GLOBAL EDUCATION MONITORING REPORT

2016

Place:

INCLUSIVE AND SUSTAINABLE CITIES

United Nations Educational, Scientific and Cultural Organization

Sustainable Development Goals

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Foreword

In May 2015, the World Education Forum in Incheon (Republic of Korea), brought together 1,600 participants from 160 countries with a single goal in mind: how to ensure inclusive and equitable quality education and lifelong learning for all by 2030?

The Incheon Declaration for Education 2030 has been instrumental to shape the Sustainable Development Goal on Education to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all".

It entrusts UNESCO with the leadership, coordination and monitoring of the Education 2030 agenda. It also calls upon the Global Education Monitoring (GEM) Report to provide independent monitoring and reporting of the Sustainable Development Goal on education (SDG 4), and on education in the other SDGs, for the next fifteen years.

The ultimate goal of this agenda is to leave no one behind. This calls for robust data and sound monitoring. The 2016 edition of the GEM Report provides valuable insight for governments and policy makers to monitor and accelerate progress towards SDG 4, building on the indicators and targets we have, with equity and inclusion as measures of overall success.

This Report makes three messages starkly clear.

Firstly, the urgent need for new approaches. On current trends only 70% of children in low income countries will complete primary school in 2030, a goal that should have been achieved in 2015. We need the political will, the policies, the innovation and the resources to buck this trend.

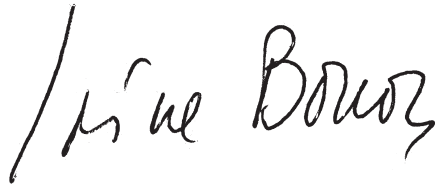
Secondly, if we are serious about SDG 4, we must act with a sense of heightened urgency, and with long-term commitment. Failure to do so will not only adversely affect education but will hamper progress towards each and every development goal: poverty reduction, hunger eradication, improved health, gender equality and women's empowerment, sustainable production and consumption, resilient cities, and more equal and inclusive societies.

Lastly, we must fundamentally change the way we think about education and its role in human well-being and global development. Now, more than ever, education has a responsibility to foster the right type of skills, attitudes and behavior that will lead to sustainable and inclusive growth.

The 2030 Agenda for Sustainable Development calls on us to develop holistic and integrated responses to the many social, economic and environmental challenges we face. This means reaching out beyond traditional boundaries and creating effective, cross-sectoral partnerships.

A sustainable future for all is about human dignity, social inclusion and environmental protection. It is a future where economic growth does not exacerbate inequalities but builds prosperity for all; where urban areas and labour markets are designed to empower everyone and economic activities, communal and corporate, are green-oriented. Sustainable development is a belief that human development cannot happen without a healthy planet. Embarking upon the new SDG agenda requires all of us to reflect upon the ultimate purpose of learning throughout life. Because, if done right, education has the power like none else to nurture empowered, reflective, engaged and skilled citizens who can chart the way towards a safer, greener and fairer planet for all. This new report provides relevant evidence to enrich these discussions and craft the policies needed to make it a reality for all.

Irina Bokova
Director-General of UNESCO



Foreword

The 2016 Global Education Monitoring Report (GEM Report) is both masterful and disquieting. This is a big report: comprehensive, in-depth and perspicacious. It is also an unnerving report. It establishes that education is at the heart of sustainable development and the Sustainable Development Goals (SDGs), yet it also makes clear just how far away we are from achieving the SDGs. This report should set off alarm bells around the world and lead to a historic scale-up of actions to achieve SDG 4.

The GEM Report provides an authoritative account of how education is the most vital input for every dimension of sustainable development. Better education leads to greater prosperity, improved agriculture, better health outcomes, less violence, more gender equality, higher social capital and an improved natural environment. Education is key to helping people around the world understand why sustainable development is such a vital concept for our common future. Education gives us the key tools – economics, social, technological, even ethical – to take on the SDGs and to achieve them. These facts are spelled out in exquisite and unusual detail throughout the report. There is a wealth of information to be mined in the tables, graphs and texts.

Yet the report also emphasizes the remarkable gaps between where the world stands today on education and where it has promised to arrive as of 2030. The gaps in educational attainment between rich and poor, within and between countries, are simply appalling. In many poor countries, poor children face nearly insurmountable obstacles under current conditions. They lack books at home; have no opportunity for pre-primary school; and enter facilities without electricity, water, hygiene, qualified teachers, textbooks and the other appurtenances of a basic education, much less a quality education. The implications are staggering. While SDG 4 calls for universal completion of upper secondary education by 2030, the current completion rate in low-income countries is a meagre 14% (Table 10.3 of the full report).

The GEM Report undertakes an important exercise to determine how many countries will reach the 2030 target on the current trajectory, or even on a path that matches the fastest improving country in the region. The answer is sobering: we need unprecedented progress, starting almost immediately, in order to have a shot at success with SDG 4.

Cynics might say, 'We told you, SDG 4 is simply unachievable', and suggest that we accept that 'reality'. Yet as the report hammers home in countless ways, such complacency is reckless and immoral. If we leave the current young generation without adequate schooling, we doom them and the world to future poverty, environmental ills, and even social violence and instability for decades to come. There can be no excuse for complacency. The message of this report is that we need to get our act together to accelerate educational attainment in an unprecedented manner.

One of the keys for acceleration is financing. Here again, the report makes for sobering reading. Development aid for education today is lower than it was in 2009 (Figure 20.7 of the full report). This is staggeringly short-sighted of the rich countries. Do these donor countries really believe that they are 'saving money' by underinvesting in aid for education in the world's low-income countries? After reading this report, the leaders and citizens in the high income world will be deeply aware that investing in education is fundamental for global well-being, and that the current level of aid, at around US$5 billion per year for primary education – just US$5 per person per year in the rich countries! – is a tragically small investment for the world's future sustainable development and peace.

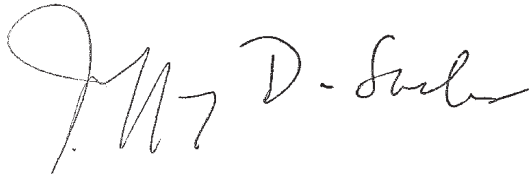
The 2016 GEM Report provides a plethora of insights, recommendations and standards for moving forward. It offers invaluable suggestions on how to monitor and measure progress on SDG 4. It demonstrates by example the feasibility of far more refined measures of education inputs, quality and achievement than the often crude measures of enrolment and completion that we rely on today. Using big data, better survey tools, facility monitoring and information technology, we can get far more nuanced measures of the education process and outcomes at all levels.

Fifteen years ago the world finally recognized the enormity of the AIDS epidemic and other health emergencies and took concrete steps to scale up public health interventions in the context of the Millennium Development Goals. Thus were born major initiatives such as the Global Fund to Fight AIDS, Tuberculosis and Malaria, the Global Alliance for Vaccines and Immunisation (now Gavi, the Vaccine Alliance) and many other examples. These efforts led to a dramatic upturn in public health interventions and funding. While it did not achieve all that was possible (mainly because the 2008 financial crisis ended the upswing in public health funding) it did lead to many breakthroughs whose effects continue to be felt today'.

The 2016 GEM Report should be read as a similar call to action for education as the core of the SDGs. My own view, often repeated in the past couple of years, is the urgency of a Global Fund for Education that builds on the positive lessons of the Global Fund for AIDS, Tuberculosis and Malaria. The financing constraint lies at the very heart of the education challenge, as this report makes vividly clear through every bit of cross-national and household-based data.

This compelling document calls on us to respond to the opportunity, urgency and declared global goal embodied in SDG 4: universal education of good quality for all and opportunities for learning throughout life. I urge people everywhere to study this report carefully and take its essential messages to heart. Most importantly, let us act on them at every level, from the local community to the global community.

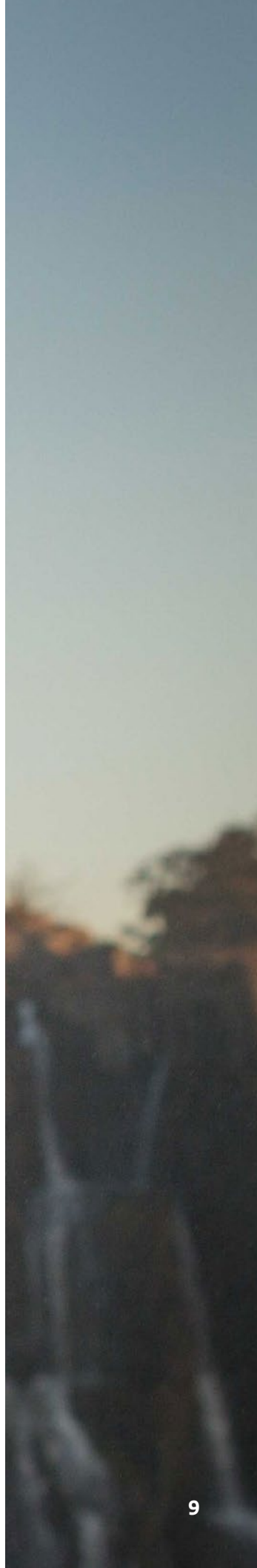
Jeffrey D. Sachs
Special Adviser to the UN Secretary-General on the
Sustainable Development Goals



A young boy takes part in a reforestation project in Cape Town, South Africa, where children learn to reconnect with nature.

CREDIT: Sydelle Willow Smith/GEM Report

Sustainable development: a strategy for people, planet and prosperity



INTRODUCTION HIGHLIGHTS

Transforming our world: the 2030 Agenda for Sustainable Development

At the 70th Session of the United Nations General Assembly in September 2015, member states adopted a new global development agenda, Transforming our world: the 2030 Agenda for Sustainable Development.

The new Agenda unites global development and environmental goals in one framework.

There is no single definition of sustainable development: Most challenge the status quo, believing that human development means nothing without a healthy planet.

The Global Education Monitoring Report

The Incheon Declaration affirmed the mandate of the GEM Report as the mechanism for monitoring and reporting on the fourth global goal on education as well as on education targets in the other Sustainable Development Goals (SDGs).

The 2016 GEM Report is the first of a new 15-year series. It shows that education will not deliver its full potential to catapult the world forward unless participation rates dramatically improve, learning becomes a lifelong pursuit and education systems fully embrace sustainable development.

The thematic part of the GEM Report discusses the complex links between SDG 4 on education and the other 16 SDGs. It presents compelling arguments as to the types of education and learning that are vital for achieving other SDGs.

Monitoring SDG 4

The success of the SDG framework will rely on national policies, plans and programmes. However, the agenda's goals and targets will be monitored and reviewed using global indicators with a framework coordinated by the Inter-agency and Expert Group on SDG Indicators and agreed by the UN Statistical Commission.

To support country implementation of SDG 4 and its targets, the international education community adopted the Education 2030 Framework for Action in Paris in November 2015.

An important focus of SDG 4 is 'lifelong learning opportunities for all', which is a process that begins at birth and carries through all stages of life.

The SDGs, targets and means of implementation are universal, indivisible and interlinked

There is strong evidence of the importance of good quality and equitable education and learning in supporting social change, as well as the role of education as a cross-cutting means of advancing the 2030 Agenda.

The planet Earth is in a dire state. Natural resources have been overexploited. A significant loss of biodiversity is occurring while a massive rise of carbon levels is leading to climate change and associated extreme weather. Toxic substances are increasingly found in air, water, soil, and flora and fauna. The planet faces desertification, drought and land degradation. Human living conditions have not fared much better. Even though the number of people living in extreme poverty has declined by over 1 billion (United Nations, 2015a), disparities between rich and poor continue to rise. Oxfam recently reported that the world's richest 62 people possess as much wealth as the poorest 3.6 billion (Hardoon et al., 2016). Too many people are trapped in poverty, and lack clean air and drinking water as well as adequate food and nutrition. Many families are forcibly displaced or on the run due to protracted conflict. Wide disparities persist in access to education of good quality. It is out of these concerns that the concept of sustainable development was born.

WHAT IS SUSTAINABLE DEVELOPMENT?

Sustainable development is an organizing principle for global development that supports the well-being of both people and the planet. Since its emergence, the concept and term have expanded to bridge gaps among environmental, economic and social concerns, attempting to integrate environmental protection and ecological integrity, economic viability, and social and human development. Intergenerational equity, balancing the needs of present and future generations, is also a key component.

> "Sustainable development is an organizing principle for global development that supports the well-being of both people and the planet"

Sustainable development was advanced in the 1960s and 1970s as a concept linking observed interactions between humans and the environment, as documented in literature such as *Silent Spring* (Carson, 1962), *The Population Bomb* (Ehrlich, 1968) and *The Limits to Growth* (Meadows et al., 1972). In 1972, the United Nations (UN) Conference on the Human Environment in Stockholm marked the beginning of a global conversation on sustainable governance, although the term was still in the making. Experts convened a global symposium in Mexico two years later and signed the 1974 Cocoyoc Declaration, which advocated harmonizing environment and development strategies through 'eco-development' (UNEP and UNCTAD, 1974).

The first use of the term 'sustainable development' in a major public document was the 1980 World Conservation Strategy, which confirmed that conservation of living resources was essential to sustainable development (IUCN et al., 1980). At the 1986 Conference on Conservation and Development in Ottawa, sustainable development was defined as: (a) integration of conservation and development, (b) satisfaction of basic human needs, (c) achievement of equity and social justice, (d) provision of social self-determination and cultural diversity, and (e) maintenance of ecological integrity (Lele, 1991).

The most common notion of sustainable development was popularized in the 1987 Brundtland Report, *Our Common Future*, which raised questions about the consequences of traditional economic growth in terms

of environmental degradation and poverty (United Nations, 1987). The Brundtland Report referred to 'development which meets the needs of the present without compromising the ability of future generations to meet their own needs' and listed critical objectives for sustainable development: changing the quality of economic growth; meeting essential needs for jobs, food, energy, water and sanitation; ensuring a sustainable population level; conserving and enhancing natural resources; reorienting technology and managing risk; linking environmental and economic concerns in decision-making; and reorienting international economic relations to make development more participatory (Lele, 1991).

Global understanding of sustainable development has since evolved into a framework developed over decades by an international community of member state governments, UN agencies, multilateral and bilateral development partners, civil society organizations, researchers and scientists. It resulted in the 2030 Agenda for Sustainable Development, a value-based framework for action that reflects core beliefs and principles (Sachs, 2015).

Several key terms and values are essential to understanding the post-2015 agenda:

- **People, Planet and Prosperity:** The '3Ps' are interdependent and mutually reinforcing pillars that represent the social, environmental and economic aspects of progress for all life forms on Earth.
- **Good governance:** This dimension supports the 3Ps through responsible leadership and active engagement in both the public and private sectors. Good governance ensures peaceful societies and upholds human rights for the good of the planet.
- **Links and connections:** Sustainable development works as an organizing principle because it recognizes that complex natural and social systems are linked and interconnected. Changes that occur in one system may affect others in ways that result in something more than the sum of the parts.
- **Intergenerational equity and justice:** Fairness is critical to a world fit for future generations, where children can grow up to be healthy, well nourished, resilient, well educated, culturally sensitive and protected from violence and neglect, and with access to safe, unpolluted ecosystems. Equity and justice are also required for diverse groups in the current generation.

THERE IS NO SINGLE DEFINITION OF SUSTAINABLE DEVELOPMENT

The different perspectives of sustainable development include viewing it as a model to improve current systems (endorsed by those focusing on viable economic growth), a call for major reforms (supported by those who advocate for a green economy and technological innovation) and an imperative for a larger transformation in power structures and embedded values of society (supported by transition movements).

Some ecologists, such as deep ecologists, believe present-day human development focuses too much on people and ignores the plant, animal and spiritual parts of this world (Leonard and Barry, 2009). They believe humans must learn to be less self-interested and place the needs of other species alongside their own. Transformation advocates say societies should go back to ways of living that are locally sustainable – consuming and wasting less, limiting needs to locally available resources, treating nature with respect, and abandoning polluting technology that has become an integral part of modern society. Culture advocates believe sustainable living can happen only if communities truly embrace it as part of daily culture (Hawkes, 2001) so that it affects decisions about what to eat, how to commute to work and how to spend leisure time.

