

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



# NAMIBIA

## COUNTRY PROFILE



*Gender & Inclusivity*  
A PROJECT OF THE SCIENCE GRANTING COUNCILS INITIATIVE



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# NAMIBIA

## COUNTRY PROFILE

Strengthening Gender Equality and Inclusivity in Science, Technology and Innovation (STI) highlights the contextual factors driving gender and inclusivity disparities in STI in Namibia 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.

# Acknowledgements

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This country profile forms part of a series covering 15 Science Granting Councils Initiative (SGCI) African countries. It was produced as part of the SGCI Gender and Inclusivity Project, led by the Human Sciences Research Council (HSRC) of South Africa in partnership with Gender at Work, Jive Media Africa and the Council for the Development of Social Science Research in Africa (CODESRIA). The SGCI is a multi-funder initiative geared towards supporting the development of research and evidence-based policies that contribute to socio-economic development, with participating Science Granting Councils (SGCs) in Botswana, Burkina Faso, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Malawi, Mozambique, Namibia, Rwanda, Senegal, Tanzania, Uganda, Zambia and Zimbabwe.

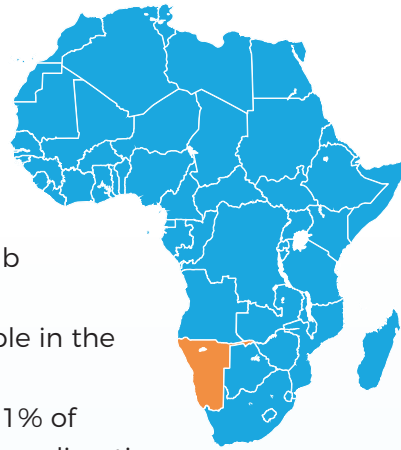
## Suggested citation

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Essop, R., Middleton, L., Lynch, I., Fluks, L., Isaacs, N., Agugua, A., Djoukouo, F., Kuetche, I., Ndinda, C., & Van Rooyen, H. (2023). *Strengthening gender equality and inclusivity in the national system of Science, Technology and Innovation: Namibia country profile*. Cape Town, South Africa: HSRC.

# Country overview

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Namibia is on the south-west coast of Africa and is one of the most sparsely populated countries in the world, with the Namib Desert in the west and the Kalahari Desert in the east.

Women and girls constitute 51,57% of the 2,54 million people in the country (United Nations Development Program, 2020).

While agricultural land accounts for 47,2% of Namibia, only 1% of the land is useable. The country's agriculture is affected by severe climatic conditions. In drought, food shortages become an issue for rural people (United Nations Development Program, 2020).

43,3% of the population of Namibia are multidimensionally poor, with higher poverty rates amongst the rural population (59,3%) compared to the urban population (25,3%).

Female-headed households are impacted more by the incidence of multidimensional poverty (46%) in comparison to male-headed homes (41%) (Namibia Statistics Agency, 2021).

Namibia has stagnated in achieving many of its Sustainable Development Goals (SDGs) and regressed in some (Sachs et al., 2022; UN Women, 2021):

- Significant challenges remain in ending poverty and hunger (SDGs 1 and 2).
- There has been progress in good health and well-being (SDG 3) and quality education (SDG 4).
- Access to clean water and sanitation has stagnated (SDG 6).
- Gender equality (SDG 5) shows progress but critical data gaps.
- Only 34,4% of indicators are available for monitoring Namibia's SDGs from a gender perspective, with critical data gaps in unpaid care and domestic work, key labour market indicators and information and communications technology skills. Closing these gender data gaps is essential for achieving the country's gender-related SDG commitments.

