

Strengthening gender equality and
inclusivity in the national system of
Science, Technology and Innovation:



ZIMBABWE COUNTRY PROFILE



Gender & Inclusivity
A PROJECT OF THE SCIENCE GRANTING COUNCILS INITIATIVE



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Strengthening Gender Equality and Inclusivity in Science, Technology and Innovation (STI) highlights the contextual factors driving gender and inclusivity disparities in STI in Zimbabwe as well as options and strategies for addressing disparity gaps in some of UNESCO's STEM and Gender Advancement (SAGA) policy impact areas.

These impact areas are social norms and stereotypes, education (primary, secondary and tertiary), the career progression environment, research content and practice, policy and entrepreneurship and innovation.

This profile synthesizes important data for funding agencies, researchers, policymakers and other actors advancing gender equality and inclusivity in STI at country, regional and international levels.

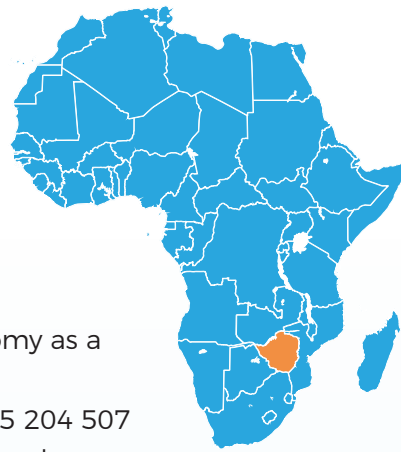
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Country overview



Zimbabwe is a landlocked country bordering South Africa, Botswana, Mozambique and Zambia.

The economy depends primarily on the mining, agriculture, manufacturing and tourism sectors and has an informal economy as a large share of the economy (United Nations, 2021).

Women and girls comprise 48% of the total population of 15 204 507 people. Slightly under a third (32,3%) of the population lived in urban areas in 2021. The population is characterized as young, with a median age of 18,7 years old (United Nations, 2021).

The unemployment rate in Zimbabwe increased from 5,7% in 2020 to 6% in 2021. Women aged 15-64 constitute 16% of the unemployment rate, compared with 8% for men. Significantly, in 2019, 31% of female youth were unemployed.

Poverty is endemic, with 38% of the population living in extreme poverty (United Nations, 2021).

Zimbabwe has stagnated in achieving many of its Sustainable Development Goals (SDGs) and regressed in some (Sachs et al., 2022; UN Women, 2020):

- Significant challenges remain for ending hunger (SDG 2), good health and well-being (SDG 3) and access to quality education (SDG 4).
- Gender equality (SDG 5) shows progress, but critical data gaps exist.
- Only 46,7% of indicators are available for monitoring Zimbabwe's SDGs from a gender perspective, with critical data gaps in unpaid care and domestic work. Closing gender data gaps is essential for achieving the country's gender-related SDG commitments.

Gender and inclusivity disparities negatively impact Zimbabwe's human potential for socio-economic development

- Gender inequality in Zimbabwe is associated with deeply-rooted inequitable laws, norms and practices, hampering women's and girls' access to opportunities, resources and power (World Economic Forum, 2022; Zimbabwe National Statistics Agency, 2019).
- Structural drivers of gender inequality such as unequal gender roles and power relations between men and women persist across all social institutions, resulting in multiple forms of discrimination against girls and women. (Alpin-Lardiés et al., 2019).
- Zimbabweans generally have a greater tolerance of people of different religions (96%) and ethnicities (96%), a slightly lower tolerance of immigrants and foreign workers at 87%, and a low tolerance of people of different sexual identities or orientations at 5% (Howard, 2020).
- The country has made significant progress in reducing gender disparities and discriminatory practices in the critical social institutions of the family, civil liberties, reproductive autonomy and access to productive and financial resources between 2019 and 2023 (Table 1, SIG Index).
- However, there remains work to achieve full gender equality; disparities harm female livelihoods and the potential for poverty alleviation and growth on a national level (UNDP, 2021).
- Structural drivers of gender inequality result in Zimbabwe reporting gender disparities on several socio-economic development indices (Table 1). These indicators do not include data on intersecting marginalised identities and experiences of women and girls, e.g., rurality or disability, which hampers a nuanced picture of gender and other inequalities in the country.

