



United Nations
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BRICS

Building Education for the Future



Priorities for National Development
and International Cooperation

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BRICS

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Foreword

In recent years, Brazil, the Russian Federation, India, China and South Africa – BRICS – have transformed the world map of education, bringing millions into school, establishing centres of world-class learning, driving innovation, and sharing expertise and knowledge.

In November 2013, Ministers of Education from the BRICS met at UNESCO Headquarters in Paris to discuss for the first time opportunities for cooperation in education. The conclusion of this landmark meeting was unanimous agreement that the BRICS and the wider international community stand to gain hugely from enhanced collaboration among their five countries.

The 6th BRICS Summit, held in Fortaleza, Brazil, in July 2014, brought this commitment to the next level, when BRICS leaders affirmed the strategic importance of education to sustainable development and inclusive economic growth and pledged to strengthen cooperation. This Report is a contribution to this important effort to build a new partnership for progress in education.

Developed in consultation with experts from the five countries, the Report provides an overview of BRICS education systems and policies, highlighting trends in access, quality and equity and zooming in on priorities to sustain and widen the benefits of growth. The Report shows how the combination of shared aspirations and varied development trajectories provides a rich context for exchanging knowledge and the lessons of experience.

The Report pays close attention to skills development, especially technical and vocational education and training, which all five countries have identified as a vital ingredient of more inclusive growth and sustainable development. Improving data on skills, raising standards, forging stronger links with the labour market and bringing disadvantaged groups into training and employment are important policy concerns for BRICS.

The new education approaches of the five countries provide valuable insights for countries across the world, building on the experience of BRICS in harnessing their domestic expertise in education to support others. This Report provides the first analysis of trends in international engagement in education by the BRICS countries. It shows how their bilateral programmes are charting new development pathways, and suggests how their impact could be multiplied through collective action and advocacy.

This Report showcases UNESCO's commitment to facilitating cooperation in education by providing analysis and serving as a hub for exchanging knowledge. I am confident it will also provide inspiration by showing what can be achieved when countries put education at the top of their growth and development agenda.



Irina Bokova
Director-General of UNESCO

In November 2013, BRICS Ministers of Education met at UNESCO Headquarters at the invitation of UNESCO Director-General, Irina Bokova, to discuss for the first time opportunities for cooperation in education.



The BRICS-UNESCO Ministerial Consultation on Education held in Paris on 6 November 2013 (from left to right): Dr Shashi Tharoor, Minister of State of Human Resource Development, India; Mr Aloizio Mercadante, Minister of Education, Brazil; Mr Yuan Guiren, Minister of Education, China; Ms Irina Bokova, Director-General, UNESCO; Mr Dmitry Livanov, Minister of Education and Science, Russian Federation; Dr Blade Nzimande, Minister of Higher Education and Training, South Africa; Mr Hao Ping, President of the General Conference of UNESCO.

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This publication was prepared by a team led by Elizabeth Fordham. The lead author and consultant was François Leclercq. Katerina Ananiadou and Borhene Chakroun provided background and input to Chapter 3. Albert Motivans and Patrick Montjouridès provided advice on the use of data. Theophania Chavatzia assisted with the development of the BRICS Education Report Questionnaire. Andrew Johnston edited the report and Cara Davis managed the production process, with the support of Tierra McMahon.

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Introduction



BRICS governments put education and skills at the centre of their development strategies. All BRICS have enshrined the right to education in their constitutions, and adopted ambitious strategies to realize this right.¹ They have made massive investments at all levels of education to meet the needs of their emerging economies. They are also experimenting with innovative policies in key areas, from reducing disparities in the quality of primary education to establishing globally competitive higher education and research institutions.

BRICS are driving global progress in education. The five countries have been major contributors to the Education for All (EFA) movement, demonstrating what governments can achieve through sustained political and financial investment in education. India, which in 1999 was home to almost one in five children out of primary school, has nearly achieved universal enrolment.² India and South Africa have dramatically expanded pre-primary education, with enrolment tripling in just fourteen years, from 1999 to 2012. The number of illiterate adults in China decreased by 70% between 1990 and 2010. Low-income, middle-income and, increasingly, high-income countries are drawing inspiration from interventions in BRICS across a range of areas, from pro-poor financing to innovative strategies to engage business in skills development. BRICS are also emerging as leaders at higher levels of education. Between 1999 and 2012, the number of students in higher education increased more than five-fold in China, nearly tripled in Brazil and India, more than doubled in South Africa³ and increased by over one-third in the Russian Federation. More than one in three students in the world today lives in BRICS, compared with one in four in 1999.

However, educational deprivation persists, weakening growth prospects and social cohesion. Wide and often widening social inequalities in BRICS are reflected in inequalities at all levels of education. Poor families are struggling to feed their children, resulting in chronic malnourishment during children's earliest years causing lifelong harm to their learning capacities. All BRICS recognize that they need to improve the quality of education significantly if learners are to succeed in life and work, and contribute positively to the economy. In some countries, economic reforms, decentralization and privatization of education have resulted in deeper disparities between schools, with the poorest children suffering the most from low-quality schooling. Despite the huge expansion of recent years, only one in five young people in India and about one in four in China attends higher education. Access to skills development programmes is also limited, especially for illiterate youth and adults, whose numbers are still large in some countries, especially India. Formal TVET institutions – often of poor quality – enrol a very low share of secondary school students in Brazil, India and South Africa.

The persistence of educational deprivation leaves a large share of youth and adults with few skills, weakening their employment prospects, especially in higher-productivity sectors that offer better salaries. At the same time, sectors with potential for growth may suffer a shortage of workers mastering technical and vocational skills or more general, transferable skills. Both deficits constrain economic growth and efforts to reduce poverty. They also limit the “demographic dividend” in countries such as Brazil, India or South Africa, weakening the economic boost that can result when the working-age share of the population increases and spending on non-working dependents falls correspondingly. By the same token, there are particularly high long-term returns to investments in the quality of basic education, and in literacy and skills development programmes that target the disadvantaged.

1 The Constitution of the Republic of South Africa provides that everyone has the right to basic education. See Appendix 1.

2 Unless otherwise stated, all figures in the Introduction are drawn from the database of the UNESCO Institute for Statistics (UIS), accessed 30 May 2014.

3 Figure provided by the South African Department of Higher Education and Training.

Achieving equitable economic growth and sustainable development will thus require further investment in education, with three broad policy priorities:

- *Basic education.* Brazil, China, India and South Africa need to achieve universal primary and secondary education; reduce inequalities in attainment (the number of years children spend in school); and raise learning achievement. Countries also need to place increased emphasis on expanding good quality early childhood care and education programmes.
- *Higher education.* With more young people completing secondary education than ever, and companies increasingly looking for employees with advanced skills, the demand for higher education is soaring. To consolidate their emergence, BRICS need to expand the provision of higher education and build centres of global excellence in teaching and research.
- *Skills development.* BRICS need to create complex skills development systems in order to diversify their economic base, reduce their dependence on exporting raw materials, add more value to goods and services, and foster innovation and new economic activities. To that end, top priorities include: defining or implementing national qualifications frameworks, thus facilitating the recognition of informal training and work experience; expanding and upgrading the technical and vocational track of secondary and higher education; and giving companies incentives to train their workers. BRICS also need to expand training programmes that target disadvantaged youth and adults.

BRICS are expressing growing interest in strengthening international cooperation in education and skills development. When BRICS Ministers of Education met in Paris in November 2013, on the margins of UNESCO's General Conference, they expressed a determination to scale up cooperation in education (UNESCO, 2013b). The Fortaleza Declaration, issued by BRICS leaders at the Sixth BRICS Summit in Brazil on 15 July 2014, took this commitment to the next level.⁴ Welcoming the meeting of Education Ministers at UNESCO, BRICS leaders identified education as one of the priority areas where they would seek to deepen collaboration. They highlighted the “strategic importance of education for sustainable development and inclusive economic growth”, and for the first time included a meeting of BRICS Ministers of Education in their joint Action Plan.

The diversity of their policy experiences implies that BRICS can learn from one another: policies that have proven successful in one country could be adopted in another. In particular, the five countries would gain from cooperating in areas where they face common challenges, such as organizing and financing skills development, and positioning their higher education and research institutions on the global stage. The five countries are already keen on promoting academic exchanges.

BRICS are also increasingly engaged in development cooperation with low and middle income countries. Sharing experiences in providing technical assistance and funding projects in other countries could help each BRICS country to improve the effectiveness of its cooperation programmes and deepen their impact. Going one step further, several countries have expressed an interest in coordinating projects in other developing countries, and even in providing joint technical assistance. All have committed to support UNESCO in sustaining international efforts to reach the 2015 education goals and ensuring education figures centrally in the post-2015 framework for sustainable development.

This report analyses education and skills development policies in BRICS, highlighting possible areas for cooperation. Chapter 1 compares education systems, covering key statistical indicators, governance and financing mechanisms, and national plans and policies. Chapter 2 reviews skills development policies, analysing national strategies and qualifications frameworks, and detailing reforms of technical and vocational education and training. Chapter 3 outlines BRICS engagement in development cooperation, which has a different pattern from official development assistance provided by OECD donors. Chapter 4 reflects on cooperation in education and skills development, among BRICS and between BRICS and other developing countries.

4 Paragraph 56 of the Fortaleza Declaration states, ‘We recognize the strategic importance of education for sustainable development and inclusive economic growth. We reaffirm our commitment to accelerating progress in attaining the Education for All goals and education-related Millennium Development Goals by 2015 and stress that the development agenda beyond 2015 should build on these goals to ensure equitable, inclusive and quality education and lifelong learning for all. We are willing to strengthen intra-BRICS cooperation in the area and welcome the meeting of Ministers of Education held in Paris, in November 2013. We intend to continue cooperation with relevant international organizations. We encourage the initiative to establish the BRICS Network University’. Paragraph 9 of the Fortaleza Action Plan includes a meeting of BRICS Ministers of Education and the Action Plan closes with a commitment to explore cooperation on the mutual recognition of higher education degrees and diplomas. <http://brics6.itamaraty.gov.br/declarations-action-plans-and-communiqués/listadeplan>

Chapter 1

BRICS education systems:
providing quality education
to over 40% of the world's
population



In 2010, BRICS accounted for just under 43% of the world's population (United Nations, 2012). The extent to which they succeed in educating their citizens and raising skill levels is crucial not only for reaching international education goals, but also for world development. **Section 1.1** shows that BRICS are driving global progress in education, but each country faces different challenges given its past investments in education and its population prospects. **Section 1.2** compares existing governance and finance frameworks, which have a common origin in significant economic reforms or political changes. **Section 1.3** outlines national strategies or plans, and highlights policies implemented in recent years to improve the coverage, quality and equity of education systems.

1.1 BRICS are driving global progress in education

School participation

BRICS have the capacity to enrol all children in primary education, and have nearly achieved gender parity in participation.⁵ By 2012, the gross enrolment ratio for primary education was close to or well above 100% in all countries⁶ (Table 1). This does not imply that all children enrol on time or complete primary education, but that the school system has sufficient capacity to enrol all children of primary school age, so that investments in quality can take precedence over the expansion of coverage. This is particularly the case in India, which still had more than 20 million children out of primary school in 2000 and has nearly reached universal enrolment. The number of primary school pupils rose from 113.6 million in 2000 to 137.7 million in 2011; India now has the largest primary school system in the world. However, additional investments are needed to reach the 1.4 million children who remain out of school, many of whom belong to heavily disadvantaged social groups or live with disabilities. Continued investments are also required to improve basic school infrastructure, especially in rural areas.

BRICS are investing massively to expand pre-primary and secondary education. The five countries have significantly expanded pre-primary education, with the number of pupils increasing by 42.7 million between 1999 and 2012. India accounts for more than three-quarters of this increase, but South Africa also more than doubled its number of pre-primary pupils. Pre-primary education differs markedly across the five countries, however. The Russian Federation has a long-established system that provides three to four years of pre-primary education to most young children, while young children in South Africa can expect to receive less than one year on average. India and South Africa face a specific challenge of improving early childhood care. Both countries have made progress in terms of the health and nutrition of children aged below 5, but they are still lagging behind on indicators including infant and child mortality, low birth weight, stunting (when children are short for their age – a sign of malnutrition), wasting and

5 Unless stated otherwise, all figures in Section 1.1 are UIS figures drawn from the database accessed 30 May 2014.
6 UIS does not report the 2012 figure for Brazil, but the country already had a gross enrolment ratio well above 100% in 1999.

immunization. Malnutrition remains a major issue in India, where almost half of children aged below 5 still suffer from moderate or severe stunting.

BRICS have also made major strides in secondary education. The number of secondary school students shot up by 42.7 million in India and 13.5 million in China between 2000 and 2011/2012. China, the Russian Federation and South Africa have achieved gender parity, and India is likely to reach it soon.⁷ To achieve universal secondary education, countries need to sustain these efforts. Lower secondary education still remains out of reach for large numbers of students, in particular in India, where 16.4 million adolescents are out of school. At upper secondary level, gross enrolment ratios vary from 55% in India to 98% in the Russian Federation.

The development of mass higher education systems is at an early stage (except in the Russian Federation), but a dramatic shift in the global distribution of students is already underway. The number of higher education students has increased dramatically, with Brazil, China, India and the Russian Federation accounting for 39.1% of the global total in 2012.⁸ China alone accounts for 16.8%, compared with a mere 7.4% in 2000. The Russian Federation has the longest-established higher education system, with a gross enrolment ratio of 76.1% in 2012.

Gender disparities are prominent, but vary. In India, young women are less likely to attend higher education than young men; in the other countries they comprise a majority of students, sometimes markedly so. In the Russian Federation the female gross enrolment ratio is 85%, compared with a male ratio of 68%.

TABLE 1: KEY EDUCATION INDICATORS

	Enrolment by education level (thousands)				Gross enrolment ratio by education level (%)				
	Pre-primary	Primary	Secondary	Tertiary	Pre-primary	Primary	Lower secondary	Upper secondary	Tertiary
Brazil	7,314	16,135	23,134	7,241	...	...	...	...	...
China	34,244	99,540	95,004	32,586	62.3	104.2	100.1	84*	27
India	42,859	137,747	113,728	28,526	58	113	86	55	25
Russian Federation	5,661	5,515	9,165	7,983	91	101	94	98	76
South Africa	816	7,004	4,844	...	77	102	111	96	19**

	Out of school children (thousands)	School life expectancy (years)		Literacy rate (%)	
	Primary level	Pre-primary	Primary to tertiary	Adults (aged 15 and above)	Youth (aged 15-24)
Brazil	...	...	...	91	99
China	...	2.1	13.1	95	100
India	1,387	1.7	11.7	63	81
Russian Federation	151	3.6	14.7	100	100
South Africa	656	0.8	...	94	99

Notes: An ellipsis (...) indicates that figures are not available. Figures are for 2012 for Brazil and the Russian Federation, and for 2011 and 2012 for China, India and South Africa; except for literacy rates, where most recent figures are from 2012 for Brazil and South Africa, 2010 for China and the Russian Federation and 2006 for India.

* The gross enrolment ratio for China from pre-primary to upper secondary level was provided by the Ministry of Education of China and taken from the 2013 *Educational Statistics Yearbook of China* (data from 2011). The figures differ from those in the UIS database.

** The tertiary gross enrolment ratio for South Africa was provided by the South African Department of Higher Education and Training. The figure is for 2011 and excludes enrolment in private higher education.

Given differences in sources, years, and definitions, figures may not be fully comparable across countries.

Sources: Ministry of Education of the People's Republic of China (2013); UIS (2014).

7 UIS does not report the 2012 figures for lower secondary education in Brazil, but girls represent a slight majority of all secondary school students in the country. Like other Latin American countries, Brazil is confronted with early male dropout from secondary education.

8 Internationally comparable data is not available for South Africa.

Chapter 1

BRICS education systems: providing quality education to 40% of the world's population

TABLE 2: BRICS SCORES IN INTERNATIONAL ASSESSMENTS OF LEARNING OUTCOMES

	PISA 2012 mean score			Grade 8 TIMSS and grade 4 PIRLS 2011 mean score		
	Mathematics	Science	Reading	Mathematics	Science	Reading
Brazil	391	405	410	...	...	...
China	Shanghai: 613 Hong Kong: 561 Macao: 538	Shanghai: 580 Hong Kong: 555 Macao: 521	Shanghai: 570 Hong Kong: 545 Macao: 509	Hong Kong: 586	Hong Kong: 535	Hong Kong: 571
India	...	...	...	...	...	...
Russian Federation	482	486	475	539	542	568
South Africa	...	...	...	352	332	-
OECD average	494	501	496			

Note: An ellipsis (...) indicates that the country did not participate in the assessment.

Sources: OECD (2014b); TIMSS and PIRLS International Study Center (2014).

Learning outcomes

International assessments of student achievement situate BRICS at different places in the global distribution of learning outcomes (Table 2). The most comprehensive sources of comparable data on learning outcomes are the OECD's three-yearly Programme for International Student Assessment (PISA) (OECD, 2014a) and the TIMSS and PIRLS⁹ surveys run by the International Association for the Evaluation of Educational Achievement (TIMSS and PIRLS International Study Center, 2012). These suggest that:

- China has pockets of excellence that top the global distribution of learning outcomes. In the 2012 round of PISA, 15-year-old students in Hong Kong, Macao and Shanghai excelled.
- Learning outcomes in the Russian Federation are on par with Western Europe and North America. The aggregate 2012 PISA mathematics score of the Russian Federation is similar to that of the United States. The results of Russian grade 8 students on 2011 TIMSS mathematics tests place the Russian Federation even higher, immediately after the five East Asian countries that top the ranking.
- Learning outcomes in Brazil are comparable with other Latin American countries, but they have been steadily increasing for a decade. Brazil's mean mathematics score has increased in every PISA round from 2003 to 2012. Learning outcomes have become more equitable, as the performance of students from disadvantaged social backgrounds has improved and the share of students with particularly poor achievement has decreased.
- Learning outcomes in South Africa are low compared with other African countries. When South Africa participated in the 2011 round of TIMSS, grade 9 students were tested, as the questionnaire was considered too difficult for the grade 8 students for whom it had been designed. The mean score was low, only slightly higher than in Ghana, where grade 8 students had been tested. South African grade 6 students also performed poorly in the third round of the survey conducted by the Southern and Eastern African Consortium for Monitoring Educational Quality (SACMEQ) between 2006 and 2011. Mean scores in reading and mathematics were lower than in nine other countries, with major disparities between regions, urban and rural areas, and according to student socio-economic status (SACMEQ, 2014).
- There are indications of low learning outcomes in India. The National Achievement Survey of grade 5 students conducted in 2010-11 found large shares of students with low literacy and numeracy skills, and major disparities across states and social groups (India NCERT, n.d.). These

findings are echoed by the results of the Indian states of Himachal Pradesh and Tamil Nadu, which participated in the PISA '2009 +' round.

While international assessments provide valuable information, they cannot replace national assessments, which are often better able to address the specific characteristics of education systems, assess the situation of learners in different contexts (for example, out-of-school children or those from minority groups), and measure the impact of national policies and standards. All BRICS are investing heavily in improving national assessment programmes (see Section 1.3).

Population prospects

Population trends will influence the outcome of policy efforts BRICS are making to strengthen their education systems. The five countries are at different stages of the demographic transition from high birth and death rates to low fertility and mortality (Figure 1). China, Brazil and the Russian Federation already have total fertility below replacement level, while that level is not likely to be reached before 2030 in India and South Africa. Trends in populations of young children (0-4), children (5-14) and youth (15-24) thus differ markedly, carrying different implications for education planning and prospects (Figure 2):

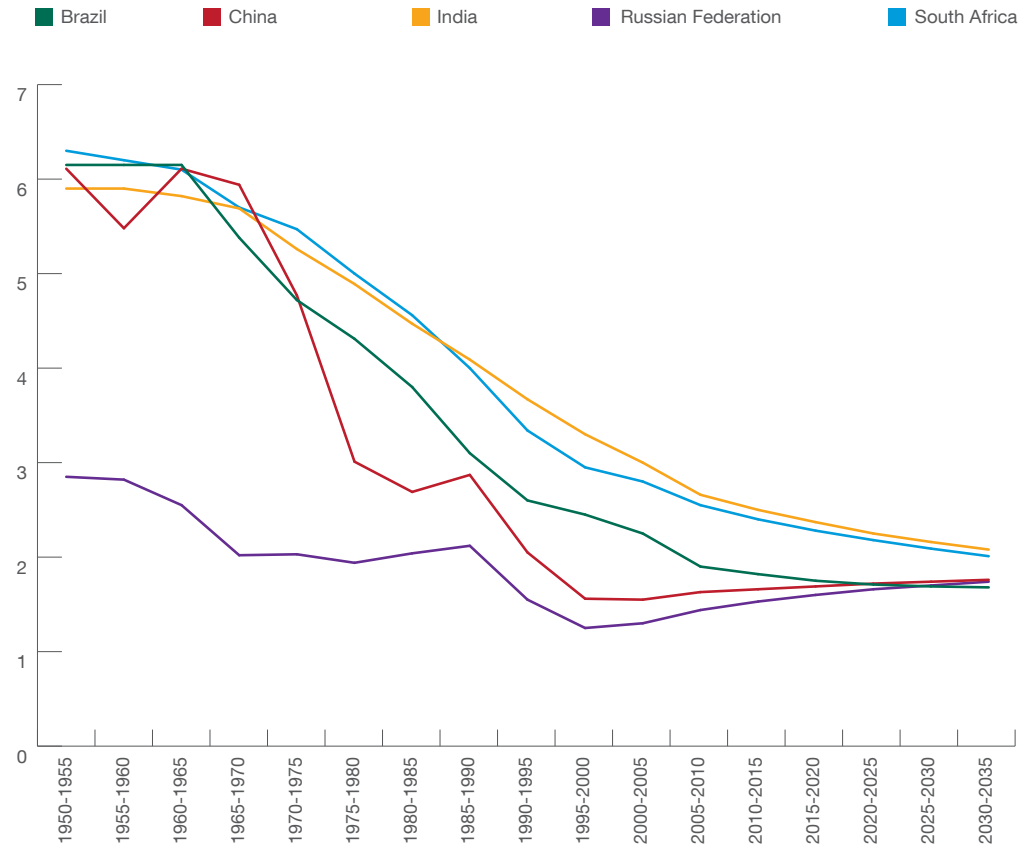
- China has had low fertility rates since the early 1990s, and its school-age population declined rapidly before stabilizing. Between 1980 and 2010, the population of children decreased by 35%, and the population of youth is projected to decrease by 28% between 2010 and 2030. This should liberate resources in China to reduce inequalities in the quality of primary and secondary education and further develop higher education and training.
- Fertility in Brazil fell below replacement level by the mid-2000s, but the school-age population declined earlier, from 1985 (young children), 1995 (children) and 2005 (youth) onwards, which facilitated efforts to reduce inequalities in access to education. These trends will continue, with the population of children projected to decline by 19% between 2010 and 2030. Brazil can focus on investing in quality, and on expanding higher education and skills development.
- The Russian Federation completed its demographic transition in the 1960s, before going through a fertility crisis in the 1990s, during which the number of children per woman fell to 1.25 over 1995-2000. Since 2000, fertility has increased again, leading school-age populations to bounce back. The population of young children increased by nearly a quarter between 2000 and 2010, which will require an increase in the capacity of the school system.
- India is not projected to reach replacement level before 2030, but the population of young children peaked in 2005 and should decline slightly by 2030; the population of children should remain stable over 2010-2030. This should facilitate the country's efforts to achieve universal coverage at primary and secondary levels, and free up more resources for quality improvements. Providing enough places in higher education and skills development will be a challenge, however, as the youth population is increasing and is projected to stabilize only after 2020.
- South Africa has similar fertility patterns to India's, but its school-age population is still increasing. The population of young children was projected to start decreasing after 2010, but the population of children should keep increasing until 2020, and the population of youth until 2030. While not facing the same challenges in increasing capacity as other sub-Saharan African countries with persistently high fertility levels, for a couple of decades South Africa will need to increase the capacity of its school system and improve its quality at the same time.

Chapter 1

BRICS education systems: providing quality education to 40% of the world's population

Figure 1: BRICS are converging towards low fertility levels

Total fertility, 1950-2030 (children per woman)

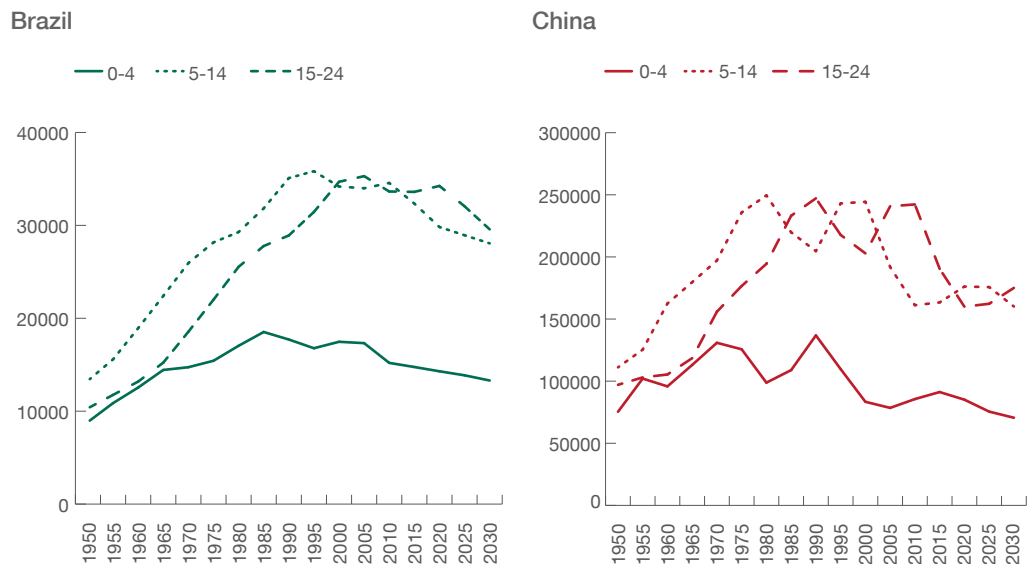


Note: Figures from 1950-1955 to 2005-2010 are estimates; figures from 2010-2015 onwards are projections using the United Nations Population Division's medium fertility variant.

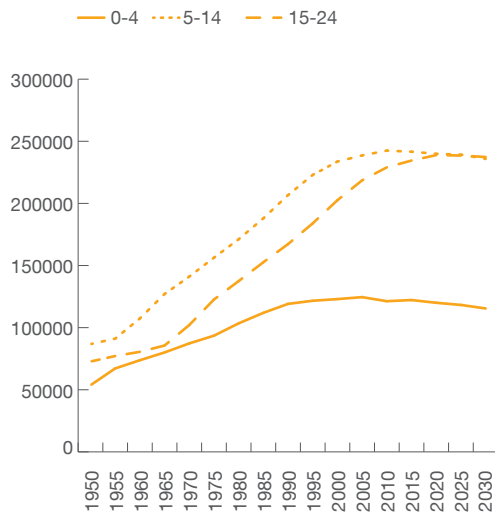
Source: United Nations (2012).

Figure 2: BRICS face different population prospects over 2010-2030

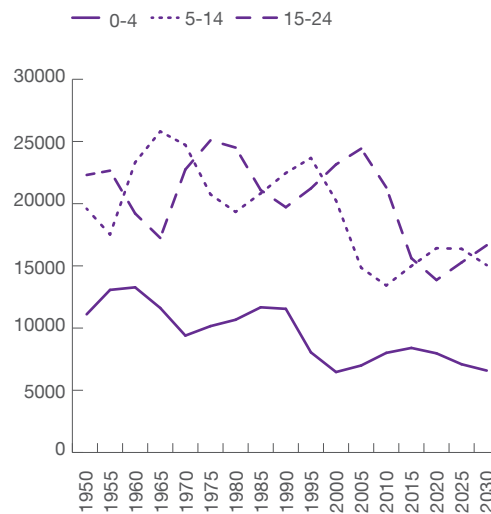
Population aged 0-4, 5-14 and 15-24, 1950 to 2030 (thousands)



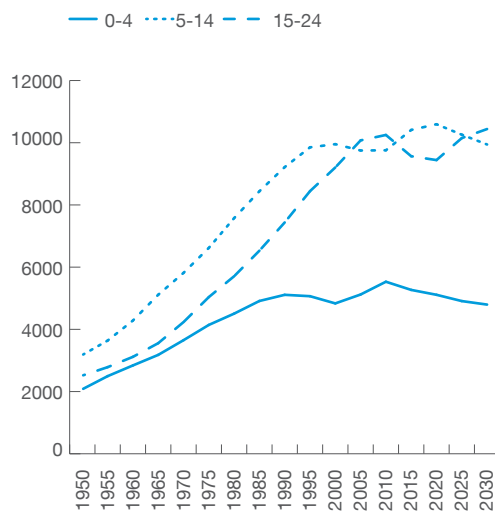
India



Russian Federation



South Africa



Note: Figures from 1950 to 2010 are estimates; figures from 2010 onwards are projections using the United Nations Population Division's medium fertility variant.