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

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- Gender inequalities in Namibia are associated with laws, cultural norms and practices that hamper women's and girls' access to opportunities, resources and power. 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).
- Women and girls, particularly adolescent girls, continue to experience gender-based violence, teenage pregnancy, and restrictive socio-cultural norms, which limit human and women's rights (World Economic Forum, 2022).
- Unfortunately, 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 has declined nominally between 2019 and 2023 (Table 1, SIC Index).
- Social studies in Namibia report that 15% of women and 14% of men experienced gender-based discrimination. Namibians have the highest tolerance towards people of other religions (92%) and ethnicities (93%), with decreasing tolerance towards immigrants and foreign workers (82%) and people of different sexual identities or orientations (54%) (Howard, 2020).
- 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 Namibia 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 Namibia

<b>Human Development Index (HDI)</b> (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>Namibia had a 0.615 HDI value in 2021, which falls above the sub-Saharan average (SSA) HDI value of 0,547.</p>
<b>Gender Inequality Index (GII)</b> (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>Namibia has a GII value of 0,445, ranking it 111 out of 191 countries in the 2021 index. When the sub-indices disaggregate this value, a more nuanced picture of imbalances emerges.</p> <ul style="list-style-type: none"> <li>● Women hold 35,6% of parliamentary seats, higher than the sub-Saharan African average of 25,7%.</li> <li>● 41,5% of adult women have reached at least a secondary level of education, compared to 44,1% of their male counterparts; the figures are above the SSA averages of 31,1% for women and below 44,3% for men.</li> <li>● For every 100 000 live births, 195 women die from pregnancy-related causes, which is far below the (SSA) average of 536.</li> <li>● The adolescent birth rate is 64,9 births per 1 000 women ages 15-19, moderately lower than the SSA average of 101.</li> <li>● Female (15 years and older) participation in the labour market is 54,5%, compared with 62,2% for men. The figures are lower than the SSA of 62,1% for women and 72,3% for men.</li> </ul>
<b>Social Institutions &amp; Gender Index (SIGI)</b> (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 27,6% in 2023, Namibia's social institutions showed increased discrimination against women compared with 27,1% in 2019. Discrimination is highest in restricted physical integrity and lowest in restricted civil liberties.</p> <ul style="list-style-type: none"> <li>● Restricted physical integrity (48,5%) 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).</li> <li>● Restricted access to productive and financial resources (26,1%) 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.</li> <li>● Family discrimination (26,1%) 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).</li> <li>● Restricted civil liberties (4,6%) capture social institutions that limit women's access to participation and voice in the public and social spheres.</li> </ul>
<b>The Global Gender Gap Index (GGGI)</b> (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 GGGI value in 2022 of 0,807, Namibia has closed 81% of its gender gap, ranking 8th out of 146 countries globally and 2nd out of 36 sub-Saharan African countries. Still, resources and opportunities need to be equal between men and women. When the sub-indices disaggregate this value, a more nuanced picture of imbalances emerges, with full parity on educational attainment and lower political empowerment.</p> <ul style="list-style-type: none"> <li>● Educational attainment (99%) evaluates parity on literacy rate and percentage enrolments in primary, secondary and tertiary education.</li> <li>● Health and survival (98%) evaluate parity in sex ratio at birth and years of health life expectancy.</li> <li>● Economic participation and opportunity (78,5%) 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.</li> <li>● Political empowerment (46%) evaluates parity in the percentage of women in parliament, ministerial positions and years with a female head of state.</li> </ul>

