



THE MIND GAP

POLICY, DISCOURSE AND STATUS OF
WOMEN IN STEM IN SOUTH ASIA

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First published in March 2023
By Centre for Civil Society

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Please cite the work as follows:
Mehta, Bhavya and Saloni Dhadwal. 2023. *Mind the Gap: Policy, Discourse and Status of Women in STEM in South Asia*. Centre for Civil Society

Supported by
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MIND THE GAP

POLICY, DISCOURSE AND STATUS OF
WOMEN IN STEM IN SOUTH ASIA

Acknowledgments

We are extremely grateful to the stakeholders across South Asia, who shared detailed insights and lived experiences as women in STEM in their respective countries. Their contribution was invaluable in shaping our understanding of the on-ground realities of the situation of women in different geographies and STEM sectors in South Asia.

We express our deepest gratitude to Dr Firdausi Qadri (Emeritus scientist at the International Centre for Diarrhoeal Disease Research, Bangladesh), Ms Kencho Pema Wangden (from Engineering and Research Department, Bhutan Power Corporation Limited), Dr Shamima K. Choudhury (Professor from the Department of Physics, University of Dhaka (retired)), Dr Shobha Poudel (Early Career Fellow at Organization for Women in Science for the Developing World (OWSD), Nepal), Ms Subhashini Kadurugasyaya (ICT Engineer, Manager, Community Trainer in Sri Lanka), Dr Tista Prasai Joshi (from Nepal Academy of Science and Technology), Team Women in Tech Maldives (Shahu Kareem, Fathmath Neesha, Aiesha Adnan (Co-Founders) and Mariyam Shimaanath (Vice President)), Zartaj Ahmed (Director, Pi Space Science Education Centre and Founder, Robotics & STEM Studio at Haque Academy, Karachi) who took out time to speak to us over video conference.

We extend our gratitude to Manipal Foundation for their generous and continuous support for this study. We are thankful to Ravi, our in-house designer, whose skills have enhanced the visual appeal of this report. Lastly, we also thank our intern Alisha Varandani for her contribution in data collection, secondary research and literature review for the entire course of this study. We also thank our intern Anushka Dhanwani for helping us in the final stages of the study.

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Executive Summary

South Asia as a region performs the most poorly on the gender gap, when compared with other regions around the world—having closed only 62.4% of its gender gap in 2022. Indicators for this gender gap statistic include an assessment of four key parameters—economic participation and opportunity, educational attainment, health and survival and, political empowerment (World Economic Forum 2022). The region consists of eight countries, namely, Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

Women are not just underrepresented in the political sphere of these eight countries, but in particular, largely absent from leadership roles among key Ministries dealing with Science and Technology. A leaky pipeline phenomenon is visible in most parts of the region, as women start dropping out (leak out) of the potential STEM workforce. Among the women who join STEM education and careers, many prefer certain disciplines over others, depicting the gendered societal notions of STEM fields. For example, female dentists heavily outnumber male dentists in Pakistan; in 2019, 80 out of 82 students enrolled in nursing certification in Maldives were females; while females are heavily underrepresented in engineering across the region, with the exception of India. However, in India's case, the gendered notions about certain types of engineering are visible in course-wise gender-disaggregated data.

In this context, this report aims to assess the status of women in STEM in the South Asian region. For this undertaking, we utilised statistics pertaining to literacy rates, enrollment numbers in education, labour force participation figures and data on sectoral participation in STEM to cull out findings. Additionally, we gathered qualitative insights from stakeholder interviews with women from the South Asian region; the same has been presented in separate country reports.

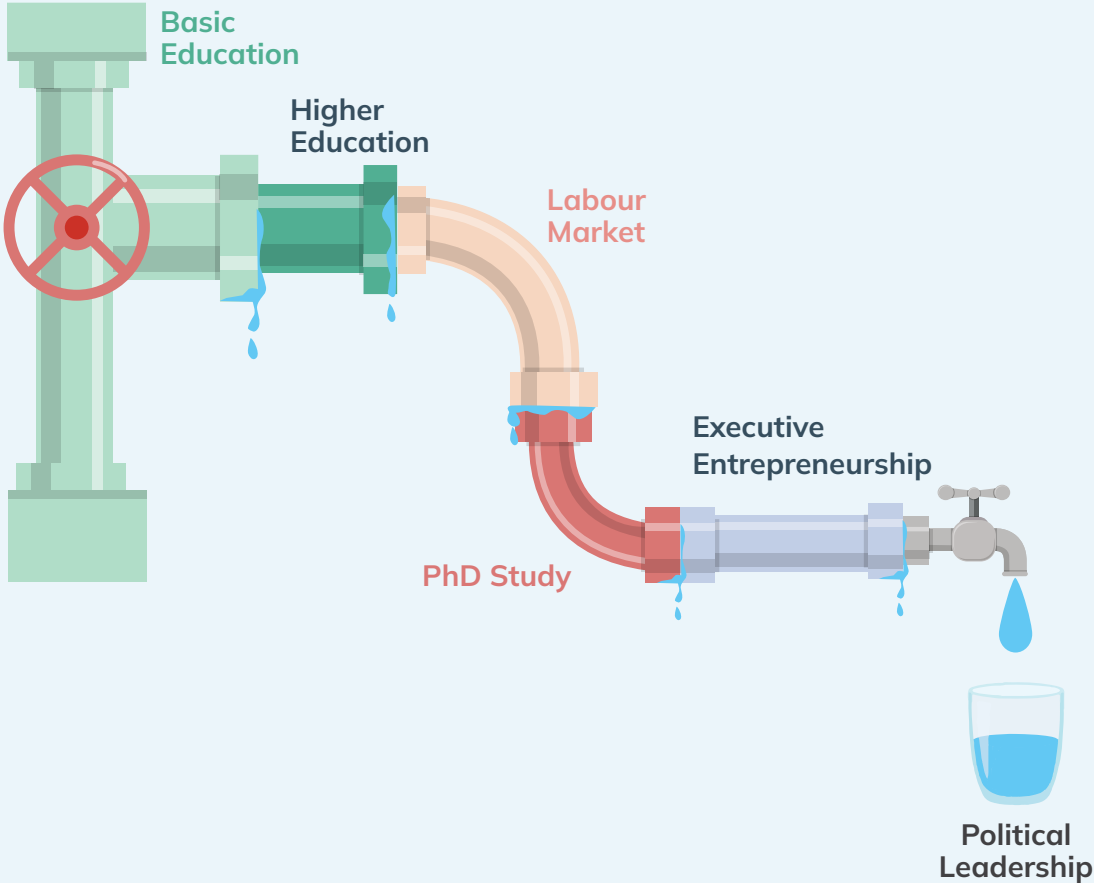
Aside from mapping the status of women in STEM, we also reckoned it would be pertinent to analyse how women and their issues are represented in science and technology policies in South Asian countries. Operating on the principle that “what one proposes to do about something reveals what one thinks is problematic (needs to change)” we chose to examine how women and their issues are represented in policies in order to identify what policymakers deem problematic; as their understanding of issues often determines the solutions that are suggested (Bletsas and Beasley 2012).

Lastly, we asked: What policy instruments do policymakers believe work the best for women? And how much financial resources do South Asian countries allocate towards women's interests? For the former, we undertook an analysis of policy tools in key South Asian policies pertaining to science & technology; for the latter, we gathered data on the gender responsiveness of the budgets of South Asian countries. We hope our report provides valuable insights on the issue of the gender gap in STEM; perhaps enabling a course correction in policies, discourse as well as the status of women in the South Asian region.

Leaky Pipeline is a phenomenon where women leak out of the potential STEM workforce at various stages of their education and career

Figure1:

Leaky Pipeline of Women in STEM (Adapted from UNDP 2023)



South Asia: Region Overview

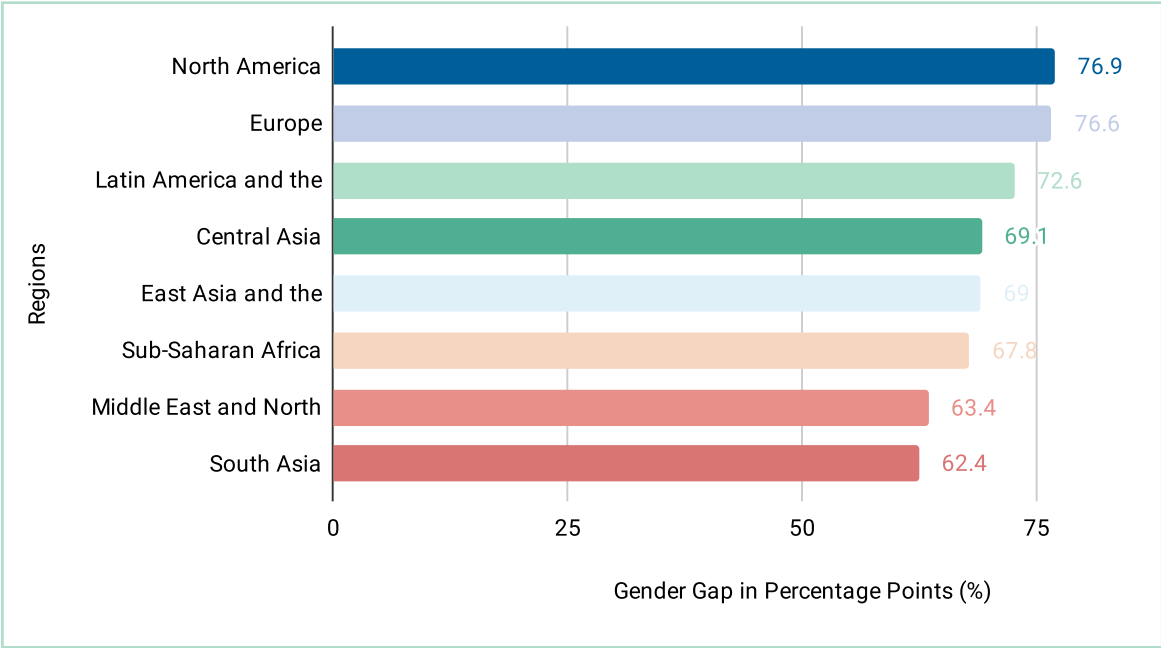
Status of women across South Asia varies not just across the eight countries of the region but also varies among classes, socio-economic groups, rural-urban regions, sectors/fields of STEM, etc.

Performance as per Global Gender Gap Report 2022

The South Asia region had the lowest performance among all regions around the world, having closed only 62.4% of its gender gap in 2022. Bangladesh and Nepal are leaders within the region with more than 69% of their respective gender gaps closed.

Figure 2

Gender gap closed by region (till 2022)

