STRENGTHENING GENDER AND INCLUSIVITY IN THE NATIONAL SYSTEM OF SCIENCE, TECHNOLOGY, AND INNOVATION (STI) ENGAGING 100% OF NAMIBIA'S HUMAN DEVELOPMENT POTENTIAL FOR SUSTAINABLE SOCIO-ECONOMIC DEVELOPMENT

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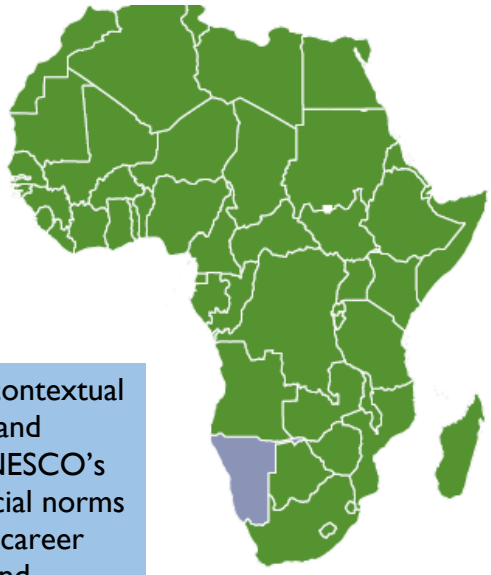
IDRC Grant/ Subvention du CRDI: 109468-002-Strengthening the capacities of science granting councils in gender and inclusivity

Gender & Inclusivity
A PROJECT OF THE SCIENCE GRANTING COUNCILS INITIATIVE

Namibia Country Profile

Strengthening Gender and Inclusivity in the National System of Science, Technology, and Innovation (STI)

Engaging 100% of Malawi's human development potential for sustainable socio-economic development



Strengthening Gender and Inclusivity in STI highlights the contextual factors driving gender and inclusivity disparities in STI in Namibia and options and strategies for addressing disparity gaps in some of UNESCO's STEM and Gender Advancement (SAGA) policy impact areas: social norms and stereotypes, education (primary, secondary and tertiary), the career progression environment, research content and practice, policy, and entrepreneurship and innovation. The series covers 15 Science Granting Initiative (SGCI) African countries and identifies stakeholders with

County Overview

- Namibia gained its independence from South Africa in 1990 after a 24-year liberation struggle.
- At an HDI value of 0,65 Namibia is one of the SGCI country's that has managed to achieve notable development progress, and have increased their HDI value by 11,2 %. [1]
- Namibia relies mostly on the concentration of production and exports in the fishing and mining sectors, often controlled by foreign and multinational companies.
- While agricultural land accounts for 47,2% of Namibia, only 1% of that land is available for use, as the country's agriculture is affected by severe climatic conditioning limiting possible crops.
- About 47,9% of the population live in rural areas, and most of this population relies completely on their own farming as a source of food. In drought years, food shortages become an issue to those living in rural areas.
- Women and girls constitute 51,57 % of the 2.54 million people in the country.
- The results of the 2019 Afrobarometer survey show the country's five-year performance trends on specific Sustainable Development Goals (SDGs) from the perspective of adult Namibians: [2]
    - Trends worsen for poverty and hunger (SDGs 1 and 2)
    - Decent work and economic growth (SDG 8) have worsened although, in terms of the gender unemployment gap, results show the country is meeting this target.
    - Trends for climate change (SDG 13) indicate that the country is doing better by increasing the number of people who have heard of climate change as well as increasing understanding of negative impacts of climate change.
    - Quality education remains unchanged with no increases in the proportion of the population with secondary or post-secondary education (SDG 4).

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- Gender equality remains unchanged for command of economic resources and the country is partially meeting its target for technological use (SDG 5).
- Availability of clean water is worse and while sanitation has improved (SDG 6).