The South American *buen vivir* movement rejects development as materialistic and selfish, implying that living sustainably means finding alternatives to development (Gudynas, 2011). The *buen vivir* belief system comes directly from traditional values of indigenous people, and posits that collective needs are more important than those of the individual. In Ecuador, this concept is called *sumak kawsay*, the Quechua term for fullness of life in a community. It involves learning to live within boundaries, finding ways to reduce use or to do more with less, and exploring non-material values. Ecuador and the Plurinational State of Bolivia have incorporated *buen vivir* into their constitutions.

> "Most definitions of sustainable development challenge the status quo, believing human development lacks meaning without a healthy planet"

Most definitions of sustainable development challenge the status quo, believing human development lacks meaning without a healthy planet. This view requires people, communities and nations to

reconsider basic values of daily living and change the way they think. Understanding one's own values, the values of one's community and society, and those of others around the world is a central part of educating for a sustainable future. This means education systems need to continuously evolve and change in order to identify what practices work best within a given context and how they need to change over time. Indeed, for many of its advocates in education, sustainable development is best understood as a journey, rather than a destination.

THE 2030 AGENDA UNITES DEVELOPMENT AND ENVIRONMENTAL SUSTAINABILITY

The 2030 Agenda for Sustainable Development unites global development and environmental goals in one framework. It is the result of decades of collective progress and failure and the articulation of future challenges. Since the Brundtland Report, three international meetings have played an instrumental role along the path to the 2030 Agenda: the Rio (1992), Johannesburg (2002) and Rio+20 (2012) Earth summits.

The 1992 UN Conference on Environment and Development, also known as the Earth Summit, established Agenda 21, an action plan intended for governments and other major groups. Participants at the conference in Rio de Janeiro hoped the plan's implementation would result in the widespread changes needed to integrate environmental sustainability and development. Agenda 21 included a special chapter (Chapter 36) on the need for education, public awareness-raising and training to reorient society towards sustainable development.

The 2002 World Summit on Sustainable Development (WSSD) in Johannesburg pledged to strengthen the mutually reinforcing pillars of sustainable development at the local, national, regional and global levels with the goal to 'banish underdevelopment forever' (United Nations, 2002). The WSSD agenda included fighting severe threats to sustainable development, including chronic hunger, malnutrition, terrorism, corruption, xenophobia and endemic, communicable and chronic diseases. Special emphasis was also placed on women's empowerment, emancipation and gender equality.

The 2012 UN Conference on Sustainable Development in Rio de Janeiro, commonly referred to as Rio +20, again evoked the three pillars – the social, environmental and economic dimensions of sustainability – as guides for international development (United Nations, 2013). Importantly, Rio +20 acknowledged a lack of progress in achieving sustainable development, especially in integrating the three pillars. Therefore, Rio +20 emphasized the role of good governance and integrated planning in achieving sustainable development.

Despite these global meetings, over the past two decades the Earth's biosphere has continued to deteriorate, poverty has remained widespread and social inequality has increased. These harmful trends accelerated despite efforts to meet the Millennium Development Goals (MDGs), the 2000–2015 global development and anti-poverty agenda. After Rio +20, an inclusive intergovernmental process began to formulate the Sustainable Development Goals (SDGs) to succeed the MDGs, which were approaching their target date and had been subject to criticism (**Box 0.1**).

BOX 0.1

The Millennium Development Goals failed to ensure environmental sustainability

The eight MDGs – to eradicate extreme poverty and hunger; achieve universal primary education; promote gender equality; reduce child mortality; improve maternal health; combat HIV/AIDS, malaria and other diseases; ensure environmental sustainability; and develop global partnerships – saved millions of lives and helped improve quality of life for billions. But the final MDG review acknowledged uneven achievements and shortfalls in many areas.

Three critical factors hampered success. First, public agencies and private-sector firms were not held accountable for the environmental damage that economic growth causes. Rather, the damage was justified as the price of economic development, and the cost of damage was absorbed by society, not by polluters. Second, the cost to future generations of environmental damage during development was not evaluated, as it was commonly believed that countries could grow now and clean up later. Finally, the MDGs focused on developing nations, assigning rich countries the role of financial donors. By artificially separating rich and poor countries, the MDGs failed to recognize how all societies are interconnected, both reliant on and affected by changes to socio-economic and natural systems on Earth.

However, the experience of the MDGs taught global policy-makers to better recognize the differences between countries at the start of processes, and the need for context-specific goals, priority-setting and policy coherence between the global, regional, national and subnational levels.

Sources: United Nations (2012, 2015a); Zusman et al. (2015).

THE SDGS WERE CREATED THROUGH INCLUSIVE DECISION-MAKING

At the 70th Session of the UN General Assembly in September 2015, member states adopted a new global development agenda, *Transforming Our World: The 2030 Agenda for Sustainable Development*. At its heart are 17 SDGs, including SDG 4 on education. The SDGs establish development priorities to 2030 and succeed the MDGs and the goals of Education for All (EFA) – the global movement to ensure quality basic education for all children, youth and adults – both of which expired in 2015.

BOX 0.2

The Sustainable Development Goals

Goal 1: End poverty in all its forms everywhere

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Goal 5: Achieve gender equality and empower all women and girls

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10: Reduce inequality within and among countries

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12: Ensure sustainable consumption and production patterns

Goal 13: Take urgent action to combat climate change and its impacts

Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Goal 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

How did this come about? Almost immediately after Rio+20, various stakeholders began to plan a new agenda for sustainable development. With a mandate from the 2010 UN General Assembly, the UN Secretary-General led the Post-2015 Development Agenda process, which over three years, involved two main streams to develop specific goals in a transparent, participatory way – one more consultative, involving many stakeholders, and the other a more official intergovernmental process.

Among the other many initiatives and contributions that led to the final adopted Agenda 2030, the Sustainable Development Solutions Network played an important role. The UN launched it in 2012 to mobilize knowledge and help design and implement the post-2015 agenda, building on lessons learned from the MDGs and Earth summits. A 2012 report concluded that the MDG framework should be retained, but reorganized to guide international and national policy-making holistically along four key dimensions: (a) inclusive social development, (b) inclusive economic development, (c) environmental sustainability, and (d) peace and security (United Nations, 2012).

During the first half of 2013, the UN conducted a series of 'global conversations' that engaged almost 2 million people in 88 countries. They included 11 thematic consultations including one on education, activities at the national level and door-to-door surveys. The UN also launched the MY World survey, asking people which of 16 development goals mattered to them the most. Between July and December 2014, more than 7 million people responded online, by ballot or through SMS, of which over 5 million votes were collected offline via paper ballots and almost 500,000 through mobile phones (United Nations, 2014). MY World voters overwhelmingly chose 'a good education' and 'better healthcare' as top priorities. People chose education as the number one priority regardless of their gender, age, wealth or education level.

A concurrent process, involving discussions of the Open Working Group (OWG), was mandated in the outcome document of the Rio+20 conference in June 2012, which affirmed the role and authority of the UN General Assembly to lead the SDG process. In January 2013, member states established the intergovernmental OWG, with 70 member states sharing its 30 seats, to propose SDGs. Recommendations on the vision and shape of the SDG agenda were included in the report of the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda, released in mid-2013. After 13 sessions, the OWG produced a document in July 2014 that put forward 17 goals with 169 targets (**Box 0.2**).

The two processes merged with the publication of the Secretary-General's synthesis report in December 2014, which led to a new intergovernmental process towards the adoption of the SDGs. Seven more rounds of negotiations during the first half of 2015 helped refine and finalize the formulation of the goals and targets.

The SDGs were designed using principles of good governance: accountability, transparency, and open participation in decision-making (Sachs, 2015). Overall, the success of the SDG framework will rely on national policies, plans and programmes. However, the agenda's goals and targets will be monitored and reviewed using global indicators with a framework coordinated by the Inter-agency and Expert Group on SDG Indicators and agreed by the UN Statistical Commission.

The UN Conference on Trade and Development estimates implementation in developing countries will cost US$2.5 trillion per year in public and private money over the next 15 years (UNCTAD, 2014), amounting to roughly 4% of world GDP. The UN Environment Programme recently reported that the cost of adapting to climate change in developing countries could rise to between $280 billion and $500 billion per year by 2050 (UNEP, 2016). But failure to make substantial progress towards the SDGs would be much more costly.

EDUCATION WITHIN SUSTAINABLE DEVELOPMENT

The 2030 Agenda unites global development goals in one framework. SDG 4 succeeds the MDG and EFA priorities for education. At the World Education Forum in Incheon, Republic of Korea, in May 2015, representatives of the global education community signed the Incheon Declaration, embracing the proposed SDG 4 as the single universal education goal, which commits countries to '[e]nsure inclusive and equitable quality education and promote lifelong learning opportunities for all' (**Box 0.3**). SDG 4 and its targets advance a model where learning, in all its shapes and forms, has the power to influence people's choices to create more just, inclusive and sustainable societies. To advance progress towards SDG4 and its targets, the global education community adopted the Education 2030 Framework for Action in Paris in November 2015 (UNESCO, 2015a).

Education within the sustainable development agenda is founded on principles drawn from a rich history of international instruments and agreements

BOX 0.3

SDG 4: the education goal and targets

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

- **Target 4.1:** By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes
- **Target 4.2:** By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education
- **Target 4.3:** By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university
- **Target 4.4:** By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
- **Target 4.5:** By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations
- **Target 4.6:** By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy
- **Target 4.7:** By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development
- **Target 4.a:** Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all
- **Target 4.b:** By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries
- **Target 4.c:** By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States

(**Box 0.4**). These principles state that education is both a fundamental human right and an enabling right, i.e. it enables other human rights; that it is a public good and a shared societal endeavour, which implies an inclusive process of public policy formulation and implementation; and that gender equality is inextricably linked to the right to education for all (UNESCO, 2015a). These principles are inspired by a humanistic vision of education and development based on human rights and dignity, justice and shared responsibility.

BOX 0.4

Historical international agreements that affirm the right to education

- Article 26 of the Universal Declaration of Human Rights (1948)
- Convention relating to the Status of Refugees (1951)
- International Covenant on Economic, Social and Cultural Rights (1960)
- Convention against Discrimination in Education (1960)
- Convention on the Elimination of All Forms of Discrimination against Women (1979)
- Convention on the Rights of the Child (1989)
- UN Convention on the Rights of Persons with Disabilities (2006)
- UN General Assembly Resolution on the Right to Education in Emergency Situations (2010)

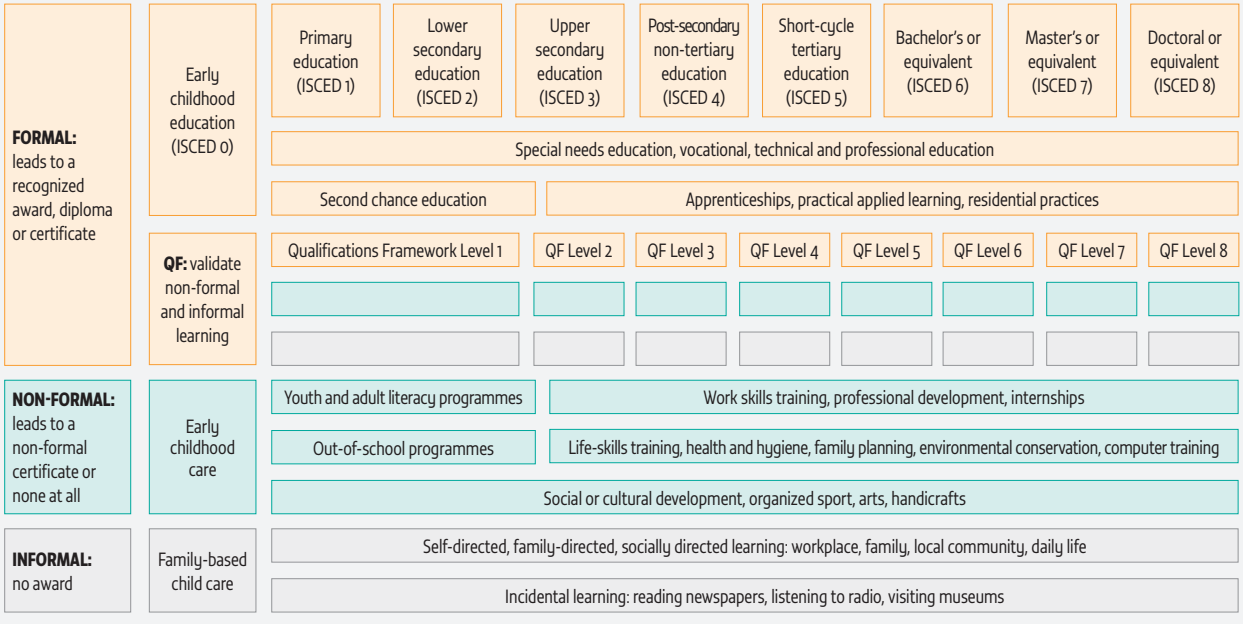
Source: UNESCO (2015a).

WHAT IS LIFELONG LEARNING?

One focus of SDG 4 is 'lifelong learning opportunities for all'. Lifelong learning comprises all learning activities undertaken throughout life with the aim of improving knowledge, skills and competencies, within personal, civic, social and employment-related perspectives (UIL, 2015). Lifelong learning has often been more narrowly associated with adult education, especially training to help adults compensate for poor quality schooling (UNESCO, 2000).

The post-2015 development agenda conceives of lifelong learning as a process, one that begins at birth and carries through all stages of life (**Figure 0.1**). This approach to education incorporates multiple and flexible learning pathways, entry and re-entry points at all ages, and strengthened links between formal and

FIGURE 0.1:
Lifelong learning opportunities for all



Source: GEM Report team.

> Lifelong learning is a process, one that begins at birth and carries through all stages of life

non-formal structures, including formal accreditation of the knowledge, skills and competencies acquired through non-formal and informal education.

Formal education occurs in institutions designed to provide full-time education for students in a system organized as a continuous educational pathway, from pre-primary and primary education to secondary and higher education. International education policy has historically focused on efforts to ensure the provision of universal primary education and reduce the numbers of out-of-school children. Non-formal education and training occur in planned learning settings but outside the formal system. Non-formal learning activities are often job-related but also provide training in life skills and other types of self-development. Both formal and non-formal education take place through organized programmes offered at schools, centres, associations or workplaces. Informal education takes place outside organized programmes and encompasses everyday activities such as reading a newspaper or visiting a museum. This kind of learning also includes intergenerational knowledge and skills passed through families and community members (UNESCO and UIS 2012).

SDG 4 is specific about the kind of education needed: inclusive, equitable and of good quality. The lesson that has emerged over the past 15 years is that progress in education cannot rest solely on increasing enrolment. About 38% of children old enough to have finished primary school have not learned the most basic skills they need to succeed in life (UNESCO, 2014a). Education of good quality cultivates the flexible skills and competencies that prepare learners for diverse challenges. The focus on quality ensures that foundation skills – literacy and numeracy – foster additional higher order thinking, creativity, problem solving, and social and emotional skills.

Local context and diversity shape both challenges and solutions. Rather than pushing individuals into a one-size-fits-all programme, a lifelong learning approach incorporates diversity into an inclusive, equitable system. Education for sustainability reaches out to serve marginalized communities by using all types of education, matching learning to context.

While it is a great global accomplishment that 91% of children are enrolled in school, reaching the last 9% requires different strategies. The children most likely to be out of school are those from the poorest households, ethnic and linguistic minorities, working children, those in nomadic or sparsely populated areas, orphans and children affected by HIV and AIDS, slum dwellers, children with disabilities, children displaced by conflict and those living in complex emergencies (UNESCO, 2015b). These groups have particular needs and require unique and flexible solutions.

Successful programmes for the marginalized are based on locally relevant solutions that foster social inclusion. For example, nomadic and pastoralist groups face challenges getting the basic education they deserve because their mobile lifestyles conflict with typical schooling formats. In addition, changes in weather, storms, droughts and conflicts decrease nomadic children's chances of staying in school. Governments and civil society have been challenged to understand first who these missing learners are and then what is exceptional about their nomadic livelihoods. Since 2000, nomad-specific education plans have emerged in Ethiopia, Nigeria, Sudan and the United Republic of Tanzania (UNESCO, 2015b). These programmes not only help targeted communities but also provide innovative examples for mainstream schools.