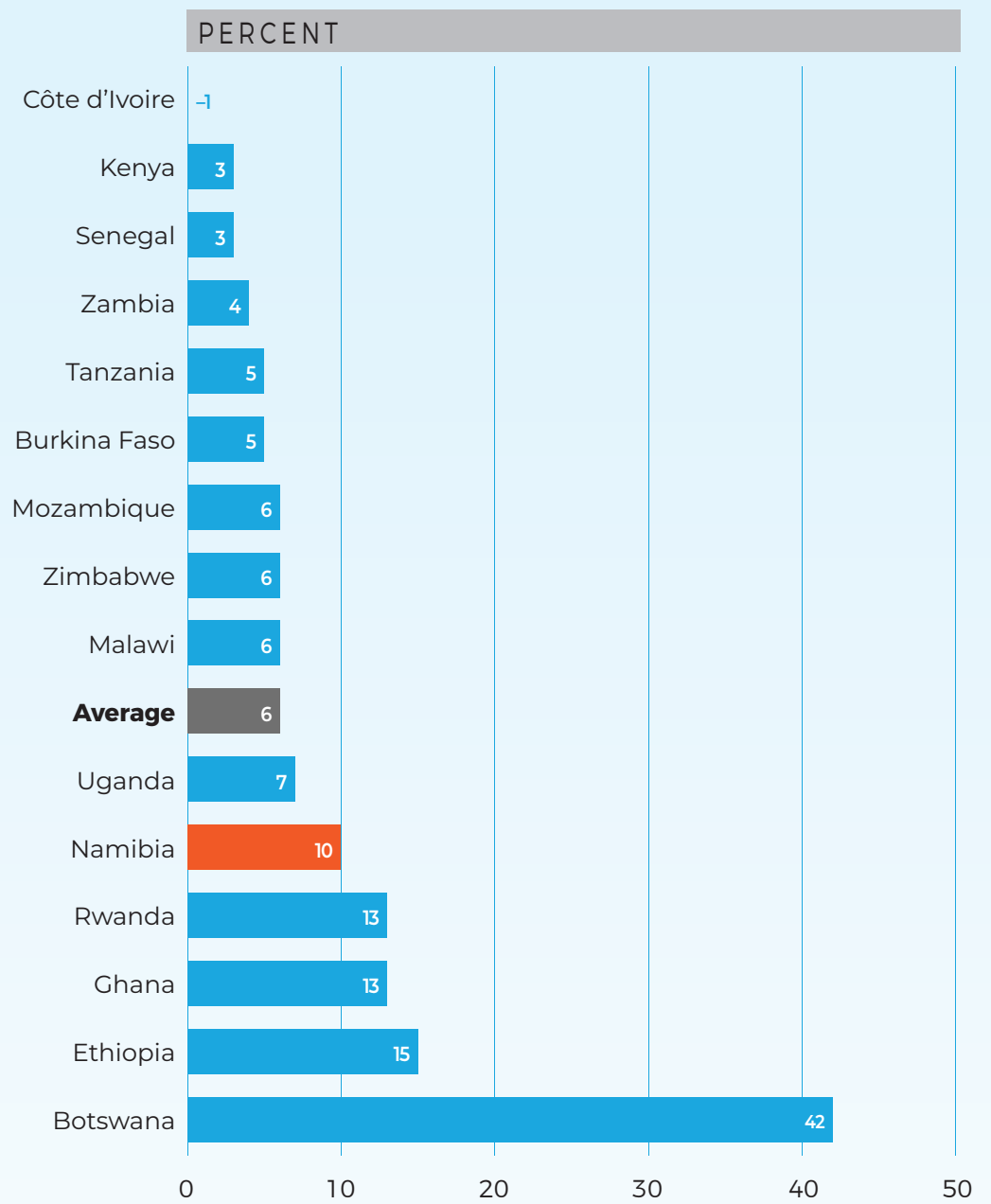
# STI and sustainable socio-economic development

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- The initial **National Policy on Research, Science and Technology** adopted in 1999 prompted the **Research, Science and Technology Act 23 (2004)**. It enabled the establishment of the **National Commission for Research, Science and Technology (NCRST)**. The NCRST has been instrumental in creating a research and development (R&D) fund and preparing a national research, science and technology programme. In addition, the Act also enabled the establishment of the **National Indigenous Knowledge Systems Council (NIKSC)**, which functions as an advisory body to the NCRST on a national agenda for indigenous knowledge systems in all sectors (Government of the Republic of Namibia, 2004b).
- Overall, the **Research, Science and Technology Act 23 of 2004** aimed to strengthen the promotion of science and innovation activities. The Act focuses mainly on regulations for the establishment of science institutions. The Act did not articulate any guiding principles, and even though it regulates the appointment of Namibian research staff, there is no reference to inclusivity and gender equality under the recruitment section.
- Further to sustaining social transformation and economic growth, Namibia has initiated attempts to advance the science, technology and innovation landscape.
- For example, the **Fifth National Development Plan 2017/18 – 2021/2022 (NDP5)** under the overarching framework of **Vision 2030** outlined utilising knowledge and technology to strengthen and expand Namibia's secondary sector. Vision 2030 and NDP5 articulate an intention to use Research, Science, Technology and Innovation (RSTI) through the increased production and distribution of knowledge (Government of the Republic of Namibia, 2004a, 2017).
- Both documents point to Namibia's intentions to become a Knowledge-Based Economy (KBE) by transforming into an innovative knowledge society. The purpose of Namibia's knowledge base is to provide the evidence and solutions for achieving the strategic goals of **Vision 2030**, which include addressing inequality; population, health and development; economic development; knowledge, information and technology; and human resources development and institutional capacity building.
- The revised **National Science, Technology and Innovation Policy (NSTIP 2020-2030)** calls for accelerating the expansion of STI to accelerate social and human development. This policy gives operational impetus to Vision 2030 and associated instruments.
- Goal 4 of the NSTIP Policy is to improve gender equality. The policy includes gender equity, referencing different intersecting identities, as one of their six guiding principles (Namibia, Ministry of Higher Education, Technology and Innovation, 2021).