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

- Despite considerable progress, Namibia still has a high rate of youth unemployment (38%) with young women (41%) disproportionately affected in comparison to young men. [3]
- Women and girls, in particular adolescent girls; continue to experience gender based violence, teenage pregnancy, and restrictive socio-cultural norms limiting full exercise of human and women's rights. [3]
- In Namibia, 15% of women and 14% of men experienced gender-based discrimination in the year preceding Afrobarometer's 2018 survey. Based on this report, of the 13 Science Granting Council Initiative African countries[1], Namibian women experienced the third highest level of discrimination preceded by Malawi and Zambia and tied with Uganda. However, Namibia has the highest tolerance levels for people of different sexual identities or orientations at 54% for 2014-2018. The country has greater tolerance for people of different religions (92%), ethnicities (93%), with decreasing tolerance for immigrants and foreign workers (82%).[4]
- Structural drivers of gender inequality, such as unequal gender roles and unequal power relations between men and women persist across all social institutions, giving rise to multiple forms of discrimination against women, illustrated in the country's poor performance on various gender-disaggregated socio-economic development indices (Table 1).

Table 1 Key gender indicators for Namibia

Key gender Indicator	Meaning	Namibia
Human Development Index (HDI)	This index measures average achievement in human development in three dimensions: a long and health life (health), knowledge (education), and a decent standard of living (Command over economic resources). The higher the value to 1, the higher the country's level of human development.	0,65 HDI value and falls above the average of countries in the medium human development group and above the sub-Saharan average (SSA) HDI value of 0,547. [1] The country is ranked 130th out of 189 countries on the HDI.
Gender Inequality Index (GII)	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 higher the score towards 1, the more disparities between men and women and the greater loss to human development.	In terms of reaching gender equality, Namibia has the 3rd lowest GII amongst the SGCI countries. With a GII of 0,440. [5] **Illustrative contributing factors**: • The maternal mortality ratio for 2015-2020 is 195 per 100,000 live births (lower than the SSA average) and the adolescent birth rate for 2015-2020 is 63,6 births per 1000 women ages 15-19, significantly lower than the SSA average of 104. • Women held 63,6% of parliamentary seats, higher than the SSA average of 24%. • 40,6% of women ages 25 and older have some form of secondary education compared with 42% of men, above the SSA average. • Women are less active in the labour force than men (56,1% and 63,6%) below the SSA average of 63,3% for women and 72,7% for men.

[1] No data for Ethiopia and Rwanda

Key gender Indicator	Meaning	Namibia
Social Institutions & Gender Index (SIGI)	This index measures gender discrimination from social institutions on four dimensions: discrimination in the family (child marriage, household responsibilities, divorce, inheritance), restricted physical integrity (violence against women, female genital mutilation, missing women, reproductive autonomy), restricted access to productive and financial resources (secure access to land assets, access to non-land assets, secure access to formal financial services, workplace rights) and restricted civil liberties (citizenship rights, political voice, freedom of movement, access to justice). Lower values indicate lower levels of discrimination in social institutions: the SIGI ranges from 0% for no discrimination to 100% for very high discrimination.	Low (27,1%) level of discrimination against women. [6] • Restricted civil liberties (35,1%) • Discrimination in the family (33,1%) • Restricted access to productive and financial resources (26,2%) • Restricted physical integrity (12,6%) **Illustrative contributing factors:** • Namibia has a legal framework on child marriage (50%) as well as a legal framework for household responsibilities (50%) as well as legal framework on working rights (75%) • Prevalence of domestic violence against women (lifetime) 25% • 17% of the female population has an unmet need for family planning. • Less women (43%) than men (57%) have home ownership. • Less women (40%) than men (60%) hold managerial positions. • Share of women declaring lack of confidence in the justice system 65%.
The Global Gender Gap Index (GGG)[6]	Measures gender-based gaps in access to resources and opportunities across four categories. The closer the score to 1 the higher the gender parity.	GGG value of 0,809 in 2021. [7] • Health & survival value (0,980) • Educational attainment value (1,000) • Economic participation & opportunity value (0,794) • Political empowerment value(0,463) **Illustrative contributing factors:** • Parity in educational attainment. The literacy rate for women is 91,4 % and 91,6 % for men; the primary school enrolment rate is slightly higher for women at 96,2 % compared to men at 94,3%; the secondary enrolment rate at 53,9,% for women compared to 46,1% for men. The tertiary education enrolment is higher for women at 30,3 % while much lower for men at 15,3%. • Growing parity in economic participation. The labour force participation rate is lower for women at 57,2 % compared to 64,2 % for men and the parity gap expands for women in senior officials, and managers at 43.6% compared to 56.4% for men. In the professional and technical workforce consists of more women 56% compared to men 44%. • Least parity in political empowerment: Women account for 44,2% of parliament seats compared to 55,8% of men. The parity gap increases in terms of ministerial positions of which women 39,1% compared to 60,9% of men and the greatest gap women serving as head of state for 2,2 years over the past 50 years at only 5,8% compared to 44,2% of men.

