February 2021

TE|SF

Transforming Education
for Sustainable Futures

Transforming Education for Sustainable Development South Africa Background Paper

Contents

See also: This Country Background Paper is accompanied by a TESF South Africa First Engagement Summary, which outlines the insight gained from our first engagement with a wide range of stakeholders, practitioners, activists and researchers.

Education and Sustainable Futures

Efforts to transform education in support of more sustainable futures in South Africa cannot be de-linked from long histories of coloniality and apartheid. While this is the case, education *can* play an important role in contributing to sustainable, more socially just futures in South Africa.

Sustainable development, if conceptualized as inclusive sustainable development that is socially just, economically viable and ecologically sound can contribute to educational quality and relevance.

In this Background Paper, and in the Transforming Education for Sustainable Futures project, we consider both: 1) how education can contribute to sustainable development, and 2) how sustainable development can shape quality, relevant education.

We also frame the meaning of education broadly, within a lifelong learning framework that includes formal education, technical and vocational education and training, work and learning, as well as social movement and community education and social learning. We are also interested in education processes that transgress normalized boundaries between formal and informal, between community and school, and between generational, racial, class, epistemic and structural divides.

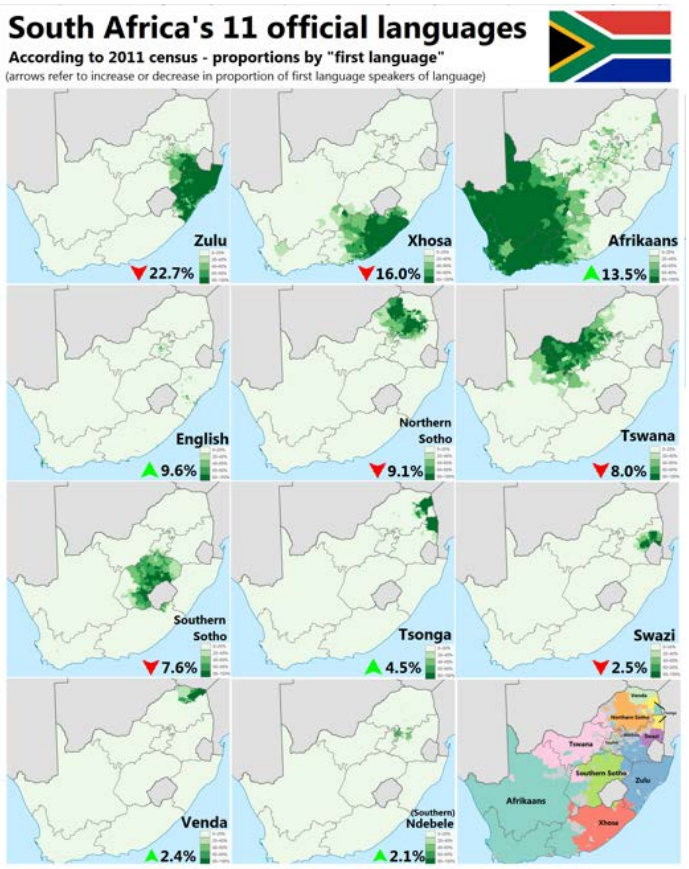
We see education as an intersectional practice that is in need of re-imagination and change if it is to adequately support sustainable futures.

We also recognize that transforming education systems for sustainable futures must be supported adequately by inter-sectoral engagement involving relevant economic, health, sustainable cities and communities, as well as environmental and climate change, social justice policy and praxis.

The State of South African Education at a Glance

Statistics South Africa (Stats SA) estimates the mid-year population at 58,78 million (2019 figures)[1]. The median age of South Africans is 25. South Africa is a richly textured cultural and linguistic environment. IsiZulu is the most widely spoken language (24%), followed by isiXhosa (17%), Afrikaans (12%), Sepedi and Setswana (9% each) and English at 8%. This rich diversity of cultures and languages is as yet under-explored as a significant resource for learning and transformation in the country.

One of the challenges experienced is that English tends to be used as the main medium of official communication, and is also used as the main language of instruction after the first few years of schooling which is meant to take place in mother tongue, creating an incredibly difficult linguistic environment for education and learning, given the centrality of language in learning. The linguistic medium of instruction is one of the major factors contributing to inequalities in the education and learning sphere, and is the subject of much research at present.



Source: https://imgur.com/FO6gdwf

The country has 16.9 million households with 13% of these living in informal dwellings. Census data of 2011[2] show that the majority of

[1] StatsSA 2019 Mid-year population estimates.

[2] StatsSA .2011 Census

households earn less than 300K (in ZAR) per annum. Poverty levels still are high with the annual average household income being approximately R29K per annum and the average wage being R30K per annum.

In the schooling system, schools have been differentiated to deal with household income challenges. All South African public ordinary schools are categorised into five groups, called quintiles, largely for purposes of the allocation of financial resources, Schools in quintile 1, 2 and 3 have been declared no-fee schools, while schools in quintiles 4 and 5 are fee-paying schools. The scale of inequality is perhaps reflected in the size of the National School Nutrition programme, which by 2012 was providing government-funded lunches to about 9 million learners in 20 905 primary and secondary schools. These programmes have not been without their problems with corruption watch reporting over 500 complaints of varying kinds of corruption in the school feeding scheme in 2013[3].

Education levels in the country are improving. According to the 2016 Community Survey[4], 43.4% of people have completed matric, and 71.8% of people have completed Grade 9 or higher. A small percentage of the population (4%) have completed undergraduate education in universities, and a similar percentage have completed post-graduate education (4%). 38% of the country's population are under the age of 18 (20.8 million). 94.9% of school aged children (5-17) are in school. The 2019 StatsSA report on multi-dimensional inequality reports that school attendance of children aged 6–18 years has improved between 2002 and 2017 increasing from 91,3% to 96,0%, respectively[5]. The findings further illustrate that the proportion of learners experiencing problems like lack of books and congestion in large classrooms has decreased over the same period. Additionally, the proportion of learners attending a 'no-fee' educational institution grew from 0,3% in 2002 to 64,8% in 2017.

In May 2019, StatsSA offered insight into problems experienced in public schools by learners in the 2018 school year: "Nationally, classes that were considered too large (3,3%), a lack of books (2,8%), and high fees (2,6%) were singled out as the most important problems. These were followed by bad facilities (2,1%) and lack of teachers (1,6%). Learners in Western Cape (6,7%), North West (5,6%), and Mpumalanga (4,3%) were most concerned about large class sizes"[6].

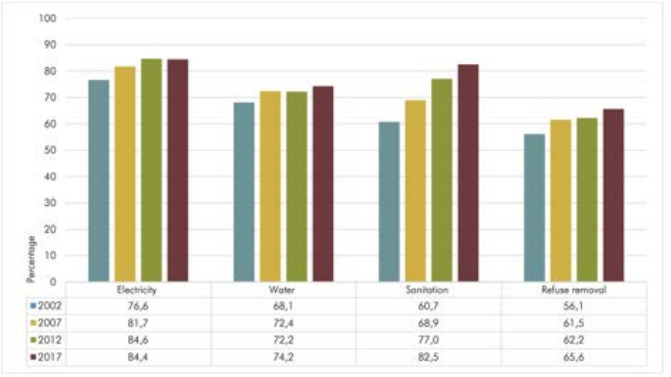
Problems experienced in public school	Province (Per cent)									
	WC	EC	NC	FS	KZN	NW	GP	MP	LP	SA
Lack of books	3,2	1,8	2,1	3,0	3,7	2,3	2,9	4,1	1,4	**2,8**
Classes too large	6,7	1,2	1,2	1,8	3,1	5,6	3,6	4,3	2,2	**3,3**
Fees too high	5,5	2,2	1,2	1,9	1,7	2,4	4,5	2,4	0,5	**2,6**
Facilities bad	3,8	1,6	1,0	2,4	1,9	2,8	2,1	2,5	0,9	**2,1**
Lack of teachers	3,2	3,5	1,4	0,6	0,8	1,5	1,5	1,1	0,5	**1,6**
Teachers absenteeism	2,2	0,7	1,3	0,6	0,6	1,7	2,3	0,5	0,7	**1,2**
Poor quality of teaching	2,8	0,4	1,2	0,5	0,9	1,2	1,9	1,6	0,6	**1,2**
Teachers striking	1,9	0,1	0,5	0,3	0,5	0,9	1,2	0,5	0,4	**0,7**

Source: StatsSA (2019)

"Furthermore, learners in Western Cape (5,5%) and Gauteng (4,5%) were most likely to complain about high fees. Learners in Eastern Cape (3,5%) were most likely to complain about a lack of teachers. Sadly, striking teachers made the list of learners biggest concerns too. With 0.7% of all learners in public schools citing striking teachers as a problem"[7].

While this is the case, the 2019 study by StatsSA on multi-dimensional inequality reports that there has been some progress in the area school attendance of children aged 6–18 years, with figures improving between 2002 and 2017 from 91,3% to 96,0%, respectively. The findings further illustrate that the proportion of learners experiencing problems like lack of books and congestion in large classrooms has decreased over the same period. Additionally, the proportion of learners attending a 'no-fee' educational institution grew from 0,3% in 2002 to 64,8% in 2017[8].

Figure 4.4.3: Household access to basic services at national level (2002, 2007, 2012 & 2017)



Source: GHS (2002, 2007, 2012 & 2017)

Source: StatsSA, 2019.

This shows that issues associated with transforming education for sustainable futures must be centrally concerned with the complex longer and shorter term multi-dimensional and intersectional dynamics of persistent inequality and its diverse effects, not all of which are easily perceived via shorter or longer term national surveys and statistics. While these types of analyses are necessary and important, they also need to be complemented with work that offers nuanced forms of research and engagement, especially if the intention is to fully understand and address the deep seated often structural and cultural dynamics of inequality.

School attendance and access is one marker of change and progress, but this is hampered by many quality related problems, high dropout levels, and inadequate pathways for youth into meaningful work or activity following schooling. With regard to the dropout rates of children from schools in 2015, the Department of Basic Education reported that approximately 60% of first graders will ultimately drop out rather than complete 12th Grade. Likewise, by Grade 12, only 52% of the age appropriate population remain enrolled[9]. This raises the question of access, retention and quality, and the relationship between these in transforming education for sustainable futures.

Related to this is the high drop out and lack of access to education and training by youth between ages of 18-24. A recent report on "Higher Education and Skills in South Africa" released by Statistics South Africa indicates that "more than half (or 51%) of youth aged 18–24 claimed that they did not have the financial means to pay for their tuition. Furthermore, 18% of those aged 18–24 who were not attending educational institutions indicated that their poor academic performance prevented them from participating"[10].

[3] Talane, V. 2013. Corruption News. National School Nutrition Programme. Part 1. Corruption Watch. https://www.corruptionwatch.org.za/national-school-nutrition-programme-part-one-2/

[4] StatsSA .2016 Community Survey data.