Lifelong learning is more than a longitudinal description of an education system that runs from cradle to retirement and beyond; it is an organizing principle, intended to improve people's quality of life.

EDUCATION IS INTERLINKED WITH OTHER SDGS

The SDGs, targets and means of implementation are thought of as universal, indivisible and interlinked. Each of the 17 goals has a set of targets. In each set, at least one target involves learning, training, educating or at the very least raising awareness of core sustainable development issues. Education has long been recognized as a critical factor in addressing environmental and sustainability issues and ensuring human well-being (**Table 0.1**).

The 2013/14 *EFA Global Monitoring Report* (GMR) analysed interdependencies and connections between education and other development goals. There is strong evidence of the importance of education and learning in supporting social change, as well as the role of education as a cross-cutting means of advancing the 2030 Agenda. Increased

TABLE 0.1:
How education is typically linked with other Sustainable Development Goals

Goal 1	Education is critical to lifting people out of poverty.	**Goal 10**	Where equally accessible, education makes a proven difference to social and economic inequality.
Goal 2	Education plays a key role in helping people move towards more sustainable farming methods, and in understanding nutrition.	**Goal 11**	Education can give people the skills to participate in shaping and maintaining more sustainable cities, and to achieve resilience in disaster situations.
Goal 3	Education can make a critical difference to a range of health issues, including early mortality, reproductive health, spread of disease, healthy lifestyles and well-being.	**Goal 12**	Education can make a critical difference to production patterns (e.g. with regard to the circular economy) and to consumer understanding of more sustainably produced goods and prevention of waste.
Goal 5	Education for women and girls is particularly important to achieve basic literacy, improve participative skills and abilities, and improve life chances.	**Goal 13**	Education is key to mass understanding of the impact of climate change and to adaptation and mitigation, particularly at the local level.
Goal 6	Education and training increase skills and the capacity to use natural resources more sustainably and can promote hygiene.	**Goal 14**	Education is important in developing awareness of the marine environment and building proactive consensus regarding wise and sustainable use.
Goal 7	Educational programmes, particularly non-formal and informal, can promote better energy conservation and uptake of renewable energy sources.	**Goal 15**	Education and training increase skills and capacity to underpin sustainable livelihoods and to conserve natural resources and biodiversity, particularly in threatened environments.
Goal 8	There is a direct link among such areas as economic vitality, entrepreneurship, job market skills and levels of education.	**Goal 16**	Social learning is vital to facilitate and ensure participative, inclusive and just societies, as well as social coherence.
Goal 9	Education is necessary to develop the skills required to build more resilient infrastructure and more sustainable industrialization.	**Goal 17**	Lifelong learning builds capacity to understand and promote sustainable development policies and practices.

Source: ICSU and ISSC (2015).

> “Increased educational attainment helps transform lives by reducing poverty, improving health outcomes, advancing technology and increasing social cohesion”

educational attainment helps transform lives by reducing poverty, improving health outcomes, advancing technology and increasing social cohesion (UNESCO, 2013, 2014b). It can also enable individuals to better cope with, and reduce their vulnerability to, the dangers associated with climate change.

Education is associated with increased environmental awareness, concern and, in some contexts, action. Across the 57 countries participating in the 2006 Programme for International Student Assessment (PISA) of the Organisation for Economic Co-operation and Development (OECD), students who scored higher in environmental science reported higher awareness of complex environmental issues. The more years of schooling, the more a person's concern for environmental protection increases, according to results from the World Values Surveys. Educated citizens with greater environmental awareness and concern are more likely to get involved in political action to protect the environment. Education also gives citizens skills needed to adapt to the adverse effects of climate change. Farmers in low income countries are especially vulnerable to climate change. A survey in Burkina Faso, Cameroon, Egypt, Ethiopia, Ghana, Kenya, Niger, Senegal, South Africa and Zambia showed that farmers with more education were more likely to build resilience through adaptation.

The links go both ways. Children living in poverty are more likely to have less education and less access to basic services. Access to clean water and improved sanitation is especially important for girls' education. It influences their education decisions and generates health gains, time savings and privacy. Sustainable consumption and production patterns, such as improvements to the physical environment, green government regulations and changes in consumer demand for greener products and services, increase interest in education for sustainable development. Tackling climate change is essential for overall progress on the SDGs, including SDG 4. SDG 13 aims to promote urgent action to combat climate change and its impact; sustainable development cannot be achieved without this.

The reciprocal ties between education and many SDGs have not been the focus of sustained research. A review of 40 flagship evidence-based UN reports found relatively weak coverage of links between education and SDGs 12 to 15, which address sustainable consumption and production, climate change, oceans and marine resources, and terrestrial ecosystems (Vladimirova and Le Blanc, 2015). Similarly, the evidence base on constraints and challenges to synergies between SDGs tends to be limited or non-existent. This clear gap in knowledge must be addressed: not only the nexus of links between development sectors, but also any unintended adverse effects between them, should be better understood.

WHAT KIND OF EDUCATION IS NECESSARY?

It is taken for granted that education of good quality can help develop citizens who are capable and mindful, which in turn improves their livelihoods and those of others around them. But the Incheon Declaration makes clear that certain knowledge and skills promote sustainable development more than others. Not all education brings the same benefits to everyone. Time, place, situation and context matter (Harber, 2014).

> “Not all education brings the same benefits to everyone. Time, place, situation and context matter”

Some scholars suggest that education systems that focus on preparing young people for a lifetime of work and consumption to serve mainly economic ends have adverse effects (Nussbaum, 2010; Orr, 1994). They argue that without critical reflection on the strengths, weaknesses and ultimate purpose of learning, education systems risk becoming an extension of an unsustainable globalizing economy. This concern is powerfully expressed by John Evans, General Secretary of the Trade Union Advisory Committee to the OECD (2015): ‘There are no jobs on a dead planet.’

Education and lifelong learning can support the SDGs with at least two approaches. The first tends to focus on literacy acquisition and retention or on specific knowledge to generate behavioural change, showing that education can facilitate changes in values, world views and behaviour at the level of the individual, the community and society as a whole. This works particularly well when agreement exists on common values and the best and most desirable behaviours, e.g. the idea that reducing food waste and energy consumption is important for sustainability and that people can reduce food waste and conserve energy at home.

The second approach focuses on the development of agency, competencies and participation, showing that education can facilitate reflective or critical learning, knowledge and skills acquisition, and greater agency to address complex sustainability issues, e.g. how to create a sustainable school or a carbon-neutral city. This is particularly important where uncertainty exists over what needs to be done or when context-specific solutions need to be identified through collaborative and iterative processes. Both education approaches are complementary for engendering critical learning and sustainability outcomes (**Table 0.2**).

The transformation needed for a cleaner, greener planet requires integrative, innovative and creative thinking, cultivated jointly by schools, governments, civil society organizations and companies. This collaboration calls for education that goes beyond the transfer of knowledge and desirable behaviours by focusing on multiple perspectives – economic, ecological, environmental and sociocultural – and by developing empowered, critical, mindful and competent citizens. Such education can contribute to the realization of new forms of citizenship, entrepreneurship and governance that centre on the current and future well-being of people and the planet.

TABLE 0.2:
Learning outcomes in education for sustainability

Dimension of sustainability education	Associated learning outcomes
Learning to know Dynamics and content of sustainability	Sustainability literacy Systems thinking An integral view Understanding of planetary boundaries
Learning to critique Critical dimension of sustainability	Questioning of hegemony and routines Analysis of normativity Disruptiveness, transgression
Learning to bring about change Change and innovation dimension of sustainability	Leadership and entrepreneurship Unlocking of creativity, use of diversity Appreciation of complexity Adaptation, resilience Empowerment and collective change
Learning to be, learning to care Existential and normative dimension of sustainability	Connection with people, places and other species Passion, values and meaning-making Moral positioning, consideration of ethics, boundaries and limits

Source: Wals and Lenglet (2016).

> The Incheon Declaration affirmed the mandate of the GEM Report as the mechanism for monitoring and reporting on SDG 4 and on education in the other SDGs

READER'S GUIDE TO THE REPORT

In the Incheon Declaration, the international education community affirmed the mandate of the *Global Education Monitoring Report* (GEM Report) as an independent, authoritative report, hosted and published by UNESCO, to serve as 'the mechanism for monitoring and reporting on ... SDG 4 and on education in the other SDGs, within the mechanism to be established to monitor and review the implementation of the proposed SDGs' (UNESCO, 2015b). Relying on 14 years of monitoring experience as the GMR, the renamed GEM Report will continue to provide reliable, rigorous analysis of global progress on the education agenda through systematic and evidence-based reporting.

The 2016 GEM Report, the first of a new 15 year series, shows that education will not deliver its full potential to catapult the world forward unless rates of improvement dramatically shift, and education systems consider sustainable development in the way services are delivered.

Commissioned research for this report shows that, for 90% of industrialized countries, and for every single country in Southern Asia and sub-Saharan Africa, even expanding their education systems at the fastest rates ever observed in the regions would be too slow to meet the first target in the global goal on education, SDG 4.

Yet it also shows how crucial it is for education systems to expand at the rate reflected in the ambition of the 2030 Agenda. If the world were somehow to achieve universal upper secondary completion by 2030, income per capita would likely increase by 75% until 2050, and bring achievement of the goal of poverty elimination forward 10 years. Similarly, under-5 mortality rates in sub-Saharan Africa would drop by 13 deaths for every 1000 live births by 2050, and there would be globally up to 50,000 fewer disaster-related deaths per year.

In the thematic part of this report (Chapters 1-8), compelling arguments are given for the types of education that are vital for achieving the goals of poverty reduction, hunger eradication, improved health, gender equality and empowerment, sustainable agriculture, resilient cities, and more equal, inclusive and just societies. They highlight the evidence, practices and policies that demonstrate how education – broadly defined to include formal, non-formal and informal learning – can serve as a catalyst for the overall sustainable development agenda. At the same time, they recognize how other development challenges and success affect education systems and outcomes.

The many challenges concerning how to assess progress towards SDG 4 are tackled in the monitoring part (Chapters 9–23), including concrete recommendations for policy change in coming years. The report seeks to contribute to discussions of how best to respond to the proposed global education monitoring framework in a way that supports countries and their international partners.

This GEM Report is timed to contribute to the initial building blocks of the sustainable development agenda. Its findings show that equitable, good quality education and lifelong learning are vital to securing sustainable futures for all. How and what people learn not only influences their knowledge, skills, attitudes and world views, but also their respect for each other, along with investment and research choices that affect coming generations. The way education evolves over the next 15 years will have a tremendous impact on whether the world can achieve the ambitious vision of the international community of nations. It is necessary to think critically about education systems so they do not encourage unsustainable lifestyles but rather build resilient communities and enable individuals to become agents of change, working cooperatively to address the great challenges of this era. Humans must imagine, think and act differently in order to mitigate climate change

and achieve sustainable development – and education is vital to that.

> To achieve the SDGs, it is necessary to break down silos and build cross-sector collaboration that contributes to a shared vision

Since 2000, experience has shown that only through a combined effort can humanity tackle the challenges facing it and the planet. To achieve the SDGs, it is necessary to break down silos and build cross-sector collaboration that contributes to a shared vision. Leaders in every area – from health, education and justice to environment, gender and urban development – must work together to create equitable policies and seek out synergies in order to ensure a decent and dignified life for all.

This PLACE publication is taken from the full 2016 Global Education Monitoring (GEM) Report: Education for people and planet: Creating sustainable futures for all. The following section describes the contents of the full GEM Report, showing how PLACE fits within the publication, and what other areas of discussion might be found in that document.

THEMATIC PART

The thematic part of the GEM Report discusses reciprocal ties between SDG 4 on education and the other 16 SDGs. It reviews education-oriented evidence, practices and policies that demonstrate education's role in achieving the overall 2030 Agenda for Sustainable Development. At the same time, it recognizes that changing realities in other development sectors affect education systems and outcomes.

The thematic part is made up of eight chapters. Six investigate the fundamental pillars and essential concepts of sustainable development – Planet, Prosperity, People, Peace, Place and Partnerships. The final thematic chapter, Projections, discusses how expected increases in educational attainment by 2030 will affect key development targets by 2050.

Planet focuses on the roles education can play in transforming society to move towards environmental sustainability. It discusses evidence on how education can develop the knowledge, skills and solutions to help increase concern for the environment, build awareness of climate change and other climate risks, and change individual behaviour to become more environment-friendly. It also acknowledges the importance of transforming education systems so that education helps foster sustainable lifestyles and rebalances the focus on individual economic and material gains. It addresses the need to encourage diverse perspectives so as to achieve environmental sustainability – for instance, by learning from the knowledge and lifestyles of indigenous communities – and the need to educate and engage the private sector to achieve sustained transformation.

Prosperity explores the roles of education in fostering environmentally sustainable and economically inclusive development. It provides evidence on links between education and skills acquisition on the one hand, and long-term economic growth on the other. At the same time it discusses the importance of transforming economic processes to make them more environmentally sustainable through green industry and sustainable agricultural practices. The chapter examines the role of education in poverty and inequality reduction, making the case for closer integration of education, economic and employment policies to promote inclusion of all people in the economy.

People discusses inclusive social development as an aspiration to ensure that all women and men, girls and boys lead healthy, dignified and empowered lives. At a minimum, this implies that all people need access to essential basic services such as education, health, water, sanitation and energy. The chapter also focuses on the transformative social development needed to change social structures, institutions and relationships. It highlights the scale of the challenges in providing essential basic services to all, achieving gender equality and including diverse marginalized populations. It provides evidence on how education is important for female empowerment for positive outcomes in health, nutrition, sanitation and energy, and between generations. It also discusses how education as an institutional sector can improve the way other sectors function, such as through health-related interventions in schools. The education system is pivotal to inclusive social development, since education can equip people with knowledge, skills and values that can help improve social outcomes and change social norms. At the same time, ensuring inclusive social development requires recognizing the limits of education's role, understanding how other institutions and sectors affect education, and making sure there is integrated action between them.

Peace demonstrates the role of education in fostering peaceful, just and inclusive societies. It argues that stable peace is more likely in societies with democratic and representative institutions and a well-functioning justice system. Education has a key role in contributing to the participation and inclusion vital to ensure social cohesion and to prevent and mitigate societal tensions. The chapter documents the links between education and politics, showing that education offers possibilities for participation, inclusion, advocacy and democracy. It also examines the multifaceted relationship between education and conflict and violence: if education is lacking, unequal or biased, it can contribute to conflict, but effective education can reduce or eliminate conflict. The chapter also shows how education can play a transformative role in peace-building and the alarming consequences of its neglect. In addition, it examines education and violence not related to conflict and wars, and provides evidence of how education initiatives, in particular driven by civil society organizations, can help marginalized populations gain access to justice.

Place highlights cities in discussing spatial dimensions of development, since urbanization is a defining population trend. It argues that cities are engines of knowledge-based innovation and growth. Conversely, education influences cities and is key to taking advantage of their physical and social capital. The chapter provides evidence that education can have positive effects, such as reducing crime, and be used in good urban planning, for example to encourage sustainable transport. At the same time, cities can be characterized by massive inequality, including in education, which can foster disillusionment, discontent and sometimes violence. Education needs to be viewed as a critical element of urban governance and planning arrangements to ensure that the opportunities of urbanization outweigh the challenges and result in more inclusive, environmentally sustainable and prosperous cities.

Partnerships describes how effective implementation of the SDGs requires integrated plans and actions. All government levels, sectors and types of national and international actors need to work together; they also require adequate financing and other enabling conditions (human capacity, effective institutions and political will) to meet the needs of the new agenda. These issues are addressed from the perspective of an education sector that must fulfil a much broader agenda – lifelong learning for all – and simultaneously work towards integration with other development agendas, given its instrumental role in other aspects of development. The chapter discusses the availability of domestic and external resources for education; concepts, evidence and implementation of integrated planning; and partnership arrangements.

Projections presents model-based scenarios for education attainment and describes education's role in attaining development targets. It projects likely scenarios for the increase in educational attainment between 2015 and 2030. Given that quantitative analysis usually views education as having longer-term intergenerational effects, it then projects how educational attainment by 2030 will affect key measurable development targets – infant and child mortality, adult life expectancy, economic growth, poverty rates and disaster-related deaths – by 2050.