TABLE 1: Key gender indicators for Zimbabwe

Human Development Index (HDI) (UNDP, 2021)	
<p>This index measures average achievement in human development in three dimensions: a long and healthy life (health), knowledge (education), and a decent standard of living (command over economic resources). The closer the value to 1, the higher the country's level of human development.</p>	<p>Zimbabwe had an HDI value of 0,527 in 2019 to 0,593 in 2021. The country ranks 146th out of 191 countries and territories on the HDI.</p>
Gender Inequality Index (GII) (UNDP, 2021)	
<p>This index exposes the human development costs of gender disparities in three areas of human development: reproductive health (maternal mortality ratio and adolescent birth rate), empowerment (population with at least some secondary education; share of seats in parliament) and the labour market (labour force participation rate). The closer the score to 1, the more disparities between men and women and the greater the loss to human development.</p>	<p>Zimbabwe's gender inequality index (GII) has increased nominally slightly from 0,527 in 2019 to 0,532 in 2021. The country ranks 142nd out of 191 countries.</p> <ul style="list-style-type: none"> ● The maternal mortality ratio is 458 deaths of women from pregnancy-related causes per 100 000 live births. ● At 94,3 births per 1 000 women aged 15-19, the adolescent birth rate is lower than the sub-Saharan Africa rate of 104. ● 61,8% of adult women have reached at least a secondary level of education, compared with 72,4% of their male counterparts, significantly higher than the SSA averages of 31,1% for women and 44,3% for men. ● Women hold only 34,6% of parliamentary seats, slightly higher than the sub-Saharan Africa average of 25,7%. ● The labour force participation rate is lower for women at 79,3% versus 88,9% for men, but these are higher than the sub-Saharan averages of 63,3% for women and 72,7% for men.
Social Institutions & Gender Index (SIGI) (Organisation for Economic Co-operation and Development, 2023)	
<p>This index assesses the extent of discriminatory social institutions- the complex web of formal and informal laws, social norms, and practices that limit women and girls' access to their rights, justice, opportunities for empowerment, and resources and undermines their agency and authority. A SIGI value of 0% indicates no discrimination and 100% very high discrimination in social institutions.</p>	<p>At 19,3% in 2023, Zimbabwe's social institutions showed a significant decrease (13,1%) in discrimination against women compared with 32,4% in 2019. Discrimination Zimbabwe is highest in restricted access to productive resources and lowest in restricted civil liberties.</p> <ul style="list-style-type: none"> ● Restricted access to productive and financial resources (29,4%) captures women's restricted access to and control over crucial economic assets and resources, e.g., land ownership, bank account ownership, and the gender gap in management positions. ● Restricted physical integrity (19,8%) captures social institutions that make women and girls vulnerable in these areas and limit their control over their bodies and reproductive autonomy (e.g., laws on violence against women, female genital mutilation, and reproductive freedom, the prevalence of intimate partner violence and percentage unmet needs for family planning). ● Family discrimination (18,8%) captures power distribution within households. It evaluates how much girls and women may be undervalued (e.g., child marriage rate, the gender gap in unpaid care and domestic work, and laws on divorce and inheritance). ● Restricted civil liberties (8,1%) capture social institutions that limit women's access to participation and voice in the public and social spheres.
The Global Gender Gap Index (GGGI) (World Economic Forum, 2022)	
<p>This index measures gender-based gaps in access to resources and opportunities across four categories: economic participation and opportunity, educational attainment, health and survival, and political empowerment. The closer the score to 1, the higher the gender parity.</p>	<p>With a GGG value in 2022 of 0,73, Zimbabwe has closed 73% of its gender gap, ranking 50th out of 146 countries. When the sub-indices disaggregate this value, a more nuanced picture of imbalances emerges, with stark inequalities in access to political empowerment and almost full parity on health, survival, and educational attainment.</p> <ul style="list-style-type: none"> ● Health and survival (98%) evaluate parity in sex ratio at birth and years of health life expectancy. ● Educational attainment (98%) evaluates parity on literacy rate and percentage enrolments in primary, secondary and tertiary education. ● Economic participation and opportunity (76%) evaluate parity on measures such as the labour force participation rate, wage equality for similar work, percentage of women legislators, senior/executive management, and professional and technical workers. ● Political empowerment (20%) evaluates parity in the percentage of women in parliament, ministerial positions and years with a female head of state.