[5] StatsSA. 2019. Inequality Trends. A multi-dimensional diagnostic of inequality. http://www.statssa.gov.za/publications/Report-03-10-19/Report-03-10-192017.pdf

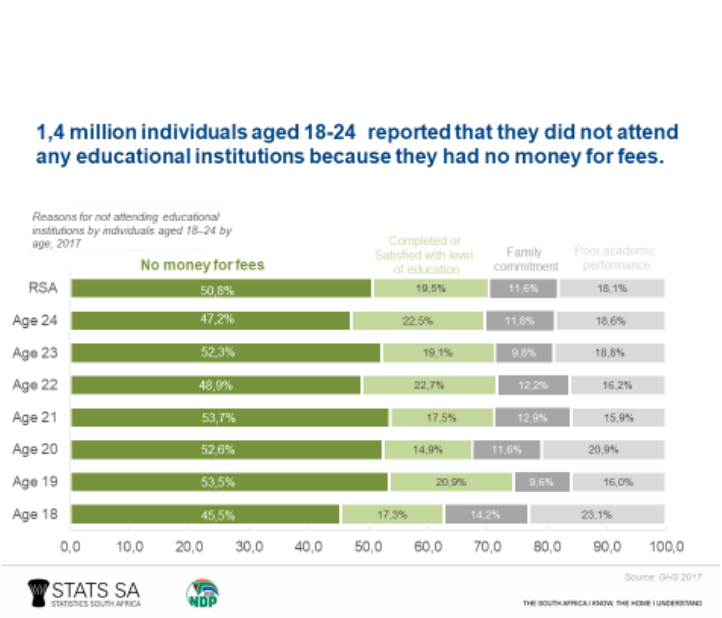
[6] Ibid

[7] Ibid

[8] ibid

[9] Department of Basic Education, Republic of South Africa 2015. *Education statistics in South Africa 2013*. Pretoria: Department of Basic Education, Republic of South Africa.

[10] Ibid



"The report, which uses data from the General Household Survey (GHS) 2017, indicates that only 33,8% of youth aged 18–24 were attending educational institutions. Among those, 22,2% were attending school while 11,6% were attending post-school educational institutions"[11].

The StatsSA report goes on to say that "In 2017, only three-quarters of male students who attended Grade 10 in 2016 progressed to Grade 11, while the same was true for close to 87% of female learners. During the same period, even fewer males (71%) who attended Grade 11 in 2016 progressed to Grade 12 the following year, while 76% of the females did the same. This raises issues of gendered success and drop out in the education system, with a pattern emerging of larger proportions of young men not successfully completing schooling"[12].

The StatsSA report on multi-dimensional poverty in South Africa reports that while there has been improvement in school attendance in pre-school, primary, secondary and TVET institutions amongst learners between the ages of 1-18, after 18 years of age, the proportion of individuals attending educational institutions drops, with the proportion of individuals not attending an educational institution dropping from 26,9% in 2011 to 23,9% in 2017. The proportion of individuals aged 24 years not attending an educational facility was 90,3% in 2011 and 88,8% in 2017, with less than 10% of South Africans attending University. This situation is closely related to the high levels of youth unemployment in the country, although these are shaped by other factors such as economic decline, not only by educational opportunity or participation in education[13].

The #FeesMustFall social movement emerging in South Africa in 2014/15 was partly due to household income being inadequate to support student fees and living expenses in higher education. The same challenges exist for students in Technical and Vocational Education and Training settings, creating a high reliance on the National Student Financial Aid Scheme (NSFAS), which is a public entity reporting to the Department of Higher Education and Training. NSFAS provides financial assistance in the form of a study bursary to qualifying students who wish to study or are already studying at TVET colleges and public universities.

[11] Ibid
[12] Ibid
[13] StatsSA. 2019. Inequality Trends. A multi-dimensional diagnostic of inequality. http://www.statssa.gov.za/publications/Report-03-10-19/Report-03-10-192017.pdf

This image from timeslive.co.za illustrates that the issue was more complex than just access to NSFAS funding, as even those households with higher levels of income were not easily able to cover fees and living costs of students, leading later to fees subsidies for households with incomes of up to 650K (in ZAR) per annum. The issue of longer term student financing is yet to be stabilised.

While NSFAS is responsible for a budget of about R40-billion annually and it funds no less than 700 000 poor and working-class students, one of the problems with the NSFAS scheme over the past few years is that it has been "in a chronic state of maladministration with extremely poor achievements against legislated mandate and key performance indicators". The Mail and Guardian reports that "NSFAS is a critical institution, but has not been running efficiently. Funds have been disbursed by trial and error, often leaving students frustrated; chief executive officers have come and gone; and people who were brought in to assist and turn things around left …". There are current union protests in the NSFAS, indicating ongoing instability[14].

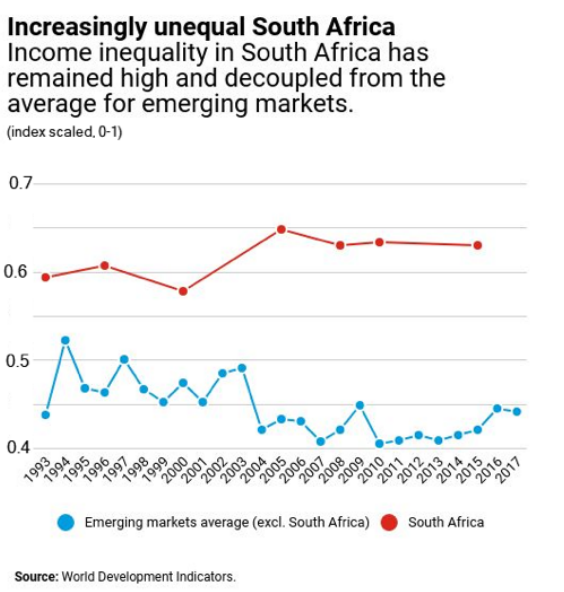
Multi-dimensional Inequalities and Impact on Sustainable Futures

South Africa remains one of the most unequal societies on earth. Income inequality is amongst the worst in the world, and remains split mainly along racial lines. Poverty rates are highest for black Africans and follows the racial hierarchies that were imposed by the apartheid state. Added to this, the unemployed and poor tend to be located far away from employment centres due to apartheid spatial planning continuities, which exacerbates the poverty situation, representing a 'quintessential poverty trap' as explained by SERI et al. 2018[15].

The IMF reports that South Africa started the 1990s with already elevated inequality as the policy of apartheid excluded the majority of the population from economic opportunities. In 1995 South Africa's Gini—an index that measures inequality—was 0.63. In 2015 South Africa's Gini was 0.67, showing high levels of inequality persistence. The IMF reports that the

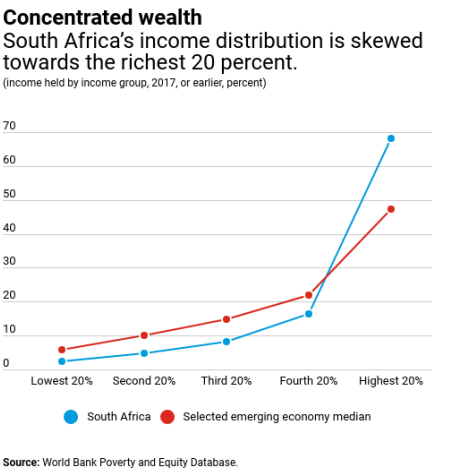
[14] Macupe, B. NSFAS woes do not help its mandate. Mail and Guardian Newspaper. 21 October 2020.
[15] SERI, PLAAS, Dulla Omar Institute, Peoples Health Movement SA, Black Sach, and SPII. 2018. Informal Settlements and Human Rights in South Africa. Submission to the United Nations Special Rapporteur on adequate housing as a component of the right to an adequate standard of living. May 2018. https://www.ohchr.org/Documents/Issues/Housing/InformalSettlements/SERI.pdf

Gini index for South Africa has increased further in the early 2000s and has remained high ever since[16].



Source: IMF (2020)[17]

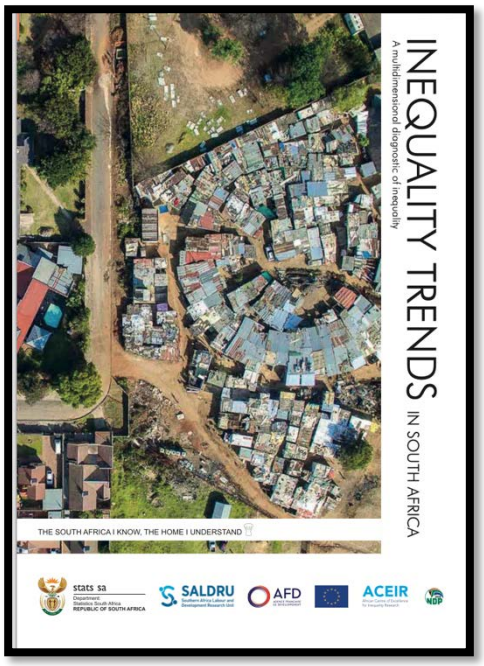
Additionally, the IMF reports that, "the top 20 percent of the population holds over 68 percent of income (compared to a median of 47 percent for similar emerging markets). The bottom 40 percent of the population holds 7 percent of income (compared to 16 percent for other emerging markets). Similar trends can be observed across other measures, such as the income share of the top 1 percent." [18] As reported on above, these inequalities follow racial, gender and geographic patterns.



Source: IMF (2020)[19]

[16] https://www.imf.org/en/News/Articles/2020/01/29/na012820six-charts-on-south-africas-persistent-and-multi-faceted-inequality
[17] Ibid
[18] Ibid
[19] Ibid

The same report indicates economic disparities across provinces, with the Gauteng province offering income levels almost twice those of the poorer provinces like the Eastern Cape and Limpopo. These factors are impacted on by high unemployment rates, and general economic stagnation, indicating that the issues experienced around inequalities can probably only partially be addressed by a focus on Transforming Education for Sustainable Futures. There is need, with such a focus in mind, to develop deeper understandings of the multi-dimensional nature of inequalities, and to be able to more carefully differentiate what role educational interventions can play, and at what scale and level such interventions are most necessary.



In seeking to support South Africans and South African policy makers to better understand and address the multi-dimensional nature of inequality, the StatsSA in 2019 released a comprehensive report assessing the multi-dimensional nature of inequality, indicating progress in the national system of analysis of inequality where a wider range of measures (other than Gini-index) were juxtaposed and used to offer more refined analyses of inequality from the perspectives of 1) economic inequality; 2) asset and wealth inequality; 3) labour market inequality; and inequalities in the social domain which included a focus on education, health, access to basic services and internet access; 4) gender inequality and 5) social mobility[20].

The report indicates that there has been a slight improvement in reduction of economic inequality, but from extremely high levels, and the improvement has slowed down in recent years, reflecting the poor economic climate that has prevailed in recent years. Economic inequality remains highly racialised with high differentials between white and black African groups, and economic inequality has increased between sub-groups in recent years. Income inequality is also highly gendered with 57% of male headed households accounting for almost three quarters of expenditure across the country, and 43% of individuals living in female headed households accounting for a little over a quarter of total expenditure share. While labour market income is the major source of income (70%), social

[20] StatsSA. 2019. Inequality Trends. A multi-dimensional diagnostic of inequality. http://www.statssa.gov.za/publications/Report-03-10-19/Report-03-10-192017.pdf

grants and remittances have played a crucial role in reducing the income gap between the bottom and top deciles over the years in South Africa[21].