STI and sustainable socio-economic development

- The initial **National Policy on Research, Science and Technology** adopted in **1999** prompted the **Research, Science and Technology Act 23 (2004)** [8] and enabled the establishment of the National Commission for Research, Science, and Technology (NCRST). NCRST has been instrumental in creating an R&D fund as well as preparing a national programme for research, science, and technology. In addition, the Act also enabled the **National Indigenous Knowledge Systems Council (NIKSC)** which functions as an advisory to the NCRST on a national agenda for indigenous knowledge systems in all sectors.
- Overall, the aim of the Act 23 2004 was 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 addresses regulations for Namibian research staff there is no reference to inclusivity and gender equality under the recruitment section.
- In further efforts to sustain social transformation and economic growth in the country, Namibia has initiated attempts to advance the Science, Technology, and innovation landscape.
- For example, the **Fourth National Development Plan 2012/13 – 2016/17 (NDP4)** [9] under the overarching framework of **Vision 2030** [10], outlined the aim of utilizing knowledge and technology to strengthen and expand Namibia's secondary sector. Both Vision 2030 and NDP4 articulate an intention to utilize Research, Science, Technology, and Innovation (RSTI) through the increased production and distribution of knowledge.

Figure 1 National development visions

Long-term development visions

Vision 2030

"People are the nation's human wealth: a population of healthy, well educated, skilled, pro-active and financially stable people with a broad range of talents and positive attitude towards themselves, their fellow citizens, their country and global humanity. Foreign professional people and global businesses will perceive Namibia as a good environment in which to invest and from which to do local and international work, thus creating both wealth and employment" (Pg. 14)

Objective 1

"Ensure that Namibia is a fair, gender responsive, caring and committed nation, in which all citizens are able to realise their full potential, in a safe and decent living environment." (Pg.40)