MONITORING PART

The monitoring part of the 2016 GEM Report presents the wide-ranging challenges and debates involving monitoring for the Education 2030 agenda and how countries and the international community can move forward. It is organized into 15 chapters, including the introduction and conclusion.

The first 10 (Chapters 10–19) look separately at each of the 7 education targets and 3 means of implementation. They identify the concepts that are explicitly or implicitly embedded in the target formulation. Each chapter discusses how the concepts are articulated within the proposed global and thematic indicators. They focus primarily on the extent to which the methodology of the indicators is established, and on identifying tools currently available to collect relevant data. To the extent that methodology is established and information available for a sufficient number of countries, indicative baseline information is presented. Approaches for monitoring areas not yet covered by the proposed indicators are also discussed.

The monitoring part of the GEM Report tries not to be prescriptive but rather to make a timely contribution to the debate on what should be monitored and how. The state of global education monitoring is in flux. Many initiatives are under way to respond to the challenges of the proposed indicator frameworks. Given the time lag for information becoming available, it is still too early to provide baseline data for 2015 – or indeed definitive data for the end of the EFA period.

Chapters 20 to 22 address cross-cutting issues. Chapter 20 discusses education finance, for which

there is no dedicated SDG target, though the Education 2030 Framework for Action gives a clear set of recommendations. Using a framework provided by national education accounts, the chapter discusses prospects for better data on public spending, aid and household expenditure. Chapter 21 reflects on the fact that some proposed indicators are about neither inputs nor outcomes but instead relate to growing interest in the role of education systems. It provides an overview of available mechanisms and the scope for better coordination, especially at the regional level. The short Chapter 22 looks at all targets under other SDG goals, as well as the corresponding global indicators, to identify those where education is mentioned directly or indirectly.

This comprehensive overview of the global education monitoring challenges offers insights, brings together disparate pieces of information and identifies stakeholders whose work needs recognition and coordination. Given that implementing such an agenda may be daunting and confusing, especially for countries, the GEM Report's monitoring part is meant to support countries and partners as they discuss and determine the best steps forward in achieving SDG 4. Chapter 23 draws attention to common themes and missing pieces in this discussion – and identifies building blocks and potential synergies for a more effective and efficient global education monitoring agenda over the next 15 years at the national, regional and international levels.

OVERALL CONCLUSION

To conclude, Chapter 24 reflects on the 2030 Agenda for Sustainable Development as a whole and the critical importance of follow-up and review processes. The 2030 Agenda sets out an ambitious collective vision for people and planet that requires political will, resources and collaboration. Thematic reports, such as the GEM Report, serve as a bridge between global dialogue and national initiatives, contributing not only to one sector but to broader efforts to identify effective policies that reduce poverty, improve health and create more inclusive, just and sustainable communities.

Favelas in Rio de Janeiro, which formed when lots of people moved from the Brazilian countryside to the city.

CREDIT: Anna Spysz/GEM Report

Place: inclusive and sustainable cities

We recognize that sustainable urban development and management are crucial to the quality of life of our people.

– *The 2030 Agenda for Sustainable Development*

KEY MESSAGES

Education must be integrated into urban planning to create sustainable cities.

1. **Cities are growing fast, putting strain on education systems.**
   a. There are significant education gaps within urban areas.
   b. There is a lack of access to public education in urban slums and peri-urban areas.
   c. Half of the world's refugees are children and youth, many of whom end up in cities.
   d. Ethnic and racial segregation in schools can exacerbate broader inequalities.
   e. Migrants to cities, and especially female migrants, urgently need skills for work.

2. **Until education is part of urban planning, urban challenges, such as unequal provision of services and discrimination, will never be fixed.**
   a. By improving skills, education can foster more inclusive economies.
   b. Policies for urban education must reduce unequal access to quality public schools and teachers.
   c. Teacher training can reduce prejudice and discrimination.

3. **Education reduces crime in cities.**
   a. Education increases job opportunities, and makes people more averse to risks, such as punishment for crimes.
   b. Early childhood interventions and a focus on high school graduation can reduce crime.

4. **Education can propel cities' competitiveness and productivity.**
   a. Investing in research and innovation, and fostering ties between universities and industry, can transform a city into a prosperous knowledge-based economy.
   b. But attention is needed to ensure that knowledge-driven economic development does not increase inequality.

5. **Including education in urban planning makes environmental sustainability more likely.**
   a. Communication strategies and school-based interventions teach people the importance of environmental approaches to planning, and encourage sustainable transportation.

6. **Education efforts alone will not lead to inclusive and safe cities.**
   a. Urban planners need training in integrating education into urban planning and strategies.
   b. Communities affected by urban development must be included in renewal initiatives and plans for change.

7. **Urban governance must include education in its approach.**
   a. Informed city leaders can use education and lifelong learning to transform their cities.
   b. Strengthened global networks of leaders of cities can solve urban challenges, including education gaps.

In addition to the areas highlighted in the preamble to the Sustainable Development Goals (SDGs) – people, planet, prosperity, peace and partnership – the *GEM Report 2016* also looks at 'place' with a focus on cities.

Urbanization is one of today's defining trends – more than half the global population lives in cities and urban areas. The concentration of productive activity, the availability of large markets and the promise of better living standards all draw people and commerce to cities. Global projections of urbanization indicate the majority of future urban population growth will take place in lower income countries (**Figure 1**).

This chapter presents evidence of how cities and urbanization affect education, and how education affects urban issues. Population growth, migration and the refugee crisis all have particular consequences for education. Cities – with their concentration of universities, research institutions, high skill industries and informal knowledge – are engines of knowledge-based innovation and growth. The scale and speed of urban change will require good governance, including flexibility and innovation, with multiple stakeholders and an adaptive approach (Jones et al., 2014; Wild et al., 2015), all of which will benefit from citizens engaging in lifelong learning.

Education and lifelong learning also influence cities and are key to taking advantage of cities' physical and social capital. They can have positive effects, such as reducing crime, and be used in good urban planning, for example to encourage sustainable transport. Education can also help address urban challenges. Cities are the sites of massive inequality. Vulnerable populations in cities in both low and high income countries suffer from poor access to basic services – such as education, housing and transport – which fosters disillusion, discontent and sometimes violence. Education can play a crucial role in tackling inequality and discrimination in urban areas.

> "Education and lifelong learning are key to taking advantage of cities' physical and social capital"

Improvements in planning are crucial for ensuring that the opportunities of urbanization outweigh the challenges and result in more inclusive, environmentally sustainable and prosperous cities. And education can play a crucial role in urban planning at the local level as well as in tackling related regional and global policy issues.

While most of the SDG agenda is driven by action at the level of member states, integrated policy-making is also required at the subnational level. Cities are both incubators and locations of change, and their importance to the world means the relationships between space and sectors such as the economy and education must be better understood. Such understanding would facilitate a comprehensive, contemporary perception of

FIGURE 1A:

We live in an increasingly urban world ...

Population in urban areas, projections to 2050 (%)

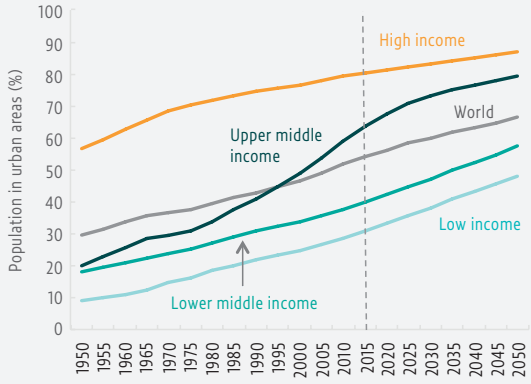
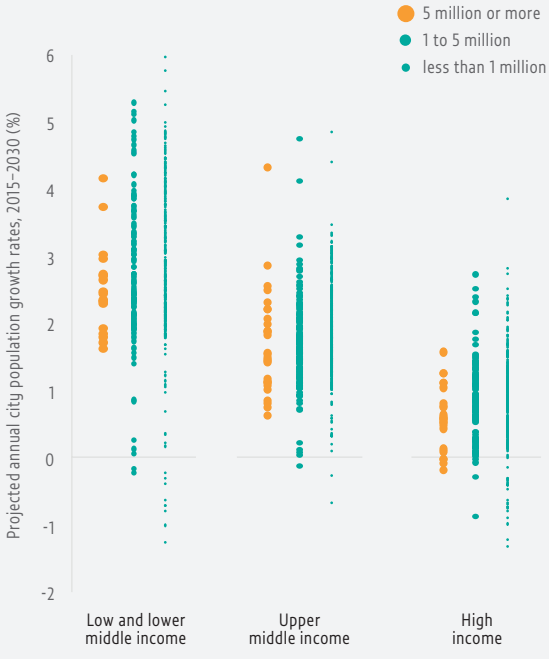


FIGURE 1B:

... and much future urban growth is expected to happen in lower income countries

Projected annual city population growth rates (%), 2015–2030



Notes: For Figure 5.1b, the size of the bubble represents the size of the cities in 2014.
Source: UNDESA (2014).

how humanity can tackle poverty, create inclusive and sustainable economic growth, protect the planet from degradation and destruction, and fulfil SDG 4 by ensuring inclusive and equitable education and promoting lifelong learning opportunities for all.

CITIES AFFECT EDUCATION PLANNING

Education must be integrated in urban planning to address the consequences on education of characteristics and processes related to urbanization, for example the need for education for refugee, migrant and slum-dwelling populations.

POPULATION CHANGE AFFECTS EDUCATION PLANNING

The continued growth of urban areas has implications for education system planning. While urbanization is a global trend, considerable variation exists in how urban populations grow, whether through natural population increases, migration or the reclassification of rural settlements. Globally, about half of urban growth is due to natural population growth and half to migration from rural areas (McGranahan and Satterthwaite, 2014). In China, 56% of urban population growth between 2000 and 2010 was a result of rural-to-urban migration despite strong disincentives such as rural residents being prevented access to education and health benefits once in cities (Bosker et al., 2015; World Bank and China Development Research Center of the State Council, 2014). In India, the reclassification of rural settlements into towns was responsible for 30% of urban population growth between 2001 and 2011; 44% of the growth was due to natural population increases (Ellis and Roberts, 2016).

Growth in cities, mostly unplanned, not only is the primary challenge for urban education systems but also has effects in rural areas (**Box 1**). The flow of migrants within and between countries, combined with continued growth in local populations, can raise demand for basic education access, skills development and more teachers, and increase the need to foster social cohesion and tolerance of cultural diversity through education.

BOX 1

Dealing with declining populations with rural school consolidation

Population increases in cities as a result of rural–urban migration has the converse effect of a declining population in rural and remote areas, with implications for rural education planning. Rural consolidation policies have been implemented in China and the United States to address the loss of students in rural schools. However, such policies need to be carefully planned and crafted. Recent reviews of the policy in China have deemed it to be largely unsuccessful, leading to increased dropouts, overcrowding in town schools, more teacher burden and higher financial pressures on the rural poor. The policy was suspended by the Ministry of Education in 2012. In the United States, there has been long-standing resistance to rural school consolidation, which historically was part of the Progressive movement's effort to make school districts more efficient. However, studies showed that school consolidation without adequate community involvement increased student absenteeism, led to community disintegration and hardships for families, and did little to improve fiscal efficiency.

Sources: Bard et al. (2006); Howley et al. (2011); Mei et al. (2015); Strang (1987); Tyack and Hansot (1982).

Urban refugees and displaced populations need access to education

The refugee crisis is deepening. The crisis is also more prevalent in and around cities. Analysis based on 12.2 million refugees finds that by late 2014, 6 out of 10 lived in urban areas. Globally, the number of forcibly displaced people increased by over 40% between 2011 and 2014, to 59.5 million (UNHCR, 2015). Refugees may not be formally registered in camps, which can limit their access to basic services and to employment authorization and access (UNESCO and UNHCR, 2016). It can also make it hard to get accurate counts of the number of refugees and internally displaced people in urban areas.

Globally, education systems are substantially affected by this crisis, since more than half the world's refugees are under 18. Given the long-term nature of displacement and the magnitude of the challenge in some countries, national and urban education systems that receive forcibly displaced children and youth need to adapt to support their long-term integration.

Turkey is host to almost 3 million registered Syrian refugees. As of late 2015, almost 700,000 Syrian refugee children and adolescents aged 6 to 17 needed access to education (3RP, 2016). Around 85% were scattered outside camps in towns and cities. The percentage of refugee children enrolled in formal education was over 85% in camp settings but only 30% in urban areas. Overall, enrolment rates were 7% in pre-primary education, 52% in primary education, 31% in lower secondary education, and 10% in upper secondary education (UNESCO and UNHCR, 2016).

Along with economic constraints, a major barrier to education is the language of instruction. The acquisition of a second language can be especially challenging for children who have fallen behind academically due to school interruptions, which is the case for many Syrian refugee children. In addition to the language barrier, teachers are not trained to address the emotional trauma experienced by many refugee children (Sirin and Rogers-Sirin, 2015).

The skills of migrant workers must be retained and improved

Migrants to cities face a number of challenges while trying to gain employment, such as discrimination, language barriers, unemployment, and exploitation in the informal economy. Addressing these requires, among other interventions, a focus on skills development (International Organization for Migration, 2015).

For example, China's unprecedented economic growth was accompanied by a tremendous wave of internal migration. In 2004, there were 120 million migrants, of whom 18% had primary education or less and 65% had completed lower secondary education (nine years of schooling). Migrant workers have very limited job security: a survey of 40 Chinese cities found that only 12.5% of workers had written contracts (Shi, 2008). An integrated skills development and employment training project conducted between 2007 and 2014 focused on improving training available to rural migrants, enhancing access to employment services and raising awareness of worker protections (World Bank, 2015).

A parallel problem is the deskilling of migrants, which has a gendered dimension. Women from the Philippines who hold university degrees travel to the Middle East to work as housemaids, and Eastern European women work in low skill jobs in wealthier EU countries (Kofman and Raghuram, 2009). Global research also indicates that a longer period in the host country did not significantly improve migrants' opportunities. Some highly skilled women could not continue in their professions despite

adequate knowledge of the local language (International Organization for Migration, 2013).

Education for slum dwellers is a challenge

More than one-third of all urban residents in many developing countries live in slums or shanty towns in city centres or urban peripheries. Slums' conditions vary greatly within and between countries, but many are characterized by poor and crowded housing conditions, insecurity of land and housing, and poor access to basic services, including education (UN Habitat, 2009a). There has been increased recognition of the need to improve their liveability since the Millennium Development Goals, culminating in a strong focus on the issue in SDG 11.

> "There is a distinct lack of access to public education in urban slums and peri-urban areas"

Major collective efforts, such as by the Shack/Slum Dwellers International (SDI) network, have involved documenting inequality in services and advocating for change in government policy by empowering communities to participate in data collection and decision-making processes (Patel et al., 2012). However, the focus is on basic services, such as housing, water and sanitation, with the situation of education often unclear (Kielland, 2015). Yet, education remains a priority for communities. For instance, new data compiled for the GEM Report 2016 collected from 130 slum settlement profiles in 12 cities and towns of Uganda to identify community needs indicated that, while most settlement respondents agreed that students had access to pre-primary, primary and secondary schooling, in their qualitative responses they still highlighted the need to increase the number of schools, especially public schools (Shack/Slum Dwellers International et al., 2016).

Private school growth is an urban planning issue

The prevalence of private schools, especially in major cities, is often underestimated or disregarded in discussions of public education systems. In India, studies of two major cities, Mumbai and Patna, suggest that private schools serve over 75% of the children there (Ernst and Young LLP, 2014). The 2010/11 private school census of Lagos state, Nigeria revealed that over 85% of pre-primary and 60% of primary students were enrolled in private schools. Overall, the survey identified 12,098 private schools while there were only 1,606 government schools (Härmä, 2011, 2013).

Private schools play a crucial role in education in peri-urban areas (on the periphery of cities). Growth in such areas is mostly informal, often not captured in official statistics, and critically neglected (Ellis and Roberts, 2016). For example, satellite imagery shows that for many of the 12 largest Indian cities, the proportion of population outside the official boundaries exceeds that within (Ellis and Roberts, 2016). Evidence on peri-urban schooling suggests that private schools dominate provision, as in informal urban settlements and slums. A study of peri-urban areas in four sub-Saharan African countries found the majority of pre-primary schools were private. Given the strong demand for pre-primary education, the growth of private schools is likely the result of a lack of good quality public schools (Bidwell and Watine, 2014).