With regards to asset and wealth inequality, the report indicates that over the reporting period there was an increase in the number of assets owned by households in South Africa, with black Africans reporting the largest increase in their average asset scores over time, but these were still the lowest overall. The picture reflects therefore an increase in assets amongst black Africans and a reduction in assets amongst other population groups. While this is the case, wealth inequality is considerably higher in South Africa than income inequality indicating that this is a major source and dimension of inequality in South Africa.

The distribution of earnings starkly depict the heavily racialized inequality in the South African labour market between 2011 and 2015. In addition to having worse employment outcomes, black Africans also earn the lowest wages when they are employed. Whites, in contrast, earn substantially higher wages than all the other population groups. Their monthly average real earnings were more than three times higher than those of black Africans. Females are less likely to be employed and also earn approximately 30% less on average compared to males. Additionally, there is also a pattern of widening inequality because of a combination of no real growth in earnings amongst low and median earners and exceptionally high levels of real earnings amongst the very high earners[22].

Findings on social mobility in the in the StatsSA study on multi-dimensional poverty are interesting to probe. They show that "85,3% of the South African population experienced at least one poverty spell between 2008 and 2017, while 36,1% remained consistently below the poverty line". Following the pattern of inequality, most heavily impacted were black Africans, individuals with low levels of education, those residing in rural areas, and households headed by females. Rural areas are also more affected by social inequalities than urban areas, and women remain most marginalised, especially black African women[23].

The study investigated inter-generational social mobility, and identified five social classes, namely "the chronic poor, transient poor, vulnerable middle class, the actual middle class, and the elite" offering a more nuanced understanding of vulnerabilities and inequalities. It also points to the socio-cultural and underlying educational structure dynamics of inter-generational social mobility when it indicates that "children of top-earners have a higher probability of being top-earners themselves". This shows a strong transmission of advantage from one generation to the next at the top end of the labour market. "Children of earners at the bottom of the earnings distribution have a very good probability of being low-earners themselves". This shows extremely strong "transmission of disadvantage from one generation to the next for those at the bottom end of the labour market"[24].

For a programme focussing on Transforming Education for Sustainable Futures, this would appear to be a crucial area of intervention i.e. to challenge and engage the inter-generational transmission of privilege and inequality via all forms of education and learning, and the socio-cultural foundations of the education and learning systems that produce persistent patterns of exclusion and marginalisation in ways that regenerate in-built and long standing historical patterns of inequality.
The multi-dimensional report on inequality in South Africa further argues that the "labour market remains one of the key institutions through which South Africa's exceptionally high levels of both vertical and horizontal inequality get transmitted"[25]. This raises the issue of just transitions to sustainability as it may relate to the SDG on decent work and livelihoods in the South African context. These findings points out that transforming education for sustainable futures may not just be a matter of providing training for improved participation in decent work (important as this might be), but rather that systemic studies and interventions may be needed that launch more substantive critical education interventions and studies at senior levels of the political-economic system, within the financial infrastructure and financing systems that govern the labour market and its workings, as it is here where income inequalities are produced, reproduced and maintained.

Inequalities in the social domain are closely linked to histories of unequal and separatist development of the apartheid state. They manifest in inequalities related to education, health, services (such as water, sanitation, refuse removal, electricity etc.), gender parity and more. As also seen in other parts of this document, there have been efforts to reduce these inequalities since 1994, with varying levels of success, and each of these areas remain complex and highly nuanced, differentiated in inequality terms in ways that follow the main patterns of income, asset and labour market inequalities.

Health care remains marked by severe inequalities and high levels of differentiation and inequality in access to private and public health care facilities. The estimated overall HIV prevalence rate is approximately 13,5% among the South African population. The total number of people living with HIV (PLWHIV) is estimated at approximately 7,97 million in 2019. For adults aged 15–49 years, an estimated 19,07% of the population is HIV positive. South Africa has been successful in implementing the world's largest Anti-Retroviral Viral (ARV) programme, with life expectancy increasing from a low 53 years in 2004 (when ARVs first started to roll out in the public sector) up to an impressive 66 years today[26].

[21] ibid
[22] Ibid
[23] Ibid
[24] Ibid

[25] Ibid
[26] StatsSA 2019 Mid-year population estimates.

Source: SABC news.co.za (Getty Images)

Gender inequality overlaps and intersects with all of the above-mentioned dynamics of inequality; it amplifies and overlaps with many other disadvantages. One of the major scourges in South African society is the high levels of Gender-Based Violence (GBV). This problem affects almost all aspects of life, and is pervasive across societal levels and structures and is entrenched in institutions, cultures and traditions in South Africa. According to Saferspaces.org, "GBV occurs as a result of normative role expectations and unequal power relationships between genders in a society"[27]. In South Africa in particular, GBV "pervades the political, economic and social structures of society and is driven by strongly patriarchal social norms and complex and intersectional power inequalities, including those of gender, race, class and sexuality."[28]

According to Saferspace.org, accurate statistics are difficult to obtain, due also to the fact that much GBV goes under-or unreported, but there is strong evidence that South Africa has particularly high rates of GBV. In particular, population-based surveys show very high levels of intimate partner violence (IPV) and non-partner sexual violence (SV) in particular, with IPV being the most common form of violence against women and also children[29].

AfricaCheck.org reports that "in 2016, the age-standardised interpersonal violence death rate for the female population in South Africa was 12.5 per 100,000. This was 4.8 times the global average rate of 2.6"[30], meaning that South Africa had the fourth highest female interpersonal violence death rate out of the 183 countries listed by the WHO in 2016.

Saferspaces.org argues that "Addressing GBV is a complex issue requiring multi-faceted responses and commitment from all stakeholders, including government, civil society and other citizens. There is growing recognition in South Africa of the magnitude and impact of GBV and of the need to strengthen the response across sectors". They also note that much of the response to date in South Africa has been focussed on response, and that response efforts need to be more substantively supported and complemented by prevention programming and policy development[31].

They argue that by addressing the underlying, interlinked causes of GBV such as high levels of gendered inequality and poverty, cultural domination, cultural disruption, heteronormativity and other drivers of GBV, it is possible to work towards preventing GBV from happening in the first place. They propose developing evidence-based understandings of what this involves via engaging with programmes that are successfully tackling GBV prevention approaches, and to further expand and develop these with social groups involved, including those most affected, both women and men, young girls and boys, as well as LGBTI groups who also suffer from GBV in South Africa[32].

More recently, levels of gender-based violence escalated during COVID-19 lockdowns. Reports indicate that the police's gender-based violence hotline received 2,300 calls during the first five days of lockdown. That's close to three times the rate outside of lockdown. This number reportedly rose to more than 120 000 during the first three weeks of the lockdown. This prompted the President to refer to gender-based violence as "South Africa's second pandemic" in the midst of Covid-19[33].

Source: saferspace.org

Some of the most difficult problems to engage are those of persistent poverty and high unemployment rates that arise from the multi-dimensional inequalities and their histories. Of significant concern to the country is the high level of youth unemployment, with youth unemployment being particularly high. According to mid-year estimates of StatsSA in 2019, the youth (aged 18 – 34) constitute almost a third of the population, or 17,84 million people. Currently 40% (8.2 million) of South Africa's 20.4 million young people aged 15 to 34 are not in employment, education or training of any sort, according to the latest figures released by StatSA in the Quarterly Labour Force Survey (QLFS) in 2019[34].

[27] Saferspaces South Africa. Gender-based Violence in South Africa. https://www.saferspaces.org.za/understand/entry/gender-based-violence-in-south-africa

[28] Ibid

[29] Ibid

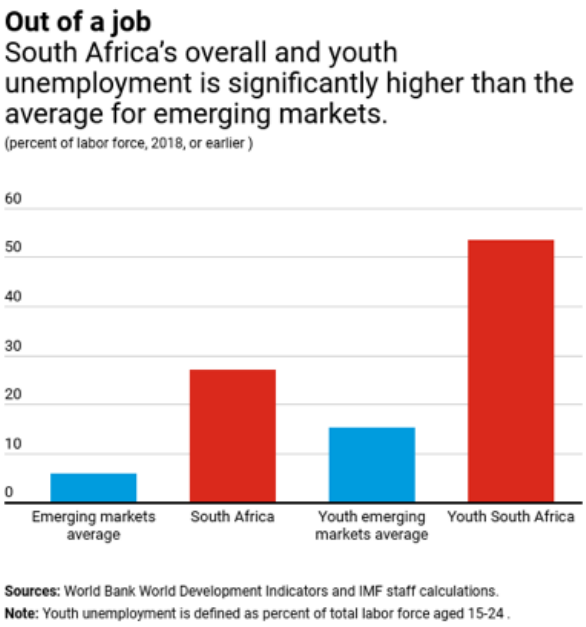
[30] Africa Check. 3 September 2019. https://africacheck.org/reports/five-facts-femicide-in-south-africa/

[31] Saferspaces South Africa. Gender-based Violence in South Africa. https://www.saferspaces.org.za/understand/entry/gender-based-violence-in-south-africa

[32] Ibid

[33] South Africa's 2nd Pandemic: reflecting on gender-based violence during and beyond Covid-19 from the Alternative information and development centre http://aidc.org.za/south-africas-2nd-pandemic-reflecting-on-gender-based-violence-during-and-beyond-covid-19/.

[34] StatsSA 2019 Mid-year population estimates.

