

Featured SET policy:

# Improving education, innovation and training (Chapter 9, NDP)

In a series of articles, the NSTF is unpacking the National Development Plan (NDP). The focus is on understanding it from a science, engineering, technology (SET) perspective. The NDP is seen as a blueprint/guiding document for South Africa. The NDP aims to eliminate poverty and reduce inequality by 2030.

- The complete document – ‘[National Development Plan – vision for 2030](#)’
- The executive summary ‘[National Development Plan 2030, Our future – make it work, executive summary](#)’.

<p>NDP chapter: <b>Overview</b> This considers the context and background of the NDP. See <a href="#">1 – Understanding the context of the National Development Plan (NDP)</a>. It also sets the stage for understanding what makes a developmental state. See <a href="#">2 – The National Development Plan and the developmental state</a>. There is also a summary of the plan and key targets and actions.</p>	
<p>NDP chapter 1: <b>Key drivers of change</b> The synopsis is called <a href="#">3 – Science and technology as drivers of development</a></p>	
<p>NDP chapter 2: <b>Demographic trends</b> The synopsis is called <a href="#">4 – Demographic trends PLUS the NDPs 5th anniversary</a></p>	
<p>NDP chapter 3: <b>Economy and employment</b> The synopsis is called <a href="#">5 – National system of innovation and R&amp;D critical for growing the economy</a></p>	
<p>NDP chapter 4: <b>Economic infrastructure</b> The synopsis is called <a href="#">6 – Developing a strong network of economic infrastructure – transport, energy, water resources, and ICT</a></p>	<p>An economy that will create more jobs </p>
<p>NDP chapter 5: <b>Transition to a low carbon economy</b> The synopsis is called <a href="#">7 – Transitioning SA to a low carbon economy that responds to climate change</a></p>	<p>Transition to a low-carbon economy </p>
<p>NDP chapter 6: <b>Inclusive rural economy</b> The synopsis is called <a href="#">Section 8 of the NSTF series – An inclusive rural economy</a></p>	<p>An inclusive and integrated rural economy </p>
<p>NDP chapter 7: <b>Positioning South Africa in the world</b> The synopsis is called <a href="#">Section 9 of the NSTF series – Positioning South Africa in the world (Chapter 7, NDP)</a></p>	
<p>NDP chapter 8: <b>Transforming human settlements</b> The synopsis is called <a href="#">Section 10 of the NSTF series – Transforming human settlements (Chapter 8, NDP)</a></p>	<p>Reversing the spatial effects of apartheid </p>
<p>NDP chapter 9: <b>Improving education, innovation and training</b> The synopsis is called ‘Improving education, innovation and training (Chapter 9, NDP)’</p>	<p>Improving the quality of education, training and innovation </p>
<p>NDP chapter 10: <b>Promoting health</b></p>	<p>Quality healthcare for all </p>
<p>NDP chapter 11: <b>Social protection</b></p>	<p>Social protection </p>

NDP chapter 12: <b>Building safer communities</b>	Building safer communities	
NDP chapter 13: <b>Building a capable state</b>	Reforming the public service	
NDP chapter 14: <b>Promoting accountability and fighting corruption</b>	Fighting corruption	
NDP chapter 15: <b>Transforming society and uniting the country</b>	Transforming society and uniting the country	

## Chapter 9, National Development Plan – Improving education, innovation and training

**The National Development Plan (NDP) positions education, training and innovation as central to the overall NDP goals.** These areas contribute to productivity which enhances economic growth. While not a solution to all problems, education, training and innovation are needed to solve challenges, to develop competitively, and to eliminate poverty and reduce inequality.

**Higher education (HE) is the major driver of the knowledge system which then links to economic development.** Universities are key to developing a nation. They set norms and standards that underpin a nation’s knowledge capital (from curricula and languages to ethics and philosophy). They:

- Provide high-level skills
- Are dominant producers of new knowledge, critiquing information and finding new local and global applications for existing knowledge
- Provide opportunities for social mobility

**However, there are other sites of knowledge production and application.** These include science councils, research institutes, and in the private sector. A broad and enabling framework needs to include these sites and acknowledge “the importance of science and technology”. Science, technology and innovation are seen as foundational in the NDP.

**Compared to the population, South Africa’s National System of Innovation (NSI) is small.** This was noted by the NDP when looking to international standards. South Africa also has a lower spend on R&D and hasn’t increased its public sector research personnel, PhD graduates, and research outputs enough. All the sites of knowledge production (including science councils, SOEs and private industry) need to work together. The NSI needs to be coherent and coordinated with broad common objectives aligned to national priorities. This includes instilling a culture of entrepreneurship.