EDUCATION HAS A POSITIVE INFLUENCE ON CITIES

Education and lifelong learning need to be integrated in urban planning to take advantage of their positive effects on cities in economic and social terms. Education encourages productivity and innovation in cities, and can transform them into knowledge economies. It can also support a more prosperous city that accurately reflects its economic activities, for example by including the dynamic informal economy. Education can have positive social effects, such as crime reduction. It can be a primary tool for environmental initiatives, such as sustainable transport.

HIGHLY SKILLED WORKERS ARE CRITICAL FOR INNOVATION AND GROWTH

Economic growth is highly concentrated in urban areas – half of the world's population lives in cities, which generate more than 80% of global gross domestic product (GDP). Only 600 urban centres, with one-fifth of the world's population, generate 60% of global gross domestic product (GDP). By 2025, new smaller cities, mostly in China and India, are expected to replace many developed country cities in the list of top 600 cities (Dobbs et al., 2011). Urban economic growth is strongly linked to the extent of agglomeration, where firms and people are located closer together in cities and clusters, attracting higher investment, skilled workers and talented graduates.

> Education can propel cities' competitiveness and productivity

Education propels innovation and productivity-led economic growth, and provides and improves human capital (Mankiw et al., 1992). Good quality primary and secondary education and high enrolment rates in tertiary education are fundamental for fostering innovation and increasing productivity in knowledge economies (World Economic Forum, 2014). Talent and creativity are decisive factors in shaping economic opportunity and knowledge-based urban development (Carillo et al., 2014; Yigitcanlar et al., 2007).

City's authorities recognize this and seek to attract talent as a way to be competitive in the global economy and to develop a knowledge economy. A city's competitiveness is determined by its ability to retain graduates of local higher education institutions and attract highly qualified graduates from the rest of the country (A.T. Kearney, 2015; The Economist Intelligence Unit, 2012).

Cities attract talent in different ways. Because of their scale, larger cities, such as megacities with populations of over 10 million people, have an advantage over smaller ones in attracting human capital. Shanghai, a megacity in China, is located within a network of smaller cities and attracts a wide range of talent, including from overseas. It has access to over 100,000 graduates from 60 higher education institutions every year. More than one-quarter of the labour force is college-educated, double the proportion of a decade ago (Dobbs et al., 2011). Some secondary cities have tried to promote themselves as alternatives to larger cities by touting their clean air, good public services and health benefits.

The development of technology clusters has invigorated some smaller cities. Recent data indicate that the Indian state of Karnataka, which includes the elite Bangalore technology innovation cluster, attracts a higher proportion of highly educated internal migrants than the states that include the megacities of Delhi and Mumbai (Chandrashekhar and Sharma, 2014). Hyderabad, hailed as India's most competitive city in 2013, developed services related to information and communication technologies (ICT) and a special enclave for ICT firms, research institutions and similar services called the Cyberabad Development Authority (Das, 2015). Such new investments and city–industry links have facilitated a brain gain or reverse migration in India (Chacko, 2007).

CITIES INCREASE COMPETITIVENESS WITH A FOCUS ON EDUCATION AND RESEARCH

Countries (or cities or zones) aim to attract human capital and foreign direct investment by positioning themselves as global hubs for higher education, skills, talent, knowledge and innovation. Qatar has focused on becoming a regional hub to reduce its dependence on natural resources and move towards a knowledge economy. Singapore aimed to become the 'Boston of the East' with its Global Schoolhouse strategy to attract students and executives, and become a 21st century knowledge hub (Knight, 2014).

In analyses of urban competitiveness, the San Francisco Bay Area in the United States and Tokyo are regularly near the top (A.T. Kearney, 2015), with synergistic collaborations between higher education, government and industry, referred to as the Triple Helix model of innovation (Etzkowitz, 2003). Stanford University has served as an anchor for talent and innovation – the university has reportedly had significant global economic impact, and 18,000 firms created by its alumni are based in California (Eesley and Miller, 2012).

Governments can also take the lead. Tsukuba Science City in Japan was established near Tokyo in the 1970s. Its cluster of universities, publicly funded scientific research laboratories and national research institutes has received about half of Japan's public research and development budget and become an important global site for government–industry research collaborations (Mega, 2013).

THE EDUCATION SECTOR CAN PROMOTE BETTER INCLUSION OF INFORMAL SECTOR ACTIVITY

The informal sector is well recognized as a major, heterogeneous source of employment and income in developing countries, and as an important stop gap employer or buffer in higher income economies during recessions or economic crises. Recognizing and including

it in urban economies is important for a city's prosperity, an accurate understanding of its economy and the social inclusion of those involved in the sector.

Targeted analyses of informal employment by type of occupation show that in 2013, domestic workers, home-based workers and street vendors accounted for about one-third of urban employment in India, and that street vendors alone accounted for 15% of the urban workforce in South Africa. In China, analysis of an urban labour survey of six cities found informal employment fairly high at 33%, especially for women (ILO and WIEGO, 2014).

> "Improving basic education levels and skills development fosters more inclusive economies"

Since education is inextricably tied to employment prospects, continuous improvement in basic education levels and skills development is needed to foster more inclusive economies (UNESCO, 2012). For example, based on data on Mumbai, India, from the 2011 Indian Census, the GEM Report team calculated that adult women who were not fully employed had a higher level of illiteracy (19.2%) compared to fully employed women (13.5%).

Education institutions can play an important role in improving working conditions in the informal sector. For instance, in a project in Chicago, the Institute for Justice and the University of Chicago Law School partnered with informal sector workers to improve their legal standing, helping around 2,000 street food vendors sell their products legally. They set up a legal clinic to empower the vendors and provide them with legal services, education, outreach and advocacy. An ordinance drafted in the project was used to change local regulation (Carrera et al., 2016).

EDUCATION HAS A POSITIVE SOCIAL IMPACT, PARTICULARLY IN REDUCING CRIME

Education is well documented to have a positive social impact, particularly in reducing crime. It does this by increasing the potential for certain types of employment opportunities, thus creating less incentive for crime, which is often more prevalent in urban areas. Education may also teach individuals to be more patient and to be more averse to risks such as punishment for crimes, and increase their interactions with more educated persons. Going to school in and of itself reduces the incidence of crime (Lochner, 2011).

Global empirical evidence confirms that educational attainment is strongly negatively associated with crime indicators, especially when contrasting populations with and without high school diplomas (Lochner, 2011). Using 2007/08 data, a study calculated that a 5 percentage point increase in male high school graduation rates would have nearly US$20 billion in total benefit to the US economy via reduced crime and higher earnings (DeBaun and Roc, 2013).

Similar crime-reducing effects are shown in Europe. In Norway, people who complete upper secondary education enjoy better labour market prospects and are less apt to use public welfare benefits and less likely to be charged with a crime (Falch et al., 2010). In England and Wales (United Kingdom), prolonging compulsory schooling led to a major reduction in crime and violence (Machin et al., 2011).

A similar trend is found in middle income countries. A city-level analysis of seven Colombian cities found that a higher level of human capital in a city (education levels, primary and secondary education coverage) was associated with a lower homicide rate (Poveda, 2012). Being educated to grade 12 or higher in South Africa decreases the likelihood of being incarcerated (Jonck et al., 2015).

In the United States, strong evidence has been found of the long-term effects of early childhood education on crime in adulthood. An analysis of Chicago's government-funded Child-Parent Centers found that children who did not go to the pre-school programme at age 3 to 4 were 70% more likely to be arrested for a violent crime by age 18 (Lochner, 2011).

EDUCATION IS KEY FOR WIDESPREAD ADOPTION OF MORE SUSTAINABLE TRANSPORT

Education should be integrated into urban planning as a tool to achieve social and environmental aims. One example is the widespread adoption of more sustainable transport.

Current trends show that cities consume the vast majority of natural resources and are responsible for most greenhouse gas emissions. Education can improve awareness of environmental challenges and individual and communal responsibilities to address them (see Chapter 1: Planet). For example, it can support more sustainable transport within cities. Many rapidly growing cities will become unsustainable in relation to space and transport (Pucher et al., 2007). Increased acceptability of public transport is clearly needed (UN Habitat, 2013), as is a re-envisioning of urban space and promotion of non-

motorized transport (Clean Air Asia, 2013). Educational tools have been important in the mass adoption of two forms of more sustainable transport: bus rapid transit (**Box 2**) and cycling (**Box 3**).

EDUCATION AND KNOWLEDGE CAN CONTRIBUTE TO INEQUALITY IN CITIES

Education is not invariably a positive influence in urban areas. It can both embody and reflect existing inequity, and can contribute to or cause inequality. Knowledge-driven economic development has been a factor in rising inequality and vanishing middle skill jobs (see Chapter 2: Prosperity). To ensure that education does not exacerbate unequal patterns of social stratification, governments need to acknowledge the relationship between education and inequality, and balance education-related activities that can improve the competitiveness of a city with those that can improve social inclusion.

INEQUALITY IN EDUCATION IS RELATED TO LOCATION, WEALTH AND OTHER FACTORS

Location and wealth

There is substantial inequality in education between rural and urban areas (see Chapter 3: People). In-depth data also suggest strong intra-urban inequality. According to GEM Report team calculations, while urban areas often provide greater access to education, the urban poor have worse primary completion rates than the average rural household in 26 out of the 35 countries with available data. In the case of lower secondary completion rates, which entail a more select group of households and students, the urban poor disadvantage is even more pronounced: Outcomes among the urban poor are much worse than those of the rural poor in many lower income countries. This is likely attributable to factors such as the opportunity cost of forgoing paid employment and difficulty affording education (**Figure 2**).

Thus, the potential positive benefits of being located in an urban area can be undermined by a lack of policies that address inequity.

Various spatial and social patterns in most major cities – gentrification, slums, urban sprawl, housing discrimination, immigrant enclaves – separate residents in terms of wealth, access and privilege (UN Habitat, 2009a). These

BOX 2

Education for awareness and consensus-building has been important for smooth adoption of bus rapid transit systems

Bus rapid transit (BRT) is a high capacity mass transit system with features such as dedicated bus lanes and off-board fare collection, which improve efficiency and reduce traffic congestion. The BRT model is a key component of the concept of global sustainable urban mobility. Two hundred and three cities around the world have BRT systems, partly due to advocacy by mayors.

Experience with BRT systems shows that information and communication strategies are especially important to engage stakeholders who may be adversely affected by introduction of the system, such as other transit operators and private vehicle users. In Johannesburg, South Africa, inadequate communication among stakeholders (local government and two private taxi organizations) at an early stage of the discussion led to lack of trust among parties, severely delaying implementation of the system. By contrast, in Lagos, Nigeria, local government engaged stakeholders in a communication programme from the beginning, including in planning and implementation. This helped Lagos avoid deadlock with stakeholders and the project was implemented relatively quickly.

Sources: Allen (2013); EMBARQ (2015); Kumar et al. (2012).

BOX 3

Education is a critical component of making cycling the norm in urban transport

In countries with best-practice cities, such as Denmark, Germany and the Netherlands, cycling became the norm for transport as a result of both urban planning and education, with right of way for cyclists, bike parking, comprehensive traffic education and training for cyclists and motorists, and a range of promotional events to generate support. Education is woven into an integrated approach in which Danish, Dutch and German children from an early age receive extensive training in safe and effective cycling – in classrooms and on the road – as part of their curriculum by the fourth grade. Police officers test children, who receive official certificates and stickers for their bikes once they pass the test.

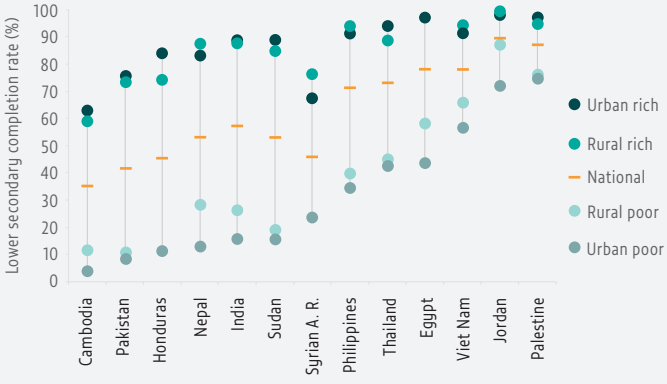
Starting early ensures that children begin cycling when they are young. A comprehensive approach provides greater impact than individual, uncoordinated measures. Policies also de-incentivized driving through taxes and restrictions on car ownership and use, while education shifted public opinion in favour of walking, cycling and public transport in reaction to the negative impact of car use.

Paris's bike-sharing or 'public bicycle' system, Vélib, has reduced traffic in private vehicles and increased daily bicycle trips enormously. Similar systems have been adopted in over 50 countries and over 700 cities. Education is important to promote public understanding and frequent use of such systems. Bike-sharing programmes are being widely adopted in Latin American cities, including Buenos Aires, Mexico City and Rio de Janeiro.

Sources: Ferreiro (2015); Godefrooij et al. (2009); Pucher et al. (2010); Pucher and Buehler (2008).

> Education gaps are often wider within urban areas, than between urban and rural

FIGURE 2:
Developing countries have rural–urban disparity but also very high intra-urban disparity
Disparity based on location (rural–urban) and wealth (bottom and top quintile) in lower secondary completion rates



Source: GEM Report team analysis (2016) based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and national household survey data.

types of inequality are linked to income levels, the location of employers, transport options and spending policies (Kilroy, 2007), as well as current and historical legislation that institutionalizes ethnic and racial discrimination and segregation (Rothstein and Santow, 2012). Pockets of poverty in cities can evolve into persistent disadvantage as their populations become isolated from job opportunities, experience crime and violence more frequently and are physically separated from other income groups. In recent years, growing fears for personal safety from crime and violence have led to a proliferation of gated communities, some of which have even expanded to become gated cities (Borsdorf and Hidalgo, 2008; UN Habitat, 2009a).

Policy

Discriminatory policies and practices exacerbate inequality in education. An in-depth analysis of Chile's second-largest urban region, the Concepción metropolitan area, found major differences in the distribution of schools in the region, especially with regard to access to good quality schooling (De la Fuente et al., 2013). Similarly, district-level analysis in São Paulo, Brazil, found that public services and utilities, including education, were more intensively allocated to districts with higher levels of human development (Haddad and Nedovic-Budic, 2006). In the province of Free State, South Africa, high crime rates were associated with a bifurcated society and with high levels of social exclusion and marginalization, including through segregated, marginalized schools (Jonck et al., 2015).

Within cities, the distribution of amenities can vary. Important amenities are usually concentrated in city centres. For instance, 2007 data from Kisumu, Kenya, showed the city centre had far more primary schools than the rest of the city, schools with lower pupil/teacher ratios, and a high number of primary school toilets, as well as most of the private schools (**Figure 3**). The more populated central district, Kibuye, had 31 primary schools while the remaining districts averaged 7 primary schools each.

Inequitable distribution of good teachers can exacerbate educational inequality. It is well documented that qualified teachers, especially women, are less likely to transfer to and stay in rural areas or low income schools in inner cities (Chudgar and Luschei, 2015; UNESCO, 2014, 2015). Countries have used payment- and accountability-based teacher recruitment and retention policies to counter this bias (Chudgar and Luschei, 2015). However, policies to redistribute teachers to rural areas or low performing schools can be difficult to implement due to teacher preferences, as well as the role of political influence in teacher placement. For instance, research on teachers in India revealed a clear patronage-based relationship between teachers and politicians; the teacher transfer system was not based on objective criteria such as the needs of schools or regions (Beteille, 2009).

Private schools can both alleviate and cause inequality. In many countries, private schools address the needs of increased urban populations and serve the entire socio-economic spectrum to provide a perceived or actual higher quality of education than the public system,

and deliver education services when the public system has not expanded to meet the population's needs (Day Ashley et al., 2014).

School choice – allowing parents to choose between the public system and private, charter or other non-state institutions, usually in search of better quality education – is often both a cause and consequence of demographic stratification. National education plans have facilitated school choice in contexts as diverse as Chile (Hsieh and Urquiola, 2006), Nepal (Joshi, 2016) and Sweden (Bunar, 2010). The empirical literature has shown that a consistent result is greater stratification. The evidence on the benefits of school choice in terms of quality has been mixed and heavily debated (Day Ashley et al., 2014; Härmä, 2015).