STI and sustainable socio-economic development

- Zimbabwe's science, technology and innovation systems for human development are part of the country's long-term national development plans and strategies, legal frameworks and policy instruments, positioning science and technology and, specifically, innovation at the centre of individual and national development.
- The responsibility for STI falls under the **Ministry of Higher and Tertiary Education, Science and Technology Development**, whose mission is to provide a dynamic system for human capital development to sustain a science and technology-led socio-economic transformation (Lemarchand & Schneegens, 2014).
- The **Research Act of 1986** and subsequent amendments made provision for establishing the **Research Council of Zimbabwe** in 1986 to promote, direct, supervise and coordinate research. One of the major functions of RCZ is advising Government on issues of research for sustainable development. The RCZ is also vital for financial and infrastructure support for collaborative research (Government of Zimbabwe, 1986).
- The country's **2021-2025 National Development Strategy** outlines strategies for accelerating human, economic and social development. Human capital development and innovation drive the plan for creating a knowledge-driven economy for sustained growth and innovation, emphasizing Science, Technology, Engineering, Arts and Mathematics (STEAM) subjects within a reorganized education system (Republic of Zimbabwe, 2021). Notably, gender mainstreaming is a cross-cutting issue intended to create a cohesive national social fabric and reduce social tensions emanating from the exclusion of a large segment of the population.
- The **Second Science and Technology Policy of 2012** aims to accelerate development as quickly as possible. This STI policy has six primary goals which guide core activities. Advancing gender equality is not a theme of this policy (Government of Zimbabwe, 2012).
- Zimbabwe's scientific **peer-reviewed publications and patents**, used as a measure of research and development (R&D), indicate the following (Scimago, 2023):
 - Scientific knowledge production has grown since 1996.
 - Researchers have increased their publication outputs from 355 publications in 1996 to 1587 documents in 2022, with a total of 9997, ranking 13th out of 59 African countries.
 - The country's percentage contribution to Africa's publications has declined from 2,55% in 1996 to 0,97% in 2022.
 - The proportion of papers written with international partners has increased from 56,3% in 1996 to 74,8% in 2022.

- Publications in Medicine dominate, followed by the Social Sciences, Agricultural and Biological Sciences, Environmental Sciences, engineering and Immunology and Microbiology.
- Like most of the 15 participating SGCs, Zimbabwe has over 50% for international collaborations on publications with gender-related content. Between 2008 and 2017, Zimbabwe increased the number of gender-related publications by 6% annually, from 102 to 172, with the annual average being 6% for the 15 participating SGCs (Figure 1) (Jackson et al., 2022; SGCI, n.d.).
- Resident and abroad applicants filed 10 patents in 2021 ranking 29th out of 37 African rankings. representing 0,1% of Africa's patent applications (The World Intellectual Property Organization, 2021).