Source: United Nations (2012).

1.2 Education systems and structures: guaranteeing the right to education in large countries

Constitutional provisions regarding the right to education

In their present form, BRICS education systems date back to recent political changes or economic reforms that have paved the way for each country's economic expansion and emergence on the global stage. In four of the five countries, the education system was transformed by the adoption of a new constitution and new education laws in the 1980s or 1990s. In Brazil, the return to civilian power in 1985 led to the adoption of a new constitution on 5 October 1988. In China,

the initiation of economic reforms in 1978 was followed by the promulgation of a new constitution on 4 December 1982. The constitution of the Russian Federation, approved by a national referendum on 12 December 1993, replaced the constitution of the Soviet Union. The signature of South Africa's new constitution on 10 December 1996 completed the abolition of the apartheid regime that had started in 1990. In India, independence in 1947 led to the present constitution coming into effect on 26 January 1950. However, the constitutional commitment to provide within ten years, free and compulsory education for all children until they complete the age of 14 was not met. Economic liberalization had started in 1991 and investments to universalize elementary education were scaled up from 2000 onwards. The 86th constitutional amendment, which currently organizes the school system, was adopted in 2002. In all five countries, these constitutional changes have given strengthened political impetus to education reforms.

The five constitutions define education as central to the social contract and to each country's development. They guarantee children's right to education, which is also a duty imposed on their parents. While envisaging the organization of the school system mostly as a responsibility of the state, and including extensive provisions to that effect, they allow the involvement of the private sector. They establish the national language(s) as the main medium of instruction, while guaranteeing the right to education in minority languages. Beyond these common features, constitutional provisions differ according to each country's history and the nature of the state. For example, South Africa's constitution focuses on redressing the legacy of apartheid, while China's emphasizes 'socialism with Chinese characteristics'. In each country, constitutional provisions are implemented through a set of education laws (Appendix 1), and complemented by the ratification of international conventions on education. All five countries have ratified key conventions, including the 1989 Convention on the Rights of the Child and the 1979 Convention on the Elimination of All Forms of Discrimination against Women, but none has ratified the 1989 Convention on Technical and Vocational Education, and ratification of other conventions is uneven (Table A1).

Curriculum structure

Primary and lower secondary education are compulsory in all five countries, but the structure of the curriculum varies (Table A2). In all countries, compulsory education includes both primary and lower secondary education, for a total of nine years (eight in India). The structure of this core part of the curriculum varies, however, and does not always reflect the International Standard Classification of Education. China and India have separate levels for primary education and lower secondary education – called 'junior middle school' in China and 'upper primary education' in India. The other three countries have a single level covering grades 1-9, called 'primary education' in Brazil, 'general education' in the Russian Federation and 'general education and training' in South Africa. In the Russian Federation, 'general secondary schools' offering grades 1-9 are the most common type of school, although separate primary schools exist in isolated villages and remote areas. In Brazil, the first three grades focus on the acquisition of basic literacy and numeracy skills. In South Africa, general education and training starts with a foundation phase that brings together grade R of pre-primary education with grades 1-3 and is followed with an intermediate phase (grades 4-6) and a senior phase (grades 7-9).

The number of years of compulsory education varies, according to whether, and to what extent, pre-primary and upper secondary education are included.

- *Pre-primary education:* Brazil recently made two years of pre-primary education compulsory. South Africa is aiming to universalize one year of pre-primary education, known as grade R, or the 'reception year', which prepares young children for primary education. In the other countries, participation in pre-primary education is optional, although in practice it is almost universal in the Russian Federation, and has expanded massively in China and India since 2000.
- *Upper secondary education:* All countries provide two to four years of upper secondary education, from grade 9 or 10 to grade 11 or 12, leading to a graduation examination, which opens access to higher education. Technical and vocational education and training begins at this level, from grade 10 onwards (grade 9 in India), and continues into higher education. In Brazil and the Russian

Federation, however, upper secondary education is compulsory. Variation among countries thus is evident, especially with Brazil where compulsory education includes two years of pre-primary and three years of upper secondary education, lasting from the age of 4 to the age of 17.

The higher education curriculum is comparable across the five countries, comprising bachelor, master and doctoral degrees, though the number of years necessary to obtain each degree varies within countries according to fields of study, and also between countries.

Governance and finance

BRICS are large, federal and/or decentralized countries, with complex governance and finance structures. Responsibilities for education and training are shared across a range of levels, between national ministries and sub-national authorities, down to school-level committees.

At the national level, Ministries of Education have a strategic role, defining priorities and coordinating sub-national authorities. They may also finance or directly implement national campaigns or investment programmes. In their current form, national ministries of education are often recent, reflecting constitutional and policy changes. National authorities play a direct part in the management of higher education, while at the pre-primary, primary and secondary levels, management responsibilities are largely devolved to states/provinces and local authorities. India, the Russian Federation and South Africa have experimented with school-based management. Ministries of Education are supplemented by a number of technical agencies and research and teacher training institutions, with these national structures often mirrored at the state or provincial level, and to a lesser extent at the local level. Other national ministries are also involved in the provision of vocational training; a few even run their own school systems (Appendix 2).

Devolution is intended to increase management efficiency by reducing the distance between students and their families and decision-makers, thus promoting the accountability of teachers and education officials. Yet it can increase inequality, especially if it extends to resource mobilization, unless coordination and transfer mechanisms are in place. BRICS are trying to address this equity/efficiency trade-off. Brazil and China have particularly rich experience in this regard.

Brazil has managed to reduce inequalities after having decentralized down to the school level. The country has 5,600 municipal and 27 state education systems, involving both public and private schools. Municipalities are responsible for providing public and free education and for regulating private education at pre-primary and primary levels. States are responsible for the same at primary and secondary levels, while the federal government provides public higher education and regulates private higher education.¹⁰ In most municipal and state systems, schools enjoy a large degree of autonomy. The constitution compels municipalities and states to devote at least 25% of their tax revenues to education, of which 60% is earmarked for primary education (IBE, 2010a). Given variation in tax revenues and schooling coverage, this resulted in highly unequal spending per student until the mid-1990s. In 1996, the Fund for Primary Education Administration and Development and for the Enhancement of Teacher Status (FUNDEF) was introduced to guarantee a minimum level of spending per student by redistributing funds among municipalities within a state, and among states.¹¹ FUNDEF further earmarked 60% of total spending per student for teacher salaries (and 40% for operating costs), which resulted in an increase in salaries and in the recruitment of better-qualified teachers in poorer municipalities and states. In 2007, FUNDEF was replaced by the Fund for the Development of Basic Education and Appreciation of the Teaching Profession (FUNDEB), which extends the transfers to pre-primary and upper secondary education. FUNDEB also guarantees spending per student in programmes for indigenous communities, and in youth and adult education (Bruns et al., 2012). FUNDEF and FUNDEB have been credited with contributing to the reduction in inequality in learning outcomes observed in PISA test scores (Section 1.1).

10 Degrees are recognized equally, whether they were earned from municipal, state or federal institutions, or authorized and recognized private schools.

11 On average, six of Brazil's 26 states receive funds every year.

In China, education finance was devolved to local authorities in the early 1980s, but partially recentralized in the 2000s. Under the decentralization reforms of the 1980s, villages were charged with financing primary schools, township authorities with junior middle schools and country governments with senior middle schools. Each authority was allowed to retain revenue from 'educational surcharges' introduced in the 1980s and 1990s. These included 'urban educational surcharges' such as value-added taxes on businesses; 'rural education surcharges' levied from farming households and village enterprises; and 'local education surcharges' levied from leisure and tourism businesses. In poorer, rural areas, this led to excessive fiscal pressure and generated protests. Inequalities in school resources widened, and in the mid-1990s the central government initiated transfers to poor areas to help achieve universal compulsory education. Since 2001, the primary responsibility for financing compulsory education has been shifted up to the county level, while the national and provincial governments organize fiscal transfers to reduce urban-rural gaps and regional disparities. By 2011, all counties were officially considered to have achieved the 'two basics' of universalizing compulsory education and eradicating youth and adult illiteracy (Chu, 2013).

Other countries are addressing the link between decentralization and inequalities:

- In India, state governments account for 80% of public education expenditure, three-quarters of which is spent on primary and secondary education, their main responsibility. However, the national government is playing an increasing part in bridging inequalities through 'centrally sponsored schemes'; primary and secondary education accounts for two-fifths of its spending (vs. half for higher education). Under the Eleventh Five-Year Plan (2007-12), central expenditure increased more rapidly than state expenditure, by 25% per year versus 19.6% (Planning Commission, 2013). India has sought to improve the functioning of government schools by devolving responsibility from state governments to local elected and administrative authorities. Community participation has been introduced by creating village and school committees. These involve teachers and representatives of parents, and are responsible for enrolment and retention, school supervision and teacher management (IBE, 2010c).
- In the Russian Federation, more than 75% of education finance is raised and spent at the regional and municipal levels. Primary and secondary education finance is almost entirely decentralized. Since 2005, vocational schools and colleges have been gradually transferred to regional authorities as well. In the absence of a federal transfer system redistributing resources across regions and municipalities, spending per student and available resources in schools vary significantly. To mitigate the impact on learning outcomes, competitive funding was introduced in 2007. Under the Comprehensive Projects of Education Modernization, regional authorities compete to receive federal funding to modernize education governance, for example by introducing performance-based teacher salaries or per student school financing, or by creating systems for monitoring and assessing education quality (Nikolaev and Chugunov, 2012).
- In South Africa, the nine provincial departments of education account for 86.6% of public expenditure on education, compared with 13.4% for the two national departments (South Africa Department of Basic Education, 2013). Public schools have a governing body which is responsible for adopting a school constitution and setting other norms, determining school times, managing school buildings and grounds, and making recommendations to the provincial head of department on the appointment of teachers and non-teaching staff. The governing body comprises the principal, co-opted members and elected members, including representatives of teachers, non-teaching staff, parents and students (IBE, 2010e).

Education expenditure

Significant differences in education expenditure reflect available resources and policy priorities. Both Brazil and South Africa devote nearly 6% or more of their gross domestic product and 15% to 20% of their public expenditure to education, thus reaching commonly advocated international benchmarks (Table 3). Brazil's Constitution requires the federal government to devote at least 18% of its tax revenues to education, and states, municipalities and the federal district at least 25%, prioritizing compulsory education (universalization, equality in provision and quality assurance)

(Brazil Chamber of Deputies, 1988). The recently approved National Education Plan for 2014-2024 sets the target of boosting education spending to 10% of GDP within the next decade. Brazilian legislation thus ensures long-term spending commitments.

Shares of gross domestic product and government budget going to education are lower in China and particularly India, but those countries have much higher and faster-growing GDP, which has enabled them to finance massive investments in education in recent years. The Russian Federation has a comprehensive education system and its spending patterns compare with those observed elsewhere in Europe, though they are on the lower side (UNESCO, 2014e). With slower growth forecast in BRICS (Section 2.1), it is vital that public funding for education is maintained at levels consistent with the implementation of national education plans.

The shares of current expenditure assigned to education levels reflect the current coverage of the education system and the age structure of the population in each country. The Russian Federation spends considerably more than the other BRICS on pre-primary education, and a relatively large share on higher education. With a declining population of children and a peaking population of youth, Brazil spends most on secondary education, while South Africa still needs to devote more than 40% of its education spending to primary education. In both countries, primary and secondary education, combined, absorb more than 70% of current education expenditure. Brazil spends much more on pre-primary education, however. Both China and India devote about two-thirds of their education expenditure to pre-primary, primary and secondary education, combined.

Unit costs expressed in purchasing power parity dollars or in percentage of per capita GDP are available for Brazil, the Russian Federation, India and South Africa (Table 3). Brazil again appears as ensuring particularly high levels of funding for pre-primary education, and the amounts spent on primary and secondary education in Brazil and South Africa again seem comparable. By contrast, India's spending per pre-primary, primary and secondary pupil each appears to be low, both in comparison with spending per tertiary student in the country, and in comparison with Brazil and South Africa. After two decades of rapid expansion in the coverage of its basic education system, India may need to increase per pupil spending to address quality issues.

BRICS are mobilizing additional domestic sources to fund public education systems. Since the 1930s, Brazil has levied a payroll tax on companies to fund education, training and other social programmes provided by its 'S' organizations (Section 2.2). In August 2013, Brazil passed a law that earmarks 75% of royalties from oil extraction for education, and the remaining 25% for health. As Brazil is becoming a major oil producer, this should ensure high funding levels – the royalties were expected to reach US\$800 million in 2014, and may reach US\$150 billion to US\$300 billion over the next 35 years (Ziomek, 2013).

Since April 2014, India has been implementing a law requiring companies whose net worth, turnover or net profit are above specified thresholds to spend at least 2% of their profit on corporate social responsibility activities in the areas where they operate, including the promotion of education and employment-enhancing vocational skills, along with health and nutrition (Grant Thornton, n.d.; Indo-Asian News Service, 2014). In South Africa, the government is permitted to levy funds from employers for skills development through the Skills Levy Act. Much of this funding is directed towards improving workers' skills and aligning them with labour market needs.

To a varying extent, Brazil, India, China and South Africa also receive bilateral and multilateral funding for education (Section 3.1). However, given their population sizes, amounts received per primary school age child are small – ranging from negligible in China to US\$8 in South Africa in 2011. Middle-income status and rapid economic growth also ensure that these countries do not depend on aid to finance education. While traditional donors' education aid to Brazil, China and India increased during the 2000s, it is expected to recede in the near future, as it has in South Africa since 2002-2003 (UNESCO, 2014d).

Chapter 1

BRICS education systems: providing quality education to 40% of the world's population

TABLE 3: PUBLIC EXPENDITURE ON EDUCATION

	Total public expenditure on education				Total public expenditure on each level of education as % of public current expenditure on education			
	as % of GDP		as % of total government expenditure		Pre-primary	Primary	Secondary	Tertiary
	1999	2012	1999	2012	2012 or most recent year available			
Brazil	3.9	5.8	9.5	14.6	7.6	31.3	44.7	16.4
China	1.9	3.7*	11.4	16.3**	5*	33*	23.3*	...
India	4.3	3.4	16.3	11.3	1.1	23.4	37.3	37.6
Russian Federation	2.9	4.1	9.0	12.0	15.0	...	...	23.1
South Africa	6.0	6.6	...	20.6	1.4	39.9	30.3	11.9

	Total public expenditure on each level of education per pupil in constant 2011 US\$PPP				Total public expenditure on each level of education per pupil as % of GDP per capita			
	Pre-primary	Primary	Secondary	Tertiary	Pre-primary	Primary	Secondary	Tertiary
	2012 or most recent year available				2012 or most recent year available			
Brazil	1,440	2,383	2,439	3,216	13	21	22	28
China	...	...	...	...	...	...	...	...
India	35	242	462	1,943	1	7	13	54
Russian Federation	4,025	...	...	3,214	18	...	...	14
South Africa	490	1,803	2,031	...	5	18	20	...

Notes: An ellipsis (...) indicates that figures are not available.

UIS figures are for 1999 and 2012, except for Brazil (1999 and 2010), India (1999 and 2011/2012), and the Russian Federation (2000 and 2008). Figures for South Africa for total public expenditure per pupil in PPP and %GDP are for 2010.

* 2010 figures from Chu (2013).

** 2011 figure from the "Statistical Communiqué on Implementation of the National Education Funding in 2011", issued by the Ministry of Education, National Bureau of Statistics and Ministry of Finance of the People's Republic of China, 30 December 2012.

Given differences in sources, years, and definitions, figures may not be fully comparable across countries.

Sources: Chu (2013); UIS (2014).

Involvement of the private sector

Elementary education remains a public institution in BRICS, with little involvement by private providers. Constitutions and education laws allow individuals, foundations and other non-governmental organizations to operate private schools. Governments regulate the private sector by authorizing and recognizing schools, and ensuring they respect quality standards and curriculum guidelines. In practice, a large majority of primary and secondary school students attend public schools (Table 4). The private sector is negligible in the Russian Federation, and very small in South Africa. As in most low-income and middle-income countries, private education in Brazil and China is more widespread at pre-primary than at primary and secondary levels. This may soon change, however, as governments are scaling up early childhood care and education. Private higher education is also expanding within BRICS, as it is globally. This trend is particularly marked in Brazil, where private institutions now enrol over 70% of students.

TABLE 4: SHARE OF PRIVATE INSTITUTIONS IN ENROLMENT BY EDUCATION LEVEL

	Enrolment in private institutions as % of total enrolment, school year ending in 2012		
	Pre-primary	Primary	Secondary
Brazil	29	16	15
China	49	6	11
India	...	29*	...
Russian Federation	0.9	0.7	0.9
South Africa	6	4	4

Notes: An ellipsis (...) indicates that figures are not available. Available figures for tertiary education are 71.4 for Brazil and 13.7 for the Russian Federation.

* Children aged 6-14, rural areas.

Sources: ASER Centre (2013) for India; UIS (2014).

India stands apart, with the rapid spread of private education since the 1990s. Household and other surveys suggest that private schools enrol a large share of children, including those from poor families in rural areas. For instance, the *Annual Status of Education Report* estimates that 29% of all students aged 6-14 living in rural areas were attending private schools in 2013 (ASER Centre, 2013). The Planning Commission (2013) notes that by 2011-2012, 59% of higher education students were attending private institutions.

Three types of private school exist in India. 'Private aided' schools receive government funding and their teachers are paid and appointed by the government, although day-to-day school management remains private. 'Private recognized' schools receive little government funding but are recognized if they respect criteria regarding infrastructure, teacher qualifications and salaries. 'Private unrecognized' schools are not registered, and include many small schools that operate informally in disadvantaged areas, including slums or the poorest neighbourhoods within villages (Desai et al., 2008). In recent years, the government of India has aimed to better regulate the private sector while facilitating its expansion. Under the Right to Education Act of 2009, 25% of places in private schools are reserved for poor children. The Twelfth Five-Year Plan (2012-2017) states that midday meals will be extended to private unaided schools. At the same time, procedures for obtaining recognition should be simplified, as the private sector is considered a partner in the universalization of basic education (Planning Commission, 2013).

1.3 Trends in education plans and policy: laying the foundations for equity and excellence

National education plans

The five BRICS countries have national education plans that frame their policies over the medium term (Appendix 3). Most plans start by taking stock of the present situation, emphasizing progress made in recent years, but assessing frankly the remaining deficiencies. For instance, India's Twelfth Five-Year Plan (2012-2017) signals residual inequalities in access; irregular attendance; high dropout after elementary education; unequal teacher deployment; low average attainment in the population aged 15 and above (at just 5.1 years); and poor learning outcomes – identified as the key weakness in the country's education system (Planning Commission, 2013). The preamble to China's National Plan for Medium and Long-term Education Reform and Development (2010-2020)

lists outdated curricula and pedagogy; a heavy burden of schoolwork for primary and middle school students; a shortage of trained teachers; inequalities at the expense of ethnic minorities and rural areas; and limited funding (Ministry of Education of the People's Republic of China, 2010). South Africa's National Development Plan emphasizes poor nutrition and health among young children, which hampers their learning capacities; low and unequal learning outcomes in basic education; and a small, weak TVET system (National Planning Commission, 2011). Brazil's recently approved National Education Plan for 2014-2024 sets ambitious goals to expand access, in particular to TVET and higher education, and improve learning outcomes at all levels. These national plans set general principles that are translated into specific goals, associated with quantitative, time-bound targets.

If fully implemented, national education plans will lead to a noticeable convergence of BRICS education systems. The plans all envisage universal school participation from pre-primary to upper secondary level; teaching and management practices centred on the achievement of measurable learning outcomes; and the expansion of skills development programmes and higher education, to meet the needs of knowledge-based economies (Appendix 3).

The following sections focus on key education policy priorities for the countries, and areas where they could share their knowledge and experience: expanding coverage of pre-primary education and higher education; making school systems more equitable; and improving learning outcomes.

Policies for expanding pre-primary education and higher education

BRICS are seeking to strengthen the foundations of their education systems by expanding early childhood care and education. Research has highlighted the long-term adverse consequences of adversity in early childhood (such as malnutrition or a lack of stimulation) for individuals and societies. These consequences include low learning outcomes and skills levels, poor health, reduced labour force participation and earnings, and higher propensity to engage in risky behaviour or delinquency (Engle et al., 2011; Walker et al., 2011). Economic returns to investment in early childhood care and education programmes, ranging from immunization campaigns and nutrition interventions to parental training and formal pre-primary education, are higher than at any other level of education (Heckman, 2006). Having long focused on expanding primary and lower secondary education, policy makers in BRICS are increasingly concerned with young children.

- Brazil has made two years of pre-primary education part of the compulsory curriculum, and is ensuring relatively high funding levels. The National Education Plan aims to universalize attendance of children aged 4 and 5 by 2016 (Brazil Ministry of Education, 2014).
- China plans to universalize one to three years of pre-primary education by 2020. In rural areas, new classrooms are to be built or surplus primary and middle school buildings are to be re-used, to ensure that all young children 'left behind' as their parents migrated to cities can attend (Ministry of Education of the People's Republic of China, 2010).
- India, where malnutrition still affects every second young child aged 0-5, recently adopted a National Child Policy, which connects education policy with interventions for survival, health and nutrition, protection and participation (India Ministry of Women and Child Development, 2013). The Twelfth Five-Year Plan recognizes the need to improve the quality of pre-primary education after a decade of rapid expansion, setting the target to 'provide at least one year of well-supported/well-resourced pre-school education in primary schools to all children, particularly those in educationally backward blocks' (Planning Commission, 2013, p. 51).
- The Russian Federation aims to restore a kindergarten infrastructure that suffered during the 1990s, as buildings were privatized or leased to state organizations. Using funds drawn from regional budgets, municipal authorities have reclaimed and reassigned buildings to kindergartens and engaged in the construction of new buildings. The capacity of public kindergartens remains insufficient, however, so several regions have introduced compensation programmes paying cash transfers to parents whose young children are on a waiting list. A federal law adopted in 2009 clarified the situation by defining indemnity payments for parents whose children attend fee-paying, private kindergartens (Nikolaev and Chugunov, 2012).

- South Africa's National Development Plan, which considers early childhood a top priority, takes a holistic approach combining health, nutrition, education and other interventions. A National Integrated Plan started in 2005, coordinating programmes for children aged 0-4 under the Department of Social Development and providing education for children aged 5 and above under the Department of Basic Education. The objective is to reach most young children first via family-based and centre-based care, then via pre-primary education. To achieve the latter, access to grade R is to be universalized by 2014, and two years of pre-primary education should later be made compulsory (South Africa Department of Basic Education, 2013).

All five countries regard developing globally competitive higher education systems as a top priority for consolidating their emergence. A challenge is to create centres of excellence while providing higher education on a massive scale.

- Brazil aims to increase the gross enrolment ratio in higher education to 50% of the population aged 18-24, and the net enrolment ratio to 33%, by 2020. At postgraduate level, Brazil plans to award 60,000 master's degrees and 25,000 doctorates every year by 2020 (Brazil Ministry of Education, 2014).¹²
- China's national plan aims to 'build the nation into a power to be reckoned with in the global higher education landscape. By 2020 [...] world-famous universities with original features shall come to the fore; some of them shall have reached or approached the level of world-class universities. China's higher education shall have vastly sharpened its global competitive edge' (Ministry of Education of the People's Republic of China, 2010, p. 19). As well as investing in infrastructure, this will involve the introduction of a credit system, the participation of students in research, strengthened ties between universities and companies, and a restructuring of courses and disciplines. China aims to reduce inequalities between its eastern, central and western regions.
- India has launched *Rashtriya Uchchatar Shiksha Abhiyan*, a programme to improve access, equity and quality in higher education by creating new institutions, expanding existing institutions, upgrading infrastructure and creating State Higher Education Councils. The Twelfth Five-Year Plan aims at enrolling 10 million more students within five years, but acknowledges the challenge of meeting 'divergent goals' of 'combining access with affordability and ensuring high-quality undergraduate and postgraduate education'. The plan 'proposes a paradigm change', with three priorities: diversifying the supply of higher education (ranging from vocational training institutions to research universities), improving its quality, and reforming its governance to increase the autonomy and accountability of institutions (India Ministry of Human Resource Development, 2013, p. 90).
- The Russian Federation is facing a decline in its tertiary student population after the number of upper secondary school graduates fell by 46.2% between 2006 and 2012, leading to institutional mergers and closures. The government is giving priority to the quality of universities. Federal universities have been created to optimize resources available in each region and strengthen links between universities, the economy and society. They are meant to play a strategic part in training professionals, fostering research and innovation, and providing services for regional development (Nikolaev and Chugunov, 2012; Russian Federation, 2014).
- In South Africa, the Department of Higher Education and Training plans to expand universities, progressively introducing free higher education for the poor. The Department of Higher Education's 2014/2015 Annual Performance Plan sets a target of enrolling over 1 million students by 2016/17. It aims to strengthen student performance and the research and innovation capacity of universities (DHET, 2013).

BRICS are major contributors to the internationalization of higher education. With the global number of students pursuing a higher education degree abroad doubling between 2000 and 2011 to 4.3 million, all higher education systems need to embrace internationalization. OECD countries

12 The terms 'postgraduate' (used in UK) and 'graduate' (used in US) both refer to the education programmes that come after the Bachelor's degree. In other words, they refer to Master and Doctoral programmes.

attracted 77% of internationally mobile students in 2011,¹³ but their share declined from a peak of nearly 80% in 2006. Some 53% of internationally mobile students now come from Asia, where the overall numbers of students are soaring (OECD, 2013a). BRICS countries are contributing significantly to the exchange of students. China and India are the countries that send the largest numbers of students abroad, with Brazil and the Russian Federation also sending significant numbers. In 2011, the Brazilian Government launched the Science without Borders programme which aims to provide 100,000 scholarships to Brazilian students to study in elite institutions abroad in the science, technology, engineering and maths (STEM) fields by 2015.

The BRICS countries are also increasingly attractive destination for foreign students, the Russian Federation (sixth destination in 2012) and China (ninth destination) have emerged among other alternatives to OECD countries, enrolling 4% and 2% of internationally mobile students respectively (UIS, 2014). However, while BRICS send most of their students to OECD countries, they mainly receive students from their neighbours, or countries with which they share a common language. The Russian Federation and South Africa, in particular, are major regional hubs. In contrast, student exchanges between BRICS are noticeably underdeveloped, despite the enrolment of several thousand Chinese and Indian students in Russian universities (Table 5).

All BRICS are promoting student exchanges, encouraging foreign universities to establish campuses on their territories, and making their universities more attractive to foreign students and academics. For instance, Brazil has created international universities hosting students from Latin America and Portuguese-speaking Africa (Box 3 in Section 3.2). Since 2003, the Russian Federation has been participating in the Bologna process, which aims to create an All-European Higher Education Area.¹⁴ The Russian Federation has adapted its curriculum and course content, introducing bachelor's and master's degrees and creating new specializations, such as computer science and environmental science (Russian Federation, 2014). The Moscow-based People's Friendship University of Russia has also spearheaded the initiative to create a BRICS Network University to connect the leading higher education institutions across the five countries.