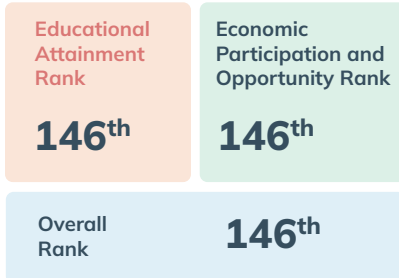


Note: Adapted from World Economic Forum, Global Gender Gap Index, 2022

Figure 3

Ranks of South Asian countries as per the Global Gender Gap Report

AFGHANISTAN



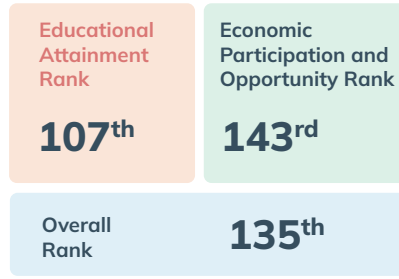
BANGLADESH



BHUTAN



INDIA



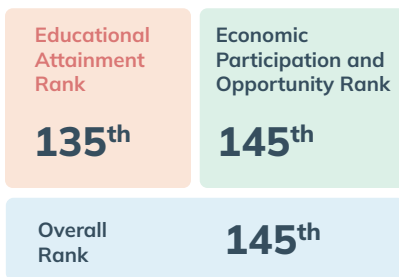
MALDIVES



NEPAL



PAKISTAN



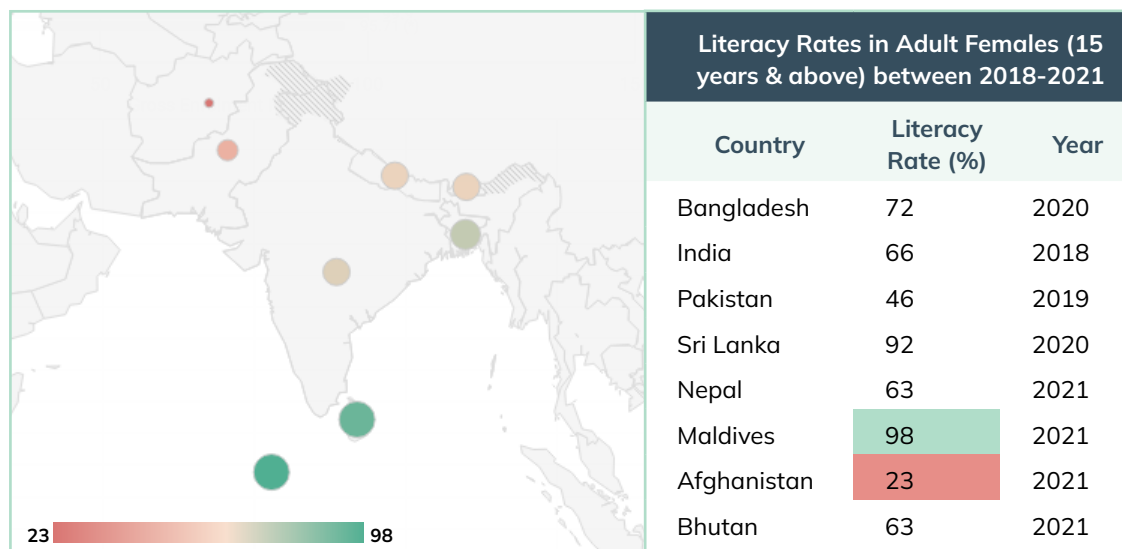
SRI LANKA



Literacy rates

Figure 4

Literacy rates in adult females (15 years & above) between 2018-2021

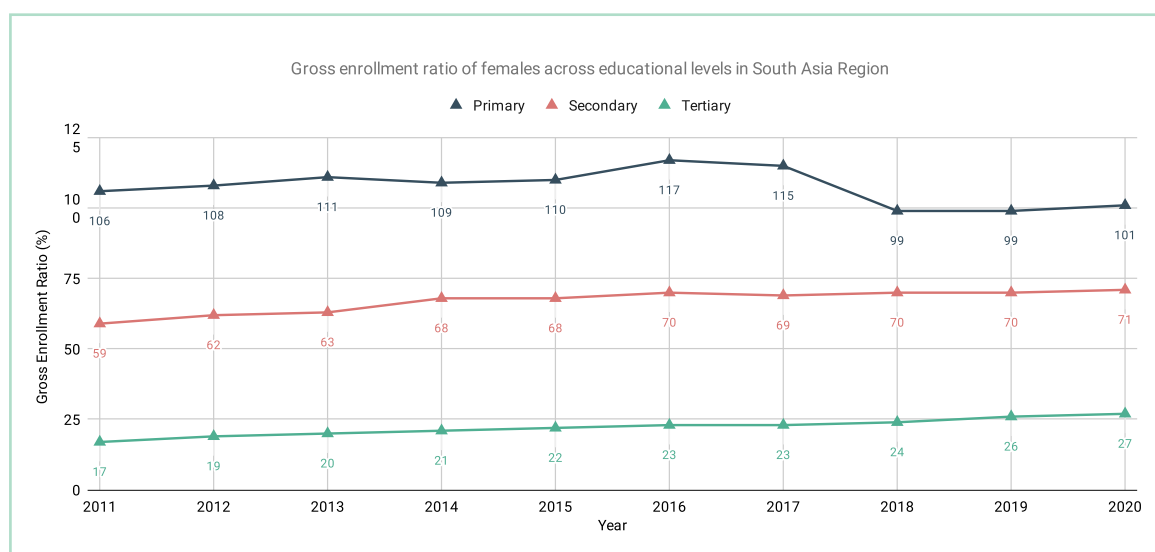


Note: Adapted from World Bank

Enrollment of Females in Education

Figure 5

Gross enrollment of females across educational levels in South Asia



Note: Adapted from World Bank

Gross enrollment ratio for females in education

Figure 6

Gross enrollment ratio in 2019 for females



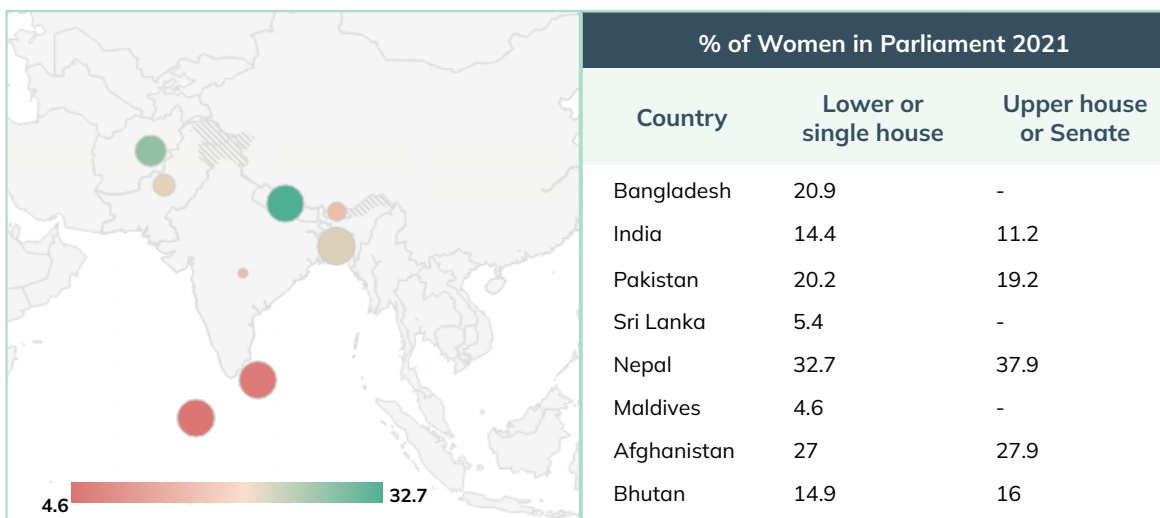
Note: Adapted from UNESCO Institute of Statistics. (*) indicates data from the previous year (2018) due to unavailability from 2019

Maldives performed the best, while Afghanistan had the lowest rate. Afghanistan's situation post the 2021 takeover by Taliban is reported to have worsened this ratio even more significantly as women are banned from all public and private universities in the country. At the secondary level, other than Afghanistan, Pakistan also reports extremely low gross enrollment ratio for females at a mere 41.59%.

Women in Parliament (2021)

Figure 7

Women in Parliament in South Asian countries



Note: Data for Afghanistan may vary given the shift in governance in August 2021 (Adapted from World Bank)

Women in policymaking

Figure 8:

Women in S&T policymaking in South Asian countries

AFGHANISTAN



Ministry of Communications and Information Technology

BANGLADESH



Ministry of Information and Communication Technology



Ministry of Science and Technology

BHUTAN



Ministry of Information and Technology

INDIA



The Ministry of Earth Sciences



Ministry of Electronics and Information Technology



Ministry of Science and Technology

MALDIVES



Ministry of Environment, Climate Change and Technology

NEPAL



Ministry of Communication and Information Technology



Ministry of Education, Science and Technology

PAKISTAN



Ministry of Information Technology and Telecommunication



Ministry of Science and Technology

SRI LANKA



Ministry of Communications and Digital Technologies



Ministry of Science, Technology and Research

Note: Only cabinet minister roles as on December 2022 have been counted in the mentioned ministries



Male minister



Female minister

Country Reports

METHOD

- » UNESCO Institute of Statistics data has been used as reference for literacy rates and gross enrollment ratios by gender in the primary, secondary and tertiary level of education across the countries in the region.
- » World Bank data has been utilised for labour force participation rate and unemployment rate (modelled International Labour Organization estimate) analysis for all countries
- » World Economic Forum's 2022 rankings on economic participation and opportunity indicator under the Global Gender Gap Index report was also a useful marker to look into.
- » We also refer to the Women, Business and the Law 2023, an index "structured around the life cycle of a working woman" that checks if the laws and regulations applicable to a country's main business city are equally fair for men and women. Data referred for the purpose of this report is as current as 1st October 2022. The index has 8 indicators: mobility, workplace, pay, marriage, parenthood, entrepreneurship, assets and pension. The scores for these indicators cumulatively provide the overall index score for the country.
- » The published reports by government bodies of the respective countries have been utilised for detailed insights for the country reports. Occasional references to non-governmental data (other than that of international organisations) on certain key statistics have also been made, as available readily.
- » Among other useful reports, the country reports published by World Bank Group, ESMAP and WePOWER under the 'South Asia Region Baseline Assessment for Women Engineers in the Power Sector' study, provided useful insights into the participation of females in the power sector and related engineering degrees.

AFGHANISTAN

Located in the heart of Asia, Afghanistan has changed by leaps and bounds in the past few years. The shift in governance in August 2021 and reinstatement of Taliban's rule over Kabul has changed much for the country, including many decrees and notices affecting women's access to opportunities. The developmental gains made by the country in education and employment in roughly two decades 2001-2021 is reported to have taken a hit as the regime has suspended women's participation in higher education and many other courses of public life.

Under democratic rule, a ten-fold increase was observed in enrollment at all education levels, with girls in primary schools increasing to 2.5 million in the year 2018 and 20 times increase in higher education attainment (UNESCO 2023). It is estimated that before the takeover nearly 4 out of 10 students in primary education were girls.

As per reports, the Taliban regime has restored the Ministry of Vice and Virtue to govern matters related to 'morality', ranging from dress codes, music bans and "restrictions on women's role in society". In the last few weeks of 2022, the regime introduced rules banning women from studying at universities and from working at non-governmental organisations (Jamshidi 2022). In September 2021, the main office and provincial offices of the Ministry of Women Affairs were abolished. The Ministry of Vice and Virtue took over the Ministry of Women Affairs building in the capital city Kabul as well as the Departments of Women's Affairs across Afghanistan (UN Women 2022). Reportedly, humanitarian aid has also taken a hit since the strict restrictions on women's education and employment in the country.

Women used to make up 27% of Members of Parliament in the country before the Taliban take over. Under the regime, representatives of the de facto authorities are men. As per the regime's argument women are "sufficiently involved through the presence of their male relatives (sons, husbands, fathers)" (Ibid.).

Women leaders such as Rangina Hamidi (the first female Minister of Education for Afghanistan), fled the country and lost their positions on August 15th, the day of Taliban's reinstatement over the capital city, Kabul. Hamidi is now a Professor at Arizona State University and teaches 'global women's leadership' (Kotsonis and Chakrabarti 2023).

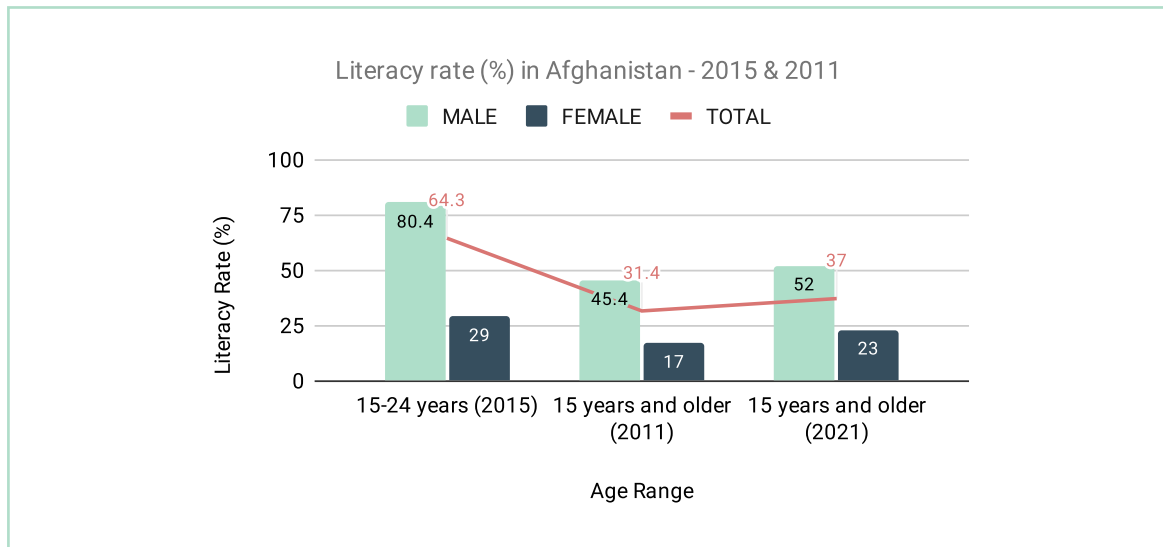
Education

The status of women's education has drastically changed since the Taliban regime took over. From banning women in universities, to closing down schools in several regions around the country. In September 2022, Habibullah Agha was appointed as the new Minister of Education under the regime. Reportedly, the higher education minister is Neda Mohammad Nadeem, whose comments were featured in mass media as he commented on the ban of women in universities.

In 2011, literacy rate of adults 15 years or older for males was 45.4% for males and 17% for females respectively. The literacy rate among the youngster population (15-24 years), however, was much higher at 80.4% for males and 29% for females in 2015. Latest estimates from 2021 suggest that male and female literacy rate (for 15 years and older) now stands at 52% and 23% respectively. A UNESCO release suggests that literacy rates for females doubled during the democratic period in the country (UNESCO 2023).

Figure 9

Literacy rate in Afghanistan



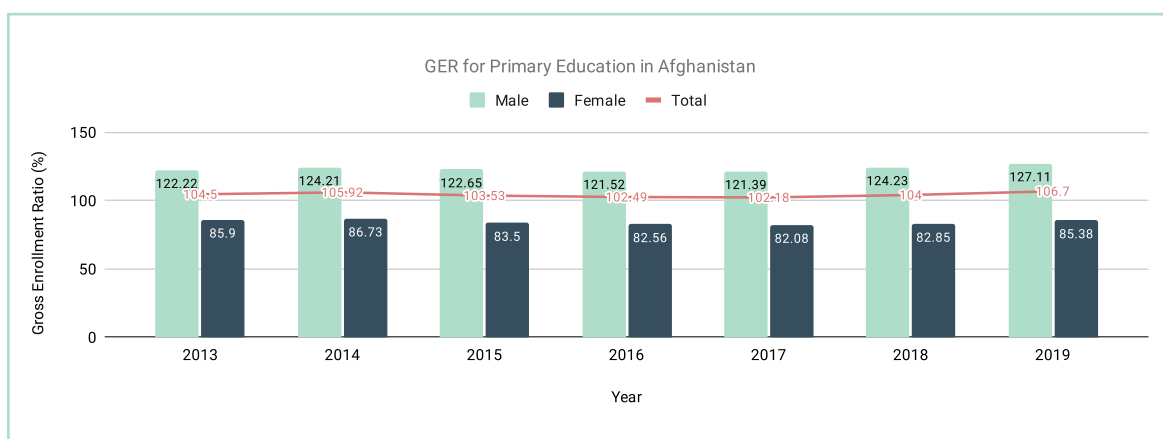
Note: Adapted from UNESCO Institute of Statistics

Primary and Secondary Education

Gross enrollment ratio (GER) in primary education under democratic rule (from 2013 to 2019), was fairly stagnant with negligible growth. The gender gap was also consistent as female GER in primary education was 85.38% and male GER was 127.11% in the year 2019.

Figure 10

Gross enrollment ratio for primary education in Afghanistan

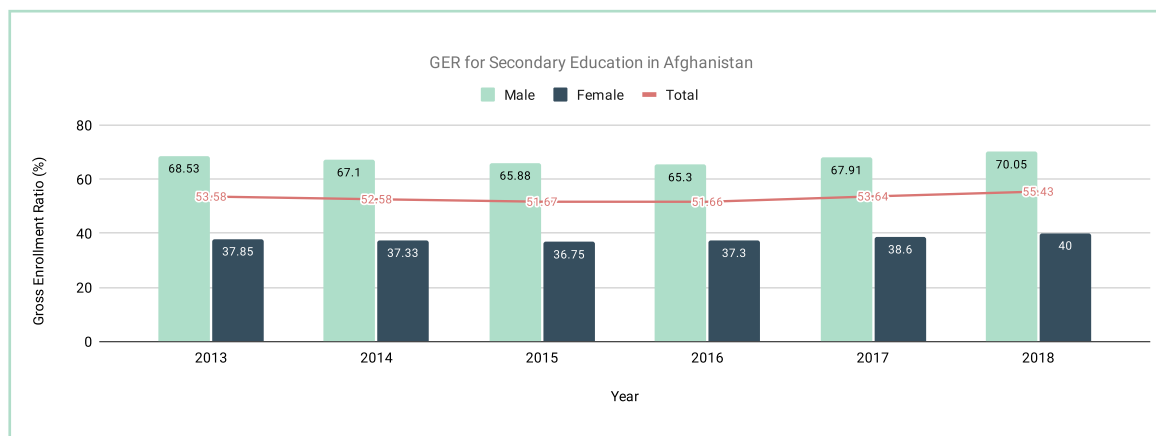


Note: Adapted from UNESCO Institute of Statistics

GER in secondary education was low for both males and females. In 2018, GER in secondary education was 70.05% for males and only 40% for females.

Figure 11

Gross enrollment ratio for secondary education in Afghanistan



Note: Adapted from UNESCO Institute of Statistics

Survey reports, studying the status shortly after the takeover by Taliban, suggest that the share of females in school (13-18 years) is likely to have dropped from 23% (before Taliban rule) to 13% (Mujahid and Eglund 2023). On 23rd March 2022, secondary schools were announced to be closed to females. Additionally, in December 2022 as winter break started, some primary schools in capital city Kabul informed their female staff to no longer report to work. Other than Kabul however, in southern provinces, primary schools have a different schedule for holidays, hence girls attended their primary schools as usual.

Restrictions on education, clothing, conduct and much more

Nevertheless, by April 2022, 80% secondary school girls were not allowed to attend classes. In June 2022, it was made mandatory for girls to cover their faces while commuting to school, or else face expulsion. A month later, in Samangan, private secondary schools were asked to shut entry for girls in classes above grade six (UN Women 2022). Lastly, in January 2023, the Ministry of Education issued a statement that permitted all schooling in grades one to six (Mujahid and Eglund 2023). Thus, many reports suggest the complete expulsion of girls from secondary schools since the regime took over (Chew 2023).

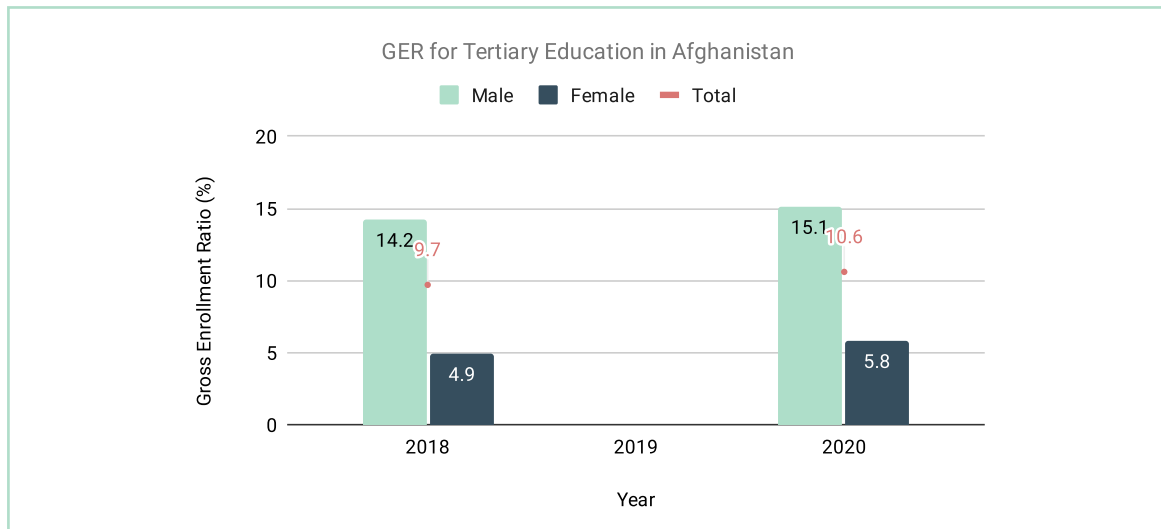
The desire for education is strong and evident among the women of Afghanistan as certain channels of media report the spread of secret schools operating from basements, living rooms and even bedrooms as teachers and students risk their lives to continue the cause of education for girls (Zaman 2023).