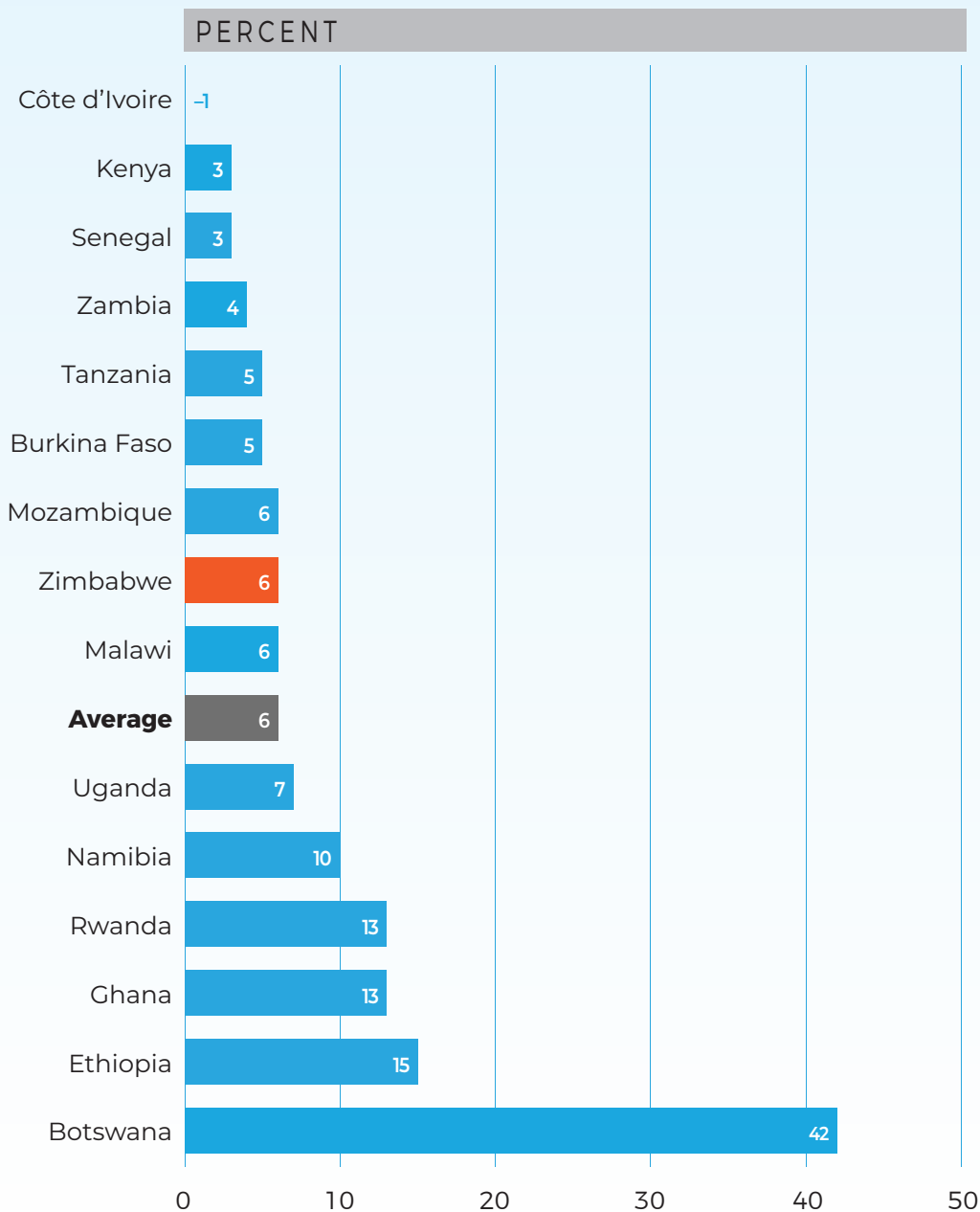


FIGURE 1: African SGC participating countries percentage (%) increase in publications with gender-related content between 2008 and 2017

Status of human capital for STI

- Gender disaggregated data gaps paint an incomplete picture of the status of human capital for STI in Zimbabwe. A lack of regular data reporting on R&D personnel is a global challenge: “In 2018, 50 countries recorded the number of researchers (in head counts), down from 97 countries in 2015” (UNESCO, 2021, p. 47).
- Bearing this global data challenge in mind, in 2012 women constituted 25% of researchers in the country (Unesco Institute for Statistics, 2021).
- Zimbabwe has a relatively well-developed national infrastructure and a long-standing tradition of promoting R&D; however, structural weaknesses exist.
- As shown in Table 2, in 2012 (latest available data), the total number of women in R&D was significantly lower than men for each category of R&D function (UIS, 2021).

TABLE 2: Total number of R&D personnel (headcount) by category and gender for 2012

	Women	Men	Total
Researchers	692	2047	2739
Technicians	140	290	430
Support staff	212	316	528
Total	1044	2653	3697

- Overall, the R&D personnel at all levels is predominantly and disproportionately male (Figure 2) (UIS, 2021).
- Zimbabwe’s distribution of researchers by field of research in 2012 (Figure 2) illustrates gender disparities in scientific research, with men prominent across all the scientific fields and women somewhat prominent (but still not as prominent as men) in the medical sciences (UIS, 2021).
- A decisive move away from the stereotypic notion and practice of the hard sciences as mainly a male domain has yet to be apparent.
- Figure 3 shows more women in the Private Non-Profit and Business Enterprise sectors. However, within the Higher Education and Government sector, there were double more men than women (UIS, 2021).