The key challenge facing BRICS is to establish public policies that enable their higher education systems to absorb the expanding demand while providing high-quality education to an increasingly diverse student population. The experience of BRICS also shows that increasing student mobility, both within regions and on a global scale, underlines the need for international standards in higher education. UNESCO has established regional standard-setting instruments – “Regional Conventions” – for the recognition of qualifications in higher education, and has begun developing a global convention.¹⁵ Greater engagement by BRICS in these regional and global efforts would be an important step in raising standards and facilitating mobility.

The commitment by BRICS leaders at the Fortaleza Summit (July 2014) to explore cooperation on the mutual recognition of higher education degrees and diplomas, and the encouragement given to the initiative to establish a BRICS Network University, reveals the high level of political support among BRICS to strengthen collaboration in higher education.

13 The United States, the United Kingdom, Germany, Australia and France together were enrolling nearly half of all internationally mobile students.

14 The Bologna process comprises convergence towards a common degree structure, the introduction of a common credit system, the development of National Qualifications Frameworks (NQF's) and measures facilitating the mobility of students and the portability of diplomas across institutions and countries.

15 <http://www.unesco.org/new/en/education/themes/strengthening-education-systems/higher-education/conventions-and-recommendations/>

TABLE 5: INTERNATIONAL STUDENT MOBILITY

	Brazil	China	India	Russian Federation	South Africa
Students abroad	30,729	694,385	189,472	51,171	6,378
1st country of destination	United States: 8,745	United States: 210,452	United States: 97,120	Germany: 10,007	United States: 1,559
2nd country of destination	Portugal: 5,172	Japan: 96,592	United Kingdom: 29,713	United States: 4,654	United Kingdom: 1,339
3rd country of destination	France: 4,039	Australia: 87,497	Australia: 11,684	France: 4,300	Australia: 787
Students hosted	14,432	88,979	31,475	173,627	70,428
1st country of origin	Angola: 1,552	...	Nepal: 5,481	Belarus: 31,199	Zimbabwe: 23,273
2nd country of origin	Guinea-Bissau: 825	...	Bhutan: 2,274	Kazakhstan: 29,865	Namibia: 6,821
3rd country of origin	Argentina: 772	...	Iran, Islamic Rep.: 2,131	Ukraine: 12,805	Lesotho: 4,047

	Students from				
Studying in	Brazil	China	India	Russian Federation	South Africa
Brazil	-	316	16	36	145
China	...	-	...	...	...
India	4	682	-	18	109
Russian Federation	200	9,842	3,351	-	3
South Africa	52*	465	411	62	-

Notes: An ellipsis (...) indicates that figures are not available; - indicates not applicable. Data are for 2011 or 2012.

* The estimate of the number of students from Brazil studying in South Africa was provided by the South African Department of Higher Education and Training. The figure is for 2011.

Source: UIS (2014).

Policies for equity

BRICS are confronted with major discrepancies in the quality of schools, which translate into unequal grade attainment and learning outcomes. Rapid growth and integration into the global economy have widened disparities within BRICS. Urban areas and regions with better infrastructure and transportation, often located on the coasts, have benefited most and emerged onto the global stage. Rural areas and remote or sparsely populated regions, often home to linguistic or ethnic minorities, remain seriously underdeveloped (Section 2.1). Dramatic income gaps have opened between the poorest and richest households, especially in urban areas. Massive urbanization in Brazil, China, India and South Africa is straining capacities for housing construction and infrastructure development, resulting in large populations living in slums. These socio-economic disparities translate into inequalities in education, which in turn reinforce these disparities, posing a serious threat to social cohesion. With the increasing success of Education for All policies, the main locus of inequality has shifted from intake into the first grades of primary and lower secondary education, to retention and the quality of schooling.

BRICS are trying to improve the equity of their school systems. An initial strategy, exemplified by India and China, is to expand or rationalize the public supply of education.¹⁶ To address residual inequalities in access to education, India is continuing *Sarva Shiksha Abhiyan*, its programme for

16 This is in addition to fiscal transfers across sub-national entities analysed in Section 1.2.

universalizing primary education, which has involved creating new schools, building classrooms, providing toilets and drinking water, and recruiting teachers. *Rashtriya Madhyamik Shiksha Abhiyan*, a more recent programme to universalize secondary education, also involves building or upgrading school buildings and providing facilities such as libraries, laboratories and computer rooms. Local institutions implement a midday meal programme at the village and school levels. Launched in 1995 in grades 1-5, it was extended to all compulsory grades in 2008, and is set to be extended to pre-schools and private schools, targeting poor and minority children (Planning Commission, 2013). South Africa's National School Nutrition Programme seeks to mitigate the negative effects of high levels of unemployment and poverty.

China, confronted with a rapid decline in the school-age population in rural areas, began closing and merging schools in 2001; by 2010, the number of primary schools had declined by 53.5% and the number of junior middle schools by 16.3%. Rural schools are now larger and better resourced; for instance, pupils are more likely to have qualified teachers. This should have improved learning outcomes, but the process was halted in 2012 as it was recognized that too many schools had been closed. Many children were enrolled in boarding schools too far from their family home, harming their socio-emotional development.¹⁷ A recent research report recommended instead opening small schools that combine pre-primary and primary education in multi-grade classrooms, or integrated general, vocational and adult education (Chu, 2013; Mo et al., 2012). In the Russian Federation, the National Educational Initiative 'Our New School', a broad programme to improve the quality of education, includes measures to improve school transport in rural areas and ensure access to school buildings for children living with disabilities (Nikolaev and Chugunov, 2012).

A second strategy is to subsidize parental demand for education. In Brazil, conditional cash transfers have played a key role since the mid-1990s in efforts to eradicate poverty. *Bolsa Escola*, first implemented in Brasilia and Campinas (São Paulo State) in 1995, provided cash payments to poor families with children aged 6-15 if the children were enrolled in school and attended at least 85% of the time. The programme rapidly expanded to other municipalities, became a federal programme in 2001, and was transformed into *Bolsa Família* in 2003, when poor families with children aged 0-5 and pregnant or breastfeeding women became eligible. The programme now reaches nearly a quarter of Brazil's population, and can be credited with reducing educational inequalities over the past decade (Glewwe and Kassouf, 2010). Abolishing school fees is a related option. China's 'two exemptions and one subsidy' policy removed part of the fees and provided a subsidy to students in boarding schools. Introduced in 2005 in particularly poor counties, it was expanded to all rural areas in 2007; the partial fee exemptions were extended to urban areas in 2008. In recent years, fees have been completely abolished in rural areas (Chu, 2013).

Education spending reforms in South Africa have removed the funding inequalities of apartheid and channelled more resources to the poor. Norms and standards introduced in 2000 stipulated that within each province, poorer schools should receive higher allocations of non-personnel spending (Van der Berg, 2009; Gustafsson and Patel, 2006). This measure was fine-tuned in 2006 by the Education Law Amendment Act, 61, which made the poorest 40% "no-fee schools". The National Student Financial Aid Scheme (NSFAS) provides bursaries and loans to disadvantaged students in the tertiary education and training sectors.

A third strategy is to compensate for the long-term consequences of past inequalities in education through youth and adult literacy campaigns. In South Africa, the *Kha Ri Gude* Mass Literacy Campaign aims to enable adults to read, write and calculate in their mother tongue and to learn conversational English, and targets vulnerable groups, including people living with disabilities (South Africa Department of Basic Education, 2013).

17 By 2010, 10.4% of primary school pupils were in boarding schools, as with 43.7% of junior middle schoolers. (The figure was above 70% in remote regions and provinces.)

Policies for assessment and quality

BRICS are investing in national assessments of learning outcomes. National assessments conducted by autonomous institutions are becoming more regular (yearly rather than occasional), extensive (covering all students in a specific grade, or larger, representative samples) and complex (relying on item response theory, rather than reporting simple measures such as the percentage of correct answers), following practice established in international assessments. China, India and South Africa are representative of this trend. Brazil now has one of the most comprehensive assessment systems in the world, where learning outcomes are combined with data on enrolment and completion into a composite index of educational development computed at the school, municipal and state levels. Furthermore, the index is made public, and used to define targets for quality improvement. In the absence of an annual national assessment, the Russian Federation uses the Unified State Examination (which certifies completion of upper secondary education and selects students in higher education institutions) for assessment purposes (Appendix 4).

BRICS have been participating in regional and international assessments of learning outcomes (Section 1.1, Tables 2 and A4). Brazil, the Russian Federation and South Africa have the most extensive experience in this domain, together with Hong Kong and Macao in China. The participation of the rest of China and of India would be an important step towards more extensive knowledge of the international distribution of learning outcomes. In India, experience gained in 2010 from the participation of the states of Himachal Pradesh and Tamil Nadu in the '2009 +' round of PISA suggests that this will take time. The near universalization of primary education in India may be too recent for comparisons with better-established mass school systems in upper-middle-income and high-income countries to be fruitful.

Countries are establishing explicit learning goals. Brazil's National Education Plan includes quantitative targets concerning both its own index of educational development and PISA test scores (with the aim of reaching a mean PISA score of 473 in 2021 across reading, mathematics and science) (Brazil Ministry of Education, 2014). China is going through a comprehensive New Curriculum Reform, which was initiated in 2001 and received new impetus in 2010. Among other objectives, the reform promotes a simplified curriculum relevant to students' lives, making students active, lifelong learners and using a pedagogical approach that draws on students' experience. The simplified curriculum is also intended to facilitate the assessment and evaluation of learning outcomes (Guo, 2012; OECD, 2012). According to India's Twelfth Five-Year Plan (2012-17), the national programme for universalizing primary education, *Sarva Shiksha Abhiyan*, will focus on learning, whereby explicit goals will be defined that can be understood by parents and by teachers, who will be trained accordingly. *Saakshar Bharat*, a functional literacy programme targeting women and disadvantaged groups, will be transformed into a comprehensive lifelong learning programme, offering certification and linked to the formal education system. South Africa's Department for Basic Education has defined minimum levels of language and numeracy to be reached by 90% of grade 3 and grade 6 students by 2024. The department also targets mean SACMEQ language and mathematics scores of 600 by 2022, and grade 8 TIMSS scores of 420 in 2023 (National Planning Commission, 2011).

All countries are investing in the quality of teaching to improve the quality of learning. Given population trends, India and South Africa will need to continue to expand their teaching force at primary and in particular secondary levels, while all BRICS are looking at ways to address teacher gaps in the growth areas of early childhood education, technical and vocational education and training (TVET), and higher education.

The priority across BRICS is not just to attract more teachers to the profession, but to attract the best teachers. Policymakers are aiming to improve teacher quality by raising the status and attractiveness of the profession, improving teacher training and practices, and ensuring adequate support and professional development.

The example of Brazil demonstrates a bold approach to these issues, using an emphasis on teaching standards to drive quality improvements. Brazil's federal government has introduced a national exam (*Exame Nacional de Ingresso na Carreira Docente*), which all candidate teachers must pass,

covering content and pedagogy. University Education Faculties must transform their curriculum so that their students are able to pass the exam. The federal government has also made it compulsory for municipalities and states to have a formal selection process and a career plan for teachers. In addition to raising basic salaries, Brazil is exploring the use of performance-related pay. São Paulo state's promotion exam, (*Prova de Promoção*) seeks to make teaching more attractive through much higher salaries, while requiring teachers to retrain. At least 15 states and municipalities have further experimented with teacher bonuses based on student achievement, including Pernambuco state's educational performance bonus (*Bonus de Desempenho Educacional*) (Bruns et al., 2009).

China also has ambitious policies to improve teacher quality, including the retraining of unqualified community teachers in rural areas, and the requirement that all teachers at all levels have specified qualifications. The municipality of Shanghai has been at the forefront of these efforts. All primary school teachers must have a sub-degree diploma, and all teachers in secondary schools must hold a degree with professional certification. Every teacher is further expected to follow 240 hours of professional development over five years (OECD, 2012).

Looking ahead, the overview of BRICS education systems reveals many areas in which there are opportunities for sharing knowledge and experience, learning from each other and cooperating. Major common areas of interest include: improving the quality and equity of compulsory education; expanding pre-primary and higher education; and effectively managing education governance and financing in large, federal and/or decentralized contexts.

Given BRICS's interest in spreading the benefits of growth more widely and consolidating their economic emergence, and their recent innovative policies, they could consider the following areas as priorities for policy dialogue:

- improving education governance and financing to enhance equity and quality in public schools;
- designing and implementing national qualifications frameworks and national assessments of student achievement;
- improving the quality of education data;
- managing the expansion of higher education; and
- facilitating student mobility in higher education, in particular among the BRICS countries themselves.

Chapter 2

BRICS skills development
and TVET policies:
levers for economic
growth and social
cohesion



To complete their economic emergence and reach high-income status, BRICS are seeking to diversify their economic base, reduce their dependence on exporting raw materials, produce higher value-added goods and services, facilitate the creation of new economic activities, and foster innovation. BRICS governments face a triple challenge in generating the educated and trained labour force this requires: improving the quality and relevance of initial technical and vocational education and training (TVET); integrating inactive and unemployed youth into the world of work; and raising skills levels in the working-age population to enhance productivity and competitiveness. **Section 2.1** shows that future economic growth and social cohesion will depend on improving skills levels of a population that is either ageing or still increasing rapidly. **Sections 2.2 to 2.4** analyse related policy areas.¹⁸ **Section 2.2** reviews skills development plans, governance structures and national qualifications frameworks. **Section 2.3** examines ongoing efforts to upgrade initial TVET. **Section 2.4** discusses financing arrangements.

2.1 BRICS have to meet a great diversity of learning and training needs among their youth and adult populations

Growth, poverty and inequality

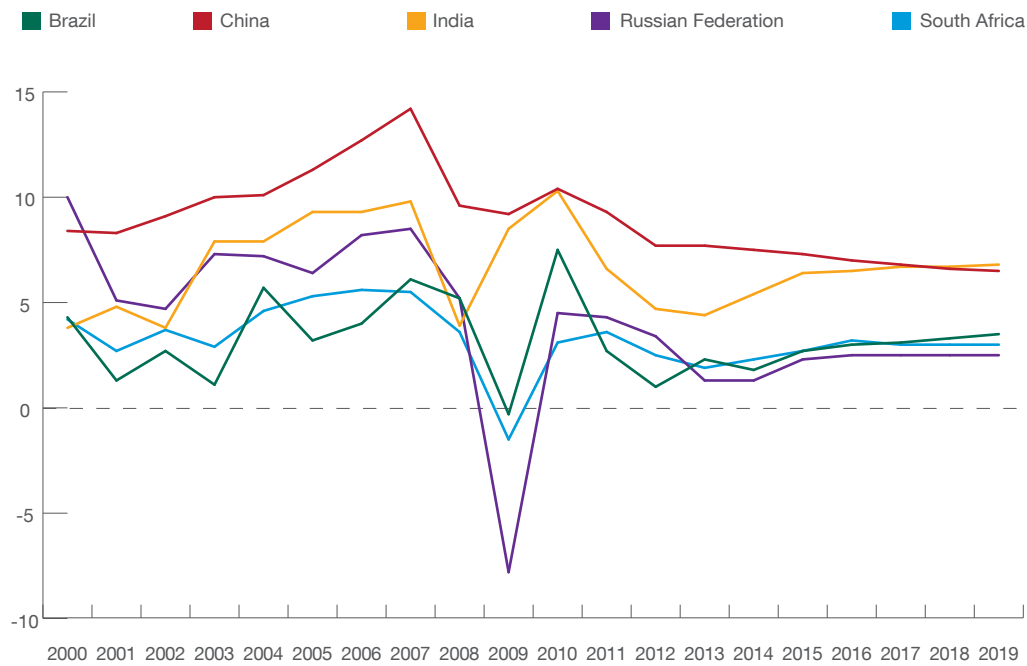
Economic slowdown may be holding countries back from achieving high-income status. After a decade of rapid growth, BRICS were badly hit by the global financial and economic crisis. China's and India's growth slowed markedly in 2008. Brazil, South Africa and the Russian Federation went into recession in 2009. By 2010, growth rates seemed to be recovering to their pre-crisis levels, India and Brazil reaching a record 10.3% and 7.5% respectively. However, BRICS economies are now forecast to slow down, converging toward growth rates between 6.5% and 7% for China and India, and 2.5% to 3.5% for Brazil, the Russian Federation and South Africa (Figure 3). As a result, China's and India's shares of global output should increase further, but Brazil, the Russian Federation and

18 Other areas that would merit closer analysis include active labour market policies to address youth unemployment; continuing and in-service vocational training; the recognition, validation and accreditation (RVA) of non-formal and informal learning; and the role of the private sector in providing training and organizing social dialogue between all those with an interest in skills development.

South Africa are likely to maintain their respective shares at 2000 levels (Figure 4). Raising workers' skills levels and productivity will be necessary to sustain economic growth.

Figure 3: Growth

Percentage change in gross domestic product in constant prices, 2000-2019

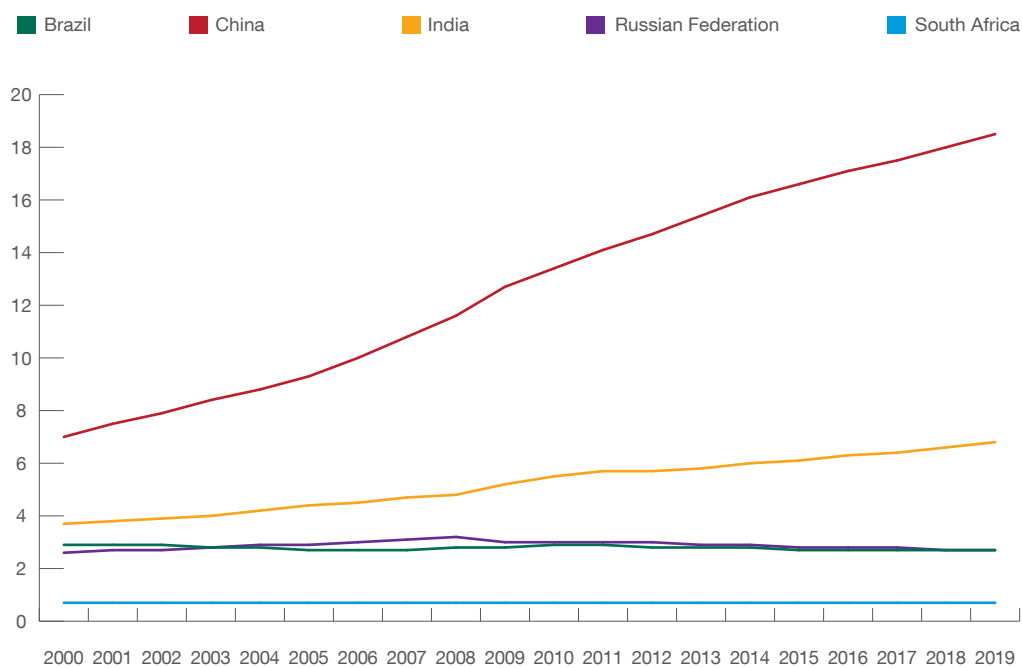


Note: Figures for 2012-2019 are IMF staff estimates.

Source: IMF (2014).

Figure 4: Emergence

Gross domestic product based on purchasing power parity, share of world total (%), 2000-2019



Note: Figures for 2012-2019 are IMF staff estimates.

Source: IMF (2014).

Despite unprecedented reductions in absolute poverty, income inequality is threatening social cohesion. Rapid growth has led to unparalleled reductions in absolute poverty within BRICS. Less than 15% of the population now live under the lower international poverty line (\$1.25 a day) in all countries except India. Within ten years, nearly one-third of China's population and more than one-tenth of the population of the other countries were lifted above the higher international poverty line (\$2 a day). Poverty, thus defined, nearly disappeared from the Russian Federation. However, current levels of poverty are still high in China and South Africa, and particularly in India, where more than two-thirds of the population still live on less than \$2 a day.

For China, India, the Russian Federation and South Africa, poverty reduction has been accompanied by a widening of income inequality. Overall inequality, as measured by the Gini coefficient and the share of the richest 20% in total income, increased in the four countries, reaching extreme values in South Africa, followed by China and the Russian Federation. Brazil, in stark contrast, managed to transfer more than 5% of total income from the richest 20% to the rest of the population. Yet the poorest 20% benefited only slightly from this redistribution of income and Brazil remains a deeply unequal society, second only to South Africa within the BRICS group (Table 6).

TABLE 6: POVERTY AND INEQUALITY

	Poverty headcount ratio at \$1.25 a day (PPP) (%)		Poverty headcount ratio at \$2 a day (PPP) (%)		Gini index		Income share held by highest 20%		Income share held by lowest 20%	
	1999	2009	1999	2009	1999	2009	1999	2009	1999	2009
Brazil	11.4	6.1	21.3	10.8	59.8	54.7	63.8	58.6	2.2	2.9
China	35.6	11.8	61.4	27.2	39.2	42.1	46.1	47.1	6.4	4.7
India	49.4	32.7	81.7	68.8	30.8	33.9	40.1	42.8	9.1	8.5
Russian Federation	2.3	0.0	10.5	0.1	37.5	40.1	44.1	47.1	6.2	6.5
South Africa	26.2	13.8	42.9	31.3	57.8	63.1	62.7	68.2	3.1	2.7

Note: Data for 1999 and 2009 or nearest years available, for India (1994 and 2010) and South Africa (2000 and 2009).

Source: World Bank (2014).

TABLE 7: TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING AT SECONDARY EDUCATION LEVEL

	Enrolment (thousand)	% female	Share of TVET in total enrolment in secondary education (%)
Brazil	1,497	56	6.5
China	19,696	45	20.7
India	...	...	...
Russian Federation	1,576	38	17.2
South Africa	247	43	5.1

Notes: Figures are for 2012. The share of TVET in total enrolment in secondary education given here tends to be underestimated, as the TVET track opens at upper secondary level only; unfortunately, total enrolment in upper secondary education is not available.

Source: UIS (2014).

Regional disparities have likewise become a major concern. If some of the wealthiest regions of Brazil, China and India were independent they would be upper-middle or high-income economies, while a large number of their poorest regions would be low-income countries. These inequalities have important implications for social and political stability in BRICS.

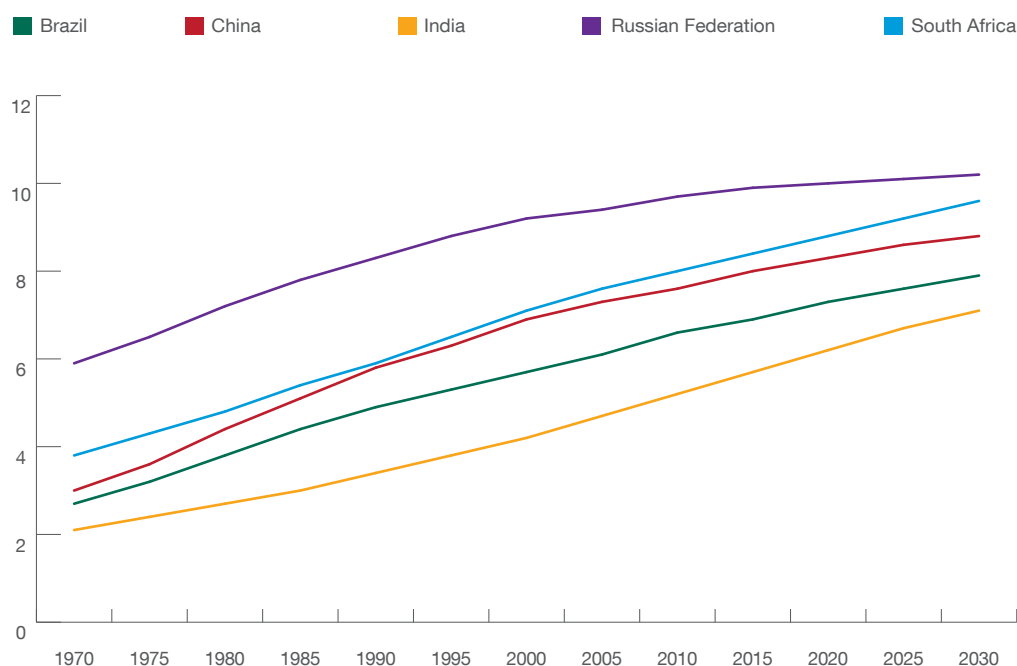
All BRICS governments have recognized that developing skills is vital to sustain economic growth and make growth more equitable. Yet, policymakers face significant challenges: present skills levels are low, calling for programmes on massive scale. However, high inactivity or unemployment rates and the informal nature of many jobs are obstacles to developing the provision of training.

Skills among youth and adult populations

Past and present education weaknesses mean that large numbers of youth and adults need opportunities to acquire foundation skills. Brazil, China and South Africa have almost reached universal literacy among youth aged 15-24, but still need to tackle significant pockets of illiteracy among adults, in particular in rural and underdeveloped regions. India's youth illiteracy rate has been declining rapidly, and measures to universalize basic education and improve quality should ensure this progress continues. However, India will need to continue its literacy campaigns for the next few decades, and include literacy and numeracy modules in its skills development programmes, if it is to significantly reduce the high percentage of youth and adults without basic literacy skills (Table 1 and UNESCO, 2014e).

Figure 5: Educational attainment is increasingly rapidly

Mean years of schooling, population aged 25 and above, 1970-2030



Notes: Figures are drawn from the International Institute for Applied Systems Analysis/Vienna Institute of Demography (IIASA/VID) Model database. Figures for 2005-2030 are projections.

Source: World Bank (2014).

Many adults may lack transferable skills, as their average educational attainment does not go beyond a few years of lower secondary education. Those who have acquired transferable skills (such as problem-solving, critical thinking, creativity, and effective communication of ideas and information) tend to have completed secondary education (UNESCO, 2012). Except in the Russian Federation, however, mean years of schooling in the BRICS among adults aged 25 and above did not reach eight years in 2010, and are not projected to reach ten years before 2030 (Figure 5). In 2010, women were at a large disadvantage in China and India, where they had received respectively 1.5 and 2.5 less years of education than men (World Bank, 2014). The number of years spent in school is increasing steadily, however: the average child entering primary school in 2012 could

expect to receive 11.7 years of education in India and 13.1 years in China (Table 1).¹⁹ The increased investment by BRICS in higher education will also help address the gap in higher-level skills.

The contribution of formal TVET to the acquisition of technical and vocational skills differs markedly across countries. More than one in five secondary school students in China are enrolled in TVET, and more than one in six in the Russian Federation, far more than in Brazil or South Africa (Table 7). Technical and vocational skills are also acquired in higher education and through formal and informal training at the workplace, but the lack of data makes international comparisons difficult. Partnerships between the public sector and companies play a key role in TVET, as shown in Brazil by the 'S' system of training institutions, funded through a payroll levy, and in India by the National Skills Development Corporation and Fund (Section 2.3).

Employment and economic specialization

BRICS economies are not creating enough quality jobs. This leaves a large share of the population inactive, unemployed or in vulnerable or informal jobs – especially among youth and women (Table 8). China and the Russian Federation seem least affected, with higher rates of labour force participation, and levels of adult unemployment around the global average (although the Russian Federation, where most employment is formal, suffers from higher youth unemployment). Brazil has high rates of labour force participation, but a large share of youth is unemployed and more than one-third of non-agricultural employment is informal. South Africa is faced with acute job scarcity: exceptionally large shares of youth and adults are out of the labour force or out of employment. Finally, India combines two specific characteristics: almost two-thirds of adult women are out of the labour force, and more than 80% of employment, even outside agriculture, is either vulnerable or informal.

Sectoral shares in employment shed some light on these patterns. Agriculture remains a major employer in China and especially in India, where the sector employs more than 40% of men and 60% of women. Both countries will need to manage the transition of large numbers of workers to other activities, and to develop their services sectors. China's global lead in industry is reflected in its particularly large share of industrial employment, while in Brazil the sector employs hardly more than one-fifth of all workers and faces difficulties in expanding. In Brazil, India and South Africa, industrial employment is far less accessible to women than to men, limiting the benefits women can draw from productivity gains and training opportunities (Table 9).