Tertiary Education

Gross enrollment ratio in tertiary education in year 2020 was 5.8% for females and 15.1% for males. Under the democratic rule, women's participation in higher education is said to have increased by roughly 20 times, from 2001 to 2021 (UNESCO 2023).

Figure 12

Gross enrollment ratio for tertiary education in Maldives



Note: Adapted from UNESCO Institute of Statistics

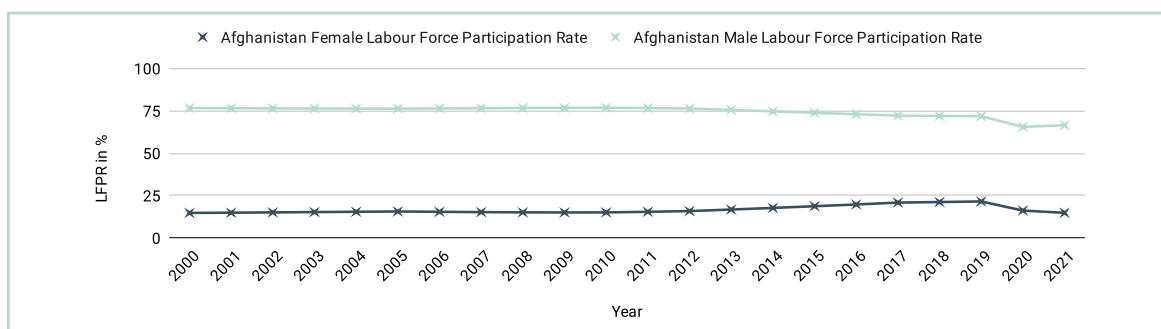
Reports suggest that enrollment rates, after Taliban takeover, would have not immediately fallen to 0% as the regime allowed several thousands of girls (12.5% female secondary students) to appear for university entrance exams in the autumn of 2022 and universities had mostly continued teaching women (UN Women 2022). However, on 20th December 2022, the Ministry of Higher Education is said to have issued a written order to private and public universities to suspend all education for females until any further notice. Reports came in shortly after the suspension about the comments and justification provided by the minister for higher education under the regime, Neda Mohammad Nadeem. The comments were reported to be as follows: “female students live by themselves in hostels far from their homes, in contravention of what he described as Islamic injunctions, he claimed, adding that female students failed to wear “proper” clothing and maintain gender segregation on campus. He also complained that women enrolled in courses, such as engineering and agriculture, that did not suit them” (Mujahid and Eglund 2023).

Employment and Career Opportunities

The labour force participation rates (LFPR) of females was low even during the years of democracy in the country. Last reported data from 2021, reported the male LFPR as 66.5% and female LFPR as a mere 18.45%.

Figure 13

Labour force participation rate in Afghanistan

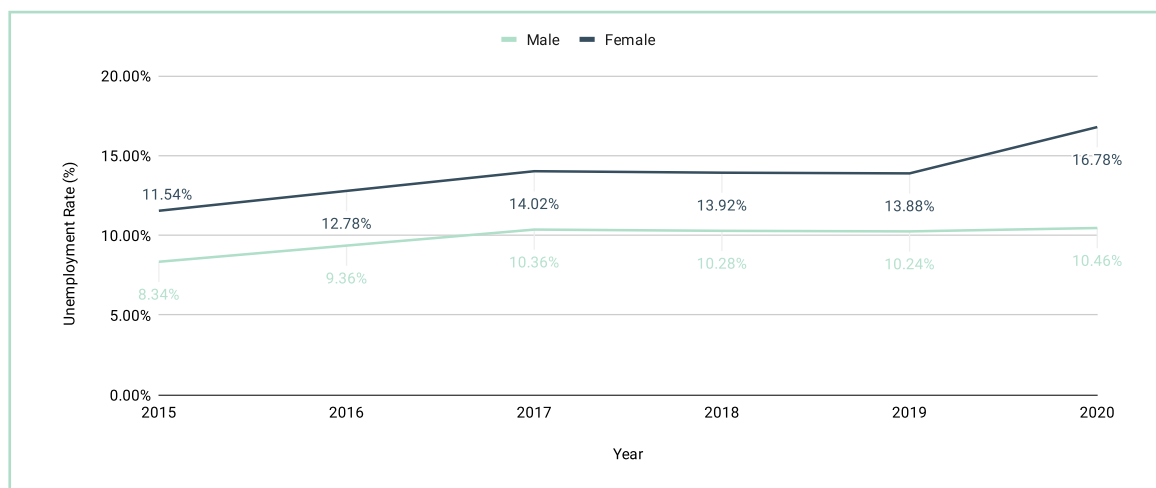


Note: Adapted from World Bank

The unemployment rate data from 2015 to 2021 also showed a gender gap, with female unemployment rate at 10.46% and male employment rate at 16.78% in the year 2020.

Figure 14

Unemployment rate in Afghanistan



Note: Adapted from World Bank

Millions of jobs lost, females discouraged from the workforce & educational settings

As per the US Special Inspector General for Afghanistan Reconstruction (SIGAR), approximately a million Afghans lost their jobs since the Taliban group took control of the country. Additionally, employment among women was estimated to fall by 21 per cent by mid-2022 (Sengar 2022).

The report released by UN Women, one year after the takeover of the country by Taliban reported that unemployment rate among women was estimated to reach 40% in the country by end of 2022. The report also alleged that certain male relatives of the female employees were being contacted to replace the positions in jobs in public sphere. Moreover, women were removed from “public service positions, except those which cannot be filled by men, such as education, health and elements of policing”. As per the report, by December of 2021, roughly 84% of media workers and female journalists stopped to work given the environment of violence, harassment and censorship (UN Women 2022).

In 2022, roughly 77% of women civil society organisations by Afghans faced a funding drought and were left with no running projects (Ibid.). The second blow came on 24 December 2022, as the Ministry of Economy issued a letter announcing the ban of Afghan females from working with NGOs (both, national and international). Females were estimated to have accounted for roughly one-third of the Afghan NGO workers in Afghanistan. The authorities from the Ministry also stated that this ban however, does not apply to females who work in healthcare sector such as hospitals, clinics (Mujahid and Eglund 2023).

Women, Business and the Law Index 2023 gave Afghanistan the lowest score in the South Asia region: 31.9 out of 100. The report highlights that given the methodology of the report, only rules identifiable in writing are considered for the scoring while many of the “restrictions are imposed by verbal decree and remain unpublished by an official source”. Thus, the realistic situation of restrictions on women’s education and employment may not be directly represented through the score provided (World Bank 2023).

The new rules brought in by the regime have severely impacted mobility of women as it is mandatory for women to travel with a mahram (male relative/chaperone) for any travel more than 45 miles away from home, and on any of the air travel (domestic or international) (UN Women 2022).

Afghanistan ranks last on Economic participation & opportunity indicator

Lastly, Global Gender Gap Index 2022 ranks Afghanistan as last (146th) on the 'economic participation and opportunity' indicator as well as 'educational attainment' indicator (World Economic Forum 2022).

BANGLADESH

According to the World Bank, Bangladesh has made significant improvements in its economy through poverty reduction and improvement in several human development outcomes. Bangladesh is currently categorised as a lower-middle income country and is expected to move out from 'UN's Least Developed Countries (LDC)' list by the year 2026. Though poverty has declined from 43.5% in year 1991 to 14.3% in year 2016, issues of surging commodity prices and imports had hit the country by the second half of financial year 2022 (World Bank, n.d.).

More than 43% of the GDP of the country is still generated by informal sector. Estimates suggest that over 92% of Bangladeshi women are engaged in the informal sector. According to Bangladesh Bank statistics, women entrepreneurs accounted for less than 4% of the total SME loans disbursed in the country (The Business Standard 2022).

Gender disparities are also evident in Bangladesh's education system, from the secondary school stage to all through higher education. Female enrollment in STEM courses such as engineering remains abysmally low.

Education

As per the Bangladesh Education Statistics 2021 report by Bangladesh Bureau of Educational Information and Statistics (BANBEIS)

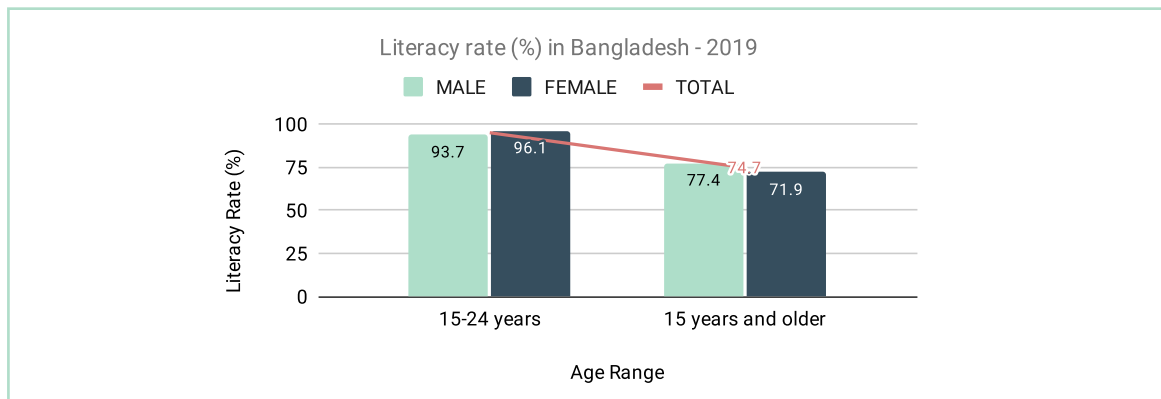
Bangladesh has a centralized Education system administered by the Ministry of Education (MOE) with two divisions viz, Secondary and Higher Education Division (SHED) & Technical and Madrasah Education Division (TMED) and the Ministry of Primary and Mass Education (MOPME). The MOPME and DPE are responsible for planning and management of primary, mass and pre-primary education. The MOE, DSHE and DTE are responsible for post-primary education. The MOE and UGC look after the overall management of tertiary education (Bangladesh Bureau of Educational Information and Statistics (BANBEIS) Ministry of Education 2022).

Variations in literacy rates w.r.t. age-group and gender

Bangladesh has been slowly closing the gap in its literacy rate disparity among males and females, with an overall improvement in rates of literacy observed for both genders. However, the literacy rate for 15 years or older in the country, showcases a gender gap with female literacy rate (71.9%) being lower than male literacy rate (77.4%). However, in the younger age bracket of 15-24 year olds, female literacy rate (96.1%) is reported to be higher than that of males (93.7%).

Figure 15

Literacy rate in Bangladesh



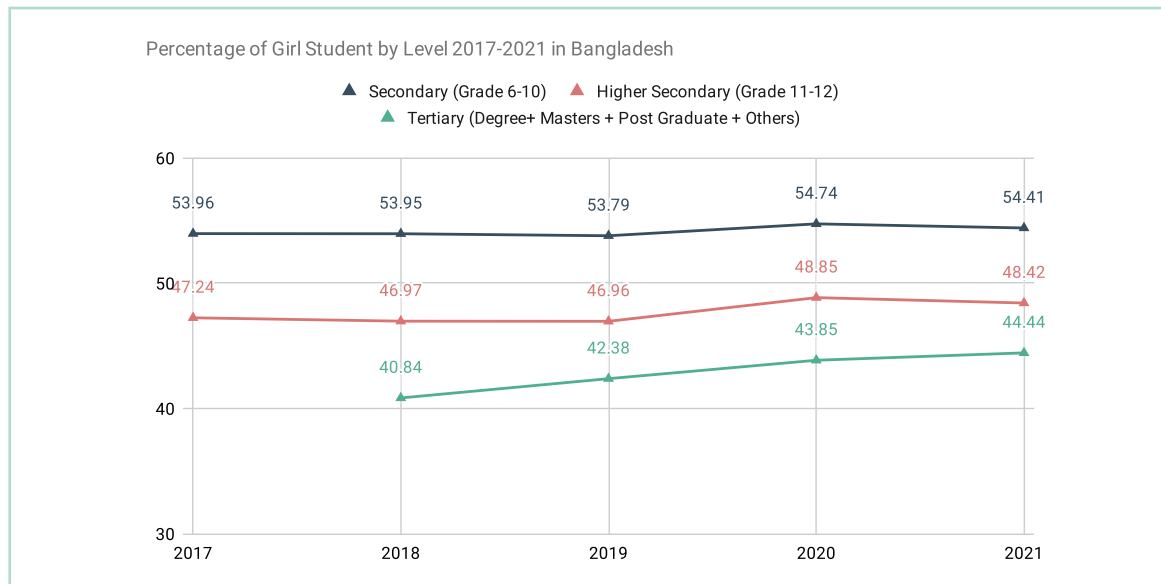
Note: Adapted from UNESCO Institute of Statistics

Faltering female participation

The general situation of gender-segregated education statistics of the country indicate a phenomenon of leaky pipeline as percentage of girl students decreases from secondary (grade 6-10) to higher secondary (grade 11-12) and then tertiary (degree + masters + postgraduate + others {diploma/certificate}). The following graph shows this phenomenon with statistics from 2017 to 2021

Figure 16

Percentage of girl student by level of education (2017-2021) in Bangladesh



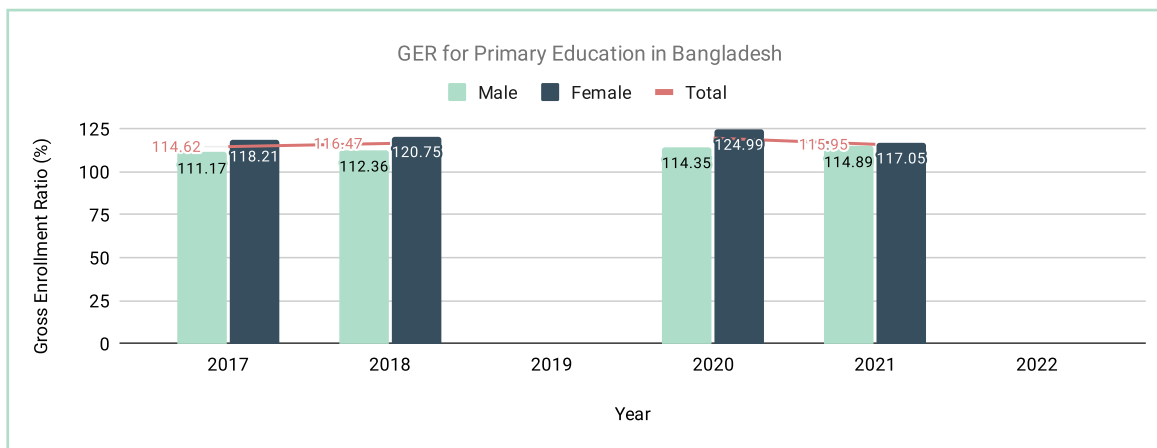
Note: Adapted from Bangladesh Bureau of Educational Information and Statistics

Primary & Secondary Education

Gross enrollment ratio data from 2021 shows nearly equal participation of female (117.05%) and male (114.89%) students in primary education and more enrollment of females (86.27%) than males (65.19%) in secondary education in the country. (UNESCO Institute of Statistics, n.d.).

