factor may be the inadequate provision of information on the job pathways for SMK graduates during junior secondary schooling. This would allow students to make their choice of future academic and career paths and guide their school orientation.

The multi-entry/exit system is one mechanism designed to address students dropping out. In theory this system, which allows students to drop out and then to return to school, exists in Indonesia, but the review team found no evidence of it functioning in the field. Such a system could facilitate students entering and exiting as they need, especially those from lower socio-economic quintiles facing financial difficulties, but it is not yet effective in the vocational education system. The review team concurs with the CBR in noting that it should be mandated through a government decree and the development of specific standards.

Of those SMK students who graduate, some 94% enter the job market immediately while the remainder go on to post-secondary education and training opportunities. SMK graduates are often at a disadvantage when it comes to gaining entry to tertiary education. The academic emphasis of the tertiary entrance examination and assessment is a major impediment to establishing flexible pathways through the post-secondary system for vocational graduates. Polytechnic entrance exams tend to focus heavily on academic skills and, consequently, have favoured SMA graduates rather than SMK graduates. Public polytechnics have taken measures to assess SMK graduates based on their achievement at school through the *Penelusuran Minat dan Kemampuan Politeknik Negeri*, offering national selection for public polytechnics by invitation (ACDP, 2014b). It is not yet clear whether technical and vocational skills will be adequately assessed. At university level, most public universities use the national selection test with a sole focus on theoretical knowledge (*Seleksi Nasional Masuk Perguruan Tinggi Negeri*) while private universities use an "academic potential test" (*tes potensi akademik*) for private universities.

A possible route to further education for SMK graduates is through the community colleges, or AKs. There are several types of AK, including some which are run and managed by the polytechnics; some which collaborate with SMKs, BLKs and teacher training institutions (*pusat pengembangan pemberdayaan pendidik dan tenaga kependidikan* or P4TK); some which are established and managed by industry; and some which are independently organised by private institutions. AKs can provide formal education in the form of short courses. Offering Diploma I and Diploma II degrees (D1 and D2), AK courses take a maximum of two years, which is shorter than the polytechnics' programmes.[3] Like polytechnics, AKs provide sandwich programmes, with an internship between education courses.

Like BLKs, AKs can offer second-chance learning opportunities to secondary education graduates, mostly SMK graduates, who did not progress into polytechnics or universities. One year of study at an AK costs as much as one of BLK's short courses, making it an economical alternative. The exams to gain entrance to AKs, however, emphasise academic competence more than technical and vocational competence.

AKs are still in the early stages of implementation, thus their impact on skill mismatches is yet to be seen. However, there are several issues with them. First, as AKs focus on specific technical skills based on local economic activities, the skills they provide might not be easily transferable to other industries across Indonesia. Second, the role of AKs might not be adequately differentiated from polytechnics, as both are intended to provide progression from SMKs even though only the polytechnics provide diplomas (D1-D4) as well as allowing their D4 graduates to progress to academic post-graduate degrees. Third, the costs of building AKs are extremely high, estimated to be IDR 50 billion per institution – around EUR 3 310 514 – (MOMT, 2012). As mandated by the 2012 Higher Education Law, the government planned to build 497 AKs at the district level. So far, 50 have been established.

In summary, the progression of SMK graduates is limited as most enter the job market and less than 15% progress to post- secondary institutions. The review team notes that the ministry is seeking to improve that situation with the expansion of AKs but this route maybe an expensive option that does not necessarily address the skills required nationally.

Teaching and learning

This section explores the perceptions of teaching and learning of vocational education in SMKs. The review team noted some promising practices and models but the evidence in the literature is overwhelming that VET at senior secondary level is of inadequate quality that does not address the needs of industry or the job seeker.

The new VET system introduced by the Ministry of Education Decree No. 36/0/1997 saw major curriculum reforms in SMKs that not only aligned the curriculum more closely to local labour market needs but gave SMK students a broad-based foundational year before they specialised in specific vocational areas. The aim was for 25% of the curriculum to be theoretical and the bulk of it practical. Entrepreneurship was also introduced as either a stand-alone subject or integrated across other subjects. The reform advocated linkages with local industry and business to provide opportunities for workplace experience and the development of relevant skills .This can be a valuable opportunity to link the academic curriculum to the reality of the everyday experience, enhancing the relevance of the curriculum by demonstrating its application to the vocational track (Box 5.1).

Recent research indicates that there are two major challenges in linking the curriculum to the needs of industry (MOEC, 2012). First, the SMK principals need to have an adequate knowledge and experience of the workplace, be able to develop and creatively use their networks within local businesses to enhance the learning of their students, and develop private-public partnerships. Second, MOEC and MORA need to grant the necessary autonomy and incentives for SMKs to seek creative ways of interacting with businesses while ensuring that the regulatory framework is in place to maintain the school's focus on learning rather than serving as a cheap source of labour. A key recommendation of our research is that the ministry should consider providing specialised training for the role of the principal and the school supervisor (*pengawas*) in quality assurance of SMKs.

Vocational senior secondary education has been criticised for the poor quality and irrelevance of the training. Employers report that a significant

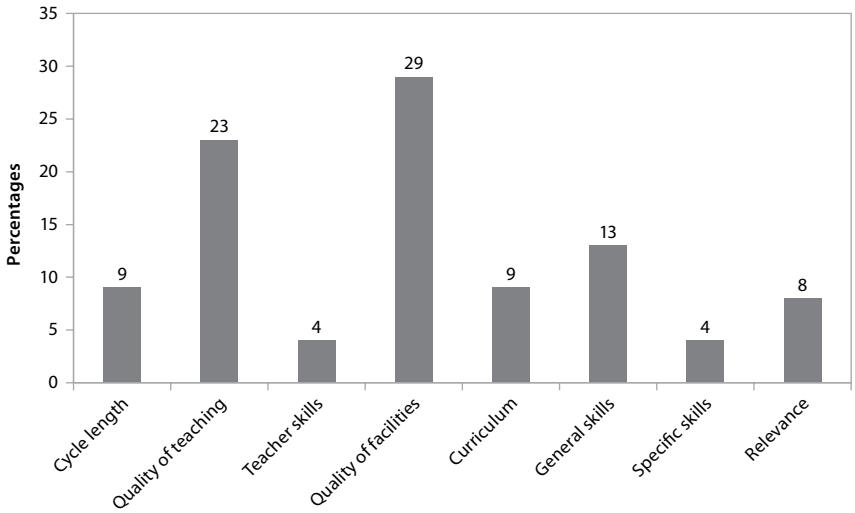
Box 5.1. **Good practice in SMK-industry linkages**

The review team visited a public SMK which co-operated with Honda, a private company producing motorbikes in Samarinda, giving it facilities and equipment and training teachers in service technologies. It also provides a mobile workshop truck to be taken out to rural villages for students to teach villagers how to fix their motorbikes as part of their practical experience. Honda instructors, who were part of the SMK staff, taught Honda automotive mechanics to students who then became eligible for a permanent position as Honda mechanics upon passing an examination conforming to industry standard. The school has signed 12 memoranda of understanding with other industry partners which were facilitating financial and technical support for specific industry courses. The school also owned its own open-level coal mine and had a very strong faculty of mining supported by two qualified mining engineers linked to the mining industry.

percentage of SMK and polytechnic graduates do not have the skills needed to perform well in their positions. Employers report that the curriculum of vocational schools is not based on the needs of the labour market, and nor is it keeping pace with current technology and innovation, and this is exacerbated by outdated learning facilities at several skills providers (World Bank, 2010). As Figure 5.3 illustrates, employees perceive that the main weaknesses of the vocational education supplied by SMKs can be attributed to the quality of facilities (29%) and quality of teaching (23%).

There are a number of reasons why SMK education is poorly co-ordinated with labour market demands. These include the fact that the technical portion of SMK curriculum is still devised by the MOEC, which does not co-ordinate with the Ministry of Industry and the Ministry of Manpower and Transmigration, and receives little input from relevant industries (ACDP, 2014). Co-operation with industry in planning and developing the curriculum is still ineffective and the majority of SMKs do not involve industry in curriculum planning. Moreover, few industries co-operate with SMKs in the provision of facilities and equipment. SMK graduates also have little access to labour market information. Only one local government agency has made a five-year forecast based on anticipated demands from local industries (World Bank, 2011).

Figure 5.3. **Main weaknesses of SMKs as perceived by employees**



Source: World Bank (2011), Di Gropello, E et al., *Skills for the Labor Market in Indonesia – Trends in Demand, Gaps and Supply,* Washington, D.C. p 175.

A further challenge facing students in SMKs is that the numbers of teachers with both teaching and work experience in their area of specialisation is variable. This also makes their education less relevant than the workplace requires (Di Gropello, 2013). A perception of the review team, albeit based on limited visits, was that teachers in public SMKs have limited exposure to the workplace,[4] often returning directly to the school they graduated from after qualifying. The in-service training provided by VET training centres is weakly linked with industry, and there is a low turnover of teachers, as the majority of the staff interviewed had taught at their school for decades. The interviews also confirmed the literature finding that suggests that there is no effective way of managing or removing underperforming teachers (Suryahadi in Suryadarma et al., 2013).

The recent requirement that VET teachers teaching non-academic subjects need teacher certification is an important positive step. The academic track in SMK institutions is not perceived to be strong enough to give graduates adequate academic skills. The World Bank found that that SMK students score lower than SMA students on the EBTANAS[5] and other national exams, which led to their lower attendance of tertiary education (World Bank, 2011). In 1997, SMK entrants scored on average 2.7 points lower than SMA entrants, and this gap grew to 6.9 points in 2000. Additionally, while core academic areas such as mathematics, literacy and English are important, as these are recognised skills in high demand, vocational senior secondary graduates equally need to obtain life skills (critical thinking and problem solving), behavioural skills (communication, organisation, teamwork and leadership) and computer skills which are the basic skills demanded by innovation and knowledge economies. However, as many sources of literature indicate, these values and skills are seldom modelled by teachers as the culture of teaching and learning in Indonesian schools rewards loyalty and obedience rather than initiative and independence (Bjork, 2013).

Key to the success of effective vocational education training is mastery of a technical skill. This undoubtedly requires greater linkages with industry in the development of the curriculum, upgrading teacher/instructor skills with work sabbaticals or opportunities to interface more closely with industry, industry oversight in student assessment, and ensuring that SMK facilities and tools keep pace with the latest technological developments of industry. Industrial attachments for students are only offered by schools in Java, but need to become standard practice across all SMKs. The MOEC has a number of options and models to consider to improve the quality of teaching and learning in vocational senior secondary education.

Standards and accreditation

Currently there are 128 VET programmes registered across 3 national boards governing the accreditation of vocational education in Indonesia. The MOEC's National Education Standards Board (*Badan Standar Nasional Pendidikan*, or BSNP) has issued detailed competency standards and curriculum guidelines for SMKs. The Ministry of Manpower and Transmigration has issued National Competency Standards for Works, in co-operation with industry stakeholders which covers the certificate courses offered by the post-secondary BLK institutions. The National Council for Accreditation has three strategies for certification:

- association for professional occupations – for individual applications;
- second party (industry bestows certification) – for school applications;
- first party (provided by school in partnership with industry) – with a government subsidy.

The review team was informed that in Balikpapan 24 skills are assessed during the 3 years of study at SMKs. Industry plays a major role in setting the standards, being responsible for assessing half of the skills standards.

Certification of SMK courses

Training providers are typically certified to conduct particular courses through the International Organization for Standardization (ISO) processes. The review team was advised that generally employers prefer SMK graduates to SMA graduates but in mid-2014, unemployment among SMK graduates was higher (11%) than among SMA graduates (9.7%). Employers reported that most SMK graduates did not meet their expectations. They considered 20% of new hires with SMK education to be of poor or very poor quality.

Financing

Resource mobilisation

It is difficult to obtain an accurate picture of public spending on VET because the costs are met from different budgets at different levels of government, providing financial support for infrastructure, salaries and operational costs. A recent study found considerable variation in the levels of cost and the amounts of revenue available among state senior secondary schools. Central and provincial governments are responsible for meeting investment costs in state schools. These include the building of new school units and classrooms, major rehabilitation, the provision of educational infrastructure and facilities in schools, and the supply of other durable goods.

Where necessary, the private sector can be involved. Funds raised with industry by individual schools go directly to that school. Private schools have considerably more flexibility to seek out financial partnerships with industry than public schools.

For instance, an integrated vocational school is being built north of Balikpapan even though the need for such a school comes from the west of the city, because of a lack of available land in the west. A proportion of funding comes from each level of budget: national funds pay for equipment, provincial funds are used to buy the building and district funds are used to equip the school. That area is an industrial area and has a polytechnic and technical institute already, but the community is very supportive of the new school.

The salaries of teachers who are public servants are paid directly by regional governments (*Pemda*), while payments to teachers who are not public servants (non-PNS, *pegawai negeri sipil*) depend on the policies of individual regions. In some districts, salaries are paid by the local government, but in many districts salaries of non-PNS teachers have to be financed from funds that come from parents. The government has attempted to stipulate the expected levels of non-salary-related operational costs (Regulation No. 69 of 2009) for all school levels including SMKs.

The main source of non-salary operational finance at the senior secondary level is parents, with the assistance of the central and district governments and – in some cases – the provincial government. The financial role of parents is very important, particularly because parents also contribute to paying the salaries of non-PNS teachers and investment costs. Schools obtain funds from parents in various ways. The most common way is through the entrance fee which is paid once a student has been accepted to an SMK. Various terms are used for this entrance money: money for development, money for participation in education and committee money (paid in monthly). Other levies applied in some schools include specific charges for additional lessons to prepare for the national examinations and charges for OSIS (the student council – *Organisasi Siswa Intra Sekolah*).

Resource allocation

The government's "Universal Secondary Education" strategy will require an expansion of SMK education. This is likely to significantly increase the demands on the national education budget for a number of reasons.

First, it costs the government IDR 6.8 million per year to educate a public vocational secondary student, compared with IDR 5.3 million for a public general education student – a difference of 28% (World Bank, 2010). Second, the new policy is likely to increase VET teacher numbers,

all of whom are required to become certified as of 2013, challenging the financial sustainability of provision. The budget is already being forced to accommodate the general up-rating of teacher salaries through the certification drive. Third, it is not clear how government will ensure that each sub-district has access to a SMK school. Will new public SMKs be built in the 14% of sub-districts which have no senior secondary school? Will some SMAs be converted to SMKs? Since private SMKs constitute 70% of current provision, will there be a financial incentive provided for them to expand their enrolment? These various options have different cost implications for the national budget.

Additionally, as vocational education is more expensive than other levels of schooling, increasing its share may consume a disproportionate amount of the education budget without the expected returns on this investment. Vocational secondary education is expensive for several reasons: the initial capital cost for equipment and workshops, and the recurrent cost for consumable supplies and the maintenance, repair and replacement of equipment (a factor often ignored). In addition, it requires purpose-trained instructors, who are typically in short supply and may command higher wages outside the education system. Further, the marginal returns to the extra individuals who would enrol in upper secondary schooling appear to be less than for those currently enrolled (Carneiro et al., 2011), suggesting diminishing returns as secondary participation expands. However, expansion is justified on the basis that the returns are still higher than for those without any senior secondary education. The argument is nevertheless that it is not optimal to increase access for all at the senior secondary level as equity issues begin much earlier at the early childhood/pre-primary levels. There are considerable arguments for and against expanding the public provision of vocational education. Table 5.2 highlights some of the issues.

Developing innovative and cost-effective funding mechanisms will be critical to funding necessary reforms in the VET sector. One way of doing this is to encourage greater involvement of the business community in generating funds. Increasing business community participation can be achieved in different ways, including establishing training funds and levy systems. There are many models in this regard which the government could review including their neighbours the Malaysians.

Resource utilisation efficiency

The complexity of the education management by different levels of government is matched by difficulty in gathering reliable insights into spending patterns. One clear sign of inefficiency is that, with the introduction of decentralisation which allowed districts to appoint teachers, teacher hiring has risen faster than enrolment. SMK schools average 23 students per VET

Table 5.2. **Public investment in technical and vocational education and training: the arguments for and against**

Against public investment	For public investment
Employers want "generic" skills and the ability to learn on the job, not TVET skills.	The private sector may be too limited in scope and strength to provide much training. And employers generally tend to under-train.
If skills are needed, employers will train their workers.	The underprivileged will not have access to skills development without government intervention.
If skills lead to well-paying jobs, people will pay to acquire them. And if people are willing to pay, private training providers will respond (supply response).	Private training providers will not fill the skills gaps by themselves; they focus narrowly on low-cost occupations in urban settings.
The high costs of TVET are wasted on people who do not apply the skills, because they enter different occupations, go on to further education, or are unemployed.	In growing economies, TVET can have high returns.
It is just too difficult to do TVET well in most developing countries because of lack of resources and poor institutional capacity.	Externalities occur—a sufficient pool of skilled workers can help attract foreign direct investment. Some TVET systems work well; it is a matter of doing it right.

Source: ADB (Asian Development Bank) (2009), *Good Practice in Technical and Vocational Education and Training*, ADB, Philippines, www.adb.org/sites/default/files/publication/28624/good-practice-education-training.pdf.

teacher but this can range from as low as 11 students in Maluku province to as high as 28 in Papua Barat. These are significantly higher than the teacher-pupil ratios in SMA schools, however, which have a national average of 16 students per teacher.

A significant number of schools reported that they are not receiving any of the expected operational funding from district (responsible for paying teacher salaries) which affects their ability to effectively deliver quality teaching and learning. The review team also heard from schools of the long delays they experience in receiving anticipated government funding. Schools then rely on parental contributions to bankroll their operations. The review team was told that the higher the level of poverty profiles of districts the less efficient they are in spending government funds. The World Bank found a strong positive relationship between governance and learner outcomes but another study found no link with spending and enrolment rates in regions with high corruption indexes (World Bank, 2013).

Senior secondary education faces further inefficiency issues due to high dropout and repetition rates. In 2010/11 some 142 275 students dropped out of SMAs and 98 640 dropped out of SMKs (MOEC, 2014a). The cost

Box 5.2. **Malaysia's training levy reimbursement scheme**

In 1993, Malaysia established the Human Resources Development Fund (HRDF) to encourage private sector employers to upgrade their workers' skills in line with their business needs and the nation's development strategy. The HRDF is regarded as an important contribution to Malaysia's ambition to increase its global competitiveness and reach high-income status by 2020. Companies in the manufacturing and services sectors with at least 10 employees and a certain capital base are required to contribute 1% of employee wages to the Fund. Employers that are registered and/or incorporated in Malaysia and that have contributed to the HRDF can apply for training grants or financial assistance. The HRDF offers a range of training schemes from ad hoc placements to long-term training courses for workers at various levels and stages of their career. The Fund also supports workers who have no formal education but have obtained relevant experience and expertise in the workplace to be certified based on their competency levels.

Source: Pembangunan Sumber Manusia Berhad (*Human Resources Development Fund*), Ministry of Human Resources, Malaysia, https://www.hrdf.com.my, accessed 13 January 2014.

effectiveness of SMK schools can also be questioned given the mixed fortunes of their graduates. Recent evidence has found declining returns on investment and increasing unemployment rates among vocational graduates.

Equity

The main sources of inequity among vocational senior secondary students are declining female enrolment rates (see above), the shortage of VET providers in the eastern region of the country and dependence on contributions of parents, particularly those in the poorest quintiles to support their children in school.

Currently, a regional divide exists in transition rates and coverage of VET institutions. Transition rates from junior secondary school to vocational secondary school are much lower in eastern Indonesia, particularly in Maluku, West Papua and Papua. The same trend also occurs in the transition rates from senior secondary school to higher education. The highest transition rates from senior secondary to higher education can be seen in Jakarta and Yogyakarta (ACDP, 2013b). Comparing senior secondary gross enrolment rates across 460 districts reveals wide disparities ranging from 22% to as high as 134%. Seven provinces have districts with a GER below 30%.

TVET institutions (excluding AKs) are heavily concentrated in the western part of Indonesia. Apart from Sulawesi, islands in the east have very little

TVET provision. This disparity is most striking in the provision of BLKs: only 13% of all BLKs are found in the eastern part of Indonesia. The majority of SMKs are located in Java (57%) and Sumatra (21%) (MOEC, 2014b).

Participating in senior secondary education is burdensome for the poorest households. There are direct charges for fees and registration books and uniforms and there are indirect costs of transport and meals. Senior secondary schools depend on parents to pay for some of their operational costs including the salaries of its numerous non-civil service teachers in some districts. Funds from parents are needed, especially when the school anticipates cash flow problems as a consequence of delays in the disbursement of government funds (ACDP, 2013b). This has implications for school quality and for equity.

A recent survey found that the average total household expenditure for senior secondary schooling is IDR 552 312 per month (ACDP, 2013). As discussed in Chapter 4, for most poor households the high costs of education greatly influence their decision to continue to enrol their children in secondary schools. There are high opportunity costs of sending children to senior secondary school to set against the perceived returns of this level of schooling. The same survey found that some 18% of senior secondary students – and on average 40% from the poorest quintile – work outside of school hours to contribute to their education costs. On average, they work 2-3 hours a day, more often than not engaged in agricultural work and some 57% were remunerated.

As with general senior secondary education, the poor students assistance programme (*bantuan siswa miskin,* or BSM), a conditional cash transfer aimed at providing cash to poor students in order to keep them in school and relieve the financial burden on families to pay for schooling, is a welcome measure that addresses the equity concerns of poor students. Although it has some shortcomings, some 16.6 million students are benefiting from the system and it has had a noticeable impact both on dropout and attendance rates. See Chapter 4 for more details.

The equity challenges facing senior secondary vocational education raises a number of important questions about the responsibilities of the various levels of government and the nature and magnitude of parental contributions. Government finances are not infinite and there are strong arguments in favour of user charges because the private returns at this level of education are high. On the other hand, in the interests of creating more equitable access to senior secondary education and vocational education and training, there are equally strong arguments for reducing the cost burden for poor families and for selective government subsidies. The review team recommend redressing the provincial inequities of VET provision and accessing higher BSM grants.

Governance

As with other levels of education, SMK schools are either managed under MOEC in a decentralised manner or under MORA in a centralised fashion. Schools under MOEC have three layers of governance: the norms and standards set by the central ministry, statistical oversight and co-ordination by the provincial offices, and operational management by the districts. Within MORA, Islamic vocational senior secondary schools fall under the Directorate General of Islamic Education. The assumption, as information was not available, is that the majority of these Islamic schools are managed by the community, usually through Islamic foundations.

The review team was informed by SMK schools that they receive three inspections annually. One from the provincial office on course offerings, the second from the central ministry related to auditing their grants allocation and the third from the district office to assess their finances.

The team had considerable difficulty accessing appropriate statistical information on schools at the district offices. The districts visited by the team do not have an information management system underpinning their oversight of schools. It seems that the districts make decisions on resource allocation without referring to any data. They saw statistics as the domain of the provinces and central government. All schools, including SMKs, are registered and issued with a unique number by the central ministry. Provincial offices verify statistics, monitor funding and support research. The decentralisation process has disempowered provincial offices leaving their role to that of co-ordination of education among districts and verifying statistics and funding transfers. Each semester the provincial office meets with school principals to update them on developments from the centre. However, the review team noted that the provincial education offices have no responsibility for linking SMK to specific industries targeted by the MP3EI, which is a concern given that its proposed economic corridors encompass many districts.

The SMK system is complex with different funding streams, regulations, requirements and often with different and outmoded interpretations of supply and demand depending on their area of skill provision. Reforms will need to be well co-ordinated and linked with an adequate system of incentives and sanctions based on institutional performance covering the schools and districts offices.

Observations and recommendations

The government plans to increase participation in senior secondary education and raise the share of vocational education at that level while aligning it more closely with its national development goals. Aligning SMKs

with the national development objectives is complicated by the fact that the economic corridors identified encompass multiple districts. The market-based provision of TVET services means there are some gaps in sectors targeted by the national development plan.

Giving Indonesia the skills it needs to seize its economic growth opportunities will require a concerted effort to harness all the available resources. The current system of supply-driven provision of TVET, fragmented across numerous ministries and the private sector, results in duplication of effort, gaps in service provision, and policy inconsistencies that can disadvantage learners. There is an urgent need to improve co-ordination and employer involvement, and make TVET more industry-driven.

One major initiative has been the establishment of community colleges which are intended, in part, to increase the proportion of SMK graduates progressing to further education and training, from the current low level of 15%.

Although steps have been taken to enhance the quality of initial TVET, the majority of SMK graduates enter low-paying lower-skill jobs, particularly in the informal sector. While there is a need to improve employability, this does not mean adopting a policy of producing narrowly trained graduates for specific job segments. A resilient workforce that can adapt to changing labour market requirements needs to have a mix of generic and specific skills at all occupational levels.

Second chance students often need flexible arrangements to accommodate their varying circumstances.

TVET students are mostly being trained by teachers who lack practical experience in modern workplaces. These students are not developing the hard knowledge, soft skills and practical know-how needed in the emerging job market.

Technical and vocational education generally is held in low esteem as a second-best option for those who have not been successful academically in the schooling system. The enrolment of girls in SMKs is declining and they remain concentrated in a few “female” subject areas. The financial burden on SMK students is higher than for SMA students, yet SMK targets the three poorest quintiles of the population.

Quality TVET provision is typically costly, especially when it involves small groups learning on sophisticated equipment with well-qualified and experienced trainers. Given the high cost structure of TVET, continuous efficiency improvement is essential. It will be necessary also to mobilise non-government sources of income to achieve the level of investment required. One way to achieve this could be the creation of a Presidential Commission

made up of high level stakeholders which, if well managed, could increase the relevance of programmes and enhance the prestige of TVET. Box 5.3 outlines some international examples.

Box 5.3. **Examples of institutional frameworks for co-ordinating TVET policy and provision**

The **Danish Advisory Council for Initial Vocational Education and Training** comprises 25 members from the social partners, alongside school leader and teacher associations and members appointed by the Ministry of Education. It advises the Ministry of Education on all matters concerning the VET system, monitors programmes and labour market trends, and recommends any changes in VET qualifications.

The **Swiss partnership arrangements** between the Confederation, cantons and the social partners are established by law. The Confederation is responsible for strategic planning and development; the cantons for implementation and supervision; and the social partners for definition of course content and provision of apprenticeships in companies. Major decisions are discussed and taken jointly and all three partners are represented at both national and cantonal level.

The **Indian National Skill Development Agency (NSDA)** is responsible for co-ordinating the efforts of central and state governments and the private sector to achieve the skills development targets of the 12th Five Year Plan (2012-2017). An autonomous body at the centre of government, the agency fulfils a variety of functions, including creating and maintaining a Labour Market Information System, implementing the National Skills Qualifications Framework (NSQF), evaluating existing programmes, and mobilising additional resources for skill development. The agency also focuses on ensuring that programmes meet the needs of disadvantaged and marginalised groups.

Source: OECD (2010), *Learning for Jobs*, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264087460-en and the National Skill Development Agency, India, www.skilldevelopment.gov.in/ accessed 13 January 2014.

Recommendations

- The government should establish a national body with responsibility for integrated TVET policy and provision across all economic sectors, regions and ministries. The proposed "President's TVET Council" (PTVETC) should include balanced representation from employers, government ministers, and TVET providers, including

SMKs, AKs, vocational centres, polytechnics and universities providing TVET. The role and functions of the PTVETC might evolve over time, possibly into an independent authority or commission with powers over public financing, the establishment of public providers, the licensing of private providers and performance monitoring. Initially, however, given no precedent arrangements, the PTVETC should be established as the chief advisory body to the President, with a remit to develop a national TVET strategy that is industry driven and linked to national development priorities, as a basis for co-ordinating investment, re-orientating training, raising standards, monitoring supply and demand balances, and reporting on performance. The reports of the PTVETC should normally be made public, following Cabinet consideration of them, as a means of informing the community. The PTVETC should be supported by a high-powered professional secretariat (*Skills Indonesia*) located in the Office of the President of Indonesia.

- Consideration should be given to ways and means of better aligning the skills of the systems' graduates with labour market opportunities, not only in the expanding services sector but also in the modernising agricultural and manufacturing sectors.
- The government should consider assigning co-ordination responsibilities to the provincial education offices to link SMK and AK education and training services in designated economic corridors to the industries targeted for growth. It should also consider providing subsidies to SMKs that train in key occupations identified for strategic industries, in identified economic corridors, not presently covered by the private SMKs.
- The government should resuscitate the multi entry/exit system, particularly for SMK students, allowing them the flexibility to enter, exit and re-enter formal education and training depending on their financial and social circumstances (see also Recommendation 8.2).
- Consideration should be given to offering shorter courses and employing instructors/teachers on short contracts so that they can move in and out of the workplace and school. Consideration should be given also to providing vocational training close to workplaces or on commuter transit corridors, so that part-time trainees, especially those from poorer backgrounds, can keep working while acquiring further skills.
- Industrial attachments and other forms of work-based learning should become standard practice across all vocational programmes.

- The government should launch a major and long-term public communications campaign to raise awareness of the value of TVET. The campaign should reach into homes and schools throughout Indonesia, and involve employers.
- Consideration should be given to recruiting a higher proportion of female TVET teachers to occupations with low female representation in the workforce, as one means among others of promoting the necessary diversification of training opportunities for women and girls.
- The government should progressively raise the level of financial support for SMK students.
- The relevant ministries should establish a framework for activity-based costing in the Indonesian TVET sector, which can function at the institution level, alongside a set of cost-effectiveness benchmarks and a performance management system.
- Consideration should be given to ways and means of raising income from non-government sources including: training levies on employer payrolls, user fees paid by students and/or their employers, the production and sale of goods and services by schools and colleges, and community support and donations, including from foreign donors.

Notes

1. Formal VET refers to systematic, organised training with a structured and administered curriculum with goals, content and pedagogy, taking place in institutions.
2. Statistical information on SMKs exclude the Islamic Vocational Senior Secondary schools as this was unavailable.
3. Education Ministerial Decree No. 48/2013 on the Establishment, Reform and Revocation of Community College Permit.
4. There were some exceptions, such as an SMK in Samarinda that either had industry instructors as part of its staff and had a mining faculty staffed by mining engineers with close links with the industry (Box 5.1).
5. EBTANAS (*Evaluasi Belajar* was the national exam before the *Ujian Nasional* (UN).

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Chapter 6

Tertiary education in Indonesia

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Specific contextual factors

Tertiary education in Indonesia has gone through a period of continuous growth since higher education was first formally included in the national education system via the Education Law 15/1961. In recent years, Indonesia has seen an impressive and rapid growth in the sector with a doubling of the budget over the four-year period from 2008 to 2012 and a marked rise in enrolment.

It is vital for Indonesia that this development continues and is further accelerated in the light of the fast increasing demand for a highly competent workforce to realise Indonesia's ambitions in the competitive global context. Comparisons with other Association of Southeast Asian Nation (ASEAN) countries place Indonesia below Thailand and Malaysia for participation in higher education. Indonesia's higher education enrolment rate is 31.5% above countries like Lao People's Democratic Republic, Viet Nam and the Philippines, but below Malaysia (36%) and far below Thailand (51.2%) (UIS, 2014). Indonesia's tertiary attainment rate among the adult population between the ages of 25 and 64 is also very low compared with Thailand, Singapore and South Korea (UIS 2014).

The growth in tertiary education also needs to be more balanced and diversified to achieve greater equity between social groups and across regions within Indonesia.

Rapid enrolment growth poses challenges in relation to finance, quality and relevance. Indonesia's policy makers understand that it has ground to make up in these three areas, and recognise that it needs to confront these challenges urgently. In this context, the new government has created a dedicated Ministry of Research, Technology and Higher Education.

The government has shown good foresight in setting up a comprehensive regulatory framework for the operation and development of higher education in accordance with accepted international standards, which should form a sound basis for future improvements. Several important elements of the formal framework needed are in place. First and foremost is the ambitious Higher Education Law 12/2012 (Republic of Indonesia, 2012). Its preamble notes that higher education, as part of the national education system, plays a strategic role in developing the intellectual life of the nation and advancing science and technology with the aim, among others, to increase national competitiveness in the context of globalisation.

The Medium Term Development Plan, 2010-14 (Republic of Indonesia, 2010), sets an ambitious strategic objective for higher education: the availability and affordability of quality, relevant, internationally competitive and equitable higher education services in all provinces.

The government has taken a number of initiatives to give effect to the different elements of the plan and the law. These elements include: types of higher education, degrees and diplomas, autonomy, governance, access, fee paying, national higher education standards, quality assurance and accreditation, national qualifications framework (NQF), internationalisation, personnel, financing, research, and community service.

On the supply side Indonesia has developed a diversified but qualitatively and geographically skewed array of tertiary education institutions. The system is made up of 92 public and 3 078 private institutions, and 52 Islamic institutions. There are striking quality differences especially between the public and private institutions where, with a few exceptions, the private institutions are generally weaker in terms of size, staff qualifications, infrastructure, equipment and facilities.

The review team was advised that the policy matters of greatest concern are access, quality/relevance, competitiveness, and good governance.

Structure and scale of provision

As can be seen from Box 6.1, Indonesia has a diversified tertiary education structure, which enables cost-effective expansion across a diverse and dispersed nation.

The descriptions give reasonably clear roles to the different types of institution ranging from traditional comprehensive universities offering academic programmes at all levels, to specialised colleges offering professional programmes, to community colleges, or *akademi komunitas* (AKs), offering vocational diploma programmes most often with a focus on local needs. The latter are discussed in more detail in Chapter 5.