TABLE 8: LABOUR MARKET INDICATORS

		Labour force participation (%)		Unemployment (%)		Job types and vulnerable employment (% of all workers)				Informal employment (%)
		Youth (15-24)	Adults (25-54)	Youth (15-24)	Adults (25+)	Wage, and salaried workers	Employers	Own-account workers	Contributing family workers	Share in non-agricultural employment
Brazil	Men	71.1	93.4	12.3	3.4	64.3	5.5	23.7	3.4	38.0
	Women	54.7	72.9	19.7	6.5	69.2	2.7	16.1	6.3	
China	Men	58.5	95.5	11.3	4.0	...	...	...	...	...
	Women	53.7	80.4	7.8	2.8	...	...	...	...
India	Men	54.4	97.5	9.4	1.8	19.4	1.3	68.3	11.0	83.5
	Women	19.4	35.8	10.6	2.6	14.5	0.4	51.1	33.9	
Russian Federation	Men	43.5	93.3	14.6	4.8	92.1	1.8	5.8	0.1	12.1
	Women	34.9	86.6	15.2	4.1	93.3	1.1	5.3	0.1	
South Africa	Men	28.5	82.2	47.5	18.8	83.4	7.5	8.6	0.5	32.7
	Women	23.7	63.7	57.4	23.0	86.0	2.8	10.1	1.2	

Notes: Labour force participation: share of the population working or seeking employment (2012). Unemployment: unemployment rate, ILO estimate (2012). Job types: own-account workers and contributing family workers are considered to be in vulnerable employment by the ILO (Brazil: 2009; China: no data; India: 2010; Russian Federation: 2008; South Africa: 2011). Informal employment: share of persons in informal employment in total non-agricultural employment ((%), except for the Russian Federation: share of persons employed in the informal sector in total non-agricultural employment ((%)) (Brazil: 2011; China: no data; India: 2005; Russian Federation: 2010; South Africa: 2010).

Source: ILO (2013).

TABLE 9: EMPLOYMENT BY ECONOMIC SECTOR

Share of aggregate sectors in total employment (%), 2011

	Agriculture	Industry	Services
Brazil	15.3	21.9	62.7
China	34.8	29.5	35.7
India	47.2	24.7	28.1
Russian Federation	9.7	27.9	62.3
South Africa	4.6	24.3	62.7

		Agriculture	Industry	Services
Brazil	Men	18.4	29.2	52.1
	Women	11.0	11.8	77.1
India	Men	43.0	26.0	31.0
	Women	59.8	20.7	19.5
South Africa	Men	5.5	32.8	58.3
	Women	3.5	13.2	68.4

Note: Data are for 2011, except India (2012) and the Russian Federation (2009). For 0.1% of employment in Brazil and 8.4% in South Africa (3.4% of men, 15.0% of women), the sector is 'not adequately defined'. Data by gender are not available for China and the Russian Federation.

Source: ILO (2013).

Chapter 2
BRICS skills
development and TVET
policies: levers for
economic growth and
social cohesion

BRICS need skills development policies to facilitate the adoption of new technologies, a requirement for moving up the value chain and achieving upper-middle or high income status.

The technology levels of BRICS can be gauged by looking at trends in the composition of their exports. By 2010, the share of high-technology products in the exports from all countries except China was below 10%, and the share of medium-high technology products had hardly increased since 1996. Brazilian and Russian companies, in particular, were facing difficulties in raising their technology levels. By 2010, low-technology products (including agricultural products) represented more than 40% of Brazil's exports, the same share as in 1996, and the share of high-technology products had decreased continuously from a peak of 15% in 2000. Throughout the period from 1996 to 2010, medium-low technology products (including oil and gas) accounted for 60% to 70% of exports from the Russian Federation, which in 2010 exported the lowest share of high-technology products among BRICS. In contrast, India and South Africa had managed to replace part of their exports of low-technology with medium-low technology products. In India, low-technology exports fell from 70% to 40% while medium-low technology rose from 10% to 35% between 1996 and 2010. China stands apart. Between 1996 and 2005, its exports of high-technology products rose from less than 20% to about 35%; exports of low-technology products declined from 50% to 30%. However, these trends stalled after 2005, possibly indicating difficulties extending the modernization of the economy to regions and sectors that had been left behind (Reisen, n.d.). Skills development policies are crucial to enable BRICS to increase the technology levels of their economies and avoid being caught in the middle-income trap.

Population prospects

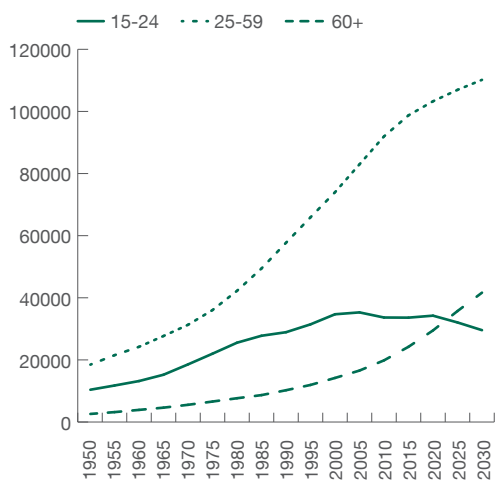
Population changes and urbanization will frame priorities for skills development policies:

- *Population ageing* (Figure 6). Adult populations peaked in the Russian Federation and in China around 2010 and are projected to decrease rapidly. Both countries need to train youth and adults and achieve productivity gains to be able to support rapidly increasing elderly populations. Ageing, combined with more than one-quarter of the population living in poverty, is a particular challenge for China. Brazil will face a similar challenge, but at a later date – its youth population is declining but its adult population is projected to increase until after 2030 – and with much lower initial poverty levels.
- *Population increase*. Youth populations are stabilizing at historically high levels in India and South Africa, while adult populations should keep increasing until the middle of the century. In theory, this will give both countries a demographic dividend, which has been highlighted in Indian policy documents. In practice, gains will be limited in South Africa by job scarcity and in India by low female labour force participation and informality of employment. To promote employment and growth that benefits all, India and South Africa need to develop youth skills while providing education and further training to adults, targeting women and other disadvantaged groups. This should be accompanied by economic policies facilitating the creation of quality jobs.
- *Urbanization* (Figure 7). Brazil and the Russian Federation have had high urbanization rates for decades, and China and South Africa are urbanizing fast. In India the rural population is still increasing rapidly, and is projected to peak only by 2030, but the urban population is the fastest growing among BRICS. Between 2010 and 2030, the urban population is projected to increase by 60% in India, 45% in China, 24% in South Africa, and 19% in Brazil. The Russian Federation's urban population is projected to remain constant. While learning needs in rural areas remain huge, skills development policies will have to focus on including rural migrants and slum populations in the urban economy.

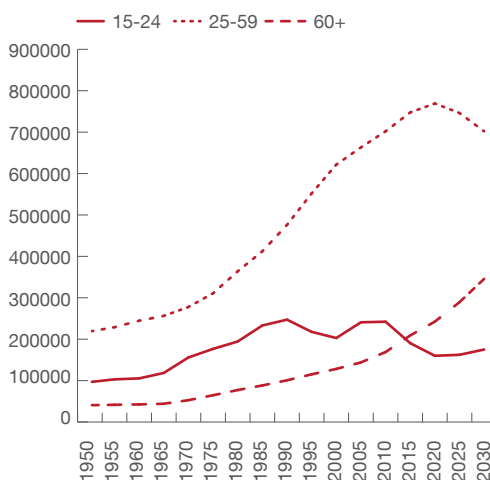
Figure 6: BRICS face different population prospects over 2010-2030

Population aged 15-24, 25-59 and 60 and above, 1950 to 2030 (thousands)

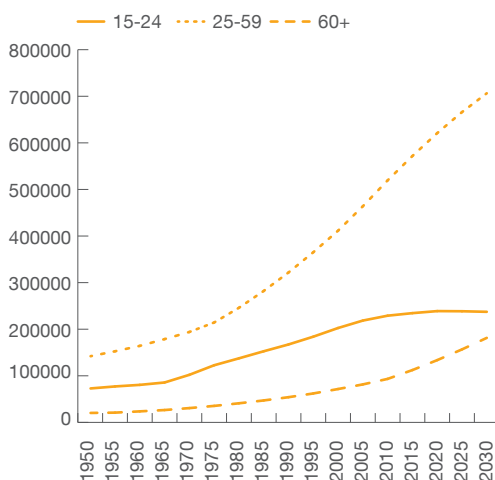
Brazil



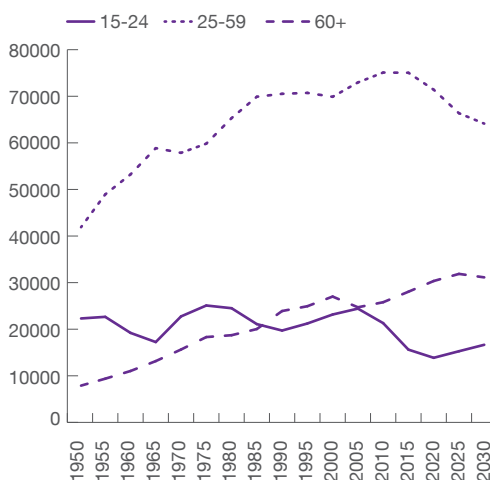
China



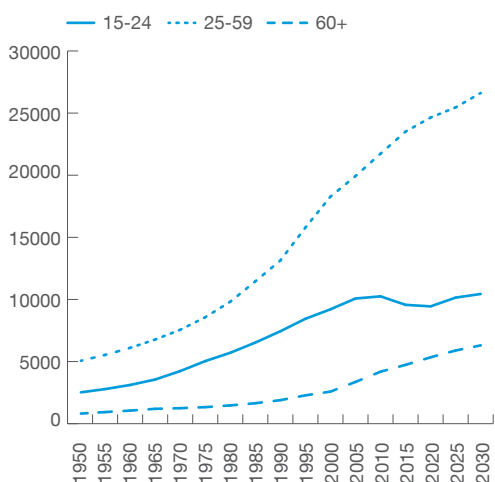
India



Russian Federation



South Africa



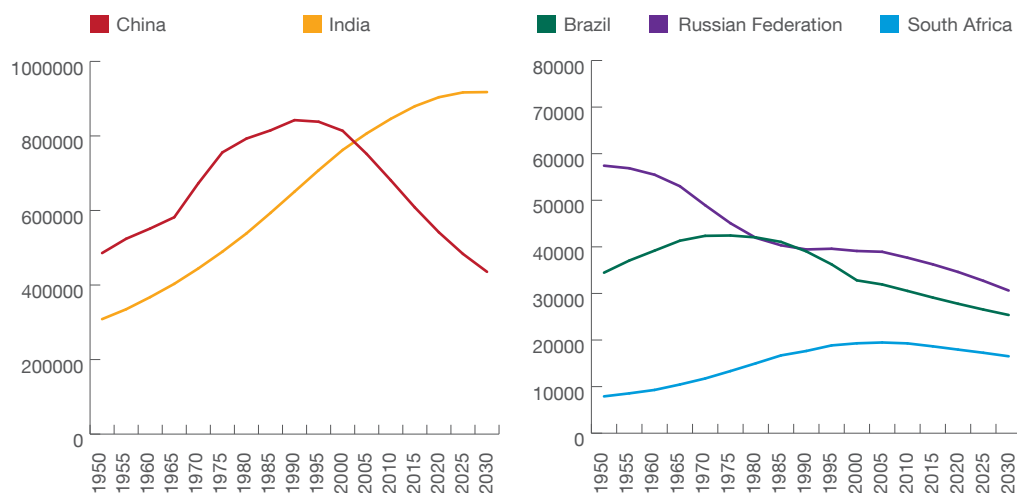
Note: Figures for 1950-1955 to 2005-2010 are estimates; figures from 2010-2015 onwards are projections.

Source: United Nations (2012).

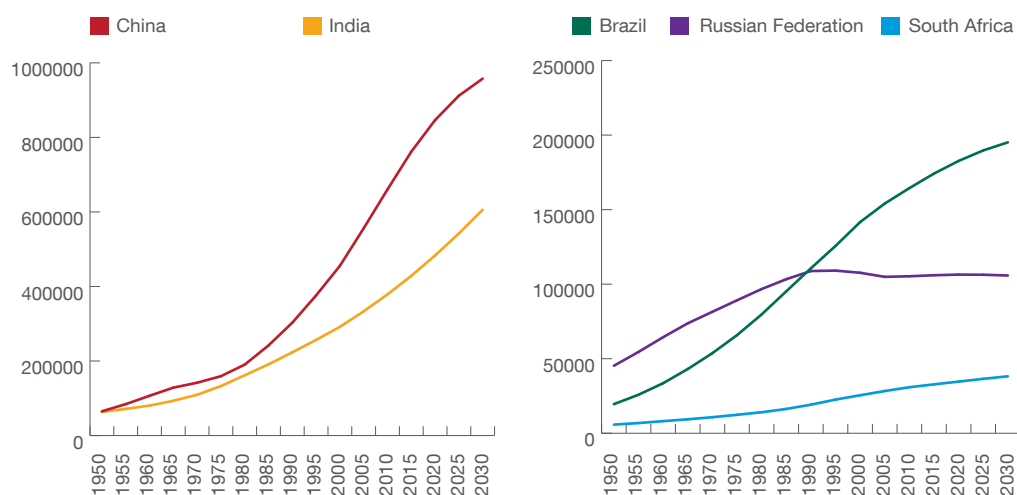
Figure 7: BRICS are urbanizing rapidly

Rural population, 1950 to 2030 (thousands)

Rural population, 1950 to 2030 (thousands)



Urban population, 1950 to 2030 (thousands)



Note: Figures from 1950-1955 to 2005-2010 are estimates; figures from 2010-2015 onwards are projections.

Source: United Nations (2011).

2.2 Skills development policies: coordinating training providers and ensuring labour market relevance

National strategies, plans and policies on skills development

BRICS are participating in the global trend of formulating national strategies, plans and policies on skills development. These documents fill the gap between education and labour policies by envisaging the broad range of skills required for economic growth and the diverse channels through which they may be acquired, such as initial technical and vocational education and training, higher

education, continuing training and workplace learning. They highlight the importance of making special efforts to reach disadvantaged youth and adults who are illiterate, lack formal qualifications, have informal or vulnerable jobs, or live with disabilities. Defining an overall framework for skills development can help extend access to training, improve its quality and relevance, and reduce mismatches between skills delivered by the training system and those in demand on the labour market. For governments, this involves engaging with employers' and workers' organizations, and coordinating public, private and NGO training providers (ILO, 2011). Skills development strategies have not been mentioned in BRICS Summit Declarations so far (DIRCO, 2013). However, they have been put forward by the International Labour Organization to the G20 group of countries, to which BRICS belong, as an important part of efforts to tackle unemployment and foster strong economic growth whose benefits are spread more widely (ILO, 2010).

Strategies differ depending on the current state of education and training systems, and on economic structures. India and South Africa have full-fledged skills development strategies that are distinct from their national education plans. This might lead to inconsistencies between the two policy areas, especially when separate ministries are in charge of them, as in South Africa. Both countries' skills development strategies address low qualifications and skills levels in the working-age population, and the scarcity of formal employment. They target disadvantaged populations, thereby trying to combine social justice with economic growth. Brazil and China have ambitious plans to develop technical and vocational education and training, building on systems that are already extensive, and on labour markets offering more formal jobs. The Russian Federation emphasizes improved higher education as a core aspect of its skills development policies (Appendix 5).

Governance structures

In all BRICS, skills development involves a great diversity of public and private stakeholders. Ministries of education play a central part, but other ministries and public entities either have their own training programmes and institutions, or are involved in regulating or subsidizing training in the private sector. Local authorities are responsible for implementing and financing programmes. Private companies, business associations, trade unions and non-government organizations offer a wide range of training programmes. Coordinating these providers and rationalizing the training supply is a challenge for all five countries.

- In Brazil, the Secretariat of Vocational and Technological Education (SETEC) within the Ministry of Education has primary responsibility for designing national policies and coordinating a diversity of providers: notably the network of TVET institutions run by federal, state or municipal authorities (*Rede Federal de Educação Profissional, Científica e Tecnológica*), and System 'S', which structures private provision. Created in the 1940s, System S provides an early example of corporate social responsibility and has evolved into a highly regarded model for private sector support to vocational education and training (Assumpção et al., 2008; Brazil, 2014; UNEVOC, 2013a). Under the system, levies paid by companies finance nine institutions that provide training in specific sectors: industry (SENAI, the largest institution, and SESI), business and commerce (SENAC and SESC), rural development (SENAR), transport (SENAT and SEST), small and micro-enterprises (SEBRAE) and cooperatives (SESCOOP). The National Council of Institutions of the Federal Network of Professional Education, Science and Technology (CONIF) encourages information exchange among public TVET institutions. It provides a forum for discussing and promoting TVET policies and facilitating interdisciplinary and inter-institutional studies and projects.
- China's Ministry of Education (Department of Higher Education) and Ministry of Human Resources and Social Security (Department of Occupational Capacity Building) share responsibilities for skills development and TVET. An inter-ministerial conference under the leadership of the Ministry of Education brings these two ministries together with the Ministries of Finance and of Agriculture, as well as other national institutions, including the National Development and Reform Commission, the State Council Leading Group of Poverty Alleviation and Development Office, and other departments. These arrangements are reflected at the provincial and local levels, where

governments channel funds and cooperate with industry associations in running vocational schools and training institutions, and supporting training in companies. Local governments above the county level have their own conferences (China, 2014; UNEVOC, 2013b).²⁰

- In India, the primary responsibility for TVET is shared between the Ministry of Human Resource Development and the Ministry of Labour and Employment. However, no less than fourteen other ministries and departments conduct or finance training programmes targeting specific economic sectors (such as agriculture, food processing, construction and the textile industry) or categories of workers (self-employed workers, women, disadvantaged social groups). The country's broader National Policy on Skill Development is coordinated by the recently created National Skill Development Agency, which brings together representatives of the central and state governments and the private sector with the aim of achieving skills development targets set in the Twelfth Five-Year Plan (2012-17). The agency is responsible for creating and maintaining a Labour Market Information System (which gathers data on skills), implementing the National Qualification Framework, evaluating existing programmes, and raising extra-budgetary funding from the private sector, donors and international organizations. The agency also focuses on ensuring that programmes address the needs of women, people living with disabilities, and disadvantaged social groups. Skills Development Missions exist at the state level. Some 32 Sector Skills Councils are being established as partnerships between public training institutions, industry associations and companies, to conduct research, improve training and build quality assurance (India, 2014).
- The Russian Federation's Ministry of Education and Science has primary responsibility for implementing national policies and legal regulations in TVET. Other federal ministries, such as the Ministry of Agriculture and Fisheries and the Ministry of Health Care and Social Development, are involved in TVET for their sector. However, the actual management and financing of TVET institutions have largely been decentralized (Nikolaev and Chugunov, 2012; Russian Federation, 2014).
- South Africa's governance structure reflects its objective to have a single post-school system of training for all youth and adults, independent of whether and how long they attended school. The Department for Higher Education and Training has responsibility for regulating public universities and TVET colleges, public adult learning centres and private TVET colleges. The South African Qualifications Authority and the three Quality Councils are in charge of implementing the national qualifications framework and controlling the quality of training. The National Skills Development Strategy is further implemented through 21 Sector Education and Training Authorities (SETA) established in 2005 and financed through the Skills Levy System. This multiplicity of institutions has generated difficulties, especially as many have suffered from poor management. For instance, much of the income of the National Skills Fund has remained unspent, due to a lack of strategic leadership and capacity. According to the Department for Higher Education and Training, the number of SETAs should be reduced and their mandate redefined to focus on engaging with employers and training providers to implement workplace learning and training programmes, while functions such as skills planning, funding and quality assurance would be recentralized (DHET, 2013; South Africa, 2014).

Skills data collection and analysis

BRICS need systems for data collection and analysis to assess skills levels in their populations; identify skills shortages, gaps and mismatches; and forecast future skills needs. Information on skills levels in BRICS populations has long been limited to proxy indicators such as educational attainment, literacy status or formal qualifications. Improvements in national

²⁰ In the context of the preparation of the next National Vocational Education Conference, ties between stakeholders of the skills development system are being strengthened. The conference and accompanying documents are being jointly prepared by the Ministry of Education and representatives of civil administration and economic sectors such as aviation, mechanical industry, petrochemical industry, transportation and water conservation. Seven hundred National Vocational Education Groups have been created, bringing together representatives from vocational education and training institutions and from firms; they cover more than 70% of vocational schools, 90% of vocational colleges and 700 research institutions, as well as nearly 20,000 companies in 100 industrial sectors (China, 2014).

assessments and increasing participation in international assessments of student achievement have provided additional information on the quality of education. However, direct measures of youth and adult skills are lacking, and BRICS are still at the initial stages of building systems to collect and analyse skills data.²¹

In India, the National Skills Development Agency has received the mandate of creating and maintaining a Labour Market Information System to collect data on skills, complemented by analysis at the local level. Sector Skills Councils are also in charge of identifying skill requirements and gaps for specific industries at the regional level (India, 2014; NSDC, n.d.). South Africa, where the present system for data collection and analysis is considered inefficient (DHET, 2013), has taken steps to generate better labour market and skills information, drawing on the best of international practice (Box 1). To gain a sharper understanding of adult skills levels and how they are used in the labour market, Russia participated in the first Survey of Adult Skills conducted by the OECD as part of its Programme for the International Assessment of Adult Competencies (PIAAC). Russia is the only country among BRICS to participate so far in the survey, which intends to improve direct assessment of adult skills and facilitate international benchmarking.

Box 1: Initiatives to improve skills data collection and analysis in South Africa

South Africa's national statistical institute (Stats SA) collects information on qualifications and occupations through a quarterly labour force survey. Sector Education and Training Authorities also provide information to the Department of Higher Education and Training on the training they conduct or plan. This information is used to analyse skills needs:

- ▶ The Department of Higher Education and Training is developing an econometric model for forecasting skills needs related to macroeconomic growth. The research is funded by the Skills Levy System, and conducted by an American researcher via a South African research organization. An institutional mechanism for forecasting skills needs should follow.
- ▶ Another research project, the Labour Market Intelligence Project, is seeking to identify skills shortages and mismatches so they can be taken into account in planning processes. Financial incentives exist to address skills shortages, such as the *Funza Lushaka* Bursary Fund for teacher training, designed to encourage students to take up teaching as a profession.
- ▶ A National Artisan Development Support Centre has been set up within a public TVET College to collate and analyse all data on artisans in the country.
- ▶ The Department of Higher Education and Training also has a project with the European Union on skills planning, which aims to investigate international good practice on the identification of scarce skills, skills mismatches and skills shortages, and on the best way to use this information for skills planning.

Source: South Africa (2014).

National qualifications frameworks

BRICS are among 142 countries that already have a national qualifications framework, or are developing one. National qualifications frameworks (NQF's) classify qualifications according to the knowledge, skills and competencies that people who hold them can be expected to master. They comprise a hierarchy ranging from basic literacy, numeracy and vocational skills to advanced skills. Qualifications obtained in initial and continuing education and training, as well as work experience, can be taken into account. The existence of a national framework is expected to facilitate the comparison of qualifications and thus access to further training and employment, within a country or internationally if the national framework is integrated into a regional framework. Initiated in the late 1980s and early 1990s in a handful of Anglophone countries including Australia, New Zealand, Scotland and the rest of the United Kingdom, national qualifications frameworks have spread globally since the mid-2000s (ETF, 2011). All BRICS have been participating in the process, but they are at very different stages:

21 Brazil reports having no system for skills forecasting at the national level (Brazil, 2014), and China and the Russian Federation do not report having one (China, 2014; Russian Federation, 2014).

- South Africa was among the countries that established 'first-generation' frameworks when it launched its National Qualifications Framework in 1995 (Tuck, 2007). The framework has been reorganized following the National Qualifications Framework Act of 2008. South Africa is also a member of the regional Southern African Development Community Framework, which extends to fifteen countries (ETF, 2013);
- China introduced its Vocational Qualification and Certification System in 1994, following earlier experience: a framework for assessing workers' skills already existed in state-owned enterprises in the 1950s, the Eight-Level Worker Skill System (Su and Zeng, 2009);
- India's National Skills Qualification Framework was adopted in December 2013, replacing earlier frameworks developed as part of the National Skill Development Policy initiated in 2009 (India Ministry of Finance, 2013);
- The Russian Federation has several qualifications frameworks that have been elaborated since 2005, but has not unified them yet (Castejon, 2011; ETF, 2013). The Russian framework should be consistent with the European Qualifications Framework, as the country is participating in both the Bologna Process of higher education reform and the Torino Process reviewing TVET systems (ETF, 2011, 2013);
- Brazil has been considering a national qualifications framework for some years, after introducing competence-based training in 2001 (Allais, 2010b; ETF, 2013; IBE, 2010a).

The design and implementation of national qualifications frameworks have been key components of broader education and economic reforms. In post-apartheid South Africa, the national qualifications framework was conceived of as a tool to improve the quality of education and training, and enhance social mobility through education, training and career paths (Allais, 2010a). In China, the transition towards a socialist market economy required a redefinition of qualifications, and interest grew in first-generation qualifications frameworks established since the late 1980s in Anglophone countries, particularly the British National Vocational Qualification (Su and Zeng, 2009). Likewise, in India, the lack of nationally standardized and internationally comparable qualifications compounded the skills deficit that had been identified as an obstacle to job creation and growth, which the 2009 policy is seeking to answer (UNESCO and UIL, 2009). In the Russian Federation, the education and training system was not linked with the labour market, used outdated occupational classifications, and was not oriented towards learning outcomes. The initiative to modernize the system came from employers. The decentralization of TVET institutions further required the definition of common standards to enable quality assurance and avoid a widening of regional inequalities (Castejon, 2011).

National qualifications frameworks link general and vocational qualifications. This can help ensure consistency between education and skills development policies, as all institutions in both areas have to design their programmes with reference to a given framework. South Africa's framework comprises ten levels, each of which corresponds to formal qualifications acquired in general education, TVET and higher education, from the completion of nine grades of lower secondary education (level 1) to a doctoral degree (level 10). However, each level is also described in great detail, through ten components: scope of knowledge; knowledge literacy; method and procedure; problem-solving; ethics and professional practice; accessing, processing and managing information; producing and communicating information; context and systems; management of learning; accountability (DHET, 2013; IBE, 2010e).

India's framework also includes ten levels, each of which is defined by five components reflecting learning outcomes (process; professional knowledge; professional skill; core skill; responsibility). For instance, level 1 prepares a person 'to carry out processes that are repetitive, on regular basis, require no previous practice' while level 10 requires 'highly specialized knowledge and problem-solving skills to provide original contributions to knowledge through research and scholarship'. The legal notification of the framework does not provide correspondences between levels 1-10 and formal qualifications, but these will be defined as soon as it will be mandatory after five years for all education and training programmes to comply with the framework (India Ministry of Finance, 2013).

In China's system, qualifications are assessed via a national examination that covers both theoretical knowledge and practical skills, and leads to the award of a national vocational certificate, at five

levels: primary worker (level 5), intermediate worker (level 4), advanced worker (level 3), technician (level 2) and senior technician (level 1). Examinations are conducted by agencies approved by the government, which may include vocational schools, private training centres, large and medium-sized enterprises, or a local labour bureau. The system has expanded steadily. Between 1996 and 2008, the number of people receiving a certificate increased from 2.15 million a year to 11.32 million; by 2008, more than 80 million people had received certificates (Su and Zeng, 2009; UNEVOC, 2013b).

While Brazil does not have a national qualifications framework, the Ministry of Education has established an online National Information System of Vocational and Technological Education (*Systema Nacional de Informações da Educação Profissional e Tecnológica*), which collects information on all registered TVET providers (public and private) across a range of indicators, such as enrolment and graduation rates, teacher/student ratios and per pupil expenditure. SISTEC includes a national catalogue of technical courses (*Catálogo Nacional de Cursos Técnicos*), which gives recommendations on the objectives, design and duration of courses across different technical areas and provides a framework for qualifying and validating courses nationally. Courses that are not in the catalogue can be maintained as experimental for a maximum of two years, but if they are not integrated into the system after this period they must be discontinued. The system facilitates quality assurance across a large, complex network of providers and enables education institutions and employers to validate more quickly and reliably a student's training (UNESCO 2013a).