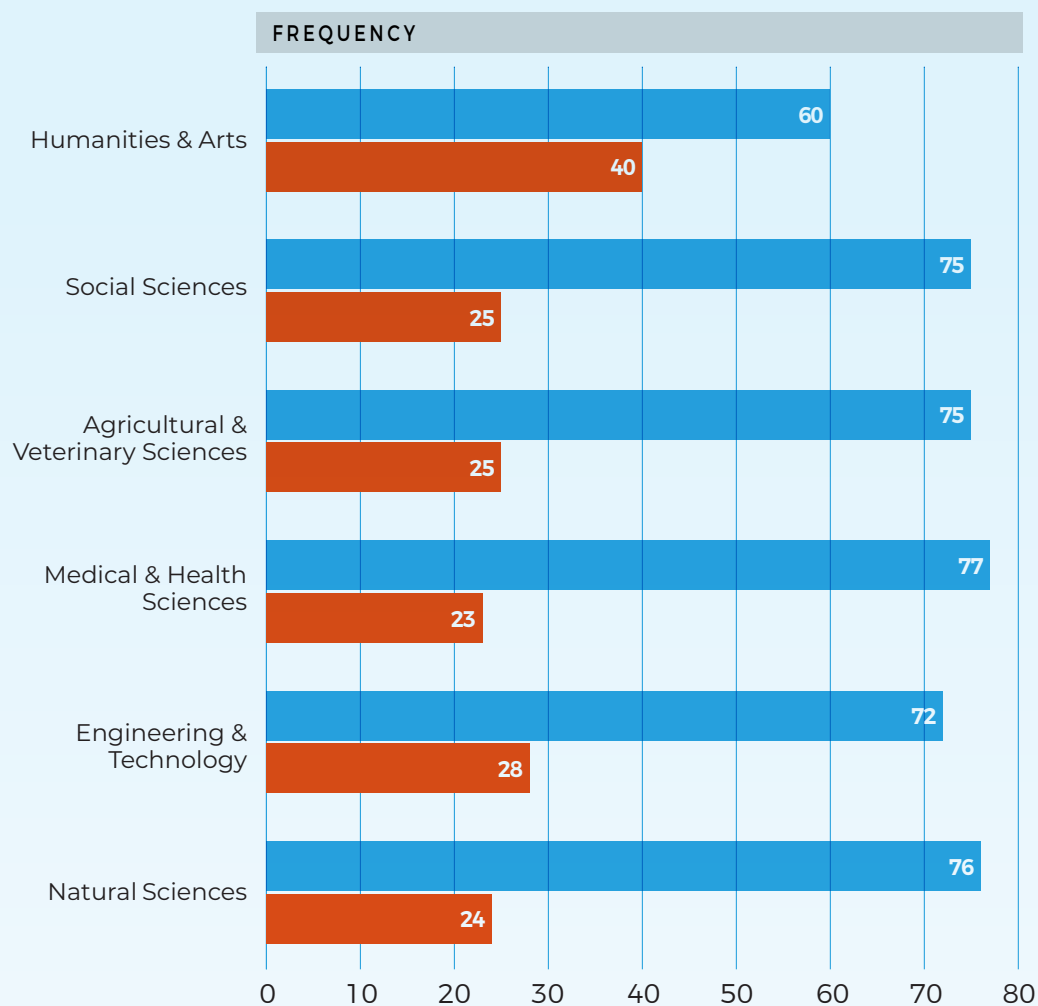


FIGURE 2: Distribution (%) of researchers by field of science and gender for 2012

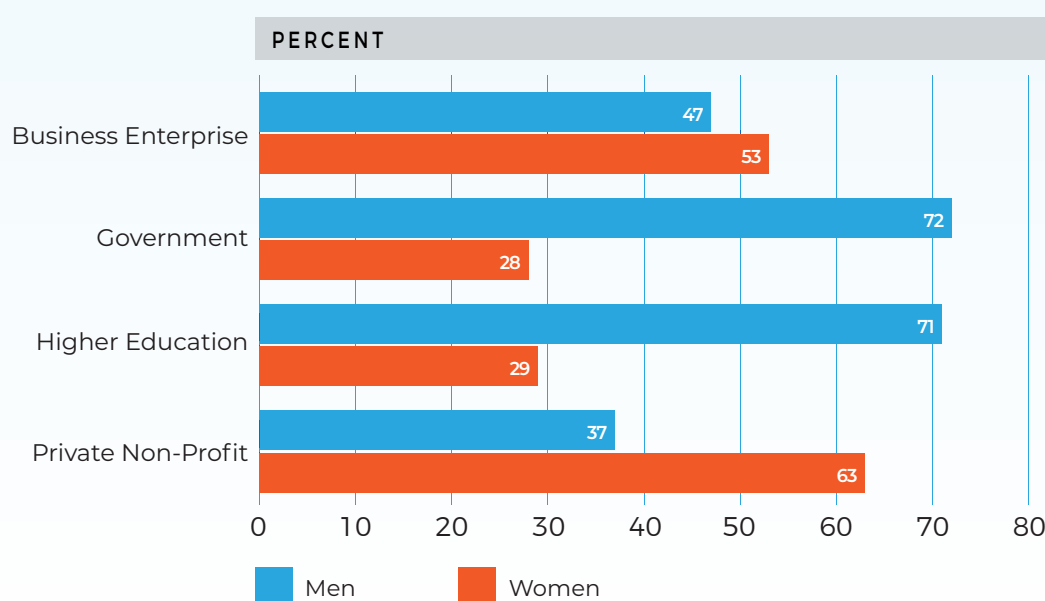


FIGURE 3: Distribution (%) of researchers by field of science and gender for 2012

What factors encourage (discourage) women's participation in the national system of science, technology and innovation?