**Education also doesn’t stand alone.** The education system relies on other Government departments and policies, such as providing housing, basic services, and social security.

**The NDP actions are based on five themes.**

**Lay a solid foundation for a long and healthy life and higher educational and scientific achievement.** The aim is for all children to access and benefit from a high-quality education, particularly the most vulnerable such as children living in poverty and those with disabilities.

- Early Childhood Development (ECD) is critical to ensure children reach their full potential. It’s about health, proper nourishment, physical fitness, being cared for, a stable home environment, and a stimulating environment.

- In schools, a South Africa-specific curriculum should emphasise literacy, maths and science, as well as African languages. High-quality teachers are central to education, especially in maths and science.
- The further education and training (FET) and skills development environment should be an expanded system. It should include targeted work-based training, as well as community and youth development programmes. Sector Education and Training Authorities (SETAs) need to play a more effective role in producing skills that meet the immediate needs of employers. Public colleges enrol about a third of learners when it should be two thirds. The FET and skills sector needs to offer clear and meaningful opportunities for:
  - Post-matric youth
  - Older people who want to develop their skills
  - Adults who left school early or had no access
  - Youth who only completed grade 9
- HE, specifically universities, need to show their unique contributions. HEs should be efficient. This should be characterised by more throughput and participation, as well as higher innovation and publication output. By 2030, 75% of academic staff should have PhDs. Women and black people should make up more than 50% of research and training staff. Programmes and initiatives should address national priorities, including African languages and indigenous knowledge systems. There needs to be a coherent national plan for HE, promoting innovation and the development of knowledge. HE should respond to scarce skills with closer links between economic and education planning.
- The school, college and HE systems need to be better articulated. There needs to be a better connection between the different parts of the education system, and better mobility for learners and staff.

**Build a properly qualified, professional, competent and committed teaching, academic, research and public service core.** The aim is to improve the quality of teaching and school management.

- There needs to be political consensus and stakeholder alignment to a common goal. Teachers on the ground need to be part of the decision making.
- A professional civil service has clear paths for educators (management and academic) and methods for attracting and retaining good teachers (from pay structure to supporting professional bodies). Expertise, qualifications and competence are the criteria for appointing and promoting teachers and principals. Professionalism is maintained through continuous training, quality monitoring, and clear standards.
- Government needs to manage the education sector better. This will provide policy stability, a better working environment, and ongoing support (especially for underperforming schools). Clarifying districts' roles will lead to improving their capacity to support schools.
- School governing bodies need additional support, as well as compulsory courses. Their governance mandate involves extensive responsibility for finances and setting internal school policies, among other things.

**Build a strong and coherent set of institutions for delivering quality education, science and technology innovation, training, and skills development.**

- This theme focuses on improved planning. The NDP references labour market research and understanding South Africa's long-term human capacity and skills needs. It specifically points to needing an increase in science and technology graduates.
- There needs to be a better institutional environment and better funding, with a focus on supporting large skills development programmes and ensuring necessary infrastructure is built. The expanded, strengthened and diversified institutional landscape involves more links between post-school education and workplaces, formal and non-formal qualifications, and an expanded FET colleges and adult education.

- The approach to quality assurance needs to change. Quality assurance needs to be stronger and more streamlined. The same is applied to the qualification system.

#### **Expand the production of highly skilled professionals and enhance the innovative capacity of the nation.**

- The NDP proposes developing a common policy on the critical role of science and technology and HE in shaping society, the future of the nation and the growth path.
- South Africa needs a larger base of skilled human resources in science, technology and innovation. Science, technology, engineering and maths (STEM) are key. We need competent STEM teachers and longer STEM degrees (making the first year more accessible). The recommendation is to relax immigration requirements for highly-skilled science and maths human resources.

#### **Create an educational and national science system that serves the needs of society.**

**The NDP proposes quantifiable targets across ECD, schooling, FET, and HE.** Of note to the SET and innovation community are the following schooling targets:

- About 80% of schools and learners to achieve 50% and above in literacy, maths and science in grades 3, 6 and 9.
- Increasing the number of students eligible to study maths and science at university to 450 000 per year

The HE and science and technology targets also show an ambitious direction for STEM:

- Increasing university science and maths entrants to 450 000
- Increasing graduation rates to more than 25% by 2030 – this involves a significant increase of STEM graduates
- Producing more than 100 doctoral graduates per million per year by 2030 – most of these should be in STEM