Attitude and school environment

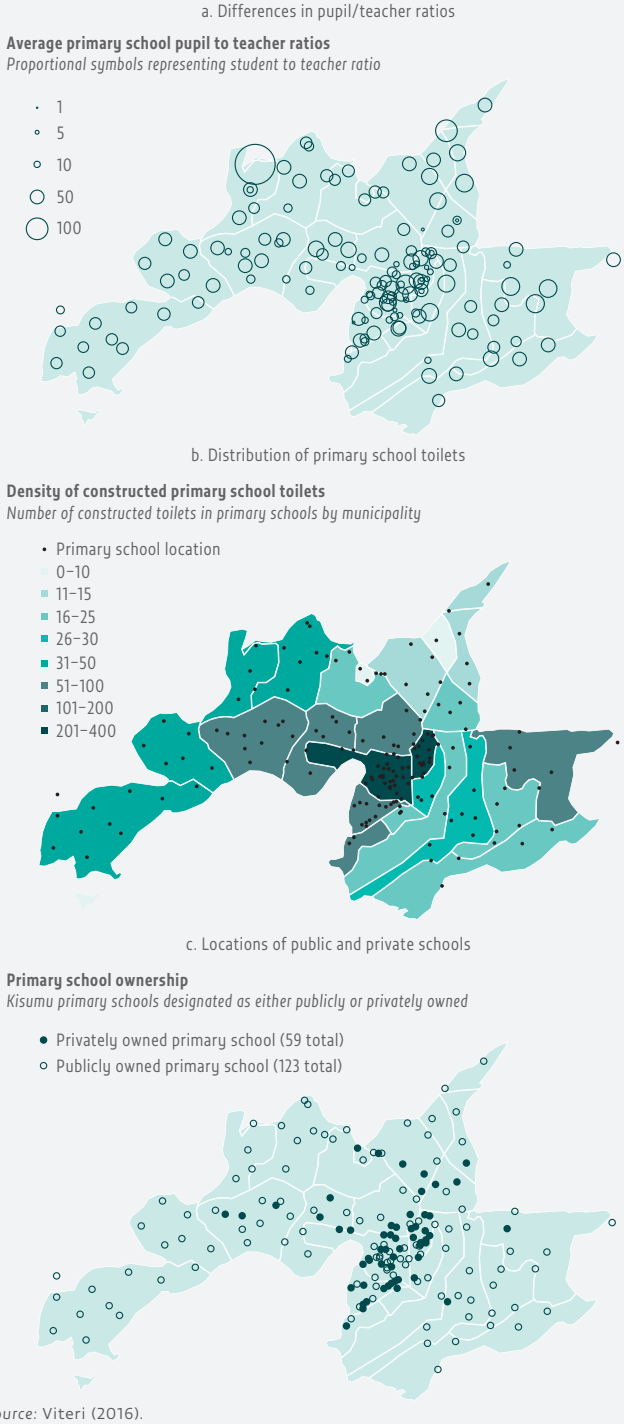
Inequality in education can also be perpetuated by attitude. Teachers routinely exhibit discriminatory attitudes towards children of migrants and minorities, which can contribute to their social marginalization. A recent study using the 2014 China Child Well-Being Survey found that teachers of first-graders in Shanghai were likely to report that migrant students performed further below their grade level in language than local peers, even after controlling for background characteristics (Cherng and Han, 2016). Similarly, a randomized evaluation which assigned children's characteristics to examination cover sheets in India found that teachers gave worse scores to lower caste than higher caste children, suggesting that 20% of the performance gap between higher and lower caste students was attributable to caste-based discrimination (Hanna and Linden, 2012).

Education can also perpetuate social exclusion where schools that serve the disadvantaged are violent. In 2011/12, 10% of US public school teachers reported being threatened with injury (Robers et al., 2015). In Latin America, where crime and violence are the number one concern of the public (Corbacho et al., 2015), crime has been shown to deter participation in formal schooling (Leeds, 2006). In addition, without appropriate targeted interventions schools can become spaces where gender-based violence is perpetuated (see the discussion on gender in Chapter 17: Target 4.a).

Racial and ethnic segregation

Segregation by ethnicity, social class or race has been well documented. It is a near-permanent feature of the socio-economic and education landscape in cities in the United States, much of Europe, and countries with legacies of troubled race relations, such as South Africa (Iceland, 2014; Massey and Denton, 1993).

FIGURE 3:
In Kisumu, Kenya, the concentration of primary schools, primary school toilets and private schools depends on location
Distribution of schools, toilets and pupil/teacher ratios, 2007



Source: Viteri (2016).

In the United States, the 1954 Supreme Court decision *Brown v. Board of Education of Topeka* was meant to desegregate 'separate and unequal' schools. A study of the lives of children born between 1945 and 1968, following them up to 2013, found that the desegregation effort had a significant long-term impact. For African-Americans, attending a desegregated school improved educational and occupational attainment, college quality and earnings; lowered the probability of incarceration; and improved adult health status. In these schools, students benefited from improved access to school resources, reduced class size and increased per-pupil spending (Johnson, 2011).

However, recent data suggest that racial segregation in education has persisted, with white Americans fleeing city schools to suburban and private ones (Rothstein, 2015). Legislation in the early 2000s released hundreds of US school districts from court-enforced integration. As a result, by 2011, in districts released from the desegregation order, 53% of black students attended so-called 'apartheid schools' where less than 1% of the student body was white (Hannah-Jones, 2014).

In developed countries, especially in Europe and North America, ethnic immigrant enclaves in cities are prevalent (International Organization for Migration, 2015) and can have detrimental effects on educational outcomes and employment (Heath et al., 2008; Musterd, 2005). Analysis of ethnic segregation in Sweden from 1998 and 1999 showed that attending schools with very high concentrations of immigrants (over 40%) was associated with lower test scores, a result that affected relatively few schools but 14% of immigrant children (Szulkin and Jonsson, 2007). But evidence also suggests that living in some ethnic enclaves can have positive effects on education. In the United States, analysis of 2005–2012 community surveys shows that nearly 35% of all foreign-born residents live in ethnic enclaves; while South American and sub-Saharan African immigrants living in enclaves performed worse than their counterparts outside them, the situation was reversed for Korean and South Asian immigrants (Foad, 2014).

THE KNOWLEDGE ECONOMY IS LINKED WITH INCOME INEQUALITY IN CITIES

Not only education but also knowledge more broadly can be linked to inequality. Chapter 2: Prosperity notes that, as economic growth from manufacturing becomes limited or stagnates, some countries will shift to high skill economies based on services, including ICT. Knowledge-based urban development is reputed to balance all dimensions of development – economic, social, environmental and institutional (Yigitcanlar, 2014). Yet, evidence suggests that cities with a strong focus on knowledge industries have experienced rising income inequality.

The gap between rich and poor has been growing in the United States, and is reflected in geographical divisions – 27 of the country's 30 largest metropolitan areas show an increase in the segregation between upper and lower income households (Florida and Mellander, 2015).

Education-based segregation is greater in high tech, knowledge-based metropolitan areas. Populations where college graduates dominate are more segregated than those of people without high school degrees (Florida and Mellander, 2015). Recent research from 13 major European cities similarly indicates that socio-economic and spatial segregation is rising as more educated populations fuel the growth of knowledge-intensive industries (Marcinczak et al., 2016).

While knowledge workers appear to value and favour diversity and openness, they have been found to favour only particular types of diversity (Florida, 2002). And knowledge workers in highly competitive cities were found to be interested in, and more likely to use, private health and education services, thus fostering social inequality (Yigitcanlar et al., 2007).

EDUCATION CAN INFLUENCE URBAN PLANNING

While urban development influences education planning, education also has the potential to influence urban planning. However, realizing this potential will require change: more integration in interventions, better training for urban planners, and deeper involvement from the education sector in providing leadership for city initiatives and urban planning.

SUSTAINED IMPROVEMENT IN INCLUSION REQUIRES INTEGRATED EFFORTS

Education and lifelong learning can contribute to urban planning, including for better social inclusion, but they need to be part of integrated efforts. Education alone cannot lead to enhanced social inclusion (see Chapter 3: People) but must be integrated with economic and social initiatives related to urban planning and sustainable development.

> Urban planners need training in integrating education and lifelong learning into urban development

For example, integration of migrants requires a broad range of policies relating to community-building and public participation. Higher income cities sometimes focus on language acquisition for migrant workers. Due to a growing influx of foreign migrant workers in key manufacturing-based municipalities in Japan, a committee was formed in 2001 to develop policies and programmes to facilitate their integration, including a focus on job security and special language classes (International Organization for Migration, 2015).

Another approach to social inclusion is found in Berlin's attempt to create a 'socially integrative city' through activities, education and employment opportunities. Neighbourhood management projects are launched in communities that require special attention. The approach has reached 34 neighbourhoods in Berlin, and seeks active participation from key partners in local businesses, schools, housing companies and neighbourhood centres to curb social disintegration (Berlin Senate Department for Urban Development and the Environment, 2010). Another example of an integrated intervention is the Harlem Children's Zone (**Box 4**).

BETTER URBAN PLANNING REQUIRES A MULTIDISCIPLINARY APPROACH

For urban planning to achieve sustainable and inclusive cities, better training is needed, particularly in developing countries, to ensure that planners adopt approaches that integrate education and learning. Key examples from around the world show that education and knowledge generation incorporated into urban planning can engage and build consensus among diverse stakeholders and improve the lives of the disadvantaged, particularly through participatory approaches (**Box 5**).

A global overview finds education on urban planning has evolved significantly from its initial focus on architectural design to better incorporation of social and scientific approaches (UN Habitat, 2009a). Especially in Europe, urban planning is part of a sound policy environment that synergizes research, knowledge and capacity. For instance, city planning in Maastricht, the Netherlands, uses a tool that combines information systems, allowing systematic analysis of interactions among sociocultural, economic and environmental developments (Rotmans et al., 2000). However, most urban planning schools and local governments need to greatly improve their capacity to plan and implement, engage with professional and

BOX 4

A cradle-to-career approach can integrate education with community development

The socio-economic situation of the Harlem district in New York City in the United States is dire. In 2014, 65% of children were born into poverty and 54% to single mothers; 30% of middle-schoolers and high-schoolers had lost a family member to violence.

The Harlem Children's Zone is a community-based initiative that seeks to break cycles of intergenerational poverty, primarily through education. Since 1997, it has provided children with comprehensive educational assistance at each development stage, culminating in college graduation. Acting on a belief that children's success requires community strengthening, the project complements educational assistance with programmes addressing drug use, violent crime and chronic health problems. Research suggests that its Promise Academy charter schools and support services have reversed the gap in achievement between white Americans and African-Americans in mathematics and reduced it in English language arts.

Educational programmes are administered in collaboration with other institutions, including schools, universities, other non-profit organizations, foundations, businesses and government. Government funders from the city, state and federal levels and departments of education and other social protection services contribute about 8% of the budget. The initiative has inspired a national programme that currently reaches 48 communities. For holistic change, the long-term impact will need to be evaluated more robustly, not only through specific education measures such as test scores or college acceptance rates, but also through broader indicators.

This example raises important questions. How can the determination and leadership needed for the initiative's success be sustained? How can these capacities be constrained or supported in other contexts?

Sources: Dobbie and Fryer Jr. (2009); Hanson (2013); Harlem Children's Zone (2015).

BOX 5

Better urban planning can foster inclusion of slum dwellers

Slum rehabilitation is a main point of action for the SDG urban agenda. Yet, decades of experience have shown that major urban planning experiences, including 'master plans', have resulted in exclusion, not inclusion. Delhi's efforts to become a 'world-class city' in advance of the 2010 Commonwealth Games included the demolition and rehabilitation of many slums. Investigation of the 'clean-up' drive showed that, of the 56 demolished sites, 16 had been rebuilt or were under construction, but only one of the new sites had a school.

Sustainable development requires the involvement of communities affected by urban planning. Participatory processes, such as participatory budgeting, decentralized planning and systematic community development of the types initiated by the anti-poverty Cities Alliance partnership can empower communities and build social capital, especially for women.

The approach of SDI is another example. The project that led to its establishment was linked to the World Bank-funded Mumbai Urban Transport Project, which aimed to upgrade the city's rail infrastructure. A large-scale enumeration process in 1986 documented residents living close to the proposed railway lines. This led to a community-based strategy for planning the upgraded lines and relocating residents. The community mapping made informal, illegal settlements 'visible'. After the map was validated by the local government, it paved the way for legal recognition of land tenure and post-relocation compensation. Community involvement has remained a key part of SDI's methodology and philosophy.

The Association of African Planning Schools (AAPS) was established in 1999 in Dar es Salaam, in the United Republic of Tanzania, as a peer-to-peer network of planning schools. Since 2008, with funding from donors and non-government organizations (NGOs), AAPS has identified a disconnect between technocratic, conservative, colonial-era planning education and the issues planners face upon graduation. It has therefore assessed and developed more relevant curricula. In 2008, at its first all-school meeting, AAPS identified five key issues for urban planning in Africa: actor collaboration, climate change, spatial planning and infrastructure, informality, and access to land. A 2010 initiative between SDI and AAPS recognized the need for urban planning to address informal settlements. It fostered learning approaches that give students direct experience of projects in informal settlements and enable them to apply this to advocacy, for example to change national planning legislation.

Sources: Dupont (2008); UN Habitat (2009b); Watson (2011); Watson and Odendaal (2012); Patel et al. (2012); Patel and Mitlin (2010).

academic networks, and educate professionals, elected officials and citizens (UN Habitat, 2009a).

More planning schools are needed, particularly in lower income countries. Of 550 planning schools documented worldwide, only 69 are in sub-Saharan Africa. Of these, 39 are in Nigeria (UN Habitat, 2009a). In India, some 3,000 planners are registered with the Institute of Town Planners, 1 planner for every 100,000 urban residents, far less than the average of 1 planner for every 5,000 residents in Canada and the United States (Ramanathan, 2013).

Planning for sustainability requires working across disciplines and sectors, but many urban planners lack the training and the collaboration mechanisms to do so (Corburn, 2004; Martino, 2016). A review of nine visions for urban sustainability from Australia, Canada, Germany, Ireland, Sweden and the United States found they were not aligned with robust sustainability principles and instead focused narrowly on the built environment (John et al., 2015). In Peru, analysis from a management education programme indicated architects in charge of urban planning often lacked adequate education and overemphasized physical interventions instead of considering the integrated social, political and economic needs of urban management (Steinberg and Miranda Sara, 2000).

A CITY CAN TRANSFORM BY PLACING EDUCATION AND LIFELONG LEARNING AT ITS HEART

More and more cities have been putting education and lifelong learning at the heart of their development. To promote sustainable economic, social and environmental development, cities from Amman (Jordan) and Balange (the Philippines) to Bahir Dar (Ethiopia) and Ybycuí (Paraguay) are turning themselves into learning cities (Valdes-Cotera et al., 2015).

The UNESCO Global Network of Learning Cities (GNLC) connects cities with global actors to promote education and lifelong learning at the local level. The GNLC defines 'learning cities' as those that promote inclusive learning, from basic to higher education; revitalize learning in families and communities; facilitate learning for and in the workplace; extend the use of modern learning technology; enhance quality and excellence in learning; and nurture a culture of learning throughout life. All this creates and reinforces individual empowerment and social cohesion, economic and cultural prosperity, and sustainable development (UNESCO Institute for Lifelong Learning, 2015). Learning cities contribute to SDG 4, promoting 'inclusive and equitable quality education', and SDG 11 on improving urban life by making 'cities and human settlements inclusive, safe, resilient and sustainable' (United Nations, 2015).

This section describes two initiatives, both from Latin America, where cities integrated education into urban planning with successful results. The transformation of Curitiba, Brazil (**Box 6)**, and Medellín, Colombia, demonstrated dramatic improvement in

the environmental, economic and social dimensions of sustainable development. Both had strategies that valued education's role in the transformation and viewed education holistically as an integral part of cities that were both educating and learning. They exemplify the concept of learning cities.

The success of such initiatives is often attributed to visionary mayoral leadership. But also particularly important was an enabling environment in which successive mayors had the political autonomy and authority to envision and carry out major transformations.