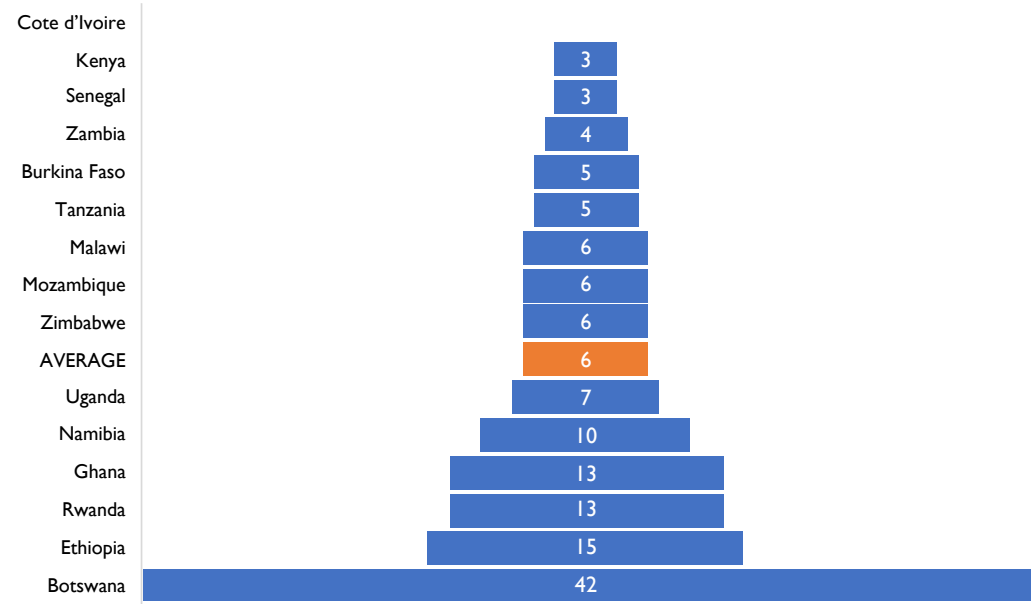
Objective 7

"Accomplish the transformation of Namibia into a knowledge-based, highly competitive, industrialised and eco-friendly nation, with sustainable economic growth and a high quality" of life (Pg. 41)

- 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.
- Progress towards expanding STI and to promoting gender equity and inclusivity is recognised in the revised **National Science, Technology and Innovation Policy (2020-2030)** [11] which has been developed and adopted to respond to obligations emerging from Vision 2030, the NDPs, SDGs, the national policies, National Acts, various sectoral plans and regional, international, protocols and conventions. The policy references improving gender equality as objective four with specific gender-based strategies. The policy includes gender equity, referencing different intersecting identities, as one of their six guiding principles.
- Guiding principle number 5 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, marginalized and vulnerable communities and people with disabilities"* (Pg.6). However, "*disadvantaged*", "*marginalized" and "vulnerable communities"* are not clearly defined in the policy.
- In developing an agenda, the NCRST considers various stakeholder's contribution and described such as intuitions 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)** [12] to ensure that SS&T are well coordinated and contribute 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.
- **On measures for assessing the impact of R& D and innovation** (scientific peer-reviewed publications) In 2018, number of scientific journal articles for Namibia was 156. Number of scientific journal articles of Namibia increased from 33 in 2004 to 156 in 2018 growing at an average annual rate of 14,21%. However, this data is not disaggregated by gender or any other equity measures such as socio-economic status, ethnicity, location, or disability.
- Of the 15 SGCI 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% from 20 to 48 publications above the average of 6% for the 15 participating SGCIs (Figure 2). Again, authorship is not disaggregated by gender.[13]

Figure 2 African SGCI Participating Countries: percent (10%) increase in publications with gender-related content between 2008 and 2017



Current status of human capital for STI[2]

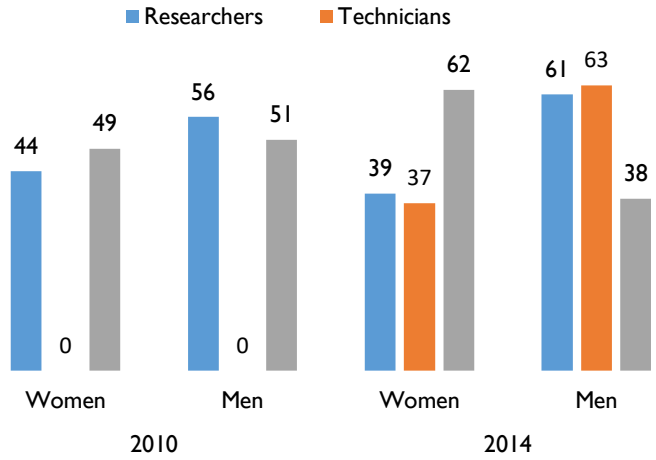
- The total number of women in R&D is significantly lower than men for two categories of R&D function with the exception of support staff in 2014 (Table 2).
- In 2010 women made up 43, 7% of the research workforce. However, the total number of female researchers in Namibia decreased by 5% from 2010 to 2014. (Figure 2)

[2] All data for this section is from: http://data.uis.unesco.org/

Table 2 Namibia's total number of R&D personnel (head count) by category & gender, for 2010 and 2014