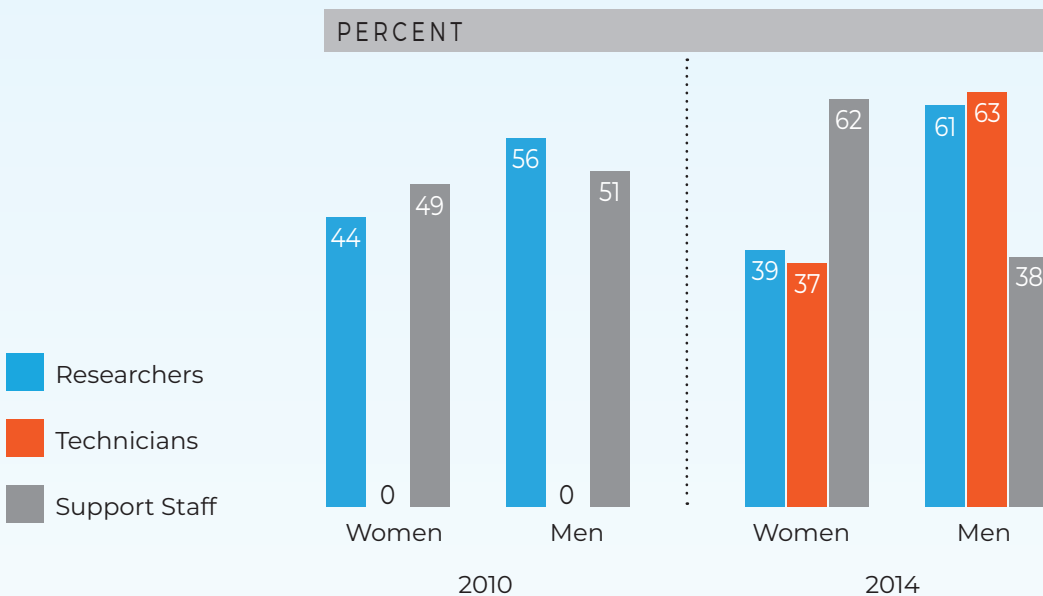
- Guiding principle number five of the NSTIP contends that “a gender and equity-sensitive approach has the potential to define appropriate interventions for men and women, youth, children, the elderly and other previously disadvantaged, marginalised and vulnerable communities, and people with disabilities” (p. 6). However, “disadvantaged”, “marginalised” and “vulnerable communities” are not clearly defined in the policy.
- In developing an agenda, the NCRST considers various stakeholders’ contributions and describes stakeholders as institutions of higher learning, regulatory bodies, parliament, civil society organisations, international partners (UNESCO, SAIS), regional partners (NRF) and the public sector.
- More recently, Namibia has launched the **Space Science and Technology (SS&T) Policy (2021/22-2029/30)** to ensure that SS&T are well coordinated and contributes to socio-economic advancement. While this policy has a guiding principle under “human capacity” to ensure gender equality and active involvement of the youth space-related activities, the objectives of the policy do not reflect this principle; reference to advancing the capacity of women in STEM remains absent (Ministry of Higher Education Namibia, 2021).
- **African Union Agenda 2063** is a long-term framework collectively directing the African continent by recognising the critical role of science, technology and innovation to actively promote science, technology, research and innovation to build knowledge, human capital, capabilities and skills to drive innovations and for the African century (African Union Commission, 2015).
- Namibia’s scientific **peer-reviewed publications and patents** used as a measure of research and development (R&D), indicate the following:
  - Namibian researchers increased their publication outputs from 43 papers in 1996 to 715 in 2022 with a cumulative total of 6285, ranking 27th out of 59 African countries (Scimago, 2023).
  - The country’s percentage contribution to Africa’s publications varies from 0,831% in 1996 to 0,53% in 1998, declining in 2022 to 0,44% in 2022.
  - Papers are largely related to Medicine, followed by Agriculture and Biological Sciences, then Environmental Sciences and Social Science and Computer Sciences (Scimago, 2023).
  - The proportion of papers written with international partners has decreased from 90,7% in 1996 to 85% in 2022 (Scimago, 2023).
  - Of the 15 SGC countries, Namibia has the third highest percentage (68%) for international collaborations on publications with gender-related content. Between 2008 and 2017, Namibia increased the number of gender-related publications by 10% annually from 20 to 48, above the average of 6% for the 15 participating SGCI (Figure 1) (Jackson et al., 2022; SGCI, n.d.).
  - The number of patent applications filed by residents has decreased to zero in 2021 while the number filed from abroad (United of America, United Kingdom and SOutH Africa), is 16 in 2021 (The World Intellectual Property Organisation, 2021).