The diversity – and the complexity – is added to by the dimensions of public/private governance and general/religious education, with the higher education ministry being responsible for general tertiary education (public and private) and the Ministry of Religious Affairs (MORA) being responsible for religious higher education (public and private). Additionally, various ministries and agencies are responsible for the 82 tertiary education service institutes which ensure the supply of human resources for their respective ministries. Table 6.1 shows the number of Indonesian tertiary education institutions in the different categories. The most striking aspect is the very large number of private institutions compared to the public ones and the differences between them in terms of size, staff qualifications and infrastructure.

Box 6.1. **Types of tertiary education institutions in Indonesia**

1. Tertiary education institutions take the form of:
   a. university
   b. institute
   c. college
   d. polytechnic
   e. academy
   f. community academy
2. **University** is a tertiary education institution, which provides academic education and may provide vocational education in various clusters of science and/or technology and, if eligible, may provide professional education.
3. **Institute** is a tertiary education institution, which provides academic education and may provide vocational education in some particular clusters of science and/or technology and, if eligible, may provide professional education.
4. **College** is a tertiary education institution, which provides academic education and may provide vocational education in one particular cluster of science and/or technology and, if eligible, may provide professional education.
5. **Polytechnic** is a tertiary education institution, which provides vocational education in various clusters of science and/or technology and, if eligible, may provide professional education.
6. **Academy** is a tertiary education institution, which provides vocational education in one or several particular branches of science and/or technology.
7. **Community academy** is a tertiary education institution, which provides vocational education equivalent to one-year or two-year diploma programme in one or several particular branches of science and/or technology based on local advantages or for the purpose of meeting special needs.

Source: Republic of Indonesia (2012), Law of the Republic of Indonesia, Number 12 Year 2012 on Higher Education, Part Two: Form of Tertiary Education Institutions, Section 59, Republic of Indonesia.

Table 6.1. **Number of Indonesian tertiary education institutions**

	University	Institute	College	Polytechnic	Academy	Total
Public	51	7	1	-	36	95
Private	424	51	1 383	1 099	136	3 093
Islamic *	99	44	502			645
Open University	1				1	
Total	575	102	1 886	1 099	172	3 834

Source: Higher Education Statistics 2012/2013, MOEC.

** Year 2011/12; and Islamic Education Statistics 2011/2012, MORA.*

The degree system

Under the Higher Education Law the degree system consists of bachelor's (S1), master's (S2) and doctoral (PhD, or S3) degrees (academic or applied) and professional degrees (e.g. medicine). The stipulated length of study for a bachelor's degree is four years, with a further two years for a master's degree and a further three years for a PhD on top of that. On the vocational side, there are programmes leading to diplomas after one to four years of study (D1-D4). In principle there are flexible pathways between the different types of higher education according to the so-called multi-entry, multi-exit system.

The functions of tertiary education

By law, the function of the tertiary education institutions is described as *tridharma*, which is each institution's obligation to provide education, research and community service.

With the very large number of institutions and the wide differences between them in terms of size and quality it is unrealistic if not undesirable that they should all endeavour to contribute to all three functions. The majority of institutions do not have the financial and academic basis to conduct research, and it would not be desirable and feasible to spread scarce research funds more thinly than at present.

It should be made clear in the mission statements of these institutions that research is not necessarily part of their core function. It would be more important for them to concentrate their efforts on developing high-quality relevant teaching, with some of them being more vocationally oriented. The advantage of having a diversified system can only be exploited in full if institutions stick to their roles and missions both in relation to their function and the content of their programmes, including their relevance to the local needs of the region, rather than drift off in other directions.

Size of the tertiary education sector: institutions and enrolment

The current enrolment rate of 31.5% (UNESCO Institute for Statistics, 2014) reflects an impressive growth from 21.3% in 2008. The total number of students was approximately 5.9 million in 2012, compared with around 4.2 million in 2008 (MOEC, 2013a), an increase of about 1.7 million students, consistent with the Medium Term Development Plan's target for 2014.

A key question is whether the tertiary education system as a whole has been able to absorb this massive increase without an erosion of quality.

Table 6.2 shows that the largest expansion has taken place in the already very large private sector with an increase of 21% between 2008 and 2011 compared with the public sector's increase of 10%. Private institutions have also helped to support enrolment growth outside Java.

Public institutions account for over 25% of enrolments but make up only 4% of the total number of institutions, which means that private institutions can be extremely small – as few as 500 students. The number of institutions has grown every year between 2007/08 and 2011/12 from 2 680 to 3 170 and the majority of them were established in the private sector (MOEC, DGHE 2014). However the increase in the number of institutions has not been able to keep up with the influx of new students, which has led to a 38.5% rise in the student/institution ratio in that period.

Table 6.2. **Total enrolment and gross enrolment rate (GER)**

	2009/10	20012/13
Public*	1 636 122	1 649 267
Private	2 451 451	3 645 869
MORA	503 439	653 846
State**	66 535	103 072
Total	4 657 547	6 052 054

Notes: * includes Open University

** HEIs operated by ministries other than MOEC and MORA

Source: GER and NER of ECE, Primary, Secondary and Higher Education 2009/2010 and 2012/2013, MOEC.

The top 15 or 20 private institutions appear to have standards comparable with the better public institutions. The review team was advised that there are some particularly impressive entrepreneurial private institutions. Nevertheless, on the whole the contribution of the private sector to growth has been at the expense of quality and some private institutions can be

regarded merely as "expansion absorbers". It was indicated to the team that as one moves down the institutional quality scale the differences between the public and private institutions became increasingly marked. The size of the private institutions prevents them from having a real academic environment, and staff qualifications are generally at a comparatively low level with consequences for quality, which again will have an adverse effect on graduate employment possibilities and on social and regional equity.

There are no easy solutions, but there is a need here for strong political action at the central level. Potential initiatives to tackle the issue could include mergers, possibly in connection with the conversion of private institutions to public ones; a moratorium on the more-or-less haphazard establishment of new private institutions; consistent accreditation and more rigorous accreditation procedures with strong emphasis on qualified human resources, programme relevance and availability of infrastructure; and continued support for raising staff qualifications (see Chapter 8).

Continued expansion

Securing quality standards must be a key objective in the necessary expansion process. Continued expansion will certainly be vital for Indonesia's general education level, for social and geographical equity, and for its international competitiveness. The government needs to continue and intensify its policy of steering the provision of higher education. This should go hand in hand with a clear focus on the needs of regional business and industry targeting institutions with a strong science and technology profile. The six economic corridors in the government's economic development master plan, the *Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia* (MP3EI), constitute a possible platform for that focus (Republic of Indonesia, 2011; see Table 6.3). Expanding the vocational share of tertiary education would provide the skills that are most in demand in the growing industrial and manufacturing sectors.

There have been some commendable initiatives and policy goals. These include the new Institutes of Technology in Kalimantan and Sumatra, the new universities planned in islands outside Java, and the goal of establishing at least two polytechnics in every province and one community college in every district/city (Figure 6.1).

Community colleges

The case of community colleges is particularly interesting. They provide short vocational courses (mostly Diploma 1 and 2) aimed at jobs within the region, particularly in business and industry. The Long-Term Development Plan for Higher Education (2011) specified that a number of community

Table 6.3. **Distribution of tertiary education institutions in the MP3EI corridors**

Economic corridors	Public		Private	
	Polytechnics	Other HE institutions	Polytechnics	Other HE institutions
Sumatra	9	14	32	784
Java	12	24	76	1 438
Kalimantan	5	5	11	156
Sulawesi, North Maluku	4	8	8	364
Bali, West & East Nusa Tenggara	3	5	5	135
Maluku, Papua	3	4	4	80
Total	36	60	136	2 957

Source: Directorate General for Higher Education Statistics 2012/2013, MOEC (Ministry of Education and Culture).

Figure 6.1. **Map of government plans for institutional expansion**

Source: Ministry of Education and Culture, (2013a), Menuntaskan program Prioritas Pendidikan dan Kebudayaan (*Priority Programme of the Ministry of Education and Culture*) 2013-2014, MoEC, p.23.

colleges would be built at the district/city level between 2013 and 2015. In 2012-13, 35 community colleges were developed in districts/cities throughout Indonesia via an offsite study programme scheme. Community colleges will be established gradually in all districts/cities and the permission to establish a community college is granted by the ministry on the basis of a proposal submitted by the district/city. It is quite an elaborate procedure intended to

make sure that that the proposed institution has a sufficient basis in terms of quality and finance.

In all cases where new institutions are established it is important to have the quality and relevance of provision in mind from the outset. One of the ways to ensure quality is to enlist the support of stronger institutions during the establishment phase. At Bogor Agricultural University, for instance, the team was told about Bogor's supportive role in relation to the establishment of four community colleges in different islands. It is also important to have strong links with local employers, the chance of entering into twinning arrangements, special incentives for staff to work in the new institutions, and the integration of the colleges into the formal education system through articulated learning pathways.

The review team was advised that some community colleges had been closed because of lack of funds. Sustainable finance needs to be in place from the outset with the commitment of all stakeholders. Financing could be based on different sources: tuition fees, local government budgets, industry/business partnerships, national scholarships, donations and self-generated entrepreneurial income.

Student access and inclusion

The growth in the number of students in tertiary education noted above is also reflected in the educational attainment of the population. For instance 3.6% of the population aged 15 and above had completed higher education (diploma or bachelor's degree) in 2000, a figure that had risen to 8.8% in 2011 (MOEC, 2013a).

Progress is being made and regional and social disparities may have been narrowing owing to the government's focused investments in tertiary education since 2008. However, there was a substantial backlog in student enrolment and major challenges remain in terms of social and geographical equity:

Social inequity

Increases in participation rates have not markedly reduced the gap between the different socio-economic groups. For instance in 2010 only 2.5% of those in quintile-1 (Q-1, the least well-off households) were in a bachelor's programme compared with 64.7% in quintile-5 (Q-5, the most well off) (MOEC, 2013a). This skewed enrolment picture leads to a regressive pattern of public spending on higher education, with 80% of public spending on higher education benefitting the better-off 40% of households, and over 60% benefitting the richest 20%.

The fact that private spending, especially in the form of fees, constitutes the bulk of financing for higher education makes it financially burdensome for lower-income households to participate in higher education. An average Indonesian household would have to spend one-third of its annual expenditure to fund a family member participating in higher education. It costs more to be enrolled in public institutions than in private higher education, because government subsidies are less and fees higher.

The Directorate General for Higher Education (DGHE) has formulated the goal that 20% of the student population body should come from the two poorest quintiles, Q-1 and Q-2. Several initiatives have been taken to this end. Fee levels for undergraduate programmes at the public institutions are centrally fixed, apart from the top-tier autonomous universities which, like the private institutions, set their own fees. Public institutions are required to take at least 20% of their students from economically disadvantaged groups. There are also four ambitious scholarship programmes, including the Bidikimisi scheme, covering both fees and living costs (see Box 6.2).

The government target for 2012 was that at least 20% of students should receive scholarships or financial assistance, but only 10% were reached.

In addition to the different government support schemes there are also scholarships established by private companies and philanthropic foundations. Some of the financially strong tertiary education institutions have their own scholarship funds allocated from self-generated revenue. It was estimated by the National Socioeconomic Survey (Susenas) in 2006 that about half of the scholarships at public institutions, and over 85% of the scholarships at private institutions, came from private sources.

Geographical inequity

The increases in participation rates have not significantly reduced the geographical disparities. Figure 6.2 demonstrates the wide differences across the regions in access to tertiary education.

Developing open and distance learning could be one means of extending higher education services. The Open University in its present form seems to cater mostly to the professional development of teachers, but could play a wider role in serving broader constituencies.

Gender

The increases in participation rates have reduced gender inequality considerably over the last 20 years. Whereas in 1993 the female enrolment rate was 6.7%, by 2006 it had almost doubled. The number of female students

Box 6.2. **Scholarship schemes for university students in Indonesia**

The Directorate General for Higher Education (DGHE) provides four scholarship schemes for students. All four schemes are targeted mainly at students already enrolled in higher education, and when targeted at graduates from senior secondary school, the eligibility criteria are so strict that only a small group of students can benefit from the programme. The four schemes are as follows:

BIDIKMISI: This was first introduced in 2010 to support students at 104 public universities. Thirty thousand students from public universities received *Bidikmisi* scholarships in 2012. The scholarship is IDR 6 million (approximately USD 682) per student per semester, with some of that amount transferred to the university to cover tuition fees, and the remainder going directly to the students to cover living expenses. Graduates from senior secondary schools (general, Islamic and vocational) are eligible for the scholarship, provided that they have academic potential and come from disadvantaged families. However, the scholarship will only be awarded once the student is officially enrolled in a university. The process to get this scholarship involves national selection through the national university entrance examinations and a local selection process set up by the respective university.

BBM and PPA: According to DGHE guidelines issued in 2010, both scholarship schemes aim to reduce the number of students dropping out from universities. They target students with strong academic or non-academic achievement, and students from disadvantaged family backgrounds who are already enrolled in a public or private university. Students with a high grade point average (GPA), or achievement in sports and arts, can be awarded a scholarship. The amount allocated for these scholarships is IDR 300 000 (approximately USD 34) per student per month.

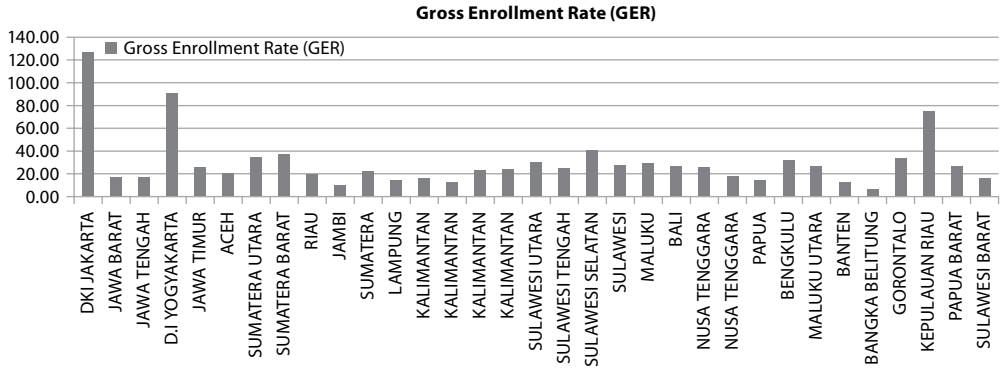
OSI: OSI is a scholarship for students who win the International Science Olympics competition. This scholarship is targeted at students from senior secondary schools. A student winning an International Science Olympics gold medal is eligible to receive an OSI scholarship up to the doctoral level (S3); a student winning a silver medal can get a scholarship up to the masters level (S2); and a student winning bronze can get a scholarship to finish undergraduate study (S1). The scholarship covers registration, tuition, living expenses, books and research.

Source: Beasiswa dan Bantuan Biaya Pendidikan, DGHE website www.dikti.go.id accessed on 21 September 2014.

in tertiary education as a whole surpassed the number of male students as early as 2008.

At the early stages of tertiary education (diploma level) there is now a clear majority of female students. But as students move through the various levels of higher education, male students catch up so that they are a majority in bachelor's programmes. At master's/PhD level there are almost the same number of male and female students, 49.9% and 50.1% respectively. There are

Figure 6.2. **Gross enrolment rates across provinces, 2011/12**



Source: GER and NER of ECE, Primary, Secondary and Higher Education 2012/2013, MOEC (Ministry of Education and Culture).

differences between the general and faith-based institutions; for instance at the Islamic institutions only 17% of PhD students are female.

A new challenge is to increase the gross enrolment rate for male students, which is now significantly lower than the rate for female students. Another challenge is to influence the stereotyped choices of subjects so that more female students opt for high-priority fields such as science, technology and engineering rather than their traditional fields like health and education. Most OECD countries are trying to find solutions to the same challenges.

Student progression

The transition rate from senior secondary to tertiary education has increased markedly from 35.3% in 2006/07 to 51.3% in 2010. (MOEC, 2013a: 75) In the *Management of National Education in 2011/12 at a Glance* (MOEC, 2013b) the figure is given as 48.41% for 2011.

According to the same document, the completion rate for tertiary education is 91%, which is impressively high compared with the OECD average of about 70% and on a par with the best OECD country performers like Japan and Australia (OECD, 2013: Chart A 4.1).

The average length of time to complete a diploma or degree has decreased, from almost six years for the bachelor's degree to about four and a half years.

A high completion level is generally a clear sign of the efficiency of the system, but not necessarily of high quality standards. It could be that the

high completion rate is achieved at the expense of quality in the light of the tertiary education provision at a large number of small private institutions.

Teaching and learning

The precondition for high-quality teaching is high-quality teachers. The minimum educational level for higher education lecturers as stipulated by the ministry is a master's degree. As discussed in Chapter 8, there is a long way to go to achieve this.

Well-educated versatile graduates are the most important contribution tertiary education can make to the development of society and the labour market. So the main aims in the planning of teaching should be relevance and finding a balance between specialisation and breadth. The majority of institutions would benefit from concentrating their efforts on improving teaching and community service rather than trying – unrealistically – to become strong research institutions.

New teaching methods

There appears to be a growing awareness not just at the central level (e.g. in the Medium Term Development Plan 2010-14), but in business and industry (e.g. the Chamber of Commerce) and at the institutions the team visited, that priority must be given to improving teaching and learning. In order to develop critical reading and thinking skills, more transversal skills, such as problem-solving and team working, and more innovative and entrepreneurial skills, the emphasis needs to shift in favour of more inquiry-based teaching methods.

Although some progress seems to have been made, institutional practices vary widely. At one institution the team was told that the new pedagogy was an enormous challenge not least to senior lecturers. Traditional lecture methods continue to be widely used. There is clearly a need for more emphasis on inquiry-based teaching methods with students being given more collaborative projects and team work and problem-based learning tasks.

According to the Higher Education Law, each institution develops its own curriculum with reference to National Higher Education Standards for each study programme. It is important that at the institutional level the management and lecturers have a clear focus on the need for modernisation of content and methods and that at the central level the ministry provides support and guidance concerning the improvement of teaching qualifications. The curriculum should reflect the need for a stronger link to society and industry and theoretical studies should be supplemented and supported by their interplay with practical studies and an orientation towards application.

A number of different incentives can be used to encourage individual lecturers and institutions as a whole to develop new teaching skills. These include: competitive funding schemes based on teaching quality; teaching development centres at institutions or groups of institutions depending on size; stronger focus on the role of the obligatory quality assurance units at the institutions; career paths to be facilitated not only by successful research but also – and probably at the majority of institutions almost exclusively – by high-quality innovative teaching, however difficult to evaluate; enhancing students' roles in the development and evaluation of good teaching; and paying particular attention to Standard 5: Curriculum, Teaching and Academic Atmosphere in the accreditation standards for tertiary institutions.

High priority should be given to pedagogical research (for both higher education and the education sector as a whole) when formulating and granting money to research projects. More attention should be given to new teaching methods both in pre-service and in-service teacher education and training so that they may be introduced and used at school level as well.

Vertical and horizontal linkages

The quality of higher education and the ease with which new methods can be introduced depend to a certain extent – at least at the outset – on the teaching at senior secondary level. It is the review team's impression that the need for close linkages between the sectors is well understood and promoted at the ministry level, whereas co-operation at institutional level seems to be more difficult to establish on a systematic basis.

A well-functioning teaching/learning system also depends on flexibility and clear pathways and horizontal linkages to enable student mobility between programmes and institutions. The most recent praiseworthy initiative taken by the government to further this aim is the national qualifications framework (NQF). It is important that students can move across different education streams, academic, vocational, professional, so that multi-entry, multi-exit education can work without exaggerating the need for bridging arrangements between institutions and programmes. Whenever new programmes or institutions are established, the pathways and linkages to other relevant programmes and institutions should be defined. One tool in the implementation of the NQF is the development of a semester credit system to measure students' workload and academic achievement. In one or two interviews, however, the team were warned that the framework could be a straitjacket that dampens creativity. This echoes warnings that have also been voiced in the debate about similar frameworks in other systems, e.g. the European Qualification Framework developed by the European Union (Lester, 2014).

Internationalisation

All relevant stakeholders in the sector see the internationalisation of higher education as one of the most important tools for raising quality. In other parts of the world, such as Europe, rapid developments have taken place in this area over the last two or three decades. For many reasons, including financial ones, Indonesian higher education has been lagging behind here, both compared with OECD averages, but also some of its Asian neighbours. Annually 30 000 Indonesian higher education students study abroad, about 0.8% of the total, compared with 6.1% for Malaysia, 0.9% for Thailand and 1.9% for Viet Nam. There are about 3 000 international students in Indonesia, an inbound mobility rate of 0.1% compared with 3.3% for Malaysia, 0.5% for Thailand and 0.2% for Viet Nam (figures from Irandoust, 2014).

The team was told at the DGHE and at institutions that there is increasing focus on this aspect of higher education and that the government has staked on developing it. The team heard and read about very good examples at strong institutions like Bogor Agricultural University (Institut Pertanian Bogor or IPB), Bandung Institute of Technology (Institut Teknologi Bandung, or ITB) and Hasanuddin (Makassar). More emphasis should be put on the internationalisation of the curriculum, international benchmarking, international accreditation (e.g. special disciplines at IPB and ITB, and the National Accreditation Board's close co-operation with sister organisations in other Asian countries), joint programmes and degrees, twinning arrangements and double degrees, scholarship programmes, and the recruitment of foreign staff. It is important to actively participate in programmes like Erasmus+ (Erasmus Mundus), the ASEAN University Network (AUN) both for student and staff mobility and quality assurance, the Asia-Europe Meeting (ASEM) initiatives (e.g. regular rectors' meetings) and the bilateral Indonesia-People's Republic of China collaboration on vocational education, including vocational higher education, referred to in Education News Monitoring Service, June 9, 2014. The European Bologna Process which started in 1999 and now comprises 47 countries could serve as a model and inspiration for developing regional international co-operation in higher education.

Research

Traditionally research is a distinctive feature of a university, but not necessarily of a tertiary education institution. With the large number of tertiary education institutions and very limited resources it would be unrealistic to argue and work for a model in Indonesia which required all tertiary education to be research based.

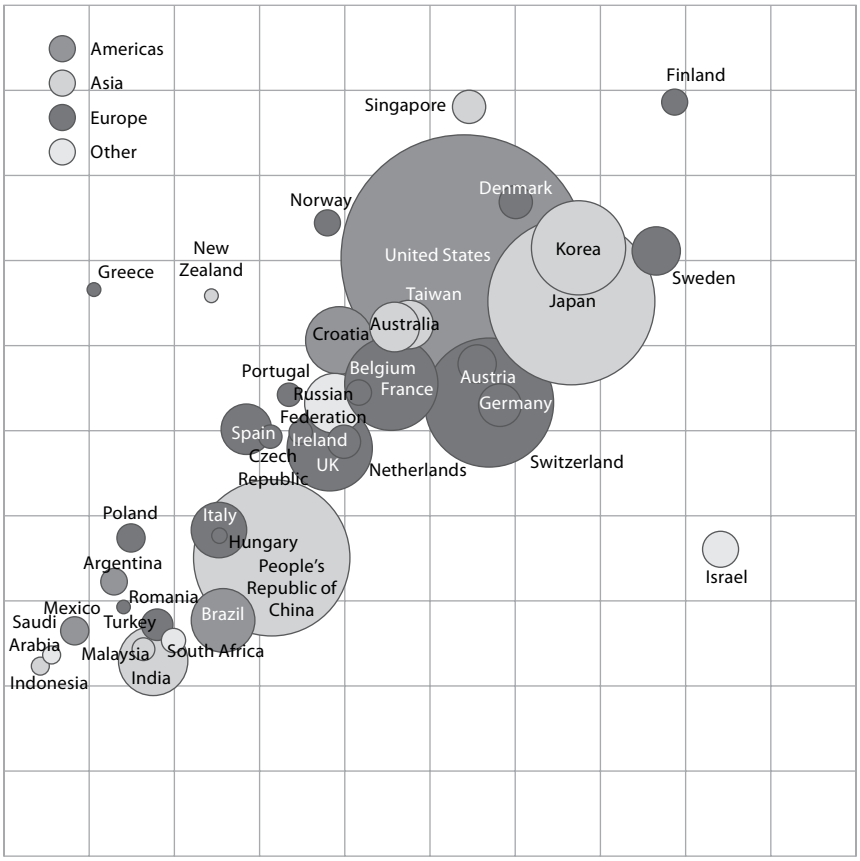
But even so there is an urgent need to raise the research and development (R&D) budget, which stood at just 0.09% of gross domestic product (GDP) in

2012, and is extremely low compared with other countries in the region like Singapore and Malaysia (see Figure 6.3).

Although still small, government funding for research has more than tripled from 2006 to 2012 (Table 6.4). According to the MP3EI, the aim is to reach 1% of GDP by 2025.

Research money should be used strategically in a more concentrated way with the aim of developing quality research and establishing strong

Figure 6.3. **Research and development expenditures in ASEAN countries, 2002 and latest available years**



Note: Size of circle reflects the annual amount of R&D spending by the country noted.

Source: Battelle, R&D Magazine, International Monetary Fund, World Bank, CIA World Factbook, OECD.

Table 6.4. **Government budget for R&D in 2012 (IDR millions)**

A Allocation for Ministry of Research and Technology and Other National science and technology Institutions	
Ministry of Research and Technology	672 266
LIPI	727 928
LAPAN	547 120.7
BATAN	659 374.1
BPPT	851 620.4
BAPETEN	84 217.9
BSN	97 996.5
TOTAL	**3 640 523 9**
B Allocation for Ministries and State Institutions to Support the Development science .and technology and Engineering	
Ministry of Energy and Mineral Resources	671 991.1
Ministry of Transportation	207 047.4
Ministry of Health	460 274.6
Ministry of Health	266 339
Ministry of Maritime Affairs and Fisheries	536 913.5
Ministry of Public Works	419 822
Ministry of Communication and Informatics	163 690.7
Ministry Education and Culture (DGHE – Research and Community Services	693 700
TOTAL	**3 419 778**
C Allocation for Ministries and State Institutions for Supporting Policy Formulation	
Ministry of Education and Culture	1 304 538 .2
Ministry of Home Affairs	6 347.5
Ministry of Defence	143 810.7
Ministry of Justice and Human Rights	2 026.7
Ministry of Finance	447 612.5
Ministry of Religious Affairs	595 646
Ministry of Labors and Transmigration	7 105.800
Ministry of Social Affairs	187 157.5
Ministry of Trade	4 456
National Police	5 852.2
National Population and Family Planning Board	0.44
TOTAL	**3 002 597**
D GRAND TOTAL (A+B+C)	**10 062 899.3**

Source: Education Sector Analytical and Capacity Development Partnership (2013), *Developing Strategies for University, Industry, and Government Partnership in Indonesia*, (ACDP, 2013b) Agency for Research and Developments (Balitbang), Ministry of Education and Culture.

research programmes. The bulk of the research budget should be spent on developing and strengthening research at the seven autonomous universities in the top tier (see Section 6.8) and after that on the second tier, public service universities, but additional criteria should be set.

Research money should also be distributed on the basis of disciplines, so that science, technology, engineering and agriculture should receive the highest priority. This is not because the social sciences and the humanities are not important in the development of human resources, but to support the goals of the MP3EI master plan, which means targeting institutions with a strong science and technological capacity is vital. Universities need to be strong, and particularly strong in these disciplines, if they are to play a decisive role in the economic development of Indonesian society.

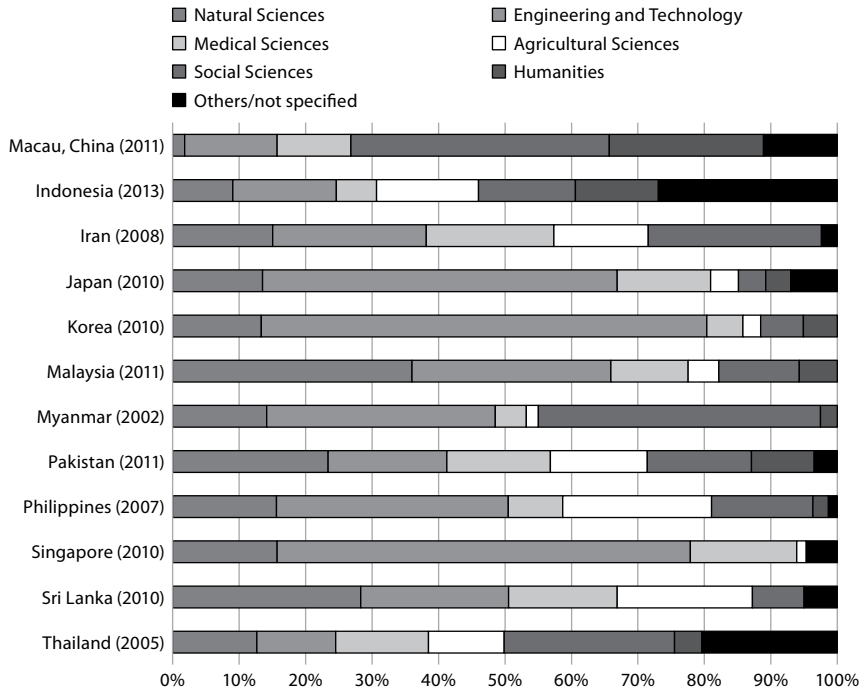
Regional considerations would necessarily come into play since five of the six MP3EI corridors are outside Java. It could make sense to build up a few strong niche research areas in existing universities – or new ones – directly related to the industrial and business needs of the region. Such initiatives should be combined with the development of the vocational and more teaching-oriented institutions such as the polytechnics and community colleges.

Universities must be able to enter into co-operative partnerships with business/industry and to attract funding also via that channel. The team saw interesting examples of such co-operation, for example at Bogor Agricultural University, but figures clearly show that the capacity in the relevant fields is generally too low.

The geographical disparity of research capacity is quite striking. More than two-thirds of PhD holders (S-3) – generally the best indicator of research capacity – are from institutions in Java.

The government and the universities should change their priorities by investing more in the natural sciences, engineering and technology (see Figure 6.4 for the distribution of researchers across the wider region). The government should help to create incentives, including financial ones, for more formal links between government, industry and universities. Important players from the three sectors should meet in different forums to exchange views and give advice in order to enhance the relevance and quality of policies, curriculums and implementation. The universities should open up and have a more strategic approach in their relations with the outside world. They should build up expertise and the supporting facilities needed for co-operation with industry/business (external contracts, commercialisation, patenting, science parks, etc.) and where possible have industry/business representatives on their boards of trustees. The recently established Commission on Innovation with some members drawn from trade and industry is a step in the right direction. Figures on trends in patents,

Figure 6.4. **Distribution of researchers in the higher education sector by field of science, 2011 (or most recent year available)**



Note: Sri Lanka: the Social Sciences field includes Humanities; Singapore: Social Sciences and Humanities are excluded.

Source: UNESCO Institute for Statistics, July 2013, DataLink: http://dx.doi.org/10.15220/2014/ed/sd/2/f25.

technology licensing and journal articles show that Indonesia is progressing slowly from a very low level (see for instance World Bank, 2012, Figures 1.10, 1.11 and 1.12).

The top tier autonomous universities should be fully fledged legal entities and have autonomy in academic and financial matters, which is important when setting up partnerships with business/industry.

Research in universities is funded by various sources: the DGHE, other government agencies, industry, philanthropic organisations and other private entities. Research money is channelled to universities in the form of competitive grants and for some universities also as a small block fund. Universities receiving block grants were selected based on their track

record in research. The largest share of government funding for research is competitive and based on proposals from institutions in relation to programmes formulated by ministries. Over the last 20 years or so the DGHE has been running different funding schemes to support university research and community service. They have included schemes for capacity building and for support to applied research in cooperation with business/industry.

The top tier autonomous universities and probably also those in the second tier, would benefit greatly from a basic grant which would enable them to do more fundamental research, cope with unforeseen circumstances and to act more independently in relation to their external partners both in business/industry and in the national and international academic world. A balanced dual funding system of this kind would be welcomed by universities and be more in line with international trends. For research programmes formulated by the government universities, the expertise their researchers should be consulted before the programmes are published – a wish expressed to the team during visits – and the government and the universities should of course consult and include business/industry where relevant. To reap the greatest benefits the programmes should in general be based on multi-year funding.

The strongest universities with almost universal PhD coverage should develop more and stronger PhD programmes. This will help fill the PhD shortage in higher education in general, not least with a view to strengthening institutions/programmes outside of Java in niche areas of high regional relevance. It is important that some of them be industrial PhD programmes developed in co-operation with business/industry.

According to the *Country Background Report* (CBR) there has been an increase in research output and research papers in recognised international journals written by Indonesian researchers, mostly in co-operation with foreign researchers, from 578 research papers in 2000 to 1 142 papers in 2008 (ACDP, 2013a). The figure is still very low compared with other countries. The DGHE described to the research team during their visit that they have a special grant for stimulating researchers' publishing in international journals.

Academic reputation and ranking scores depend to a large extent on publication in refereed international journals and it is absolutely necessary for the top institutions, and those realistically aspiring to be at the top level, to focus on that criterion. For the large majority of Indonesian higher education institutions, however, paying too much attention to publication of that kind would take resources away from core missions like teaching and relations with the outside world. It would be prudent to take a broader view, rewarding researchers for other forms of research and innovation, for instance in the form of successful innovative partnerships.

The government and the universities should jointly contribute to developing expertise in taking out patents and how these can lead to commercialisation.

Expenditure on research and development has been very low in Indonesia and largely confined to the public sector. In stark contrast with the drive to innovation in other Asian economies, domestic firms in Indonesia have shown little interest in R&D, and foreign corporations do not regard the country as a suitable base for R&D because of its weak skills base, limited protection for intellectual property, and absence of public support for R&D such as tax rebates (World Bank, Hill and Tandon, 2010 unpublished).