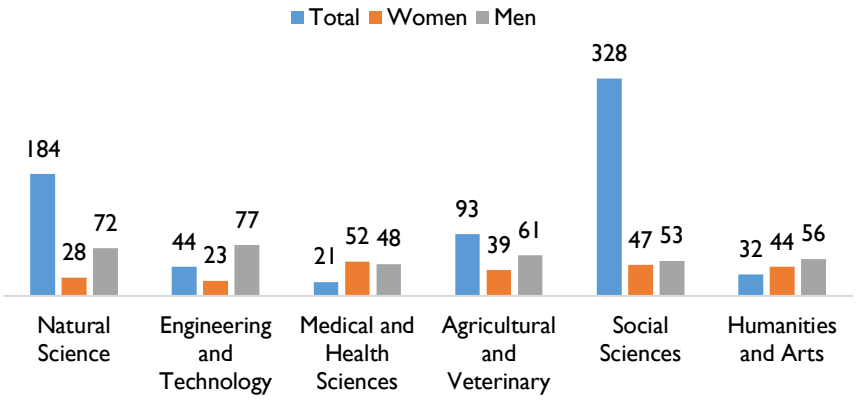
	2010			2014		
	Women	Men	Total	Women	Men	Total
Researchers	327	421	748	290	459	749
Technicians	no data	no data	118	95	160	255
Support Staff	41	42	83	79	49	128
Total	-	-	949	464	668	1132

Figure 3 Namibia's proportion (%) of R&D personnel (head count) by function & gender, for 2010 and 2014



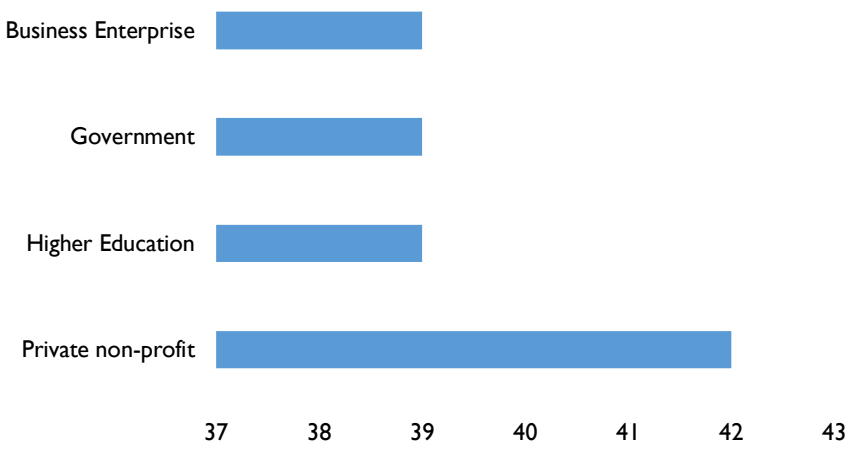
- Namibia's distribution of researchers by field of research in 2014 (Figure 3) illustrates gender disparities in field of scientific research with men prominent across the "hard sciences" of engineering & technology (77%), natural sciences (72%) and agriculture & veterinary (61%) and women more prominent in the medical and health sciences (52%).
- While more women are prevalent in the fields of social sciences (47%) and humanities (44%) men still account for the majority.

Figure 4 Namibia's distribution (%) of researchers (head count) by scientific field and gender, 2014



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

Figure 5 Proportion (%) of women R&D by employment sector for 2014



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

Policies & frameworks

- Before Namibia's Independence in 1990, laws were entrenched with cultural norms that valued patriarchy while women and girls were responsible for domestic duties and childbearing. Moreover, women were not allowed to own their own land or wealth. The **Namibian constitution** of **1990** [14] articulated that no persons may be discriminated against on the grounds of "*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"*.
- Since then, women's legal rights and social status have undergone further significant change. For example, Namibia adopted the **National Gender Policy (2010-2020)** [15], which aims to steer actions toward integrating and mainstreaming gender perspectives in the broader development framework. The policy includes a specific objective to "*reduce gender inequalities in education, improve school completion rates for girls and increase women's access to vocational training, science and technology*".
- Furthermore, a focus on gender equality has become a national priority as articulated in the **Fifth National Development Plan (NDP 5)** [16] with intention to prioritise social transformation with a "gender equality strategy" which will aim to enhance "*financial and human capacity of service providers*"; to "*strengthen implementation of gender responsive budgeting and planning*" and to "*mainstream informal businesses led by women*".
- In addition, the **Affirmative Action Policy(AAP)** [17] specifically asserts that women (and other designated groups) should have equal employment opportunities at all levels of employment and should be equitably represented in the workforce of a relevant employer.