Figure 17

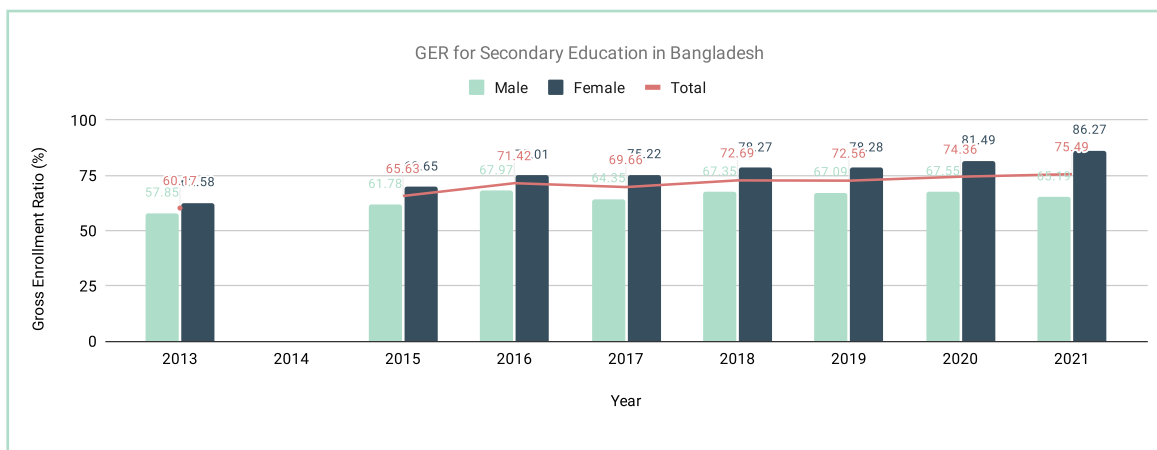
Gross enrollment ratio for primary education in Bangladesh



Note: Adapted from Bangladesh Bureau of Educational Information and Statistics

Figure 18

Gross enrollment ratio for secondary education in Bangladesh



Note: Adapted from Bangladesh Bureau of Educational Information and Statistics

As per government data 'Cycle Dropout Rate in Primary Education' has also drastically decreased from 47.2% in 2005 to 14.15% in 2021. However, the dropout rate in secondary level in 2021 was 35.66% overall (32.50% for boys and 40.29% for girls) (Bangladesh Bureau of Educational Information and Statistics (BANBEIS) Ministry of Education 2022).

Gender roles in educational institutes

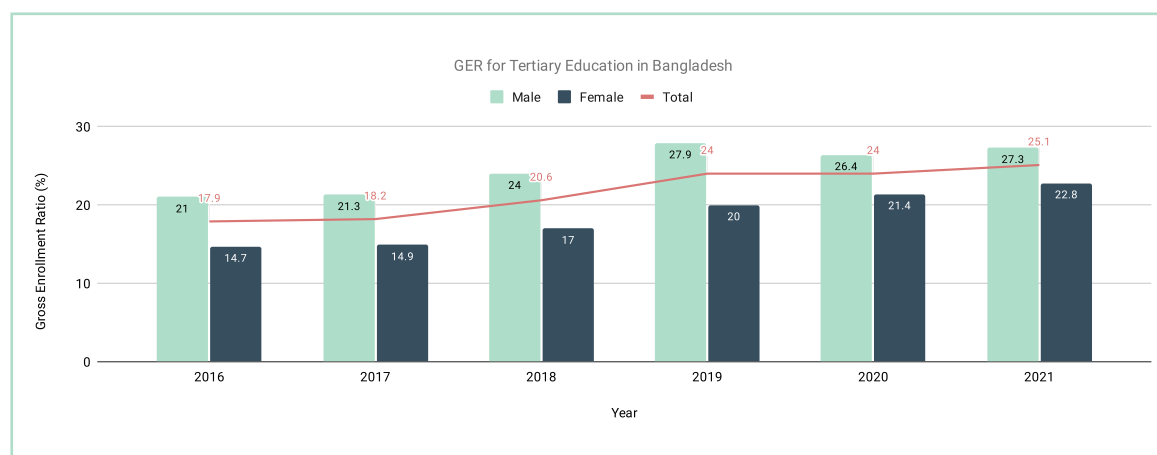
Across schools, only 9.82% of Headmasters and 16.03% of Assistant Headmasters are females. A deep dive into Assistant Teacher level data shows that only 11.96% of mathematics, 18.12% of physical education, 30.26% of biology and 36.18% of ICT Assistant Teachers in Bangladesh schools are female (Ibid.).

Tertiary Education

The rate of gross enrollment in tertiary education in Bangladesh is a cause of worry (Female: 22.8% and Male: 27.3%).

Figure 19

Gross enrollment ratio for tertiary education in Bangladesh



Note: Adapted from UNESCO Institute of Statistics | **Source:** <https://uis.unesco.org/en/country/bd>

As of January 2023, the UGC website of Bangladesh lists 53 public universities and 109 private universities in the country (University Grants Commission of Bangladesh, n.d.). However, the Annual Education Survey (AES) 2021 by BANBEIS noted 50 public and 110 private universities in the country.

Out of the total number of students enrolled in tertiary education (Degree+ Masters + Post Graduate Degree + Others) 44.43% were girls (42.97% in private and 45.15% in public). In 2021, there were 769 colleges (16.26%) exclusively for girls (Bangladesh Bureau of Educational Information and Statistics (BANBEIS) Ministry of Education 2022).

As per a paper published in 2019 that analysed women in STEM in the country, Bangladesh universities and R&D organisations tend to have more female workforce at the junior level and the percentage of females becomes lesser in the higher ranks. The paper also examines the statistics of Dhaka University from 2014 and notes the area of study/sectoral skewness within STEM higher education. The percentage of female teachers in the institution was highest in Biosciences (52.5% female teachers) and lowest in engineering sciences (21.9%) (Naher, Tanim, and Sultana 2019, 310). As per a World Bank publication, in year 2016, the country's 11 public engineering institutions had 15.1% female student enrollment in 'Electrical, Electronics, and Communication Engineering' and 7.6% in 'Mechanical, Industrial and Production Engineering' (World Bank Group, ESMAP, and WePOWER, n.d.).

Women are fairly well represented in medical tertiary/professional education in the country with enrollment statistics of percentage of girl students as follows: Medical university (49.22%), Medical College (62.77%), Armed Forces & Army Medical College (36%), Dental college and dental unit (62.34%), Nursing and Midwifery College & Institution (84.9%), Homoeopathic College (49.52%) and, Unani/ Ayurvedic College (26.34%). However, the share of women teachers in these medical institutes is not as balanced (Bangladesh Bureau of Educational Information and Statistics (BANBEIS) Ministry of Education 2022). The enrollment in Bangladesh's 7761 Technical and Vocational Education institutions in Bangladesh was an average of 150 students per institution. Girl students were 27.13% of this total enrolment (Ibid.).

At the higher secondary level cycle dropout rates stand at 21.14% overall (20.74% for boys and 21.56% for girls).

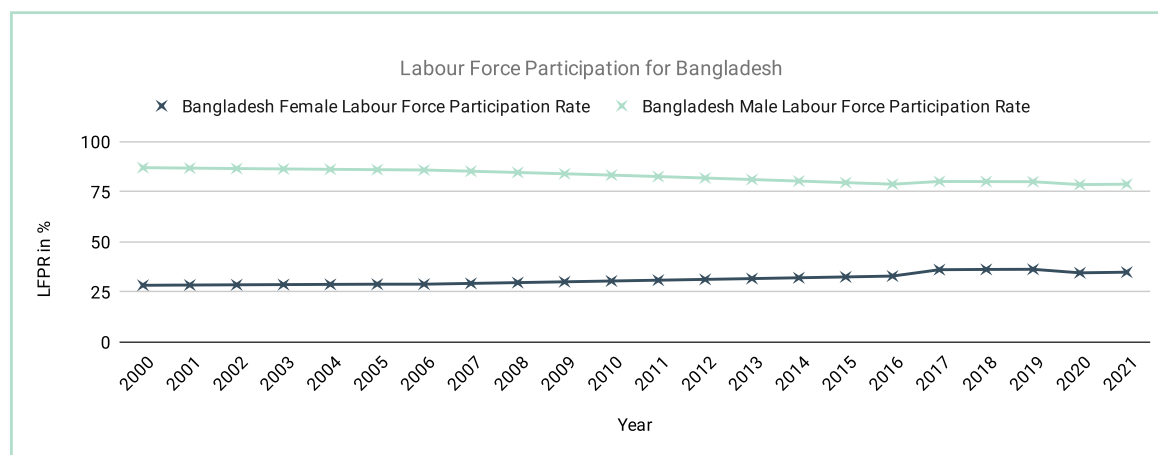
Employment and Career Opportunities

Labour Force Survey (LFS) 2016-17 by Bangladesh Bureau of Statistics noted 28.2% females in the working age population (15 to 65+) in urban areas and 36.3% in rural areas, with an overall 33.9 % females in the working age population (Bangladesh Bureau of Statistics 2018).

The national level data on female labour force participation rate (LFPR) has shown some improvement from 2008 to 2021, as female LFPR increased from 29.67% to 34.87%. Similarly, the gender gap over the years has reduced to some extent, as visible in the following graph, however, much needs to be done to reduce it further.

Figure 20

Labour force participation rate in Bangladesh

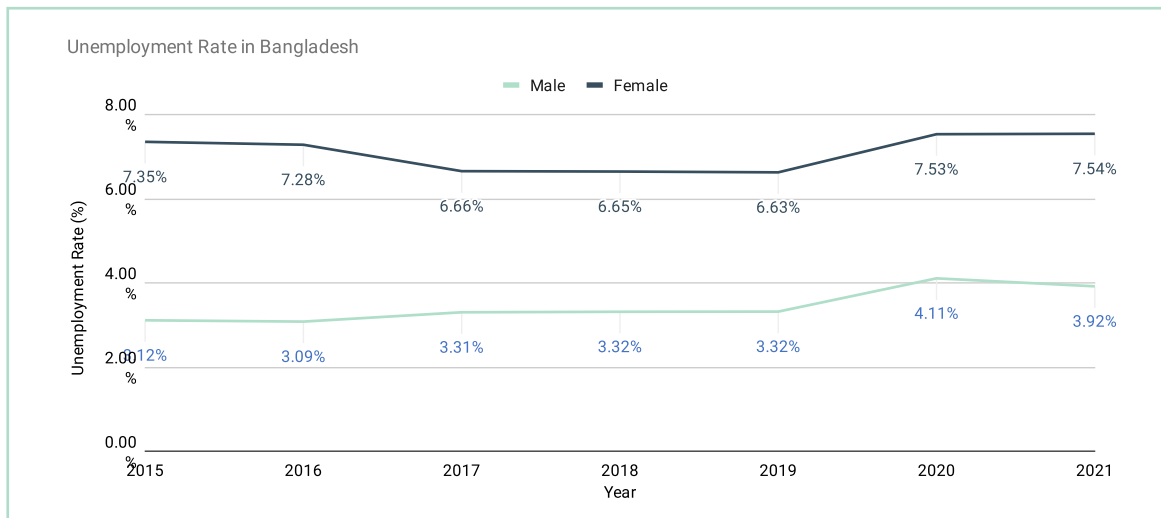


Note: Adapted from World Bank

Bangladesh has had an alarmingly wide gender gap in unemployment rates as well. Unemployment among females has consistently been much higher than that of males. In 2021, females had an employment rate of 7.54% while males had an unemployment rate of 3.92%.

Figure 21

Unemployment rate in Bangladesh



Note: Adapted from World Bank

The Global Gender Gap report 2017 highlighted that a mere 15% Bangladeshi firms have women owners/co-owners. Moreover, even though female entrepreneurship in the country has been growing over the years, females constitute only 7% of the roughly 7 million entrepreneurs in Bangladesh (Tembon 2021). The Global Gender Gap report 2021 also reported a share of merely 11% women in managerial positions (with a 88% gender gap). On the 'economic participation and opportunity' indicator analysed in this report, the country ranked 147th out of 156 countries (World Economic Forum 2021). The 2022 version of the report ranks the country as 141st out of 146 countries on the same indicator (World Economic Forum 2022).

Bangladesh's laws and regulations got a score of 49.4 out of 100 on the Women, Business and the Law 2023 Index. Even though the country had a perfect score on mobility, it had extremely low scores on most other indicators, with some exception to entrepreneurship (75 out of 100).

Sources suggest that reasons for low level of interest in STEM careers among women can be attributed to the gender discrimination issues they experience due to pay disparity in workplace, lesser opportunities of career growth, and other persisting issues of unemployment in the field (Ahmed et al. 2020).

Within specific sectors that typically require STEM education, participation of women in Bangladesh's power sector was reported to be extremely low. Women made up only 9.5% of the total staff engaged in the country's six public utilities under this sector. Moreover, only 6% of these were female engineering staff. Among the six facilities, most women were engaged at the Bangladesh Power Development Board (WePOWER, World Bank Group, and ESMAP 2020). As per a survey conducted by the Underprivileged Children Educational Program Bangladesh, 'lack of family support' and 'society's lack of acceptance' was highlighted by roughly 25% and roughly 21% of the girls, respectively, as key barriers to entering the sector. Similarly, roughly 50% parents reported 'lack of knowledge about the prospect of technical education' as their reason for not considering technical education for their daughters (Ibid.).

BHUTAN

Bhutan is a low-middle income landlocked country between India and China. Its geography is characterised by Himalayan mountains and many deep valleys. As a result, the country has a scattered population settlement. The country's geography makes it vulnerable to natural disasters and limits ease of access to facilities.

The gender gap in unemployment rates has persisted for years, and labour force participation rates among females have consistently been lower than that of males.

Education

The Ministry of Education is primary body for creation of education policies for the country. As per the Annual Education Statistics 2022 Report, "The responsibility for the administration of education in Bhutan is shared amongst the Ministry of Education (MoE), BCSEA, Ministry of Labor and Human Resources (MoLHR), tertiary education institutes, dzongkhags, thromdes, gewogs and schools. Monastic education is the responsibility of the central monastic body and privately managed independent monasteries and nunneries" (Royal Government of Bhutan 2022).

As of 2022, the website of the ministry reported presence of 598 schools in the country, out of which 562 are government and 36 are private schools. The Royal Education Council and Bhutan Council for Examination and Assessment are the two key governance bodies shaping the education system in the country (Royal Government of Bhutan 2020). Integrated science was formally introduced for classes VII and VIII only in 1999 (Global Reach Bhutan 2021).

In 2014, the Bhutan Education BluePrint (2014–2024) was released, which acknowledged the need to develop a deep understanding of STEM in children. It also addressed the curriculum improvements needed in STEM and "Technical and Vocational Education and Training (TVET)" (Ibid.). Few years later, the country's Education ICT Master Plan (iSherig-2 2019-2023) was also released, to leverage ICT for education in the country.

The country has **free basic education** up till grade X—11 years of education, including 7 years of primary education (pre-primary to grade VI) and 6 years of secondary education (grade VII to grade XII). Since 2019, the government is also providing scholarships for students to pursue XI and XII from government or private schools. Public tertiary education is considered to be priority by many students, since scholarships are also available for the same on merit. One can also opt for self-financing for public tertiary education or go for private tertiary education or directly enter the job market.