Policy and frameworks

- The issues of gender equality, gender equity and gender mainstreaming are becoming increasingly more visible in policies and documents, but progress is limited. Various frameworks and policy instruments, flowing from the 1996 constitution and especially the 2013 constitution, as well as global gender protocols, prohibit discrimination based on gender and endorse gender equality.
- The **Second 2012 Science and Technology and Innovation Policy of Zimbabwe** focus on skills and infrastructure development using emerging technologies and the commercialization of research results and international collaborations to accelerate development. The Government is committed to (a) making a budgetary allocation of at least 1% of GDP for expenditure on R&D and (b) focusing at least 60% of university education on Science and Technology skills development. The policy has no specific gender focus, probably because it was developed before the 2013 gender-sensitive constitution and the 2015 national gender policy. Thus Zimbabwe's endorsement of regional and global gender protocols is not reflected in this STI policy (Government of Zimbabwe, 2012).
- Unlike previous constitutions, the **2013 Constitution of Zimbabwe** mandates gender equality in all spheres of Zimbabwean society, overrides discrimination based on customary law, and calls for a gender balance across all government institutions and agencies at every level. Notably, the constitution emphasizes measures to promote equal opportunities and access to those opportunities for men and women in ways that transform the unequal power relations between women and men (Comparative Constitutions Project, 2022).
- Significantly, the constitution and the subsequent **2015 Gender Commission Act of Zimbabwe** provided for the establishment of a Gender Equality Commission to investigate systemic barriers prejudicial to gender equality, gender equity and gender mainstreaming and provide recommendations for reforms directly to the minister and parliament (Government of Zimbabwe, 2016).

- The second **National Gender Policy (2013-2017) of 2015** sets out policy objectives for mainstreaming gender in eight thematic areas to achieve the goal. Several institutions, under the authority of the Ministry of Women Affairs, Gender and Community Development, are involved in implementing the policy, with set indicators for monitoring achievement. These include gender focal points in all sectors and institutions, the Ministry of Finance, government and private research institutions, Gender Commission, private sector, development partners, parliament, Anti-Domestic Violence Council, local authorities, traditional authorities, political parties, judiciary, media, human rights and other oversight commissions. Unfortunately, the policy does not include a budget or implementation timeline (Republic of Zimbabwe, n.d).
- The **National Development Strategy 1 (2021-2025)** prioritizes gender equality and women empowerment (as seen previously in Box 1) (Republic of Zimbabwe, 2021).
- Zimbabwe signed the United Nations **Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW)** in 1991 and ratified it in 1997. However, progress could have been faster and more complete.
- Zimbabwe signed the **SADC Gender Protocol** in 2008 and ratified it in 2009.
- According to Zimbabwe's 2020 **Education Amendment Act**, students in primary or secondary school cannot be expelled due to pregnancy or face discrimination based on pregnancy or other personal characteristics such as race, ethnicity, class, culture, gender, sex, age, marital status, colour, tribe, social status, or being born outside of marriage (Human Rights Watch, 2022).