Gender social norms and the education pipeline

- Data for primary education enrolment suggests that more girls (91%) than boys (88%) are enrolled for primary school. This continues into secondary education for girls (59%) compared to boys (48%), however, many girls tend to drop out before completing their secondary education. [3]
- Similar results are shown in tertiary education, in 2020 there were 15% more women in tertiary enrolment than men. However, this percentage declines at post-university and professional careers. [18]
- This is echoed in the data, 92% of female graduates come from fields outside of STEM. Results show that only 42% of women graduated in STEM fields in 2016 suggesting that young women steer away from agricultural, engineering, or physical sciences. Young women instead tend to move toward education fields (34%) while more females have graduated from the business and administrative field (40%) [3]. This indicates that young women may engage in careers that seem more 'appropriate' or perhaps suited to their child caring responsibilities.

Gender-science norms and the STI career progression environment

- Traditional gender roles in caring for household and children still have widespread support across Africa. According to the Afrobarometer survey 2019 in Namibia; an equal amount of women (58%) and men (58%) agreed that it is better for a family if a woman has the main responsibility for taking care of the home and children rather than a man [19]. As women predominantly maintain child care responsibilities it may affect how they are able to balance this with advancing in STEM careers.
- Data from the survey also points that 15% of women in Namibia have been discriminated against. Of the 34 countries evaluated including Namibia women who say they were discriminated against are more likely to be engaged in the labour market (61% vs. 54% of those who did not experience discrimination) [19]. This suggests that negative attitudes towards women in STEM careers impede on women's ability to progress.

Conclusion

Namibia has made significant progress in reaching gender parity. However, women and girls are still subjected to gender based violence impeding on their ability to progress in STI and live fulfilling lives. Furthermore, women still experience inequality when it comes to who holds leadership positions in the workplace and financial inclusion which poses challenges for career progression particularly in STEM fields.

Translating the revised STI policy into practice is a direction that country will perhaps look to take forward. In addressing gender and inclusivity, STI policies could improve by listing specific priority groups when referring to terms like marginalised or disadvantaged groups. As a result, it could provide improved guidance for programmes and action plans if policy makers clearly differentiate where a policy focus refers to target groups for intersectional gender transformation in STI. For example, directing a specific focus to a targeted group (e.g., *young women from rural communities*) rather than those who may benefit from research (e.g., *vulnerable communities*).