The international dimension is more important in research than for any other aspect of higher education. It came out very clearly in interviews and meetings both in the ministry and at the universities that there is a strong awareness of the importance of internationalisation. There are many initiatives to support and stimulate international networking and collaborative research projects, e.g. the ASEAN research clusters (among others, one on energy, environment and biodiversity), international PhD grants (e.g. for upgrading university lecturers, involving several countries), and support for attending international seminars. This positive trend should be given further impetus not least through active, concrete bilateral agreements with other countries and between higher education institutions.

There seems to be no strong tradition of international reviews of research at universities and for the system as a whole. A comprehensive international review of the Indonesian research system could give a boost to the system and be a great source of inspiration to policy makers, universities and researchers. It could also give guidance to what could be an ambitious and realistic national roadmap for research.

Standards and accreditation

According to the Higher Education Law No. 12/2012 higher education standards include the national higher education standards established by the Minister and standards established by each tertiary education institution (Republic of Indonesia, 2012). The national higher education standards also include research standards and community service standards.

Standards and accreditation are closely linked in the sense that accreditation is an assessment against the criteria established according to the national higher education standards.

Accreditation has existed since 1997, when the National Board for Higher Education Accreditation (*Badan Akreditasi Nasional Perguruan*

Tinggi, or BAN-PT) was established and programme accreditation was made compulsory. Institutional accreditation was added in 2008. BAN-PT can be seen as one of the more important elements in the governance reforms of Indonesian higher education over the last two decades. It was set up within a regulatory framework in keeping with recognised international standards and it has formalised co-operative relations with other, mostly Asian, accreditation agencies. It is there to promote accountability and provide incentives for institutions to raise quality, relevance and efficiency. The aim is to create an understanding of the need for a culture of evaluation and accountability.

An accreditation is valid for five years, which means that an accreditation process is normally conducted every five years for each programme or institution. This external accreditation makes up the quality assurance system together with the mandatory internal quality assurance carried out by the higher education institutions themselves.

The biggest challenge at present is the large number of unaccredited tertiary education institutions and study programmes. The backlog reflects a lack of capacity in BAN-PT, a shortage of assessors and the rapid expansion of the sector, and is estimated to be more than 20%. Current emergency measures give institutions temporary accreditation at "C" level (the pass level) without any accreditation process. This is highly unsatisfactory and insecure for students and employers (see circular letter No.160, MOEC, DGHE, 2013). The interests of students and employers should be protected by at least minimum levels of quality being actually measured by BAN-PT. No efforts should be spared to close this gap. The government should consider temporarily prolonging the valid accreditation period beyond the current five years for capacity reasons. There are plans for an independent accreditation board (LAM-PT) in professional fields such as health, engineering and agriculture, and this should be set up and made to work. The matter is urgent not least because of the need for rigorous and consistent accreditation procedures in connection with the continued expansion of the higher education sector.

The actual accreditation results point to marked differences in quality between public and private institutions with the differences growing as one moves from undergraduate diplomas to postgraduate degrees (Table 6.5). At postgraduate level, 40.6% of public programmes obtained an "A" accreditation compared with only 6.4% for the private programmes (MOEC, 2013a, Table 22). The Islamic institutions, both public and private, fall somewhere between the results of the general public and private institutions. There is obviously a need for strong focus on the weakest private institutions (staff qualifications, equipment, etc.) not least because for a foreseeable future they will continue to play an important role in implementing the expansion plans.

Table 6.5. **Accreditation of study programmes**

	Public Universities		Private Universities		Total	
Accreditation*	Number of Study Programmes	%	Number of Study Programmes	%	Total of Study Programmes	%
A	1 274	22%	427	3%	1 701	9%
B	3 231	55%	4 068	33%	7 299	40%
C	1 335	23%	7 996	64%	9 331	51%

Source: MOEC (Ministry of Education and Culture) (2013a), *Menuntaskan Program Prioritas Pendidikan dan Kebudayaan 2013-2014*, (Priority Programme of the Ministry of Education and Culture), Jakarta.

Tertiary education institutions run their own exams. There are apparently no tools at the central level to measure and compare the quality of learning outcomes between tertiary education institutions. Such tools should be developed to find a more standardised assessment of students across the different institutions.

Rankings

Indonesian higher education institutions do poorly in international rankings. In the 2013 QS Asian University Rankings, only the University of Indonesia was in the top 100, placed at number 64 (down from 59 the year before). Three universities ranked between 100 and 150: the Bandung Institute of Technology (129), Gadjah Mada University 133) and Airlangga University (145). Two were placed between 200 and 250: Bogor Agricultural University and University of Brawijuya; and two between 250 and 300: Pelita Harapan University and Udayana University.

While it is important and relevant for the top institutions and the politicians to focus on such traditional rankings, paying too much attention to them risks skewing priorities. For instance, it could mean directing too many resources towards publications in the prestigious international journals at the expense of other priorities, notably teaching.

Financing

Resource mobilisation

The overall budget for education has increased from IDR 1 trillion in 2009 to 1.89 trillion (MOEC, 2014). However, the share spent on tertiary education has been reduced from 50.48% in 2013 to 48.97% in 2014. Total tertiary education expenditure was about 1.2% of GDP in 2011, which

is low compared with Malaysia (1.69%), but higher than the figures for Viet Nam (1.18%) and Thailand (0.71%). The comparison with Thailand is particularly interesting because the enrolment figures for Thailand are much higher than the Indonesian figures. This difference could require further analysis.

Table 6.6 shows that the DGHE budget for 2012 (IDR 32.605 trillion) is almost three times as high as it was in 2007. The 2014 budget has risen further to IDR 39.896 trillion, which is higher than the target of the Medium Term Development Plan (MTDC, 2010-2014). The table also shows a marked increase in self-generated income. This mainly comes from student fees, which make up around 80% of self-generated income, with only around 10% coming from contracts. This means that contracts only make up about 3% of the total revenue. There is every reason to create more incentives for higher institution collaboration with business/industry.

Figure 6.5 highlights one of the striking aspects of Indonesian tertiary education resource mobilisation: the very large share of resources, approaching three-quarters, that come from private households via tuition fees. Because of this, public spending on tertiary education is only around 0.3% of GDP.

The budget for higher education comes from three main sources: domestic, foreign loan and grants (PHLN – *Pinjaman dan Hibah Luar Negeri*), and matching funds, which consist of government and foreign contributions. Figure 6.6 shows how the total amount of funding has reached IDR 37.615 trillion. The budget raised by the government locally has also increased from IDR 608.90 billion in 2011 to IDR 32.89 trillion in 2014.

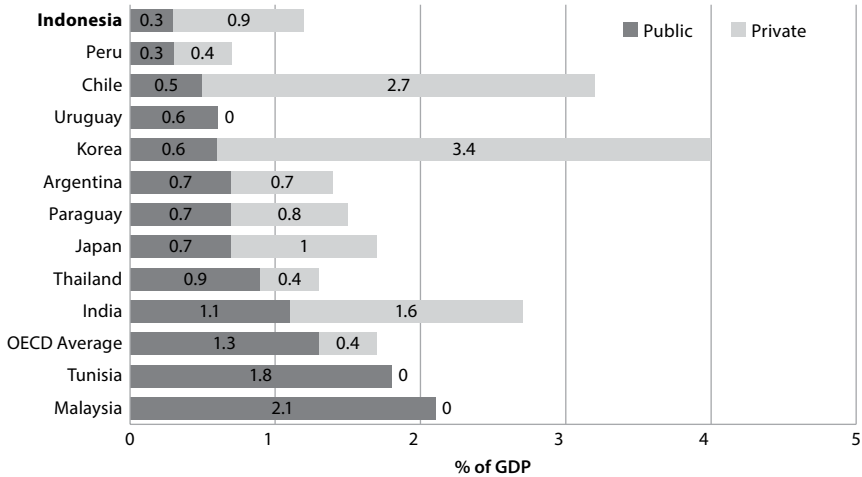
Considering the financing of the individual directorates, the budget for the Secretariat has been largely raised locally, while the Directorate for Learning and Students is funded from all three sources (Figure 6.7).

Table 6.6. **Allocated budget for DGHE, 2007-12, IDR trillion**

	2007	2008	2009	2010	2011	2012
Operation & maintenance	5.062	5.269	6.315	6.849	7.406	9.817
Investment	4.746	4.521	7.380	9.764	10.753	11.672
Self-generated	3.150	4.268	5.317	6.627	10.712	11.116
Total	12.958	14.058	19.012	23.240	28.874	32.605

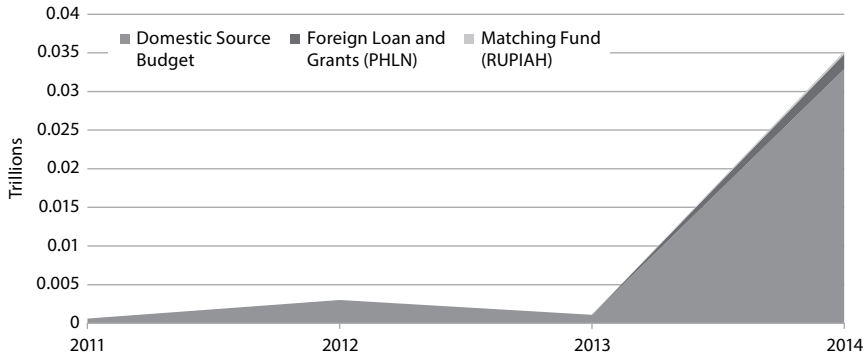
Source: DGHE (Directorate General for Higher Education), MOEC (Ministry of Education and Culture), 2012.

Figure 6.5. **Public and private spending on tertiary education as percentage of total GDP**



Note: Figure reflects estimates for 2004-05. Indonesia figure is from the 2009 budget.
Source: UNESCO World Education Indicators (WEI) 2007).

Figure 6.6. **Source of financing of tertiary education**

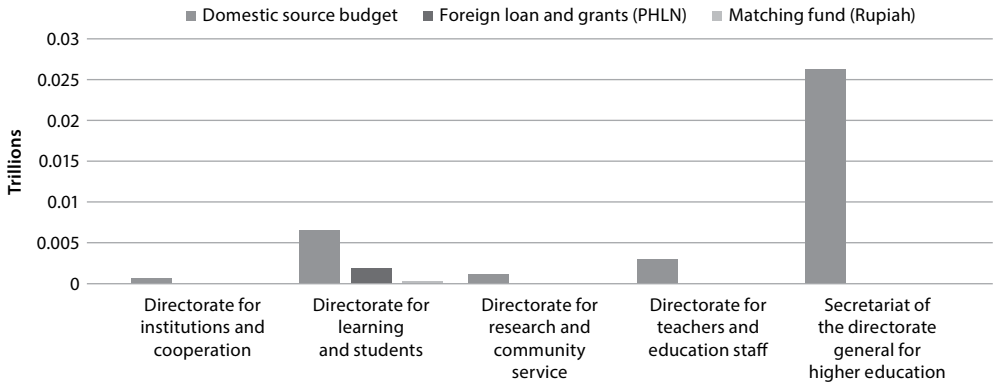


Source: DGHE (Directorate General for Higher Education), Work plan and Budget Report for Directorate General of Higher Education (2011-2014); DGHE, MOEC (Ministry of Education and Culture).

Resource allocation

By far the largest amount of the DGHE budget goes to the public tertiary institutions, but it is worth noting that between 8% and 10% is used to support private institutions which educate around 60% of all higher education

Figure 6.7. **Higher education budget by directorate and source of financing**



Source: DGHE (Directorate General for Higher Education), Work plan and Budget Report for Directorate General of Higher Education (2011-2014); DGHE, MOEC (Ministry of Education and Culture).

students. An increasing share of the competitive programmes set up by the DGHE goes to the private sector, which has traditionally depended almost exclusively on non-government sources for their financing.

The recurrent budget is allocated mostly on an incremental basis, based on historical spending. Capital budgeting is done on an ad hoc basis via various negotiating processes. The DGHE's per-student allocation has quite striking variations even between similar institutions and programmes, such as between the Agricultural Polytechnic at Kupang with the one at Samarinda. At the DGHE, the review team was told that per-student funding is based on five cost bands depending on the different costs for different fields of study, which would seem to be a transparent and equitable way of distributing the funds. It may be combined with a weighting based on the average price index in different parts of the country.

As Figure 6.7 shows, the sub-directorate for the support for the management and implementation of other technical tasks in the Directorate General for Higher Education received the highest share of the budget in 2014. In 2011, the smallest share of the budget was received by the sub directorate of institutional service and co-operation while the development of research and community of practice received a small share of the budget. The government also allocated significant share of the budget to the support for management and implementation of the other technical tasks in the directorate and higher education, provision of qualified lecturers and education personnel.

In line with the institutional reforms intended to lead to more autonomy, decentralisation and accountability new ways of channelling money to the institutions have been introduced with the aim of improving quality, governance and equity. The new tools are a combination of block grants, competitive grants and performance-based grants, including performance contracts. Competitive grants based on proposals from institutions have been used for a number of years with some success to promote high priority goals like the quality of teaching and internationalisation.

There is no doubt that the different funding mechanisms will be important tools to enhance quality, relevance, efficiency and accountability when the higher education system is administratively ready to have them established in full. At present, some higher education institutions with higher levels of autonomy, better developed administrative and academic capacity already benefit from these mechanisms. They can be combined in different ways depending on the political and administrative goals in a given period, but it is vital that the legal framework is in place for the institutions to live up to the intentions of a new funding system where line-item budgeting does not stand alone. Most of all, it is important that the institutions have developed sufficient strategic, management and administrative capacity to handle the new system.

It seems that, apart from the autonomous universities, there is a strong need for capacity building, which both the ministry and the institutions themselves should support.

Efficient use of resources

As noted above, the average length of study for a diploma or a bachelor's degree has decreased markedly in recent years. One possible reason is the increased internal management efficiency of the tertiary education institutions, including a more flexible curriculum delivery structure. Such a significant increase in throughput should also raise questions about whether it has been accompanied by lower quality, however.

The same considerations apply when comparisons are made between private and public institutions. At private institutions study time for a degree is about half a year shorter than at public institutions. Since the private institutions also have lower unit spending per student, a bachelor's programme costs about 50% less than at a public institution.

It would be worth having a closer analysis of whether these differences bear any relation to quality and if not what public institutions could learn from the private institutions in the areas of management efficiency and effectiveness, particularly in staffing.

Equity

As discussed in Section 6.3, there are still very marked geographical and social disparities in access to higher education in Indonesia. Many factors are at play, but social inequity is mainly caused by the excessive financial burden on households of supporting children in higher education. None of the initiatives taken so far via scholarships and other support structures have made any fundamental changes to social access patterns. The scholarship amounts are comparatively small, their coverage narrow and they do not benefit the poorest households. Figure 6.8 compares Indonesia with the United States in terms of financial aid.

It seems that the student support system needs to change if more equity is to be achieved. A significant first step would be to mobilise more funds for that purpose. Even more importantly, it would be an advantage for student equity if the scholarship element of the tertiary education budget – or perhaps even more of it – was given directly to the students in the form of some kind of voucher system rather than being allocated to institutions as part of the budget. Apart from creating more social equity this kind of scheme would also give the students more choice and thus foster a spirit of mild competition in the higher education sector.

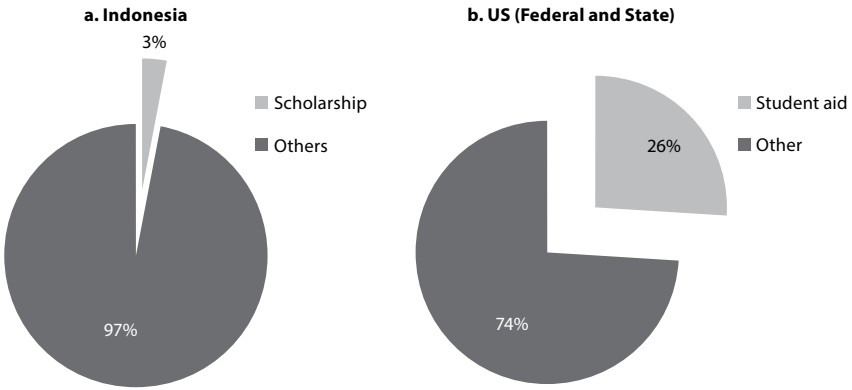
There would no doubt be many administrative barriers to introducing such a system but it has been done in other countries.

Different types of loan schemes may also seem attractive, but perhaps past experience from previous loan programmes in Indonesia where students were unable to repay loans due to high levels of unemployment and other factors would make initiatives in that direction irrelevant for the time being. Otherwise a scheme based on the Australian income-contingent loan scheme – where beneficiaries pay back the loan over a number of years based on their earnings – could be recommended, once Indonesia has developed a more robust taxation system.

On the whole the higher education sector in Indonesia is underfunded by international standards, both in research – most clearly so – and in education. In spite of the impressive increases in recent years it should still be a top priority to increase the public budget and to mobilise more external funding from sources other than student fees. At a minimum, the ambition should be to approach the funding levels of some of the best ASEAN countries.

Perhaps more realistically in the short term, it will be important to introduce and develop the right mix of funding mechanisms and governance structures to create optimal conditions for improving quality, relevance, efficiency and accountability.

Figure 6.8. **Student financial aid as a share of total public financing of tertiary education**



Source: DGHE (Directorate General for Higher Education) MoNE for Indonesia data, US data from State Higher Education Finance, SHEEO (State Higher Education Finance Officers), 2007.

Governance

One of the most striking characteristics of Indonesian tertiary education is its very centralised governance system under the auspices of the Directorate General of Higher Education, and the Ministry of Religious Affairs for the Islamic teritary education institutions. The Indonesian system remains highly centralised compared with other countries, both in Asia and Europe, and particularly those countries with very high-ranking universities such as the United States and the United Kingdom. This is in spite of the intention expressed in the Higher Education Law that the universities should be autonomous both in academic and non-academic matters.

In fact, public universities are essentially part of the government bureaucracy, whereas for private institutions, in most respects their foundations fulfil the role that the ministry has for the public ones. In a country the size of Indonesia with a very large number of higher education institutions it is next to impossible to run the system efficiently from the centre in a meaningful way with the present degree of regulation. Generally there seem to be too many restrictions and binding rules for the institutions to develop at a reasonable pace and in keeping with changing local needs and circumstances. But of course in a very large and diverse system there will have to be different approaches to different kinds of institution depending on their size and strength.

At the political level and among educational policy makers there is full awareness of the need for change. Over the last 10 to 20 years some important initiatives have been taken to increase institutional autonomy. The most positive step has been taken with establishing the state legal entities (*Perguruan Tinggi Negeri Badan Hukum,* or PTN-BH), i.e. the originally four, now seven, autonomous universities. These are strong universities with considerably greater autonomy than other institutions in the fields of organisation, financing, staffing and academic matters. As a legal entity the university is separated from the government bureaucracy and becomes more accountable to the public.

These universities have a dual management system with a board of trustees with external representation (but a majority only in some of the institutions) responsible for the university as a whole, apart from strictly academic matters where the university senate is the highest authority. Financially, they receive block grants and can reallocate money between budget lines, they have freedom to use their self-generated income and can accumulate reserves. In the management of human resources they are responsible for hiring and firing, in contrast to the other universities where this task is carried out at the central level in consultation with the universities and staff with tenure are state civil servants. A new bill on the civil service could, however, lead to changes here with more freedom to the universities in general and the PTN-BH in particular.

In academic matters the PTN-BH have much greater freedom than other institutions to formulate their own missions and development strategies. They can open and close study programmes without having approval from the ministry, whereas at other universities the ministry has the final say concerning starting new programmes and ending existing ones. All public universities, including PTN-BH ones, have to follow certain rules for the selection of students set up by the ministry including taking 50% of students from the National Admissions scheme and at least 20% of students from socio-economically disadvantaged groups. As the strongest institutions, the PTN-BH should have full autonomy concerning staff and academic matters, including the selection of students.

The government took a significant step with Law 9/2009, establishing a regulatory framework to support all aspects of institutional autonomy. The purpose was to give the universities the possibility to convert their status into legal entities after fulfilling certain conditions. For formal reasons the law was revoked by the Constitutional Court in 2010.

To move further towards devolving decision making to the universities the DGHE has instead used a new concept, the public service concept (BLU). This new status has been given to 21 institutions of a certain strength and size. They have an intermediate degree of autonomy, between the PTN-BH

and all the other higher education institutions. But BLU is not a legal entity. A BLU institution is still operated as an implementing unit under the ministry and its autonomy is on the whole limited to managing financial matters. There is a strong wish among at least some of these institutions to be transferred to the PN-BH group as they clearly indicated to the review team during visits.

It would seem that the system as a whole would benefit from much more autonomy in line with international trends. There is also a need to have more focus on accountability to the public and to change the culture of compliance that easily develops in centralised, closely-steered systems. The speed of progress towards that goal should be carefully considered and adapted to the level of management and academic competence of the different institutions. The ministry should work on upgrading the administrative competence and managerial skills of the institutions in tandem with the reduction of its own control and regulation. In the long run institutional leadership and accountability would benefit from such a development. The PTN-BH status seems to be in good keeping with international norms.

Observations and recommendations

The current higher education enrolment rate of around 32% of the relevant age cohort represents significant growth from around 21% five years ago, with student numbers increasing from some 4 million to 6 million. Further expansion is likely over the next decade and beyond from the greater flow of young people through secondary schooling. Greater and more diverse student demand for higher education will require a more diversified, financially sustainable and quality-assured structure of supply. The government has accordingly been building diverse higher education capacity via new universities and institutes of technology outside Java along with polytechnics and community colleges across the nation.

There are several leading national universities which have international links with some world-leading universities, but no Indonesian university is highly placed among the various rankings of world universities. Many of the 92 public universities would be rated fair to middling along with a few, perhaps 20, of the more than 3 000 private universities. The bulk of the private institutions, however, would be rated poor, and many very poor. Academic teaching staff are underqualified by international standards, and their remuneration rates and conditions are relatively poor. Facilities and equipment are inadequate. The quality of education, with a few exceptions, is poor, particularly in institutions with insufficient scale to mount broad degree programmes. Many graduates fare poorly in the job market (see Chapter 7).

There is a significant backlog of unaccredited higher education institutions and study programmes. This problem jeopardises the quality of student learning, the job prospects of graduates and the credibility of Indonesian higher education qualifications.

New study programmes are being developed, and existing offerings modified to align more closely with the attributes required of future graduates. These developments need to take into account the pathways available for students coming into higher education from diverse backgrounds, including school leavers and adults, and for those seeking to upgrade their qualifications or cross over between technical and professional occupations. To avoid the problem encountered in the United States where community college students often find they have reached a dead end, it will be important to ensure that students exiting community colleges have clear pathways with credit into post-secondary technical and higher education. The national qualifications framework (NQF) which is under development could be a useful mechanism to guide curriculum reform and recognition of prior learning (see Recommendation 8.2). Some NQF models in other countries, however, have been found to reduce flexibility and stifle innovation, and the review team heard concerns about such prospects in Indonesia.

Most Indonesian degree programmes have not yet caught up with industry demands. Graduate supply is out of sync with emerging labour market requirements: only 16% of graduates studied engineering, manufacturing and construction. A persistent complaint of employers is that graduates lack relevant knowledge and skills. An insular approach to higher education can result from institutional governance being disconnected from the community it serves.

Only a very small proportion of the Indonesian workforce, including in higher education and research, are qualified to PhD level. The shortage is acute outside Java. Both the achievement of national development goals and the expansion of higher education across the nation will require much more such advanced human capital.

In contrast to the policy framework for universities in many other countries, Indonesian universities have low levels of substantive and operational autonomy, and thus are less free to respond and adapt to changing environmental conditions than their counterparts and competitors elsewhere.

Expansion of tertiary education without diminution of quality will require substantial investment. Reliance on government financing alone will not be sustainable as the system expands. Funding sources will need to be diversified, including those from students, industry and benefactors. The current financing structure is inequitable, in that most students from

poorer backgrounds pay at private institutions while those students from more advantaged backgrounds attend superior institutions at less cost to themselves or their families yet gain higher personal benefits generally as graduates. Increasing the number of students from poorer families in public institutions, indeed raising their share to 20% of total enrolment, will require an expansion of scholarship support for the students by means of tuition fee waivers or loans, and stipends.

The current financing model for tertiary education is based on a negotiated budget model derived from historic costs. The model lacks transparency, does not adequately recognise differential costs and carries no incentives for performance improvement.

Innovation at the level of the firm depends largely on the general skills of its workforce in applying known technologies. For Indonesia to develop breakthrough technologies, more investment in R&D will be needed, including research in universities. It will also need a stronger and more consistent system of intellectual property rights protection. It will need to raise spending on research above the currently low level of 0.09% of GDP.

Teaching and learning in tertiary education continues to rely for the most part on traditional lectures. For graduates to acquire higher-level reasoning, problem-solving abilities and teamwork skills, teachers in universities, institutes, polytechnics and colleges will need to adopt more active and interactive approaches to teaching and learning. These include inquiry-based teaching methods with more use of project work and teamwork to foster creative and transversal skills. Many higher education teachers are underqualified to perform these roles confidently and competently.

The extent of internationalisation of higher education in Indonesia is low by comparison with neighbouring countries. There are very small inward flows of foreign students. The review team saw only a few instances of internationalisation in curriculum development, benchmarking, co-operative degree programmes (such as twinning arrangements and joint or double degrees), and structured student and staff mobility programmes.

Recommendations

- The government should adopt a differentiated approach to the development of tertiary education. The base of the system should be broadened to accommodate a greater proportion of those leaving senior school cost effectively. Expansion should mainly be via teaching-oriented institutions with different but well-defined profiles and missions, providing society and the labour market with

relevant knowledge and skills, and should support the goals of social inclusion and geographical equity. The expansion of community colleges and polytechnics is a promising step in this direction. The top of the system should comprise a small number of high-quality, internationally reputable research-based universities which can act as engines for the development of Indonesian society, the economy and the higher education sector. In the middle should be a range of institutions variously engaged with their local communities, and business-facing in the production of graduates and the application of knowledge, know-how and technology.

- The Ministry for Research and Technology and Higher Education should conduct a review of the optimum scale of tertiary education providers on a district basis, taking into account the breadth, depth and quality of programme offerings, with a view to establishing minimum benchmarks for institutional accreditation. It should then consider offering incentives for buy-outs and mergers, and public-private partnerships to tackle the weakest institutions. It should continue the moratorium on the establishment of new private higher education institutions.
- The government should urgently expand the accreditation capacity of the National Board for Accreditation of Higher Education (BAN-PT), and ensure that sector-specific accreditation for professional fields (LAM-PT) is established effectively.
- The responsible ministries should work together to ensure that the national qualifications framework for Indonesia clearly articulates the learning outcomes expected for each level of qualification in terms of what graduates awarded that qualification are expected to understand and be able to do. Caution should be exercised in adopting "volume of learning" indicators or "credit hour" prescriptions, to avoid erecting arbitrary barriers to learners and unduly limiting the flexibility of different institutions to design programmes to cater for diverse students and varying graduate destinations (see also Recommendation 8.2).
- The government should extend the discretion available to the top tier autonomous institutions (*Perguruan Tinggi Negeri Badan Hukum,* or PTN-BH) through broader block funding of their teaching and research activities. The PTN-BH institutions should have access to a dual funding system for research, comprising a competitive grants scheme for discovery projects and a block grant for research infrastructure.
- The responsible ministries should promote growth in PhD enrolments in the PTN-BH universities in the first instance, and

target niche growth in doctoral enrolments in the second tier public service concept (BLU) institutions. These enrolments should include candidates for industrial and professional doctorates.

- The responsible ministries should develop a programme to support institutional capacity building to enable greater degrees of autonomy over staffing and financing to be conferred gradually on a wider range of universities, institutes and polytechnics. A majority of the appointments to boards of trustees for public higher education institutions should be external.
- The government should permit greater pricing flexibility for tuition in public tertiary education institutions. Institutions should be required to provide a proportion of their increased tuition fee income to provide scholarships and stipends for students from poorer backgrounds.
- The responsible ministries should jointly commission a comprehensive international review of university research, to provide an audit of Indonesia's capacity and performance against international benchmarks, to map a direction for raising the university research effort to international standards, and to identify priority areas for research investment linked to national development goals.
- The Directorate General for Higher Education should continue and augment its programme of upgrading lecturers' qualifications to master's and PhD levels.
- The government should consider continuing and enhancing incentives to promote good teaching in tertiary education and reward and disseminate good practice.
- Tertiary educators should be rewarded for undertaking periods of work in industry relevant to their fields of teaching. Practical industry experience should be mandatory for appointment and promotion in polytechnics. Industry work experience should be valued and formally recognised alongside research experience in promotion and appointment selection criteria for university teachers.
- University rectors should take the lead in building a culture of internationalisation on their campuses, with concrete actions to increase the internationalisation of the student body, the teaching workforce, the curriculum, and co-operative degree programmes.
- The government should review its visa policies relating to the entry of academic faculty and post-doctorates from other countries. Ideally, Indonesia should offer an attractive package of scholarships to encourage talented academics, especially early and mid-career researchers, to work in Indonesia.

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PART B

CROSS-CUTTING OPPORTUNITIES AND CHALLENGES

Chapter 7

Education for life, work and further learning in Indonesia

The review team takes a rounded view of the role of education, which has personal, community, societal and economic purposes. Education is about forming the whole human person to realise her or his potential and live a fulfilling life. It is about socialising individuals to the ethical values and cultural norms of the community in which they live and liberating them from their backgrounds by widening their mental horizons and aspirations, and opening options to pursue opportunities beyond those available locally. Education is a means of acquiring skills, from skills of personal survival and healthy growth through to skills as contributing citizens of the nation. Education builds generic and knowledge-specific skills and understanding for work in different contexts, whether in employment or self-employment or as an employer or entrepreneur. Education is about developing adaptive expertise – the ability to apply learned knowledge and skills flexibly and creatively in different situations. Effective education lays the cognitive and behavioural foundations and motivations for further learning throughout life as actively inquiring rather than passively accepting citizens.

Education may prepare individuals for diverse opportunities but structural factors may constrain the availability and realisation of opportunities. Nevertheless, a well-educated population and workforce strengthens the resilience of a nation in adverse conditions and its readiness to advance in more prosperous conditions.

The dual structure of the Indonesian economy

A dual economic structure is common to developing countries. They have both a mainstream formal economy and an unofficial economy within which economic transactions occur outside traditional channels and deliver economic and social benefits (Losby et al., 2002). Importantly, the two economies are not separate but overlapping.

The informal sector

The informal economy is a subset of the "hidden economy", which comprises a wide range of productive activities from housework to organised crime. These can be grouped into four main categories: the illegal sector, the underground sector, the household sector and the informal sector (Bernabé, 2002). Informal activities are not illegal but they are unmeasured, untaxed and/or unregulated, not because of deliberate attempts to evade the payment of taxes or infringe labour or other legislation, but because they are undertaken to meet basic needs. Examples include petty trade and barter, household agricultural production, ambulant street vending, unregistered taxi services, and undeclared paid domestic

employment. There are some blurred boundaries across the four non-formal sectors, and some overlap with the formal sector. Subsistence farming, for instance, may be seen as part of the household sector if it is not significant to total agricultural production, whereas it may be regarded as part of the informal economy when it does make a substantial contribution to total output. There may be crossover leakage of outputs from and into the formal sector.

The informal sector (see Table 7.1) includes informal enterprises and all forms of "informal employment" both inside and outside informal enterprises. These include:

- Self-employment in informal enterprises: workers in small unregistered or unincorporated enterprises, including employers, own-account operators and unpaid family workers
- Wage employment in informal jobs: workers without formal contracts, worker benefits or social protection for formal or informal firms, for households, or those employees with no fixed employer, such as employees of informal enterprises; other informal wage workers (for example, casual or day labourers); domestic workers; industrial outworkers, notably home workers; unregistered or undeclared workers; and temporary or part-time workers.

It is necessary to understand what the informal economy is, how it functions and why it exists. The informal economy cannot be regarded as a temporary phenomenon. It has been around for decades and it is not evidently in decline. It has a more noticeably fixed character in countries where income and assets are unequally distributed (Becker, 2004) and where access to formal jobs, primarily in economic sectors where government is the dominant employer, is a function of association with influential social networks (Avirgan et al., 2005).

The informal economy is largely characterised by: low entry requirements in terms of capital and professional qualifications, a small scale of operations, labour-intensive methods of production, and skills acquired outside of formal education (Becker, 2004). The persistence and expansion of the informal economy may be attributed to a range of factors including: the limited capacity of the formal economy to absorb surplus labour alongside rapid and substantial growth in the number of job seekers, rising demand for low-cost goods and services, and deficiencies in education and training. The obvious benefits for entrepreneurs who operate in the informal economy are avoiding costly and burdensome government regulations as well as high and complex taxes. The primary reason why the informal sector is so large in developing countries is that the benefits of formality are dwarfed by the costs (Becker, 2004).

Table 7.1. **Definitions: the informal sector, economy, enterprises and employment**

Category of informal work	Definition
Informal sector	Own-account workers, unremunerated family workers, domestic servants and individuals working in production units of between 1 and 10 employees.
Informal employment	Informal wage workers and unpaid family workers who may work in the formal or informal sector. These workers are defined as informal if they lack a contract, specific health and pension benefits, and social security coverage.
Informal enterprises	Defined by the nature of regulation in each context: the availability of a license, and the payment of licenses, taxes and fees.
Informal economy	Includes both private informal workers and the informal self-employed as well as employers in informal enterprises.

Source: Avirgan et al. (2005), *Good Jobs, Bad Jobs, No Jobs: Labor Markets and Informal Work in* Egypt, El Salvador, India, Russia and South Africa, Global Policy Network, Economic Policy Institute, Washington, D.C.