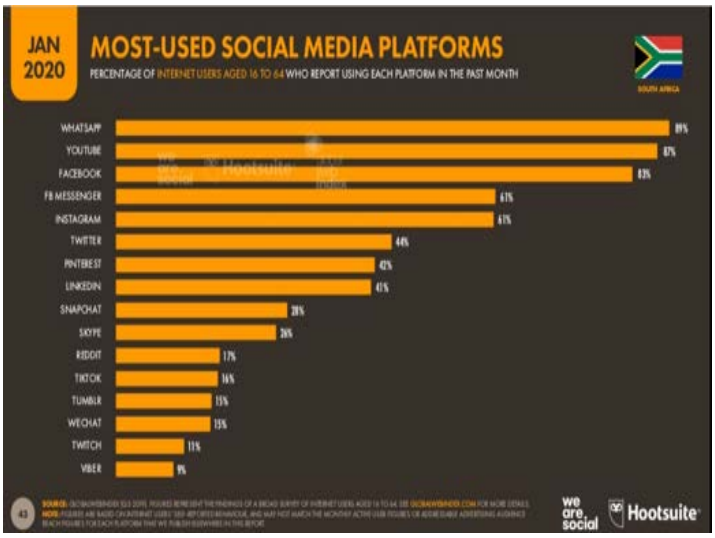


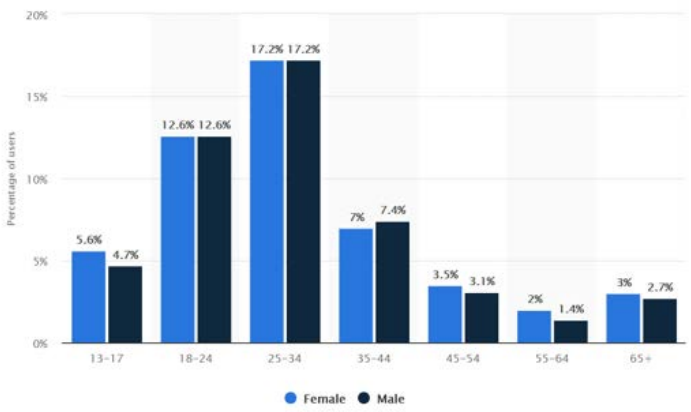
Source: IMF, 2020

The overall unemployment rate was pegged at 30.1 in the first quarter of 2020 which has been exacerbated by the COVID-19 pandemic situation. Unemployment rates have increased from 24,8% in 2011 to high levels of 29% in 2020, a situation which has been significantly exacerbated by the COVID-19 pandemic. The labour market experiences' of different population groups in South Africa continue to diverge substantially, and still reflect the strongly persistent legacies of apartheid policies. Black Africans had the highest unemployment rates; which were between four and five times as high as they were amongst whites. The coloured population also had high unemployment rates, however not as high as black Africans. Males have lower unemployment rates than females[35].

South Africa's overall and youth unemployment is significantly higher than the average for emerging markets as pointed out by the IMF (2020) and in the figure below[36]. The IMF report, adopting a typical neo-liberal progress narrative, proposes that "creating more low-skilled jobs to improve labour force participation, especially in the poorest provinces, will spur inclusion. Employment prospects can be enhanced by improving the quality of education and facilitating affordable transportation to job centres"[37]. However, this narrative requires more in-depth probing, as the picture of multi-dimensional inequality and associated societal and policy complexity reveal.

Another contemporary dynamic which has potential to address inequality, at least to some degree, is access to, and use of technology. There remains a digital divide along racial, age and income levels, as per the multi-dimensional inequalities report. Talkwalker report that "there is a 62% Internet penetration rate in South Africa, meaning there are 36.54 million Internet users, a 3.1% year on year increase. Of these 22 million are active social media users (37% penetration), a 19% increase compared to 2019"[38].





Distribution of social media users in South Africa as of January 2020, by age group and gender. Source: Statista

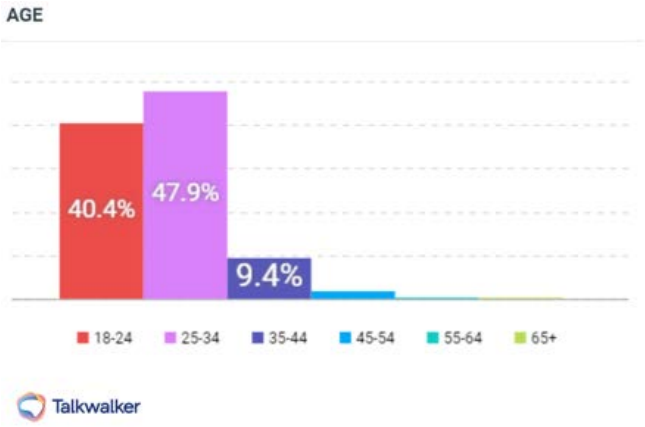
[35] StatsSA. 2019. Inequality Trends. A multi-dimensional diagnostic of inequality. http://www.statssa.gov.za/publications/Report-03-10-19/Report-03-10-192017.pdf

[36] https://www.imf.org/en/News/Articles/2020/01/29/na012820six-charts-on-south-africas-persistent-and-multi-faceted-inequality

[37] Ibid

[38] https://www.talkwalker.com/blog/social-media-stats-south-africa

The graph above shows the spread of social media users in South Africa, indicating wide usage especially amongst users between the age of 18-34, with a relatively equal gender distribution in use pattern.



Age distribution on social media in South Africa in 2020. Source: Talkwalker Quick Search

Talkwalker points to the youthful profile of internet and social media users, noting too that the South African median age is 27.6. The age group of 25-34 makes up 47,9% of social media users in South Africa, with the 18-24 year old age group following at 40.4%. The most used social media platforms are WhatsApp, YouTube and Facebook and 91% of the social media interactions take place in English[39].

Insight into the penetration and use of the internet and social media in South Africa is potentially important for considering wider modalities for social and co-engaged learning and research oriented towards transformations to sustainability. The above broader statistics will need to be probed and contextualised in a range of different settings and spaces, but already there are a number of education and co-learning programmes that are using WhatsApp as a mechanism for social learning praxis.

Cities and communities, climate change, water, energy and land

With regards to sustainable cities and communities, a key challenge in South Africa remains inadequate progress made in terms of providing sustainable housing and decent living conditions in informal settlements and historically disadvantaged housing settlements. A recent review on Informal Settlements and Human Rights in South Africa by SERI and other partners notes that South Africa has a progressive legal and policy framework governing the right to housing, and a comprehensive state-subsidised housing programme which seeks to redress the legacy of apartheid and grant eligible beneficiaries a variety of state-subsidised housing options[40]. The review goes on to say that in terms of this framework, significant gains have been made, and Davis (2019) reports that approximately "3.3 million houses have been built between 1994 and December 2018, with a further 1.5 million "housing opportunities" supplied over the same period via serviced plots of land and renovated government rental homes" since 1994[41]. While this is recognised as being significant progress at some levels in the provision of state subsidised housing, SERI et al. (2018) points out that these gains mask "various systematic challenges that continue to compromise the enjoyment of the right of access to adequate housing"[42].

The challenges, they argue, stem not from the policy and legislation itself, but rather from the manner in which it is implemented in practice with issues such as "poor planning, a lack of coordination, insufficient capacity, a failure to adequately monitor the implementation of government policies, and a lack of political will" being major contributing factors. Such challenges particularly affect those living in informal settlements and inner-city 'slum' buildings where inadequate housing, lack of access to basic services such as water, electricity, waste management etc. and the threat of evictions create critical challenges[43].

SERI goes on to report that "According to conservative estimates in 2011, between 1.1 and 1.4 million households, or between 2.9 and 3.6 million people lived in informal settlements in South Africa. Given the insecure tenure arrangements in informal settlements and the fluidity of residence. However, in these areas, the number is likely to be significantly higher". Figures from StatsSA indicate that approximately 1 in 7 households in South Africa lived in informal dwellings, with the figure being 1 in 5 in metropolitan areas, but, according to SERI et al. the Housing Development Agency indicates that these figures are likely to under-represent the real growth in informal settlements. Delivery of basic services is a problem, and is also poorly monitored and reported on due to the informality of the living areas[44].

Source: designindaba.org Image by Maxixole Feni

Inadequate or virtually absent sanitation and waste management services also often characterise the lack of services in informal settlement areas, with lack of, or poor-quality toilet facilities being a major concern for people, and short term solutions (e.g. chemical toilets) meant as short term interventions, become permanent. For example, StatsSA reports (cited in

[39] Ibid

[40] SERI, PLAAS, Dulla Omar Institute, Peoples Health Movement SA, Black Sash, and SPII. 2018. Informal Settlements and Human Rights in South Africa. Submission to the United Nations Special Rapporteur on adequate housing as a component of the right to an adequate standard of living. May 2018. https://www.ohchr.org/Documents/Issues/Housing/InformalSettlements/SERI.pdf

[41] Davis, R. 26 April 2019. Provision of adequate land and housing has been one of democratic South Africa's failures. Daily Maverick. https://www.dailymaverick.co.za/article/2019-04-26-provision-of-adequate-land-and-housing-has-been-one-of-democratic-sas-failures/

[42] SERI, PLAAS, Dulla Omar Institute, Peoples Health Movement SA, Black Sash, and SPII. 2018. Informal Settlements and Human Rights in South Africa. Submission to the United Nations Special Rapporteur on adequate housing as a component of the right to an adequate standard of living. May 2018. https://www.ohchr.org/Documents/Issues/Housing/InformalSettlements/SERI.pdf

[43] Ibid

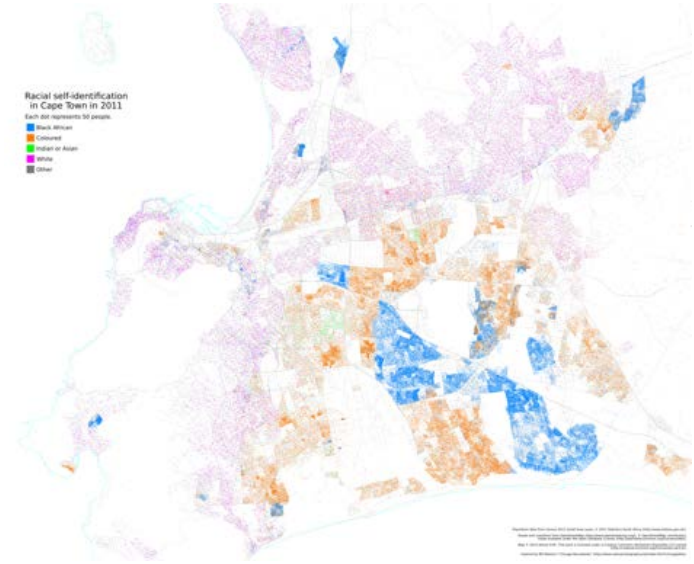
[44] Ibid

SERI et al., 2018) "that approximately 25% of the 400,000 people living in informal settlements in the Gauteng province rely on chemical toilets as their primary form of sanitation". Access to improved sanitation between rural and urban households narrowed between 2002 and 2017; however, this was not the case in terms of access to piped or tap water which remained flat. Black Africans have least access to water[45].

Density of settlement and inadequate quality housing and services in informal settlements tends also to be intersectional with other concerns such as safety and health concerns. For example, SERI et al. (2018) report that residents in informal settlements are also more vulnerable to infectious disease, with for example, latent tuberculosis (TB) being most highly prevalent (88%) in 30-39 year olds living in informal settlements.

Inequalities in cities: Source: Unequalscenes.com

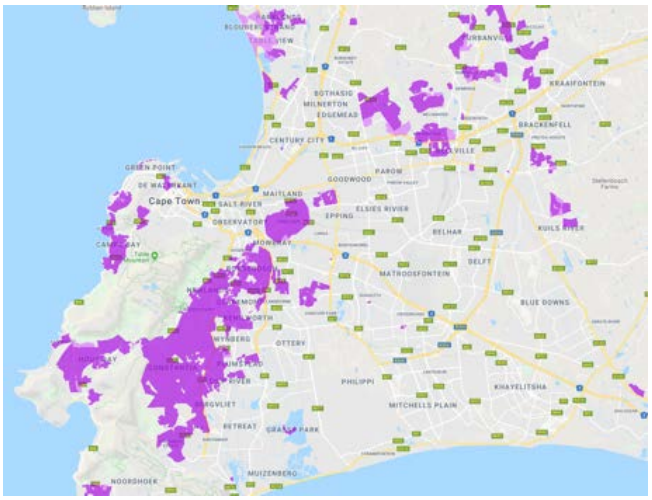
Segregated settlement patterns are still the norm – this map reflects the racial settlement pattern of Cape Town (1 dot = 50 people; Sensus Data 2011) (https://adrianfrith.com/images/dotmaps/Cape-Town-2011.png



Fibre map of the City of Cape Town: Note how it maps onto the segregated settlement patterns in the figure above) Source: https://adrianfrith.com/dot-maps/

In both images the 'purple areas' are where the most privileged social classes live.