Designing a national qualifications framework requires institutional capacity and may be an overwhelming task if this capacity is lacking. First, large numbers of qualifications need to be defined within a few years if the framework is to be implemented reasonably rapidly without compromising comprehensiveness. In China, where the system was introduced in 1994, standards had been defined for 1,833 occupations by 1999. South Africa's framework now suffers from excessive complexity: 11,615 qualifications and part qualifications (called 'unit standards') exist. They tend to overlap, and many are never used. The Department of Higher Education and Training has called for a simplification, amid debates on the relevance of the framework (Allais, 2010b; DHET, 2013).

Second, a large number of stakeholders need to be coordinated, or concurrent initiatives unified. In India, the process has accompanied the creation of new institutions since 2009 under the National Skill Development Policy. The Ministry of Human Resource Development and the Ministry of Labour and Employment initially developed separate frameworks, which were replaced with a single framework in December 2013, when the National Skill Development Agency replaced previous institutional arrangements (India Ministry of Finance, 2013). The situation in the Russian Federation is complex. An initial project was led by the National Agency for the Development of Qualifications, affiliated with the Russian Union of Industrialists and Entrepreneurs. However, the Ministry of Education and Science and the Ministry of Health and Social Development have been leading their own projects, and the unification of different frameworks has proved difficult. In 2011, new competency-based Federal State Education Standards were approved. In 2013, the government of the Russian Federation approved 'Rules of development of the statement and application of the professional standards', under which professional standards are being developed by employer associations, unions and academics (Allais, 2010b; Castejon, 2011; Russian Federation, 2014).

Research on the processes and outcomes of national qualifications frameworks suggests caution. A review by the International Labour Organization of sixteen countries including the Russian Federation and South Africa found recurring difficulties in establishing national qualifications frameworks. Involving employers and trade unions in designing qualifications is difficult, communication between education and training institutions and private companies does not necessarily improve, and many qualifications are never used. Therefore, building the capacity of education and training institutions and labour market research institutions to use qualifications frameworks is a necessary first step. Furthermore, labour market policies and socioeconomic policies need to complement national qualifications frameworks if these are to improve the availability of skills in the economy and labour market outcomes (Allais, 2010b).

2.3 Expanding and upgrading initial technical and vocational education and training

BRICS regard expanding and upgrading the TVET track of secondary and higher education as a policy priority. The coverage of initial TVET varies widely between countries, and its share in secondary enrolment is low in Brazil, India and South Africa (Section 2.1). While the condition of TVET institutions varies markedly across BRICS, official documents from the five countries express converging quality concerns that may include either inequalities in access, outdated curriculum and equipment, a shortage of qualified teachers with workplace experience, or the absence of links with enterprises (DHET, 2013; China, 2014; India, 2014; Brazil, 2014; Nikolaev and Chugunov, 2012). Reforms are seeking to address these concerns, with the related aim of making initial TVET more attractive to students and connecting it better with skills demand from enterprises. Facilitating access to TVET and the transition of TVET graduates to employment is urgent. Across BRICS, youth unemployment rates are 2.5 times to 5.2 times higher than adult unemployment rates, reaching extreme values in South Africa (Table 8). Young people in areas such as slums or remote rural regions are particularly affected. Many of these youth lack qualifications and the knowledge, skills and competencies that are required by the labour market. A large share of those aged 15-24, especially young women, do not participate in the labour force at all.

Current provision of initial TVET

All BRICS have a formal system of initial TVET, which begins at upper secondary level in most cases, as general lower secondary education is being universalized (Table A2). Countries typically distinguish between an upper secondary TVET curriculum open to lower secondary school graduates, and a tertiary TVET curriculum open to graduates of upper secondary TVET or of general upper secondary education. The provision of initial TVET remains school-based in the five countries, although it is often scattered across a wide range of institutions.

- In Brazil, there are three types of TVET programme: basic or continuing education or vocational training, which is designed to prepare or retrain workers based on their prior level of education; secondary TVET ('technical training'), which combines education with technical courses for three to four years, leading to a qualification; and tertiary TVET ('technological training'), which is open to high-school graduates, and leads to a degree, usually in three years (Brazil, 2014; UNEVOC, 2013a). Data from SISTEC show that of the 1,091,113 students recorded as enrolled in the federal network of TVET institutions in 2013, 27% were enrolled in basic and continuing education or vocational training, 54% in secondary TVET, and 19% in TVET at undergraduate, graduate or post-graduate level.
- In China, vocational junior secondary schools are disappearing fast, due to the universalization of general junior secondary education. A few still exist in rural areas, where they deliver three or four years of basic training in agriculture and handicrafts to students who completed primary education. Vocational senior secondary schools are open to students who passed the national examination that enables access to senior secondary schools. The curriculum lasts for three years (sometimes four) and includes one-third general education, one-third vocational content determined by national guidelines, and one-third vocational content determined locally. Some 320 specialities are offered in 19 branches, ranging from agriculture and forestry to manufacturing, transport and information technology. Students who complete the curriculum receive a graduation certificate from the Ministry of Education and a vocational certificate from the Ministry of Labour and Human Resources, based on practical exams. At tertiary level, colleges and universities, open to those who pass an entrance examination, offer two- to three-year programmes (Kuczera and Field, 2010).
- In India, initial TVET is offered at three levels of education:

Certificate level. Higher secondary schools enrol grade 11 and 12 students in vocational courses leading to a certificate. These courses seek to develop knowledge, skills and attitudes required by a specific occupation or group of occupations, and to prepare pupils for the world of work, including self-employment. About 160 courses are provided in six areas: agriculture; business and commerce; engineering and technology; health and paramedical skills; home science; and humanities. Also at certificate level, Industrial Training Institutes and Industrial Training Centres – first established in 1950 to ‘meet the skills manpower requirements for technology and industrial growth of the country’ – enrol students upon graduation from junior or upper secondary education (grades 8 to 12). Programmes last from two to three months depending on the trade. Training is shorter in 22 non-engineering trades (such as carpentry, electricity or masonry), and longer in 32 engineering trades.

Diploma level. Polytechnics offer three-year courses to students who have completed grade 10, leading to diplomas in areas ranging from engineering to computer science and medical laboratory technology. Students can further attend one- to two-year post-diploma and advanced diploma programmes.

Graduate and post-graduate level. At tertiary level, TVET is delivered by federal institutions including Indian Institutes of Technology, Indian Institutes of Management and National Institutes of Technology (Goel, n.d.; India, 2014; Sirohi, n.d.).

- In the Russian Federation, TVET at upper secondary level is open to students who have completed nine years of schooling, and comprises two sub-tracks: ‘initial vocational education and training’ offered by vocational *lyceums* and vocational schools, for a duration of two to three years, and ‘secondary vocational education and training’, offered by vocational colleges and *technicums*, for a longer duration of three to four years. Students of both sub-tracks receive a vocational qualification as well as a certificate of complete general secondary education allowing access to tertiary level. TVET at tertiary level comprises non-university programmes (advanced level of secondary vocational education and training; vocational bachelor programmes in vocational colleges) and university programmes of higher professional education (Nikolaev and Chugunov, 2012; UNEVOC, 2013c).
- In South Africa, ‘post-school education and training’ is offered at three different levels. At upper secondary level, TVET Colleges (formerly known as Further Education and Training colleges) – open to youth and adults who have completed a minimum of Grade 9 schooling – offer training in mid-level skills, such as engineering and construction industries, tourism and hospitality, and general business and management studies. At tertiary level, South Africa’s 23 universities include six universities of technology (formerly known as *technikons*) and six comprehensive universities combining general education and technology. Finally, adult learning centres are being absorbed into new community colleges, which will enrol youth and adults with no formal education or with low qualifications (DHET, 2013; South Africa, 2014).

Access and equity

BRICS are expanding their initial TVET systems. China is a global leader in this regard, as vocational senior secondary schools have reached the government target of enrolling nearly half of all senior secondary students. At tertiary level, by 2007 vocational courses in colleges and universities were already enrolling about 40% of students (Kuczera and Field, 2010). Other BRICS also have ambitious plans for expansion. Since 2011 Brazil has been creating new TVET institutions and recruiting teachers under the National Programme for Access to Technical Education and Employment (PRONATEC). With the launch of PRONATEC 2 in June 2014, this flagship programme has set the target of providing 12 million free training places between 2015 and 2018, with special emphasis on expanding access to TVET in rural and underdeveloped areas (Appendix 5). The recently approved National Education Plan for 2014-2024 has the goal of tripling the number of students enrolled in secondary TVET over the next decade and ensuring 25% of young people and adults in education are enrolled in vocational training. India’s Twelfth Five-Year Plan proposes creating many new industrial training institutes, as well as skill development centres providing short-term courses in under-served regions, and targeting women and disadvantaged social groups. The

capacities of model industrial training institutes, where TVET trainers are trained, are set to be vastly expanded – the country will need to train 20,000 trainers a year but has capacity to train only 2,000 (Planning Commission, 2013). In South Africa, the Department of Higher Education and Training aims to expand the capacity of public TVET colleges and increase enrolment from 650,000 in 2013 to 2.5 million in 2030. At tertiary level, the differentiation between general, technology and comprehensive universities should be maintained, with the aim of increasing the total number of students in higher education from 937,000 in 2011 to 1.6 million by 2030 (DHET, 2012).

BRICS are trying to reduce disparities in access to TVET. Ongoing efforts in Brazil and China illustrate six policy priorities:

- *Creation of TVET institutions in rural areas and remote regions*, as in Brazil's PRONATEC. In China, investment in vocational education in rural areas is part of the Ministry of Education's 'Secondary Vocational Education Reform and Innovation Action Plan (2010-2012)'. Similar investment is being made in China's Western regions, with partnerships between vocational schools and training institutions to co-train students, so as to reduce regional inequalities in access and quality (China, 2014).
- *Distance learning*. Under Brazil's 'e-Tec Brasil Network', launched in 2007 and recently intensified, TVET institutions are encouraged to offer distance learning, conditional on registration with the Ministry of Education, the establishment of facilities for administrative and supervisory activities, and adherence to regulations regarding staff and infrastructure set by a 2011 decree (Brazil, 2014).
- *Fee abolition and grants to schools enrolling poor students*. After a state grants system for vocational secondary schools was introduced in 2007, China initiated a policy of tuition-fee free vocational secondary education in 2009, which was extended in 2012 to all students from poor families, all students in rural areas, and students in agriculture-related fields in urban areas. Sixteen provinces and municipalities have eliminated all tuition fees in vocational secondary education (China, 2014).
- *Enrolment quotas for students from disadvantaged social backgrounds*. To reduce inequalities in access to federal TVET institutions and universities, Brazil has introduced quotas, with 50% of places reserved for students from public schools until 2016. Half of the reserved places are for students from poor families (family income up to 1.5 times the minimum wage); colour or race as defined in statistical data from the Brazilian Institute of Geography and Statistics is also taken into account (Brazil, 2014).
- *Targeted training programmes can reach youth and adults who lacked access to initial TVET*. In Brazil, the Ministry of Education runs the Thousand Women Project to expand access to vocational training for vulnerable women (Box 2).
- *Training farmers and migrant workers*. In China, the Ministry of Education has developed plans to train farmers and migrant workers, including the Sunshine Project, the Rain Plan and Rural Labour Skills Employment Programmes (China, 2014).

Box 2: Brazil's Thousand Women Project

Part of the broader, federal Brazil Without Poverty programme, the Thousand Women Project gives women in situations of social vulnerability access to vocational education and training, and to employment. It was initiated in 2005 as a pilot in one federal TVET institution, and later extended to twelve more institutions, as a joint project by the Brazilian Agency for Cooperation and the Canadian International Development Agency. Between 2008 and 2011, about 1,200 women participated; by March 2011, 670 had received a certificate and 19% had entered formal employment. The programme was judged to have improved participants' self-esteem, family life, and willingness to pursue further education and training.

In 2011, the project became a national policy, coordinated by the Secretariat of Technical and Vocational Education and Training, with the aim of enrolling 20,000 women in 2012. Training modules are based on the needs of local communities and regional economies, and give recognition to prior learning. Participants receive 160 hours of courses in vocational training, as well as remedial general education, citizenship awareness and employability skills. Training is delivered by institutions belonging to the Federal Network of Vocational, Scientific and Technological Education.

Sources: Gutenberg (n.d.); Brazil (2014).

Quality and attractiveness

BRICS place a high priority on improving the quality of their initial TVET systems. Chinese vocational education appears strong in international comparisons, as it enrolls an unusually large share of secondary school students, offers a wide range of specializations, includes workplace training and ensures that teachers also have workplace experience (Kuczera and Field, 2010). Yet vocational schools are regarded as lagging behind the rest of the education system in terms of quality (China, 2014). Chinese authorities consider vocational education the ‘weak link’ in the country’s education system, as it neither reaches ‘the masses of the people’ nor trains enough highly qualified technical workers or professionals.

India faces a range of weaknesses typical of TVET in developing and emerging countries. According to Indian authorities, institutions suffer from poor physical infrastructure (buildings, equipment, basic materials), a shortage of trained teachers and trainers, and an inflexible curriculum. They have weak links with industries and do not cover trades in the services sector that have high employment potential (India, 2014).

In the Russian Federation, the TVET system became obsolete during the rapid transition to a market economy. Many of the skills it offers are no longer in demand by employers, as the range of occupations and industries in the Russian economy has changed dramatically. Meanwhile, many skills that are now in demand are in short supply. Employer associations have identified skills shortages as a major constraint to growth, and some provide in-service training to their workers to upgrade their skills (Russian Federation, 2014).

In South Africa, as in India, TVET colleges suffer from low qualifications of teachers and trainers, weak infrastructure and poor management. The degree structure is complex, as five different programmes and qualifications co-exist. South Africa has started rationalizing the system. It plans to simplify the range of courses offered and merge 152 colleges into 50 multi-campus institutions (DHET, 2013; South Africa, 2014).

The TVET track suffers from a negative image, weakening its attractiveness to students and their families. The poor quality and low labour market relevance of TVET institutions compounds a negative image that often has deeper roots. In South Africa, for instance, the poor perception of TVET institutions dates back to their use in discriminatory education policies under the apartheid regime. Higher-achieving students favour general secondary and higher education, leaving TVET colleges with a disproportionate share of students with low initial levels of knowledge and skills (DHET, 2013; South Africa, 2014). More generally, students are tracked to TVET depending on examination results or grades at the end of lower secondary education. In China, whether junior secondary students move to general or vocational secondary schools depends on examination results. Those tracked to TVET apply to several vocational schools, which further select them according to the same results. The very large share of students enrolling in vocational education does not necessarily reflect the wishes of students and their families (Kuczera and Field, 2010). By contrast, TVET at tertiary level is sometimes highly sought after, as in the case of Indian Institutes of Technology, which are among the most selective higher education institutions in India (Goel, n.d.). BRICS are trying to make TVET more attractive by improving the quality of institutions, developing distance learning relying on information and communications technology (ICT), and above all by making training more relevant to employment through stronger ties between TVET institutions and enterprises.

Bridging the gap between enterprises and school-based initial TVET

All BRICS are seeking to strengthen the links between initial TVET institutions, enterprises and the labour market. Supplementing school-based with workplace-based training can help increase the number of student places, improve the acquisition of skills and competencies, and facilitate the placement of graduates, thus improving the efficiency of the system and helping to raise its status among students and teachers alike. Allowing teachers and trainers to gain or refresh

experience of the workplace further helps ensure the labour market relevance of the courses they deliver. Partnerships between TVET institutions and enterprises are thus crucial.

- In Brazil, apprenticeships are open to any young person aged 14 to 24, who must be in school if they have not completed their secondary education. Medium and large companies are required by law to employ apprentices, representing 5% to 15% of their employees. Apprenticeships require a specific employment contract, which guarantees a minimum hourly wage as well as labour and social security rights. Legislation from 2008 stipulates that apprentices can work for up to six hours a day (eight hours for those who have already completed high school) and 30 hours per week, for a maximum of two years. In addition, internships in public, private or non-profit organizations are open to students in TVET and higher education institutions; some institutions have made them a compulsory part of the curriculum. (Brazil, 2014; UNEVOC, 2013a) The Secretariat of Vocational and Technical Education is developing a pilot project for a dual apprenticeship system in federal institutes, with the aim of enhancing the employability of their graduates. Proposals are also being prepared for in-service training of teachers, which would complement theoretical knowledge with practical workplace experience (Brazil, 2014).
- In China, the current policy is that each student should spend one year on workplace training, for instance the third or fourth year of the senior secondary curriculum. Enterprises can participate in defining local curriculum content, and schools may deliver enterprise-specific certificates. Implementation varies between schools and across regions. Vocational schools in the eastern provinces have a greater choice of partners, and sometimes align with the training plans of enterprises. In other provinces, relations between schools and enterprises sometimes remain minimal, or depend on a single, large employer (Kuczera and Field, 2010).
- South Africa is seeking to establish partnerships between TVET colleges, universities and employers, mediated by Sector Education and Training Authorities, to facilitate workplace training and student placement, as well as workplace exposure for teachers and trainers. Meanwhile, community colleges targeting youth and adults with no formal education or low qualification aim to complement classroom- and workshop-based learning with work experience gained through participation in South Africa's public works programmes (Expanded Public Works Programme, Community Works Programmes) (DHET, 2012, 2013; South Africa, 2014).

Brazil's System 'S' – by which organizations offering TVET among other social services are financed through levies paid by private companies – could be a model for other BRICS. As well as strengthening links between public TVET institutions and enterprises, BRICS are trying to harness corporate social responsibility, with enterprises financing private training institutions that meet the needs of employers and trainees. While the co-existence of two types of institutions requires coordination to avoid duplication and inconsistencies in the overall supply of skills, corporate social responsibility could be a tool for dramatically improving the coverage and quality of training. Brazil's System 'S', which has already been emulated by other Latin American countries, including Colombia, could serve as a model for companies operating in India and subject to the country's new corporate social responsibility law (Section 1.2). Among Brazil's nine sectoral organizations, the National System for Industrial Training (SENAI) is the largest training institution in Latin America, with 1,800 courses delivered in 765 teaching units to more than 2 million workers a year. Basic professional training comprises courses for disadvantaged youth aged 14 to 18 with no more than five years of primary education. Its principal aim is to prepare young people to work as assistants in administration or industrial production. Industrial training is open to those aged 14 to 24 who have completed primary education, and includes a compulsory apprenticeship. In-company professional training trains youth before they enter apprenticeships in companies that partner with SENAI (Assumpção et al., 2008).

2.4 Funding for skills development

Funding mechanisms are much more diverse in skills development and TVET than they are in general education. In addition to government funding for public TVET institutions, and training or tuition fees, sources of funding can include private resources raised by training institutions, training levies and other financial incentives for companies to invest in their workers' training.

BRICS face a common challenge in reducing regional disparities in available resources for TVET institutions. For instance, in China, vocational schools receive most of their funding from local governments (40%) and tuition fees (32%). Funding by provincial and county or district authorities directly depends on local tax revenue. Schools in the coastal eastern provinces and urban areas enjoy higher levels of funding than those in rural areas and central or western provinces. In 2007, the student/teacher ratio in vocational schools ranged from 13 in the municipality of Beijing to 38 in the province of Anhui; the share of teachers with adequate qualifications varied in similar proportions. Schools in less prosperous areas also find it difficult to provide workplace training for students and teachers, compounding disparities in the schools themselves. Ongoing reforms of TVET financing should help reduce those disparities (Section 2.3) (Kuczera and Field, 2010). In the Russian Federation, TVET institutions suffered from underfinancing during the 1990s, and the share of public expenditure on education devoted to vocational education fell from 11.5% in 2003 to 8.6% in 2010. The decentralization of TVET, intended to better meet the needs of regional economies, has led to wide disparities in funding levels. In 2009, total public expenditure on initial vocational education and training ranged from 0.03% to 1.27% of gross regional product, and from 0.02% to 0.68% for secondary vocational education and training. The federal government has recently introduced competitive funding, with the Ministry of Education and Science co-financing regional TVET systems that best respond to local economic needs and is disseminating regional good practice at the national level (Nikolaev and Chugunov, 2012).

BRICS are mobilizing additional sources of funding for skills development by promoting partnerships with the private sector. With System 'S' created in the 1930s, Brazil pioneered corporate social responsibility, with sectoral levies ranging from 1% to 2.5% of each company's payroll. The decision in 2013 to allocate 75% of oil royalties to education (Section 1.2) may also benefit skills development.

The other BRICS are increasingly calling on the private sector to fund skills development and TVET. In China, the State Council decided in 2005 that enterprises should devote the equivalent of 1.5% to 2.5% of their wage bill to fund vocational education and employee training (China, 2014). In India, where most funding for formal skills development is public, the Twelfth Five-Year Plan calls for 'a paradigm shift in the financing pattern of vocational training and skill development involving innovative solutions', combining public and private funding with public-private partnerships. Among other measures, the Twelfth Five-Year Plan proposes a training fund relying on levies collected from medium and large enterprises in the formal sector that will help to finance skills development for the informal sector. The training fund would provide stipends for students from disadvantaged social backgrounds. Meanwhile, TVET institutions would be encouraged to generate some of their own income from the sale of products and services of their trainees (Planning Commission, 2013). India's 2014 law on corporate social responsibility (Section 1.2) is another example, as companies are likely to include training among the activities they finance. In South Africa, companies are encouraged to train their employees through a skills levy, which is reimbursed to them if they can provide evidence of having conducted training (for their employees or for unemployed people). The levy contributes to Sectoral Education and Training Authorities (SETAs) and to the National Skills Fund (NSF), which support public training programmes, especially in rural areas. South Africa intends to reform the system because many employers have treated the levy as a mere tax, and few have engaged with SETAs or NSF to develop skills training. Priorities for reform include using funds from the levy to effectively support education and training in workplaces, to support research and innovation, and to complement public funding for the training of lecturers in TVET institutions (DHET, 2013; South Africa, 2014).

Looking ahead, there is considerable potential for collaboration among BRICS, given their common emphasis on raising skills levels in order to transform their economies and create quality jobs. Policy initiatives in BRICS have been converging, yielding many opportunities for sharing knowledge and experience, learning from one another and cooperating, especially in the following areas:

- developing labour market information systems and capacity for skills analysis and forecasting;
- designing and implementing national qualifications frameworks and standards for skills;
- strengthening the links between companies and TVET institutions, and facilitating workplace learning, especially at secondary level; and
- targeting policies and programmes to meet the training needs of women and disadvantaged social groups, and facilitating their transition to the labour market.

Chapter 3

BRICS international engagement in education and skills development: a new model for the era of globalization



The emergence of BRICS as global powers is transforming their relations with both Northern and Southern countries. BRICS are shifting from being aid recipients to forging a new paradigm of international cooperation, in education as in other sectors. After doubling during the 2000s, official development assistance to education received by Brazil, China and India from traditional donors is expected to recede. Aid to education received by South Africa has already declined by more than one-fifth since the early 2000s. Meanwhile, paralleling trends in the flows of goods, services, capital and labour, development cooperation between BRICS and other low-income and middle-income countries is intensifying rapidly, including in the areas of education and skills. In the multipolar world ushered in by globalization, BRICS are promoting South-South relations between equal partners, while securing their interests in neighbouring countries, and in sub-Saharan Africa. **Section 3.1** relates some of the distinctive features of BRICS development cooperation. **Section 3.2** outlines cooperation in education and skills development by each of the five countries.

3.1 Defining features of BRICS development cooperation

BRICS development cooperation draws on a history of South-South cooperation that dates back to the 1950s. Brazil, China and India initiated technical cooperation with other developing countries as early as the 1950s and have been instrumental in forging the concept and practice of South-South cooperation as distinct from official development assistance by Northern donors. Since 2000, the three countries, in particular China, have also become increasingly significant providers of development finance. South Africa, after isolation under the apartheid regime, became involved in South-South cooperation in the 1990s, especially with other African countries. While the Russian Federation's participation in the BRICS process has brought increased engagement in South-South cooperation, its practice of development cooperation is aligned more closely with that of Northern donors, with the distinct legacy of Soviet aid to socialist countries.

BRICS also draw on a critical assessment of their experience as recipients of official development assistance from OECD donors. Brazil, China, India and more recently South Africa have had experience engaging with bilateral agencies and multilateral organizations such as the World Bank and regional development banks. Aid has contributed to the expansion of their education

systems, and increased dramatically until the early 2010s in Brazil, China and India: the amount of aid to education received by the three countries doubled in real terms between 2002-2003 and 2011 (Table 10). In 2011, China and India each accounted for at least one-third of total aid to education in their respective regions (East Asia and the Pacific, and South and West Asia), or nearly 6% each of the global total. However, while most aid to India and South Africa was allocated to basic education, post-secondary education represented 88% of aid to China, including imputed costs and scholarships for Chinese students in donor countries' universities. Direct aid to basic education in China amounted to no more than US\$4 million in 2011 (UNESCO, 2014e). The Russian Federation received significant amounts of aid for a shorter period of time, from the collapse of the Soviet Union in the early 1990s to the mid-2000s.

TABLE 10: OFFICIAL DEVELOPMENT ASSISTANCE RECEIVED BY BRICS

	Total aid to education (constant 2011 US\$ million)			Share of regional total (%)	Share of global total (%)
	2002-2003 average	2010	2011	2011	2011
Brazil	41	116	105	11	0.8
China	409	856	766	37	5.7
India	379	580	792	33	5.9
South Africa	121	116	96	3	0.7

	Share of education in total ODA (%)	Share of basic education in total aid to education (%)
	2011	2011
Brazil	12	22
China	31	4
India	15	73
South Africa	8	59

Note: No data for the Russian Federation.

Source: UNESCO (2014d).

While there are differences in emphasis among countries, BRICS development cooperation has several common features:

- BRICS emphasize **equal and reciprocal relationships** with other developing countries. Critical of the attitude of traditional bilateral donors, several of which are former colonial powers, they highlight how cooperation projects are driven by the demand of partners and common objectives. They adhere to the principle of non-interference in the affairs of the recipient country and usually attach no political conditionality to their assistance.
- BRICS mostly provide **technical assistance**, for which their expertise matches the geographical, institutional and economic circumstances of other low- and middle-income countries. However, BRICS financial assistance to developing countries has increased significantly since the mid-2000s.
- BRICS do not distinguish between **development cooperation, trade and investment**. They often sign joint agreements linking technical assistance with commercial contracts, and their financial support to partner countries often includes foreign direct investment. BRICS Summit Declarations link support for economic growth to poverty eradication, with an emphasis on developing infrastructure and the productive sectors, although support to social sectors is increasing.
- BRICS focus on **countries with which they have historical or strategic links**, for example neighbours or resource-rich countries, as in sub-Saharan Africa.

- BRICS view the United Nations Development Cooperation Forum as an important platform for discussing development cooperation. With the exception of the Russian Federation, they **do not subscribe to the principles of the OECD's Development Assistance Committee (DAC) or to the aid effectiveness agenda** and have adopted a 'wait and see' position on the Global Partnership for Effective Development Cooperation (Cabral and Weinstock, 2010; Morazán et al., 2012; Smith et al., 2010).

Flows of development finance from BRICS are increasing, although precise estimates are difficult. With the exception of the Russian Federation, BRICS do not publish figures every year, nor follow the OECD-DAC reporting guidelines. Available national figures do not necessarily take into account all institutions that engage in development cooperation, nor do they clearly distinguish between concessional financing, non-concessional financing or direct investment. Figures for specific sectors such as education and skills development are not commonly available. Information on specific projects is also not easy to ascertain, and often limited to descriptions. Evaluations are rarely made public, or even conducted.

Estimates from the OECD of aid similar to official development assistance suggest that BRICS spend small amounts compared with major OECD donors and leading Arab donors, though these figures must be treated with caution (Table A4). On one account BRICS taken together spent US\$4.3 billion on development cooperation in 2011,²² after an increase of 76% in nominal terms since 2007 (OECD, 2013). China was by far the largest contributor, accounting for 57% of the BRICS total.²³

BRICS will become a significant source of global development finance if their contributions keep increasing. Therefore, the five countries need to establish stronger institutions and accounting procedures for managing and reporting their programmes, and assessing their impact. South Africa is aiming to create a full-fledged bilateral agency, and institutional arrangements are being reviewed in other countries. Brazil, China and the Russian Federation have published national activity reports. Continuation of these efforts is important to ensure that BRICS development cooperation achieves its objectives, and that BRICS identify good practice, share their experience and learn from each other.