The 'general education structure' in Bhutan has been depicted by the Ministry of Education in its Annual Education Statistics 2022 Report as follows:

Figure 22

General education structure in Bhutan

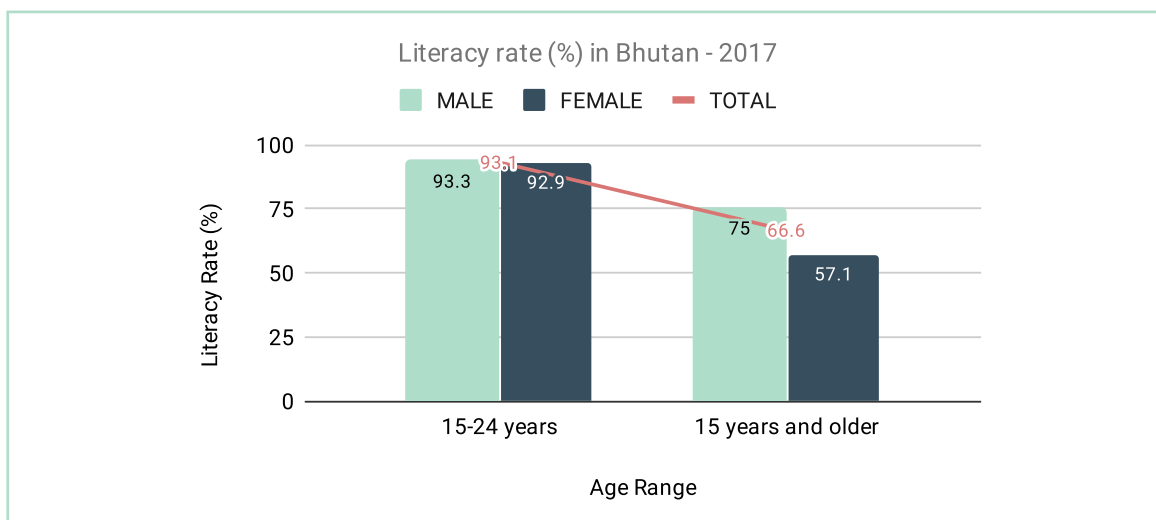
LEVEL	Early Child Care and Development	Pre-Primary	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	1st Year	2nd Year	3rd Year	4th Year	
ISCED	0	1							2					3		5&6			
Type	ECCD Centers (3-4)	Primary Education (5-11 years)							Secondary Education (12-17 years)					Tertiary Education (18-22 years)					
		Primary School							Lower Secondary School	Middle Secondary School	Higher Secondary School	Undergraduate courses							
											CONTINUING EDUCATION								
										NON-FORMAL CENTERS									
										VOCATIONAL EDUCATION SYSTEM (TTI/IZC) [ISCED 3-4]									
LABOUR MARKET																			

Variations in literacy rates w.r.t. age-group and gender

Though the literacy rate of Bhutan's adult population (15 years and older) was 66.6% in 2017 with a significant gender gap (male : 75% and female: 57.1%), the country's younger population had a much higher literacy rate of 83.1%. The gender gap is also marginal in this section of the population (male: 93.3% and female: 92.9%).

Figure 23

Literacy rate in Bhutan



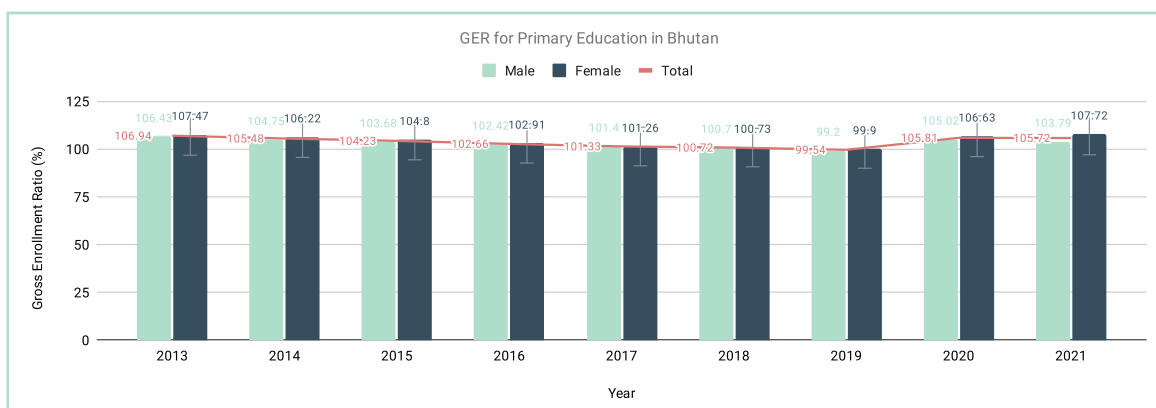
Note: Adapted from UNESCO Institute of Statistics

Primary and Secondary Education

Bhutan has a high gross enrollment rate (GER) in primary education, with GER of females (107.72%) being slightly higher than that of males (103.79%). In secondary education levels this disparity increases, with GER of male students falling to 84.71%.

Figure 24

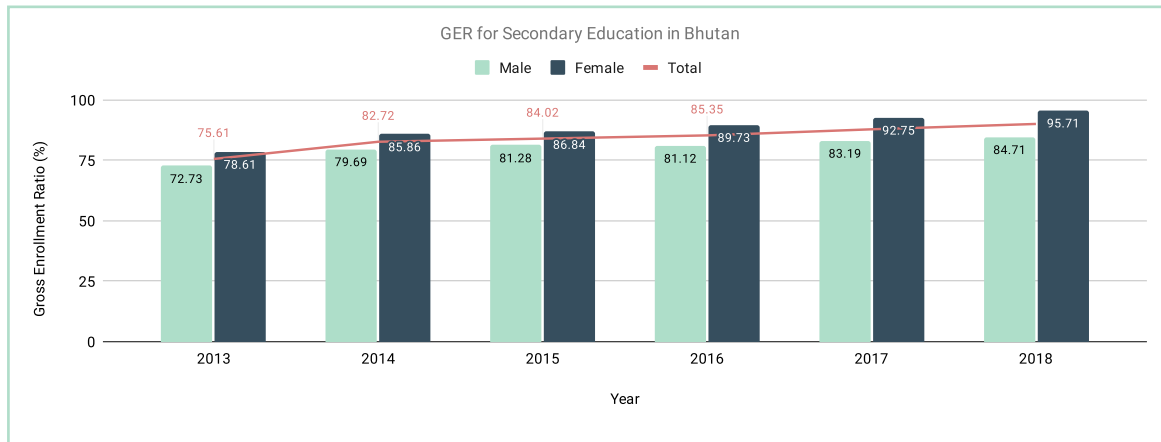
Gross enrollment ratio for primary education in Bhutan



Note: Adapted from UNESCO Institute of Statistics

Figure 25

Gross enrollment ratio for secondary education in Bhutan



Note: Adapted from UNESCO Institute of Statistics

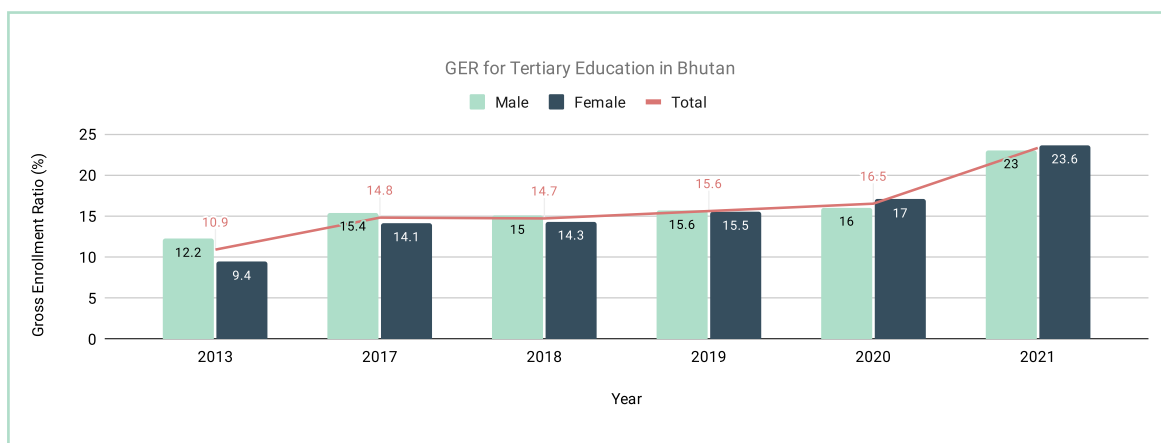
Tertiary Education

Low Enrolment rates for both genders

The rate of gross enrollment in tertiary education in Bhutan is extremely low for both males (23%) and females (23.6%). However the gender parity in enrollment has improved over the years, as observed in the following graph. This sudden dip in GER from secondary to tertiary education may be attributed to the end of free basic education and scholarship-for-all system after grade XII, as detailed earlier. However, in terms of gender parity, female students make up 49.25% of the total student population in the tertiary institutes within the country. Similarly, of the Bhutanese students studying abroad, 48.57% are female students.

Figure 26

Gross enrollment ratio for tertiary education in Bhutan

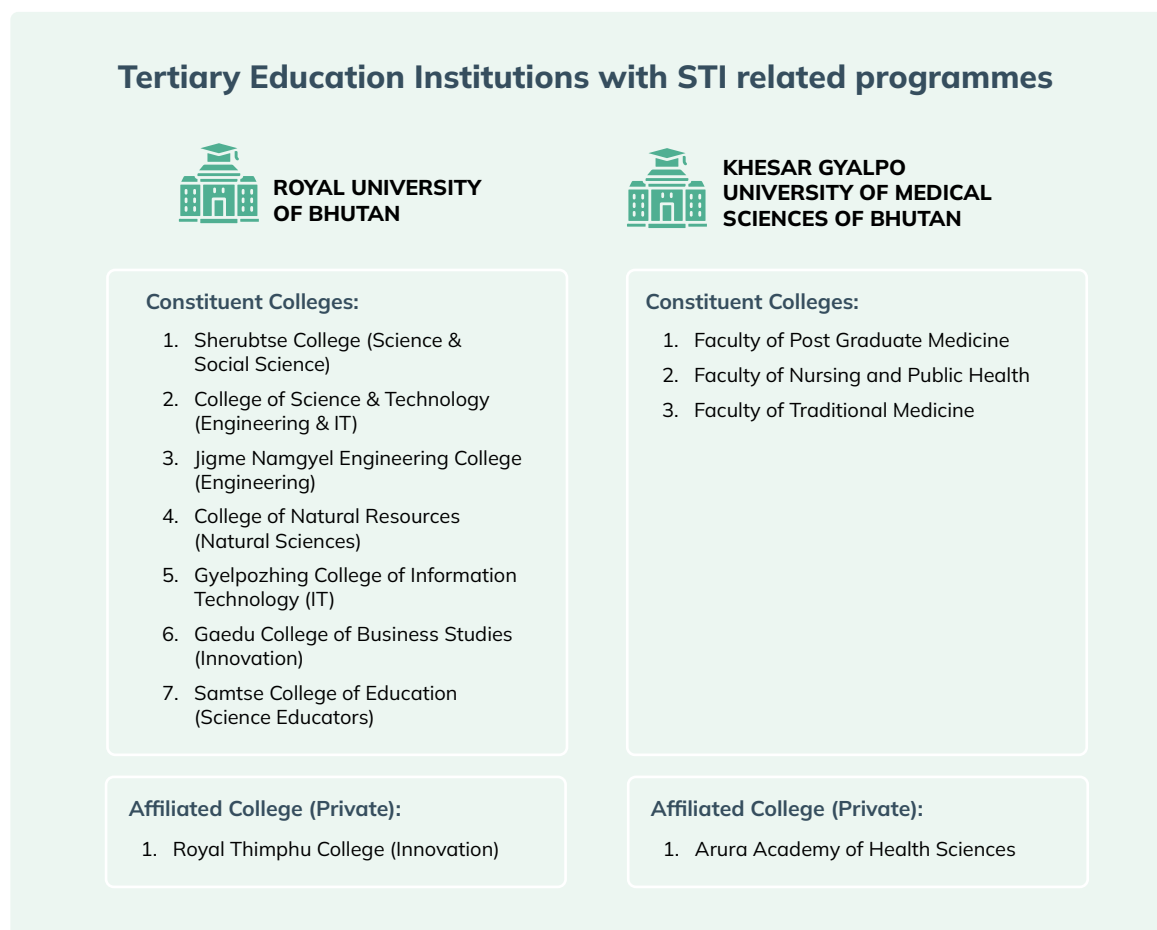


Note: Adapted from UNESCO Institute of Statistics

Bhutan has 15 government and 3 private tertiary institutes. Out of these, the ones offering Science, Technology and Innovation related courses from 'Royal University of Bhutan' are 7 constituent colleges and 1 affiliated private institute. 3 constituent faculties and 1 affiliated private college from Khesar Gyalpo University of Medical Sciences of Bhutan also offer STEM courses (mainly related to health and medicine fields) (Royal Government of Bhutan 2020).

Figure 27

Tertiary institutions with Science, Technology and Innovation related programmes in Bhutan

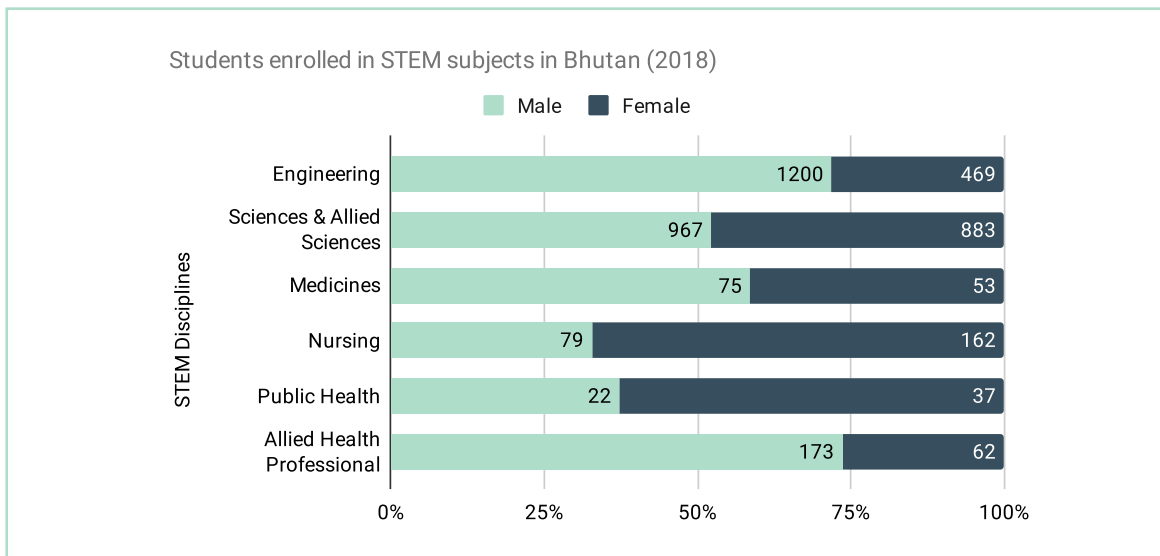


Note: Adapted from United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)

Enrollment data by STEM disciplines shows that while nursing and public health are popular choices for female students, engineering courses have a heavy presence of male students.