[45] Ibid



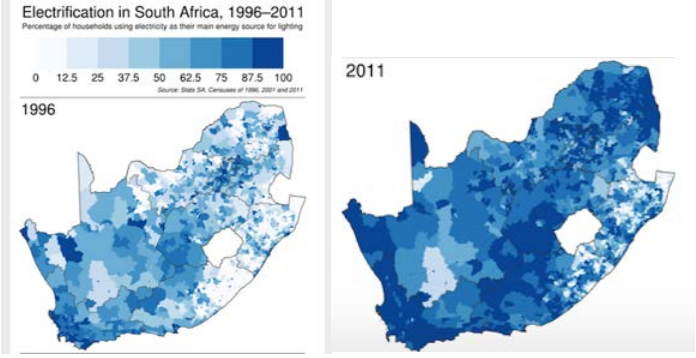
The racial and inequality patterns map onto city structures and the resources available to people in the cities in South Africa, and more broadly between urban and rural areas. The two diagrams above show the racial mapping of living areas in the City of Cape Town, as well as the overlapping map of access to technology in the city of Cape Town. This shows that in South Africa, privilege follows privilege with the reproduction of inequalities at systemic level being of crucial importance in processes aimed at transforming society towards sustainability through education, learning and other means.

All of these concerns point to the long durée of inequality in South Africa, and the deep seated structural nature of inequalities, all of which require substantive responses, and the mobilisation of capabilities and agency for transformative changes at all levels of society. For this reason, Transforming Education for Sustainable Futures cannot only focus on formal education settings, and must engage with informal as well as other forms of co-engaged education and learning that also crosses boundaries between the formal and less formalised education and learning setting.

Farmers marching. Source: www.focusonland.org

With regards to land, there is a general view that the land restitution policy and process has been a failure, with only 7-9% of land having successfully been restituted since 1994, which falls far short of the ANC's Reconstruction and Development Programme objective of 30% of the land to have been restituted by 1999. The land restitution programme has been subjected to problems of inefficiency and corruption, and this failure has led to a revitalization of the debates about land reform in the country, with this issue being debated at Constitutional level again.

While significant progress has been made with electrification since 1996, 7.3% of the population do not have access to electricity[46]. Inequalities in accessing electricity have reduced significantly, but some areas and provinces are lagging behind the general pattern of progress in this regard.



Maps showing expanded electrification in South Africa from 1996-2011 (household lights used as variable from 2011 census data) (Source: Adrian Firth)

Despite progressive policy since 1994, and many improvements noted above, and for example, as shown in the figure above which shows the expansion of electrification since 1996, there is still much to be done to bring about the much sought after transformation of the country. Currently the country is struggling to provide a sustainable energy system. In the first quarter of 2019, load shedding by Eskom had the effect of reducing GDP growth by approximately 0.3%, translating into 8.5billion ZAR[47].

Source: https://www.dailymaverick.co.za/article/2018-02-06-iss-today-south-africas-water-crisis-is-bigger-than-the-cape/

When it comes to water and other basic services at a broader level, overall, only 42% of the population have piped water supplied inside the house, another 30% have piped water supplied in the yard, with 86.2 % of the population getting their water from a regional or local service provider. Only 59.4% of the population have regular services for refuse disposal, and 2% of the population still have no access to toilet facilities, with 30% of the population using pit latrines, and 59% using flush toilets[48].

Source: http://fse.org.za/index.php/water-issues/item/585-pollution-of-vaal-river-at-crisis-point

These infrastructure, access and provisioning challenges, when combined with degrading ecological infrastructure such as healthy rivers and catchments further impact on the country's ability to secure sustainable futures for all. According to the Ecological Condition Index (ECI) all of South Africa's nine Water Management Areas experienced a drop in river health between 1999 and 2011, as shown in the map below[49].

Source: Nel and Driver, 2015

The Limpopo Water Management area experienced the most dramatic fall, with its ECI dropping by 21 points, from 83 in 1999 to 62 in 2011. The ECI review suggests further that increased pressure from mining activities and agriculture in that region, as well as poor waste water management, contributed to the decline[50].

The water situation in South Africa has significant implications for sustainable cities and communities, and for dealing with climate change. Improved approaches to water management, ranging from Integrated Water Resources Management, Ecological Infrastructure for Water Security, Transdisciplinary water resources management, and Community-based water quality monitoring are some of the research programmes underway, all of which have a strong interest in and commitment to transdisciplinary, co-engaged social learning and research approaches[51].

[46] StatsSA 2011 census data

[47] https://businesstech.co.za/news/energy/361772/how-much-money-eskom-load-shedding-has-wiped-off-the-economy/

[48] StatsSA 2011 census data

[49] http://www.statssa.gov.za/?p=9490; Nel, J. & Driver, M. 2015. National Ecosystem Accounts for South Africa. Discussion Document. SANBI, CSIR, STATSSA et al.

[50] Ibid

[51] Cf. the Water Research Commission and its portfolio of research programmes that focus on social-ecological systems, ecological infrastructure, citizen monitoring, social learning and water governance.

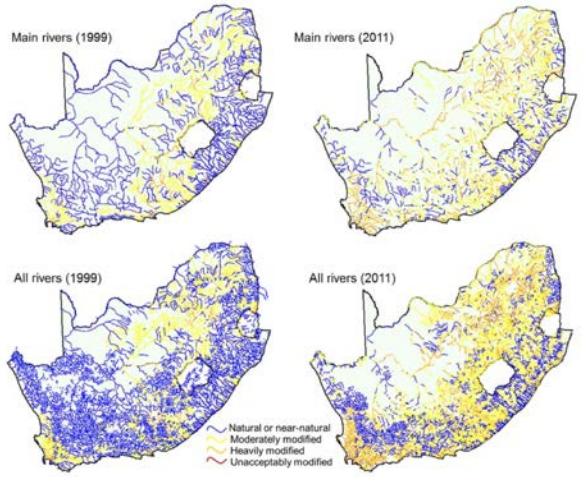


Figure D: Maps of the aggregated ecological condition category for main rivers and all rivers in South Africa, 1999 and 2011

Source: Maps showing the high levels of modification of South African rivers between 1999-2011 (Nel & Driver, 2015).

Climate change is described by the Department of Environmental Affairs (now Department of Environment, Forestry and Fisheries - DEFF) in the National Climate Change Response Policy as a very serious issue that will transform the entire way in which we can live in future, with water scarcity, heat stress, rising sea levels and impacts on agricultural productivity being just some of the emerging impacts from climate change[52].

The Third National Communication on Climate Change to the UNFCC reports that "South Africa has been warming significantly over the period 1931-2015. Over the western parts of the country, including much of the Western and Northern Cape, and also in the east over Gauteng, Limpopo and the east coast of KwaZulu-Natal, the observed rate of warming has been 2 °C/century or even higher – *in the order of twice the global rate of temperature increase.*[53]" It goes on to say that "For the far-future period of 2080-2099, temperature increases of more than 4 °C are likely over the entire South African interior, with increases of more than 6 °C plausible over large parts of the western, central and northern parts. Such increases will also be associated with drastic increases in the number of heat- wave days and very hot days, with potentially devastating impacts on agriculture, water security, biodiversity and human health, with the warming itself limiting options for adaptation[54].

[52] Department of Environmental Affairs. 2012. South Africa's National Climate Change Response Policy. Pretoria: DEA.
[53] Department of Environmental Affairs. 2018. South Africa's Third National Communication under the UNFCC. https://unfccc.int/sites/default/files/resource/South%20African%20TNC%20Report%20%20to%20the%20UNFCCC_31%20Aug.pdf
[54] Ibid

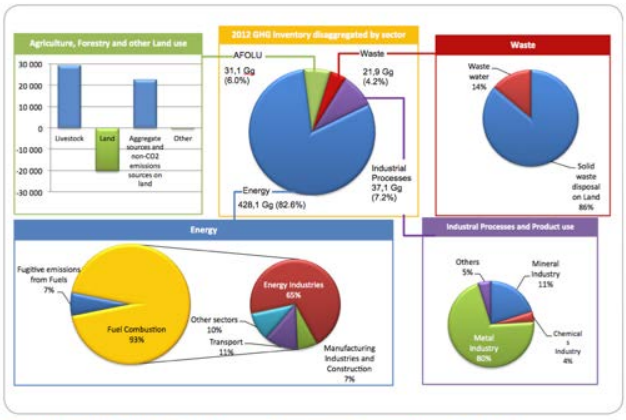


Figure 2.3: South Africa's 2012 National GHG Inventory (net emissions) disaggregated by sector (DEA, 2017)

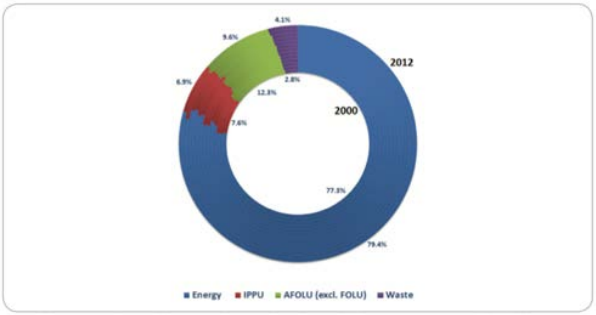


Figure 2.5: Distribution of gross GHG emissions for South Africa (2000 – 2012), disaggregated by sector (DEA, 2017)

Figures showing GHG emissions in SA (Source: DEA, 2018)

Significant in term of considering where to focus attention in climate action programmes from a mitigation point of view in South Africa, is the fact that South Africa has one of the highest per capita carbon emissions in the world. The DEA Third National Communication on Climate Change under the UNFCC reports that overall emissions have *increased* in South Africa with the main increases coming from the energy, agriculture, manufacturing, and waste sectors (see figures above), with South Africa's net GHG emissions in 2012 being pre- dominantly CO2 (83.7%), followed by CH4 (10.7%) and N2O (4.9%), with F-gases contributing less than 1% to the National GHG Inventory[55].

[55] Department of Environmental Affairs. 2018. South Africa's Third National Communication under the UNFCC. https://unfccc.int/sites/default/files/resource/South%20African%20TNC%20Report%20%20to%20the%20UNFCCC_31%20Aug.pdf

From an adaptation point of view, the agricultural sector is an important sector to engage with, given the fact that it employs approximately 860 000 people and is critical in terms of national food security as well as supporting thousands of urban and rural households in terms of subsistence agriculture and small scale production, which in turn is crucial for supporting food security as the recent COVID-19 pandemic has also revealed.