It is necessary also to understand the extent to which the informal sector is both harmful and beneficial. On the one hand, informal employment may be seen to be harmful in two ways. First, the informal sector can reduce individual and household security. It is a form of socio-economic marginalisation. It can trap families in inter-generational poverty. The poor are locked out of the formal economy through lack of access to property rights and other institutions of a market economy, such as social safety net protection, access to credit and licence to practise, including accreditation and recognition of skills. Second, the informal economy can undermine national capacity and security. Untaxed economic activities constrain government revenue and thereby governments' ability to provide social services. Unregulated activities also undermine government authority and community respect for the rule of law (Bernabé, 2002).

On the other hand, informal commercial activities provide an important source of income and social security in the absence of formal social protection. They may be also an important source of economic growth, particularly where government bureaucracy, regulation and corruption may stifle formal private entrepreneurial activity. The informal sector provides an array of services to the community, and parts of it function interdependently with the formal sector. The informal sector, although unmeasured, is part of the nation's overall productive capacity. Informal sector expansion may not only be a problem for national economic and social development, but also an asset with the potential to ameliorate economic crisis and poverty (Bernabé, 2002).

However, informal-sector firms have limited growth potential. They are constrained by the costs of informality and the absence of functioning asset markets. The opportunity cost of what De Soto calls "dead capital" – property that cannot be leveraged as collateral for loans, to obtain investment capital, or as security for long-term contractual deals – suggests the need for a balanced policy approach to the informal economy and its connections with the formal economy (de Soto, 2001).

Given the economic contribution of the informal economy, governments need to consider policies that recognise its importance, restrict and regulate it when necessary, but primarily seek to increase the productivity and improve the working conditions of those who work in it (Becker, 2004). Indeed, enterprises in the informal economy have an entrepreneurial potential that could flourish if some major obstacles to growth were to be removed. If only a fraction of informal enterprises could upgrade their capacity, then they would make a significant contribution to economic growth. Indonesia may be able to unlock sources of its "dead capital" while providing participants in the informal economy greater security and the chance to move up the value chain. With parts of the informal sector better integrated into the legal regime, its participants would benefit from the protection of Indonesian laws and standards. Indonesia's formal economy also would be seen to be stronger were more of its commercial activity calculated and included in its national accounts.

Measures to integrate the informal sector include: the protection of property rights; the extension of credit and insurance to small, medium, and micro enterprises; and transparent and consistently applied regulation. Reform of governance is essential, including measures to deal with corruption and regulatory cost burdens. Even so, a policy of deliberate legal and financial integration would need to be grounded in understanding of the varying potential of different informal enterprises for growth and the extent to which they contribute to a loss of human capital by deskilling what is a relatively skilled and educated labour force (Bernabé, 2002).

Competition among the labour force to engage in formal employment is very high. Thus, only the highly skilled are expected to engage in formal employment and reap the benefits it provides. Those with low skills, and especially with low educational background, are likely to be employed informally and, hence, receive relatively lower incomes and fewer benefits. However, while formal employment presents better opportunities to the employed population, informal employment provides essential income to most.

The informal sector plays an important role in the Indonesian economy, and its existence increases the poor's chance of participating in the labour market. It creates an alternative employment for production and income

generation. Due to a high rate of population growth and urbanisation, Indonesia has a huge labour force, especially in urban areas, which can be absorbed in the labour market through informal employment. On the other hand, to survive, the poor tend to have to take on any kind of activity even if a job is characterised by a very low wages, irregular working hours, uncertain job tenure, and other similar conditions. These links between the informal sector and the poor mean it is important to learn more about the different aspects of the sector, such as its production processes; the social, economic, and demographic characteristics of its employment population; and the enterprises that compose it. Policy makers should take into account informal employment and informal sector conditions, especially with regard to regulations and policies that aim to improve the working conditions, as well as the legal and social protection of persons employed in the informal economy, to increase the productivity of informal economic activities and the like (ADB and BPS – Statistics Indonesia, 2011).

The results of the 2009 informal sector survey in Yogyakarta and Banten show that informal employment for these two provinces are 81.9% and 75.9%, respectively (ADB and BPS – Statistics Indonesia, 2011). Yogyakarta, which is the less industrialised of the two, showed a greater dependence on informal employment than Banten. This implies that jobs in less developed areas are more likely to be informal. Still, informal employment is clearly predominant in both provinces, despite the difference in their levels of economic development. Considering the similarity of Banten and Yogyakarta to other provinces in Indonesia, it suggests that informal employment is prevalent in most of Indonesia.

The results also showed that formal enterprises as well as informal ones create informal employment. In Yogyakarta, for example, 31% of jobs were in formal enterprises were informal (103 642 out of 337 196). Similarly, in Banten, as many as 33% of the jobs in formal enterprises were informal. Meanwhile, data from both provinces showed that all jobs in the households are informal.

As a whole, persons who are informally employed tend to have a lower education level than those with formal jobs. Workers in formal employment receive significantly better wages than those in informal employment and male workers are better off than their female counterparts who are more likely to involve in informal jobs.

Education and skills formation and the changing labour market

While lack of skills do not yet appear to be among the most important constraints for the economy, the situation is different for larger, more export-oriented manufacturing firms. The widest skill gaps across professional

profiles are for English and computer skills followed by thinking and behavioural skills (di Gropello et al., 2011).

If the goals of Indonesia's economic development master plan (*Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia*, or MP3EI) are to be achieved, then a new range of skills will need to be available to develop the targeted industry sectors. The Economist Intelligence Unit (2014) has examined the skills requirements for the various sectoral priorities of MP3EI:

- **Agriculture**: the government has identified two key concerns in the development of agriculture: food security and cash crops. As more workers leave this sector to find better-paying careers in industry and services, moves can be made to intensify agricultural production, with rising demand for engineers, engineering geologists, planners and managers specialising in these fields.
- **Industry and manufacturing**: the MP3EI aims to diversify and deepen the linkages within the sector to reduce its sensitivity to internal and external shocks, improve industry performance and efficiency, enhance sector competitiveness, and encourage more environmentally sound processes. Addressing these changes will require the development of a range of higher level skills associated with leadership, technical expertise, problem solving, management and sustainability.
- **Shipbuilding**: will require more professionals in the field of marine engineering. An increase in traffic might also call for more skilled merchant mariners and port co-ordinators.
- **Textiles**: while most labour required in the textiles industry is low skilled, an increase in production will raise demand for well-trained factory managers and traders. Given the export-oriented nature of the business, a premium is placed on English skills.
- **Food and beverage**: this sector will continue to rely on professionals with adequate managerial and business development skills. Less export-oriented, the industry has a lower but growing requirement for English-speaking managers. Potential advances in the field might require the skills of organic chemists and other such food scientists.
- **Steel**: as the steel industry grows, the most obvious result will be a rise in demand for technicians and engineers in smelting and refining capacities.
- **Mining:** as Indonesia plans on boosting overall mining output, there will not just be a demand for more miners but also a commensurate

rise in demand for professionals in the geological sciences: mine managers, geologists, prospectors and engineers.

- **Transportation equipment/automotive**: the requirement for skilled labour will probably continue to focus on technical skills rather than research and design expertise.
- **Services**: the government is placing a heavy emphasis on the nation's information and communication technology (ICT) and finance industries to jumpstart the entire economy.
- **Information and communication technology (ICT)**: the government has identified four aspects of the domestic ICT industry it wishes to invigorate: device manufacturing, professional and consulting services, content and applications development, and ecosystems innovation. If government plans go ahead, demand is set to increase for graduates with a computer science background, but these are still relatively rare at present.

Labour market absorption of school leavers and graduates of tertiary education

While demand for the best graduates will continue to be high, continuing trends in graduate underemployment and wage compression raise concerns over the economy's predicted ability to absorb a larger pool of highly educated labour. Although more students are completing senior secondary and tertiary education, employers continue to report difficulties in filling skilled positions.

The review team was conscious of debate in Indonesian society about the opportunity costs of investment in higher levels of educational attainment of the population, given recent indicators of graduate unemployment and underemployment. In many developing economies the formal unemployment rate tends to be higher for those with higher levels of educational attainment. This is because those with higher credentials, who typically come from more advantaged backgrounds, can normally afford to look for jobs in the formal economy for longer periods than those with lower levels of educational attainment. The latter move more quickly into the informal sector and do not register among those counted as looking for work in the formal economy.

The Indonesian labour market welcomes more than 3 million school leavers each year. The level of school-leaver attainment has been rising but the number of skilled jobs has not risen to accommodate the rise in school-leaver quality. More than half of senior secondary students that manage to find employment are employed in unskilled positions (World Bank, 2010a).

Current employment prospects for Indonesian graduates are also rather limited. Indonesia suffers from one of the least graduate-friendly employment markets in the region. According to World Bank estimates for 2010, about 55% of tertiary graduates were "over-qualified" in their employment, the highest such skills mismatch in southeast Asia. Indonesian tertiary graduates were also found to suffer from the second-highest rate of unemployment overall in southeast Asia – 9%, below only Thailand, at 11%. This is reflected in the slight decline in returns on tertiary education: university graduates can only expect to earn around one-third more than primary school leavers (World Bank, 2010a).

This, however, is not indicative of a lack of demand for tertiary education graduates in Indonesia. The poor job market reflects a lack of confidence on the part of employers in the quality of Indonesia's university graduates (foreign graduates still make up a tiny minority of all tertiary graduates in the country). The latest research indicates that significant numbers of youth are entering the labour force without the skills needed by employers (World Bank, 2012a; Di Gropello et al., 2011. Indonesian employers continue to indicate in surveys that they are willing to take on more workers if they meet the requirements of their firms. Competently skilled tertiary-educated talent will continue to be in great demand in the market, demand which will only increase as MP3EI plans are implemented.

Employer views about the relevance of schooling and the employability of graduates

According to a 2008 survey distributed to the nation's employers, they perceive "core skills" – numeracy, literacy and other generic skills – and practical experience to be nearly as important as theoretical knowledge for professionals and skilled workers. However, the survey found that such skills are often lacking among managers and professionals, with competency in English and computer literacy particularly scarce. The survey also found that behavioural skills are especially desirable in managers, yet nearly one-third of employers see a gap here for managers and professionals. The survey indicated that nearly all employers from manufacturing and services expect skill requirements in their industries to rise, indicating ever-worsening skill shortages. However, this is not to suggest a shortage in tertiary-educated graduates outside of a few highly-specialised sectors (Di Gropello et al., 2011).

Employers value workers with well-developed non-cognitive skills, such as communication, leadership, and organisational and problem solving abilities, which many Indonesian education and training programmes neglect to develop in their students. Employers commonly complain of a lack of generic skills, such as critical thinking, leadership and, for exporters, foreign language skills. Job seekers and employees in the informal sector are often

found to lack life skills, including computing and entrepreneurial skills (Di Gropello, 2013). Findings from the 2008 survey of skills, labour demand and job vacancies further established that employers reported dissatisfaction with the qualifications held by those in the pool of potential workers and expressed a desire for improved skills development programmes. This has resulted in a regional shortage of appropriately skilled highly educated labour – which, in certain industries, results in a high turnover rate as firms bid on the limited talent pool – and a surplus of underemployed university graduates.

In a 2010 survey of employers in Indonesia (World Bank, 2010b), one-quarter of recent employees with a senior secondary education were considered to be of poor or very poor quality. Only 7% were rated "very good". Most were rated "fair". Employers have pointed to quantitative and qualitative skill deficiencies, in both technical areas (e.g. students have weak numerical competencies, and they are trained on obsolete equipment and cannot use modern technology) and soft skills (e.g. poor communication and team work skills, and low levels of personal responsibility).

Additionally, many young people are not developing the broader capacities to reason, discern, imagine and adapt needed to cope in the changing world in which they live and work – that is, the educative component of schooling is ineffective. Both challenges need to be addressed. On the one hand, greater attention needs to be given to effective skills formation in areas that are relevant to the job market and increase the employability of all school leavers. On the other hand, deeper education is required to enable individuals – whether pursuing technical trades, professional careers, creative or entrepreneurial endeavours – to develop generic cognitive capacities, understand the limitations of their knowledge, appreciate diversity and build interest in continuing learning.

Inadequate outcomes from schooling reduce an individual's future acquisition of knowledge and skills. People leaving education without a sufficient base for further learning have a diminished ability to adapt to change. Labour force participants who cannot adapt are left behind by the evolving economy, and the economy itself may well slip behind its competitors as a result. Adaptability requires the education system to shift its focus from credentials to competence. Competence may be understood as the application of knowledge, skills and attributes that allow individuals to perform at an acceptable level to meet complex demands, however novel or messy, at work and in the community and throughout life. Competence assures that unlearning, continuous updating and new learning is possible.

Considerable work has been undertaken in several countries through co-operative processes involving government bodies, employers, unions, educators and trainers in refining and operationalising competencies, employability skills or "core skills for work" (see Box 7.1). These generic

skills complement subject-specific knowledge and occupation-specific technical skills.

Box 7.2 identifies a set of generic skills to be developed during schooling. These are primarily the underlying learning abilities developed through interaction with learning materials, teachers and other students.

Similarly, Box 7.3 outlines a set of generic skills, more integrated with the knowledge and technical skills formation of on-the-job learning, identified as an important part of formal training, including some training within schools. Australia's "Employability Skills Framework" also includes

Box 7.1. **Core Skills for Work Framework, Australia**

The Australian government has funded the development of the Core Skills for Work Framework which describes the non-technical skills, knowledge and understandings (often referred to as employability or generic skills) that underpin successful participation in work.

The Core Skills for Work Framework groups generic or employability skills into three skill clusters and ten skill areas while using a developmental approach to describe these skills at five different levels from novice to expert. The skill clusters and skill areas described in the framework are:

Cluster 1 - Navigate the world of work

a. Manage career and work life

b. Work with roles, rights and protocols

Cluster 2 - Interact with others

a. Communicate for work

b. Connect and work with others

c. Recognise and utilise diverse perspectives

Cluster 3 - Get the work done

a. Plan and organise

b. Make decisions

c. Identify and solve problems

d. Create and innovate

e. Work in a digital world

Source: Australian Government www.industry.gov.au/skills/ForTrainingProviders/AustralianCoreSkillsFramework/Pages/default.aspx.

Box 7.2. **Employability skills in secondary schools, Australia**

- literacy
- numeracy
- information and communication technology (ICT) capability
- critical and creative thinking
- personal and social capability
- ethical behaviour
- intercultural understanding.

Source: Australian Government www.industry.gov.au/skills/ForTrainingProviders/AustralianCoreSkillsFramework/Pages/default.aspx.

Box 7.3. **Employability skills for training package qualifications in Australia**

Employability skills are also sometimes referred to as generic skills, capabilities, enabling skills or key competencies. In Australia employability skills are:

- communication skills, which contribute to productive and harmonious relations between employees and customers
- teamwork skills, which contribute to productive working relationships and outcomes
- problem-solving skills, which contribute to productive outcomes
- initiative and enterprise skills, which contribute to innovative outcomes
- planning and organising skills, which contribute to long-term and short-term strategic planning
- self-management skills, which contribute to employee satisfaction and growth
- learning skills, which contribute to on-going improvement and expansion in employee and company operations and outcomes
- technology skills, which contribute to effective execution of tasks

Source: National Training Quality Council, Australia, http://employabilityskills.training.com.au.

13 personal attributes. These are: loyalty, personal presentation, common sense, positive self-esteem, sense of humour, ability to deal with pressure, adaptability, commitment, honesty and integrity, enthusiasm, reliability, balanced attitude to work and home life, and motivation.

Improving transitions from education to work

The main mechanism for easing the transition from education to work is educating students so that they graduate with adaptable skills. Additionally, structured information about options and active labour market measures can assist people find work and prepare themselves for the opportunities available. Some international areas of good practice to support transitions and mobility are highlighted below.

Labour market information

Having an understanding of where jobs are, and what is required to fit a position, can help people make decisions about employment and training. Many countries and regions have employment portals which may show trends in different labour markets by industry and occupation, graduate outcomes, and employers' skill needs. Most show where there are job vacancies. Some include projections of emerging jobs and expectations.

Learning pathways

National qualifications frameworks were initially produced to provide a reference for the comparability of the qualifications of different countries. These have evolved to provide information to guide people in structuring their learning within national contexts. The articulation of learning outcomes identifies the understanding and abilities expected at each level of qualification. Those references can be drawn upon by job seekers in testifying to their capacity to meet selection criteria for a job.

Career guidance

Career guidance can help to reduce dropout rates from school, and help students make informed and considered study choices. Career advice is particularly useful for those young people who are most vulnerable when making the transition from school. Good career guidance provides accurate, comprehensive and up-to-date information on all the options available to a student, both within the school and elsewhere, at key points of transition, and on the progression routes leading from those options.

Job search assistance

Most countries have dedicated services designed to help school leavers, graduates from technical college and university, and unemployed people find employment. Multiple factors are involved in effective job search, e.g. knowing what to look for and where to look, realistically assessing personal fitness to job prospects and requirements, preparing applications, presenting at interview, and keeping motivated after being rejected. Job search training can increase an individuals' prospects and their competitiveness for selection.

Adult learning

In the context of rapid economic and social change, high-performing education systems in the 21st century pay attention to human resource development of adults beyond the level of basic literacy. This section addresses issues relating to the continuing education and skills development of the adult population at all levels – in work, and within their families and communities.

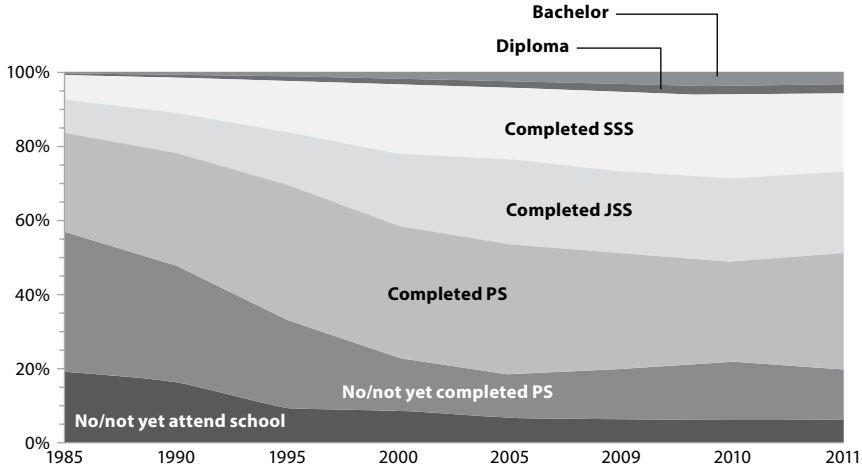
The review team finds Indonesia faces significant challenges in this area. Most of the population have not had the opportunity to benefit from the recent expansion of initial education. Policies aimed at upgrading the skills, knowledge and capacities of adults therefore have an important role to play if Indonesia is to harness the human capital potential of the wider population.

Recent progress in increasing access to initial schooling actually leads to growing equity gaps between younger and older age cohorts. As Figure 7.1 shows, in 1985, around 55% of the population aged 15 and over had not ever attended school or had incomplete primary education, while just 15% had completed junior secondary or above. By 2011, in contrast, the respective figures were 20% and about 45%. Yet this still means that over half of the entire post-school population – people who form the cornerstone of Indonesian society and economy – had only achieved primary education or less.

The scale of the challenges facing Indonesia in increasing access for adults to further education and training are thus considerable. Figure 7.2 places Indonesia's educational attainment in an international context. Across the richer member states of OECD, an average of 70% of the adults aged 25-64 had attained at least an upper secondary education. In contrast, less than 30% of adults in Indonesia had reached this level.

Averages of course conceal significant intergenerational differences between younger and older adults. Increasing levels of educational opportunities over the years means that younger adults have achieved higher levels than their older counterparts.

Figure 7.1. **Population of Indonesia (15 years and older) by educational attainment: 1985-2011**



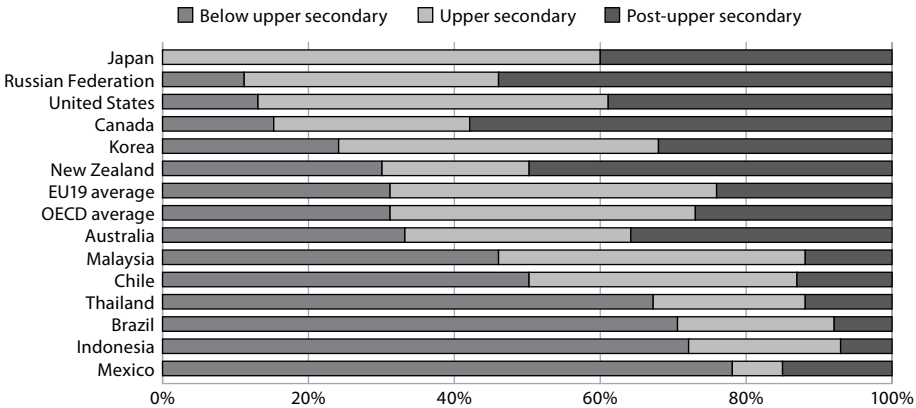
Source: MOEC (Ministry of Education and Culture) (2013), *The Management of National Education in 2011/2012 at a Glance,* MOEC, Jakarta (Graph 1.2).

Table 7.2 shows the highest levels of educational attainment achieved broken down by different age groups. The subtotal in the middle column is the sum of the first three columns – it comprises the proportions of each age group who had either *1)* no schooling at all; *2)* incomplete primary schooling; or *3)* completed primary education. Based on these figures, just under half of the total population fell into this group (47%). However, the proportion increases markedly for those aged 45 and over – from 59% for those aged 45-49, up to 85% of the over 60 year olds. Conversely, whereas one-quarter of all those aged 15 and over had achieved senior secondary level, the proportions ranged from 42% in the 20-24 age group, down to around 10% or less of those over 35 years of age.

Given the range of challenges and ambitious targets associated with enhancing the quality of the formal education system for children and young people, why does the review team regard it as vitally important that Indonesia should also address the educational and training needs of the adult population?

This chapter examines demographic and educational statistics on adult skill levels, along with relevant background information, policies and strategies. Many ministries have a potential role to play in enhancing and upgrading adult knowledge and skills including, for example, those dealing with labor

Figure 7.2. **Education attainment of adult population aged 25-64, Indonesia and selected countries (2009)**



Source: World Bank (2012a), *Indonesia: Broadening Lifelong Learning Opportunities. Towards an Integrated Education and Skills Development System in Indonesia*, Human Development Department, East Asia and Pacific Region, World Bank, Jakarta, Figure E.1, px, based on World Education Statistics.

and migration, agriculture, social affairs, health and regional development. This review concentrates on the areas of responsibility which fall under the remit of the Ministry of Education and Culture (MOEC) and the Ministry of Religious Affairs (MORA). Specifically, it addresses Strategic Objective 5 of the MOEC Strategic Plan (*Renstra)* 2010-2014, concerning: "[A]vailability and affordability of sustainable adult education services which are equal, of high quality and relevant to the needs of society" (MOEC, 2012 and MORA 2012:14).

Evidence gathered by the review team in meetings and interviews confirmed international research findings in highlighting six main factors underlying the importance of addressing the further and continuing education needs and interests of the post-school population.

First, the processes involved in innovation, reform and quality enhancement of the formal school and higher education systems are, inevitably, complex and lengthy. The impact of globalisation and national strategic policies may well necessitate more rapid responses to changing circumstances. As the longer-term educational strategies are being implemented therefore, a simultaneous strategic focus on upgrading the knowledge and skill levels of the existing workforce and wider population – through non-formal education, work-based learning, community education, short courses and the like – is a potential tool in mitigating the time lag problems of longer-term reform.

Table 7.2. **Percentage of population of Indonesia 15 years and older by age groups and highest level of educational attainment (2011)**

	1	2	3		4	5	6	
Age groups	No school	Incomplete primary	Complete primary	Subtotal (1+2+3)	Junior secondary	Senior secondary	HE Dip / bachelor'	Total (000s)
15-19	2.1	11.3	3.8	**17.2**	55.1	27.5	0.2	**7 068.0**
20-24	1.1	6.2	20.8	**28.1**	22.2	41.9	7.8	**14 306.1**
25-29	1.2	6.5	22.4	**30.1**	23.5	32.1	14.3	**16 905.2**
30-34	1.9	8.9	28.1	**38.9**	20.5	28.1	12.5	**16 038.9**
35-39	2.1	10.8	31.9	**44.8**	19.7	25.8	9.7	**15 392.7**
40-44	3.7	13.8	30.8	**48.3**	16	25.1	10.6	**14 051.1**
45-49	5.9	21.4	31.9	**59.2**	10.8	19.3	10.6	**11 847.1**
50-54	9.1	28	33.1	**70.2**	9.7	11.5	8.6	**9 410.8**
55-59	11.4	28.8	34.2	**74.4**	10.5	9.5	5.6	**6 474.5**
60+	21.4	35.4	28.1	**84.9**	7.1	5.6	2.4	**8 922.2**
Average %	4.9	15	26.9	**46.8**	19.2	24.7	9.3	**120 417**

Source: Review team calculations based on MOEC (Ministry of Education and Culture) (2013), *The Management of National Education in 2011/2012 at a Glance,* MOEC, Jakarta, (derived from Central Board of Statistics, Labour Force in Indonesia, 2011.

Second, the low educational level of the adult population in Indonesia is one factor inhibiting the country from harnessing the potential of its people to achieve ambitious national social and economic goals. Put more positively, enhancing adult knowledge and skill levels is an important component of strategies aimed at economic development, achieving equity objectives and social inclusion.

Third, the home environment plays a key role in shaping participation, retention and performance of young people in formal education. While economic factors dominate, research demonstrates the independent effect of parental educational levels. The educational levels of mothers in particular, have a particular impact on children's performance from the earliest ages. Targeting educational opportunities at parents and other adults responsible for children is thus complementary – possibly even a precondition – to the achievement of important strategic objectives aimed at enhancing early childhood and pre-school education.

Fourth, research points to a range of wider social benefits associated with adult engagement in continuing learning, including health, civic engagement and tolerance. Here again educational policies have the potential to connect directly and indirectly with other national strategies, in particular health, well-being and civic responsibility.

While, of course, no country can change the past, "…policies designed to provide high-quality lifelong opportunities for learning can help to ensure that the adults of the future maintain their skills" (OECD, 2013:14).

These themes will be addressed in more detail in the following sections of this chapter. The final section draws these together in a series of summary observations and associated policy options.

The challenges of a lifelong learning approach

The review team notes and supports the stated commitment of the Government of Indonesia to the concept of lifelong learning – education for all and lifelong learning being regarded as "…essential elements and enabling factors to achieve the Millennium Development Goals" (MOEC, 2013:66).

This approach is in line with high-performing educational systems internationally, and good practice supported over recent decades by the major international organisations including the OECD, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Bank. The underpinning case for embedding the principles of lifelong learning is well summarised in the report *Indonesia: Broadening Lifelong Learning Opportunities* (World Bank, 2012a). This report draws attention to the scale and pace of technological change, globalisation, demographic pressures as challenges that demand "…broadened opportunities for skills acquisition and upgrading" (World Bank, 2012a). These new socio-economic conditions require new educational approaches. Not only is work is less likely to be available for those without skills, but also the ways in which individuals and communities connect with the wider society becomes increasingly complex. Consequently, in Indonesia as in both developed and developing countries, a new approach is required that supports:

> …learning undertaken throughout an individual's lifetime, with the aim of improving the knowledge, skills and competence that are needed *not only for improving employment and economic perspective, but also for strengthening civil institutions* (World Bank 2012a, emphasis added).

UNESCO defines lifelong learning as encompassing "…learning at all ages and subsumes formal, non-formal and informal learning" and the

UNESCO Belém Framework for Action affirms the role of lifelong learning in addressing global educational issues and development challenges (UNESCO, 2014). Lifelong learning for all has also emerged as an important theme in international discussions on the post-2015 development agenda, which will be adopted by the United Nations General Assembly in September 2015.

It is one thing for international agencies, and even governments to express commitment to the principles of lifelong learning – it is quite another to implement them in practice. Indonesia is therefore not alone in finding the development and implementation of a lifelong learning system of education and training challenging. Despite its potential contribution to equity and social goals, and calls from employers for a more educated, flexible and adaptable workforce, the aspirations of many OECD member states to develop "knowledge-based economies" and "learning societies", in practice progress towards delivery of fully integrated lifelong learning opportunities for people at different stages over their life course is difficult to achieve.

Research points to two main reason for this slow progress. First, a system of lifelong learning requires complex processes of articulation and co-ordination as well as far-reaching changes both to the formal education system and the ways the workplace and other social organisations are designed, organised and used as learning places. Second, the complexity of the concept masks potential conflicts in objectives between, on the one hand, a model of lifelong learning derived from principles of social justice and equity, and, on the other, a model based on a narrower economic perspective (Coffield, 2000; Schuetze and Slowey, 2003; Field, 2006; Osborne et al., 2007; Slowey and Schuetze, 2012).

Despite these challenges, the review team concurs with the conclusion of the World Bank report on lifelong learning in Indonesia (World Bank 2012a). Seeking to adopt a systemic view of a lifelong learning would assist Indonesia in helping to address two key issues that its education and training system is facing: *1)* fragmentation of provision; and *2)* disconnection between demand and supply (World Bank, 2012a). In addition to the analysis of the formal education system, the report pays special attention to the non-formal vocational training system where both major weaknesses and great potential lie, and offers a useful framework for analysis (Figure 7.3).

Other chapters in this report address Dimensions 1, 3 and 4 in Figure 7.3, directly or indirectly. This chapter focuses on Item 2 – specifically, strengthening the provision of lifelong learning as it relates to the adult population in terms of five key areas: *1)* non-formal education; *2)* literacy; *3)* employability; *4)* the wider social benefits and outcomes of learning; and *5)* objective assessment of current levels of adult knowledge and skills.

Figure 7.3. **A framework for policy analysis of lifelong learning in Indonesia**

Source: World Bank (2012a), *Indonesia: Broadening Lifelong Learning Opportunities. Towards an Integrated Education and Skills Development System in Indonesia*, Human Development Department, East Asia and Pacific Region, World Bank, Jakarta, Figure E3.

Non-formal education

Mapping the territory covered by this chapter is not straightforward. The ways in which adults enter education and training vary depending on factors such as their prior educational background, motivation, socio-economic status, employment status, family situation, gender and geographical location. As is the case in many countries, the terminology employed by MOEC and MORA for adult students varies depending on different circumstances.

"Non-formal education" (NFE) is an official category employed by MOEC and MORA. It takes different forms and aims to reach people who are outside of the formal education system. Some programmes, such as the school equivalency "packages", are implemented under both MOEC and MORA.

There are three main categories of NFE programmes in Indonesia (MOEC, 2013):

1. school equivalency packages;
2. literacy programmes;
3. Islamic boarding schools or *pesantren*.

In practice, of the three forms of NFE listed above, it became evident to the review team that, from background material, supplemented by interviews and visits, with some exceptions, the school equivalency packages and the *pesantren* are overwhelmingly geared towards children and young people. It is mainly the literacy programmes which have the most relevance for adults (see next section).

The school equivalency packages offer an alternative method for the acquisition of qualifications for those who missed out on schooling – including those who had to drop out because of distance and transportation problems. Awards are available at three levels: Package A (primary equivalence), Package B (junior secondary school equivalence) and Package C (senior secondary school equivalence). As Table 7.3 shows, the numbers are not insignificant. In 2010, almost 750 000 participated in general education programmes, with an additional 93 000 in Islamic education.

Table 7.3. **Non-formal education in Indonesia – number of students and learning groups (2010)**

Non-formal education	General	Islamic	Total
Package A			
Learning Groups (equal to schools)	5 504	318	5 822
Students	151 908	16 978	168 886
Package B			
Learning Groups (equal to schools)	9 130	736	9 866
Student	353 805	20 315	374 120
Package C			
Learning Groups (equal to schools)	6 273	1 249	7 522
Students	230 744	56 026	286 770
Total			
Total Learning Groups (Packages A, B, C)	**20 907**	**2 303**	**23 210**
Total Students (Packages A, B, C)	**736 457**	**93 319**	**829 776**

Source: ACDP (Education Sector Analytical and Capacity Development Partnership) (2013), *Overview of the Education Sector in Indonesia 2012. Achievements and Challenges*, background report prepared at the request of the Indonesian authorities for the 2014 OECD Review of National Policies for Education in Indonesia, Ministry of Education and Culture, Jakarta, Table 19, p. 67.

Many countries are seeking to develop alternative ways of accrediting skills and competencies acquired in the workplace, family and/or community. In this respect, therefore, Indonesia's equivalency system can be viewed as an

example of innovative practice, offering alternative routes to qualifications that are formally recognised in legislation (Education Law No.20 of 2003) and Ministerial Decree (No 3, 2008).

However, constraints on time for field visits meant that the team was not in a position to form a view on the quality of the experience for students engaged with these programmes, the quality of outcomes, or the actual status of the 23 000 community learning centres listed above.

Interview data suggested that the numbers availing of these alternative routes were expected to decline as the opportunities for young people in the formal school system expand.

Literacy programmes for adults

For over a decade, Indonesia has had a consistent policy emphasis on increasing basic levels of literacy, as shown by the list of policy initiatives identified by MOEC in response to a UNESCO survey as part of the Global Report on Adult Learning and Education (GRALE) (Table 7.4).