Gender social norms and the education pipeline

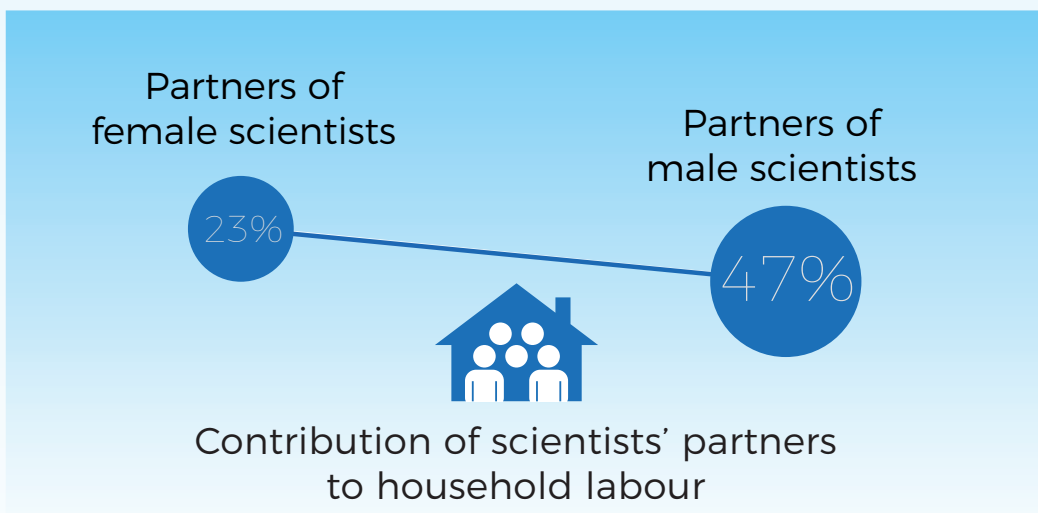
- Zimbabwe has achieved parity in primary education attainment rates, with a widening gender bias in secondary and tertiary education attainment.
- Between 2017 and 2019, the percentages of school-age populations increased for primary and secondary education but decreased for tertiary education (Republic of Zimbabwe, 2020; Zimbabwe National Statistics Agency, 2019, 2021).
- In 2019, more boys than girls dropped out of primary school. Boys constitute 54% of the total dropouts versus 46% for girls. The reverse is true for secondary school at 55% for girls and 45% for boys. Influencing reasons accounting for dropouts, in order of impact, include (Zimbabwe National Statistics Agency, 2021):
 - Financial reasons (39% for girls vs 53% for boys).
 - Leaving school without notification (20% for girls vs 34% for boys).
 - Early marriage (19% for girls vs 2% for boys).
 - Pregnancy (15% for girls vs 0,44% for boys).

- The country achieved gender parity in tertiary education in 2016 with a Gender Parity Index (GPI) of 0,99 increasing to 1,17 for 2019 and 2020. However, there are more men than women in the four universities with a specific mandate for training in science and technology, with women constituting only between 34% and 44% of the population at these institutions.
- Men dominate in pure sciences and technology, and women dominate in the arts, education and social studies / social sciences (Republic of Zimbabwe, 2020; Zimbabwe National Statistics Agency, 2021).
- A 2015 study found that the gender norms prioritizing men over women within Zimbabwean culture influenced girls' perceptions of sciences and maths as "masculine and difficult subjects". For many girls, this perception was at odds with their cultural definition of a woman and negatively influenced their participation in these subjects (Gudyanga et al., 2015).
- Unfortunately, Zimbabwe has no data on the proportion of time women and girls spend on unpaid domestic and care work within 24 hours. Still, time spent on these activities is gender-disproportionate, with girls and women bearing the burden, leaving little time for study (Republic of Zimbabwe, 2020).
- Factors such as wealth, location, and disability can hinder enrolment in higher education. In 2019, the majority of adults aged 25 years and above who attended courses for bachelor's degrees, master's degrees and doctoral degrees were from urban areas (8,2% vs 1,4% for rural areas), were from the wealthiest quintile (13,6% vs 0,1% for the poorest quintile) and were without functional difficulties (4% vs 1,1% with functional problems) (Republic of Zimbabwe, 2020; Zimbabwe National Statistics Agency, 2019, 2021).
- Indicators tracking gender equality in human development (Table 1) reveal contributing factors for gender gaps and disparities linked to Zimbabwe's loss of human development potential across the life course, including those related to STI.

Gender science norms and the STI career progression environment

- In 2012 women constituted 25% of researchers in the country (Unesco Institute for Statistics, 2021).
- Under-representation of women in STI in SSA is better explained by discriminatory practices that prevent women's participation in science than by supposed preferences for or aptitude in STI. Gender-science leaks emerge in women's tertiary education participation, affect completion rates and continue as leaks or blockages in their research career trajectory. Gender-science stereotypes are perceptions that connect scientific achievements with men more than with women. The STI landscape is rife with gender-science stereotypes (Elu & Price, 2017; Huyer, 2019).