Eastern Cape drought. Source: DailyDispatch.org

The DEA (2018) reports that "Agriculture is impacted directly by changes in precipitation, temperature and evaporation and through secondary impacts including disaster risk and health issues, with yields of rain-fed crops such as maize, wheat and sorghum likely to be affected most drastically. Adaptation strategies to be promoted and developed in agriculture include Climate Smart Agriculture, improved water management, improved monitoring and early warning, the development of knowledge and decision support systems, and the development of new crop varieties and technologies to support farming"[56].

Additionally, the complex and unequal nature of human settlements in South Africa, comment on above, require that there is a priority for building resilience to climate changes, especially as informal settlements and their population are the most exposed to risk. The water sector also emphasises a range of adaptation options and plans, which range from "planning for new dams to developing new groundwater sources … improve flood warning systems and ensure that water allocation is sufficiently flexible to cope with climate change". Importantly, the strategy also highlights "the need to protect water allocations to poor and marginalised communities, particularly under drought conditions"[57].

A climate change adaptation plan has been developed for the health sector that focusses on nine health and environmental risks and further seeks to improve health systems readiness to climate change; which has been recognised as an under-developed and under-researched area in South Africa's climate change response.

A Climate Change Adaptation Sector Plan for Rural Human Settlements has been developed to support the creation of sustainable livelihoods that are resilient to climate change. This plan "… calls for access to climate resilient services and infrastructure in rural areas to be promoted through climate resilient rural housing programmes that include rainwater harvesting, solar water heaters and off-grid/mini grid electrification, environmentally-friendly and socially acceptable sanitation solutions"[58].

Overall, the picture is somewhat bleak when it comes to climate change in South Africa. Climate change poses a significant threat to South Africa's water resources, food security, health, infrastructure and ecosystem services and biodiversity. Mitigation pathways appears almost impossible to achieve, given recent protests against job losses because of proposals for switching from coal to renewable energy, even though the information on this issue appears to be in need of more robust debate.

One of the narratives emerging strongly in policy and practice debates in South Africa is the narrative of Just Transitions[59]. A recently released report on Just Transitions RES4Africa Foundation in partnership with the CSIR and ERM[1] assesses the number of jobs that can be generated through a just transition to renewable energy, and draws up a reskilling framework plan that also highlights the enabling factors to make it actionable[60]. The proposal here is to develop skills within a skills ecosystem approach.

Creamer reports that the head of the Eskom just energy transition office, at the launch of this report, said the utility accepted that the transition from coal to renewables was "inevitable" and that its current focus was on finding ways to cushion workers and communities from the socioeconomic shocks that could arise[61]. The CSIR noted that the domestic coal sector currently employed about 92 000 people directly and that there was potential, through planning and reskilling, to offset job losses in the coal sector with those arising in the renewables sector. The Integrated Resource Plan (IRP) of 2019 included large allocations for wind and solar photovoltaic, with more the 179 000 direct construction jobs to arise in the wind sector alone between 2020 and 2030. It is said that South Africa's transition could yield significant employment, growth and welfare benefits but that a successful transition would require a holistic policy framework[62].

Unions have been playing a central role in rejecting private ownership of renewable energy developments, and have been demanding a different future, "one in which energy and power move further into the hands of the people. Their call is for communities and workers to play a much bigger role

[56] Ibid
[57] Ibid
[58] Ibid

[59] Swilling, M. & Anneke, E. 2012. Just Transitions. Explorations of Sustainability in an Unfair World. Tokyo: UNU Press
[60] RES4Africa, CSIR, ERM. 2020. A Just Energy Transition in South Africa: Socio-economic needs and the positive impacts of a future low-carbon economy. https://www.res4africa.org/wp-content/uploads/2020/09/RES4Africa-Foundation-A-Just-Energy-Transition-in-South-Africa.pdf
[61] Creamer, T. 23 September 2020. Ten Lessons to Guide South Africa's 'just transition' from coal to renewables. https://www.miningweekly.com/article/ten-lessons-to-guide-south-africas-just-transition-from-coal-to-renewables-2020-09-23
[62] RES4Africa, CSIR, ERM. 2020. A Just Energy Transition in South Africa: Socio-economic needs and the positive impacts of a future low-carbon economy. https://www.res4africa.org/wp-content/uploads/2020/09/RES4Africa-Foundation-A-Just-Energy-Transition-in-South-Africa.pdf

in owning, building, developing and benefitting from renewable energy systems"[63].

In a country where many people are poor and where levels of inequality are high as outlined above, the implications and effects of climate change produce critical challenges to the 'normalised' trajectory of colonial and extractivist forms of fossil driven unsustainable development. The short and longer term implications of these unsustainable trajectories are severe and threaten the well-being of both current and future generations as so many of our drought events indicate, including the droughts that recently affected the City of Cape Town, the province of KwaZulu Natal, and the province of the Eastern Cape.

In the complexity of working out the dynamics of the nature of just transitions towards sustainability in the mitigation as well as the adaptation and resilience sectors in the context of the South African situation and history, this work ought to also become a key focus of education and learning efforts focussing on Transforming Education for Sustainable Futures.

Here it is encouraging to see researchers ad practitioner alliances working on programmes that are conceptualising green skills for just transitions in South Africa, and that substantive research *is already* taking place to conceptualise the meaning and implications of just transitions from the perspective of the energy and other sectors, in ways that reference the work on green skills and which also incorporate the dynamics of transforming education and training systems for more sustainable futures.

The Historical and Future Challenge

The historical and future challenge that shapes Transforming Education for Sustainable Futures is captured in these citations from major policy initiatives that have driven the post-apartheid policy and action frameworks.

*"Our history has been a bitter one dominated by colonialism, racism, apartheid, sexism and repressive labour policies. The result is that poverty and degradation exist side by side with modern cities and a developed mining, industrial and commercial infrastructure. Our income distribution is racially distorted and ranks as one of the most unequal in the world – lavish wealth and abject poverty characterise our society.....the result is that in every sphere of our society – economic, social, political, moral, cultural, environmental – South Africans are confronted by serious problems. There is not a single sector of South African society, nor a person living in South Africa, untouched by the ravages of apartheid." (*Reconstruction and Development Programme (1994) Paragraphs 1.2.1 and 1.2.4)

This citation gives some sense of the enormous challenges involved in working towards a transformed, truly democratic and more equal society. Progress to date seems inadequate, and still far from achievement of the ideals of a transformed society. However, as stated by Advocate Tembeka Ngcukaitobi, author of *The Land Is Ours,* "Perhaps the main success of 1994 is not freedom, but the possibility of it". He notes further "That we were able to design a Constitution and have the possibility to fight for freedom in democratic conditions is a monumental achievement which must never be underestimated."

It is along these lines that the National Development Plan of South Africa (2012) claims that South Africa's transition from apartheid to a democratic state has been a success, with many caveats and much unfinished business. It states:

"South Africa's transition from apartheid to a democratic state has been a success. In the past 18 years, we have built democratic institutions, transformed the public service, extended basic services, stabilised the economy and taken our rightful place in the family of nations. Despite these successes, too many people are trapped in poverty and we remain a highly unequal society. Too few South Africans work, the quality of school education for the majority is of poor quality and our state lacks capacity in critical areas. Despite significant progress, our country remains divided, with opportunity still shaped by the legacy of apartheid. In particular, young people and women are denied the opportunities to lead the lives that they desire. Our Constitution obliges all of us to tackle these challenges[64]."

At the heart of shaping Transformations of Education for Sustainable Futures in South Africa lies the Constitution that was so hard won. It sets the framework for our democracy and for the principles of a free, non-racist, equitable and more just and sustainable society. Transforming Education for Sustainable Futures must therefore be engaged with the freedom and justice seeking project that South Africa is. This implies that each project embrace integral and principled approaches to dealing with social injustice, inequality and unsustainability, and that these forms of practice be integrally democratic, decolonial and transformative in orientation and intent.

[63] Lenferna, A. 23 October 2020. Why climate activists and unions should team up. New Frame. https://www.newframe.com/why-climate-activists-and-unions-should-team-up/

[64] National Development Plan: Vision for 2030 (2012) Selection from the Foreword

Re-imagining and transforming towards sustainable futures

As described above, there is no doubt that South Africa continues to face many challenges in its efforts to transform society towards a more socially just and sustainable future. However, each challenge also offers important opportunities for re-imagining society, skills development and education systems and they are and can be working to enable transformations for sustainable futures.

There are many examples of how people are already embracing the challenge of Transforming Education for Sustainable Futures. For example, most recently, the Presidential Youth Employment intervention is proposing a more flexible and responsive approach to youth skills development, while the national Fundisa [teaching] for Change programme is developing a large scale national teacher education programme to support teachers to engage with new curriculum areas focussing on sustainable development, climate change, water security, green economy emergence and biodiversity. It adopts an approach to social learning network building at national level.

The National Environmental Skills Planning Forum has been spearheading green skills research and career guidance for sustainability oriented careers, while social justice movements such as Equal Education have been pursuing legal actions to ensure that more adequate norms and standards are put in place for schools and schooling infrastructure, amongst others. The Water Research Commission working with the South African National Biodiversity Institute are launching a social learning programme for Ecological Infrastructure for Water Security and are supporting a programme to scale citizen-based water quality monitoring. There is a well established national eco-schools programme, and numerous programmes that are seeking to develop decent work within the emerging framework of just transitions and the sustainable development goals. Many of these programmes are driven by various coalitions and partners who are seeking to generate critical mass in order to strengthen and extend the work they have initiated. Emerging out of one of these networks is the recently released Climate Justice Charter which has been developed via a participatory process by the Co-operative and Policy Alternative Centre and the South African Food Sovereignty Alliance[65].

There is need to continue to support such initiatives and to be generative where new initiatives are required to re-imagine and transform the many dimensions of society towards sustainable futures that still need our attention including (but not limited to):

- Transforming societal cultures in ways that address gender-based violence and other forms of social discrimination, and especially work towards valuing and ensuring the social and physical safety and security of children and women;
- Transforming municipalities, provincial and national water management institutions to address current water quality problems, water shortages and cut offs, ageing infrastructure including faulty waste water treatment plants and inadequate sewerage and sanitation systems; as well as other service delivery inadequacies;
- Supporting energy planners, unions, climate change justice activists and practitioners to work more pro-actively and co-operatively and rapidly towards enabling a sustainable energy system that is not harmful to people and the environment;
- Supporting policy actors, planners and all people in all walks of life to pro-actively undertake climate action within a framework of just transitions towards sustainability, including the re-skilling of workers in unsustainable industries such as coal towards offering them futures based on clean and decent work;
- Support systems of land re-distribution, natural resources management, waste management and sustainable housing and settlements planning in creative, integrative ways that create communities that are free from discriminatory settlement histories and environmental health problems.
- Revitalise and generate support for social justice and environmental activist movements (including new arising youth movements and cultures that are dealing with intersectional concerns) as they play a vital role in holding government and society accountable, and are a vital source of energy for driving regenerative and transgressive praxis for transforming society.