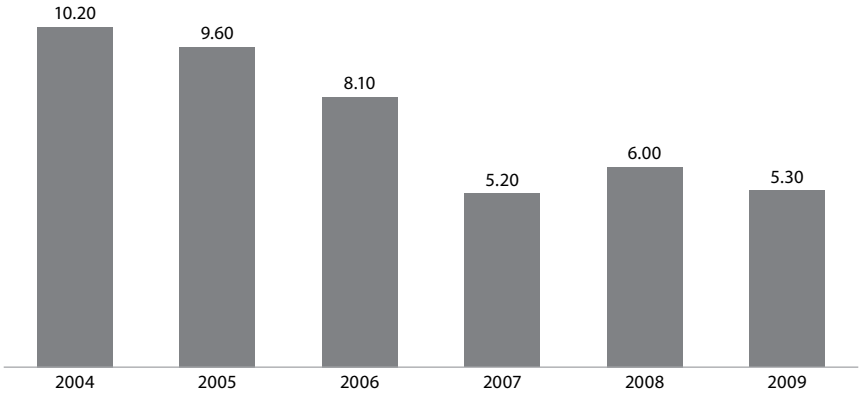
Table 7.4. **Summary of policies and legislation relating to adult education in Indonesia (2003-14)**

	Yes	No	If yes, name of legal/policy instrument and references (add as many lines as needed)	Year
Lifelong learning	☒	☐	1. Education Law Number 20/2003	2003
			2. The Presidential Instruction 2006 on National Movement to Hasten Compulsory Nine-Years Basic Education Accomplishment and the Fight against illiteracy (NMHFAI)	2006
			3. The National Medium Term Development Plan 2004-2009 targeted to reduce the number of adult illiteracy from 20.2% in 2003 to 5% in 2009	2004-2009
Adult Education	☒	☐	4. The National Education Strategic Plan 2005-2009 to reduce 50% of the number of adult illiteracy in 2009	2005-2009
Adult literacy	☒	☐	5. The National Education Strategic Plan 2010-2014 targeted to achieve 95.8% adult literacy rate	2010-2014

Source: MOEC AND MORA (2012), National Progress Report Submitted by the Government of Indonesia in Preparation of the UNESCO Global Report on Adult Learning and Education (GRALE), MORA and Directorate of Community Education, MOEC, Jakarta: response to UNESCO survey question 2.1.

The same report estimated that around 3 million people participate in literacy programmes in Indonesia. A particular emphasis is placed on increasing women's literacy levels, combining more generic life skills with literacy courses. This is important from an equity perspective as it is estimated that literacy rates for women over 45 years of age are around half those of men (MOEC, 2013). Overall, as Figure 7.4 shows, the MOEC estimate that levels of illiteracy in Indonesia were halved between 2005 and 2009. This achievement is all the more impressive bearing in mind the particular physical and social environment of Indonesia where it is very difficult to collect literacy data especially in those remote, border, archipelagic and mountainous areas (MOEC and MORA, 2012).

Figure 7.4. **Official estimates of illiteracy rates among residents aged 15 and over**



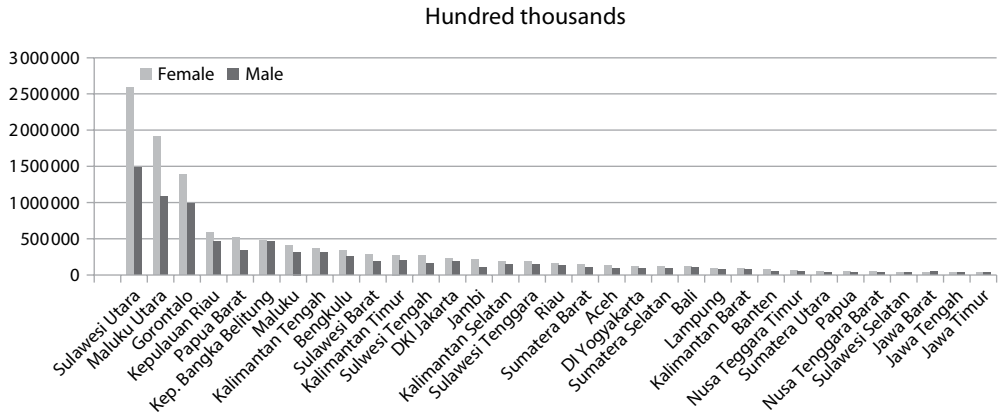
Source: Reproduced from ACDP (Education Sector Analytical and Capacity Development Partnership) (2013), *Overview of the Education Sector in Indonesia 2012. Achievements and Challenges*, background report prepared at the request of the Indonesian authorities for the 2014 OECD Review of National Policies for Education in Indonesia, Ministry of Education and Culture, Jakarta, Figure 27, p 70.

The official response from Indonesia to the UNESCO GRALE survey demonstrates awareness of good international practice in this arena insofar as the policy aims to locate tuition in basic literacy and numeracy in a wider context, helping people to achieve "…sustainable literacy and empowerment in their life so that they would be able to face rapid changes in life" (UNESCO, 2009).

International research on the assessment of literacy levels of adults highlights both the complexity of the process, and the importance of social context (Barton and Tusting, 2005). The review team therefore notes and supports the objective of the Indonesian government to seek to obtain more

accurate measures of actual levels of literacy (MOEC, 2013). Additional questions were included in the 2010 census which show significant regional and gender differences (Figure 7.5). More than this however, the results also differ significantly from statistics provided by some Provincial Education Offices. In the case of East Java for example, the Self-Assessment Report notes that the census estimates of people who were not literate was almost nine times greater than that of the Provincial Education Office: 4.4 million people as opposed to 500 000 respectively (MOEC, 2013).

Figure 7.5. **Assessed rates of illiteracy by province and gender**



Source: BPS – Statistics Indonesia (2014).

The collection of good baseline population data on the actual levels and the distribution of knowledge and skills of the adult population is important for policy, resource allocation and evaluation purposes. For this reason, the review welcomes and strongly endorses Indonesia's proposed participation on a pilot basis in the OECD Programme for the International Assessment of Adult Competence (PIAAC).

The wider benefits of continuing adult learning

From an economic perspective, educational qualifications may be viewed as representing a type of "private good" with a focus on rates of return and the like. Education also fulfils wider social, cultural and personal objectives, however. A major OECD study (2007) explored the wider social benefits of learning – formal and non-formal. This study points to correlations between education and health, levels of tolerance and trust, and active citizenship. Taking health as an example, the:

> …benefits of learning accrue to individuals and to society, and some can in principle be expressed also in monetary terms. With the costs of delivering healthcare services set to rise substantially for demographic and technological reasons – essentially, the ageing of most OECD populations and the development of new forms of treatment – there is a clear cost containment aspect here. But there is also the more positive aspect of the enhancement of well-being and the quality of life. As well as preventing illness or enabling its more efficient treatment, education may enable people to live more positively healthy lives (Schuller, 2007).

Education is also associated with higher levels of tolerance and community and social engagement – aims relevant to Indonesia's ambitious development plan, the MP3EI. The OECD study points to four ways in which education can help achieve this: *1)* by shaping what people know – the content of education; *2)* by developing competencies that help people apply, develop and contribute their knowledge; *3)* by cultivating values, attitudes, beliefs and motivations that encourage greater levels of civic and social engagement; and *4)* by increasing individuals' social status (OECD, 2007).

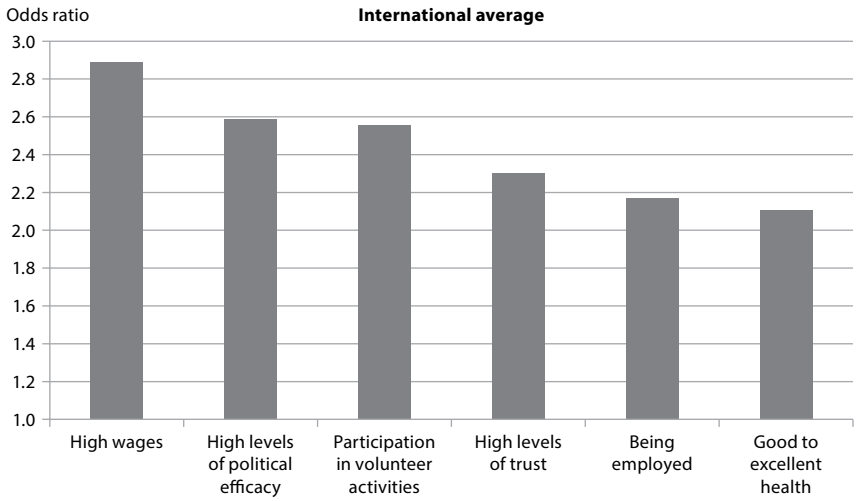
Thus, development of adult skills affects more than earnings and employment. Adults with low skills are far more likely to "…report poor health, perceive themselves as objects rather than actors in political processes, and trust less in others. In short, without the right skills, people will languish on the margins of society, and economies will be unable to grow to potential" (Schleicher, 2014).

The OECD Programme for the International Assessment of Adult Competencies (PIAAC) assesses levels of competence of over 160 000 people in 24 countries across 3 main domains: literacy, numeracy and problem solving. While the strengths and weakness of the methodology may be open to discussion, the results provide an important baseline for comparative analysis and policy development (OECD, 2013). Figure 7.6, based on PIAAC data, highlights the increased likelihood of adults who scored highly on the OECD survey of adult skills also being more healthy, employed, having higher levels of trust, participating in volunteering activities, and having political efficacy and higher wages.

Here, as in other sectors of the educational system, effective targeting of public resources is important. Participation in adult education is closely correlated with levels of initial education. In other words, those who already have the highest levels of initial formal education are most likely to engage in further, continuing education as adults. Without specific targeting this pattern can further exacerbate existing inequalities, leaving sections of the population in danger of falling even further behind. The same pattern also holds for opportunities to participate in job-related and work-based training –

OECD evidence suggests that employers devote on average "significantly more resources for training high-skilled, well-educated employees than others, reinforcing skill differences after controlling for other factors – hours worked, company size, professional grade – that those making greatest use of their skills at work are six to eight times more likely to receive company training than the low-skilled" (Larsen and Istance, 2001).

Figure 7.6. **Likelihood of positive social and economic outcomes among highly literate adults (OECD PIAAC data)**



Notes: Odds ratios are adjusted for age, gender, educational attainment and immigrant and language background. High wages are defined as workers' hourly earnings that are above the country's median.

Source: OECD (2013), *Skills Outlook 2013: First Results from the Survey of Adult Skills*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264204256-en, Figure 0.1.

There are many ways in which a better-educated population can contribute to the enhancement of civil institutions and good governance of organisations in Indonesia. To take just one example, school committees have a potentially important contribution to make in encouraging schools to play a wider educational role in their communities. The guidelines for these committees stipulate that they should be chosen through a democratic and transparent election process on Management and Implementation). Such processes depend on members of the community having not only the required levels of competence, but also the confidence and trust to participate – skills and values which can be fostered through adult education.

Interview data gathered by the review team suggested that community-based educational activities, while viewed positively by staff in general and vocational schools and *madrasah,* tend to be rather fragile and ad hoc, raising issues of sustainability. Further investigation would be necessary to explore the strengths and weaknesses. Partnership working is very important in the adult education arena and official reports from MOEC and MORA suggest that the government has set in place a number of memoranda of understanding with a range of nationwide women's organisations with a view to supporting adult education opportunities for women such as SIKIB, Muslimat NU, KOWANI, Aisyiyah, PKK, and Dharma Wanita. The government is also encouraging work with the private sector through corporate social responsibility (CSR) programmes, providing facilities and services intended for adult education, such as community reading centres at malls and mobile learning centres (MOEC and MORA 2012). A policy challenge is to develop more strategic approaches to harnessing these partnerships at local, regional and national levels.

In terms of the wider benefits of learning, the connections between education and health, social cohesion, and equity are well illustrated in a United Nations Children's Fund (UNICEF) multi-cluster study conducted by Statistics Indonesia (*Badan Pusat Statistik*, or BPS), with a steering committee, consisting of the National Development Planning Agency (BAPPENAS), BPS and UNICEF (BPS – Statistics Indonesia, 2013). The Selected Districts of Papua Multiple Indicator Cluster Survey (MICs) was designed to collect information across a broad number of social indicators covering education, environment, health and child protection sectors in the three districts of Biak Numfor, Jayawijaya and Merauke.

This study highlights the wider benefits which the education of women can have on a range of social areas. Just four of many examples are given below, relating to: *1)* children's school attendance; *2)* registration of births; *3)* age of marriage; and *4)* awareness of health information.

School attendance

While there is a positive correlation between mother's education and socio-economic status, mother's education also appears to plays an independent role on encouraging children to engage in education. Thus, 70% of 7-year-olds whose mothers have at least secondary school education were attending the first grade, compared with 60% of those whose mothers have no education. In the richest households, this percentage is around 69%, while it is only 51% among children living in the poorest households (BPS – Statistics Indonesia, 2013).

Registration of children's births

The International Convention on the Rights of the Child states that every child has the right to "a name and a nationality and the right to protection from being deprived of his or her Identity". Birth registration is a fundamental means of securing these rights for children. The World Fit for Children states the goal to develop systems to ensure the registration of every child at or shortly after birth, and fulfil his or her right to acquire a name and a nationality, in accordance with national laws and relevant international instruments (BPS – Statistics Indonesia, 2013:97). The spread of birth registrations by mother's level of education is very large: ranging from 75% of those with higher education, through to 51% of those with secondary education, 29% of those with primary education, down to just 9% of those with no formal education (BPS – Statistics Indonesia, 2013:97).

Age of marriage

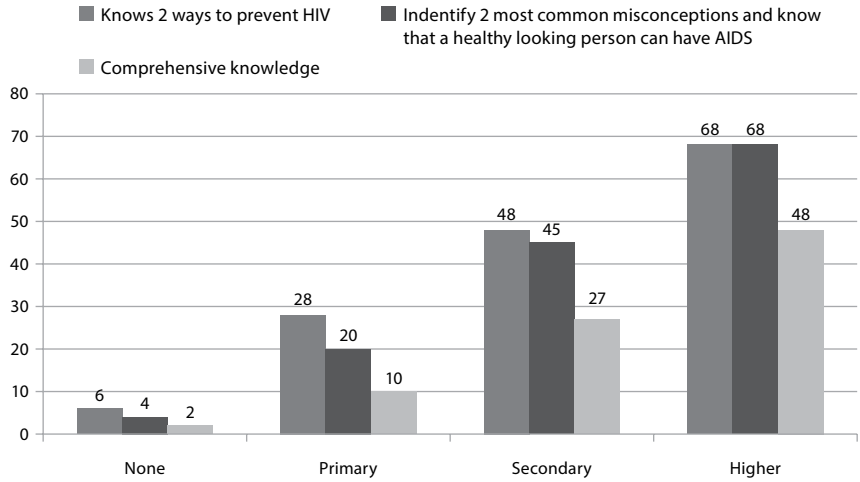
The right to "free and full" consent to a marriage is recognised in the Universal Declaration of Human Rights. In many parts of the world parents, particularly in poorer families, encourage the marriage of their daughters while they are still children, hoping this might benefit them financially and socially. The UNICEF report notes, in actual fact "... child marriage is a violation of human rights, compromising the development of girls and often resulting in early pregnancy and social isolation, with little education and poor vocational training reinforcing the gendered nature of poverty" (BPS – Statistics Indonesia, 2013). The report notes that young married girls are a "unique, though often invisible, group".

The age at which girls get married is strongly correlated with their level of education. The more education they have, the less likely they are to marry as children – formally defined as 14 or younger. In the three districts if Papua covered by the survey, 15.5% of women aged 15 to 49 who had no formal education had married before the age of 15, compared with 4.9% of those with lower or upper secondary education and none with higher education (BPS – Statistics Indonesia, 2013).

Health knowledge

A range of health indicators are also positively correlated with levels of education. One example in the survey related to women's the accuracy of women's knowledge about AIDS. As Table 7.7 shows, while less than half the women with secondary education had accurate knowledge, the proportions were striking lower for women with just primary or no formal education (BPS – Statistics Indonesia, 2013:122).

Figure 7.7. **Accuracy of knowledge of health issues by educational level (Papua province, 2011)**



Source: BPS – Statistics Indonesia (2013), *The Selected Districts of Papua Province Multiple Indicator Cluster Survey: Monitoring the Situation of Children and Women, Multi-Indicator Cluster Survey, 2011*, BPS, BAPPENAS and UNICEF, Jakarta, Figure HA:1, p 122.

Assessing adult levels of knowledge and skill

Increasing literacy and numeracy levels remains a fundamental building block of any system of lifelong learning. However, the importance of addressing the educational needs of adults beyond basic literacy is highlighted by the Special Adviser to the Secretary General of the OECD who points out that the OECD's Skills Outlook released in October 2013 shows how just as "poor skills severely limit people's access to better-paying and more-rewarding jobs" it works the same way for countries:

> …the distribution of skills has implications on how the benefits of economic growth are shared. Put simply, where large shares of adults have poor skills, it becomes difficult to introduce productivity-enhancing technologies and new ways of working, which stalls improvements in living standards (Schleicher, 2014).

We have already highlighted some of the challenges to obtaining robust statistics in this arena on which sound planning decisions might be made. While levels of formal education achieved tend to be closely related to actual levels of knowledge and skill, some adults may well have enhanced their capacities in the course of their working, familial and community lives. For

others, actual capacity may lag behind what might be expected from their formal level of education.

This discrepancy emerges, for example, in the empirical surveys conducted as part of the Selected Districts of Papua Multiple Indicator Cluster Survey referred to above (BPS – Statistics Indonesia, 2013). For example, among young women aged 15-24, who should have benefited from the recent expansion of initial education opportunities, 83% overall were assessed as literate using the survey measure. This overall figure however, conceals marked equity differentials (BPS – Statistics Indonesia, 2013:88).

- Regional differences: 60% were literate in Jayawijaya District, 60% compared with 90% each in Merauke and Biak Numfor districts.
- Rural/urban differences : 95% of young urban women were literate compared with 73% of rural women.
- Literacy among young women is positively associated with the wealth index: only 46% of women living in the poorest households were literate, compared with 99% of women living in the richest ones.
- Literacy rates were lowest among women who live in household with Papuan head of households.
- Of the women who stated that primary school was their highest level of education, just 46% were actually able to read the statement shown to them.

The last point highlights the fact that, while levels of formal education are generally a good proxy for levels of knowledge and skill, in an education system with quality challenges it is important to seek independent assessments of skills in order to provide a more sound evidence base for planning and investment.

Observations and recommendations

Over half the Indonesian post-school population have attained only primary level education or less. Fewer than 30% of adults aged 25-64 have attained senior secondary education or higher, with that proportion down to less than 10% for those over 35 years of age. Literacy rates for women over 40 are around half of those for men. Enhancing adult knowledge and skill is important in harnessing the full potential of the population, and improving economic development, inter-generational equity and social inclusion. Raising literacy rates among women also has the further advantage of improving conditions for the upbringing of children and their persistence at school.

There is a paucity of data about the participation of Indonesian adults in further learning, outside basic literacy programmes. The available data indicates fragmented provision and uneven participation.

There is a paucity of reliable and readily accessible labour market information for senior secondary graduates, tertiary education graduates, adult workers and the unemployed.

There are limited skills formation pathways in Indonesia, and individuals often waste effort repeating what they already know because their prior learning is not recognised, or they give up on further learning. The development of a national qualifications framework including vocational qualifications could assist with recognition and credit being given for prior learning, assessment of competencies, and the diversification of pathways for learners.

There appears to be limited and uneven provision of careers information and guidance services for students looking to enter the labour market or progress to further studies with a view to employment or self-employment.

Recommendations

- The government, with assistance from employer groups, should establish a Labour Market Information Service. Initially, this could be a portal on the website of the Ministry of Manpower and Transmigration (MOMT). It should include: trends in demand and supply for jobs by industry and occupation, and by province and district; indicators of areas of skills shortage and surplus; statistics on employment and unemployment by level and field of qualification, and average graduate earnings; positions vacant, including remuneration packages and skills, qualifications, experience and other requirements for appointment. The website should be designed for ease of use by diverse users.
- The development of an Indonesian Qualifications Framework should include the articulation of the knowledge and abilities expected at each level of educational qualification, including technical vocational education and training qualifications, in ways that can facilitate the assessment of learner readiness to progress to the next qualification level, or crossover to a parallel qualification, without redundant re-learning (see also Recommendation 5.4).
- The responsible ministries should jointly develop a programme for making careers guidance available to all secondary school and tertiary education students. Ideally, careers guidance services should be available to students at the point of transition from junior

secondary to senior secondary, at the subsequent points where students are vulnerable to dropping out, when students are preparing to make application for admission to tertiary studies, and when tertiary students are graduating. In order to ensure impartial and professional guidance, schools and colleges should be able to obtain guidance services for their students from well-trained professionals and/or careers guidance companies.

- The responsible ministries should work in collaboration with donors and employers to develop an integrated approach to the assessment and enhancement of adult learning throughout Indonesia.
- Consideration should be given to ways and means of expanding and diversifying the range of learning options for adults, including: evening classes in vocational schools and community colleges, designing an adult learning programme for delivery via the Open University, and dedicating a proportion of the employer levy to adult training and retraining.
- Consideration should be given to the provision of training packages geared towards upgrading the skills of workers in the informal sector with a view to their integration in the formal economy.
- Continuing attention needs to be paid to raising levels of adult literacy.
- Further attention should be paid to empowering women through skills formation across a range of competencies, including personal health and safety, financial management, advocacy, and legal recourses.
- Attention should be given to parental education, including child development, health and nutrition, child safety, active exercise, interactions through talking, listening, reading and play, managing defiance, and stimulating creativity.

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Chapter 8

Teaching and educational leadership in Indonesia

The importance of teachers and leaders

Indonesia faces a considerable challenge in providing an education workforce able to deliver high-quality teaching to every student across the country. The government is taking this challenge seriously and has introduced a number of key policies to raise the status and quality of teachers. The most significant of these policies is the Law on Teachers and Lecturers (Law No.14 2005), which confirmed teaching as a profession. The Law on Teachers and Lecturers requires all teachers to hold an academic bachelor's degree and to successfully achieve certification. The professional allowances that accompany the new certification process have led to pay increases, which effectively double the income of certified teachers. This has aligned teachers' status with other professions such as law and medicine and has provided effective incentives for teachers to upgrade their qualifications. Many pre-service lecturers, principals and teachers told the review team that the perception of teaching as a career is improving rapidly and that more students are now attracted to enter the profession because of these policies. A number of inefficiencies have also arisen from this reform, however, in terms of the system's financing and the distribution of its teachers.

The review team found widespread understanding and agreement among policy makers and educators that what teachers know and do is the biggest influence on what students learn. This understanding is supported by evidence that indicates that there is no more important empirical determinant of student outcomes than good teaching. The quality of an education system cannot exceed the quality of its teachers (Barber and Mourshed, 2007). Three years learning with a high-performing teacher rather than a low-performing teacher, can make a 53-percentile difference between two students who started at the same achievement level. The negative impact of low-performing teachers is severe, particularly during the earlier years of schooling (Sanders and Rivers, 1996; Barber and Mourshed, 2009).

The OECD Teaching and Learning Internal Survey (TALIS) identifies key aspects of teaching that have been shown to improve learning. They include:

- Teachers' content knowledge.
- Teachers' pedagogical knowledge, both of general principles and those specific to their subject.
- Teaching practices that focus on clear and well-structured lessons supported by effective classroom management.
- Teaching practices that emphasise individualised instruction.

- A commitment to higher-order problem solving, deep analysis of content, and activities requiring advanced thinking skills and deductive reasoning.
- Active professional collaboration that has a direct impact on learning and teaching. Key elements include classroom observations, team teaching and constructive feedback (OECD, 2009).

Indonesia's policies and laws and its new 2013 curriculum embody these key aspects of teaching. However, many of these features were not yet obvious to the review team in leaders' thinking and conversation, nor were they obvious in the majority of classroom practice observed by the team.

Educational leaders also have a significant impact on student outcomes. Educational leadership is particularly important in decentralised systems like Indonesia's where high-quality local leadership and supervision is needed to improve both teaching practice and student outcomes. While most of those interviewed by the review team believed that leadership and supervision in Indonesian schools was important, nearly all said that Indonesia's leadership and supervision practices currently had little impact on student outcomes. The main reason interviewees gave for this was that there had been no increase in the capacity of principals or supervisors to lead and manage their teachers following decentralisation. This view is supported by a survey of principal and supervisor competencies conducted by the Education Sector Analytical and Capacity Development Partnership (ACDP) in 2011/12 (ACDP, 2013a). The ACDP review also highlighted inconsistent principal and supervisor selection processes as an issue.

Increasing the capacity of school leaders (and supervisors) will be essential if Indonesia is to improve the motivations and capacities of teachers and achieve equitable school outcomes (OECD, 2008). Figure 8.1 highlights five leadership dimensions that affect student outcomes and the relative impact of each dimension.

Figure 8.1 suggests that if leaders are to improve student learning outcomes in Indonesia, they will need training to become not only good managers, but also pedagogical leaders, or "leaders of learning". The review team formed the view from discussions with officials in the ministry and the regions that upgrading the capability of school leaders and supervisors in Indonesia is a significant and urgent issue. Indonesia recognises the importance of this issue and there is a Principal Preparation Programme (PPP) under way in some regions. This programme uses an approach to learning that incorporates:

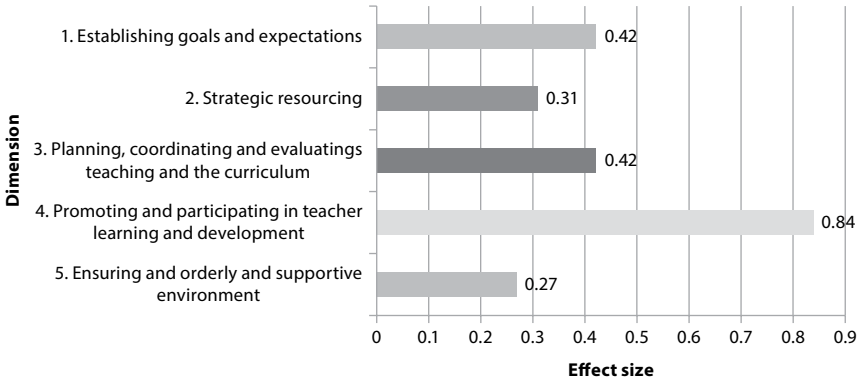
- In-service Learning 1 – an initial face-to-face training workshop designed to be conducted over 7 days for a total of 70 learning hours.

- On-the-job learning – workplace learning conducted over a 3 month period for a total 200 learning hours.
- In-service Learning 2 – face-to-face follow-up and assessment conducted over 3 days for a total of 30 learning hours.

An evaluation of this programme is currently under way. The evaluation will measure the impact of PPP and provide recommendations to the Ministry of Education and Culture (MOEC) and the Ministry of Religious Affairs (MORA) on how to prepare school principals in ways that are likely to improve school effectiveness in Indonesia through better school leadership.

Indonesia's policies relating to recruitment, pre-service training, accreditation, curriculum, in-service development, appraisal and supervision all impact on teachers' and leaders' motivation and ability to bring about positive outcomes for students. These issues are discussed further in the subsections below.

Figure 8.1. **Relative impact of five leadership dimensions on student outcomes**



Source: Robinson, V., Hohepa, M., and Lloyd C. (2009). *School Leadership and Student Outcomes: Identifying What Works and Why: Best Evidence Synthesis Iteration,* Wellington, New Zealand: Ministry of Education, http://educationcounts.govt.nz/goto/BES.

Pre-service teacher education

Indonesia has 374 teacher training institutes, 32 public and 342 private. They operate largely independently, with little co-ordination between them over materials and approaches. The training providers determine the outcomes that they believe are most important and there is currently no systematic monitoring or evaluation to determine the effectiveness of teacher training on teacher quality. There has been a large and uncontrolled

expansion of teacher education enrolments in recent years, with the bulk of those graduating being unable to secure employment as teachers without being well prepared for other employment.

In an attempt to ensure graduates improved their content knowledge, 10 Indonesian teacher training institutes became universities in 1999. Most of these universities developed twin programmes where one faculty offers specific education programmes, for example the teaching of science, and another faculty offers a regular science programme. Some universities offer a dual degree programme where students can get one degree for the teaching-related programme and another from the subject related programme. This allows for efficient resource sharing and provides students with dual career pathways.

Indonesia has also introduced a one-year largely field-based postgraduate teacher professional development programme (*program pendidikan profesi guru*) to ensure that new teachers also have the necessary content and/or pedagogical knowledge. The overall objectives of this programme are to ensure all new teachers are able to plan, deliver and evaluate programmes and use evaluation evidence to adjust their teaching.

Teachers are required to either assemble portfolios of evidence to show that they are ready for certification or to attend a 90-day course. Portfolio assessment can be useful if teachers use it to reflect on changes they have made to their practice and the resulting impact on student learning *Country Background Report* (CBR) (ACDP, 2013b). It is less useful if they merely record inputs such as courses attended or certificates gained. The portfolios kept by Indonesian teachers tend to be a record of inputs, which means that the portfolios, by themselves, do not provide enough information to certify teachers reliably. In their current form, portfolios are also unlikely to help teachers to improve the quality of their practice.

Improving the calibre of teaching candidates

Getting the right people to become teachers and developing them into effective instructors are two of the key characteristics that differentiate high- and low-performing education systems (Barber and Mourshed, 2007). The top-performing school systems consistently attract more able people into the teaching profession by making entry to teacher training highly selective, developing effective processes for selecting the right applicants to become teachers and paying good (but not great) starting compensation. This drives up the status of the profession, and enabling it to attract even better candidates (Barber and Mourshed, 2007).

The cohort of students entering pre-service education in Indonesia is changing. In the past only students who had been refused entry to other

professions would enter teaching. Indonesia's new certification system and the accompanying professional allowances have been successful in that teaching is now a more attractive career choice and as a result there has been a steady increase in more qualified students entering the teaching profession. The new certification system has also created a number of inefficiencies, however, that now need to be urgently addressed.

One issue is that each teacher training institute currently independently determines how many students it enrols. Not surprisingly this has resulted in a significant oversupply of candidate teachers and wide variations in quality. The review team supports Indonesia's intention to impose quotas on the number of students who can enter teacher education, for two reasons. First, introducing a government policy controlling the supply of teacher-training places for teachers is likely to further increase the status of teaching and attract the very best students to teaching. Second, Indonesia needs to improve the efficiency of the system by urgently increasing the student-teacher ratio. To ensure programme quality it would also be beneficial to consider mechanisms to reduce the total number of pre-service training institutes.

Korea's success in attracting top students to primary teaching is one example of how restricting training places can be effective. This was primarily achieved through limiting the number of places for the four-year undergraduate degree required to become a primary teacher, to ensure that supply meets demand. As a result, primary teaching is very attractive and primary education teachers come from the top 5% of school leavers. This contrasts with fair and average school systems, which draw their teachers from the bottom 30% of school leavers (UNESCO, 2014).

Given the evidence, it is also likely that designing selection procedures that test applicants' knowledge and characteristics (i.e. their suitability for teaching) before they begin training would improve the efficiency and effectiveness of pre-service training. Research is clear about the set of characteristics people need if they are to become effective teachers and these characteristics can be identified before students enter teaching (Allington and Johnston, 2000). They are: a high overall level of literacy and numeracy, strong interpersonal and communications skills, a willingness to learn, and the motivation to teach. Successful systems design selection procedures to test for these skills and attributes, and select those applicants that possess them before they enter training. Singapore and Finland both do this and they both place a strong emphasis on the academic achievement of candidates, their communication skills and their motivation for teaching.

Although there has been an increase in the quality of students entering pre-service teacher training, the quality of the courses offered appear to have improved little, if at all. The review team saw no evidence that indicated that pre-service teaching is aligned with the pedagogical expectations of the 2013

curriculum. While it seemed that teacher educators knew their subject matter, they themselves were not using the innovative student-centred pedagogies that they wished their students to acquire. In order to ensure new teachers are able to implement the 2013 curriculum, teacher educators urgently need to be provided with professional development on modern pedagogies.

The accreditation of teachers

Improving the competence of teachers has been at the heart of policies designed to raise the quality of education in Indonesia since 2005 when the major initiative to increase the minimum academic qualifications of teachers began. This is commendable because quality cannot be achieved without a competent teaching workforce. As mentioned, the Law on Teachers and Lecturers (Law No. 14 2005) requires all teachers first to hold an academic bachelor's degree, and second to successfully complete a certification process. Indonesia's target is that all teachers will reach these benchmarks by 2015. The law also set minimum competency standards and introduced two new sets of professional allowances, giving teachers incentives to complete certification and to work in remote areas.

The review team was advised that 1.465 million of the 1.747 million teachers who were practising before 2005 have completed the certification requirements. Since 2013/14, teachers have also been required to take a competency test related to the new curriculum, and to re-take the test if necessary until they pass in order to retain certification. This reform has increased the qualifications of teachers and raised the status of the teaching profession.

While it will be a substantial achievement to have accredited teachers filling all teaching positions, there are a number of quality issues that need to be addressed. The most substantive of these is that despite better quality applicants entering the system, there is little evidence of any difference between certified and uncertified teachers in their competencies or in their impact on student learning outcomes. This is largely because the bar to become certificated as a teacher is currently set at a comparatively low level and nearly 100% of new teachers pass. It will be important to keep raising this bar to ensure that certification signals something reliable and meaningful about what teachers know and can do. Certification should mean that teachers have the capacity and skills needed to engage students and help them achieve important education outcomes. It also needs to be underpinned by the notion that teachers should be held accountable for student progress and for upholding the standards of the teaching profession.

Teachers need to do more than transmit knowledge and students need to do more than engage in rote learning. Around the world, demands on

schools and teachers are becoming increasingly complex. In 2010, the OECD published a major volume entitled: *The Nature of Learning: Using Research to Inspire Practice* (Dumont et al., 2010). This report noted that the ultimate goal of learning is to acquire "adaptive expertise", that is, the ability to apply knowledge and skills flexibly and creatively in different situations. Teachers will not be able to support students to acquire adaptive expertise unless they are adaptive practitioners themselves. When raising the bar for teacher accreditation, it will be important to require all teachers to commit to the professional values and standards of the profession, including developing adaptive expertise. In particular teachers will need to understand inquiry and problem-solving processes that enable them to adjust their practice and achieve better student outcomes.