Figure 28

Students enrolled in STEM subjects in Bhutan (2018)



Note: Adapted from "Status of Science, Technology and Innovation (STI)- Bhutan"

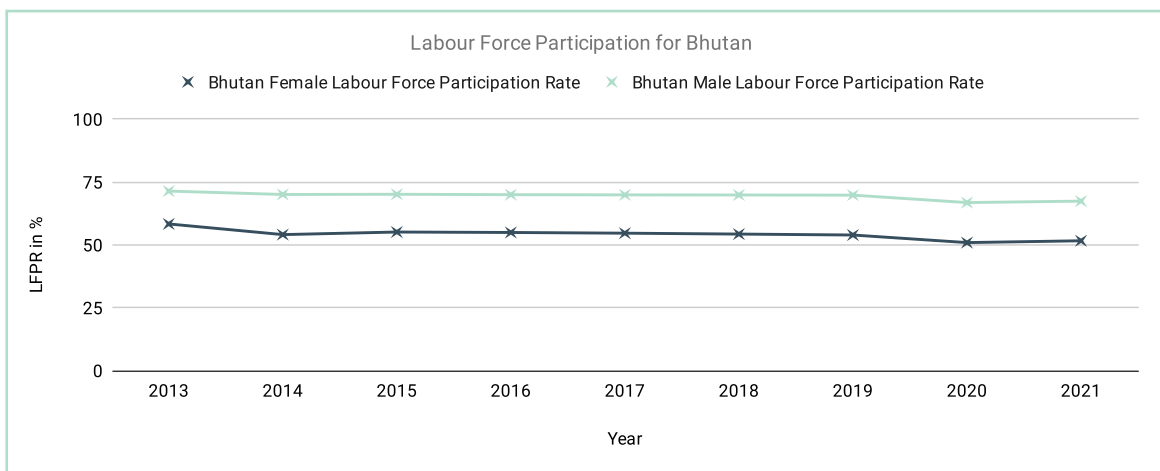
Bhutan has only 6 government technical/vocational institutes and 2 'Institutes of Zorig Chusum' (for traditional Bhutanese arts). Female students comprise merely 27.75% of the total student population in the technical/vocational institutes and merely 33.44% in the Institutes of Zorig Chusum (Royal Government of Bhutan 2022).

Employment and Career Opportunities

Labour force participation rates (LFPR) in Bhutan have displayed a consistent gap in male LFPR and female LFPR. In the year 2021, the male LFPR stood at 67.4% and female LFPR was 51.6%.

Figure 29

Labour force participation rate in Bhutan



Note: Adapted from World Bank

Studies/training, old-age - primary reasons for economic inactivity

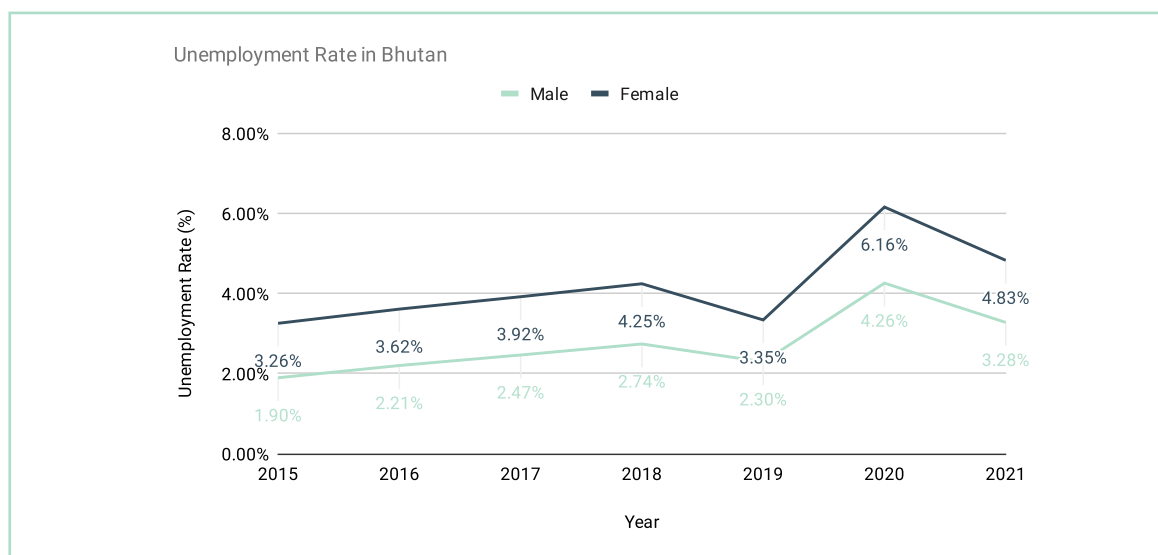
Labour force survey data on **economically inactive population** in Bhutan shows that 30.9% of the country's total population is economically inactive—defined as the “proportion of economically inactive persons to the working-age population” or “all persons who neither worked nor were seeking/available for work during the reference period is referred to as economically inactive population”. The economically inactive rate for females (34.7%) was much higher than that for males (26.9%) in 2021. A look into the granular data on reason for economical inactivity of this section of the population shows that 27.3% of these females and only 2% of these males were economically inactive due to house/family duties while 44.7% females and 67.8% of them were in studies/training—these two being the primary reasons for inactivity, followed by old age (National Statistics Bureau, Bhutan 2021).

Qualified but unemployed women of Bhutan

Bhutan's unemployment data also displays a gender gap. As per World Bank data on unemployment, 3.28% of males and 4.83% of females in the country were unemployed in 2021 .

Figure 30

Unemployment rate in Bhutan



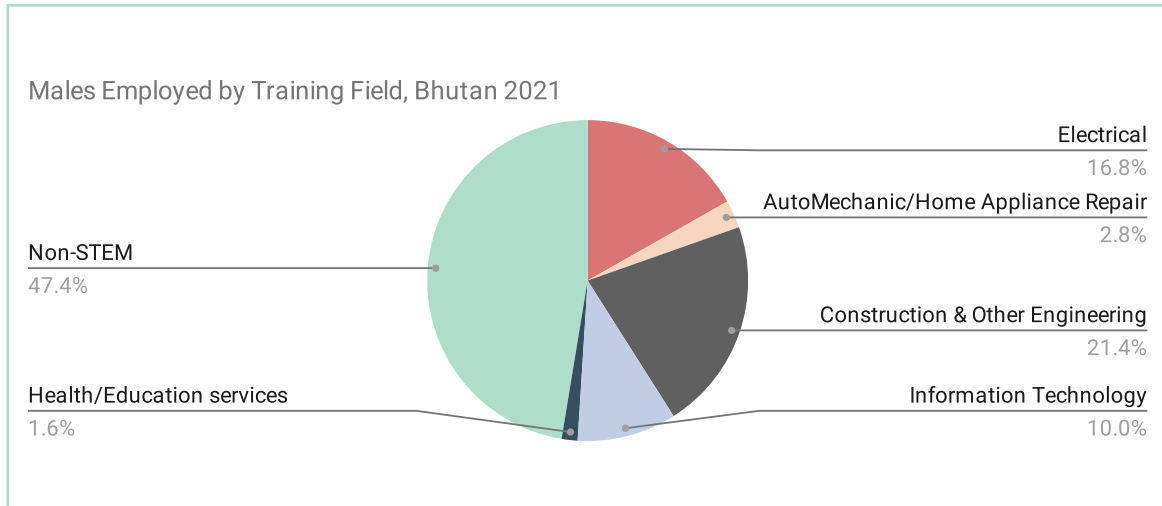
Note: Adapted from World Bank

The number of unemployed females with a higher education degree in the country is even more alarming. Among females with a bachelor's degree, in 2021, the unemployment rate was 18.5% (higher than that that for males 11.4%). Among the unemployed females of Bhutan, about one-fifth have attended trainings related to information technology (IT). However, the rate for unemployed males trained in IT is 14.3%. Interestingly, the rate of unemployed females (4.8%) trained in 'electrical' is lesser than unemployed males (6.2%) (Ibid.).

Among the employed persons of the country, distribution by training fields is as follows:

Figure 31

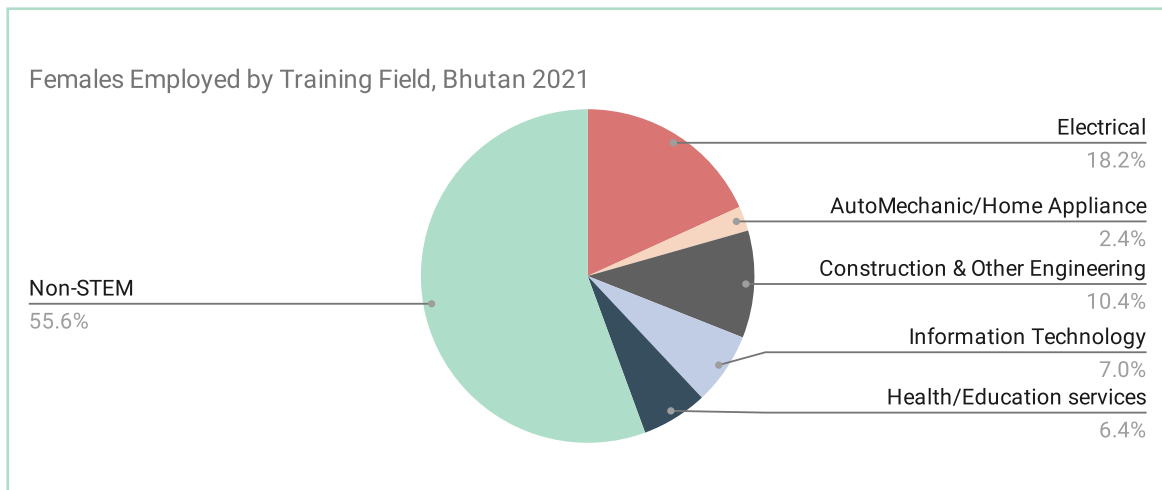
Males employed by training fields in Bhutan (2021)



Note: Adapted from 2021 Labour Force Survey Report - National Statistics Bureau, Bhutan

Figure 32

Females employed by training fields in Bhutan (2021)



Note: Adapted from 2021 Labour Force Survey Report - National Statistics Bureau, Bhutan

Equal opportunities in employment but still a visible gender gap

The country's 'Gender Equality Diagnostic of Selected Sectors' report by Asian Development Bank from the 2014, notes that though the country has "legislative commitments to equal opportunities in employment", sectors such as energy—which generally require a STEM-degree—tend to have more male than female employees. The report also notes that this gender gap exists despite a substantial number of women (though in minority) in the country have electrical and civil engineering graduate degrees, which are relevant for employment in the energy sector (Asian Development Bank 2014).

On the Women, Business and the Law 2023 Index, Bhutan (75 out of 100) fares much better than the average of South Asia region (63.7). As per the index report, the laws and regulations of the country are equal on indicators of mobility (constraints on freedom of movement), workplace and pay as Bhutan gets a perfect score on them. However, the country needs to make considerable improvements in laws related to parenthood (World Bank 2022).

The Global Gender Gap Report 2022 ranks the country 126th out of 146 countries on the 'economic participation and opportunity' indicator under the Gender Gap Index (World Economic Forum 2022).

INDIA

India is a lower-middle country and the largest country (by land-size and population) in the South Asia region. Growing on a fast pace, India's economy experienced a slowdown as COVID-19 hit. The pandemic had a particularly negative impact on the informal sector. Though the share of women in the total informal sector workforce is much lower than that of men, nearly 81.8% of female's employment in the country is estimated to be concentrated in this sector.

Women continue to have a much lower LFPR than men in the country. Additionally, even though females make up over 43% of STEM graduates in the country, their participation in the STEM workforce remains much lower than that of males.

Education

In the year 1976, through the 42nd Amendment to the Constitution, education was shifted from being a subject in the State List to being in the Concurrent List. At the national level, India's education system is governed by the Ministry of Education (formerly known as the Ministry of Human Resource Development), which is responsible for the formulation and implementation of education policies in the country. The Ministry is further divided into two departments:

- Department of School Education and Literacy: which oversees school-level education and literacy programs
- Department of Higher Education: which is responsible for the development of higher education in the country

In addition to the Ministry of Education, each state in India has its own 'Department of Education', which is responsible for the administration of education policies and programs at the state level.

The Ministry of Education, through its Department of School Education and Literacy and Department of Higher Education, is responsible for collecting and reporting statistics related to education in India. The National Council of Educational Research and Training (NCERT) and the National Institute of Educational Planning and Administration (NIEPA) are also involved in the collection and analysis of education statistics in the country.

The University Grants Commission (UGC) is a statutory body that is responsible for the coordination, determination, and maintenance of standards of university education in India. It is also responsible for disbursing grants to universities and colleges in the country. The UGC was established in 1956 and operates under the Ministry of Education.

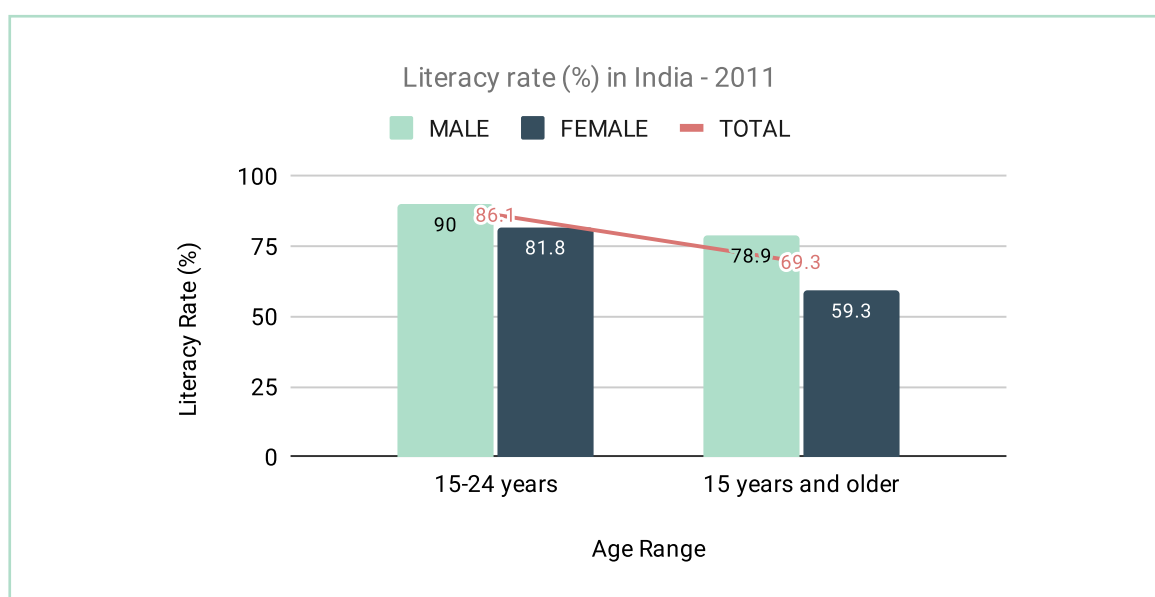
India's education system consists of three main levels: primary education, secondary education, and higher education. Primary education starts at the age of six and lasts for eight years. Secondary education lasts for four years and includes two years of lower secondary education and two years of upper secondary education. Higher education is provided by universities, colleges, and other institutions and includes undergraduate, postgraduate, and doctoral programs. At the primary and secondary levels, education is provided by both government and private schools. The Central Board of Secondary Education (CBSE) and the Indian Certificate of Secondary Education (ICSE) are two of the main boards that conduct examinations at the secondary level. At the higher education level, universities are either central, state, or private, and offer a wide range of courses in various fields.

Variations in literacy rates w.r.t. age-group and gender

There is a considerable gender gap in the literacy rates in India in the overall adult population as well as in the youngster population (15-24 years). Though the gap is lesser in the younger population, India still fares poorly when compared to some of its neighbouring countries such as Sri Lanka, Nepal and Maldives.

Figure 33

Literacy rate in India



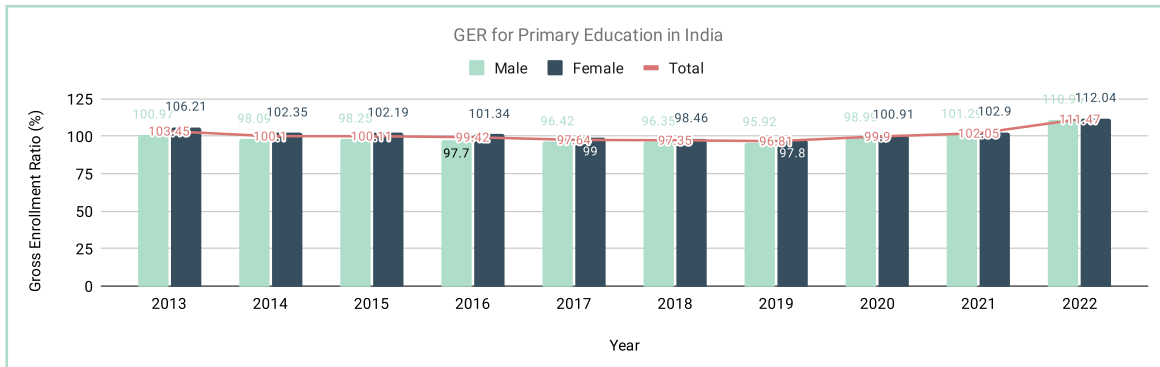
Note: Adapted from UNESCO Institute of Statistics

Primary and Secondary Education

Gross enrollment ratio data from 2022 shows that female enrollment ratio (112.04%) was marginally higher than that of male students (110.96%) in the primary education level (UNESCO Institute of Statistics, n.d.).