As indicated above, there are already many policies, interventions, movements and practices that have pro-actively started to address these challenges. The question for the TESF programme is how co-engaged education and social learning research and praxis can be mobilized to critically expand and enable these emerging transformations towards sustainability in all of spheres at multiple levels of the system, from local to provincial to national and in communities around the country.

Towards Education for Sustainable Futures

Education itself is a sphere in need of re-imagining in terms of its role in transforming society for sustainable futures. Since 1994, the country has made progress in providing access to education since 1994, and today 97 percent of children between the age of 5 and 17 are in schools as reported earlier in this paper.

However, as is the case in many other countries, access does not necessarily translate into quality or relevance of education. South Africa's education system is marred by inequalities, and by poor learning outcomes especially for those schools and children most affected by socio-economic inequality and poverty. The Schooling system also has major problems with infrastructure.

[65] The Climate Justice Charter. https://www.safsc.org.za/wp-content/uploads/2019/11/Climate-Justice-Charter-Draft1-2019.pdf

Here the praxis of education social movements such as Equal Education has drawn attention to the need for government accountability for delivery of quality education infrastructure and support systems, such as timely delivery of textbooks, toilets, clean water, adequate space and more. The tragic death of two children who recently fell into pit latrines is but one example of how important it is to ensure safe and healthy learning environments and adequate infrastructure in schools.

While not without their problems, international and national test results show South African education to be poorly performing in areas of Mathematics, Science and Literacy, with many schools still failing to meet the minimum performance standards in maths and science and literacy. There is a recognized need to give much more attention to improving the quality of teaching and learning, and that this must start in the early years of schooling. Foundation Phase education in particular, is in need of significant support to fully provide the quality of learning required for success in the early years of schooling, where mother tongue instruction must be valued for its significance in concept formation and early learning.

There is also recognition that giving attention only to matric results masks many other problems in the education system, such as large numbers of dropouts between Grades 1 and 12. Especially drop outs between Grades 10 and 12 are of concern, as learners, despite many years of attending school, are unable to complete schooling successfully. These learners are often left without options, and simply get 'left' to join the unemployed. Currently there is poor and inadequate support for alternative second chance learning pathways for them out of poverty and exclusion.

In the realm of Technical and Vocational Education and Training (TVET), there is need to expand meaningful inclusion in TVET streams. Stronger alignment between TVET offerings and local inclusive sustainable development models and planning processes are needed, including local green economy and society development praxis. This in turn requires curriculum innovations that value generic forms of knowledge as well as applied, practical, and reflexive knowledge and skills. For this, approaches to integrating theory and practice are required that move beyond the limitations of narrowly framed competence models.

There is also need to re-imagine work and learning models beyond technical training programmes and develop more substantive models of mentoring, and learning pathway transitions for young people into work, as well as re-skilling programmes that support the greening of all work. Skills for new green jobs are also needed.

Values that expand beyond immediate economic benefit are also needed, as is a fundamental re-imagining of economic models and approaches. As yet there is very little development of sustainability thinking the post-schooling sector in South Africa, save for 16 of the Sector Education and Training Authorities that have included green skills in their planning. While this is the case, much still needs to be done to translate this into substantive praxis.

With regards to pedagogical innovation and decolonial praxis in education, there is need to strengthen a wider ecologies of knowledge orientation to knowledge, pedagogy and learning. The South African curriculum makes provision for the integration of indigenous knowledge into the curriculum and learning process, but there is very little support for teachers to make meaning of this curriculum requirement. At university level interpretations of decoloniality in education are being worked out and there is an increasing body of research that is articulating the radical transformations that are needed not only in content on offer, but in cultures of engagement and teaching and learning in education institutions to be more inclusive of the knowledge and cultures of South African communities, while also enabling engagement with wider forms of knowledge and learning.

Source: https://www.unisa.ac.za/sites/corporate/default/Unisa-History-and-Memory-Project/Themes/All-themes/Indigenous-knowledge-systems-&-education

In Higher Education, there has been some progress in introducing sustainability research and teaching, with most universities being quite engaged with sustainability oriented research and teaching in specialist environmental and sustainable development programmes. Some universities have well developed sustainability strategies and campus management plans. The National Innovation System via the Department of Science and Innovation and NRF has supported research into Global Change under the Global Change National Research Plan, as well as Energy related research. Most recently a Global Change Social Science Research Plan has been released to increase and upscale transformative approaches to the social dimensions of sustainability.

The recent #FeesMustFall protests raised a number of intersectional concerns that relate to sustainability in Higher Education, most notably the sustainability of the existing system of student funding for enabling access and success in Higher Education as reported on above. However, other prominent issues raised by student movements include the need for

curriculum transformation and a decolonization of curriculum and university cultures and practices. Calls for decolonizing curricula were loudest in universities but research shows disconnect in learners experiences of learning in schools as well as universities. As one researcher framed it "We should decolonize Grade 1 as much as Higher Education for to fail to do this will mean that the decolonization process is simply delayed until learners reach universities"[66].

The contours of decoloniality are still in development in the South African education context, as are projects that are re-imagining how to ethically mobilise indigenous knowledge in educational settings, how to re-imagine and re-frame African Studies from an African platform, and how to frame and articulate the very concept of African universities. These discussions raise questions about how to frame the nature and contours of the Future University in Africa which by the nature of contemporary society will need to be 'intensely local and global at the same time'. All of these are unfinished projects, or more accurately, transformative, transgressive social learning projects in the making at a systemic level.

These are vital discussions for what the relationship between Education and Sustainable Futures are / ought to look like in South Africa. Importantly for the TESF programme, there are a few moves towards more fully thinking intersectionality in ways that include both social justice and environmental justice concerns as framing for decoloniality as stimulus for re-thinking education quality, process and institutional history.

In noting this, it is important to recall that the history of coloniality in South Africa, in Africa and elsewhere is intimately intertwined with the extraction and movement of resources for Empire building across the planet. This resource extraction project continues to this day under the auspices of neo-liberal global capitalism, and many communities remain heavily affected by extractivism.

It is therefore not surprising that decolonial movements are aligning with environmental and climate justice movements as shown in some of the recent South African scholarship on Climate Justice. This movement however, needs to be more substantively progressed in and via educational transformations, hence the new climate justice charter[67] may also provide a useful framework for re-considering approaches to climate change education and praxis in South Africa.

[66] Masuku, S.L. (2018). *In-betweenness: A postcolonial exploration of sociocultural intergenerational learning through cattle as a medium of cultural expression in Mpembeni, KwaZulu-Natal*. PhD thesis, Rhodes University, Makhanda.

[67] https://www.safsc.org.za/climate-justice-charter/

Policy Development

The early 1990's and the first ten years into democracy after 1994, was an extremely fertile period for transformative policy making in South Africa. All spheres of social, economic and ecological life were the subject of transformative policy making as South Africans sought to move out of its racist, segregated and discriminatory past.

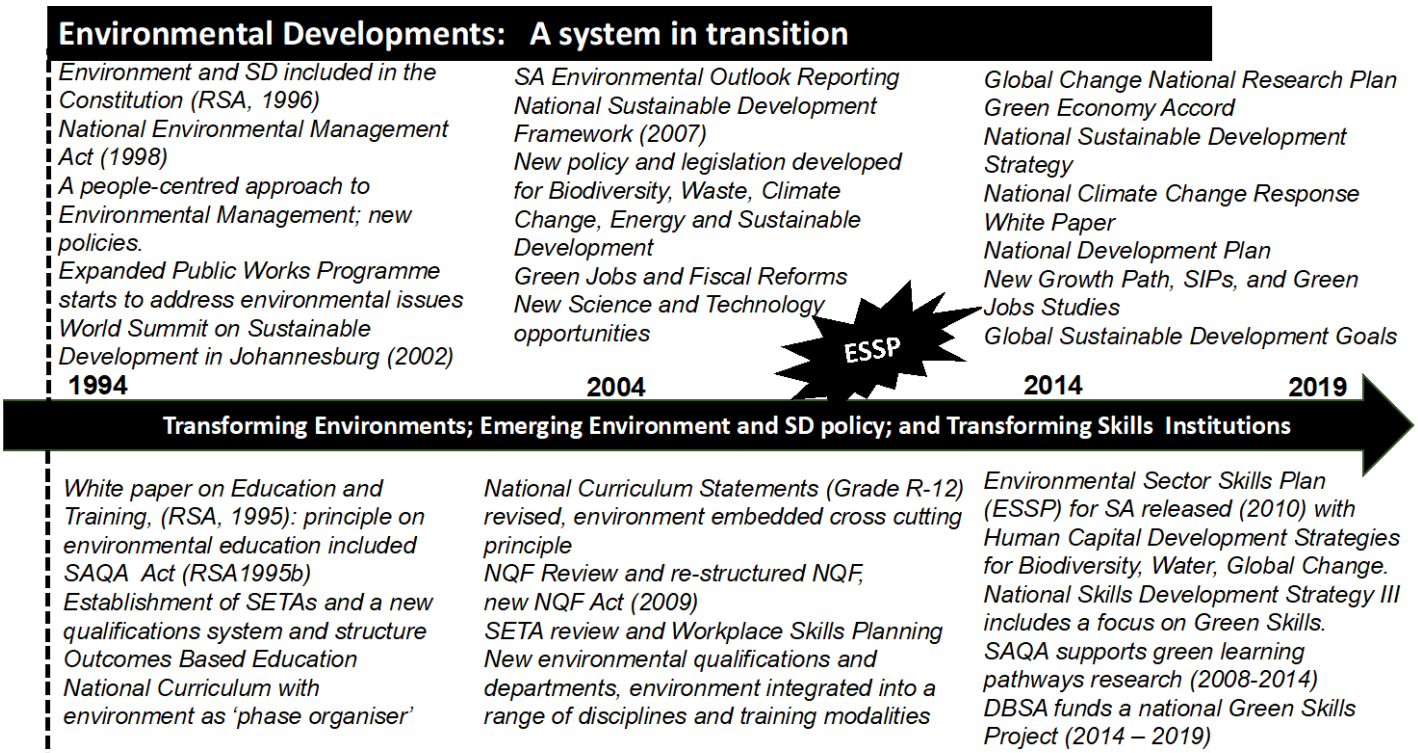
The post 1994 period was also a progressive period for sustainable development policy making. Sustainable development in its early policy conceptualization was viewed as a process of radically re-thinking and connecting development to human rights, social justice, inclusivity and a healthy environment, as reflected in the South African Constitution, the White Paper on Education and Training 1995 [68] and in the National Environmental Management Act 1998[69].

These early policy shifts emerged from social movement engagement with new policy making in both the environmental and educational sectors in the early 1990's with policy at the time being aligned with the post 1994 Reconstruction and Development Plan of the Country.