The review team note and support the current development of policies and procedures for the induction of new teachers. Most high-performing education systems mandate an induction process for the first and sometimes also the second year of teacher practice. An effective induction programme can have a significant effect on teachers' future careers. Support at this point can make a difference in shaping the way teachers approach their practice and a difference to the outcomes they are able to help students achieve.

Implications of the 2013 curriculum

Curriculum change can play a major role in improving the quality and relevance of education in any country. Internationally, curriculums are developed and revised to meet national priorities, as well as local and international labour markets. Indonesia revised its national curriculum in 1994, 2004 and 2013, approximately every 10 years. Given the pace of change nationally and internationally, this is an appropriate timeframe for revision.

In 2004 there were two significant changes to Indonesia's curriculum that brought it into line with international best practice. First was the change from content-based curricula to competency-based curricula, which signalled a major shift for teachers. It was no longer good enough to have students memorise content, students were now expected to demonstrate their competency to *do* things with content knowledge and they were expected to demonstrate their knowledge, skills and attitudes in the performance of tasks. This required teachers to acquire a new set of competencies themselves. They were required to change their teaching methods from direct instruction that supported students' rote learning and memorisation to teacher facilitation that supported students' problem solving and active learning.

The second significant change in 2004, decentralisation, signalled a major change for school leaders and local authorities. Decentralisation gave schools permission to use the direction set in the national curriculum to

prepare their own education plans. The purpose was to enable schools to provide a curriculum that was best suited to the needs of their particular students. This also required significant shifts for teachers as they had previously only used curriculum material prepared by central government. While some teachers prepared their own syllabuses (especially those involved in teachers' working groups), many teachers relied on textbooks prepared by educational publishing companies.

The curriculum reform in 2013 built on the foundation of the 2004 curriculum. The 2013 curriculum aims to improve the quality of instruction in schools and *madrasah* throughout Indonesia, with a specific focus on achieving an optimal balance between the development of cognitive skills, particularly those of critical thinking and problem solving, and the development of student character and behaviour. In response to concerns about youth behaviour, the 2013 curriculum also places more emphasis on religious instruction and character education. In an attempt to balance curriculum load and create a more integrated approach, a thematic approach has been adopted for the primary grades. Teachers will require support to teach these subjects in an integrated way.

The focus on competency-based teaching has continued in the 2013 curriculum, emphasising the shift from teacher- to student-centred instruction. The new curriculum promotes more interactive teaching and more active learning processes. Increased emphases on group- and team-based learning and authentic classroom assessment have also strengthened the new curriculum's pedagogical approach. The review team agrees that these emphases are appropriate, but the implementation challenges are large. There are no quick solutions to achieving the proposed pedagogy and classroom assessment reforms. To achieve these changes all teachers will need to have increased motivation and capability. They will need to become ongoing learners who are innovative, adaptive and reflective practitioners.

While the new curriculum has strengthened the focus on important competencies, at the same time there has been a move back to a more centralised curriculum (with some local content) because school-based curriculum development was judged to have been unsuccessful in its current form. Under the new curriculum, the ministry is now responsible for the provision of all textbooks to support the new curriculum, rather than schools and/or publishing companies.

Providing enough basic textbooks will be fundamental. As the ministry will now have to supply all the textbooks to all students wherever they live, meeting the desired ratio of books to students for all subjects as set out in National Education Regulation Number 24 (2007) will be a considerable challenge and an urgent issue to tackle.

Given the move to a more centrist curriculum, the review team believes it is also timely to reinforce the message about the place and continued importance of local curriculums. The review team found that there was some confusion about the role of the local curriculum, with some principals believing that they should stop teaching English or local languages, for example, because there was no longer any local flexibility and these areas were not defined as separate subjects.

Curriculum change usually involves policy dialogue and consultation with stakeholders, gathering feedback on draft proposals, developing instructional materials such as textbooks, capacity building, and the evaluation of the impact of the curriculum on student learning outcomes. The ministry has undertaken the 2013 curriculum design, textbook writing and provision of information to teachers within a very short period of time. Not surprisingly, the complexity of changes required combined with the speed of development have created some confusion and some implementation challenges.

Teachers need to feel a sense of ownership of the curriculum reform if it is to achieve its aims. Because the speed of the curriculum development process allowed little opportunity to engage teachers in the process, the first major challenge is now ensuring that all teachers know what the changes are and why they are important. The review team formed that view that the process of informing teachers was well under way and that information was being disseminated through a well-planned cascade approach. Most of those interviewed by the review team knew about the new curriculum and most also supported its direction while at the same time expressing concerns about the speed of change and lack of consultation. Most also felt the new curriculum would be very challenging to implement. This comment from a teacher we interviewed sums up the feeling of many: "As a teacher the curriculum requires a new teaching style and I'm worried, as an Indonesian I support it, we need to modernise."

With some notable exceptions, the review team observed that copying from the blackboard, whole-class teaching, memorisation and rote learning still seem to be the norm in many classrooms. While the review team observed some students engaging in group work, using equipment and engaging in two-way communication with their teachers, it was clear that this is not yet common practice across all schools and teachers. The World Bank (2010) video study of Indonesia's mathematics classrooms indicates that, compared with other countries, teachers dominate communication. Only a low percentage of mathematical problems tackled could be considered to be of high complexity. Indonesian teachers also devote less time to problem solving and little time to reviewing students understanding of previous lessons.

To implement its curriculum successfully, Indonesia will need to:

- strengthen networks of practice (both face to face and virtual);
- build professional leadership capability;
- engage in ongoing monitoring and evaluation;
- align resources, and provide equitable student access to textbooks;
- use a range of methods to focus teachers' attention on things that make the biggest difference to student achievement;
- help teachers to actively analyse their own practice in the light of the curriculum and help them to become innovators and researchers in education, not just deliverers of the curriculum.

The challenge of shifting nearly 3 million teachers from whole class teaching that is teacher focused ("I teach – it's not my problem if students don't learn") to differentiated student-centred approaches ("what's my impact on each learner and how can I adjust my teaching so that they can all learn?") cannot be underestimated.

The allocation of teachers

There is a general oversupply of teachers in Indonesia and teachers are unevenly distributed throughout the education system. Some schools have a teacher shortage and there are large discrepancies between districts. Overall, Indonesia possesses one of the lowest pupil-teacher ratios worldwide, as teacher recruitment continues to outpace student enrolment at all levels. Over the past decade, the number of teachers in all schools (excluding Islamic schools) rose by 51% and the national pupil/teacher ratio declined from 20:1 to 15.4 (Suharti, 2013).

Many rural districts have low student-teacher ratios because these areas have many small schools. Despite their low student numbers, these schools are staffed according to the formula that a primary school should be allocated a minimum of nine teachers. As in remote areas almost all schools have fewer than 100 students, this promotes extreme inefficiency in staffing. While it means that rural schools are not generally understaffed, they often lack qualified teachers. Staffing classes of ten pupils or fewer with a qualified teacher per class is neither feasible nor efficient in rural areas.

Secondary schools in Indonesia also tend to be small, which creates inefficiencies in teacher staffing. In secondary schools teachers are expected to teach only the subject for which they are certified and this makes it nearly impossible for teachers in small schools to teach full time. The review team

are of the view that these issues should be urgently addressed through options including revising regulations that prohibit the teaching of more than one subject, adjusting pre-service courses so that students become qualified in a major and a minor subject, and providing in-service courses and incentives to encourage teachers already in service to add an additional subject to their repertoires. Longer term, certification processes could be revised to require graduation in two subjects.

Past policies of giving grants to each individual school, regardless of the number of students, encouraged the formation of small schools in urban as well as rural areas. There are now significant opportunities to merge schools and achieve increased economies of scale in staffing and operational funding, particularly in urban areas.

The average age of teachers is increasing. The largest cohort of teachers are those aged between 35 and 50 years and as a result, 30% of all civil-service teachers will retire over the next 10 years. This forthcoming wave of retirements presents a unique opportunity to address teacher supply and distribution issues, for example by setting new pupil-teacher ratios and not replacing teachers who retire from schools that are already overstaffed.

Eliminating the nine-teacher minimum staffing norm in small primary schools would require teachers to learn how to teach students with diverse learning needs across multiple grades. Multi-grade teaching will be essential to provide the choice for pupils and to meet the range of needs of different contexts in Indonesia, particularly rural and remote communities. Good multi-grade practices do already exist in Indonesia and sharing them more widely could provide an additional incentive to move away from whole-class teaching and rote learning, as these methods cannot be used with multi-grade classes. The multi-grade approach which has been promoted emphasises child-centred, interactive active learning. This is very much in line with the ethos and standards set out in the new curriculum. Collaborative learning and teaching across grades and levels should be possible for highly skilled and motivated professional teachers. Changing the culture of the school and taking account of local circumstances will be a key role for head teachers.

Financing teacher costs

There are serious limitations in the data on teacher financing, especially at provincial and district levels. The World Bank reports that budget data were not available for all districts – only for 413 out of 500 in 2012 and the data were two years out of date at this level (World Bank, 2012). Additionally, there was no consistent methodology for recording salary spending across years. In both central budget and regional data, it is impossible to distinguish between teacher and non-teacher (education administrative staff) salaries.

In district-level data, civil servant teacher and staff salaries are reported at the aggregate level as part of "indirect spending" (or non-programme expenditure), while non-civil servant teacher and staff salaries are reported as part of direct spending (or specific programme expenditure). A change in the classification of central government teachers in 2008 also makes comparisons across years difficult when looking at central budget data. The World Bank was forced to use the share of teachers by level of education to assign sub-national salary spending (including teachers) to levels of education. In this section, the review team adopts the World Bank assumptions on budget allocations to the different education levels but raise the issue that, since teacher salaries are such a major component of government expenditure, the budget data should clearly distinguish by teacher type at the different levels of governance.

Indonesia has a large teaching workforce to address the educational needs of its large population. There are over 3 million teachers employed in schools and *madrasah* across the nation. This is a diverse range of professionals as it includes teachers with different qualifications and conditions of employment and remuneration. The workforce ranges from those teachers with civil service status to teachers working on contracted arrangements at national or district level. There are also other groups of teachers working in private schools or foundations. Table 8.1 shows the main make up of the teaching workforce.

Table 8.1. **Composition and deployment of the teaching workforce by level of schooling and status of employment, 2012/13**

School level	Civil servants	%	Non-civil servants	%	Total
Primary	1 051 671	62.52%	630 592	37.48%	1 682 263
Junior Secondary	386 005	65.69%	201 605	34.31%	587 610
Senior Secondary	244 418	54.07%	207 623	45.93%	452 041
Total	1 682 094	61.80%	1 039 820	38.20%	2 721 914

Source: MOEC (Ministry of Education and Culture) 2012, *Education Statistics in Brief.*

In the past, teacher salaries were relatively low, making teachers a relatively inexpensive resource. The cost of employing teachers and the impact on the overall education budget has been increased by the ongoing teacher certification programme, which guarantees certified teachers a professional allowance equivalent to their basic pay. Those assigned to remote or disadvantaged areas also receive an additional allowance that triples their salary. As new teachers enter the system and existing teachers go through the

certification process, an increasingly large portion of the education budget will be allocated to salaries. The total cost of certification is estimated to reach IDR 250 trillion in constant 2006 prices, with professional allowances making up more than 90% of this (Asep and Prio, 2013).

International research confirms that teacher quality is a key factor in student achievement, and having a highly qualified and professional workforce is one strand of improving teacher quality. As yet the certification programme has not of itself had a significant effect on student attainment – but it is having a significant impact on the budget. Increases made to the overall education budget have been largely absorbed by the cost of the increased level of qualifications. By 2012 some 35% of teachers were certified and professional allowances, on top of the basic salary of teachers, accounted for 9% of total public expenditure on education. This burden on public finances will continue to grow.

On top of the cost of certifying all teachers, the World Bank argues that the current policy of converting all contract teachers to civil servant status or *pegawai negeri sipil* (PNS) is unaffordable (World Bank, 2012). The conversion is likely to increase the salary bill for basic education teachers alone by 35%. Certifying all teachers (both PNS and non-PNS) would increase the salary bill by 90% – almost double. Needless to say, this increase is currently unaffordable. This is not to argue that Indonesian teacher salaries are needlessly high. Comparatively speaking they remain low compared to their peers in neighbouring Malaysia, Philippines and Thailand (Asep and Prio, 2013).

The hiring process for civil servants is complex and varies by teacher type. In addition to civil servant teachers, *guru kontract* (contract) teachers are also on the government payroll. Additionally, public schools can employ "honorary" teachers – and their numbers have increased significantly since decentralisation. Currently they make up 27% of teachers in public primary schools, 20% in junior secondary schools and 21% in senior secondary schools (Suharti, 2013). This is very high given public schools have to cover the costs of non-civil servant teachers out of non-salary revenue from government or parental contributions. It is not clear whether these honorary teachers will qualify for civil servant status under the new regime but the cost implications would be high.

Teacher management is the direct responsibility of district governments but is to a large extent influenced by central government regulations and the incentives associated with transfers in decentralised systems. If the incentives built into the transfer mechanisms strongly bias local government spending, increasing decentralisation will lead to inefficient spending. Under current procedures, districts hire teachers, but the central government pays for their

salaries. This process creates a perverse incentive for districts to increase the proportion and number of civil servant teachers.

Some key informants confirmed research findings that the basic allocation component of the General Allocation Fund (*Dana Alokasi Umum* or DAU) formula – the main transfer from central to sub-national governments – is partly to blame. The transfer is based on the number of civil servants, which provides an incentive to hire new teachers rather than redistributing existing ones. In addition, as discussed in Section 8.5, the guidelines for teacher entitlement formulas tend to support increased teacher numbers, especially in small schools. As a result, there is a problem with efficiency and equity in teacher distribution. These perverse incentives have to be addressed in order to contain the escalating costs of financing teachers. Increased efficiency, particularly in the major cost item, the use of teachers, would be a source of major savings which would free up resources for further planned expansion of Indonesia's education system.

Decentralisation means districts are responsible for teacher management (including paying salaries), so district spending on salaries comes at the expense of other things. In 2010, about half of the public schools providing basic education reported not receiving any additional financial support from districts (Samer Al Samarrai et al., 2013). Schools also informed the review team of substantial delays in receiving operational funds from district offices. Despite having achieved certification, the team was told that significant numbers of teachers had yet to receive their increased allowance months after qualifying. Research confirms that teachers eligible for the remote allowance often were unfairly excluded or did not receive the full amount of the allowance (Asep and Prio, 2013). This raises concerns about the efficiency of the utilisation of funds at district level and its impact on the quality of teaching and learning in these schools.

The utilisation of teachers

This section considers the factors involved in ensuring the best use of teaching resources. Considering new ways to ensure quality of learning and teaching, maximising teacher time, creating schools of a size which supports efficiency and student choice, and reviewing the roles of head teachers and supervisors in a revised quality assurance system are likely to be the elements needed to deliver high-quality expanded education across Indonesia.

One crucial factor is the deployment of teachers, the ratio of teachers to pupils, and the productivity of teachers, including classes taught and hours worked in the school week. There is scope for more efficient timetabling, particularly at junior and senior secondary school. There are many models for maximising school efficiency and effectiveness from different education

systems that allow for improved value for money, increased choice and motivation for students and better overall quality assurance and standards.

In order to reap efficiency gains the government needs to look critically at student-teacher ratios and teachers' working hours, especially in small schools. Teachers' time spent on task, time in the classroom and the quality of teaching vary widely across schools. Only 44% of teachers actually teach the minimum level of teacher hours required. Some 53% of teachers in rural areas and 59% in remote areas worked less than 18 hours a week, compared with 37% in urban areas (Surhati, 2013).

Teacher absenteeism and the practice of having several jobs mean that unit costs are much higher than they need to be. Teacher absenteeism appears to be most damaging to children from poorer rural areas – those for whom it could be reasonable argued that the need for stable and high-quality teaching is of greatest importance. It is estimated that approximately 14% of Indonesian teachers are absent on any given school day, but in Papua, the estimate was 33.5% and reached 43% in remote schools (Surhati, 2013). The average length of absence among a sample of absent teachers in Papua was 70 days and some even a year (Surhati, 2013). The review team was advised that the incidence of absence from school has been falling but the incidence of absence from classrooms has been growing. Teacher absence is a waste of resources to educate children and adversely affects the quality of learning.

In addition to improving the amount of time teachers spend on task, substantial efficiency gains could be made by reallocating teachers. However, it is also a huge task. The World Bank estimates that using the latest government guidelines for teacher allocation, it would mean reallocating 340 000 teachers, or 17% of the teaching force (World Bank, 2012). They offer a number of suggestions to implement efficiencies as interim measures. These include:

- Revise the current guidelines for teacher allocation to focus on student teacher ratios and not student groups (rombels).
- Revisit school planning to reduce the number of small schools.
- Introduce multi-grade teaching to deal with small schools, but with provisions in place to support districts in its implementation.
- Allow cluster teaching (where teachers are allowed to teach more than one subject) in senior secondary schools.
- Expand and clarify incentives for teaching in remote areas.

Over half of primary and junior secondary school teachers in urban areas have a four-year university degree compared with only 20% in rural areas. Some interventions have had a measure of success in tackling the uneven distribution of well-qualified teachers. The government introduced a

remote area allowance in 2007 to encourage teachers to teach in more rural areas. In 2012 some 53 000 teachers received this allowance. Whilst this is a relatively small number and the scale of the challenge is much higher, there does seem to be some evidence from a study in Papua in 2011 which suggests that teachers in receipt of the allowance were more motivated and had lower absence rates compared with other teachers.

International studies show that the quality of leadership and management has a major impact on teacher motivation, the quality of teaching and learning and the relationships with parents and the community. Highly skilled leadership, high expectations and action taken to tackle poor attendance and below-standard classroom practice are likely to be the main drivers for change. The accountability of school head teachers and supervisors and the length of tenure of those in these senior positions could be reviewed as part of a revised quality assurance system for schools. Sound educational leadership does have a very positive effect on the overall achievement of pupils and the performance of staff. Weak management and leadership or uncertainty about the roles of senior officials can have the opposite effect. The team saw significant variety in the impact of school heads and supervisors in our visits.

Teacher performance management

Indonesia's appraisal policy and process have the potential to improve the quality of teaching because they are (on paper at least) comprehensive and strongly linked with continuing professional development. Developing human capital through the continuous improvement of teachers' skills and knowledge are important building blocks of world-class education systems (Barber and Mourshed, 2009). Effective performance appraisal systems don't just judge teacher performance, they also link explicitly to ongoing professional development opportunities that increase teacher knowledge and capability and help improve student outcomes. The bottom line is that students are entitled to be taught by competent teachers who keep themselves up to date with developments in their profession.

Indonesia's Standard Process for Education Unit for Primary and Secondary Level (Ministerial Degree 41, 2007) requires that teachers are held accountable for their performance. The Competency Standards for Teachers (Ministerial Decree 35, 2010) require that teachers are appraised on their teaching performance with reference to 14 competency standards. School principals, and senior teachers in the case of larger schools, are responsible for conducting the appraisals.

While the policies are sound, there are a number of barriers to implementation that need to be urgently addressed. With the decentralisation of the education system, greater responsibility for teacher management has

been placed with school principals and school supervisors. To date principals have tended to focus on the administrative aspects of the appraisal system, and principals told the review team that neither they nor school supervisors were well prepared to accept responsibility for appraisal. The review team also found that while what supervisors did varied across districts, they were mostly focused on administrative rather than quality issues. In most cases principals and teachers reported that they did not receive useful professional support from their school supervisor.

Principals in Indonesia need support to develop the skills that will enable them to play their mandated role in managing teacher induction, performance assessments and appraisals; the mentoring, promoting, and sanctioning of teachers; the dissemination of information about teacher performance to the local community and local government; and accountability for overall school performance.

Similarly school supervisors need support to develop the competencies required of them by Ministerial Decree 12/2007. This decree defined the competencies required of school supervisors in six dimensions: personal competence, managerial supervision, academic supervision, education evaluation, research and development, and social. A review conducted by the Australia-Indonesia Basic Education Project (2007) found a large number of deficiencies in the knowledge and skills of school supervisors. The review team formed the view that these deficiencies still exist and are affecting supervisors' ability to undertake their newly defined tasks.

Indonesia now needs to address the weaker elements of the appraisal system by appointing principals and supervisors on merit rather than experience and by providing training to enable them to evaluate teachers and provide feedback that helps them improve their teaching. In the longer term, Indonesia should consider expanding the appraisal framework to develop a merit-based system of progression and promotion for teachers as international evidence indicates that this will further strengthen the quality of the teaching that learners experience.

Continuing professional development of teachers and leaders

Student outcomes in Indonesia are still relatively poor and evidence suggests that the quality of teaching and the quality of school leadership are the main reason for variations in student outcomes. This means a critical task for the government will be to increase the professional competency of teachers and school principals.

While the principal is at the centre of the devolved system of school-based management in Indonesia, their current skills do not enable them to

manage their leadership role well. In high-performing systems principals are instructional leaders who take a positive role in improving the quality of teaching and learning at their schools, as reflected in improved student outcomes. The review team formed the view that many principals in Indonesia do not have adequate training or knowledge of school management and leadership and so are unable to lead their teachers in ways that will achieve better student outcomes.

Principals in Indonesia are often selected on the basis of an examination, or they are nominated by a district education officer rather than selected through a formal merit-based process. Most seem to receive little training. The review team were informed that some principals have been able to attend a Principal Preparation Programme (PPP) managed and implemented through the Institute for the Development and Empowerment of School Principals, based in Solo, Central Java. For many principals, however, professional development consists only of briefings on policy documents issued by the district office, or short management courses.

It is not surprising then, that very few principals actively support staff development. This is a concern because the most powerful activity they can engage in is promoting, encouraging and motivating their staff to participate in teacher learning and development, and participating in the development themselves (Robinson, 2007).

Indonesia recognises that professional competency plays a central role in improving the quality of teaching and education outcomes and this is clearly seen in the Law on Teachers and Lecturers (2005) which addressed the problem of teacher quality through formal teacher certification. It now needs to develop a clearer shared understanding of what constitutes effective teaching, what it looks like in practice and what strategies will promote such teaching. Teachers need to experience the right levels of pressure (accountability) and support (professional development) to make a difference to student achievement. It will be necessary also to ensure that school leaders focus on improving their teachers' teaching practice, and improving their students' learning and achievement.

These next steps will be challenging because the review team was informed that most teachers do not experience regular ongoing professional development and that there is very little on-the-job coaching provided by external facilitators, principals, supervisors or experienced teachers. This needs to be addressed in ways that are likely to improve teachers' daily classroom practice.

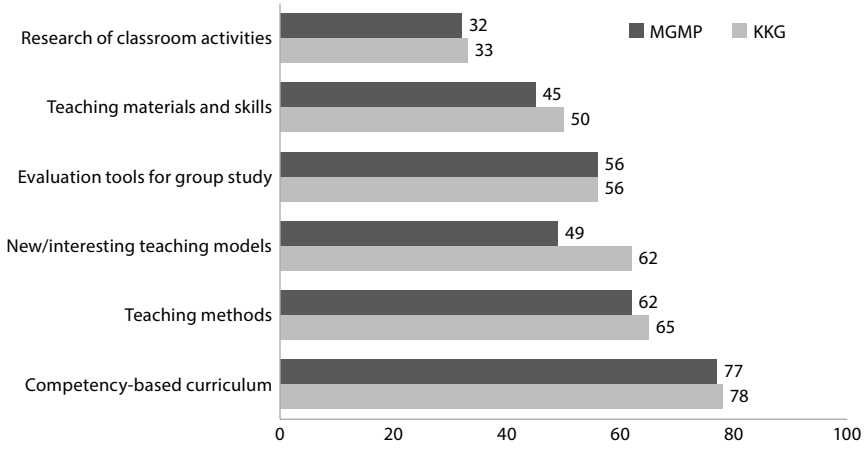
The realisation of the 2013 curriculum policy in teacher practice will depend on the fit between the capabilities that support implementation and the aims of the policy. Engaging those who must make the change is very

important in any change process. The cascade process that is currently being used to disseminate information about the curriculum is increasing knowledge of and support for the new curriculum aims, but it will not on its own impact on what teachers do in their classrooms each day.

Learning communities

Despite the fact that most teachers have participated in some development on the 2004 competency-based curriculum, the review team's observations were that most teachers do not apply this in their classrooms. One way to address this may be through using the useful network of professional learning communities that Indonesia has developed within and across schools. These clusters, of primary school teachers (*kelompok kerja guru*, or KKG) and secondary school subject teachers (*musyawarah guru mata pelajaran*, or MGMP) are widespread and have a history spanning 30 years. They provide a valuable infrastructure across the country and teachers told the review team that they valued them because they focus on practical real life situations rather than the theory offered by universities. Figure 8.2 indicates what teachers learn through these clusters.

Figure 8.2. **What teachers develop as a result of attending clusters**



Source: Ragatz, A., and R. Kesuma (2009), *Teacher Working Groups in Indonesia: A Study of the Current Situation and Opportunities for Increased Effectiveness*, Background paper, World Bank, Jakarta.

Research indicates that working in networks or clusters can lead to new learning and improved teacher practice, (Katz et al., 2009). However, bringing people together in clusters does not produce better outcomes unless

their collaborative work engages them in a process that supports them to move beyond their established patterns. Poorly implemented clusters are unlikely to impact on better outcomes for students.

The core principle in establishing clusters (or any other structure for school improvement) is that changes in student learning come from changes in what students experience in their classrooms each day.

Clusters work best when they:

- Help teachers to focus on providing more effective learning experiences for their students.
- Use a disciplined process of inquiry that includes evidence from research and student achievement data.
- Support teachers to inquire into their practice, to trial changes and to examine their impact on student learning.
- Are explicitly connected to school improvement initiatives
- Are supported by strong leadership from principals and facilitated by skilled external facilitators. (Katz et al., ibid).

It is very difficult for principals to facilitate their own new learning and the learning of their staff. Clusters of schools require ongoing highly skilled facilitation to challenge the status quo of both beliefs and practices by asking difficult questions and offering alternative interpretations. Facilitators also need to provide mechanisms for using data, capturing their deliberations and communicating them more broadly.

Highly skilled facilitators could support local clusters by rejuvenating inactive groups or encouraging their formation in new areas. This could also foster co-operation between provincial and district offices. There are a number of people in the system who might provide additional support for clusters. These include staff from the Institutes of Educational Quality Assurance, the Centres for Development and Empowerment of Teachers and Education Personnel, school supervisors, and ministry staff. The Open University could also provide online support that builds on their current distance education programmes by sharing good practice and resources across clusters.

Resources for continuing development

The Open University (Universitas Terbuka, or UT) has provided an important pathway for teachers who need to upgrade their training. It has an extensive network and good working relationships with provincial universities. It also has a “smart teachers’ portal” that contains a wide range of materials for teachers. Materials include education laws, teaching

workshops, video case studies, and new ideas to discuss and try. It currently has 8 000 active members and the site is free for everyone, not just Open University students. This portal could be used gather examples of effective teaching and success stories that support the implementation of the new curriculum.

With the decline in demand for certification training, the Open University and other universities that are developing distance learning programmes will be well placed to develop programmes that support ongoing in-service teacher professional development. Teacher training institutions could also develop an in-service training arm that followed their graduates into practice and provided continuous in-service professional development.

It may also be useful to examine the four high-performing education systems in East Asia. These systems introduced one or more of the following reforms.

- **Provide high quality initial teacher education.** In Singapore, students are paid civil servants during their initial teacher education. In Korea, government evaluations have bite and can close down ineffective teacher education courses.
- **Provide mentoring that continually improves learning and teaching.** In Shanghai, all teachers have mentors, and new teachers have several mentors who observe and give feedback on their classes.
- **View teachers as researchers.** In Shanghai teachers belong to research groups that continuously develop and evaluate innovative teaching. They cannot rise to advanced teacher status without having a published paper peer reviewed.
- **Use classroom observation.** In all successful systems teachers regularly observe each other's classes, providing instant feedback to improve each student's learning.
- **Promote effective teachers and give them more responsibility for learning and teaching.** In Singapore, master teachers are responsible for improving teaching throughout the system (Jensen, 2012).

Key questions to consider include: What knowledge do teachers need to develop? What supports do teachers need to improve their practice? What do school leaders need to know to support/guide their teachers? What do professional development facilitators need to know and do to support teacher/leader learning? What are the most effective structures and processes for system implementation?

Qualifications of higher education personnel

The minimum educational attainment level for lecturers in higher education is a master's degree (S-2). According to MOEC's report on performance accountability for 2012, (MOEC, 2012b) 66% of lecturers on bachelor's (S-1) and diploma programmes had reached that level, which is a marked improvement on previous years. Although this did not meet the performance target of 75% by 2012, this rise reflects the impact of the large-scale national and international upgrading programme set up by the Directorate General for Higher Education (DGHE). There has since been commendable extra focus on increasing the number of scholarships for S-2 lecturers in the upgrading programme both nationally and internationally.

For lecturers at doctorate level (S-3), only 10% had reached that qualification in 2012, which is clearly below the target of 15% set by the DGHE for that year. Here there also is extra focus on increasing the quota of scholarships for S-3 lecturers.

Only 39.3% of lecturers had got a professional certificate of teaching competence in 2012 compared with the DGHE's target of 50%. It should be mentioned, though, that the system of certification was only introduced in 2008 so the 2012 figure is an increase from 15% in 2009. The DGHE is also working hard to improve these figures. As discussed in Chapter 6 (Section 6.5) there also appears to be a need to enhance the pedagogical skills of the lecturers.

Institutional variation

By international standards this general educational attainment level for the Indonesian higher education sector is rather low. The general figures mask a considerable variation between public and private and between general and faith-based institutions. As can be seen in MOEC's *Overview of the Education Sector* (MOEC, 2013, Figure 74), in 2009 about 90% of lecturers in general private institutions only had a bachelor's degree, whereas the same figure for general public and faith-based public institutions was between 20 and 25%. At the doctorate level the general public institutions have much wider coverage than the other categories.

This level of formal qualifications both academically and professionally is not satisfactory for a higher education sector. Both the quality of the teaching and the research capacity would seem to be too weak to support the ambitions of Indonesian society. Doctorates, and the number of doctorates especially in science and technology are often taken as indicators of the potential of higher education to contribute to innovation and growth. From that point of view the situation is not too promising for Indonesia, although progress is being made.

Geographical variation

The figures also conceal a large geographical variation. For instance, Java has much better relative S-2 and S-3 coverage than in other islands. About two-thirds of the doctorates are in Java, since the need for innovation in industry and business could be strongly felt in the five corridors outside of Java.

The lower education attainment level for staff in the remote areas also has an adverse effect on the attempts to create greater geographical and social equity.

Publication

Another measure of quality in higher education and research is the number of articles published by lecturers in national and, more importantly, international refereed journals. The level in Indonesia is low by international standards both at the national and the international level. Just 6.3% of lecturers published in national publications in 2012 and the figure for contributors to international journals was as low as 0.68% (MOEC, 2012b).

During the period 2007-11, a marked rise in enrolments and a falling number of lecturers has led to a relatively high student/ lecturer ratio, 31 at the public institutions and 28 in the private sector (see Tables 8.2 and 8.3).

Table 8.2. **Numbers of teachers by level of education, 2007/8 to 2012/13**

Level	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	% Change
Kindergarten	233 563	233 755	276 835	267 576	275 099	275 099	285 179	22%
Primary	1 445 132	1 569 326	1 627 984	1 644 925	1 550 276	1 550 276	1 682 263	16%
Junior secondary	621 878	629 036	636 948	556 905	513 831	513 831	587 610	-6%
Senior secondary	305 852	314 389	327 163	264 512	264 512	264 512	264 512	-14%
Vocational senior secondary	230 787	246 018	270 401	175 656	175 656	175 656	187 529	-19%
Higher education	250 357	228 781	233 390	207 507	192 944	192 944	209 830	-16%

Source: MOEC (Ministry of Education and Culture) (2012), Indonesia Educational Statistics in Brief 2011/12, MOEC, Jakarta.

Table 8.3. **Ratio of students to teachers, 2012/13**

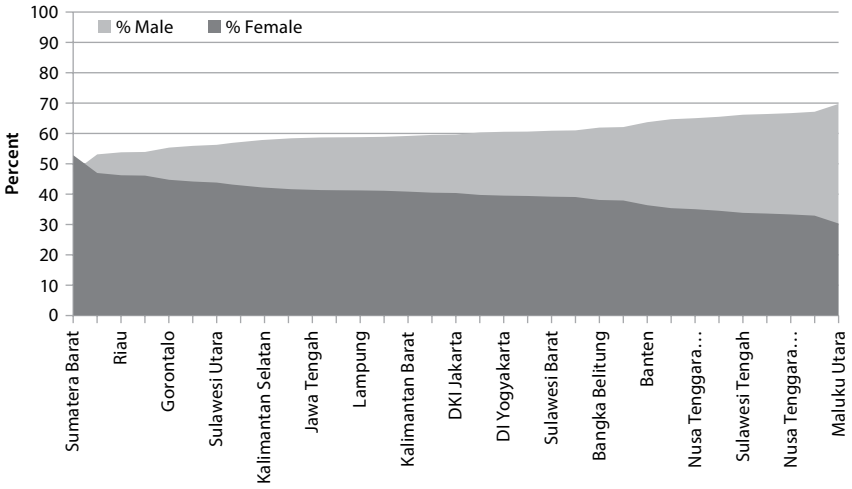
Status	Kindergarten	Primary	Junior secondary	General Secondary Schools	Vocational secondary	Senior secondary	Higher education
Public	15	16	17	16	17	16	28
Private	14	16	16	17	27	23	28
Average	14	16	16	16	22	19	28

Source: MOEC (Ministry of Education and Culture) (2012), Indonesia Educational Statistics in Brief 2011/12, MOEC, Jakarta.