In the 1980s, Medellín was the headquarters of Pablo Escobar's drug cartel and a hub of trafficking, narcoterrorism and corruption. After Escobar's death in 1993, the city established a progressive agenda, which included involving communities in the expansion of public spaces and services such as schools and libraries. As a result it became one of the most innovative and equity-oriented cities in the world, leading international rankings in health and public investment (Bomberg, 2014).

Medellín's transformation from one of the world's most violent cities to one of its most innovative was explicitly based on education-led social change. Mayor Sergio Fajardo's 2004 strategy *Medellín, la más educada* (the most educated) involved the community in planning and designing investment and allocating funds. The Medellín public utilities company has been a key source of sustainable financing (Cadena et al., 2011; The Lauder Institute, 2014), used to build schools, public plazas, parks and a metro (Kimmelman, 2012) and has continued to fund the city's reforms under successive mayors.

The investment programme targeted crime and violence in the poorest and most violent areas via integrated urban planning, which included transport systems, innovative buildings as learning spaces and, significantly, the construction of 120 new public schools and 9 library parks (Nolen, 2014). The incidence of crime and violence has fallen dramatically over the past two decades as a result of city reforms (Cerdá et al., 2012) (**Figure 4**).

To reduce inequality, Fajardo focused on improving public education, rather than supporting private education, believing that 'public education must be the motor of social transformation'. The government mobilized businesses, universities and private schools to improve the public education system, and allocated up to 40% of its municipal budget to education (Kurtz-Phelan, 2007).

BOX 6

Curitiba used both explicit and implicit education initiatives to become a green city

Curitiba is renowned as a highly planned city, and its decades-old planning institute has always invested in interdisciplinary teams to develop urban solutions. Curitiba's urban transformation was started in the mid-1960s by a visionary architect, Jaime Lerner, who argued for cities as people-centric spaces where all systems and initiatives work together cohesively. The city and its mayor are lauded for their BRT system, development of green spaces and recycling strategy, which transformed the city economically, socially and environmentally. As a result of decades of improvement, Curitiba is considered one of the most environment-friendly cities in the world and is a leader in green technology innovation.

The Curitiba education system was one of the key systems that Lerner holistically transformed and used in the process of urban transformation. A central characteristic of the strategy was synergy, the idea that comprehensive planning could cope with several problems simultaneously. The city was turned into a learning institution, promoting educational processes and environmental awareness using formal and informal frameworks.

Noteworthy interventions included:

- Construction of lighthouse towers that both provided lookout facilities for security guards and incorporated new libraries, thus reinforcing civic identity by providing beacons of knowledge and security.
- Use of schools as a starting point for urban change through a citywide recycling campaign involving elementary schools. Children learned about garbage separation, and as they became enthusiastic about recycling in schools, they convinced parents to sort garbage at home. The 'garbage that is not garbage' programme gave marginalized citizens food in return for trash collection, leading to income opportunities in the recycling sector and changing the perception of garbage in the city.
- Use of retired buses as mobile training centres and free transport to parks and open spaces. Buses were also sent on certain days to slums to teach adults basic literacy skills, combining literacy studies with health education.
- Establishment of the Open University, in the ruins of an old mine, to facilitate formal learning for citizens on sustainability. It also offered in-service training for professionals who wanted to learn about the environmental aspects of their jobs.

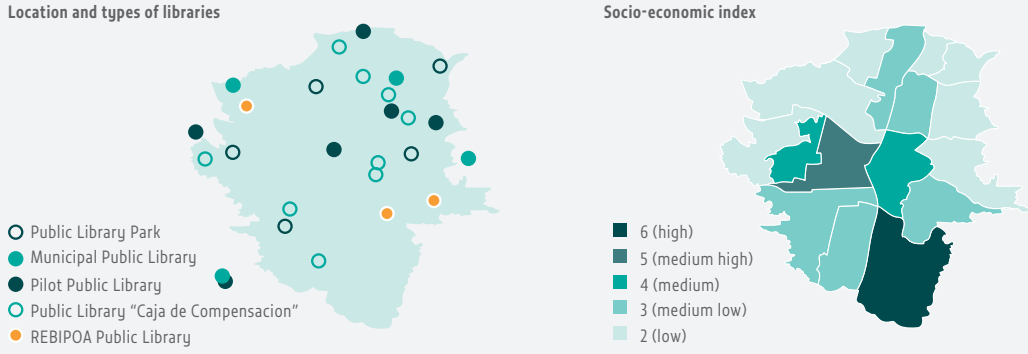
Sources: Arbel (2014), Carvalho et al. (2012); Graham and Booth (2010); Macedo (2013).

The city developed a library network to promote social interaction and inclusion and bring education to marginalized communities. Libraries became beautiful, symbolic community centres to raise the self-esteem of poor children and curb violence (Castro and Echeverri, 2011). The Spain Library, strategically located atop a hill, became a landmark, conveying a message of public domain and presence in a place once belonging to crime gangs (Kimmelman, 2012).

FIGURE 4A:

In Medellín, Colombia, education reform was targeted to improve inclusion ...

Location and type of libraries in 2009, and socio-economic index for Medellín's 16 communes, 2010

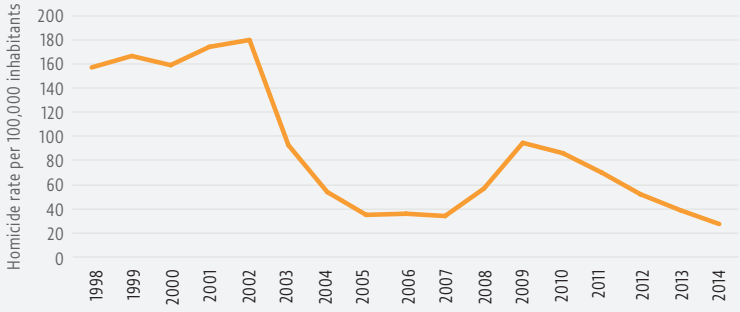


Source: Viteri (2016).

FIGURE 4B:

... and linked to crime reduction

Homicide rate per 100,000 inhabitants, 1998–2014, Medellín, Colombia



Source: Giraldo-Ramírez and Preciado-Restrepo (2015).

Since 2012, the public utilities company has been required to assign 7% of its annual profits to support the city's science, technology and innovation plan (OECD, 2015). Medellín is the only Latin American city with such a plan, and has a strong foundation to develop health, energy, and ICT clusters (Bomberg, 2014).

URBAN PLANNING BENEFITS FROM CITY-LEVEL LEADERSHIP

The role of city-level leadership is important both for urban planning in general and for integrated urban planning that addresses education. As the previous section shows, a degree of autonomy is an important condition for strong city-level ownership of urban reform.

City-level leadership can also have a positive impact at the global and regional levels. As cities have grown in size and political importance, their role in local and global governance has grown. Global networks of city governance can provide urban solutions. Mayors are linked through long-term global–local ('glocal') initiatives such as Local Governments for Sustainability (ICLEI), United Cities and Local Governments (UCLG), and the GNLC.

Efforts to address climate change benefit from city-level leadership. The climate leadership group C40 involves many major cities working with international actors, such as the World Bank, the Organisation for Economic Co-operation and Development (OECD) and the Clinton Foundation. It promotes the leadership of mayors in global governance (Acuto, 2013; Barber, 2013). Transnational municipal networks have also been instrumental in advancing knowledge and methods for addressing climate change at the local level (Bouteligier, 2012; Fünfgeld, 2015).

To solve pressing urban challenges, however, many governance challenges in these networks of knowledge exchange and generation need to be addressed to realize their potential. Even as expectations of city governments are growing, action at the city level in service delivery and collaboration can be hampered by poor data, lack of technical capacity, unclear jurisdiction and lack of fiscal

> Education is largely absent in discussions of implementing SDG 11 on cities and human settlements

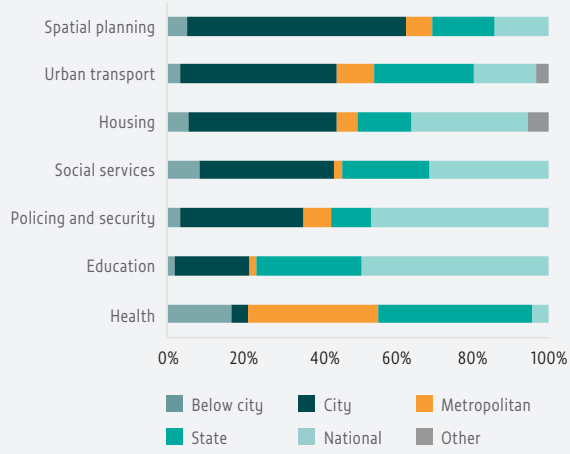
decentralization. In a survey of 50 cities in 30 primarily middle income and high income countries, many city representatives said lack of local government capacity and public funding, and unpredictability of resources, were key governance constraints (LSE, 2014).

Meanwhile, education as a sector is largely absent in discussions of implementing SDG 11 on cities and human settlements. For instance, it is rarely mentioned when considering how urban areas should respond to climate change, disaster preparedness or urban sprawl. The role of schools is mostly missing from debates on urban priorities such as slum upgrading (Minnery et al., 2013).

A relative lack of local government jurisdiction in education provision also limits education's inclusion in an integrated urban planning agenda. City governments in many high and middle income countries are far less engaged in the provision of education services than in other sectors (**Figure 5**).

While local autonomy does not guarantee positive changes, greater city-level autonomy is a prerequisite for strong city level ownership of urban reforms that incorporate education strategies, as was shown in the case of Curitiba and Medellín. Similarly, a recent investigation of five cities (Dubai in the United Arab Emirates, Ho Chi Minh City in Viet Nam, London, New York City and Rio de Janeiro in Brazil), which were assessed because their learning outcomes were improving or high, argued that effective leadership at all levels, but particularly inspirational education leadership at the city level, was key to the effectiveness of education reform (Elwick and McAleavy, 2015).

FIGURE 5:
Local government officials view the education sector as led by the national or state level
Local government responses to a survey question on who leads various sectors



Note: The analysis is based on responses from 50 cities in 30 mostly high and middle income countries.
Source: LSE (2014).

CONCLUSION

Given the complex and holistic nature of urban challenges, education and lifelong learning need to be embedded and integrated in urban planning. They form a critical instrument for sustainable urban development. In turn, urbanization and other processes related to cities create a need for education system planning. Education is pivotal to ensure economic growth, innovation, and improvement in economic inclusion; formal and non-formal education must also be monitored to ensure that they help reduce inequality, not exacerbate it.

The broad education sector is largely missing from key urban development discussions on social inclusion and environmental sustainability. These aims will very likely not be achieved unless education is integrated in their planning. At the same time, stronger advocacy and leadership by education stakeholders and urban leaders, such as mayors, are needed if education is to gain a seat in discussions on the future of cities. Moreover, there needs to be far more appreciation of education's role in transformative urban development, regarding both formal schooling and beyond.

Girls wash their hands outside their classroom in the government-run United Methodist School in Freetown, Sierra Leone. Schools throughout Sierra Leone, including this one, were closed for eight months at the height of the Ebola crisis.

CREDIT: Kate Holt/GEM Report

Education and sustainable development: conclusions and policy recommendations

KEY MESSAGES

For education to be transformative in support of the new sustainable development agenda, 'education as usual' will not suffice.

Collaborate across sectors: Include ministries, civil society, the private sector, at the local and national level.

Use education as a capacity-building tool in all sectors. Invest in integrated interventions that will have multiplier effects for several development outcomes.

Education cannot fight inequality on its own. Labour markets and governments must not excessively penalize lower income individuals. Cross sectoral cooperation can reduce barriers to gender equality.

Education funding needs to be both adequate and predictable to ensure the provision of good quality education, especially to marginalized groups.

PLANET: A whole-school approach is needed to build green skills and awareness. Campaigns, companies, as well as community and religious leaders must advocate for sustainability practices. Non-formal education and research and development should also help solve global environmental challenges.

PROSPERITY: Invest in teaching green and transferable skills in school and the workplace. Incentivize universities and agricultural extension to focus on green economic growth and sustainable agricultural production. Promote cooperation across all sectors to encourage full economic participation by women or minority groups.

PEOPLE: Ensure universal access to basic services. , Support the integration of marginalized groups by investing in early childhood care and education, social protection programmes and awareness campaigns. Fund integrated delivery of basic services in schools.

PEACE: Expand education on global citizenship, peace, inclusion and resilience to conflict. Emphasize participatory teaching and learning especially in civic education. Invest in qualified teachers for refugees and displaced people, and teach children in their mother language. Incorporate education into the peacebuilding agenda.

PLACE: Distribute public resources equitably in urban areas, involving the community in education planning. Include education in all discussions on urban development. Improve and fund urban planning programmes and curricula to include cross-sector engagement and develop locally-relevant solutions.

PARTNERSHIPS: Develop equitable funding mechanisms. Use progressive public finance policies to fund lower levels of education; combine grants and loans to finance upper levels of education. Increase multilateral aid mechanisms and engagement with the private sector. Mobilize domestic resources by improving knowledge about tax systems, halting tax evasion, and eliminating fossil fuel subsidies.

The 2030 Agenda for Sustainable Development grew out of intensifying concerns over the health of the planet and the prosperity of all its inhabitants. Clearly, education matters for people and planet. It transforms the lives of children, youth and adults. The fact that education is a positive force for social, economic and environmental change – that it can significantly influence how we think, perceive and act – is neither new nor revolutionary. And yet important questions remain: How does education function to create societal change? In what contexts does it matter more or less? Which types of education have lasting impact on sustainability issues? Answers to these questions are critical as concrete proposals for improving economic, social and environmental sustainability are being considered.

> “There are concerns that evolving global conditions may weaken the impact of education”

They are particularly salient in places where widespread access to schooling is a recent achievement or remains an ambition.

As explained in the introduction, this publication is one of the chapters from the 2016 GEM Report, Education for people and planet: Creating sustainable futures for all. Along with Place, four other chapters in the full report – *Planet, Prosperity, People, Peace and Place* – have showcased evidence about the many and varied effects of education. The benefits of completing primary and secondary education are substantial, not only for the individuals involved but also for their families, communities and workplaces. Adult men and women who have completed some secondary education tend to be more environmentally aware, more resilient to the impact of climate change, more productive and able to generate income, and more likely to live healthier lives, be politically engaged and exercise greater control over their lives. The effects of broadening access to girls and women, in particular, are numerous and intergenerational.

The *Projections* chapter goes one step further and underscores the stakes involved in universalizing primary and secondary education by 2030. Enabling every child in the world to complete 12 years of schooling would not only catalyse education progress more broadly (e.g. in many targets of the education goal, Sustainable Development Goal 4), but would also help save millions of lives among children who might not otherwise reach age 5 and among those residing in disaster-prone areas. It would also improve overall worker productivity and economic growth.

Concern exists, however, that evolving global conditions – social, economic, political and environmental – may weaken the impact of education. Over the past two centuries, the world economy has been massively transformed through industrialization, mechanization, computerization, innovation and globalization, the latest iteration resulting in today’s ‘knowledge economies’. These transformations have created enormous wealth for some and, in many instances, helped expand sizeable

middle classes. At the same time, huge populations throughout the world have been left behind, their lives and livelihoods remaining vulnerable to economic dislocation or persistent poverty or both. The vicissitudes of economic cycles, which often exacerbate political insecurity and violent conflict, have forced millions of families and even whole communities to relocate under difficult circumstances.

Despite challenges, the worldwide movement to universalize a long cycle of education and improve learning levels gathers steam. These aspirations are deeply embedded in the aims, policies and plans of almost all countries, regardless of population, location and degree of development. Education, which historically served elite interests, has been made more accessible, expanded into national systems that seek to provide all students, even those in hard-to-reach locations and marginalized groups, with the opportunity to become educated and skilled. The aim of good quality education for all has become the norm, driving national commitments and the activities of international agencies and external donors, bolstered by human rights conventions.

If it were to be achieved, the new global education goal would mean that each and every child, regardless of birth circumstances, would have a chance to acquire valuable knowledge, skills and attitudes that could improve the quality of their lives from personal, civic, social and employment-related perspectives. But the scale of the challenge is pronounced: 263 million children and adolescents are currently excluded from primary and secondary education and unable to acquire relevant skills and competencies for life and work. Education's many benefits now go disproportionately to some individuals at the expense of others. The ones who are far less likely to reap them include people who face discrimination, are unhealthy, lack access to basic services and live in remote or sparsely populated areas.