BRICS are showing a commitment to reinforcing their role in development cooperation, and are considering joint action. The Fortaleza Summit of July 2014 marked an important step change in the BRICS partnership. In the first meeting of the second cycle of BRICS Summits, leaders of the five countries pledged to deepen cooperation, moving beyond their initial focus on economic growth to place greater emphasis on their "significant role in promoting social development and in contributing to define the international agenda in this area, building on [BRICS] experience in addressing the challenges of poverty and inequality" (Fortaleza Declaration). An important aspect of this growing emphasis on social development was the formal commitment by BRICS to strengthen cooperation in education at ministerial level. This political commitment was given financial weight by the signing in Fortaleza of the agreement to establish the New Development Bank, with the purpose of mobilizing resources for infrastructure and sustainable development projects in BRICS and other emerging and developing economies. India, Brazil and South Africa already have experience in joint development financing through the IBSA Fund. Established in 2004, and hosted by United Nations Development Programme (UNDP), the Fund supports projects aimed at alleviating poverty and hunger in developing countries, including projects for education and skills development.

22 2010 figure for Brazil.

23 BRICS differ in their contributions to multilateral organizations. By 2010, such contributions represented less than 10% of China and India's respective spending on development cooperation, compared with 36% for the Russian Federation (50% in 2011), 50% for Brazil and 60% for South Africa (Table A4).

3.2 BRICS have distinct approaches to development cooperation in education and skills development

BRICS are engaging in global partnerships for education. The five countries have played a strong part in the Education for All (EFA) movement coordinated by UNESCO. Brazil, China and India belong to the group of E9 high-population countries, which since 1993 has been facilitating cooperation in pursuit of EFA. The Russian Federation is a donor to the Global Partnership for Education, aimed at enhancing the scale and effectiveness of financing for basic education. China, Brazil and South Africa are 'champion countries' in the United Nations Secretary-General's Global Education First Initiative, which seeks to reinforce efforts to reach global education goals. Each country is showing growing interest in providing technical and financial assistance to education in third countries, although approaches to development cooperation and sectoral priorities vary.

Brazil

Brazil has long been a leader in South-South cooperation. A first National Commission for Technical Assistance was created in 1959. In 1969, the Ministry of Foreign Affairs and the Secretariat of Planning received joint responsibility for cooperation, to align projects with Brazil's own plans. In 1987, the Ministry's Technical Cooperation Division and the Secretariat's Sub-secretariat for International Technical and Economic Cooperation were merged into a single agency, the Brazilian Agency for Cooperation (*Agência Brasileira de Cooperação*), which has been part of the General Secretariat of the Ministry of Foreign Affairs since 1996 (Cabral and Weinstock, 2010). Brazil emphasizes the tenets of South-South cooperation: demand-driven, unconditional and untied technical assistance that responds to the needs of partner countries and respects their sovereignty (Troilo, 2012). In May 2013, however, Brazil announced the creation of a new agency jointly responsible for development cooperation, debt relief, investment and trade with Africa and Latin America; this may lead to a greater alignment of Brazil's cooperation with its own economic interests (Younis et al., 2014).

Brazil is critical of the Northern paradigm of aid. The Brazilian Agency for Cooperation manages both Brazil's cooperation with Southern partners and the aid the country receives from Northern bilateral and multilateral donors, which remains significant. In 2011, Brazil was the second-largest recipient of aid to education in Latin America and the Caribbean (after Haiti), with US\$105 million, or 11% of the regional total (Table 10). However, Brazil has distanced itself from DAC donors and does not participate in the aid effectiveness agenda. It has not ratified the 2005 Paris Declaration, and does not report aid flows to the OECD.

A large number of institutions are involved in Brazilian development cooperation, raising coordination issues. The Brazilian Agency for Cooperation manages both the official development assistance Brazil receives and the development cooperation it provides, in seven areas: technical cooperation; scientific and technological cooperation; humanitarian assistance; scholarships for foreign students; peace operations; and contributions to international organizations and regional banks. The agency's activities expanded rapidly in the late 2000s, with the number of projects increasing from 19 in 2004 to 413 in 2009. The agency has also been moving from stand-alone projects to broader programmes (*projetos estruturantes*). Its resources have been strained, leading some to suggest that it should be made independent from the Ministry of Foreign Affairs. Its budget tripled in nominal terms between 2008 and 2010, but cuts have been made since 2012. Triangular cooperation has expanded to help overcome these constraints, involving bilateral donors (Canada, France, Germany, Japan, Spain and the United States), multilateral organizations (UNDP) and even private donors (the Bill & Melinda Gates Foundation).

Several other institutions are involved in Brazil's development cooperation. In education, these include the Ministry of Education and other federal ministries; states and municipalities; higher education institutions; and private companies and civil society organizations. The legal framework does not fully support or

coordinate their activities, which sometimes have conflicting interests (e.g. large companies versus grassroots organizations). However, this broad-based approach means Brazil is uniquely placed among BRICS to promote a more decentralized and participatory model of cooperation (Cabral and Weinstock, 2010; Troilo, 2012; Younis et al., 2014).

Recognizing the need for improved monitoring and coordination, the Ministry of Foreign Affairs, the Brazilian Agency for Cooperation and the Institute for Applied Economic Research have established a partnership to systematize data collection from federal institutions; the system is being developed and tested (Brazil, 2014).

Amounts devoted by Brazil to development cooperation increased rapidly in the late 2000s.

Between 2005 and 2009, Brazil spent US\$1.6 billion on cooperation (in constant 2009 dollars). The annual amount is likely to have reached more than US\$482 million in 2010 (in current dollars), a sharp increase from 2007. Some 76.5% of the funds were channelled through multilateral organizations over this period, with only 23.5% going to bilateral development cooperation. By 2010, the share of contributions to multilateral organizations seemed to have decreased to 48% (IPEA, 2010, and Table A4). Brazil's main partners are in sub-Saharan Africa (57% of project expenditure by the Brazilian Agency for Cooperation in 2010), especially Portuguese-speaking countries (such as Cape Verde, Guinea-Bissau, Mozambique, and São Tomé and Príncipe), and in Latin America (37%, especially Cuba, Guatemala and Paraguay). Haiti receives large amounts of humanitarian assistance (Troilo, 2012).

Education is one of the three priority sectors. Between 2003 and 2010, education received 12% of Brazilian cooperation expenditure, making it one of the three priority sectors, after agriculture (22%) and health (16%) (Troilo, 2012).

Brazil's cooperation in education and skills development builds on its successful domestic policies.

The Ministry of Education has an International Affairs Office and defines its own cooperation actions following guidelines from the Ministry of Foreign Affairs. Priorities include the quality of education, in-service teacher training, technological innovation, education for work, and education system management. A formal demand expressed by the government of the partner country is required for Brazil to provide assistance. This is first examined by the Brazilian Agency for Cooperation, which then works with the Ministry of Education to prepare an agreement or memorandum of understanding outlining the project. Projects are implemented either directly through the secretariats of the Ministry, or through universities or vocational training institutions (Brazil, 2014). Education institutions also have the autonomy to conduct their own projects independently from the Ministry of Education (Brazil, 2014).

Countries in Latin America and sub-Saharan Africa have been particularly interested in drawing on Brazil's expertise in conditional cash transfers and vocational training. For instance, the National Service of Industrial Learning (SENAI) provides technical assistance on vocational training in 31 countries and has also partnered with Brazilian companies to provide vocational training to their local staff in Angola and Mozambique (Troilo, 2012). Brazil has also launched exchange programmes in higher education (Box 3).

Box 3: Brazilian exchange programmes in higher education

Exchange programmes in higher education aim to strengthen links between Brazil, its neighbours in Latin America, and Portuguese-speaking countries in Africa:

- ▶ Involving the Ministries of Foreign Affairs and Education, and federal higher education institutions, the Exchange Programmes for Undergraduate and Graduate Students (PEC-G and PEC-PG) place in Brazilian institutions students from countries with which Brazil has educational, cultural or scientific agreements. Between 2000 and 2013, the undergraduate programme enrolled 6,000 students from Africa and 1,636 from Latin America; the graduate programme enrolled 389 students from Africa, 1,417 from the Americas, and 74 from Asia.
- ▶ The Federal University of Luso-Afro-Brazilian Integration (UNILAB) was created in 2010 in Redenção (Ceará state) to bring together students from the Community of Portuguese Language Speaking Countries, especially African countries. Enjoying budgetary, managerial, educational and scientific autonomy, UNILAB aims to promote regional development and cultural, scientific and educational exchange. It has about 2,700 students in undergraduate and graduate programmes (in-person and distance education), including Brazilians and foreigners.
- ▶ The Federal University of Latin American integration (UNILA), located in Foz do Iguaçu (Paraná state) fulfils the same function for Mercosur countries.

Source: Brazil (2014).

China

Building on a long history of cooperation with other developing countries, China has become a major aid, investment and trade partner, especially for African countries. China first provided aid in 1950 to two neighbouring socialist countries, the Democratic People's Republic of Korea and Viet Nam. After the Bandung Conference in 1955, its aid extended to other developing countries, starting with Egypt in 1956 and including the landmark Tanzania-Zambia Railway project in the 1970s. In 1964, the Chinese government stated 'Eight Principles for Economic Aid and Technical Assistance to Other Countries' (Box 4), which still guide its development policy. Economic reforms initiated in 1978 led to an increase in aid to least developed countries and greater attention to its long-term impact. During the 1990s, China's accelerated shift from a planned to a socialist market economy led further to the creation of new funding mechanisms. The Foreign Aid Fund for Joint Ventures and Cooperative Projects was created in 1993 to support Chinese small and medium-sized enterprises investing in partner countries, and the Export-Import Bank of China was created in 1995 to provide medium- and long-term low-interest loans to other developing countries. The first summit of the Forum on China-Africa Cooperation (FOCAC) was held in 2000 in Beijing. Since 2004, foreign aid has increased rapidly, as has China's engagement in international and regional development fora. In 2010, a National Conference on Foreign Aid was held, and in 2011 a white paper on aid was published codifying the government's approach to overseas assistance (Cheng et al., 2012; Information Office of the State Council, 2011).

Chapter 3

BRICS international engagement in education and skills development: a new model for the era of globalization

Box 4: China's Eight Principles for Economic Aid and Technical Assistance to Other Countries (January 1964)

1. The Chinese government always bases itself on the principle of equality and mutual benefit in providing aid to other countries. It never regards such aid as a kind of unilateral alms but as something mutual.
2. In providing aid to other countries, the Chinese government strictly respects the sovereignty of recipient countries, and never attaches any conditions or asks for any privileges.
3. China provides economic aid in the form of interest-free or low-interest loans, and extends the time limit for the repayment when necessary so as to lighten the burden on recipient countries as far as possible.
4. In providing aid to other countries, the purpose of the Chinese government is not to make recipient countries dependent on China but to help them embark step by step on the road of self-reliance and independent economic development.
5. The Chinese government does its best to help recipient countries complete projects which require less investment but yield quicker results, so that the latter may increase their income and accumulate capital.
6. The Chinese government provides the best-quality equipment and materials manufactured by China at international market prices. If the equipment and materials provided by the Chinese government are not up to the agreed specifications and quality, the Chinese government undertakes to replace them or refund the payment.
7. In giving any particular technical assistance, the Chinese government will see to it that the personnel of the recipient country fully master the technology.
8. The experts dispatched by China to help in construction in recipient countries will have the same standard of living as the experts of the recipient country. The Chinese experts are not allowed to make any special demands or enjoy any special amenities.

Source: As quoted in Cheng et al. (2012).

China distances itself from the Northern paradigm of aid. The Eight Principles stated in 1964 correspond to the paradigm of South-South cooperation. China officially uses the word 'aid' in the 2011 white paper, but considers itself a partner rather than a donor and has criticized the agenda for aid effectiveness (Cheng et al., 2012; He, 2013).

Centred on the Ministry of Commerce, the governance of Chinese aid is complex. The State Council determines the overall strategy, setting the annual budget, participating in the choice of recipient countries, and reviewing the largest grants. Bilateral aid (including grants and interest-free loans) is mostly managed by the Ministry of Commerce, which formulates policies, regulations and

plans, examines and approves projects, and manages their execution. The Ministry also coordinates with the Export-Import Bank of China and the China Development Bank, which provide concessional and non-concessional loans to partner countries, as well as export credits to Chinese companies. Multilateral aid and debt relief are managed by the Ministry of Finance. The Ministry of Foreign Affairs is involved in the examination and implementation of projects through its embassies abroad, and organizes key events such as FOCAC Summits. An inter-agency coordination mechanism was introduced in 2011 between the Ministries of Commerce, Finance and Foreign Affairs to better manage this engagement. Other ministries (such as Agriculture, Education, Health and Transport), provincial and regional ministries, and state-owned enterprises are also involved in financing and implementing projects (Cheng et al., 2012; Information Office of the State Council, 2011; Strange et al., 2013).

Amounts of Chinese aid are difficult to estimate, but they are undoubtedly large and increasing rapidly. The 2011 white paper filled an important knowledge gap by providing official figures on the cumulative amount of aid provided by China up to 2009. About US\$41.5 billion was spent on eight forms of aid: 'complete projects'; goods and materials; technical cooperation; human resource development cooperation; Chinese medical teams working abroad; emergency humanitarian aid; overseas volunteer programmes; and debt relief. These were financed either through grants (about 40% of total aid up to 2009, covering basic social infrastructure including schools, technical cooperation, human resource development cooperation and emergency humanitarian aid, among others), interest-free loans (about 30%, covering public facilities and projects to improve livelihoods) and concessional loans (about 30%, directed mainly towards larger infrastructure and productive projects).

Education was not a major component of Chinese aid over this period. 'Science, education and health care' together accounted for 236 out of 2,025 'complete projects' financed by grants or interest-free loans up to 2009. Concessional loans went first to infrastructure (61%), industry (16%), and energy and mineral resources (9%). In 2009, Africa received 45.7% of Chinese aid, followed by Asia (32.8%), and Latin America and the Caribbean (12.7%) (He, 2013; Information Office of the State Council, 2011). Chinese aid remains mostly bilateral. Contributions to multilateral organizations amounted to less than 10% of the total in 2010 (Table A4).

Comparing Chinese aid with that of other donors is not straightforward, as China does not follow DAC guidelines and annual official figures are not available. Different authors estimate Chinese aid to Africa in 2007 at levels ranging from US\$580 million to US\$18 billion – 10% to 340% of official development assistance provided by the United States (Strange et al., 2013). Authors relying on media reports for 2000-2011 find that under a broad definition, Chinese and US aid to Africa have been at similar levels since 2006 (Strange et al., 2013).²⁴ In this calculation, education again appears to have received limited funds scattered over a large number of small projects: between 2000 and 2011, 103 education projects received a total of US\$71 million from China, compared with US\$2,392 million devoted to transport and storage, the largest sector after debt relief (Strange et al., 2013).

While precise estimates may be difficult to ascertain the overall trend in Chinese development cooperation is clear. Chinese aid and investment in developing countries have been rising consistently, and are anticipated to increase rapidly over the coming years. In March 2013, China announced that concessional loans to Africa would increase from US\$10 billion over 2009-2012 to US\$20 billion over 2013-2015. In November 2013, the Export-Import Bank of China stated that Chinese concessional loans, commercial loans and direct investment in Africa together would reach a cumulative total of US\$1 trillion by 2025 (Sun, 2014). There are also signs that within this overall growth, education is receiving higher priority.

China has focused its aid to education on teacher and student exchanges and capacity-building programmes in partner countries. Chinese aid to education is managed by the Ministry of Education in conjunction with the Ministry of Commerce, and delivered mainly through bilateral

24 The OECD estimate for 2011, according to which China is comparable to a smaller DAC donor like Spain (Section 3.1), is thus likely to be an underestimate.

agreements (China, 2014). Programmes to build and equip schools began in the 1950s but have been run on a modest scale (130 schools had been built by 2009). China started sending Chinese teachers to partner countries in the 1960s, and training high-level technicians and managers as part of infrastructure projects in the 1970s and 1980s. By 2009, about 10,000 Chinese teachers had been sent abroad, while almost 71,000 students from 119 developing countries had received scholarships to study in China. These exchanges have intensified in recent years, with 11,185 foreign students awarded scholarships in 2009 alone. Training programmes have been conducted as part of China's human resource development cooperation, which started in 1953 and since 1981 has been run with the United Nations Development Programme. By 2009, 120,000 officials, managers, technicians or interns had attended 4,000 training sessions in 20 fields, including agriculture, diplomacy, economy and health care; 10,000 were receiving training in China every year (Information Office of the State Council, 2011).

China also contributes smaller amounts through multilateral organizations including UNESCO (China, 2014). China has engaged with UNESCO in promoting education in Africa through two flagship projects: the China-UNESCO Funds-in-Trust on Enhancing Teacher Education for Bridging the Education Quality Gap in Africa; and the UNESCO-China-Africa Tripartite Initiative on University Cooperation (Box 5).

Box 5: Cooperation between China and UNESCO for education in Africa

China-UNESCO Funds-in-Trust on 'Enhancing Teacher Education for Bridging the Education Quality Gap in Africa': Through this project, UNESCO and China are joining hands to enhance teacher education and professional development in Africa.

The initiative marks the beginning of a new partnership: it is the first time UNESCO has received this level of financial support (US\$8 million) from China in support of teacher education. Eight African countries – selected from among UNESCO's programme priority countries and according to China's development cooperation policy – will participate in the project: Congo, Côte d'Ivoire, Democratic Republic of Congo, Ethiopia, Liberia, Namibia, the United Republic of Tanzania, and Uganda.

Through the use of ICT, mobile learning, and knowledge production and sharing, the four-year initiative (2012-2016) aims at boosting the capacities of ministries and key teacher training institutes in the area of pre-service and continuous teacher training and development.

The project seeks to enhance the capacity of existing key teacher training institutes by:

- ▶ providing quality pre-service programmes to increase the supply of qualified teachers, particularly through ICT-supported distance training programmes;
- ▶ supporting in-service teachers' continuous professional development, particularly through blended learning and programmes scaling up successful ICT support innovations;
- ▶ equipping teacher trainers and teachers with ICT skills to improve the quality of teaching and learning.

The project also supports networks of teacher training institutes that are exchanging information on effective strategies and practices with policymakers, institutional leaders and other stakeholders.

UNESCO-China-Africa Tripartite Initiative on University Cooperation

Launched in 2011, this initiative builds on the earlier 20+20 Cooperation Plan, whereby twenty Chinese higher education institutions had been twinned with twenty institutions in seventeen African countries. Its aim is to facilitate partnerships between universities, educate and train professionals, and promote the production of knowledge relevant to both country contexts.

Sources: China (2014); UNESCO (2014i).

India

India draws on a long experience of being both a leader in South-South cooperation and a major recipient of aid to education. Far from being a new donor, India started an aid programme after independence in 1947, providing grants to neighbouring countries. The country played a key part in South-South cooperation, participating in the landmark Bandung Conference of 1955 and Buenos Aires Conference of 1978 (Agrawal, 2012). At the same time, India has been a major recipient of aid to education, especially basic education. In 2011, it received US\$578 million in aid to basic education, almost 10% of the global total (UNESCO, 2014d). Critical of various aspects of bilateral aid, however, India has reduced the number of donors from which it accepts assistance. In 2012, the end of British aid to India was announced for 2015. India now emphasizes demand-driven, unconditional and reciprocal technical assistance, which may be linked with trade relationships (Agrawal, 2012).

A large number of Indian public institutions engage in development cooperation. India has no aid agency. The Ministry of External Affairs, through its division for Technical Cooperation, coordinates and funds projects that are delivered by specialized government agencies. The division for Technical Cooperation oversees two major training programmes, India Technical and Economic Cooperation (ITEC) and the Special Commonwealth for Africa Assistance Programme (SCAAP). Many more agencies intervene, however, without a clear sharing of responsibilities, and institutional confusion has been identified as an obstacle to the expansion of India's technical cooperation (Agrawal, 2012). The multiplicity of public institutions involved is evident in student and teacher exchanges in higher education. The Ministry of Human Resource Development facilitates the placement of students and trainees through universities and other higher education institutions. The Ministry of External Affairs and the Indian Council of Cultural Relations allocate scholarships, and Indian embassies abroad are also involved (India, 2014). In recent years, especially in sub-Saharan Africa, the government has played a less visible but crucial part as a facilitator for Indian companies or non-governmental organizations (Agrawal, 2012).

India's spending on development cooperation is difficult to estimate, but is likely to be comparable with that of Brazil or the Russian Federation. India neither follows the paradigm of official development assistance, nor reports figures to OECD-DAC. However, the OECD estimates India's 'ODA-like flows' at US\$731 million in 2011, slightly larger than those of Brazil and the Russian Federation's (Table A4).

India's strength lies in sharing skills and expertise to build human and institutional capacity, rather than funding projects. Expenditure on technical cooperation by the Ministry of Foreign Affairs amounted to US\$435.3 million in 2011 – almost one-third of the budget of the ministry. Most funds go to other South Asian countries, especially Bhutan (63%), followed by Afghanistan (11%) and Nepal. The share received by sub-Saharan Africa has been increasing steadily since 2006, but remains minor (5.5%) (Agrawal, 2012).

Education and training are central to India's development cooperation. The share of education and skills development in India's development cooperation was estimated at 30% in 2011. There are large variations across partner countries, however. In Bhutan, most funds go to physical infrastructure projects. In sub-Saharan Africa, by contrast, 65% of funds go to education and skills development (Agrawal, 2012).

Courses offered in Indian institutions via the two training programmes of the Technical Cooperation division of the Ministry of External Affairs constitute the core of Indian technical assistance in education. Created in 1964, the Indian Technical and Economic Cooperation programme coordinates training now given to participants from 161 partner countries in 47 Indian institutions, through 280 courses in seven broad categories: accounts, audit, banking and finance; information technology, telecommunications and English; management; small and medium-sized enterprises, rural development; 'specialised courses'; 'technical courses'; and environment and renewable energy. Many courses are short, usually ranging from ten days to five weeks, but longer courses also exist. ITEC has expanded rapidly in recent years, from 1,959 participants in 1999-2000 to 5,000 in 2009-2010. As well as government officials, the programme now includes academics

and private sector executives, and the range of courses offered has correspondingly widened. The Special Commonwealth Assistance for Africa Programme is similar but targets 19 African countries belonging to the Commonwealth, especially those with close ties to India, including Mauritius, South Africa and Uganda (Agrawal, 2012; India 2014).

Another dimension of Indian support to education is financial support for the significant numbers of foreign students in Indian higher education institutions. As many as 24 programmes provide a diversity of scholarships to about 3,400 students (in recent years) from 135 countries, especially Afghanistan (about 1,000 students) and various sub-Saharan African countries (about 900 students) (India 2014).

India also conducts projects in partner countries:

- In Afghanistan, the Central Asia division of the Ministry of External Affairs has funded small-scale projects (less than US\$1 million) based on local demand and executed by local contractors, including the construction of schools and the creation of vocational training centres (Agrawal, 2012).
- The Ministry of External Affairs has supported the creation of education and training institutions abroad, especially Information Technology Centres created in Latin America by the Indian company NIIT (Agrawal, 2012).
- ITEC and SCAAP offer missions of Indian experts abroad, consultancy services and feasibility studies, donations of equipment, and aid for disaster relief (India, 2014).

Russian Federation

The Russian Federation is re-emerging as a donor. The Soviet Union was a major donor, implementing more than 900 large-scale projects in developing countries until 1991, ranging from physical infrastructure to health and education. Large numbers of foreign students also received scholarships to attend universities and technical schools in the Soviet Union. After the collapse of the Soviet Union, the Russian Federation became a net recipient of aid, but kept contributing to multilateral organizations, debt relief and humanitarian assistance.

The Russian Federation re-emerged as a net donor in the mid-2000s. The country's G8 presidency in 2006 led to the announcement of an increase in funding levels and to the publication in 2007 of the Concept on Russia's Participation in International Development Assistance (Russian Federation, 2007), which defined the country's aid policy. Cooperation with bilateral and multilateral donors helped rebuild Russian capacity (DFID and World Bank, 2009-2011). A first national report on Russian aid was published in 2012 (Russian Federation, 2012). The Russian Federation differs from other BRICS in seeking to align with OECD-DAC's definition of official development assistance and has been reporting to DAC since 2011 (Berenson et al., 2014; Maximova et al., 2013).

The 2007 Concept states the goals of Russian aid and envisages the creation of a development agency. The Concept endorses global development goals and the aid effectiveness agenda, while also stating specific national objectives such as cooperating with neighbouring countries and strengthening the international credibility of the Russian Federation. Once the country has acquired enough experience and reached sufficient funding levels, the Russian Federation envisages creating a dedicated development agency (Russian Federation, 2007). Pending the creation of such an agency, responsibilities remain shared between the Ministry of Finance, the Ministry of Foreign Affairs and *Rosstrudnichestvo* (the Federal Agency for the Commonwealth of Independent States, Compatriots Living Abroad and International Cultural Cooperation)(Maximova et al., 2013)

Russian aid has increased since the mid-2000s, but remains low. According to the first national report of 2012, Russian ODA rose from about US\$100 million a year in the mid-2000s to US\$514 million in 2011, with a peak at US\$785 million in 2009, due to exceptional disbursements to mitigate the impact of the financial crisis in the Commonwealth of Independent States (Table 11). In 2011, 60% of Russian aid was channelled through multilateral organizations and 40% as bilateral aid, including pooled interventions. Eastern Europe and Central Asia, and sub-Saharan Africa, were the

two regional priorities, each receiving 28% of Russian aid, ahead of Latin America and the Caribbean (20%) and South Asia (12%) (Russian Federation, 2012). According to a 2013 G8 report, Russian aid amounted to US\$458 million in 2012, representing an increase in real terms of 88% compared with 2004 (G8 UK, 2013). However, Russian aid remains low compared with most OECD donors (Section 3.1).

TABLE 11: OFFICIAL DEVELOPMENT ASSISTANCE FROM THE RUSSIAN FEDERATION

Total official development assistance (current US\$ million), 2004-2011

2004	2005	2006	2007	2008	2009	2010	2011
100.0	101.3	101.8	210.8	220.0	785.0	472.3	513.9

Note: The source does not specify whether the figures are commitments or disbursements.

Source: Russian Federation (2012).

Russian aid to education and skills development is hard to document. The 2007 Concept mentions ‘Facilitating access to and quality improvement of education services, first of all, primary and vocational education’ as the third of twelve sectoral priorities (Russian Federation, 2007). Yet, unlike aid in health and nutrition, information on Russian aid to education and skills development is not detailed in the 2012 report (Russian Federation, 2012). No sector strategy or white paper has been published to date (Maximova et al., 2013), and the response to the BRICS Education Report Questionnaire mentions only numbers of foreign students in Russian higher education institutions (Russian Federation, 2014). According to the 2013 G8 report, during 2006-2011 the Russian Federation disbursed US\$47 million for basic education (83% of its total aid to education – for which no figure is given) (G8 UK, 2013).

The Russian Federation provides scholarships to foreign students, participates in pooled education funds, and conducts bilateral projects. About 10,000 students receive scholarships annually in Russian higher education institutions. In 2011-2012, 40% of recipients were from the Commonwealth of Independent States, 19% from Asia and 10% from sub-Saharan Africa. The extent to which scholarships and imputed student costs are counted in official development assistance figures is unclear (Maximova et al., 2013).

In conjunction with its G8 presidency in 2006, the Russian Federation contributed to pooled funds for education, including the Fast Track Initiative (FTI, now the Global Partnership for Education) and the Education Programme Development Fund (EPDF). It pledged US\$10.2 million over 2006-2012 to the FTI and US\$5.2 million over 2006-2010 to the EPDF (G8 UK, 2013). Since 2008, the Russian Federation has also funded the US\$32 million Russia Education Aid for Development (READ) programme at the World Bank (Box 6).