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

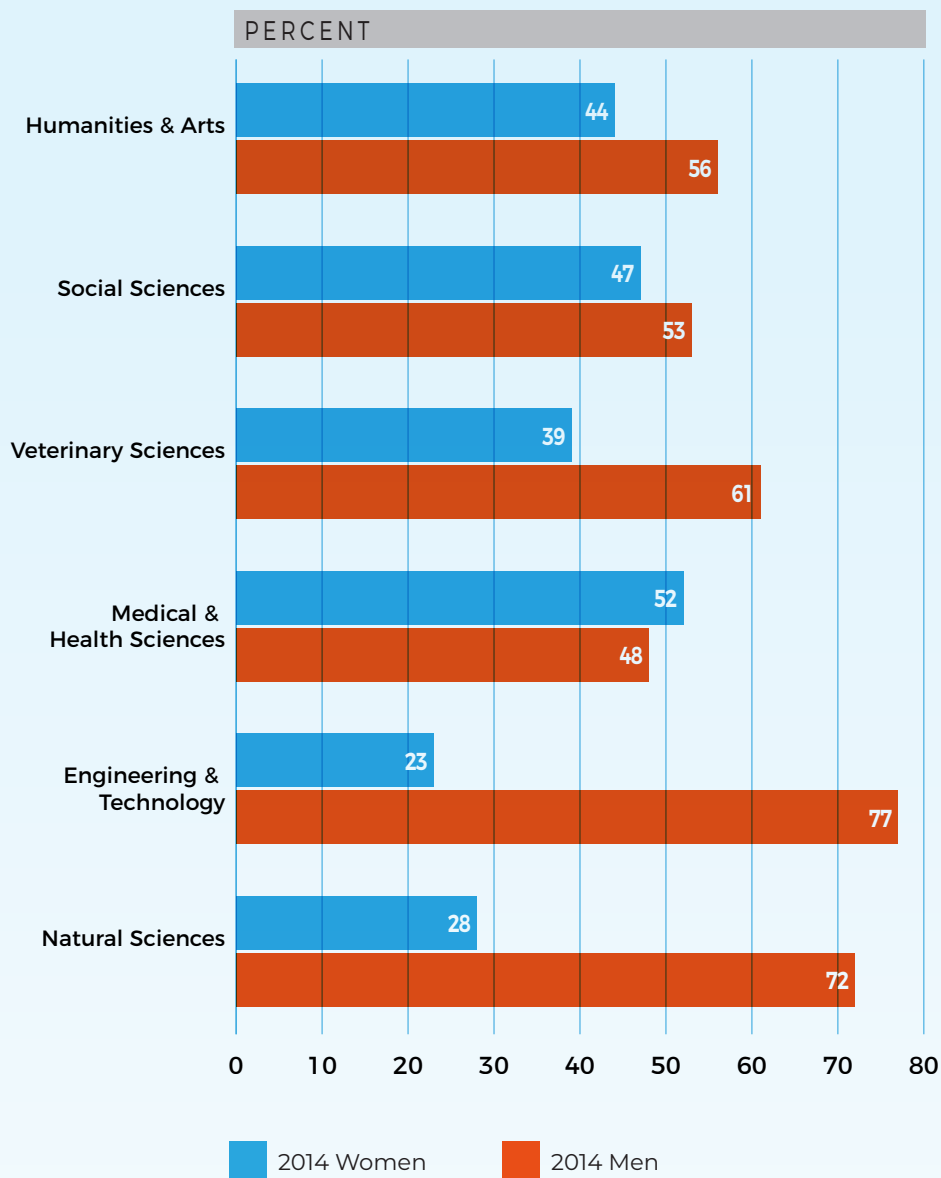
# Status of human capital for STI

- Gender disaggregated data gaps paint an incomplete picture of the status of human capital for STI in Namibia. A lack of regular data reporting on the researcher pool 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 2014 women constituted 39% of the county’s researchers (Unesco Institute for Statistics, 2021).
- The proportion of women in Research and Development (R&D) is significantly lower than men for two categories of R&D function, except support staff in 2014. In 2014 women made up 39% of the research workforce (Figure 2) (UNESCO Institute for Statistics, 2021).

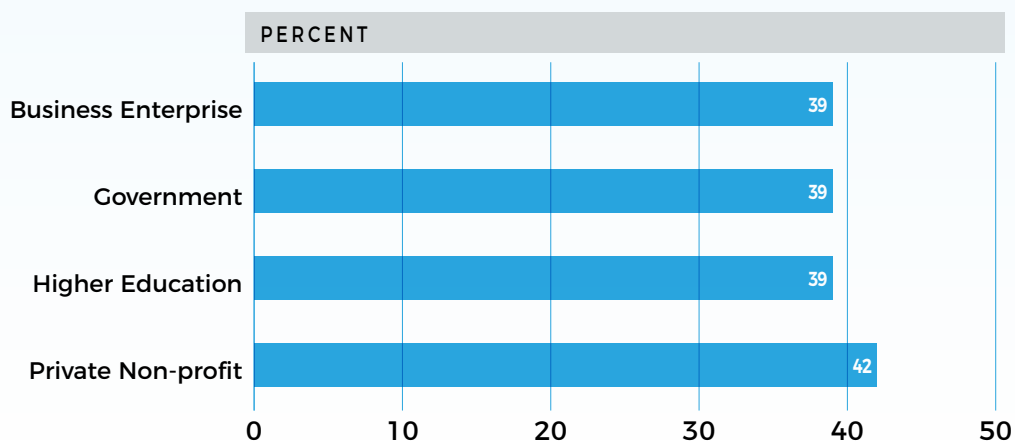


**FIGURE 2:** Proportion (%) of R&D personnel (headcount) by function and gender for 2010 and 2014

- Namibia’s distribution of researchers by field of research in 2014 (Figure 3) illustrates gender disparities in research fields, with men prominent across the “hard sciences” of Engineering and Technology (77%), the Natural Sciences (72%) and Agriculture & Veterinary Sciences (61%), and women more prominent in the Medical and Health Sciences (52%) (UNESCO Institute for Statistics, 2021).
- While more women are prevalent in the fields of Social Sciences (47%) and Humanities (44%), men still account for the majority; Social Sciences (53%) and Humanities (56%) (UNESCO Institute for Statistics, 2021). A decisive move away from the stereotypical notion and practice of the hard sciences as mainly a male domain has yet to be apparent.



**FIGURE 3:** Distribution (%) of researchers (headcount) by scientific field and gender for 2014



**FIGURE 4:** Proportion (%) of women in R&D by employment sector for 2014

- Distribution by field of employment (Figure 4) shows that in 2014, women were more concentrated in the private non-profit sector (42%) (UNESCO Institute for Statistics, 2021).