Figure 34

Gross enrollment ratio for primary education in India



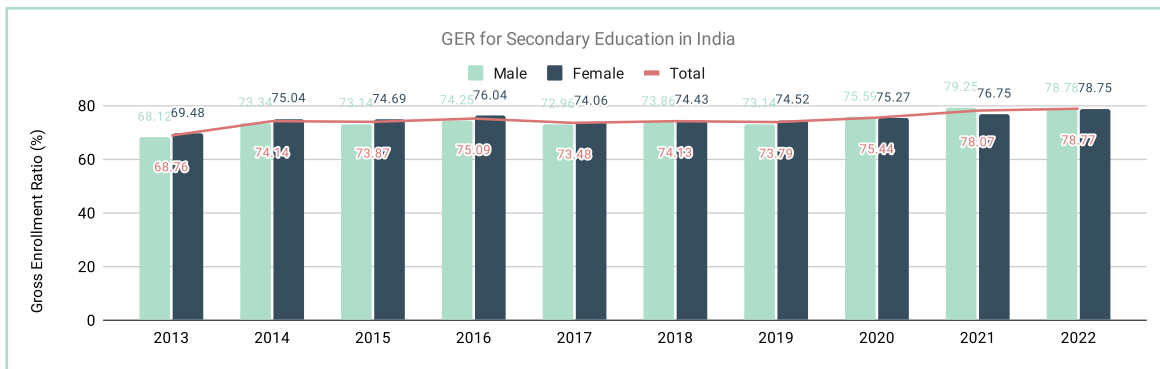
Note: Adapted from UNESCO Institute of Statistics

A drop in enrollment rates as students move from primary to secondary education levels

As compared with GER at the primary education level, enrollment rates in the secondary education level drop for both male and female students. Though some percentage points worth of gender gap in GER at secondary education level has been observed in the country for some of the years in the last decade, the gap in 2022 was marginal. (UNESCO Institute of Statistics, n.d.).

Figure 35

Gross enrollment ratio for secondary education in India



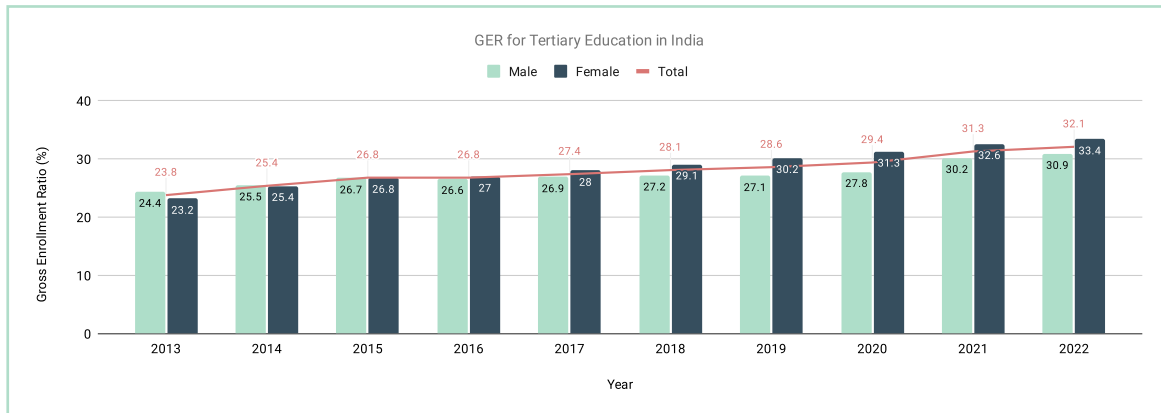
Note: Adapted from UNESCO Institute of Statistics

Tertiary education

Gross enrollment ratio (GER) at the tertiary education level highlights an increasing gender gap in enrollment over the years, with female GER being more than male GER. However, GER for both male and female students remain extremely low in India. Female GER in 2022 was 33.4%, while male GER was reported to be 30.9%.

Figure 36

Gross enrollment ratio for tertiary education in India

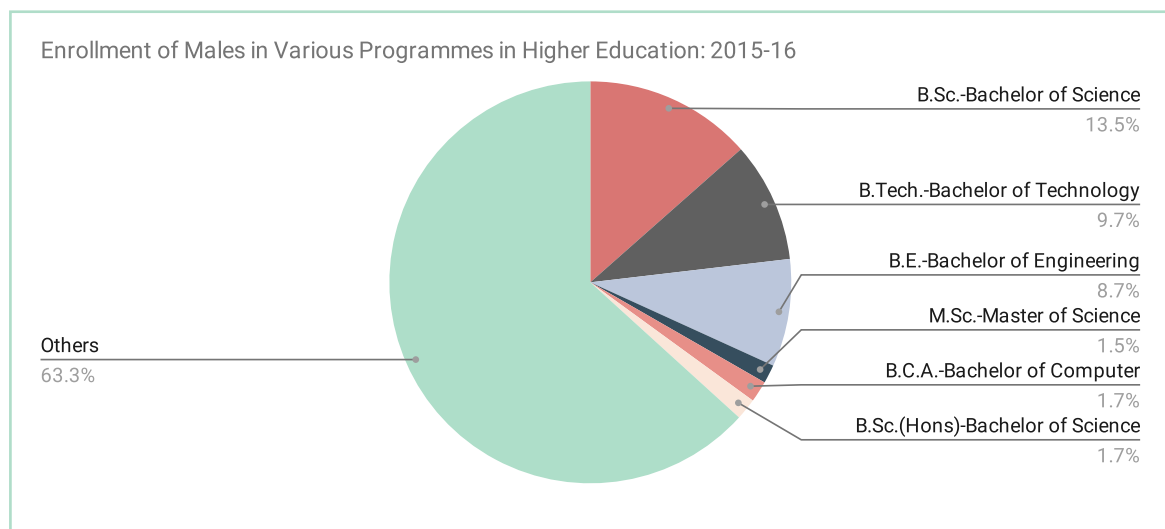


Note: Adapted from UNESCO Institute of Statistics

Enrollment data by academic programme in higher education from 2015-16 shows that while 9.7% of male students opt for B.Tech and B.E. (the two engineering courses at undergraduate level), only 6.9% of female students opt for it (Ministry Of Human Resource Development 2018).

Figures 37

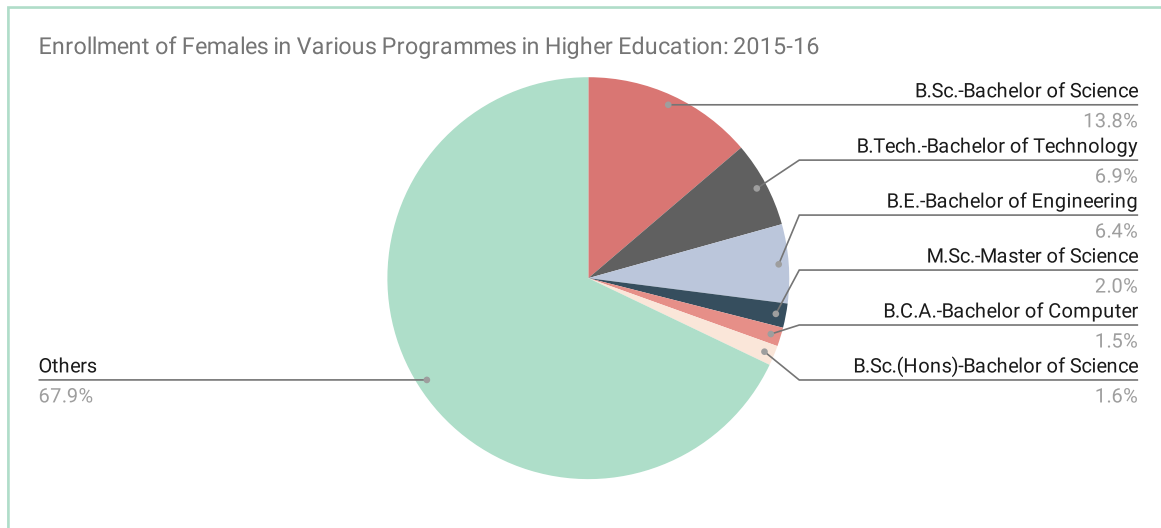
Enrollment of males in various programmes in higher education (2015-2016)



Note: Adapted from "Educational Statistics at a glance"

Figures 38:

Enrollment of females in various programmes in higher education (2015-2016)



Note: Adapted from "Educational Statistics at a glance"

High number of female STEM graduates but still a 14% gap in enrollment

As per reports, women account for 43% of STEM graduates in India. A blog article from British Council, while citing data from the All India Survey on Higher Education 2019-20 report, stated that despite the high number of female STEM graduates in India, there is a 14% gap in enrollment in STEM higher education courses in India, as males heavily outnumber females (Baruah and Sahay 2022).

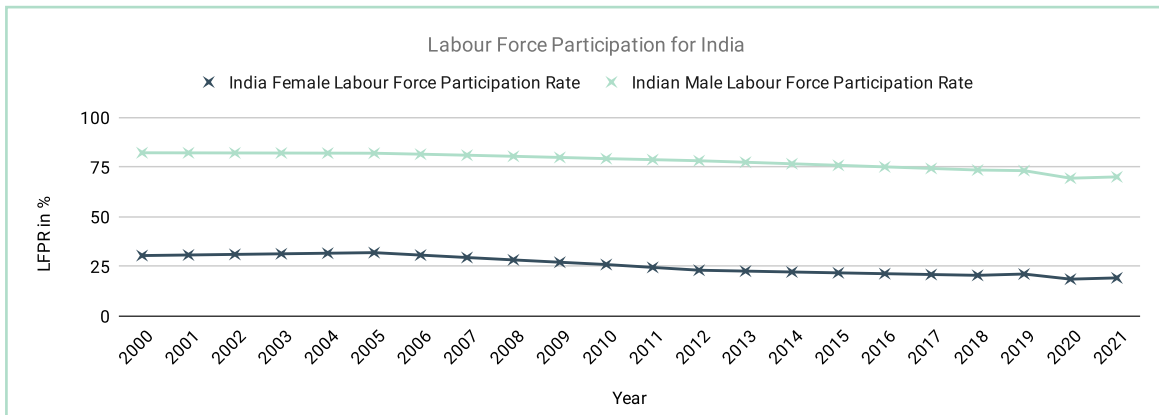
A report from UNESCO citing 2015 data indicated that female researchers made up 13.9% of total researchers in India (UIS UNESCO 2019). Among teachers in higher education 58% are female teachers, as per data from 2019-2020 (University Grants Commission 2021).

Employment and Career Opportunities

Labour force participation rate (LFPR) in India has been extremely low for females and has fallen continuously from 2007 to 2018. In the year 2022, female LFPR was as low as 19.23% while male LFPR was 70.09%

Figure 39

Labour force participation rate in India

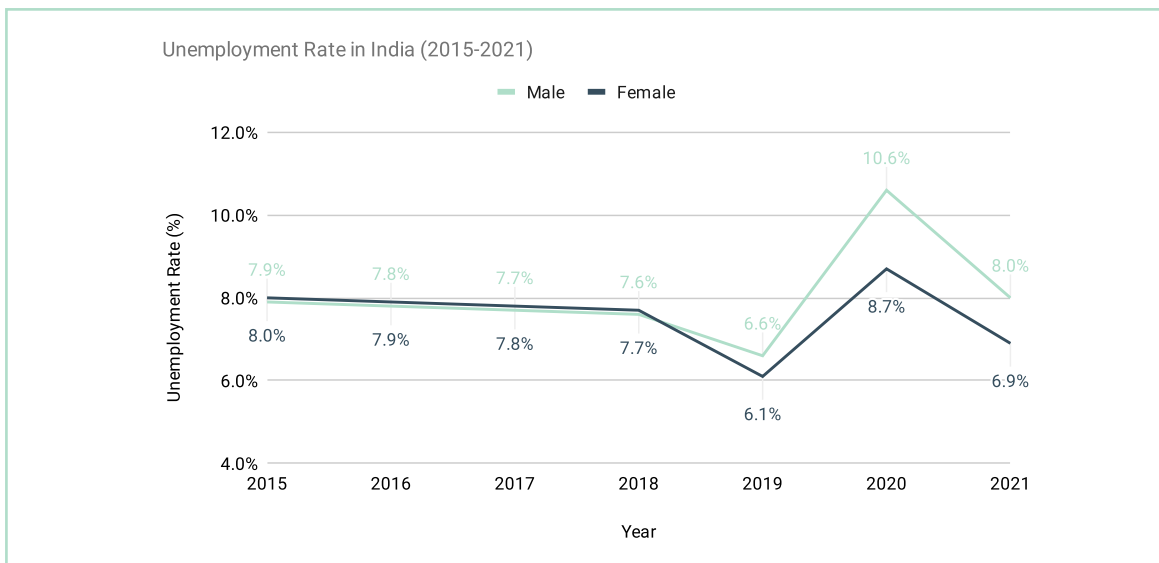


Note: Adapted from World Bank

Unemployment rate has fluctuated considerably between 2018 to 2021. In the year 2021, female unemployment rate was 6.9% while male unemployment rate was 8.0%.

Figure 40

Unemployment rate in India



Note: Adapted from World Bank

High dropouts of women while transitioning from STEM education to STEM careers

Many reports from the country highlight the dropout of women from the transition of STEM education to STEM career. The global gender gap report by WEF highlights that a mere 29.2% of the technical roles in the country are held by females. The report also ranked India as 151st out of 156 countries on the 'economic participation and opportunity' indicator on the gender gap index. The only countries ranked lower were Pakistan, Syria, Yemen, Iraq and Afghanistan—ranked 152 to 156, respectively (World Economic Forum 2021). Additionally, the 2022 version of the report ranked India 143rd out of 146 countries (World Economic Forum 2022).

India ranked 2nd on index reporting number of women tech CEOs but they makeup only 5% of the total tech CEOs in the country

An article from late 2022 authored by two members from CII leadership, while citing a UNESCO report, stated that “India ranks second in the world’s top 20 countries with the highest number of women Tech CEOs. However, the share of Women CEOs in Tech companies in India is only a minuscule 5%” (Banerjee and Sondhi 2022).

According to data from 451 Research, a technology industry research firm, women make up 34% of the Information Technology-Business Process Management (IT-BPM) workforce in India. Although this is much better than the overall female LFPR in the economy (19.23% as on 2022), women account for a miniscule share of less than 1% in the C-suite positions. Women make up more than 51% of entry-level recruits and account for roughly 25% of managerial positions (451 Research, n.d.).

Perfect score on mobility, low on pay scale indicators

India scored 74.4 out of 100 on the Women, Business and the Law Index 2023. Though the overall score for India is higher than the regional average observed across South Asia (63.7 out of 100), it is much lesser than the top scorer country in the South Asia region, Nepal (80.6 out of 100). The country’s laws and regulations received a perfect score on mobility (constraints on freedom of movement), workplace and marriage. However, India has a very low score on the indicator that measures laws affecting women’s pay. This is due to unequal laws on work at night and work in industrial jobs. The country also does not mandate “equal remuneration for work of equal value (World Bank 2023).

MALDIVES

Maldives is an upper-middle-income country with 185 dispersed islands, with an economy heavily dependent on two sectors—tourism and fisheries. The country’s economy is heavily dependent on imports and is currently facing inflationary pressures due to the ongoing rise in commodity prices globally. School education is free for all and the government provides generous fuel subsidies and food to the citizens.