Box 6: The Russia Education Aid for Development programme

The Russia Education Aid for Development (READ) programme was established in October 2008 by the government of the Russian Federation and the World Bank. READ aims to improve education quality in low-income countries through analysis and technical assistance in the area of student assessment, including creating or strengthening institutions in charge of assessment; defining learning goals; developing test instruments; implementing assessment; and using the results in educational policy.

The programme extends to eight countries with historical ties to the Russian Federation, three in Central Asia (Armenia, Kyrgyzstan, Tajikistan), four in sub-Saharan Africa (Angola, Ethiopia, Mozambique, Zambia) and one in East Asia (Viet Nam). Funded by the Russian Federation but managed and implemented by the World Bank, it also contributes to building capacity for student assessment in the Russian Federation.

The Russian Federation provided US\$32 million over 2008-2014 to the READ Trust Fund. Each country was allocated US\$1 million to US\$4.1 million, and the READ Trust Fund also contributed to the World Bank’s global Systems Approach for Better Education Results (SABER) programme. By the end of 2012, almost half the funds had been disbursed.

Source: Gardner (2012).

Bilateral projects include a joint project with the World Food Programme to provide lunches to 50,000 primary school pupils in vulnerable and food-insecure regions of Armenia. The project involves support to develop Armenia's capacity to design a permanent school feeding programme that would cover all schools in the country. By 2013, the project was planned to be extended to Kyrgyzstan and Tajikistan, and to Jordan, Morocco and Tunisia (Maximova et al., 2013; Russian Federation, 2012).

South Africa

South Africa plays a pivotal role in international relations in Africa. South Africa's development cooperation went through a radical transformation with the abolition of apartheid in the early 1990s. The apartheid regime had provided financial aid to a number of African countries through its Economic Cooperation Promotion Loan Fund, created in 1968 as a way to overcome its international isolation. After 1994, the new democratic regime sought to repair damage caused by its predecessor, by participating in peacekeeping operations, contributing to humanitarian assistance and supporting post-conflict reconstruction and development. The African Renaissance Fund was established in 2000 within the former Department of Foreign Affairs (now the Department of International Relations and Cooperation) to fund a wide range of bilateral cooperation projects, including social and economic development, and technical cooperation. South Africa has also fostered multilateral cooperation. In 2001, it played a leading role in the creation of the New Partnership for Africa's Development (NEPAD), whose Planning and Coordinating Agency is located in Midrand in the Johannesburg municipality. South Africa has been active in the African Union and the Southern African Development Community, and has provided some funding to the African Development Bank (Besharati, 2013).

South Africa supports both the agenda for aid effectiveness and South-South cooperation. Since the abolition of apartheid, South Africa has received official development assistance from DAC donors to address its high poverty rate. Aid receipts are managed by the National Treasury, separately from development cooperation provided by South Africa to other countries. However, amounts received by this upper middle income country have never exceeded 1% of the government's own budget and, after reaching a peak in 2006, they have been declining in recent years (Besharati, 2013). In stark contrast with upward trends in Brazil, China and India, aid to education received by South Africa declined by 21% in real terms between 2002/2003 and 2011, to a mere US\$96 million (8% of total aid received), of which US\$57 million went to basic education (UNESCO, 2014e).

As a recipient country, South Africa supports the agenda for aid effectiveness. However, as a provider of development cooperation, South Africa does not consider itself a 'donor', preferring instead the paradigm of South-South cooperation. This intermediary position between Brazil, China and India (which emphasize South-South cooperation and do not endorse the agenda for aid effectiveness) and the Russian Federation (which aims to be a donor of official development assistance) is expressed in the African Consensus on Development Effectiveness, defined in 2011 by NEPAD and the African Union. The African Consensus calls for an intensification of South-South cooperation as a complement to North-South relations improved through a full implementation of the agenda for aid effectiveness (Besharati, 2013).

A South African Development Partnership Agency is being created. The governance of South African development cooperation needs reform. Almost half the ministerial departments and several public institutions and state-owned enterprises have international partnerships, without a proper coordination mechanism. The African Renaissance Fund has come under official criticism for poor management. At the same time, South Africa needs to build greater capacity to support its engagement in triangular cooperation (receiving funds from DAC donors to provide its expertise to other African countries) and in the IBSA partnership with Brazil and India. Since 2007, the creation of an autonomous agency has been envisaged as an answer to these challenges. A proposal for a South African Development Partnership Agency, to be housed within the Department of International Relations and Cooperation, was approved by Parliament in 2012. However, the agency was not created in April 2013 as announced and its establishment seems to have been delayed, amid

debates on South Africa's capacity as a provider of development cooperation (Besharati, 2013; Lau, 2013; Lucey and O'Riordan, 2014; O'Riordan, 2013).

South Africa spends smaller amounts than the larger countries in the BRICS group, but is a significant development cooperation partner in Africa. There are no comprehensive estimates of South African spending on development cooperation, with projects scattered across a large number of ministries and other entities. A survey conducted by the National Treasury put the total between US\$363 million and US\$475 million in 2006 (Besharati, 2013). More recent figures from the same source are much lower, with a peak above US\$100 million in 2010 followed by a steep decline to an average of US\$87 million in 2012 and 2013 (Lau, 2013). However, the OECD reports US\$146 million for 2011 (Table A4).²⁵ About half of the funds are channelled through the bilateral African Renaissance Fund, which has disbursed between US\$45 million and US\$75 million annually in recent years (Tjønneland, 2013). The rest is channelled through multilateral organizations (NEPAD, Southern African Development Community, African Union, United Nations). At present almost all South African aid goes to other African countries (including 70% to member states of the Southern African Development Community), but the government has announced it could extend cooperation to countries in Asia and the Caribbean (Lau, 2013). No sectoral disaggregation is available, and funding for education and skills development in particular would be difficult to estimate as the key departments involved, such as the Department of Higher Education and Training, do not make specific budgetary provisions for development assistance (South Africa, 2014).

South Africa runs triangular cooperation projects in higher education and training. The Department of International Relations and Cooperation is defining a strategy that will guide future cooperation in the areas of education and skills development. At present, the two education departments work with the Department of International Relations and Cooperation on international elements of their own strategies. The Department of Higher Education and Training has adopted a white paper that emphasizes research partnerships with African countries, BRIC and other developing countries to supplement existing partnerships with Northern countries. These projects rely on triangular cooperation. On the South African side, the Department of Higher Education and the National Treasury are involved, along with an implementing agency, which can be the department itself, a higher education institution or another body.²⁶ In the recipient country, partnerships are established either with the counterpart of the Department of Higher Education, or with higher education institutions (South Africa, 2014). For instance, between 2010 and 2013, the Department of Higher Education and Training implemented a project through Wits University to provide training in education finance and planning for education officials and scholarships for academics in South Sudan. The project was funded by USAID and was developed together with the South Sudanese Ministry of Education (South Africa, 2014, p. 5). The South African Qualifications Authority has participated in research initiatives to establish national qualifications frameworks in Ethiopia, Namibia, Seychelles and the United Republic of Tanzania, and provided training to develop the capacity of its counterparts in those countries (SAQA, 2013).

Looking ahead, while development cooperation policies and practices differ across BRICS, several areas of joint interest could provide the basis for collective action: a common emphasis on providing technical assistance; a shared desire to support African development; a commitment to improve the quality of BRICS development assistance; and a shared view of the importance of the United Nations system as the main arena for coordinating development cooperation.

25 Estimates vary dramatically depending on whether transfers to neighbouring countries that belong to the Southern African Customs Union are included. These transfers represent a large share of the government budget of countries including Lesotho and Swaziland, but would not be counted as official development assistance if DAC guidelines were followed. Besides, figures may be missing (or difficult to categorize) for several of the ministries, public institutions and state-owned enterprises that engage in development cooperation.

26 Funding from the aid donor country is accessed through the financial systems of the South African government, via the National Treasury. South African higher education institutions implementing projects follow their internal funding processes. All implementing agencies have to submit regular reports and account for project expenditure.

Chapter 4

Recommendations
for cooperation



Given their diversity and the common challenges they face in education and skills development, BRICS have numerous opportunities for sharing knowledge and experience, learning from one another, and developing joint initiatives. This report identifies the following potential areas for initial collaboration. These suggestions reflect and build upon proposals made by the five countries at the first meeting of BRICS Ministers of Education in November 2013 and in their responses to the questionnaire developed by UNESCO to help prepare the present report (Appendix 6).

4.1 BRICS can help one another to improve education systems, higher education and skills development

Strengthen education systems for quality and equity

Recommendation 1: Share knowledge of governance and financing mechanisms, to enhance equity and quality in public schools.

BRICS are innovating with different ways of allocating authority, responsibility and financial resources across national and sub-national levels of government. Sharing this breadth of experience through structured policy dialogue would benefit countries committed to tackling education inequities and raising standards in public schools.

Recommendation 2: Compare experiences in designing and implementing national assessments of student achievement.

All BRICS are investing considerably in national systems for assessment. There is wide scope for BRICS to learn from one another, in particular in designing assessment; managing and using data to inform policy reforms; and weighing the benefits of participating in regional and international assessments.

Recommendation 3: Join forces to improve the quality of education data.

As BRICS pursue their commitment to enhance the quality of education data, they face many common challenges, such as: how to gather data across large, often decentralized, education systems; how to collect disaggregated data to better capture equity gaps; and how to report data that are comparable across states/provinces and across countries. BRICS could establish a technical working group comprised of representatives of their statistical agencies to share experience and solutions in these areas.

Improving the reporting of comparable data will be essential for effective policy dialogue on education among BRICS. Enhanced collaboration among BRICS statistical agencies, and between them and international organizations such as the UNESCO Institute for Statistics (UIS), would help to improve international data reporting and enable more robust monitoring and analysis of education trends across BRICS, for example via a regular BRICS Education Report and wider coverage of education in the BRICS Joint Statistical Publication. These efforts would strongly complement the commitment made by BRICS leaders in the Fortaleza Declaration to work on the development of joint methodologies for social indicators.²⁷

Aim for excellence in higher education

Recommendation 4: Manage the rapid expansion of higher education.

To absorb the increasing demand for higher education, BRICS must identify sound policies that enable them to make quality higher education available to all. BRICS should share their considerable breadth of experience in this area, which provides valuable opportunities for policy dialogue on questions such as how to manage the growth of private providers; how to make higher education accessible to low-income and marginalized groups; and how to understand the potential benefits and risks of new technologies (including online programmes and distance education).

Recommendation 5: Facilitate the mobility of students and teaching personnel, in particular among BRICS.

All five BRICS countries emphasize exchanges between higher education and training institutions in their proposals or in their current policies, but these exchanges remain underdeveloped compared with those between BRICS and neighbouring countries. One practical first step would be to scale up exchanges of students, teachers and trainers by creating networks of BRICS universities and training institutions, such as envisaged in the initiative to establish the BRICS Network University. Such networks would enable teachers and trainers to jointly develop and/or deliver courses and facilitate the mutual recognition of qualifications and the transfer of credits between participating institutions.

An important related step would be for BRICS to make greater use of UNESCO Regional Conventions for the recognition of qualifications and to engage in and support the process for developing a global convention. The efficient use of international standard-setting instruments and qualifications frameworks is crucial to ensuring quality in cross-border higher education and coherence across bilateral and multilateral efforts to increase student mobility.

Improve skills development for growth that benefits all

Recommendation 6: Develop labour market information systems and capacity for skills analysis and forecasting.

BRICS could all benefit from creating a common TVET Labour Market (TVET/LM) Observatory, supported by a network of BRICS institutions in charge of TVET/LM information systems. In the first instance, the Observatory could take the form of a shared website, housed by one member country or by a relevant international partner like UNESCO/UNEVOC, through which BRICS could share information, models and promising practices for skills monitoring, analysis and forecasting. The website would be fed by a network of relevant BRICS institutions, who would cooperate to strengthen their capacities to collect, process and disseminate data and information on TVET/LM and, where relevant, develop comparable indicators.

²⁷ Paragraph 7 of the Fortaleza Declaration states, 'to better reflect the advancement of the social policies of the BRICS and the positive impacts of its economic growth, we instruct our National Institutes of Statistics and the Ministries of Health and Education to work on the development of joint methodologies for social indicators to be incorporated in the BRICS Joint Statistical Publication. We also encourage the BRICS Think Tanks Council to provide technical support in this task. We further request the BRICS National Institutes of Statistics to discuss the viability and feasibility of a platform for the development of such methodologies and to report thereon'.

Recommendation 7: Design and implement national qualifications frameworks and standards for skills.

Qualifications frameworks are a key way of making qualifications easier to understand and compare within and between countries. All BRICS are reforming their qualifications systems and increasingly linking frameworks with arrangements for quality assurance and the validation of non-formal and informal learning. Creating a platform for dialogue and/or peer review would help BRICS design and implement national qualifications frameworks. It would also enable BRICS to develop relevant approaches to the cross-border recognition of qualifications, helping to facilitate the mobility of learners across the countries.

Recommendation 8: Strengthen the links between companies and TVET institutions, and facilitate workplace learning, in particular at the secondary level.

All BRICS are looking at ways to strengthen the link between skills training and labour market needs. One strategy actively encouraged by all BRICS is the expansion of apprenticeship systems and other forms of workplace learning. Creating a platform for dialogue and/or peer review where policy-makers and representatives of the private sector can examine different issues – such as developing coordination mechanisms to engage companies in planning, standard-setting and curricula design – would help BRICS in establishing more effective co-operation between vocational schools and employers. Another valuable joint initiative would be the establishment of a BRICS alliance for cooperation between companies and TVET institutions for workplace learning. The alliance would bring together major companies, employers' federations and labour administrations in BRICS to share practices and develop advocacy campaigns to strengthen collaboration between companies and TVET institutions.

Recommendation 9: Design policies to meet the training needs of women and disadvantaged groups, and facilitate their transition to the labour market.

Meeting the training needs of women and disadvantaged groups and improving their participation in the labour force is a common policy challenge for all BRICS. Creating a network where policymakers and other interested parties can examine policies and programmes that make TVET available to excluded groups would help BRICS to enhance gender and social equity, reduce unemployment and improve economic productivity. Issues that could be addressed include how to make apprenticeships and workplace training more attractive, relevant and accessible to women across different sets of occupations and better support women's transition into the labour market. There is also rich scope for exchange on how BRICS have sought to remove financial barriers to TVET for poor and marginalized groups and reform TVET institutions to make them more responsive to the training needs of disadvantaged populations.

4.2 BRICS can cooperate to shape global education progress

Support education in other developing countries

Recommendation 10: Establish a hub to share information and data on development cooperation in education.

The creation of such a hub would help BRICS to enhance the impact of their development assistance, identify areas for cooperation (for example, through joint technical assistance) and avoid duplication. This hub could be housed at UNESCO, ensuring wider visibility and learning from the BRICS experience.

Recommendation 11: Create a joint fund/programme to support education in Africa.

Africa is the region that needs the greatest education assistance and a priority target for development cooperation among BRICS. A joint fund could be housed at UNESCO (paralleling the IBSA Fund at UNDP), and start with one or two pilot programmes. Where relevant, these programmes could also draw on technical expertise from BRICS. As plans advance for the establishment of the BRICS Development Bank, BRICS might consider extending its mandate beyond infrastructure to support other sectors, like education, that are central to inclusive economic development.

Recommendation 12: Engage in joint advocacy for education.

BRICS have the potential to significantly raise the profile of education in intergovernmental fora – such as the United Nations, the G20 and regional summits – and hence catalyse greater political and financial support for education. In particular, by championing the Muscat Agreement, which proposes a global goal and targets for education post-2015, BRICS could play a decisive role in ensuring a strong commitment to education in the future development agenda. The Fortaleza Declaration represents an important contribution to this collective advocacy, with BRICS leaders affirming that the development agenda beyond 2015 should “ensure equitable, inclusive and quality education and lifelong learning for all”.

4.3 BRICS can build a platform for cooperation

Collaboration in one or more of the areas above will require some form of coordination structure. Various models of education cooperation exist at regional and sub-regional levels, from more structured partnerships such as the SACMEQ initiative involving South Africa and the Bologna Process in which Russia is engaged, to looser groupings like the UNESCO-led E-9 Initiative that since 1993 has engaged Brazil, China, India and six other high-population countries in regular dialogue on education issues. Drawing on these experiences, as well as mechanisms for cooperation that BRICS have developed for other areas, such as science, technology and innovation, would be valuable in determining the most appropriate structure and the level of financial, human and institutional resources required to pilot cooperation in one or more of the areas mentioned above. These will be important considerations ahead of the next meeting of BRICS Education Ministers, tentatively scheduled to take place in March 2015.

As well as committing to strengthen intra-BRICS cooperation in education, BRICS leaders pledged at the Fortaleza Summit to continue to work closely with relevant international organizations. At their meeting in November 2013, BRICS ministers agreed to establish a BRICS-UNESCO Group on Education to identify opportunities for collaboration. This report identifies several areas where BRICS countries could engage with UNESCO in ways that would benefit both them and the international community more widely. Other partnerships, such as the E-9, have shown the value of a multilateral anchor that enables member countries to draw on the best of international practice and share the lessons of their own experience. UNESCO is particularly well equipped to facilitate collaboration in areas related to international standard setting – for example on learning and skills assessment, data collection and the recognition of qualifications – and to accompany BRICS in developing initiatives to support education progress in other developing countries.

Appendix 1: Constitutional and legal dispositions regarding education

Brazil

Brazil's constitution defines education as a right of individuals and a duty of the State, and includes detailed provisions for the organization of the education system. Title VIII, Chapter III, Section I of the 5 October 1988 Constitution is devoted to education. Article 205 states that 'Education, which is the right of all and duty of the State and of the family, shall be promoted and fostered with the cooperation of society, with a view to the full development of the person, his preparation for the exercise of citizenship and his qualification for work'.

- Article 208 lists the duties of the State, which include free and compulsory elementary education, as well as the provision of day-care centres and pre-schools for young children, free high-school education, access to higher education and education for persons with special needs, among others. Constitutional Amendment No. 59 (11 November 2009) has extended compulsory education to the 4-17 age range, to be implemented by 2016.
- Articles 206, 207, 209 and 210 establish principles including equality in access to education, freedom to learn and teach, pluralism of pedagogic ideas and the autonomy of universities, the existence of a private sector in education and the use of Portuguese as the medium of instruction along with the right for native Indian communities to use their own language and learning methods.
- Articles 211-214 allocate responsibilities for public provision and funding of education between the Union, states and municipalities. Constitutional amendments No. 14 (13 September 1996) and No. 53 (19 February 2006) created and reformed a public fund that has played a central part in Brazil's education policy, now called the Fund for the Development of Basic Education and Appreciation of the Teaching Profession (*Fundo de Manutenção e Desenvolvimento da Educação Básica e de Valorização de Profissionais de Educação*, FUNDEB).

The main education law is the National Education Guidelines and Framework Law (*Lei de Diretrizes e Bases da Educação*, LDB) No. 9.394. Its adoption on 20 December 1996 led to a deep transformation of the Brazilian education system through the implementation of the following principles: decentralization; pedagogic, managerial and financial autonomy of schools and universities; evaluation of performance; and remedial measures for pupils with low achievement. Since then, other laws have been passed in areas including education for persons living with disabilities (Laws No. 10.845, 5 March 2004 and No. 11.129, 30 June 2005), evaluation in higher education (Law No. 10.861, 14 April 2004) and minimum

wages for teachers in the public sector (Law No. 11.738, 16 July 2008). While the laws mentioned here are at the federal level, states and municipalities also legislate on education.

China

The Constitution of the People's Republic of China, adopted on 4 December 1982 and last amended in 2004, includes education among 'the Fundamental Rights and Duties of Citizens' (Chapter II). According to Article 46, 'Citizens of the People's Republic of China have the duty as well as the right to receive education'. Among 'General Principles' (Chapter I), Article 19 provides that 'The State undertakes the development of socialist education and works to raise the scientific and cultural level of the whole nation.' The State 'establishes and administers schools of various types, universalizes compulsory primary education and promotes secondary, vocational and higher education as well as pre-school education' and 'encourages the collective economic organizations, State enterprises and institutions and other sectors of society to establish educational institutions of various types in accordance with law.' The State also 'encourages people to become educated through independent study'.

The Education Law of the People's Republic of China, adopted on 18 March 1995, implements the constitutional provisions. It guarantees equality of access to education independent of ethnic community, race, sex, occupation, social conditions or religious belief, and defines the Chinese language as the medium of instruction, while allowing the use of ethnic-minority languages as appropriate. The law also asserts education as a priority in the country's social and economic development. Other major laws include the Vocational Education Law, adopted on 15 May 1996, the Higher Education Law, approved on 29 August 1998, and the Law on Compulsory Education, amended on 29 June 2006, which provides for nine years of compulsory education. Finally the Private Education Promotion Law, adopted on 28 December 2002, subjects the opening of private schools to approval by local authorities, and allows foreign institutions to offer courses in China through joint ventures with Chinese higher education institutions.

India

Current provisions regarding education in India's Constitution (which came into force on 26 January 1950) were introduced by the Constitution (86th Amendment) Act in December 2002. Education is defined as a right of the child, a duty of her parents and a responsibility of the State. The right to education is part of the broader right to freedom, among Fundamental Rights listed in Part III of the Constitution. According to Article 21A, 'the State shall provide free and compulsory education to all children of the age of six to fourteen years in such manner as the State may, by law, determine'. According to Article 51A, 'it shall be the duty of every citizen of India who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.' The State 'shall make effective provision for securing the right [...] to education' (Article 41), and 'shall endeavour to provide early childhood care and education for all children until they complete the age of six years' (Article 45). Other articles forbid discrimination in access to public or State-funded educational institutions (Article 29) and guarantee the right for religious or linguistic minorities to operate their own educational institutions (Article 30) but limit State funding for religious instruction (Article 28). Finally, Article 350A emphasizes the use of the mother tongue as the medium of instruction in primary education.

The right to education as defined by the 86th Amendment is to be enforced through the Right of Children to Free and Compulsory Education (RTE) Act No. 35, which came into effect on 1 April 2010. The Act specifies the obligation for the government to provide free elementary education and ensure compulsory admission, attendance and completion of elementary education to every child in the 6 to 14 age group. It defines the respective responsibilities of parents, local authorities, and state and central governments, including terms of financing. The Act includes norms regarding school buildings, pupil/teacher ratios, the duration of instruction, teacher deployment and teacher qualifications and training.

The Act further protects children and their families, for example, it prohibits physical punishment or private tuition by teachers.

Russian Federation

The Constitution of the Russian Federation, adopted by referendum on 12 December 1993, guarantees the right to education among the 'Rights and Freedoms of Man and Citizen' (Chapter 2). According to Article 43, 'everyone shall have the right to education', basic general education is compulsory, and access to free education is to be guaranteed by the State from pre-school to general, technical and vocational secondary education. Article 43 also provides that: 'Everyone shall have the right to receive on a competitive basis a free higher education in a state or municipal educational establishment and at an enterprise.'

The Federal Law on Education No. 3266-1, adopted on 10 July 1992 (and amended several times since then), led to a radical transformation of the education system by removing the State monopoly on education and allowing a great diversity of providers, public or private, domestic or foreign, including individuals, foundations, churches, enterprises, or other institutions. The national education policy has been successively framed through the Federal Programme on the Development of Education in Russia (1992), the National Concept of Education in the Russian Federation (2000) and the Concept of Modernization of Russian Education (2001). Higher education is the focus of the Law on Higher and Postgraduate Professional Education No. 125-FZ (22 August 1996) and further regulations. Since then, Russia has joined the Bologna process, reflected in Federal Law No. 232 (24 October 2007). The current Ministry of Education and Science was created through presidential decrees made in 2004.

South Africa

The Constitution of the Republic of South Africa (promulgated on 10 December 1996), Chapter 2 (Bill of Rights), Article 29, provides that 'Everyone has the right to a basic education, including adult basic education; and to further education, which the state, through reasonable measures, must make progressively available and accessible'. The same article further provides that 'everyone has the right to receive education in the official language or languages of their choice' in public institutions, to the extent possible – departing from discrimination against native languages under the apartheid regime. Article 29 also guarantees 'the right to establish and maintain [...] independent educational institutions that do not discriminate on the basis of race; are registered with the state; and maintain standards that are not inferior to standards at comparable public educational institutions'.

The education system was transformed by the South African Schools Act No. 84 (1996), amended notably in 2005 (Education Laws Amendment No. 24) and 2007 (Education Laws Amendment Act No. 31). The 1996 Act replaced acts of the apartheid regime and established a single, non-racial school system, in which public and independent schools coexist. The Act defines a democratic governance structure at the school level, via principals and school governing bodies. It also sets funding norms that seek to reduce inequalities and target poverty areas, where schools can be declared as 'no-fee schools'. The same year, the National Education Policy Act No. 27 defined the responsibilities of the Minister of Education under the new democratic Constitution, and the relations between national and provincial education authorities. The Children's Amendment Act No. 41 (2007) provides for the expansion and regulation of early childhood development programmes. Several laws have reorganised technical and vocational education and training, including the Skills Development Act No. 97 (1998) and the National Qualifications Framework Act No. 67 (2008). Finally, the Higher Education Act No. 101 (1997) established a single, national, higher education system, democratising the governance of higher education institutions and establishing regulations for private provision. All learning programmes must lead to a qualification beyond grade 12 level, and a funding formula was introduced to steer the higher education system to meet national development goals.

Sources: Brazil Chamber of Deputies (1988); Government of India (2012); International Bureau of Education (2010a, 2010b, 2010c, 2010d, 2010e); People of the Russian Federation (1993); People's Republic of China (1982); Republic of South Africa (1996).

Appendix 2: Ministries of Education and other national agencies

Brazil

Brazil has a single federal Ministry of Education, reorganized in 2003, with secretariats for basic education, literacy, technical and vocational education, higher education, etc. The Ministry drafts national education plans, provides technical and financial assistance to states and municipalities, and manages universities, other higher education institutes, as well as technical and vocational institutions.

China

China's current Ministry of Education replaced the earlier State Education Commission in 1998. The ministry prepares and coordinates educational development plans, coordinates education-related activities of other ministerial departments and provides guidance to local governments in implementing education reforms.

India

India's Ministry of Human Resource Development includes separate Departments of School Education and Literacy and of Higher Education, each headed by a Secretary to the Government of India. The ministry is in charge of defining the country's overall education policy and implementing 'centrally sponsored schemes', such as the *Sarva Shiksha Abhiyan*, aimed at universalizing elementary education, or the Mid-Day Meal Scheme.

Russian Federation

The Ministry of Education and Science of the Russian Federation was created in 2004 with a broad mandate of developing national policies and regulations in education, research, technology and innovation. The ministry is thus in charge of both general and higher education, which had been managed separately until 1996.

South Africa

South Africa comprehensively transformed its governance structure during the 1990s. The national Ministry of Education established in 1994 was split into two separate ministries in 2009: the Department of Basic Education, in charge of grades R to 12 and literacy programmes, and the Department of Higher Education and Training, which also coordinates the national human resource development strategy.

A number of other institutions are involved in the governance of education systems:

- National technical agencies are charged with the development of curriculum content, textbooks and other materials, the organization of examinations, the assessment of learning outcomes or the allocation of scholarships. For instance, China has a National Centre for School Curriculum and Textbook Development, a National Education Examinations Authority and a Scholarship Council for Chinese students studying abroad. In the Russian Federation, the Federal Institute for Educational Measurement has developed standardized test materials and trained experts to carry out the Unified State Examination.
- National agencies in charge of higher education are crucial, as this level of education is less decentralized than primary and secondary education. For instance, India's University Grants Commission assesses the financial needs of universities or colleges and disburses funds to them. It also advises the central and state governments on measures to be taken to improve higher education. Higher Education South Africa (HESA), created in May 2005, represents all 23 public universities and universities of technology.
- All countries also have national research and training institutions, such as India's National Council of Education Research and Training (NCERT) and National University of Educational Planning and Administration (NUEPA).
- Finally, other national ministries in addition to the Ministry of Education manage specific education and training programmes. In Brazil, for example, the Ministry of Labour co-defines the vocational training policy with the Ministry of Education. Meanwhile, the Ministry of Health coordinates training for the health sector at the state level and military ministries have their own primary and secondary schools in addition to military academies.