The *Global Education Monitoring Report* (GEM Report) emphasizes the inequity and unsustainability of global and national economies, and the various roles education plays in this respect. Modern economic systems have increased the value of and demand for educated labour, especially as a source of innovation-led economic growth. Economic benefits and social status accrue to those with credentialed knowledge and skills, leaving behind huge numbers of people who may never have had access to school or to lifelong learning opportunities and who therefore face persistent obstacles in obtaining decent work or escaping from working poverty.

From a sustainability perspective, the world's wealthy, with their high levels of education and standards of living, leave large ecological footprints and make the planet less sustainable. Educated people may have considerable knowledge about environmental and other progressive issues, but do not always act on it. Education and qualifications do not necessarily translate into desirable outcomes, such as greater tolerance for diversity, respect for women and men, less risky health behaviour, waste prevention, more balanced diets and a commitment to social justice. At the same time, the least educated and most vulnerable contribute little to the planet's burdens. And yet they are most exposed to the impact of climate change and increasingly frequent and severe natural disasters. Inequality in opportunity and living conditions, including in access to education of good quality, are especially visible in our growing cities and urban areas, which has often led to civil unrest and discontent.

Education cannot serve as a cure-all for society's problems. Global social and economic challenges are interdependent, involving sectors beyond education, and education is provided within the context of entrenched social and political institutions that are resistant to change. Radical transformation of how and what we consume and produce, and of the basis for sharing economic rewards, requires commitments that must cross economic sectors and political boundaries. At the same time, education reforms are no quick fix if not reinforced by changes in the home, workplace and community that result in altering, for example, stereotypical gender roles or attitudes towards people who face discrimination on any grounds, from ethnicity to disability.

Politics, economics, health, water, sanitation, energy, migration, conflict and climate have direct effects on education systems. Poor air quality or extreme weather can destroy schools, force them to close or make learning nearly impossible. Groups such as people displaced by climate change or conflict, economic migrants and poor slum dwellers can place enormous pressure on education systems. Education is much affected by the context in which it operates.

Yet formal, non-formal and informal education can lay the groundwork for transforming institutions and norms to address today's pressing challenges in tangible ways. Schools can deliver knowledge on sustainability issues and promote good environmental, health and sanitation practices. When designed smartly, and conveyed by well-prepared teachers, school-based programmes can inculcate values of tolerance and equality.

Evidence gathered for this report suggests that education systems do not change quickly, despite well-articulated intentions, since content and pedagogy often reflect deeply set social, economic and environmental norms. And in many instances, schools lack adequate financing for transformation, even if school leaders are committed to this aim.

Several of the GEM Report chapters document a wide range of non-formal and informal learning initiatives, especially targeting girls and women, that fill gaps in useful knowledge – such as how to demand local services or fight for justice – and equip learners for stronger economic and political participation. The report also highlights learning-focused actions by national and local governments, civil society organizations and private companies, recognizing the ways in which education and lifelong learning matter for reducing inequality, encouraging sustainable transport and waste prevention, and both preventing conflict and natural disasters and recuperating from them.

The GEM Report also pays special attention to the importance of developing integrated approaches to solve complex, collective problems. Such strategies align well with key points made in the 2030 Agenda for Sustainable Development. However, the Partnerships chapter finds that the notion of integrated planning, though part of the post-2015 development discourse, still exists mostly on paper and there is limited evidence of its benefits, partly because there is little appetite for difficult collaborative arrangements. Few countries have genuinely pushed for integrated actions to provide, for instance, early childhood development or joint basic services. Without strong political incentives and adequate financial backing, planning and implementation in most contexts will remain in silos. We know the many ways education matters for shaping knowledge, values and attitudes; education and lifelong learning policies targeting all learners of all ages must be given their rightful priority and embedded in integrated national and local planning efforts.

For education to truly be transformative, 'education as usual' will not suffice. Schools need to become exemplary places that breathe sustainability, finding ways to be more inclusive, participatory and healthy, as well as carbon-neutral and producing no waste and pollution. Formal and non-formal learning needs to foster thinking that is more relational, integrative, empathic, anticipatory and systemic.

POLICY RECOMMENDATIONS

Keeping all of the above discussion in mind, the GEM Report presents general and specific policy recommendations for how education systems can more effectively contribute to sustainable development:

- Support collaborations and synergies across all sectors and partners. Since systemic problems require multiple actors and diverse perspectives, stronger efforts are needed to involve all partners at the local and national level and across sectors. Finance and planning ministries need to engage in more systemic planning. Education ministries should be better linked with ministries of health, gender, environment and labour. Education experts need to learn from and work with civil society and communities, which already carry out an impressive array of education and training. Stronger focus is required on cross-sector collaboration and integrated perspectives in the activities of civil society and the private sector, as well as in urban planning and research and development strategies. The private sector, civil society, multiple sectors of government activity and international actors should work together to fund various facets of education, since education matters for all aspects of sustainable development.

- Integrate formal and non-formal education and training into government efforts to tackle complex problems. Education can be an important tool for capacity-building in all public sectors. Many of the Sustainable Development Goal targets will require the specialized skills and expertise education can provide, for instance in water management or addressing global health and climate risks. The case for education interventions should focus on both immediate and longer-term cross-sector benefits that education solutions can provide, so that funds additional to those traditionally targeted for education can be used. Governments and other stakeholders also need to better investigate and invest in combinations of integrated interventions that are likely to have multiplier effects for several development outcomes, including education. Investment is particularly needed

> "For education to truly be transformative, 'education as usual' will not suffice"

- in low income countries so they can build their own expertise by improving higher education and vocational institutions, as well as informal adult learning initiatives.

- Education can be an important means of reducing inequality but cannot be seen as the sole solution. Making primary and secondary education of good quality widely accessible can enable large numbers of individuals and their families to raise their incomes above the poverty line. Expanding educational opportunities to marginalized groups and further reducing gender inequality in the school system are crucial to reduce disparity in labour market outcomes, much of which is accounted for by lower levels of attainment. Policy-makers must ensure that changes in labour market institutions, such as technological progress and easing of labour market restrictions, do not excessively penalize lower income individuals, who are disproportionally employed in lower paying and less secure jobs, often in the informal sector. At the same time, cooperation across all sectors of society and the economy is needed to reduce prejudice and any policy-related obstacles to full economic participation by women and minority groups.

- Increase the level and predictability of education system financing. Education funding needs to be both adequate and predictable to ensure the provision of good quality primary and secondary education, especially to marginalized groups. This would entail ensuring appropriate inputs and teachers, and transforming school systems to better inculcate values of social and environmental sustainability in addition to a specific set of cognitive skills. Improved financing is also critical to support non-formal and informal learning initiatives instead of waiting for the longer-term effects of formal systems. Such initiatives are often innovative, localized, targeted to adults and capable of helping address pressing issues such as disaster risk resilience and conflict prevention.

> “Education can be an important means of reducing inequality but cannot be seen as the sole solution”

More specifically, stakeholders working to promote the sustainable development agenda should consider the following actions to expand education’s focus and create more equitable opportunities for all:

PLACE

In order to foster sustainable, inclusive and prosperous cities and other human settlements:

- Ensure urban areas distribute public resources equitably, including amenities and good quality teachers, so as to promote social inclusion and reduce inequality resulting from education disparity.

- Take steps to halt segregation stemming from increased opportunities to choose between public and private schools.

- Work to reduce school-based violence, including gender violence, and discriminatory attitudes among teachers.

- Develop local autonomy and localized system-wide education planning, especially in populous African and Asian cities, considering education as a local as well as national issue.

- Better incorporate education into local, national and global agendas focused on improving cities and other human settlements.

- Educate and engage with those who are disenfranchised, include them in planning, and collaborate with civil society actors who work with them.

- Fund schools and training programmes for slum dwellers and other disadvantaged groups who live in absolute poverty, so that assistance for them is not limited to basic services such as housing and water and sanitation.

- Fund urban planning education to increase the numbers of planners, and promote integration of education as well as multidisciplinary approaches.

- Improve urban planning curricula to include cross-sector engagement, community engagement, learning by doing and the development of locally relevant solutions.

- Involve communities in any processes to consolidate and improve schools in rural and other areas affected by population declines due to migration.
- Monitor and address any unintended consequences of the growth of knowledge economies, such as gentrification and middle class flight, with strong economic and housing policies to limit social segregation and societal discontent.

> “We should educate and engage with those who are disenfranchised, and include them in urban planning”

PLANET

In order to lessen environmental degradation and the impact of climate change:

- Develop whole-school approaches that promote environmental teaching, learning, planning and operations by drawing attention to the ties between the environment, economy and culture.
- Provide disaster risk-resilience training in schools and equip learners with the means to support communities in times of disasters.
- Fund efforts to ensure that education infrastructure is resilient to climate change.
- Engage community elders in curricular development and school governance, produce appropriate learning materials and prepare teachers to teach in mother languages.
- Promote the value of indigenous livelihoods, traditional knowledge and community-managed or -owned land through actions such as land conservation and locally relevant research.
- Initiate large-scale awareness campaigns that ‘nudge’ people to engage in sustainability practices and behaviour.
- Work with community and religious leaders to spread ideas about environmental stewardship, and incentivize companies that incorporate sustainability into workplace practices.
- Scale up non-formal education initiatives promoting family planning and maternal well-being.
- Increase funding of research and development that promote technological innovations in energy, agriculture and food systems.

PROSPERITY

In order to reduce poverty and stimulate green and inclusive economies:

- Invest in teaching green skills in formal and non-formal programmes. Coordinate green-focused curricula through cooperation between education and training systems, policy-makers and industry.
- Train and support teachers and instructors at all education levels and in the workplace to enable learners to acquire green skills.
- Ensure universal access to good quality education that emphasizes skills and competencies for entry into economically productive, environmentally sustainable industries.
- Develop short-term strategies focused on workforce retraining and upskilling, together with longer-term strategies to improve or revise curricula in secondary education, initial higher education and vocational training.
- Incentivize universities to produce graduates and researchers who address large-scale systemic challenges through creative thinking and problem-solving.
- Promote cooperation across all sectors to reduce policy-related obstacles to full economic participation by women or minority groups, as well as discrimination and prejudice that also act as barriers.

PEOPLE

In order to ensure that all human beings can fulfil their potential in dignity and equality and in a healthy environment:

- Target marginalized groups consistently left behind by adequately redistributing existing resources and ramping up funds to improve access to good quality education.

- Support strong investment in early childhood care and education, especially for infants and toddlers, who gain lifelong benefits from participation in integrated interventions combining stimulation with health care and nutrition supplementation.

- Promote partnerships between education ministries and ministries responsible for health, water and sanitation, and gender issues, to help simultaneously improve multiple, linked and connected outcomes.

> “All schools should provide meals, access to water and sanitation, adequate gender-specific toilets and child-friendly spaces”

- Fund integrated delivery of basic services in schools. Ensure that all schools provide meals, access to water and sanitation, adequate gender-specific toilets and child-friendly spaces, and can deliver curricular interventions focused on behavioural change, such as hygiene education, sexual and reproductive health education, and obesity prevention education.

- Provide awareness campaigns and training to boost innovation in service delivery, such as e-government and participatory budgeting.

- Fund community-oriented education and training programmes in relation to health and sanitation.

- Ensure all girls complete primary and secondary education to promote their autonomy and decision-making abilities.

- Invest in programmes that address gender stereotypes and roles by engaging men and women in group education sessions, youth-led campaigns and multipronged empowerment approaches.

- Support media-based awareness campaigns, the development of positive role models and other initiatives to change gender norms inside and outside the education system.

- Support efforts to improve participation of girls and women in science, technology, arts and design, and mathematics so as to improve employment prospects.

- Support social protection programmes, health policies and child-care support that improve maternal education and facilitate men’s and women’s employment-related decision-making.

PEACE

In order to foster peaceful, just and inclusive societies that are free from fear and violence:

- Expand the emphasis on global citizenship and peace education in curricula.

- Invest in civic education programmes that contribute to a functioning justice system, including participation and access for marginalized communities.

- Promote learning emphasizing the values of tolerance and peace education to help build less violent and more constructive societies.

- Teach in children’s mother languages. Countries with high proportions of minorities should consider training teachers in methods for teaching second-language learners, in both initial teacher training and professional development.

- For refugees and internally displaced persons, implement policies that expand the pool of qualified teachers proficient in their languages, and address the issue of official validation and certification of learning by refugees. Refugees who were teachers in their home countries could be an important resource.

- Incorporate education into official foreign policy, transitional justice efforts and the peacebuilding agenda when trying to prevent and recover from conflict situations.

- Ensure curricula and learning materials are not biased or prejudiced against ethnic and minority groups. Engender resilience in students and communities in post-conflict societies through curricula, teacher training, transitional justice programmes and supporting integrated schools.

- Fund civil society organizations and other institutions that provide legal and political education in communities.

PARTNERSHIPS

In order to ensure adequate financing, policy coherence and multisector capacity:

- Make links with tax authorities and others to improve tax-related knowledge through formal education.
- Develop equitable funding mechanisms to address in-country disparities in education funding.
- Use progressive public finance policies to ensure adequate funding of lower levels of education, and combine public allocations and a well-designed system of student grants and loans to finance upper levels of technical, vocational and tertiary education.
- Increase multilateral aid mechanisms and engagement with the private sector, learning from health sector efforts to increase and diversify funding.
- Mobilize domestic resources, stop corporate tax evasion and eliminate fossil fuel subsidies to generate government revenue for fundamental needs such as education and health.
- Provide political and financial support for planning and implementation of education and other activities to be carried out with an integrated approach to policy and development at the national and local levels. Develop knowledge exchange programmes to learn from successful integrated policies involving education.
- Support multistakeholder governance for the sustainable management of natural resources and of public and semi-public rural, urban and peri-urban spaces.

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Place:

INCLUSIVE AND SUSTAINABLE SOCIETIES

The massive movement of people into urban areas is one of the defining demographic trends of our time. Over half of the world lives in cities and urban areas, and most projected urban population growth to 2050 will happen in lower income countries.

PLACE: inclusive and sustainable cities, a publication taken from the full 2016 Global Education Monitoring Report, explores education's role in urbanization and city life. It looks at the ways in which cities and urbanization affect education, and how education and learning affect urban possibilities and challenges.

It documents how unplanned growth in cities puts pressures on education systems, and requires more systematic education planning at the sub-national level. The growing numbers of migrants, refugees, and slum dwellers raise the demand for equitable access to basic education, lifelong learning opportunities, skills development, and teacher training to improve the life chances of all urban residents.

It recognizes that education has a powerful role in encouraging urban sustainability. Good quality primary and secondary education and high enrolment rates in tertiary education are fundamental for fostering innovation and increasing productivity in urban knowledge economies. Educational interventions can improve awareness of environmental challenges and promote more sustainable forms of transportation, such as cycling and bus rapid transit. Improving early childhood education and encouraging high school completion help reduce crime. At the same time, it warns that current education systems often exacerbate inequality. As a result, policy efforts need to focus on reducing inequalities in access to quality public schools and teachers to improve social cohesion alongside city competitiveness.

It argues that education has to be better integrated in urban planning efforts to create sustainable cities. Some city leaders have productively used education and lifelong learning initiatives in their efforts to transform their cities. Improving the multidisciplinary training of urban planners and engaging in education-led participatory approaches to include community members in city decision-making can significantly affect urban planning. As cities grow increasingly important, improving local autonomy and emphasizing education strategies are key to making them sustainable and inclusive.

"*To ensure the Sustainable Development Goals are implemented, everyone involved needs to think, to work, to organise, to communicate and to report in ways that are completely different from what has been done up till now. Education truly is key to a wide appreciation not just of the SDGs but the new ways of thinking and working that are going to be necessary to fulfil them. So the challenge to all of us is to re-learn, and that does not just apply to educators, but it applies to all of us.*"

– David Nabarro, Special Adviser on 2030 Agenda for Sustainable Development

Global Education Monitoring Report

United Nations Educational, Scientific and Cultural Organization

Sustainable Development Goals

4 QUALITY EDUCATION

Sustainable Development Goals

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