Gender

Figure 8.3 shows how males dominate the lecturing positions in higher education. With the impressive growth in female student participation in higher education in recent years – although less so at the S-3 level – it should be a strategic and realistic goal to have more women employed as lecturers in higher education (see Chapter 6, Section 6.3).

Figure 8.3. **Proportion of university lecturers by gender**



Source: (DGHE) Directorate for Higher Education Statistics 2012/2013, MOEC (Ministry of Education and Culture).

Qualifications of vocational education and training personnel

Improving vocational teacher qualifications are challenges for Indonesia's vocational training system. Critics of the vocational school system argue that the quality of teaching and learning it offers tend to be inappropriate in that it does not relate to the needs of industry, has not kept pace with current technology and innovation, and gives students inadequate basic generic skills in mathematics, English and computing (see Chapter 5 for more details). According to an employer/employee survey (2008) on the quality of graduates from vocational senior secondary schools (*sekola menengah kejuruan*, or SMKs), they have inadequate understanding of the curriculum which is not industry- specific enough. This criticism reflects the quality of the vocational education and training (VET) teachers employed and their qualifications.

According to the official statistics up to 89% of teachers in SMK schools have at least a degree, and particularly so in the public SMK schools (Table 8.4).

Table 8.4. **Qualifications of SMK teachers**

Type of SMK	< Graduate degree		>= Graduate degree		Total
Public	6 774	7.40%	84 745	92.60%	91 519
Private	13 143	13.69%	82 867	86.31%	96 010
Total	19 917	10.62%	167 612	89.38%	187 529

Source: Vocational Senior Secondary Education Statistics 2012/2013, MOEC (Ministry of Education and Culture).

Nevertheless, they may not have obtained a teaching diploma as prior to 2014, VET teachers providing non-academic subjects did not need a teaching qualification to be appointed. Only their vocational qualifications were considered in their appointments.

The statistics were not disaggregated by province or gender. Notably, however, there is a relatively evenly spread of male and female SMK teachers, despite the fact that female enrolment continues to decline.

Major reforms introduced by MOEC in 1997 (Decree 36/0/1997) streamlined and restructured the SMK curriculum and also emphasised teacher and instructor quality improvements. These in-service programmes were driven from Technical Education Development Centres, Vocational Education Development Centres and Art Education Development Centres. The review team had no opportunities to engage with any of these. Nevertheless the literature points to the fact that some centres have a

good reputation with the business community for providing high quality professional development not only for SMK teachers but also for business sector personnel. Various industries and businesses have also used some of these centres as an authorised training centre. Currently there is a new VET teacher upgrading model which relies on upgrading training facilities, being piloted in 90 model SMKs which will then share their knowledge and expertise with 230 neighbouring SMKs (CBR).

Table 8.5. **SMK teachers by gender**

Type of SMK	Male	%	Female	%	Total
Public	46 948	51.30%	44 571	48.70%	91 519
Private	52 183	54.35%	43 827	45.65%	96 010
Total	99 131	52.86%	88 398	47.14%	187 529

Source: Vocational Senior Secondary Education Statistics 2012/2013, MOEC (Ministry of Education and Culture).

The review team noted promising practices in a number of SMK schools visited where agreements had been signed with private sector partners, particularly in the automotive industry. These partners would offer facilities and equipment and fund full time instructors to teach students the industry requirements of the trade. Nevertheless, the risk is that these instructors are not qualified in pedagogy, and are accountable to their employers, not the school, and the skills taught are not necessarily transferable to other jobs.

Observations and recommendations

Since 2005, steps have been taken to professionalise teaching at the basic and senior secondary levels. All teachers are to be qualified to at least bachelor's degree level and to have satisfactorily completed a certification programme. Better-equipped teachers and better teaching make for better student learning, and better remuneration for teachers is helping to raise the status of teaching and its attractiveness as a career. However the higher costs of certified teachers are adding significantly to the salary bill, especially as decentralised arrangements have encouraged districts to hire more teachers. Variable patterns of teacher attendance and time spent teaching compound the problem, along with the absence of an effective performance-based accountability system.

The 2013 curriculum requires a shift from teacher-centred instruction to more interactive teaching and team-based learning, to foster higher-order cognitive skills and the development of character and behavioural skills. This

shift challenges traditional teaching practices and culture, and will require a concerted effort involving an extensive programme of continuing professional development and mentoring; support from principals, supervisors and lead teachers; external facilitation; and peer clustering. However, school principals are typically not appointed on merit and also lack the structured support they need to manage their responsibilities and be leaders of learning in their schools. Supervisors, too, need support to undertake their wider roles as champions of the new curriculum.

Indonesia has 32 public and 342 private teacher training institutions, with variable quality of student intake, teacher training and graduate output. There are not only supply imbalances relative to demand but serious deficiencies in their readiness to teach effectively and help students learn.

Recommendations

- The responsible ministries should: *1)* remove the threshold provision of nine teachers per school; *2)* allocate teachers according to student teacher ratios rather than student groups; *3)* reduce the number of very small schools; and *4)* encourage multi-grade teaching, not only as an efficiency measure but also as a means of shifting from didactic teaching and rote learning to more interactive learning.
- The responsible ministries should encourage and financially support primary teachers and secondary subject teachers to use their networks of professional learning communities to focus on practical ways of improving their teaching to advance the learning of their students, share their experiences and evidence about "what works", and systematically trial and evaluate new approaches. Consideration should be given to extending access to the Open University's "smart teacher" online portal which offers a place where teachers can share exemplars of good teaching and accounts of their efforts and successes, and a repository of evidence from classroom and school-based research.
- The responsible ministries should develop and resource a programme of continuing professional development for teachers, linked to a programme of teacher performance appraisal.
- School principals should be appointed through an open, formal merit process. Newly appointed principals should undertake an induction programme before taking up their duties.
- School principals should have access to continuing professional development and mentoring.

- The responsible ministries should, as a priority, develop a programme for the professional development of school supervisors, oriented to the competencies expected of supervisors.
- The educational attainment bar for entry to teacher education programmes should be raised by MOEC or the institutions themselves. Selection of students into teacher education programmes should include assessment of literacy and numeracy competencies, interpersonal and communications skills, a willingness to continue to learn, and a motivation to teach.
- Consideration should be given to limiting the number of students going in to pre-service teacher education programmes and reducing the number of pre-service teacher education institutions.
- The responsible ministries should initiate an international review of pre-service teacher education in Indonesia, reporting against international benchmarks. This should cover: student admission; the appointment and training of teacher educators; and the curriculum balance between disciplinary knowledge, education-related theoretical knowledge; skills in diagnosing student learning needs and assessing learning progress; student-centred teaching skills, and teaching practicum.
- Teacher training institutes should consider forming extended twinning or other co-operative arrangements with reputable international institutions with up-to-date teacher education programmes. Such an arrangement could involve study visits and interchange of teacher educators.

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Chapter 9

Appropriate educational assessment in Indonesia

The various purposes and forms of educational assessment

Assessment is arguably at the core of formal education, as it informs the validation of learning and decisions about educational interventions – in the classroom and at the system level. Educational assessment provides a basis for understanding how and how well student learning is occurring, according to which judgements can be made about student progress in education (see Box 9.1).

Box 9.1. **Diverse uses of assessment**

Information about where students are in their learning can be used in many different ways, including to identify starting points for teaching, to diagnose errors and misunderstandings, to monitor trends in average achievement levels over time, to select students for entry into courses, to evaluate the effectiveness of teaching interventions, and to benchmark achievement levels against international standards.

Source: Masters (2013), "Reforming educational assessment: Imperatives, principles and challenges", *Australian Education Review*, No. 57, Australian Council for Educational Research, Melbourne, http://research.acer.edu.au/cgi/viewcontent.cgi?article=1021&context=aer.

Assessment is the means by which student attainment is noted, recorded and referenced – whether in relation to set standards or in relation to the achievement of others. It guides how students' readiness for further learning is rated, either for diagnostic purposes – modifying teaching and learning experiences to address student needs – or to advance them on to further stages of education or recognise their successful completion of an educational stage, and award accreditation.

Assessment processes can provide data for evaluating teaching effectiveness and the effectiveness of educational programmes, including the curriculum and the organisation of learning experiences. This approach focuses not just on what students achieve – as if they alone are responsible for their learning outcomes – but also on what teachers do and how well they perform at the teaching tasks for which they are paid and need to be held accountable. Student assessment can thus inform the appraisal of teacher performance, and the effectiveness of schools and educational subsystems, on a regional and stage-of-education basis. Different education stakeholders – teachers, school leaders, school governing bodies, parents, educational authorities, employers, general taxpayers, parliamentarians and students – have varying interests and expectations regarding assessment.

In its 2013 overview of educational evaluation and assessment, the OECD noted the expanding capacity and scope of assessment (OECD, 2013). Whereas assessment formerly concentrated on measuring a limited range of student attainment, it now embraces broader learning outcomes, including critical thinking, social competencies, engagement with learning and overall wellbeing, and also encompasses the appraisal of teachers, schools and systems. On the one hand, decentralisation and school autonomy are creating a greater need for the evaluation of schools, school leaders and teachers. On the other hand, information and communications technology has given the capacity for the development and analysis of large-scale student assessments and more individualised assessment approaches. These developments give rise to new capacity-building requirements, including training teachers in formative assessment, upgrading the data management and evaluative skills of school principals and district-level supervisors, and developing a centralised base of knowledge and methods to support the expansion of assessment activities.

The elements of a coherent national assessment framework

Contemporary education systems have developed an integrated assessment framework typically comprising four main elements: *1)* classroom assessments; *2)* national sample surveys; *3)* international tests; and *4)* public examinations. Some countries have a fifth element, national competency testing in core skills at grade intervals. However, as discussed below, this element is more contentious, and is not widely accepted as a necessary or integral element of a balanced assessment framework. In the case of Indonesia, while the current assessment system comprises aspects of all four main elements, it is particularly reliant upon public examinations. Therefore, it is helpful to begin with an understanding of the role of different assessment tools and how they can be developed and used most effectively.

Classroom assessments

The modern world requires increasingly exacting and adaptable abilities, including the ability to work in teams, use technology effectively, innovate, solve complex problems, analyse and evaluate diverse information, behave ethically, and accept personal responsibility. Appropriate assessment methods are needed to understand how well students are developing these abilities. Current assessment and reporting practices derive from an earlier era of educational expectations, however. They were designed to support the traditional whole-class teaching of an age-based, graded curriculum. Teachers had the role of delivering the curriculum, students had the task of learning

what was taught, and assessment had the function of establishing how much of the taught curriculum had been learnt by the students (Masters, 2013).

The structure and form of assessment, as well as its purposes, can influence what education systems do and how they function at every level. If a test can be prepared for, it can become more a measure of the preparation effort than of student ability and potential. Preparation effort can include becoming familiar with the testing culture and rehearsing responses to test item types.

In line with practice in other professions, assessment is shifting in a more diagnostic direction and with a greater interest in understanding than judging:

> ... in modern classrooms, assessment is seen as an essential and ongoing component of effective teaching. Teachers use assessments to identify where individual students are in their learning, to diagnose errors and misunderstandings, to plan teaching, to provide feedback to guide student effort, to monitor the progress that individuals make over time, and to evaluate the effectiveness of their teaching strategies and interventions. In this sense, assessment has parallels with assessment in other professions such as medicine and psychology where the purpose is not so much to judge as to understand for the purposes of making informed decisions (Masters, 2013).

Thinking of assessment as "the process of establishing where learners are in their learning" (Masters, 2013) enables it to be used both as assessment *for* learning and assessment *of* learning, and both criterion-referenced, against set standards, and norm-referenced, against the performance of others. Teachers, for instance, may use assessment for three main purposes: *1)* assessment for learning – to enable teachers to monitor student knowledge, understanding and skill development so as to target their teaching to support student progress; *2)* assessment as learning – to enable students to reflect on and monitor their own progress and inform their future learning goals; and *3)* assessment of learning – to assist teachers at the end of the learning experience to gather evidence of student knowledge, understanding and skills.

Masters (2013) has put forward five design principles for a "learning assessment system":

1. Assessments should be guided by, and address, an empirically based understanding of the relevant learning domain.
    - A domain may be a subject area of learning within which student attainment and progress are to be assessed and monitored. A domain has both horizontal and vertical sub-structures. For

instance, in the horizontal dimension of the domain of Reading Literacy in PISA, there are three sub-domains: accessing/retrieving, integrating/interpreting and reflecting/evaluating. The vertical dimension identifies increasing proficiency within the domain.

- Course syllabuses spell out the knowledge, skills and understanding that students are expected to develop, ideally grounded in discipline knowledge. They should identify knowledge and skills essential to the discipline, with a particular emphasis on the development of students' understanding of key concepts, principles and ideas in the discipline. They should be built from an empirically based understanding of how learning occurs within the discipline, including an understanding of how the course builds on prior learning, how it lays the foundations for further learning, and how content is best sequenced within the course to promote the development of student knowledge, skills and understanding.

2. Assessment methods should be selected for their ability to provide useful information about where students are in their learning within the domain.
   - Different assessment methods (e.g. paper and pen tasks, student performances, research projects, portfolios of student work) are likely to be valid for different kinds of learning. Once a general method of assessment has been chosen, specific assessment activities or tasks are required. In developing assessment tasks, consideration needs to be given to a range of other criteria, including reliability, objectivity, inclusivity and feasibility (see below).
3. Response to, or performance on, assessment tasks should be recorded using one or more task "rubrics".
   - Task rubrics (*marking guides*) provide the direct substantive link to the learning domain. Through their ordered levels of response or performance, they operationalise what it means to make progress within the domain and that the direct connection is built back to the learning intentions.
4. Available assessment evidence should be used to draw a conclusion about where learners are in their progress within the learning domain.
   - Individual assessment tasks are rarely of intrinsic interests. They are convenient and interchangeable vehicles for gathering

evidence and drawing conclusions about where learners are in their learning with a particular domain.

5. Feedback and reports of assessment should show where learners are in their learning at the time of assessment and, ideally, what progress they have made over time.
   - Feedback on the knowledge, skills and understanding demonstrated by students reflects an appreciation of learning as an ongoing, long-term process.

Box 9.2. **International best practice in educational assessment**

International best practice in educational assessment proceeds through the set of steps outlined above, beginning with a clearly defined learning domain grounded in discipline knowledge and evidence about how learning occurs within that domain. Assessment methods are chosen on the basis of their relevance for that domain (construct validity) rather than personal preference. Students' task responses/performances are recorded using marking guides that are informed by, and aligned with, the learning domain and learning intentions. Conclusions about where students are in their learning within the area being assessed are then based on evidence provided by (usually multiple) assessment tasks.

Source: Masters (2013), "Reforming educational assessment: Imperatives, principles and challenges", Australian Education Review, No. 57, Australian Council for Educational Research, Melbourne, http://research.acer.edu.au/cgi/viewcontent.cgi?article=1021&context=aer.

Formative assessment is used by good teachers to adapt their teaching methods and subject matter to advance student learning, especially in the early grades. It is often used informally and intuitively and may be structured or unstructured. It may include observations, questioning, quizzes, reviews and mini tests. Typically, teachers do not record the findings of such informal means of formative assessment beyond the classroom. More structured means of formative assessment, in contrast, can involve evaluative tasks where student results are accumulated through a programme of continuous assessment, such as assignments and projects, which may form part of a summative assessment report, whether complemented by end-of-stage testing or not.

The key development in well-performing classrooms and schools is the integration of assessment with curriculum goals and teaching practices. The function of assessment itself is evaluated in terms of its usefulness in enabling young people to learn and to know how well they are learning. Box 9.3 outlines a set of principles for judging the quality of assessment materials and practices.

Box 9.3. **Principles for assessing assessment**

The approach:

Emphasises the interactions between learning and manageable assessment strategies that promote learning.

In practice, this means:

- Teachers reflect on the purposes of assessment and on their assessment strategies.
- Assessment activities or tasks allow for demonstration of learning outcomes.
- Assessment is embedded in learning activities or tasks and informs the planning of future learning activities or tasks.
- Teachers use assessment to identify what a student can already do.

Clearly expresses for the student and teacher the goals of the learning activity or task.

In practice, this means:

- Students understand the learning goals and the criteria that will be applied to judge the quality of their achievement.
- Students receive feedback that helps them make further progress.

Reflects a view of learning in which assessment helps students learn better, rather than just achieve a better mark.

In practice, this means:

- Teachers use tasks that assess, and therefore encourage, deeper learning.
- Feedback is given in a way that motivates the learner and helps students to understand that mistakes are a part of learning and can lead to improvement.
- Assessment is an integral component of the teaching-learning process rather than being a separate activity or task.

Provides ways for students to use feedback from assessment.

In practice, this means:

- Feedback is directed to the achievement of standards and away from comparisons with peers.
- Feedback is clear and constructive about strengths and weaknesses.
- Feedback is individualised and linked to opportunities for improvement.

Box 9.3. **Principles for assessing assessment** *(continued)*

Helps students take responsibility for their own learning.

In practice, this means:

- Assessment includes strategies for self-assessment and peer assessment emphasising the next steps needed for further learning.
- Is inclusive of all learners.

In practice, this means:

- Assessment against standards provides opportunities for all learners to achieve their best assessment activities or tasks are free of bias.

Source: New South Wales Department of Education and Training (2012), *Principles of Assessment for Learning.*

National sample surveys

The purpose of national assessments is to identify and monitor the level of achievement of the education system or subsectors within it. This purpose differs from that of other forms of assessment which are designed to identify and monitor the progress or competence of individual learners. They are designed typically to shed light on the following questions. How well are students learning? Is there evidence of particular strengths or weaknesses in their knowledge and skills? Do the achievements of subgroups in the population differ? To what extent is achievement associated with characteristics of the learning environment? Do the achievements of students change over time?

National assessments may be undertaken for an entire population of students and schools (census) or for a representative sample of them. While a census approach has the advantage of covering all schools and thereby identifying those schools that are performing poorly or exceptionally well, it is an expensive model, especially for a large system as in Indonesia. The census approach also runs the risk of schools being ranked, with some possibly shamed or subject to sanctions. The sample method incurs fewer costs in monetary terms and staffing requirements, and the time needed to collect and process the data and produce results. This enables more detailed questions to be asked, and characteristics to be tested which could not otherwise be assessed. Sample surveys also impose lower burdens on students, as fewer of them need to participate.

The sample method may be applied to particular subject areas at specific school grades (e.g. mathematics at fifth and eighth grades) and conducted periodically (e.g. every 3-5 years). These data are then "expanded" or

"weighted" to make inferences about the whole population. Such estimates are subject to sampling error, as the estimates are collected and calculated from a part of the population. Protocols have been developed by assessment professionals to reduce error and present results within reliable ranges, although such protocols can complicate the communication of results to other interested parties. An example of survey assessments is provided at Box 9.4.

Box 9.4. **Sample assessments**

The following sample assessments are undertaken every three years in the Australian Capital Territory:

Scientific literacy (NAP-SL)

The NAP-SL programme assesses and reports on the scientific literacy of year 6 students. NAP-SL tests students' grasp of basic concepts and scientific processes. It assesses practical problem-solving investigation as well as open-ended short-answer items and multiple choice items in a variety of themes: earth and beyond, energy and change, life and living, and natural and processed materials. Further information on the NAP-SL programme can be found on the NAP website (NAP, 2014a).

Civics and citizenship (NAP-CC)

The NAP-CC programme assesses and reports on student achievements in civics and citizenship through a representative national sample survey of year 6 and year 10 students. NAP-CC tests the knowledge a student has gained from their civics and citizenship education programme, which looks at their rights and responsibilities as citizens and enables them to analyse their history. Further information on the NAP-CC programme can be found on the NAP website (NAP, 2014b).

Information and communication technology literacy

The NAP-ICT Literacy programme assesses and reports on a range of student achievement in general information and communication technology (ICT) skills and knowledge in a cross-curricular context (i.e. ICT literacy), rather than the more technical skills and knowledge developed through specialist ICT courses. Further information on the NAP-ICT programme can be found on the NAP website (NAP, 2014c).

Sources: NAP (National Assessment Program) (2014a), "Science literacy", www.nap.edu.au/nap-sample-assessments/about-each-domain/science-literacy/napsa-science-literacy.html;

NAP (2014b), "Civics and citizenship", www.nap.edu.au/nap-sample-assessments/about-each-domain/civics-and-citizenship/napsa-civics-and-citizenship.html;

NAP (2014c), "ICT literacy", www.nap.edu.au/nap-sample-assessments/about-each-domain/ict-literacy/napsa-ict-literacy.html.

There are several considerations specific to sample surveys which need to be taken into account when designing them. These factors include: sample size; sample design; the mode of estimation based on survey results and, where applicable, stratification; allocation of the sample across the strata; and the selection of the sample within the strata. These factors, however, depend on many other factors such as the objectives of the survey, the nature of the target population, the data items to be collected and the level of accuracy required.

Sample surveys can be used to evaluate students' educational progress in a particular subject over the years. However, this requires the development of a common scale of measurement that is valid from grade to grade. In order for this to be possible, the assessments must be carefully designed. The sections that follow outline some technical aspects related to the use of sample surveys – vertical scaling and equating – for guidance to those involved in designing future assessments.

Vertical scaling

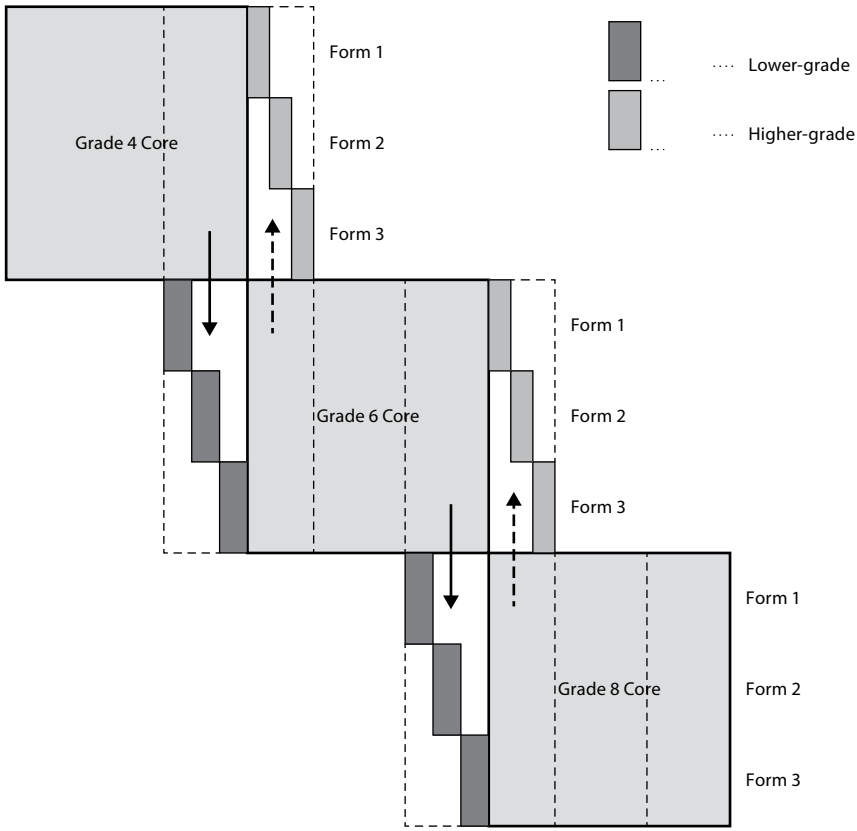
A statistical vertical linking of the results in each subject (e.g. mathematics, reading) can be developed to observe the performance levels attained through the years on a common scale (assuming the production of equated and linked examinations). The logic behind the implementation of vertical scaling is best represented in Figure 9.1, which shows how, if the right set of items can be identified, they can potentially be linked across the various grade-level tests. These items represent the borderline areas of each participating grade.

A vertical scale is derived by linking assessments from multiple grade levels to indicate a student's performance on the continuum that spans several levels of a test (Petersen et al., 1989). It is used to evaluate educational growth along a common scale. The primary purpose of national vertical scales is to provide schools and districts with information about students' annual progress towards meeting established performance standards.

Although students' academic standing could be monitored with on-grade scales (e.g. whether students maintained scaled scores and performance levels from one grade to the next), on-grade scales do not provide a way to estimate the amount of achievement that students are gaining from one grade to the next. Vertical scaling provides a means for converting grade-specific scores to a common measurement scale that can be used for direct assessment of achievement growth for individual students. The reporting characteristics of this common measurement scale (i.e. range and reference points) are a matter of arbitrary definition and usually are determined by teams of experts and approved by administrative authorities. At least one reference point should be defined, but it is most typical to define two or more. The most common method of doing this is to choose a mean and standard deviation for the final scale.

The assumption of every measurement scale is that at any point of the scale the construct being measured is the same. Applied to a vertical scale that is constructed from multiple grade-specific tests, this means that the content included in grade-specific tests should represent a part of the same developmental construct. For example, if one wants to place the scores from a fourth grade mathematics test and a sixth grade mathematics test on the same scale, and interpret the difference as developmental gain, it must be assumed that knowledge and skills being measured at those two grade levels are similar enough that the corresponding test scores can be placed on the same measurement continuum.

Figure 9.1 **Example of vertical scaling**



Source: Petersen, N.S., M.J. Kolen and H.D. Hoover (1989), "Scaling, norming, and equating" in R.I. Linn (ed.) *Educational Measurement,* 3rd Edition, pp 13-103, Macmillan, New York.

The accuracy of a vertical scale depends on whether there is enough similarity in content between adjacent grades so that performance at the end of the lower-grade test can serve as a pre-test for the next grade achievement. If a single test can serve as both a post-test for its grade and a pre-test for the next grade then the difference between a lower grade vertical scale score and higher-grade vertical scale score can be interpreted as an estimate of achievement gain during the higher grade. This can be assumed only when there is sufficient overlap in knowledge and skills between grades.

However, this issue should be placed in the broader context of the consideration of the construct validity of scores generated by vertical scales. What is actually measured by a vertical scale? Most of the current approaches to the construction of vertical scales tend to use a data-driven definition of the measured construct because they generate vertical scale scores that are transformations of total scores on existing grade-specific assessments. In such a case, the construct being measured by a vertical scale represents a blend of contents covered by and included in grade-specific tests. It is assumed that all on-grade assessments for adjacent grades (e.g. fourth and sixth grade on the one hand and sixth and eighth grade on the other in the assessment) spanned by a vertical scale have enough in common to be placed on the same scale. Careful selection of content of the tests is a prerequisite to developing a valid vertical scale. Therefore, the degree to which this assumption holds should be systematically scrutinised by conducting a vertical alignment study.

The theory-driven definition of validity of vertical scores involves consideration of the learning standards at each grade level and assumes the existence of the developmental achievement construct that is aligned with those standards. A method has been recently developed for across-grades alignment (McBride and Wise, 2000; Wise, 2004) that focuses on the following questions:

- How does the content to be mastered at each succeeding grade relate to and extend the content to be mastered at the prior grade?
- How does the assessment of content mastery compare from one grade to the next? Is there a logical way to assess mastery of the cumulative content?

In order to link an achievement scale from each grade to the common scale a test and data collection design should be used that incorporates the use of linking (anchor) items embedded in on-grade tests. The between grades linking items should be selected according to the following criteria, for example:

- The Grade 6 test form should include a sample of upper-grade and lower-grade linking items, whereas the Grade 4 test should include only a sample of upper-grade items, and the Grade 8 test should include only a sample of lower-grade items.

- The off-grade linking items should be embedded among the on-grade items and do not contribute to students' scores. Each item in the anchor item set should be placed on the two tests as closely as possible to the same location to reduce the possibility of effects related to item position.
- The upper-grade and lower-grade linking items should be selected from the core items in the grades where they originally belong.
- The content of the linking items should be selected as developmentally relevant and as representative of the core content of the grade-specific tests and of the overall subject area in the given grade span, as possible. They should also represent a range in difficulty.

Construction of the calibration-based vertical scale follows several computational stages typical for any equating process (Petersen et al., 1989):

- Constructing the interim scale – to provide a mechanism for rank ordering examinees (i.e. their scores) from a wide range of grade levels on a single developmental continuum.
- Rescaling the interim scale.
- Providing a mechanism for converting scores from each level of the test to the vertical scale scores.

Equating

According to Mislevy (1992), the scores obtained by psychological and educational assessments can be linked using several different approaches: calibration and linking, discussed above, and the more rigorous equating.

Equating two tests in the horizontal scaling context is fairly easy using an Item Response Theory (IRT) test characteristic curve approach, assuming the suggested two- or three-parameter IRT model (Stocking and Lord, 1983). If it can be assumed that the content dimensionality assumption in vertical scaling is met, then various methods can be adopted to accomplish the task of linking across several grades. Construction of the interim scale is typically done by means of the same IRT models used for year-to-year equating: two-parameter-logistic model for dichotomous constructed response (CR) items, and graded-response or two-parameter-partial-credit model for polytomous CR items.

The Stocking and Lord transformation method (Stocking and Lord, 1983) or fixed common item parameters method are typically used to achieve a

common metric for all grades spanned within the vertical scale. Based on the recent research evidence (Skorupski et al., 2003), the Stocking-Lord method seems to capture educational growth more accurately than the fixed common item parameters method. But research is still going on in this area and should be carefully monitored.

The equating approach should be followed for all horizontal forms in the same year of an examination, as well as for year-to-year equating, in order to maintain the scale of the measure, which is what will give the necessary stable information over time. This psychometric procedure would allow educational authorities the necessary information for making informed decisions in terms of the recommended sample-based examinations from fourth to eighth grade, and for the national census examinations at ninth and twelfth grades.

International tests

Systematic international testing of school students is a recent development. In addition to TIMMS and PIRLS (see Chapter 3), a major exercise is the OECD's Programme for International Student Assessment (PISA), initiated in 2000 to evaluate education systems worldwide. Every three years, 15-year-old students from randomly selected schools worldwide take tests in the key subjects: reading, mathematics and science, with a focus on one subject in each year of assessment. To date, students representing more than 70 countries have participated in PISA. In 2012, some countries also participated in the optional assessments of problem solving and financial literacy.

The tests last two hours and are a mixture of open-ended and multiple-choice questions organised in groups based on a passage setting out a real-life situation. A total of about 390 minutes of test items are covered. Students take different combinations of different tests.

PISA is unique because it develops tests which are not directly linked to the school curriculum. The tests are designed to assess to what extent students at the end of compulsory education can apply their knowledge to real-life situations and are equipped for full participation in society. Countries participating in successive surveys can compare their students' performance over time and assess the impact of education policy decisions.

The students and their school principals also answer questionnaires to provide information about the students' backgrounds, schools and learning experiences and about the broader school system and learning environment.

Public examinations

Public examinations are a form of census assessment. They are typically used to determine whether individual students have satisfied the expectations of achievement at the end of a stage in their schooling, as a consequence of which they are deemed to have "completed" that stage and be eligible (or not) for a further stage of education or for employment. They are frequently seen as the primary basis for selecting students in pyramidal education systems where the number of places diminishes at each successive level. They are, thereby, the main vehicle for dispensing positional goods, in this case scarce educational benefits. Importantly, they are seen as an objective and unbiased way to allocate these benefits, although some have expressed concern that they may discriminate against some groups. They can also be used to underpin changes in curriculums and teaching methods, maintain national standards, and serve to hold teachers and schools accountable.

The high stakes attached to examination performance can have a number of negative, if unintended, consequences for school practice, irrespective of the quality of the examinations themselves. These include narrowing of the implemented curriculum, neglecting what is not examined, emphasising learning strategies that are superficial or short term (such as memorising, rehearsing and rote learning), devoting a significant amount of time to preparing for the tests, and a heavy reliance on students' external rather than intrinsic motivation for learning. Additionally, because teachers' reputations, if not their pay, depend on how well their students perform in examinations, they may focus their efforts on the students who are most likely to succeed. This, in turn, may be associated with high rates of grade repetition and students dropping out of education early (Kellaghan and Greaney, 2003).

Concerns about the narrowness of traditional public examinations, their great expense and logistical challenges, and their vulnerability to various forms of manipulation, have led to a number of efforts to improve their structure and delivery. In some countries this has involved computerisation and optical scanning, removing obvious deficiencies (such as limited curriculum coverage and a focus on recall and recognition), including topics that will be more relevant to those who do not progress to further academic study, and modifying the content and questions to include items that measure higher-order thinking skills and the ability to apply knowledge and skills in new situations.

Very high-stakes examinations, such as national examinations at the end of the ninth and twelfth grades, have significantly different requirements from those designed to monitor educational progress. They require psychometric properties that minimise misclassifications which could impact adversely on individual students. There have been many publications dealing with this topic. Perhaps one of the most influential worldwide are the *Standards for Educational and Psychological Testing* (American Educational

Research Association et al., 2011). These standards provide a clear summary of the requirements for a testing regimen which is reliable and valid, and which has a positive influence on educational process. Standards call for using multiple measures and/or sources of information to make high-stakes decisions. This is because multiple sources of information allow more valid inferences to be made (Linn, 2000).

The following discussion canvasses key constructs in designing a robust assessment programme.

Validity

There is a general consensus that validity is perhaps the single most important element to take into account in evaluating the quality, application, uses and results of any testing or assessment programme. It is interpreted to mean the degree to which both data and theory support the expected interpretation of test scores which result from the use of the test. The concept of validity has evolved over time. At one point, validity was assumed to be the correlation of between the test and a certain criterion (criterion validity). Later it expanded to include the accuracy with which it measures what it is intended to measure (content validity), and the potential to predict another outcome based on the scores from the test being used (predictive validity).