- Gender bias during grant review processes impacts women's success in securing research funding (Sato et al., 2021). A continent-wide study found that men received more funding than women in engineering and applied sciences (Fisher et al., 2020).
- Other factors constraining women's participation in STI include workplace sexual harassment, gender pay gaps, low job security for young women scientists who often hold contract positions, and a lack of mentors and role models (Mukhawana et al., 2020; Prieto-Rodriguez et al., 2022; Prozesky & Mouton, 2019). In academic institutions, women scientists generally have higher teaching, supervisory and administrative loads, leaving less time for publishing and fundraising. Interestingly, when controlling for this additional workload, women researchers in Africa publish more than their male peers (Beaudry et al., 2023).
- Overwhelmingly, the most widely cited structural barrier to women's full participation in STI is unequal gendered beliefs and expectations about their role as caregivers (Beaudry et al., 2023; Fisher et al., 2020; National Academies of Sciences, Engineering, and Medicine, 2020). A study about African scientists' career experiences notes that balancing work and family life was reported as the most significant career challenge for 80% of women researchers. Overall, male scientists' partners contributed a much higher percentage (47%) than women scientists' partners (23%) to alleviating the household labour burden (Prozesky & Mouton, 2019).



- A study conducted in 17 African countries, including Zimbabwe, compares the performance of men and women in STEM PhD programs (Fisher et al., 2020):
 - Men and women had similar completion rates, but women took longer to earn their PhD. This was attributed to women being more likely than men to take a break due to family reasons such as having children (11% of women compared to 2% of men). This delay in completion time for women is known as the 'motherhood penalty'.

- Women with a female supervisor, who attended an institution with gender policies in place, and pursued their PhD in a department where sexual harassment by faculty was perceived as uncommon were more likely to complete their program on time.
 - Marriage during PhD studies had different impacts on men and women. Women’s publication productivity decreased, while men’s increased, likely due to changes in domestic responsibilities associated with marriage. Research consistently shows that marriage benefits men while disadvantaging women regarding the division of household labour.
 - Gendered relationship norms are also relevant. The study notes that 33% of married women felt compelled to downplay their successes and career prospects to avoid conflicts with their spouses.
- Interventions to address gender-related barriers in STI environments include implementing family-friendly policies and facilities that support women’s roles as mothers, incentivising men’s involvement in childcare, addressing workplace sexual harassment, and creating broader networks and linkages for women in STEM fields including mentoring and supervisory support (Fisher et al., 2020; Prieto-Rodriguez et al., 2022).
 - Networks of stakeholders with interest and influence in advancing gender and inclusivity in STI in Zimbabwe aim to create an enabling and empowering environment for women in science. Examples of such stakeholders include UNICEF, with a range of collaborators, presents a call to action for global, national and regional actors concerned with the potential of STEM education to transform gender norms in the education system, to improve quality learning opportunities for girls and to highlight pivotal actions that can accelerate girls’ transition between education and STEM careers. The Forum for African Women Educationalists (FAWE) STEM model focuses on increasing girls’ participation in STEM subjects for career progression in related fields.

Conclusion

Harnessing 100% of the country's human development for accelerated socio-economic development is entrenched in policy instruments across the STI pipeline. The Zimbabwean Government has taken comprehensive policy measures to promote gender equality. While the country has made remarkable progress over the past decades to improve the rights protections of women, the impact of national gender policy is tempered by uneven implementation and structural barriers to equality, and the fallout is evident in persisting discrimination against girls and women across critical development domains.

In Zimbabwe's policy context, gender equality and inclusivity considerations are conceptualised mainly in terms of male/female disparities. Social exclusion and disadvantage based on social factors beyond gender – such as disability, ethnicity, gender diversity, rural/urban location, and socio-economic status – are generally not meaningfully engaged in policy. Applying an intersectional lens to gender-related policy concerns will provide a more nuanced understanding of the interlocking systems of inequality that place women and other marginalised groups at a disadvantage in STI.

The absence of up-to-date education and R&D data disaggregated by sex, gender, and other diversity stratifiers hampers the ability of Government and other STI stakeholders to monitor policy implementation and impact. Moreover, very few science granting councils in Africa collect and make available gender and diversity-related data in their research and grants management processes (Global Research Council, 2021).

Publication trends show that Zimbabwe is making strides in growing knowledge production on gender-related topics. Further investing in research to define and drive intersectional gender equality in STI is vital. Insights gleaned from such research will deepen understanding of the lived experience of girls and women in their diversity. Research to better understand gender and STI policy implementation gaps is also critical. These efforts will help the country attain equitable social, political and economic development outcomes for its entire population.

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