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

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### Policy and frameworks

- Before Namibia's independence in 1990, laws were entrenched within cultural norms that valued patriarchy, while women and girls were responsible for domestic duties and childbearing. Moreover, women were not allowed to own their land or have wealth. The **Namibian Constitution 1990** prohibits discrimination based on sex, race, colour, ethnic origin, religion, creed or social or economic status. In addition, the constitution pays particular attention to women's welfare and participation in the political, social, economic and cultural life of the nation (Government of the Republic of Namibia, 1990).
- Since independence, women's legal rights and social status have significantly changed. For example, Namibia adopted the **National Gender Policy (2010-2020)** to steer actions toward integrating and mainstreaming gender perspectives in the broader development framework. The policy aims to reduce gender inequalities in education, improve school completion rates for girls and increase women's access to vocational training, science and technology (Namibia, Ministry of Gender Equality and Child Welfare, 2010).
- Furthermore, a focus on gender equality has become a national priority, as articulated in the **Fifth National Development Plan (NDP 5)** to prioritise social transformation with a gender equality strategy which aims to enhance the financial and human capacity of service providers, to strengthen implementation of gender-responsive budgeting and planning and to mainstream informal businesses led by women (Government of the Republic of Namibia, 2017).
- In addition, the **Affirmative Action Policy (AAP)** specifically asserts that women (and other designated groups) should have equal employment opportunities at all levels of employment and equal representation in the workforce of a relevant employer (Government of the Republic of Namibia, 1998).

- The country's **School Re-Entry Policy** (2009 Education Sector Policy for the Prevention and Management of Learner Pregnancy) protects the rights of pregnant girls to remain in school until four weeks before birth and to return to school as soon as possible with appropriate infant care in place. This policy thus reduces gender-related barriers for girls and fosters educational retention and attainment (Human Rights Watch, 2022).

## Gender social norms and the education pipeline

- Data for primary education enrolment suggests that more girls (91%) than boys (88%) enrol in primary school. More girls than boys also enrol in secondary education at 59% for girls compared with 48% for boys. However, many girls tend to drop out before completing their secondary education. The 2021 Gender Inequality Index shows that 41,5% of adult women have reached at least a secondary level of education, compared to 44,1% of their male counterparts (Southern African Development Community, 2020; UNDP, 2021).
- The gross enrolment ratio (GER) for tertiary education is more significant for women than men. The GER for women has grown from 28,4% in 2016 to 36,2% in 2020, compared to 16,6% and 19,1% for men, respectively. Women constitute the majority of enrollees at higher public and private institutions at 63,3% and 72,3% (National Council for Higher Education Namibia, 2021).
- In 2020 approximately 22% of the total student population enrolled in STEM fields and 78% in non-stem areas. Women constituted the highest proportion of non-stem enrollees (81,8%), and men had the highest proportion of STEM enrollees at 28,5% versus 18,2% for women. Notably, enrolments at the master and doctoral levels are similar, with 1,5% of men and 1,0% of women enrolled in doctoral studies (National Council for Higher Education Namibia, 2021).
- In 2020, completion rates for studies showed that men had a lower rate of completing studies than women. Men had a completion rate of 28,7%, while their enrolment proportion was 34,1% for the same year. On the other hand, women had a higher % completion rate of 71,3% compared to their enrolment proportion of 65,9% (National Council for Higher Education Namibia, 2021).
- However, this completion trend reverses at the PhD level, as more men (1,9%) than women (0,5%) complete their PhD studies compared with their enrolment proportions of 1,5% and 1,0%, respectively (National Council for Higher Education Namibia, 2021).
- Indicators tracking gender equality in human development (Table 1), though, do reveal contributing factors for gender gaps and disparities linked to Namibia'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 2014 women constituted 39% of the country's researchers (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 Namibia, 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 Namibia aim to create an enabling and empowering environment for women in science. Examples of such stakeholders include the Namibia National Chapter of the Organisation for Women in Science for the Developing World (OWSD) and the Namibian Women in Engineering Association.



# Conclusion

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Harnessing 100% of the country's human development for accelerated socio-economic development is entrenched in policy instruments across the STI pipeline. The Namibian 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 Namibia'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 Namibia 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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