Later, the concept of "construct validity" was introduced as central to the conceptualisation of validity, meaning the appropriateness of the theoretical concept underlying what is being measured and integrating both elements of the content and the criterion being used. In a seminal paper, Messick presented what is considered to be the currently accepted conceptualisation of validity: "Validity is an integrated evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of inferences and actions based on test scores or other modes of assessment" (Messick, 1989). This interpretation incorporates all the previous components of validity, but it also adds the element of the consequences of the test or assessment. Therefore, in developing an assessment programme, several elements need to be specified:

Content coverage and cognitive level of the test

In order to justify the use of a particular test for a certain purpose and with a certain interpretation of the results, there needs to be logical arguments, detailed examination of the curricular requirements, and an analysis of the actual processes needed to answer each item or question. In addition, the blueprint of the test has to specify how the content standards (that is, what the teachers are supposed to teach and the students supposed to have learnt) will be examined through items or questions.

Performance standards

Content standards that correspond to the curriculum do not specify how well students need to perform to be considered having reached a certain level of performance. Classifying student results according to criteria expressed in various levels of performance standards needs to be justified in an appropriate way. This implies that the process of development of these standards has to be careful and both theoretically and empirically based. Due to the potential negative impact of a test, particularly high-stakes ones, the probability of misclassification in these levels of performance has to be determined and minimised through the characteristics of the test and the process of development of the performance standards.

National competency testing

Several countries have introduced competency testing in core skills at particular grade levels for all students (see Box 9.5). The results are reported typically at the level of the school. The intent is to hold schools accountable for student achievement, with a view to ensuring that all students advance in their learning of basic skills rather than some being "left behind". The move to mandatory testing may be seen as a reaction by states to inadequate formative assessment by teachers, particularly in contexts where curriculum frameworks have reduced the amount of attention paid to the learning of basic skills.

Box 9.5. **Australia's NAPLAN**

Australia's National Assessment Program – Literacy and Numeracy (NAPLAN) is an annual assessment for students in Years 3, 5, 7 and 9. It has been an everyday part of the school calendar since 2008. NAPLAN tests the sorts of skills that are essential for every child to progress through school and life, such as reading, writing, spelling and numeracy. The assessments are undertaken nationwide, every year, in the second full week in May.

NAPLAN is made up of tests in the four areas (or "domains") of:

- reading;
- writing;
- language conventions (spelling, grammar and punctuation);
- numeracy.

Source: National Assessment Program – Literacy and Numeracy (NAPLAN) www.naplan.edu.au.

The approach is contentious, however, for several reasons. Test results typically reflect the socio-economic profile of student enrolments. The impact of reporting on school reputation can induce teachers to encourage those students who are likely to perform poorly to stay away when the tests are administered. The burden of regular testing of the same cohort of students at sequential stages, with expectations of performance improvement, puts psycho-social pressures on the students and crowds out time for broader learning.

The assessment of student learning in Indonesia

As in other areas of Indonesian education, student assessment has seen many changes in recent years. The education system had long stressed the need to assess student learning through in-class examinations measuring academic achievement. The current education system is stipulated by the Education Law 20 of 2003, which sets out eight National Education Standards as a reference for the quality of education. One of them is educational assessment. The standards are then stipulated by Government Regulation 19 of 2005, and Government Regulation 32 of 2013. These student assessments have been considered as part of a continuous improvement programme. Nevertheless, the result of these examinations has been used not only to measure students' level of achievement, but also as a prerequisite to advance in schooling and beyond.

The new curriculum

A new curriculum was announced in 2012 for implementation in 2013/14. Its aim is for students at each level of education to develop the competencies and personal attributes that are needed to meet the challenges of the 21st century. In addition, the new curriculum was a response to concerns that were being raised about the old curriculum. These included concerns that there was too much emphasis on rote learning of knowledge content and too little attention to interactive and contextualised learning and assessment; that there was too little emphasis on character development and the unique culture and identity of Indonesia; that violence was increasing, particularly in the higher grades; and that teachers were struggling to design and deliver quality learning experiences in an over-crowded curriculum with too few teaching hours.

The new curriculum included many changes in content and structure, taking an integrated thematic approach in the lower primary grades and requiring all subjects to address core competencies, use technology in teaching, be more interactive, and to make greater use of continuous assessment. Support for teachers in assessment, however, has been is

minimal, depending on just a few teachers from each school attending cluster group training, then becoming the trainers of their colleagues. Teachers are also required to assess non-cognitive skills and consideration is being given to assessments of personal character and 21st century skills. The new curriculum has generated substantial demands for enhanced and different methods of student assessment within the classroom and at school level as well as through the national examinations.

The Assessment Centre

The Assessment Centre (*Puspendik*) is primarily responsible for the national examinations. It also co-ordinates a number of international testing programmes: PISA, the Trends in International Mathematics and Science Study (TIMSS), Progress in International Reading Literacy Study (PIRLS) and the Programme for the International Assessment of Adult Competence (PIAAC) and advises on classroom assessment and school exams. In addition, the centre developed an Indonesian version of the international tests, the Indonesian National Assessment Programmes (INAP), and annually conducts a sample survey using the test. INAP uses Indonesian and local contexts and references the test items to the 2013 curriculum standards. The Assessment Centre is also tasked occasionally with evaluations, such as evaluation of teachers' competence, aptitude tests, character development pilot programme, and support for civil servant selection testing.

The context of decentralisation

While the exams are currently a responsibility of the national government, the decentralisation laws clearly identify local government as responsible for the delivery of education. In relation to curriculum, for example, schools have been required to develop local content to varying degrees. For the exams, the Assessment Centre recruits item writers from schools and institutions across the country to ensure items reflect the diversity of Indonesia.

Modes of assessment

The Indonesian authorities have articulated a range of purposes for assessment but have long relied largely on just one assessment type – public examinations although more recently Indonesia has participated in a number of international tests (PISA, PIRLS, TIMMS). Indonesia ranked 64th out of 65 countries in the 2012 PISA, 38th out of 42 in the TIMSS 2011 mathematics, 40th out of 42 in the TIMMS 2011 science, and 41st out of 45 in the PIRLS 2011 reading. As in many countries, Indonesia's participation in international testing has had a "shock" effect by exposing areas of serious comparative

weakness in key areas of learning, and this has drawn attention to the need for better ways of knowing how well students are performing. Indonesia has yet to show any trend of improvement in these international tests and has yet to develop systematic approaches to classroom-based assessment and national sample surveys.

Indonesia has employed the Early Grade Reading Assessment tool for a national sample survey at second grade (see Box 9.6). The survey in 2014 identified that while students assessed in Java Bali tended to be reading at relatively high proficiency levels – with 47% rated as reading fluently with comprehension and 26% reading more slowly but with comprehension – close to one-quarter (22%) of second grade students outside Java were not proficient in oral reading and only 23% were reading fluently with comprehension (USAID Indonesia, 2014). These findings have been instructive for policy makers and education leaders, revealing deficiencies that were previously unrecorded and focusing attention on ways of improving the teaching of reading.

Box 9.6. **Early Grade Reading Assessment**

The Early Grade Reading Assessment (EGRA), administered individually in about 15 minutes, measures the most basic foundation skills for literacy acquisition in the early grades. The assessment was developed by the Research Triangle Institute through funding provided by the United States Agency for International Development (USAID) and the World Bank. The original purpose of the EGRA was to be a sample-based national diagnostic measure. It aimed to examine gaps in reading competencies among students to inform education ministries and partner agencies regarding system needs for improving teacher professional development and pre-service programs. However, EGRA has been used to address a wider range of assessment needs since its first application. These needs include a snapshot of performance based on a random sample, impact evaluation and (with modifications by the teacher according to instructional practice) classroom assessment purposes.

Source: Gove and Wetterberg, (eds.) (2011), The Early Grade Reading Assessment: Applications and Interventions to Improve Basic Literacy, RTI International, Research Triangle Park, NC.

The multiple purposes of public examinations in Indonesia

The ninth and twelfth grade examinations, also called National Examination or *Ujian Nasional* (UN) have been regarded as the main measure to assess student learning throughout Indonesia. Until 2013, there was also a national exam at sixth grade. Government Regulation No. 19

and Government Regulation No. 32, 2013, establish that school and national examination results determine students' graduation and eligibility for entry to the next stage of education. However, problems associated with the implementation of this exam and the arbitrary nature of determining passing scores and therefore passing rates, do not satisfy the requirements set at the international level for sound examinations (AERA et al., 2011).

The National Examination is a challenging and very demanding task. The national exams are run in the core subjects of Bahasa Indonesia, English, maths and science for ninth grade (junior secondary); the twelfth grade exams (senior secondary) cover both core and specialist subjects. Large numbers are involved: of students, subjects tested, test sets, supervisors and schools. A total of 7.2 million students took the UN in 2014: 3.7 million students in junior secondary school, 1.6 million in senior secondary school, 1.2 million in vocational secondary school and 0.6 million from non-formal education. The students came from 80 000 schools, and there were 700 000 supervisors or test administrators involved.

Approximately 30 000 test forms had to be developed. The number was large because some subjects were tested for each level and for each field of study. For example, at senior secondary level there were four fields of study: science, social science, literature (*Bahasa*), and religious study (*agama*), with six subjects tested for each field. Altogether there were 22 subject tests prepared; two subjects (English and Indonesian) were common subject tests for all fields. For maths and science 40 items were tested, and 50 items for the rest of the subjects, in each form of the test. A huge number of items had to be developed as for each subject tested there were at least 20 parallel test forms. Such extraordinary demands on the system, exacerbated by difficulties in staffing and resources, creates difficult conditions to attain the desired standards as expressed by the professionals involved at the Assessment Centre.

At the heart of the problem with the National Examination is the expectation that it can perform multiple functions and contribute to multiple purposes equally well. The purposes included in Law 20 of 2003 and Regulation 19 of 2005 include that the UN will:

1. assess students' learning achievement at the end of a stage of schooling;
2. act as one of the criteria for graduation from that stage of schooling;
3. rank students for competitive entry to the next level of education;
4. evaluate the success of education programmes at all levels – students, teachers, school and government;

5. provide information to schools that will improve teaching and learning;
6. motivate students and teachers to work hard by being focused on the exams;
7. provide information to the system on the quality of education programmes and units (mapping of school quality) (summarised Cislowski, 2010).

It is not evident that the UN satisfies any, let alone all, of these purposes. Its chief use appears to be point 3 above: ranking students for competitive entry to the next stage of education. In the case of the ninth grade exam, it is increasingly being used to screen students for entry to the more selective and prestigious, and better resourced, secondary schools. In Indonesia, some two-thirds of students in general secondary education attend selective schools where they are admitted either because of their record of academic achievement, or by recommendation of feeder schools. Across OECD countries, on average only 43% of students attend such selective schools (OECD, 2014). This high proportion of selective school admission in Indonesia magnifies the problem caused by improper assessment, and is a source of inequity.

The major purpose of the twelfth grade exam is admission to university, even though this is not the responsibility of schools. Universities could, if they wanted, determine their own admissions criteria and assessment methods, either collectively or individually, for general admission or admission to specific degree programmes. As participation widens, and the student body becomes more diverse, it will also be appropriate to see greater diversity in the basis of admission to tertiary education.

School accountability

Education Law No 20 2003 on the national exams puts a strong emphasis on the role of national exams for holding schools accountable. However, the questionable reliability of scores and the limited scope of information generated by the national exams, together with the high incidence of cheating, suggest the exams could not, and should not, be used for this purpose. The fear of national exams scores being used for making judgements about schools, districts or provinces is one of the key factors sustaining systemic cheating and maladministration, as shown by the unrealistic average scores of some districts and provinces. While the MOEC has developed a range of tools for school accountability and mapping of competence (e.g. school self -evaluation, school accreditation and the assessment of minimum service standards) these tools are not used systematically or strategically to improve school resources, management or teaching.

Tracking and sorting students

The other use of the exam scores is to sort out students after ninth grade into general and vocational senior secondary tracks. In itself, this practice tends to relegate vocational education to second-best status and reinforces cultural norms that prefer higher education qualifications. In the view of the review team, contemporary secondary education, whether of a general/academic or vocational/technical orientation, should aim at providing all students with the necessary skills, knowledge, and practical competencies for further learning, active citizenship, and employment or self-employment. Ideally, secondary education should be a relatively "open system" with a common core curriculum, and the possibility of switching between general/academic and technical/vocational secondary education. This would require the establishment of formal links between the two streams of secondary education, and establishing a more inclusive approach to secondary education admissions, one less biased by socio-economic background.

However, the two streams in Indonesia, while blending into each other, are not permeable but constitute fixed destinations for different individuals. In this context, the measures used to slot students into tracks offering limited life chances must be robust. Regrettably, for various reasons, they are not. The chief reasons are that: *1)* assessment is too narrow and relies too heavy on a single metric; *2)* by dint of their high stakes, the tests used and the scores given are subject to cheating and manipulation; *3)* the major tests are flawed in their design; and *4)* there are deficiencies in scoring. These matters are considered in order below.

Narrow assessment

Cognitive psychology considers human reasoning as a very complex adaptive and reflective process, reacting and accommodating to the environment (Shipstsead et al., 2014). One aspect of this high-level functioning is the cluster of abilities that comes under the general heading of critical thinking skills. They are generally considered to involve being able to recognise a problem, search and find solutions for such a problem, collect relevant information, recognise the existence of logical relationships, make inferences, interpret data, evaluate evidence and arguments, draw conclusions, and make appropriate generalisations. This cluster of skills is critically important for the acquisition of higher levels of education and cognitive functioning (Redick and Engle, 2006).

Recently, attention has turned to the need to assess these basic critical thinking skills in students, given that these skills represent an important aspect of what schooling should be able to provide. These skills also been used to assess the value-added factors of education, by observing entry levels

and exit levels of these skills within the educational system. Although they are predictive of future learning and employability, they are less likely to be affected by socio-economic factors given that their underpinnings are basic cognitive processes with a relative normal distribution in the population. Although not totally disconnected from early experiences and quality of inputs in the educational system, the cluster of critical thinking skills is much less influenced by such factors than scores from tests based on acquired knowledge reflecting the school curriculum. Thus, relying on measures of cognitive reasoning in educational assessment is less likely simply to reproduce social inequality.

The design of the national exams in Indonesia, however, is one of multiple-choice, machine-readable questions, largely driven by logistical requirements and an effort to reduce cheating (see below). These formats do not readily lend themselves to testing for higher-order reasoning skills. The Indonesian authorities are aware of this limitation and the Assessment Centre is exploring more complex item formats. The review team was impressed by the professional skills of Assessment Centre personnel and the progress they are making.

Additionally, there is the problem of test dominance. During visits to institutions, the review team was told that there is intense preparation for the examination in classrooms and through out-of-school tutoring. This has the undesirable effect of diminishing the validity of the instrument, as it is meant to test students' achievement level on the curriculum, not their level of specific preparation for the exam. It also diminishes classroom time devoted to teaching the curriculum. In general, this type of "teaching to the test" results in negative consequences for the education system, and magnifies differences (often related to socio-economic factors) between schools in the examination results. Additionally, it gives rise to a secondary market for tutoring services, at considerable expense to families, which offers inducements for teachers to moonlight, with the risk of superficial classroom teaching.

The problem of cheating

The review team was informed about a range of malpractices associated with the administration of the exams. These included inadequate security controls in the development, printing and distribution of exam papers; the leaking or selling of examination forms; and cheating by students during the exam itself, at times aided and sanctioned by teachers and test supervisors. The problem of cheating is a result of the very high stakes attached to the results, not only for students but also for teachers and school principals.

In an effort to combat cheating, the authorities have increased the number of parallel test forms, engaged more supervisors and police for invigilation, and examined the option of computer-based testing (CBT).

The use of computer-based testing should be carefully evaluated. This particular approach has definite budget implications, as well as technical and equity considerations. Not all regions would be able to migrate to CBT, and from a technical standpoint, it would mean that the Assessment Centre would have to manage two programmes (CBT and paper-and-pencil) simultaneously, with the added complication of having to recalculate the item parameters for each of the presentation modes, and establish the correspondence between scores attained in each method. Significant costs would be incurred in the technical application and the maintenance of the two parallel programmes. There would also be new risks of hacking and fraud.

The problem of manipulation

According to the National Regulation No. 20 of 2007, students' twelfth grade evaluation is determined by three levels of assessment: assessment by their teachers, assessment by their schools, and assessment by the central government. The final score for the student graduating from twelfth grade is a weighted combination of all of these sources of evaluation. The school score is a combination of teachers' assessment, represented by the scores assigned to the students in their report cards for the last three semesters (with a minimum of B as the academic score), and the results of the school examinations. Together these components constitute 40% of the final score for the student. The assessment by the central government is represented by the National Examination (UN) and contributes the remaining 60%.

Although it would be expected that these series of evaluations should have a certain relationship to each other, as they are meant be based on the same content standards, it is evident from data analysis of the ninth grade exams in 2013 that there are significant differences between the results obtained in the school exams and the National Examination (see Table 9.1). The distributions of scores from school-based examinations were quite homogeneous, showing little dispersion of scores, while the National Examination scores had a larger standard deviation, with a lower average score, across all the subject fields tested. These differences are even greater for those students at the low end of the performance scale who did not pass the National Exam. For this group of students, the schools appear to have given significantly higher grades in the report cards and in the school exams, while they obtained a much lower average score in the UN. Schools tend to have much lower standards in their evaluation of student performance, creating an environment in which standards are so low that almost everyone passes, and a system in which the intended moderating role

of the external test is almost completely negated by the final exam scores awarded. Theoretically, the school assessment could be used to capture more qualitative elements of assessment than are measured by the tests, but this is not borne out in practice where the school marks appear to be highly subjective.

Table 9.1. **2013 ninth grade national exams – average pure exam marks and average school marks together with the lowest and highest scores and standard deviations**

	Pure National Exam score				School score			
Statistics	Indonesian language	English	Maths	Science	Indonesian language	English	Maths	Science
Average	6.97	5.69	5.74	5.96	8.32	8.16	8.12	8.18
Minimum	0.20	0.40	0.25	3.04	3.04	1.38	1.44	2.10
Maximum	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Standard deviation	1.37	1.71	2.08	0.51	0.51	0.56	0.61	0.55
% not passing	44.041				0.004			

Source: MOEC (Ministry of Education and Culture) data 2013, derived from aggregated provincial data.

In some provinces where the pure exam score was borderline pass/fail, school marks acted to push the final score above that of provinces where the pure exam mark was clearly above pass. Such manipulation undermines public confidence in the exam results, gives rise to serious injustices for students, and renders the final scores unreliable, indeed misleading and unfair, for the purpose of tertiary education admission.

Test design and development

The ninth and twelfth grade examinations are fully developed by the Assessment Centre, with all items developed on the basis of the curriculum standards. Although in the past only 5 forms were developed for each examination, that number has risen to 20 forms in an effort to reduce cheating. The increase in the number of required forms has also put additional demands on the relatively small number of staff in charge of item and test development. In many other countries, many times more test items are initially requested for development than the number of items needed, to allow for the inevitable pruning as a result of item review and pre-testing psychometric analysis. In contrast, Indonesia is generating only 120% of the items needed. Consequently, some items are being used which in better-resourced contexts would have been eliminated.

The test development process employed by the Assessment Centre follows international standards in test development using both Classical Test Theory and Item Response Theory (IRT). The process has been constantly improved, for example with more robust items, greater alignment with the curriculum and development of strategies to reduce cheating. The content of the exams is determined each year by a framework (blueprint) which includes the topics in the curriculum and the competencies which are identified for the end of each stage (ninth grade and twelfth grade). Item writers, including teachers and academics from many parts of Indonesia, are trained to write questions which they believe will meet criteria for content and difficulty and are fair and equitable. Item writers are also now being trained in developing items to test higher order thinking skills. Each item is field tested to assure its validity and reliability as part of a high-stake exam.

Within the constraints of time and budget available, the Assessment Centre undertakes trialling and the appropriate psychometric analyses to determine the final exams. However, the burden of so many parallel forms has impacts on quality, human resources required and costs.

Scoring of school-based exams

With regard to the scoring for school-based examinations with constructed-response questions, the exams are scored by readers who have little or no training in essay or short-response scoring, with no attempt at measuring the reader effect in terms of the level of "strictness" with which each reader scores. Exams are not double rated, and there is no tracking of reader performance. Thus, the results are blind to the quality of the scoring and the variations between readers, resulting in a system which is unfair, with variations in scores that can be attributed to reader variations and effects (lack of knowledge, poor attention, tiredness, score drift, random reader differences, etc.) rather than student performance alone. In addition, because the exams cannot be equated over time, cohort effects are ignored and the information that the Ministry of Education and Culture (MOEC) receives is highly compromised. Even in the best of circumstances the exam scores cannot provide an accurate picture of how the educational system is actually performing, true variations within the country (and provinces) and true variations over successive years. These problems persist in spite of the efforts of the staff involved, due to lack of resources and heavy workloads.

The exams have been subject to many changes over the past decade, especially in respect of the role of school marks, the setting of the pass mark, conditions under which students may retake tests, and improvements in test development and administration. The minister determines the pass mark arbitrarily each year. The review team was advised that whereas the pass mark in 2005/06 was set at 4.25, in 2012/13 it was set at 5.5. This makes year-on-year

comparisons unreliable and undermines the value of the test results for monitoring patterns of student performance and school achievement over time.

Observations and recommendations

Indonesian education authorities and professionals are well aware of the concerns outlined above. The issues have arisen from an interaction between capacity and cultural constraints, most of which cannot be surmounted in a short time frame. Action is under way to address some of the technical and organisational issues of concern, but the deeper causes of the nation's education assessment challenge will require incremental, negotiated improvement steps that can be clearly explained and implemented without too much complexity.

Towards a national strategy of educational assessment improvement

A national strategy or overarching framework for educational assessment improvement would include careful monitoring and evaluation of learner growth and performance at several grade levels, referenced against achievement standards for not just the knowledge acquired, but also critical and analytical thinking and skills related to the content of different school subjects. Properly implemented, such a strategy would have a positive effect on teaching practices and the effectiveness of the educational system.

The review team formed the view that the direction of the step-by-step reforms under way has the potential to shape into a broader and more integrated framework for assessment in Indonesia. The key components of this emerging framework are:

- Lowering the currently high stakes of the public examinations by separating the UN from the school completion certificate.
- Improving the technical validity and reliability of the UN.
- Capturing more higher-order cognitive skills in the UN assessment.
- Continuing to participate in international assessments.
- Expanding the capacity of the Assessment Centre to build a suite of national sample surveys in primary and junior secondary school, based on the Indonesian National Assessment Programme (INAP).
- Building capacity for classroom assessment and opportunities for sharing practice among teachers.
- Incorporating training on diverse types of assessment in pre-service teacher education and in-service professional development.

- Focusing supervisors on effective learning in schools, and performance information aligned with curriculum goals.
- Improving reporting to parents, including shifting from marks to competence bands that describe the characteristics of students' abilities.
- Encouraging higher education institutions (universities, polytechnics and community colleges) to diversify their bases for student admission and make them more transparent.

In essence, the nation needs to design and make a long term commitment to implementing a comprehensive and high quality assessment system based on four key pillars which can be progressively enhanced: improving the public examinations, expanding national sample assessment surveys, and increasing and professionalising classroom-based formative assessment. Continuing participation in international assessments will also be important to keep Indonesia's sights on the competitive demands of the global economy.

The review team was not privy to details of internal discussions about such matters, which necessarily include consideration of political possibilities and constraints. However, there appears to be merit in reporting UN exam results separately from school marks, as a means of raising public confidence in the exams as they are technically improved, and as a way of putting pressure on school assessments to be more professional, less manipulated and more representative of the actual spread of student achievement.

A key task of government is to be able to clearly differentiate and communicate the nature and purpose of each of the four assessment pillars to all stakeholders, especially teachers, parents and elected representatives, for whom terms such as system monitoring and mapping of education quality have been loosely associated with national exams.

At the primary and secondary levels, a two-pronged approach could be followed. In the initial stage, there could be national sample-based assessments following existing international models, such as sampling, design, administration and analysis used in programmes such as the National Assessment of Educational Progress (NAEP) in the United States (see Box 9.7). The data obtained would be at the national and regional levels (not school or student level), and would provide guidance to the educational system in terms of the success or failures of programmes and interventions, as well as for general educational policy decisions. These sample-based exams could take place in the fourth, sixth, and eighth grades (or at other regular two or three year intervals depending on the timing of other national and international assessment activities) and, since educational changes do not happen at an annual rate, they could take place every other year, which would allow the follow up of specific cohorts over time.

Box 9.7. **The United States National Assessment of Educational Progress (NAEP)**

The National Assessment of Educational Progress (NAEP) is the largest nationally representative and continuing assessment of what America's students know and can do in various subject areas. Assessments are conducted periodically in mathematics, reading, science, writing, the arts, civics, economics, geography, US history, and beginning in 2014, in technology and engineering literacy.

Since NAEP assessments are administered uniformly using the same sets of test booklets across the nation, NAEP results serve as a common metric for all states and selected urban districts. The assessment stays essentially the same from year to year, with only carefully documented changes. This permits NAEP to provide a clear picture of student academic progress over time.

Sample Questions booklets are general information booklets about the NAEP assessment. They are given to participating schools so that administrators and teachers will have an idea of what to expect during an assessment. In addition, the booklets give teachers and the parents of participating students an opportunity to examine the types of questions students will be answering.

The Sample Question booklets contain many of the features of the actual test booklets, including instructions, sample subject-area questions and student responses from previous NAEP assessments, and questions about the student's activities and characteristics related to education and the subject being assessed. They also include a description of the framework for each subject assessed.

NAEP field staff go into schools across the nation to administer assessment exercises to students who are part of the NAEP sample. Teachers and principals are asked to complete questionnaires to provide context for student results. The NAEP field staff are responsible for conducting assessments and an extensive quality-assurance programme.

NAEP field staff collect and safeguard NAEP assessment data to guarantee accuracy and integrity as well as to provide support to and reduce the burden on participating schools throughout the assessment process. The NAEP field staff receive extensive training in administering NAEP assessments.

The National Assessment Governing Board sets policy for NAEP and is responsible for developing the framework and test specifications that serve as the blueprint for the assessments. The 26-member governing board, created by Congress in 1988, is an independent, bipartisan group whose members include governors, state legislators, local and state school officials, educators, business representatives, and members of the general public. Members are appointed by the Secretary of Education but remain independent of the department.

Source: National Assessment of Educational Progress (NAEP), http://nces.ed.gov/.

With regard to technical aspects of the sample surveys, the Assessment Centre should develop and maintain a national item bank for each subject area. Procedures should be put in place for maintaining the item bank along with an ongoing item development and pre-testing plan. In creating the item bank, it will be essential to ensure that the quality of the items is rigorously controlled and that steps are taken to determine whether different items perform differently across different groups (e.g. between genders and socio-economic groups). There should be regular reports that inform stakeholders on changes and progress in the education system. To that end it will be necessary to maintain the scale of each of the tests (for each subject area) over time. Having a calibrated set of items from which equivalent equated forms of the examination can be produced will make this possible. This equating should take place horizontally for all forms in a year, and across years, with the proper calibration and anchoring.

The responsible ministries should explore the possibility of using third, fifth and seventh grade exams to develop vertical scales between these grades in certain subject areas. If this can be accomplished, it could represent a valuable addition to the information provided to stakeholders regarding educational progress of cohorts in those subjects, and inform policy and teaching methodologies. Longitudinal regressions should also be explored to study progress over time.

At a later stage, once the national assessment system has reached the necessary level of quality in all aspects of sampling, test design, test development and test administration, and once there are adequate resources for the much larger demands of introducing census exams, the national assessment programme could combine both approaches. This final stage would offer several advantages for the educational system and for policy making. The overall design would be a block design, which would be applied to the various samples at each grade level, following a carefully planned pattern. These blocks, organised in a manner similar to the NAEP programme, would be administered to a relatively small, but carefully selected sample of students at each grade level, so as to be representative of students, institutions and regions. In addition, this carefully selected programme would be administered under controlled conditions, with representatives of the national organisation controlling and supervising the process. Parallel to this sample assessment, some of the item blocks would be used for a census examination of all schools and students at each grade level.

The advantages of the second prong are significant. The administration of a census examination provides the educational system with the necessary data, at the student level, to monitor the performance of individual students and all schools in the system, as well as providing students, teachers and parents with diagnostic information on which to base improvement plans.

Of course, the number of items and reliability of the data collected in this fashion has to reach levels acceptable for such detailed assessment. This census administration would not need to maintain security of the items once they are administered, as those blocks would be discarded after each examination. At the same time, the administration of the controlled sample-based examinations to a much smaller group of schools and students, with robust security for the blocks and items so that they could be used to maintain the examination scales over time, will provide reliable information to policy-makers on the overall functioning of the educational system. The results could be equated over many years, and would also help to interpret and scale the results of the census administration. Such a two pronged system for national assessments is used in some countries with a high degree of success. One notable example is the system implemented in Colombia by the Instituto Colombiano para el Fomento de la Educación Superior (ICFES).[1]

Increasing and professionalising classroom-based assessment is the most important step of all. This will require teachers themselves being well trained. Their knowledge and skills in assessment for learning and assessment of learning will need to be evaluated. School principals and supervisors will also need to be competent in assessment and evaluation principles and procedures, and able to interpret evaluative data and identify where appropriate interventions may be necessary.

In terms of reporting assessment results, the review team was advised that "competence bands" are under consideration. If properly established, they would more clearly demonstrate the alignment of the tests with the curriculum and provide a more informative basis for reporting student achievement than single marks.

One possible model for clearly linking curriculum standards, learning expectations, and assessment methods and reporting of assessment results, could be the development and dissemination of student work samples. Box 9.8 refers to an initiative by the New South Wales Board of Studies in Australia to make samples of student work available to teachers. These samples had been assigned to different competence bands in various curriculum areas. Groups of teachers involved in marking the annual public examinations, had assigned the work sample to each of the assessment bands (A to E). The samples were provided on CD and/or online for teachers to view. This initiative helped to build shared understandings of student performance at different competence levels, and gave a concrete indication of what is involved in improving performance from one band to another. It functions as a means of teacher professional development and also has potential for improving reporting to parents the meaning of student assessment grades.

Box 9.8. **Disseminating student work samples aligned to assessments**

From the New South Wales (NSW) Government Board of Studies Assessment Resource Centre website:

The aim of this website is to support and enhance professional practice in the assessment and reporting of student achievement across Years K to 12. It has been developed primarily for teachers, although parents and students will also find it useful.

Reporting student achievement using A to E

The A–E grading scale lets teachers report student academic achievement at any point in time using clear standards. Teachers will make a professional on-balance judgement as to which grade best matches the standard their students have achieved.

Work samples

Student work samples for Stages 1–5 on this website are aligned to the common grade scale. Student work samples with teacher commentaries have been provided for Early Stage 1. These work samples will assist teachers across NSW to consistently report student achievement against standards when using grades A to E or equivalent. There are also student work samples with annotations and marking guidelines for Stage 6 English Studies.

Source: New South Wales Government (2014), Assessment Resource Centre , http://arc.boardofstudies.nsw.edu.au/.

Recommendations

- Significantly expand the capacity of Indonesia's national Assessment Centre. The Assessment Centre needs to be able to work as an independent, authoritative agency in collaboration with MOEC, MORA and the new Ministry for Research and Technology and Higher Education. The Assessment Centre needs to take responsibility for the management, development, administration, analysis, scoring and reporting of all national examinations, both sample-based and those administered to all students on a national basis (such as the National Examination). The budget for the Assessment Centre should allow for staff to be trained in test development and psychometric analysis, as well as sufficient ICT and logistical infrastructure to manage the administration and handling of secure examinations, the analysis of large data sets, and public reporting of results and trends. In addition it would be highly desirable for the budget and planning process to be separate from

the annual MOEC budget and planning processes in order to allow long term planning and resource commitments beyond one year (e.g. multi-year contracts) as test development and implementation usually have to span more than one budget year.

- Strengthen national assessment through a two-pronged approach. Initially, adopt a system of sample-based testing in fourth, sixth and eighth grades, similar in design to the United States' National Assessment of Educational Progress (NAEP) programme. Sampling, administration, and test design should be similar to NAEP, and built upon the Indonesian National Assessment Programme (INAP) of the Assessment Centre. At a later stage, adopt a two pronged system with controlled sample-based testing and census-based examinations, to maximise the benefits and feedback to the educational system and policy makers.
- Teachers should be formally prepared in educational assessment, so that they can implement adequate formative assessments in the classroom within the framework of curriculums that emphasise critical thinking skills in teaching and assessment. Diagnostic assessment should be embedded in the formative approach.
- Indonesia should continue to participate in international assessments of student achievement.
- All new assessments must comply with all the professional standards in educational assessment regarding validity in terms of the use of the scores to certify outcomes from the secondary cycle, other state-of-art psychometric properties, and proper studies indicating their validity to inform the admissions process to the university level in general, and the requirements and expectations for each field of higher education.

Note

1. Informe Técnico, SABER 5o y 9o – 2009, ICFES (2011), Bogota, Colombia.

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Education in Indonesia

RISING TO THE CHALLENGE

Having made impressive progress in widening access to basic education, Indonesia must now consolidate these gains and develop an education system to support the needs of the economy in its transition towards high-income status. This report highlights three main policy directions which, pursued together, would help Indonesia advance on the path towards stronger growth and more inclusive and sustainable development. The first priority is to raise the quality of education and ensure that all learners acquire the skills they need to succeed in life and work. The second goal is to widen participation, requiring a concerted effort to improve access for disadvantaged groups and expand provision beyond the basic level. The final challenge is to increase efficiency, with a more data-driven approach to resource allocation, better tailoring of provision to local needs, and stronger performance management.

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