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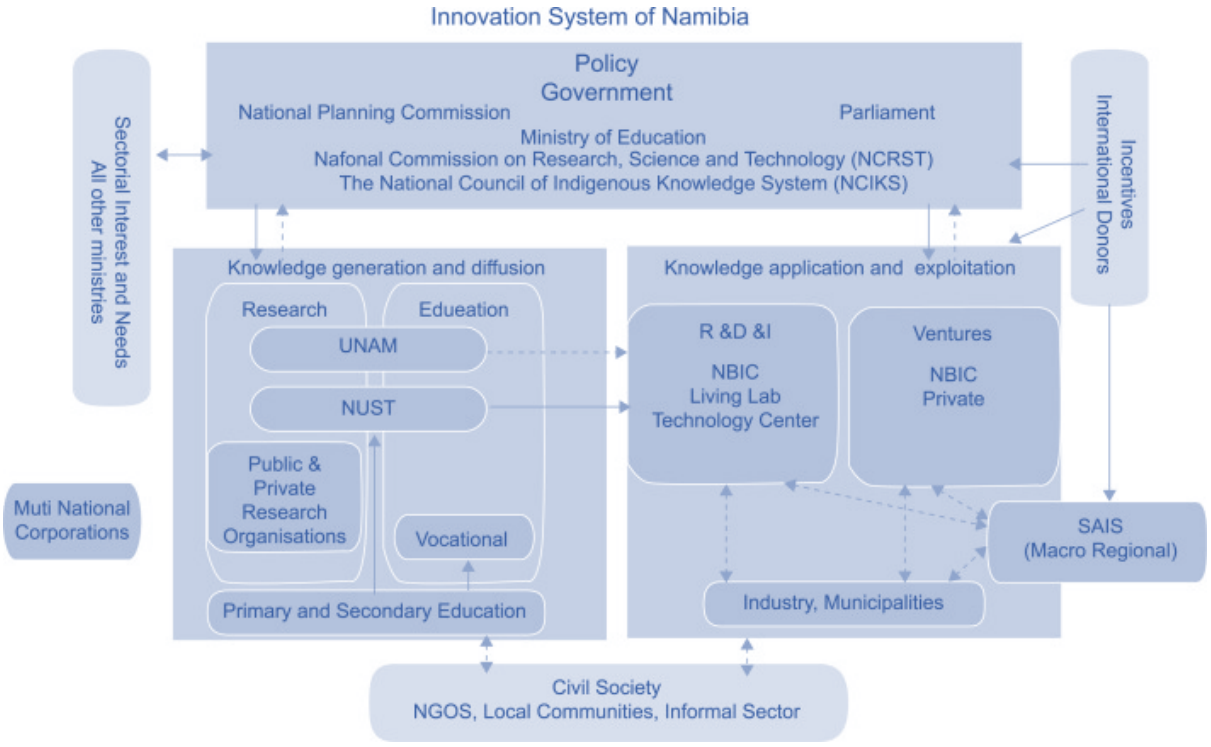
Essop, R., Middleton, L., Lynch, I., Isaacs, N., Fluks, L., Marinda, E., Magampa, M., Majokweni, P., Agugua, A., Kuetche, I., Djoukouo, F., Ndina, C., Van Rooyen, H. (September 2021). *Strengthening Gender and Inclusivity in the National System of Science, Technology, and Innovation (STI): Namibia Country Profile*. Science Granting Council Initiative: Strengthening the Capacities of Science Granting Councils in Gender and Inclusivity (Human Sciences Research Council, project number 109468-001/002).

This profile and authorship will be updated in phases two, three and four (2021/2022/2023) of the project following input from Gender at Work and Namibia's SGCI participants.

Appendix I

Organisational diagram illustrating Namibia's research and innovation system. Jauhiainen, J. S., & Hooli, L. (2017). Indigenous knowledge and developing countries' innovation systems: the case of Namibia. International Journal of Innovation Studies, 1(1), Pg 98



Appendix 2

Examples of Stakeholders in Gender in STI in Namibia

Name of organisation	Website address	Contact & email	Focal areas
The Namibia University for Science and Technology (NUST)	https://www.nust.na/	info@nust.na	The Namibia University for Science and Technology (NUST) host the women in Science (WiSci) Girls Steam Camp; the WiSci Camp aims to bridge the gender gap in science, engineering, and technology through access to education, mentorship opportunities and leadership training
Forum for African Women Educationalists Namibia (FAWENA)	http://www.fawena.org/index.php	fawena@moe.gov.na	The organisation runs a number of gender strengthening activities. Science Mathematics and Technology programme aims to increase interest and participation and assist girls excel in SMT subjects at all levels. FAWENA conducts extra classes during school holidays, science clubs and uses role models in science based fields. FAWENA further awards female top achievers in SMT subjects.
Namibia Women in Engineering (NAMWIE)	-	namwienamibia@gmail.com	Aims to promote awareness in engineering as a career choice for the girl child and provides support platform for women Engineers in Namibia.
SADC Women in Science, Engineering and Technology Organisation (WISETO) Namibia Chapter	https://ncrst.na/what-we-do/rsti-coordination-support/science-promotion-and-capacity-building/		The mission of the SADC WISETO Namibia Chapter project thus is to encourage more women to enter in science, engineering and technology by creating and fostering a supportive academic and social climate that will aid women in pursuing a career in science. This project is established to address the under-representation of women in science, engineering, and technology.