The early orientation to sustainable development and environmental policy making sought to position environment and sustainability issues as social justice issues within an anticipated socialist future[1]. Hence, issues such as access to clean water, less industrial pollution, worker safety, and land for housing and subsistence farming were included in the post 1994 Reconstruction and Development Plan of the country, which was effectively the first development plan of a post-apartheid, democratic South Africa.

[68] White paper on Education and Training. 1995 https://www.education.gov.za/Portals/0/Documents/Legislation/White%20paper/White%20paper%20on%20Education%20and%20Training%201995.pdf?ver=2008-03-05-111656-000

[69] National Environmental Management Act. 1998. https://cer.org.za/virtual-library/legislation/national/environmental-framework/national-environmental-management-act-1998



This commitment to a social justice orientation to environmental justice translated into the Bill of Rights, in Section 24 of the Constitution of South Africa 1996 [70]. The 1996 Constitution enshrined the right to a healthy environment for all South African citizens, and committed government to sustainable development and management of South Africa's resources for current and future generations.

This Constitutional Right was carried through into educational policy making in the post-apartheid period with the first national environmental health, environmental justice and environmental education qualifications emerging at this time. The first national curriculum statements in 1996 included a principle on the relationship between social justice, inclusivity and a healthy environment, which has infused curriculum policy when not atomistically interpreted. This principle has been carried through, albeit unevenly, into three successive generations of curriculum policy since 1994.

However, in 1996, the RDP was replaced with a more neo-liberal macro-economic directive called GEAR (Growth, Employment, and Redistribution). This directive in the main, deflected environmental concerns away from 'the main vortex of politics'[71] which prioritized employment creation, investment and the eradication of poverty, and despite relatively progressive environment and sustainable development policy, it was only in 2009 that the government explicitly began to integrate green economic praxis into its policy frameworks with renewed vigour. In this time Sustainable Development discourse was also critiqued for alignment with neo-liberal tendencies in international development discourse, and while South Africa hosted the 2002 World Summit on Sustainable Development, the outcome of this and the National Sustainable Development Strategy that emerged have not had the anticipated impact. This is also due to the emergence of significant policy implementation stressors which gradually became more visible after the first decade of independence, and which were exacerbated by the emergence of cronyism and state capture in the past decade, and economic challenges which impacted many countries after the 2008 recession.

In 2010 a number of green skills studies were commissioned by the Department of Environmental Affairs, the South African National Biodiversity Institute, the Department of Water Affairs and the Department of Science and Technology. At the time the environmental sector was experiencing a skills crisis, and the first ever National Environmental Sector Skills Plan (ESSP) was developed for South Africa to align with the new post-schooling policy environment and a revised National Qualifications Framework[72].

The ESSP identified an essentially 'reactive' skills planning system for environmental occupations and put forward a number of strategies which included improving teacher education for environment and sustainability education, strengthening Sector Education and Training Authority engagement with green skills planning, and skills system planning. This led to the establishment of a National Environmental Sector Skills Plan and a number of Environmental Skills Summits and interventions which have had an impact on enhancing green skills learning pathways in South Africa, although this still remains inadequate for the scope of demand.

At the time many of the post-apartheid skills development interventions were in crisis mainly for being over-ambitious and too complex for easy implementation. There were also significant flaws in some of the early policy making, for example the outcomes and competence-based approaches to education introduced in the early 1990's were found to be wanting in terms of knowledge substance and progression, thus paradoxically further disenfranchising those with least access to knowledge resources.

[70] Section 24 of the Constitution of South Africa 1996. https://www.gov.za/sites/default/files/images/a108-96.pdf.

[71] Carruthers, J. (2006). "Tracking in Game Trails: Looking Afresh at the Politics of Environmental History in South Africa," *Environmental History* 11 (October 2006): 804-829

[72] https://www.environment.gov.za/documents/strategicdocuments/environment sector_skillsplan

Since then, some progress has been made in trying to restructure policy in more practical ways, but in general South Africa is suffering from too much policy making and too little ease of, and success in implementation. This is the case in both the education and the sustainable development policy arenas.

The short historical perspective above indicates that policy making for Education and Sustainable Development and processes of mobilizing education in support of transformation to sustainable futures has a dynamic history in South Africa, but it has not been, nor is it likely to be a 'smooth sailing' process. While much has been achieved already (see Figure below) across what is effectively two intersecting systems in transition, there is much that still needs to be achieved.

South Africa has given attention to climate change in educational policy. The South African Third National Communication for the UNFCC (DEA, 2018) reports that "building on an earlier commitment to integrate an integrated, active learning approach to environmental education into all phases and levels of the education and training system as articulated in the 1995 White Paper on Education and Training (1995), the National Climate Change Response White Paper (Republic of South Africa [RSA], 2011, Section 11.2) includes a strategic goal of improving climate change education and training in South Africa, pointing out that there is a need to support an understanding of the concept of climate change across disciplines and sectors in South Africa.

While progress has been made with integrating CCE into formal education, initiatives that have been started can and must still be enhanced by stronger national co- ordination to ensure systematic upscaling, co-ordination and expansion of climate change education and training initiative in key areas. Co-operation between the education sector and the environmental sector at national level is critical for this process" [73].

Climate change has been integrated into the national Curriculum and Assessment Policy for Basic Education (Grades 1-12), but the topic-based approach is currently fragmented, and does not allow for adequate knowledge progression in climate change education and learning. There is need to strengthen an inter-disciplinary social-ecological and just transitions systems approach to climate change education within a clear conceptual framework that allows for progression in learning.

The Third National Communication to the UNFCC offers some interesting insights into the use of media in Transforming Education for Sustainable Futures. It reports : "The Media are also engaged in climate change awareness and action programmes. Television, newspapers and magazines are currently three of the strongest forms of media to be used for climate change awareness and action. Areas that are as yet un-developed for climate change education and public awareness is use of social media and community radio. Facebook alone reaches 11.8 million people in South Africa, and Twitter is gaining ground as a medium of choice for communications. Yet few climate change campaigns or awareness raising initiatives are currently using these media forms. Similarly, community radio reaches 8.6 million listeners per week, yet community radio stations are lacking in climate change knowledge and journalistic support. Training of journalists in climate change-related stories, approaches and priorities is also needed" [74].

[73] Department of Environmental Affairs. 2018. South Africa's Third National Communication under the UNFCC. https://unfccc.int/sites/default/files/resource/South%20African%20TNC%20Report%20%20to%20the%20UNFCCC_31%20Aug.pdf

[74] Ibid

The DEA Third National Communication for the UNFCC proposes that "a national strategy on climate change education, awareness and action with indicators that are policy aligned can support a more cohesive approach to climate change education, training, awareness and action" [75].

Engaging the Debate: What should TESF Research Focus on?

A socially just, sustainable, peaceful nation that has been able to heal itself from almost 350 years of colonial and apartheid and now neo-liberal and neo-colonial forms of historical and contemporary injustice and discrimination remains an ongoing, urgent product-in-process-in-the making. The transformation processes involved are not easy, and are often undermined and made more difficult by the fact that the country is currently experiencing economic problems due to a combination of interacting factors which include long histories of inequality, and under-preparedness for the scope and challenges of the national transformation. More recently issues to do with state capture, corruption and rent seeking have impacted very negatively on the intended post-apartheid and transformative governance trajectories of the country. Developmental state planning has to date, failed to fully materialize in practice, given three decades of policy flux.

Ultimately, it is important to begin to understand how to go about addressing the underlying root causes and drivers of all of the complex inequalities and unsustainable challenges that confront South African society, including the ongoing structural and cultural dynamics that continue to reproduce inequality. This ought to be the core work that TESF does.

As a way of attending to the complex intersection of issues outlined in this background paper, the South African node proposes that TESF research should focus on five overarching themes that can help frame the call for proposals.

1: Education for decent work, sustainable livelihoods and just transitions

2: Education for sustainable cities and communities

3: Education for climate action

4: Cross-cutting inequalities and intersectionality (poverty, gender, race, class)

5: Coloniality, indigeneity, inclusion and the politics of knowledge

[75] Ibid

For an in depth sense of how stakeholders, practitioners, activists, educators, researchers and academics intuitively responded to the call of the project, as well as critical input they offered around what needs to be considered within each of the five themes, please have a look at the workshop summary of the initial engagements that have already taken place. These engagements have helped us shape the call for research proposals going forward. They will also be a key resource for TESF researchers going forward, and reflect not only the documented view of the situation outlined in this start up Country Paper, but also the voices of those who are engaged with resolving many of the challenges that we have laid so bare (again) in this paper.

In writing this paper, it was not our intention to produce a 'litany of woes' but rather to remind ourselves of the significant work that TESF researchers need to do, and are doing, as they ground their work in the realities and experiences of what is at any one time an incredibly richly textured country and society that is clearly in the throes of emerging from many years of pain and struggle. The continued struggle for a better world and society, one that is more socially just and sustainable is visible across this paper. Our hope is that the TESF research community, through this Country Paper, can see the interconnections between history, education, society, environments, and the work of searching for, and contributing to a more sustainable future for all more starkly, but also more clearly in order to strengthen the situated foundations of their proposed projects, and to challenge themselves to reach out with their ambitions for social justice and sustainability in conceptualizing their projects.

Next in view in the South African TESF project, will be a focus on the processes of emergence of Transforming Education for Sustainable Futures, work that we wish to do with the children of this country, its young people, social movements, teachers, university educators, vocational education and training institutions, museums and cultural organisations, formal and informal learners, media practitioners, communities, government departments, research institutions, and civil society organisations. We will all need to collaborate in building a new education system in all of its facets (formal and informal) for a more sustainable future.

The invitation is therefore to join into this programme, which is offering a South Africans unique opportunity to build a social movement of co-engaged researchers and practitioners collaborating in this project that has already started, and will not end with this project, but which can be significantly amplified through the additional energy we can mobilise in the near future.

The TESF Background Paper Series sets out some of our foundational concepts for the work of the Network Plus and informs our forthcoming call for proposals. In many cases, these Background Papers have grown out of our shorter Briefing Note series. This work collectively informs future outputs to help us trace learning throughout the TESF lifecycle. You can follow this trajectory by visiting our Resources page for additional Background Papers and other writing from Network Plus.

This Country Background Paper is accompanied by a **TESF South Africa First Engagement Summary**, which outlines the insight gained from our first engagement with a wide range of stakeholders, practitioners, activists and researchers.

Acknowledgements The support of the Economic and Social Research Council (UK) is gratefully acknowledged by TESF (award title 'UKRI GCRF Transforming Education Systems for Sustainable Development (TES4SD) Network Plus').

Contact Heila Lotz-Sisitka h.lotz-sisitka@ru.ac.za

Suggested Citation Lotz-Sisitka, H., Kulundu-Bolus, I. 2021. TESF South Africa Background Paper. Bristol, TESF. DOI https://doi.org/10.5281/zenodo.4464262

Version 1.0 published 26 January 2021

The Author Team

Heila Lotz-Sisitka and
Injairu Kulundu-Bolus
Rhodes University