Sources: IBE (2010a, 2010b, 2010c, 2010d, 2010e); India (2014).

Appendix 3: National education plans

Brazil

Approved on 25 June 2014, the National Education Plan (*Plano Nacional de Educação*) covers the 2014-2024 decade. The plan sets ten overarching objectives: eradication of illiteracy; universal school attendance; reduction of inequalities; improvement in the quality of teaching; training for work; promotion of socio-environmental sustainability; cultural, scientific and technological advancement; increase in the share of educational spending in gross domestic product; improvement in the status of teachers; and diffusion of the principles of equality, respect for diversity and democratic management of education. These objectives are translated into 20 goals associated with quantitative targets and deadlines, to be reached through 253 strategies.

China

The National Plan for Medium and Long-term Education Reform and Development covers the 2010-2020 decade. It first outlines a general strategy following five executive principles: giving priority to education, making education student-centred, experimenting with innovative reforms, giving all citizens equal access to education and improving quality. These translate into a series of strategic goals: expanding access to education at all levels (associated with quantitative targets to be achieved by 2020); improving the quality of education and reducing inequalities across schools and between urban and rural areas; developing lifelong education; and 'establishing a full-fledged, vibrant education system' (p. 10).

The plan then lists development missions, i.e. measures to be taken at each level of education. Pre-school education is to be included in local development plans and gradually universalized, with all children receiving one to three years by 2020. Compulsory and senior middle education are to be consolidated, with two outstanding concerns: reducing inequalities and improving quality. Fiscal transfers and exchanges of teachers and principals should reduce inequalities between schools and regions. Among other measures concerning quality, the well-being of students is to be improved by a reduction in the amount of schoolwork and regulation of tutoring. Higher education is a priority, with a restructuring of courses and disciplines, the introduction of a credit system and the participation of students in research, among other measures.

The plan further envisages systemic reforms at all levels of education: reforms of examinations, greater autonomy for schools and universities, support for non-governmental education (through removal of legal restrictions and funding), capacity-building at the provincial level, and the promotion of international exchanges and cooperation. Finally, measures of guarantee are listed that should strengthen the education system overall, such as those pertaining to teachers (recruitment, training, social status, ethics and efficiency), funding (amounts, distribution, management), the use of information technology and relevant equipment, and the rule of law.

India

Education is Chapter 21 in India's overall Twelfth Five-Year Plan (2012-2017). The plan sets six targets pertaining to all levels of education, with a focus on implementing the Right to Education Act. The six targets are: universal access to quality, free, and compulsory education for children aged 6-14; improvements in attendance and retention; increased enrolment in upper secondary education (gross enrolment ratio of 90% in secondary and 65% in senior secondary schools); improved youth and adult literacy (80%); universal provision of at least one year of pre-primary education; and

improvements in learning outcomes, with a focus on basic reading and numeracy skills by grade 2 and critical thinking, expression, and problem-solving by grade 5.

Russian Federation

The Education Development 2013-2020 programme focuses on the quality of education. The main objectives include the modernization of pre-school and general education, with improvements in infrastructure, governance and finance to guarantee equal access to education; the creation of a modern system for assessing the quality of education; and the development of higher education and initial and continuing training to meet the needs of youth and adults. Seven sub-programmes translate these objectives into specific measures for each level of education.

South Africa

Education policy in South Africa is guided by the National Development Plan 2030 (adopted in 2011), which aims to eliminate poverty and reduce inequality. Chapter 9 sets objectives for the education system by 2030 and includes: universal early childhood care and education; school education with high literacy and numeracy standards; expanding higher education and training; and a system of innovation linking universities, science councils, and other research and development institutions.

In 2011, the Department of Basic Education adopted its own 'Action Plan to 2014', a five-year plan paving the way for a longer-term plan, 'Schooling 2025', which sets objectives for learners, teachers, school principals and parents. The Department of Higher Education and Training recently adopted a white paper on post-school education and training, also framed in the 2030 perspective. The overall objective is to respond to the needs of South Africa's society and economy by expanding access, improving quality, and increasing diversity of provision, while ensuring a better coordination of institutions and cooperation with the workplace.

Sources: Brazil Ministry of Education (2014); Ministry of Education of the People's Republic of China (2010); India Planning Commission (2013); Government of the Russian Federation (2012); National Planning Commission (2011); South Africa Department of Basic Education (2013).

Appendix 4: National institutions and systems for assessing learning outcomes

Brazil

Brazil created a National System for the Evaluation of Basic Education (*Sistema Nacional de Avaliação da Educação Básica*, SAEB) in 1990, which was extended in 1995 to cover secondary education and schools in the private sector. Administered by the National Institute for Educational Studies and Research (*Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira*, INEP), SAEB initially comprised a biennial survey of achievement in Portuguese and mathematics in grades 4, 8, and 11 of primary education and grade 3 of secondary education, based on a sample of students at the federal and state levels. Since 2005, SAEB has been complemented with the more comprehensive *Prova Brasil*, which tests all grade 5 and grade 9 students in urban primary schools and a representative sample in rural schools. Only a sample of grade 11 students is assessed, with aggregate results, therefore, reported at regional and national levels only. Since 2007, results from SAEB and *Prova Brasil* are combined with data on enrolment, repetition and graduation into a composite Index of Basic Education Development (*Índice de Desenvolvimento da Educação Básica*, IDEB), computed at the school, municipality and state levels. IDEB is publicly available and serves as a basis for setting targets for quality improvement.

China

China has a national agency for monitoring and assessment, the State Education Inspectorate, supplemented by similar agencies in provinces, autonomous regions and municipalities. A Centre for Monitoring the Quality of Basic Education has been established in recent years, with the aim of developing a monitoring network at central, provincial, prefecture and county levels. As part of the National Plan for Medium- and Long-term Education Reform and Development (2010-2020), national standards and a monitoring system for the quality of compulsory education are to be established.

India

India long lacked a comprehensive system for assessing student achievement. As part of the District Primary Education Programme started in the 1990s, an Educational Management Information System was developed and greater attention started being paid to documenting learning outcomes. Since 2000, as part of the *Sarva Shiksha Abhiyan* (programme to universalize elementary education), India's National Council of Education Research and Training has conducted three surveys of achievement: the Baseline Achievement Survey (2001-2004), the Mid-term Achievement Survey (2005-2008) and the National Achievement Survey (2010-2011). The surveys covered large samples of students in grades 3, 5, and 7 or 8, who were tested in mathematics, language, environmental studies (grade 5), and science and social science (grade 7/8). While previous rounds had merely reported percentages of correct answers, the 2010-2011 round for grade 5 relied on item response theory to situate students on a common scale and facilitate comparisons across states, urban and rural areas, genders or social groups.

Russian Federation

The Russian Federation has comprehensively reformed its system for the assessment of learning outcomes since the early 2000s. Several independent national assessments have been carried out between 2001 and 2004 to guide reforms of the structure and content of general education, and

between 2007 and 2013 during the development of new education standards. Several regions have also taken the initiative of conducting their own assessments, for instance the Smolensk region in 2002, where new pedagogical resources were introduced in schools. However, these efforts have not been continued and the Russian Federation does not yet have a permanent, national assessment. Therefore, certification examinations in primary and secondary education have played a key part in measuring learning outcomes. In particular, the Unified State Examination, implemented nationwide since 2009, after pilots had been conducted for several years, fulfils a double function: certification of completion of upper secondary education and selection into higher education on the one hand, evaluation of the quality of education provided by regional authorities and distribution of performance-based incentives on the other. The Examination is aligned with federal education standards and scores are measured on a common 0-100 scale.

The system is supported by a large number of institutions. At the federal level, institutions belonging to the Ministry of Education and Science are responsible for examinations (Federal Service of Supervision in Education and Science) and national assessments (Federal Institute of Pedagogical Measurements, Federal Testing Centre). Research is conducted by the Russian Academy of Education, which also has a Centre for Evaluating the Quality of Education, in charge of international assessments. Regional institutions conduct regional assessments as well as implement national examinations and assessments.

South Africa

South Africa has extensive experience in student assessment. Since 1995, the country has had a programme of Systemic Evaluation of learner achievement in grades 3 and 6, which also assessed school management capacity, the learning context, the school community and teacher qualifications. Grade 3 achievement in literacy, numeracy, and life skills was surveyed in 2001. Additionally, grade 6 achievement in language, mathematics and science was surveyed in 2004 before a new survey of grade 3 literacy and numeracy was conducted in 2007. A major step was taken in 2011 with the introduction of the Annual National Assessment (ANA), which covers all students enrolled in grades 1-6 and 9 in public schools and tests their achievement in literacy and numeracy. For example, in 2012 more than seven million students took the test. ANA is administered by the Department of Basic Education.

Sources: Bolotov et al. (2013); Bruns et al. (2011); IBE (2010b, 2010c, 2010d, 2010e); India NCERT (n.d.); South Africa Department of Basic Education (2013).

Appendix 5: Objectives of national skills development strategies

Brazil

Brazil's objectives for skills development are laid out in the fifth, sixth and seventh guidelines of the country's National Education Plan 2011-2020 (training for work; promoting socio-environmental sustainability; and promoting humanities, science and technology). These guidelines provide quantitative targets for the educational attainment of youth, as well as for the shares of upper secondary and higher education graduates having received vocational training.

The key programmatic arm of these efforts is the National Programme for Access to Technical Education and Employment (PRONATEC). Launched in 2011, PRONATEC sought to create eight million free training places over five years in an effort to expand access to technical education and initial and continuing training, as well as to make it more equitable. With the projection that Brazil will reach this target by the end of 2014, in June 2014 the government announced PRONATEC 2, with the goal of offering twelve million free training places between 2015 and 2018 through a major expansion of secondary TVET and basic and continuing education and vocational training. PRONATEC comprises five initiatives:

- the expansion of the federal network of public TVET institutions. In 2002, the network comprised 140 institutions. Between 2003 and 2010, 214 new schools were established. The first phase of PRONATEC accelerated this growth, with the creation of 208 new technical schools in the period from 2011 to 2014;
- the Brazil Professionalized Programme (*Programa Brasil Profissionalizado*), which aims to modernize and expand technical training at secondary level;
- the complementary expansion of the e-Tec Brasil programme (launched in 2007), which provides distance learning to reach remote areas and regions with fewer TVET institutions;
- an agreement with the National Apprenticeship Service (*Serviço Nacional de Aprendizagem*) to use resources raised through sectoral levies to fund free secondary-level courses and basic and continuing education or vocational training for low-income citizens, with priority to students and workers;
- further training scholarships, but with federal funding, to provide free courses to students in secondary TVET or pursuing basic and continuing education or vocational training.

China

China's skills development strategy has evolved through a series of policy decisions since the early 2000s. As in Brazil, the emphasis is on TVET. National Vocational Education Conferences were convened by the State Council in 2002 and 2005 resulting in decisions that made vocational education a strategic priority for economic and social development and planned for its expansion. The current National Plan Outline for Medium and Long-term Education Reform and Development (2010-2020) reaffirms this priority and plans for a 'modern vocational education system' to be complete by 2020. In 2012, the 18th National Congress of the Communist Party of China proposed accelerating plan implementation and in November 2013 the Central Committee further stated the need to 'speed up the construction of modern vocational education system, deepen the integration of production and education, school-enterprise cooperation and training of qualified workers and skilled personnel.'

A new National Vocational Education Conference is being prepared, together with a 'Decision of the State Council on Accelerating the Development of Modern Vocational Education' and a 'modern vocational education system construction plan (2013-2020)', which will have five main components:

- a broad definition of skills including vocational skills, employability skills, entrepreneurship as well as professional ethics and 'healthy personality', for both students in initial training and workers in continuous training;
- a wide range of measures to be taken by the government to develop vocational education, from improvements of the vocational track of secondary education to cooperation between schools and enterprises, and incentives for enterprises to participate in vocational education;
- a convergence between general and vocational education and, within vocational education, between the secondary and the tertiary levels. Undergraduate colleges are to be restructured to bridge the gap between vocational secondary schools and post-graduate training;
- a set of reforms to improve the quality of vocational education, including the adaptation of curriculum contents to professional standards, the upgrade of teachers' content knowledge and pedagogical ability, and the greater use of ICTs in teaching;
- a diversification of funding sources, mobilising industries and businesses to ensure a steady growth in funding levels to support the expansion of vocational education.

India

India's National Policy on Skill Development was formulated by the Ministry of Labour and Employment and approved by the Cabinet in February 2009. The Policy aims to generate a workforce with better knowledge and higher skills, by providing training to 500 million persons by 2020. This is expected to reduce inequalities in access to training, to boost productivity in both the formal and informal sectors, and to stimulate the creation of decent jobs while improving India's global competitiveness. Priorities include:

- expanding access to skills development programmes, with a focus on pre-employment training and life-long learning;
- reaching women, persons living with disabilities and disadvantaged social groups;
- improving quality by upgrading the skills of teachers and trainers, improving their status, introducing quality assurance and using ICT to develop distance and e-learning;
- making the skills development system responsive to skills demand on the labour market to reduce skills mismatches; providing training for new, emerging occupations in particular;
- creating a national vocational qualifications framework to facilitate student mobility between general and technical education, and to recognize and certify competencies irrespective of the way they were acquired, and according to national and international standards;
- reinforcing capacity for planning, monitoring and research in the public sector, while involving the private sector in funding and managing skills development programmes, for example through public-private partnerships.

Russian Federation

Several official documents address skills development. The Concept of Long-term Socio-Economic Development of the Russian Federation for the Period up to the Year 2020 includes human resources development among its priorities. This is reflected in the Strategy for Innovative Development of the Russian Federation 2020, which combines objectives in terms of business creation and innovation with the 'development of human resources in the fields of science, education, technology and innovation'. The State programme: Development of Education, 2013-2020 also includes 'professional educational development' among its seven sub-programmes. Priority seems to be given to higher education, through an increase in funding, participation in the Bologna process

and efforts to promote the international mobility of Russian students and academics, and to attract foreign students to Russian universities.

South Africa

South Africa has had a National Strategy on Skills Development since 2001, which has now entered its third phase (2011-2016). The strategy envisions 'a skilled and capable workforce that shares in, and contributes to, the benefits and opportunities of economic expansion and an inclusive growth path', and aims at 'improving the effectiveness and efficiency of the skills development system'. The strategy seeks to integrate theoretical learning with workplace training and to facilitate transitions between the education and training system and employment. As it targets disadvantaged youth and adults, the strategy also acknowledges basic literacy and numeracy training as a necessity. Inequalities based on race, class, gender, geography, age, disabilities, and HIV and AIDS are to be reduced.

The strategy is structured around eight goals, each of which is associated with a set of outcomes measured through specified indicators, allowing for monitoring and evaluation. The goals are:

- establishing a credible institutional mechanism for skills planning;
- increasing access to occupationally-directed programmes;
- promoting the growth of a public further education and training college system that is responsive to sector, local, regional and national skills needs and priorities;
- addressing the low level of youth and adult language and numeracy skills to enable additional training;
- encouraging better use of workplace-based skills development;
- encouraging and supporting cooperatives, small enterprises, worker-initiated, NGO and community training initiatives;
- increasing public sector capacity for improved service delivery and supporting the building of a developmental state;
- building career and vocational guidance.

Sources: Brazil Ministry of Education (2014); China (2014); Government of the Russian Federation (2012); Indian National Commission for Cooperation with UNESCO (2014); Brazil (2014); DHET (2011); Russian Federation (2014).

Appendix 6: BRICS proposals for cooperation

In their responses to the questionnaire developed by UNESCO to help prepare the present report, BRICS made the following proposals for cooperation:

Intra-BRICS cooperation

- **Brazil** suggests applied **research and innovation** as the key area for collaboration with other BRICS, to facilitate its efforts in developing new technologies, products and services.
- **China** puts forward a detailed proposal for a '**multi-level cooperation framework**', including:
 - Policy dialogue and cooperation between governments regarding vocational education strategies, macroeconomic policies and institutional mechanisms. Agencies in each country would compile an annual report on the development of vocational education in BRICS, and annual dialogue workshops would be held. Existing policy dialogue between China and Germany, China and the United Kingdom, or China and the Netherlands could serve as an example;
 - Regular dialogue between academic communities and industry associations, with the aim of facilitating cooperation between vocational education institutions and between multinational enterprises to improve the quality of training. The Chinese Vocational and Technical Education Society and its counterparts in other BRICS could play a part;
 - Exchanges and cooperation between schools from different countries, which could help them develop curricula, innovate in teaching materials and methods, and train teachers and trainers;
 - Exchanges between universities and research institutes, focusing on vocational education research. Research results could be published in annual reports mentioned above.
- **India** proposes cooperation both between governments and between **higher education and TVET institutions** to share best practices, research and learning materials. Thematic areas for dialogue include linkages between educational institutions and industries, internship programmes, accreditation and quality assessment, and the mutual recognition of qualifications. In addition, the mobility of students and teachers/trainers should be encouraged between BRICS. Meanwhile teachers/trainers could jointly develop courses, modules or programmes, especially online training programmes.
- The **Russian Federation** emphasizes **collaboration in higher education**, with the following priorities:
 - Intensifying scientific, academic and student exchanges between higher education institutions of BRICS, including BRICS Network University and developing distance learning technologies;
 - Ensuring the mutual recognition and equivalence of educational diplomas and academic degrees;
 - Promoting the learning of the Russian language in other BRICS countries, through the existing network of Russian language and cultural centres, and through cooperation agreements between state universities of the Russian Federation and universities located in other BRICS;
 - Facilitating cooperation through civil society institutions (e.g. the Civic Chamber of the Russian Federation);
 - Forming (with UNESCO and UNIDO) a network of BRICS centres for the exchange and commercialization of technologies developed by BRICS universities.
- The Russian Federation proposes UNESCO being a forum for BRICS collaboration.

- **South Africa** proposes cooperation between **government institutions in skills development planning** (e.g. identifying skills shortages) and in sharing information on successful innovations. South Africa also suggests exchanges between TVET institutions, such as student and staff (lecturer, management and support staff) exchange programmes and research partnerships. To encourage such mobility, South Africa proposes relaxing laws on work permits.

Collaboration in support of other developing countries

Brazil and China signal a need for preliminary discussion among BRICS about their development cooperation strategies for education in other emerging and developing countries and India suggests sharing good practice. This would help define potential areas for BRICS collaboration and ensure that joint projects do not duplicate existing bilateral programmes.

India, the Russian Federation and South Africa signal interest in providing joint technical assistance to education in third countries, such as joint expert missions or a joint training institution.

Sources: China (2014); India (2014); Brazil (2014); South Africa (2014); Russian Federation (2014).

TABLE A1: RATIFICATION STATUS OF INTERNATIONAL CONVENTIONS

	Brazil	China	India	Russian Federation	South Africa
UNESCO conventions					
Convention against Discrimination in Education (1960)	1968	-	-	1962	2000
Convention on Technical and Vocational Education (1989)	-	-	-	-	-
Other international conventions					
Geneva Conventions and their Additional Protocols (1949)	1957	1956	1950	1954	1952
Convention relating to the Status of Refugees (1951)	1960	1982	-	1993	1996
ILO Convention n°111 concerning Discrimination in Respect of Employment and Occupation (1958)	1965	2006	1960	1961	1997
International Convention on the Elimination of All Forms of Racial Discrimination (1965)	1968	1981	1968	1969	1998
International Covenant on Economic, Social and Cultural Rights (1966)	1922	2001	1979	1973	-
International Covenant on Civil and Political Rights (1966)	1992	-	1979	1973	1998
ILO Convention n°138 concerning Minimum Age for Admission to Employment (1973)	2011	1999	-	1979	2000
Convention on the Elimination of All Forms of Discrimination against Women (1979)	1984	1980	1993	1981	1995
Convention on the Rights of the Child (1989)	1990	1992	1992	1990	1995
ILO Convention n°169 concerning Indigenous and Tribal Peoples in Independent Countries (1989)	2002	-	-	-	-
Convention on the Rights of Persons with Disabilities (2006)	2008	2008	2007	-	2007
ILO Convention n°182 concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour (1999)	2000	2002	-	2003	2000

Note: Convention (year of signature); year of ratification by each country (- indicates not ratified).

Sources: UNESCO (2014a, 2014b, 2014f, 2014g, 2014h).

TABLE A2: STRUCTURES OF EDUCATION SYSTEMS

	Brazil	China	India	Russian Federation	South Africa
Compulsory age range	4-17	6-14	6-14	6-18 or completion of grade 11	7-15 or completion of grade 9
Pre-primary education	Pre-primary education for children aged 4-5 (compulsory)	Three-year programme for children aged 3-5 or one-year programme for children aged 5	Pre-school for children aged 3-5 or 6 under the Integrated Child Development Services	Three types of kindergarten (young children aged 2 months-3 years, 3-6 or 7 years, or 5-7 years)	Grade R ('reception year') for children aged 5 to be universalized by 2015
Compulsory education levels	Pre-primary (2 years). Primary and lower secondary (9 years) Upper secondary (3 years)	Primary (5 or 6 years). Lower secondary (4 or 3 years) (variable across provinces)	Primary (4 to 5 years). Lower secondary (3 years) (variable across states and territories)	Primary and lower secondary (9 years). Upper secondary (2 years)	Primary and lower secondary (9 years)
Upper secondary education	General or technical and vocational upper secondary education (3 years, part of compulsory education)	'Common senior middle school'; admission conditional on passing an entrance examination (3 years)	Secondary education (2 to 3 years) and higher secondary education (2 years)	'Complete' secondary education (2 years, part of compulsory education)	'Further education and training' (3 years). Not compulsory, but access guaranteed until grade 12
Technical and vocational education and training	From upper secondary education (grade 10) onwards. At higher education level: technological degree (2-3 years)	From upper secondary education (grade 10) onwards, in vocational senior middle schools and other institutions	From upper secondary education (grade 9) onwards. TVET at secondary and tertiary levels delivered by polytechnics	From upper secondary education (grade 10) onwards. Delivered by vocational secondary schools and professional lycées (2 ½ to 3-4 years). Non-university middle-level professional education, after grade 9 (3-5 years), grade 11 (2-3 years), plus one year of advanced training	From upper secondary education (grade 10) onwards. Offered by technical centres, high schools and vocational schools (3 years), leading to National Certificate (Vocational). At higher education level, 1- to 4-years (national higher diploma) programmes
Graduation from upper secondary education; admission to higher education	End of grade 12: High school national examination (ENEM), not compulsory but condition access to public universities	End of grade 12: based on credits and success at 'general ability test'. National entrance examination for admission to university	End of grade 12: All India Senior School Certificate	End of grade 11: Unified State Examination leading to certificate of complete general secondary education (replacing entrance examinations specific to higher education institutions)	End of grade 12: public examination leading to National Senior Certificate (general of Vocational)

	Brazil	China	India	Russian Federation	South Africa
General higher education	Undergraduate/graduate: bachelor's degree (3-6 years), licentiate (3-4 years), technology degree (2-3 years). Postgraduate (1-2 years): either 'lato sensu' or 'stricto sensu' (master's degree, required for pursuing doctoral studies). Doctoral (3-4 years)	Undergraduate (4-5 years): bachelor's degree. Postgraduate (3 years): master's degree. Doctoral (3-5 years): doctorate. Non-degree programmes (2-3 years) also exist at undergraduate level	Undergraduate: bachelor's degree (1-3 years, up to 4-5 in professional fields, e.g. engineering, architecture, medicine). Postgraduate: master's degree (2 years). Doctoral	Undergraduate (4 years): bachelor's degree. Postgraduate (2 years): master's degree. Doctoral (2 levels)	Undergraduate (3-5 years, depending on the field): bachelor's degree. Postgraduate (at least 1 year): master's degree. Doctoral (at least 2 years)
Length of school year	200 days a year (all levels) At least 800 hours per year, four hours per day (primary and secondary education)	Two terms starting in September and March, totalling 34 week of class, plus one for school activities, one for community-based activities, two to three for examinations and one on reserve (primary and secondary education)	200 days and 800 hours of instruction in grades 1-5, up to 220 days and 1,000 hours in grades 6-8. Teachers expected to work 45 hours a week, including preparation hour (Right to Education provisions). Actual school calendar defined at state level	33 weeks in grade 1, 34 weeks in grades 2-4 and 35 weeks on average in other grades	42 weeks, 200 days (from 2011 on)

Sources: IBE (2010a, 2010b, 2010c, 2010d, 2010e).

TABLE A3: PARTICIPATION IN INTERNATIONAL AND REGIONAL ASSESSMENTS OF LEARNING OUTCOMES

	Year	Brazil	China	India	Russian Federation	South Africa
International assessments						
PISA (OECD) Competencies of 15-year-olds in reading, mathematics and science (next round: 2015)	2000	■	Hong Kong		■	
	2003	■	Hong Kong, Macao		■	
	2006	■	Hong Kong, Macao		■	
	2009	■	Hong Kong, Macao, Shanghai	Himachal Pradesh, Tamil Nadu	■	
	2012	■	Hong Kong, Macao, Shanghai		■	
	2015	■	Hong Kong, Macao		■	
TIMSS (IEA) Achievement of grade 4 and grade 8 students in mathematics and science (next round: 2015)	1995		Hong Kong		■	■
	1999		Hong Kong		■	■
	2003		Hong Kong		■	■
	2007		Hong Kong		■	
	2011		Hong Kong		■	■
PIRLS (IEA) Achievement of grade 4 students in reading literacy (next round: 2016)	2001		Hong Kong		■	
	2006		Hong Kong		■	■
	2011		Hong Kong		■	
Regional assessments						
SACMEQ (IIEP) Achievement of grade 6 students in literacy and numeracy (ongoing round: 2012-2014)	1995-99					■
	2000-04					■
	2006-11					■
	2012-14					■
LLECE (UNESCO) Achievement of grade 3 and grade 6 students in mathematics, reading and writing	1997	■				
	2006	■				
	2013	■				

Sources: OECD (2014b); SACMEQ (2014); TIMSS and PIRLS International Study Center (2014); UNESCO (2014c).

TABLE A4: FLOWS OF DEVELOPMENT COOPERATION FROM BRICS

Estimates of gross concessional flows from development cooperation ('official development assistance-like') flows, current US\$ million, 2007-2011

	2007	2008	2009	2010	2011	Contribution to multilateral organizations in 2010
Brazil	291.9	336.8	362.2	482.1	...	231.9
China	1,466.2	1,807.0	1,946.5	2,011.2	2,470.0	153.8
India	392.6	609.5	488.0	639.1	730.7	63.3
Russian Federation	210.8	220.0	785.0	472.3	513.9	170.0
South Africa	108.0	108.5	99.6	106.0	146.6	64.1

Sources: OECD (2013), based on national reports, except for the Russian Federation (Russian Federation, 2012).

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We recognize the strategic importance of education for sustainable development and inclusive economic growth. We reaffirm our commitment to accelerating progress in attaining the Education for All goals and education-related Millennium Development Goals by 2015 and stress that the development agenda beyond 2015 should build on these goals to ensure equitable, inclusive and quality education and lifelong learning for all.

Fortaleza Declaration, 6th BRICS Summit, 15 July 2014.

In recent years, the five major emerging economies known collectively as the BRICS – Brazil, the Russian Federation, India, China and South Africa – have dramatically transformed the global map of education, bringing millions into school, establishing centres of world-class learning, and driving innovation.

This publication provides the first comparative analysis of education trends in BRICS countries. It shows that their combination of shared aspirations and different development trajectories provides a rich context for BRICS to exchange knowledge and engage in joint activities, helping to spur education progress both within BRICS and globally.

After providing an overview of BRICS education systems, the publication highlights major policy issues related to quality and equity, and zooms in on some top priorities facing BRICS as they seek to sustain and widen the benefits of growth. The publication pays special attention to skills development, in particular technical and vocational education and training, which all BRICS have identified as a vital ingredient of more inclusive and sustainable development. It also looks at how BRICS are charting new approaches to international development cooperation in education.

The publication builds a strong argument for BRICS to cooperate in several areas of education, drawing on their wide range of experience and sharing the lessons they have learned. Among the proposals put forward for initial collaboration are initiatives to enhance the quality of education data, facilitate student mobility, improve the relevance of skills training to the labour market, and deepen the knowledge base on BRICS development cooperation in education.



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