However, the country is currently struggling with issues such as violence, gang war and drug abuse among youngsters, and particularly the male youth. As the economy is recovering from aftereffects of COVID-19, the tourism sector has started driving export income yet again.

The country’s focus on science and technology, however, seems rather less from when compared with the other economies in South Asia. Though female enrollment rates in tertiary education are much higher than that of males, females are largely absent from STEM technical education and engineering courses.

“ The realisation: *why are we so silent? Where are the people? Where are the women?* This is what we think brought women in tech together. We also realised that it is not only a women issue in Maldives; the whole country is not focusing on technology as a priority.

Through our work we realised that when girls in the country see somebody who they can relate to, then it is easier for them to actually accept what is being said. Hence, that is the model that we, as Women in Tech Maldives, have been following.

We recall an incident where a girl participant came back and said “my mom isn’t happy with me going into tech field because they don’t know what it is about”. We realised the importance of talking to the parents and how it helps to change the perspective that only men can do tech. ***We can all do tech. You don’t need to be a man or a woman to do it. You just need to have good logical thinking and creative thinking process going on for you and it’s a really creative area to be in and it’s fun.***

Private sector has been a great support system for our cause—starting from the first sponsored coffee meet which provided the basis for the formation of our initiative, to the designing of our programs for younger girls and women in collaboration with the private sector. ”

- Team Women in Tech

Shahu Kareem, Fathmath Neesha, Aiesha Adnan (Co-Founders, Women in Tech Maldives) and Mariyam Shimaanath (Vice President, Women in Tech Maldives)



Education

The Ministry of Education is responsible for the overall management and administration of the education system in Maldives. The Ministry is headed by the Minister of Education, who is assisted by a Deputy Minister and a Permanent Secretary. There are also several departments and units within the Ministry that are responsible for various aspects of education, including:

- Department of School Education: Responsible for primary and secondary education, including curriculum development, teacher training, and school inspections.
- Department of Higher Education: Responsible for tertiary education, including the administration of universities and other higher education institutions.
- National Institute of Education: Responsible for teacher training and professional development.

The National Bureau of Statistics is responsible for collecting and reporting education statistics in Maldives. The Bureau collects data on a variety of education-related indicators, including enrollment rates, literacy rates, and educational attainment levels. The Bureau also conducts surveys and studies to gather information on various aspects of education in the country.

The Maldives National University is the main public university in Maldives, and is overseen by the Ministry of Education. There is also a private university in the country, the Villa College. There is no separate University Grants Commission in Maldives.

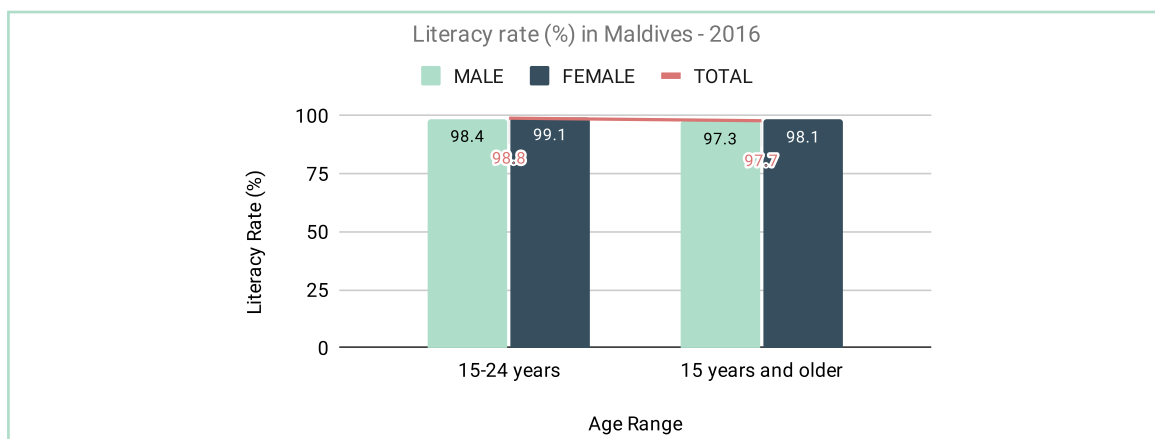
The education system in Maldives can be divided into three levels: primary education (grades 1-7), secondary education (grades 8-11), and tertiary education (university level). The language of instruction in Maldives is Dhivehi, but English is also taught as a second language. Primary and secondary education is compulsory and free for all Maldivian citizens, and is provided by both public and private schools. In 2019, tuition fees for Bachelor degrees were made free for all the eligible students across the country (UNESCO and Ali, n.d.).

The curriculum is based on the Maldivian National Curriculum Framework, which covers subjects such as language, mathematics, science, social studies, and Islamic studies. Tertiary education in Maldives is provided by the Maldives National University and the Villa College, as well as several other private institutions. Female participation in technical and vocational education programmes is much lesser than that of males.

The country has a good level of literacy rate among both, females and males, with very low levels of gender gap.

Figure 41

Literacy rate in Maldives



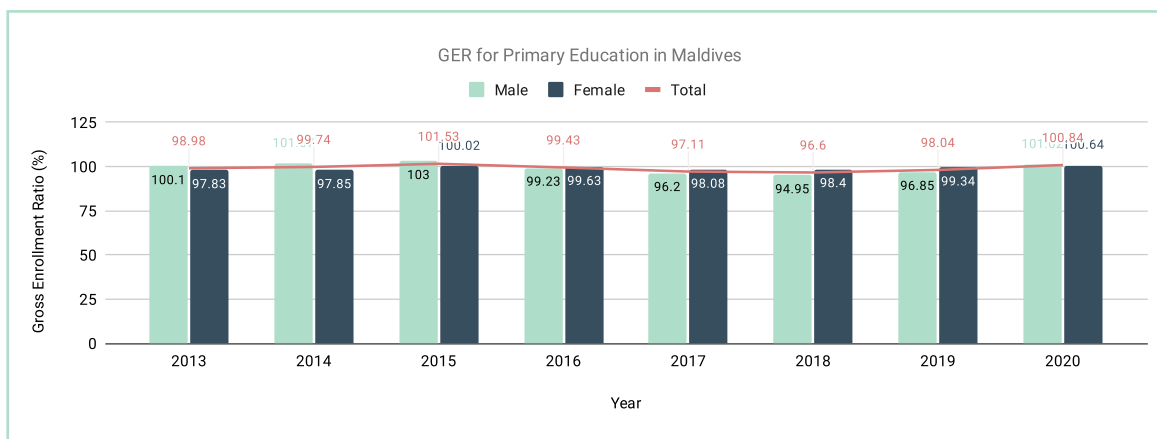
Note: Adapted from UNESCO Institute of Statistics

Primary and Secondary Education

Gross enrollment ratio (GER) in primary education has had negligible gender gap over the last few years. GER in secondary education falls for both males and females. Moreover, gender gap in GER in secondary education increased from year 2018 to 2019, as female GER was 78.4% and male GER was 84.27% in 2019.

Figure 42

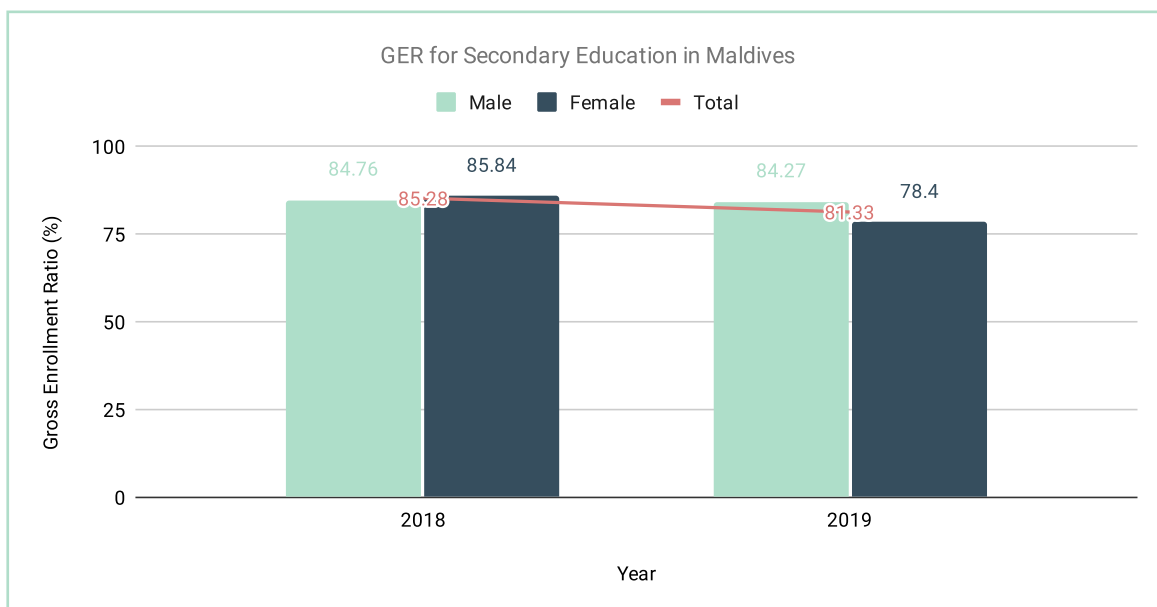
Gross enrollment ratio for primary education in Maldives



Note: Adapted from UNESCO Institute of Statistics

Figure 43

Gross enrollment ratio for secondary education in Maldives



Note: Adapted from UNESCO Institute of Statistics

Many Maldivian families migrate to Malé, the capital city, in search of economic opportunities and quality education. Though primary and secondary education is compulsory and free across the country, the exorbitant rent and overall cost of living puts certain families into a vicious cycle of economic struggle, thus affecting affordability of quality education options indirectly.

The National Assessment of Learning Outcomes (NALO) conducted in 2017 of students from grade 4 and 7 on English, Maths and Dhivehi language highlighted that female students outperformed male students (Ministry of Education 2019).

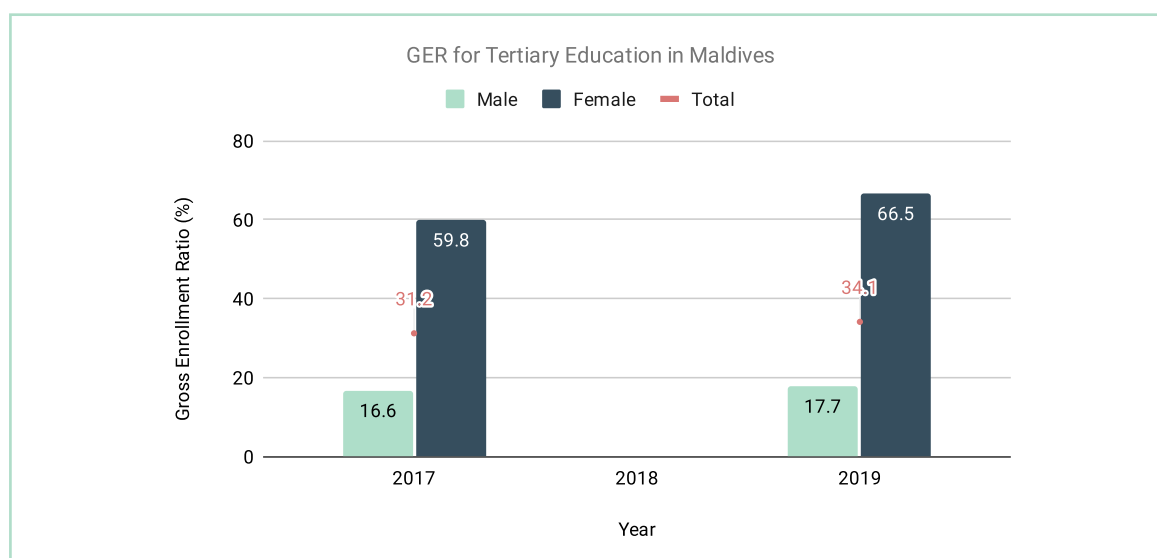
Tertiary Education

Female GER much higher than male GER in tertiary education

Gross enrollment ratio for females is much higher than GER for males in the country. In 2019, female GER was 66.5% while male GER was 17.7%

Figure 44

Gross enrollment ratio for tertiary education in Maldives



Note: Adapted from UNESCO Institute of Statistics

In 2021, a total of 12,993 students were enrolled in higher education courses. Out of this 4,947 were male and 8,046 were female (roughly 62% of enrolled students were females). The graduate output in the same year was 5,841, out of which 1,872 were male and 3,969 were female (roughly 68% of graduates were females) (Maldives Bureau of Statistics, n.d.).

Skewness of professional roles powered by gender roles in the society

However, a report by World Health Organisation highlighted that even though females outnumber males in tertiary education, only 1 out of 10 STEM graduates in the country are female. Moreover, only 3 out of 10 doctors in the country are female. However, roughly 9 out of every 10 nurses are female (World Health Organization. Regional Office for South-East Asia 2021).

Female participation in TVET courses in the country has usually been much lesser than that of males, particularly in polytechnic courses such as Electronics and Information Technology. However, the launch of 'Hair & Beauty' course is said to have increased female enrollment in the Maldives Polytechnic. Though the course is not a women-only course, all enrolled students (as on 2019) were female (Ministry of Education and Global Partnership for Education 2019).

This discipline skewness is also reflected in the detailed data on technical education published in the Statistical Yearbook of Maldives 2022.

Low proportion of Women in technical fields

Women in Maldives Polytechnic Select STEM diploma and certificate courses (2017-2021)

0/101 in Automotive Engineering	3/305 in Electrical & Electronics Engineering
2/363 in Engine Repair & Maintenance	0/304 in Electrician
0/110 in Marine Engineering	13/91 in Information Technology
5/42 in Civil Engineering	

**Data from Maldives Polytechnic (2017 to 2021)*

In contrast to the statistics mentioned above, the Diploma in Nursing, a TVET National Certificate course had 80 women out of the total enrolled 82 students in the year 2019 (Maldives Bureau of Statistics, n.d.).

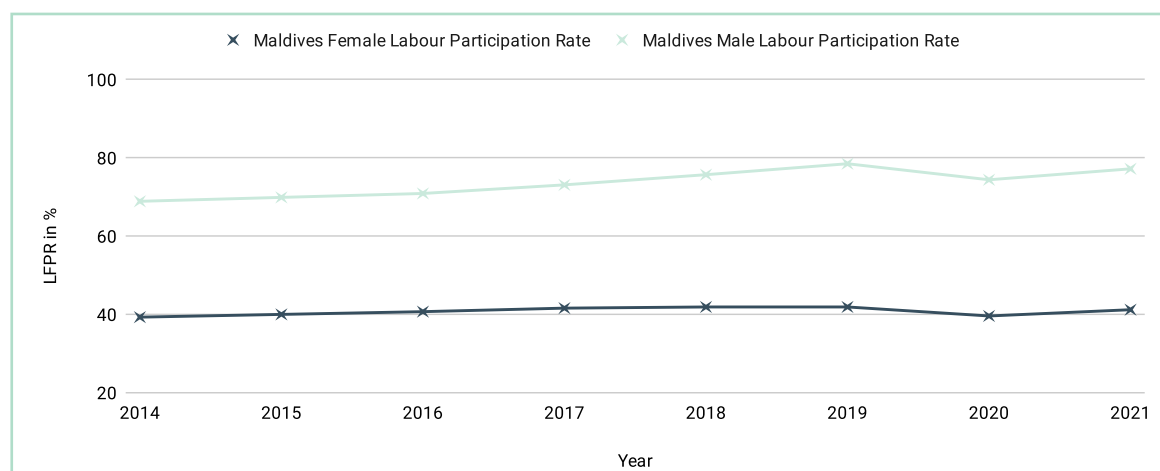
Moreover, there is significant inequality between the opportunities available to those living in Malé and those living in the outer atolls, as most of the good opportunities are concentrated in Malé. Many islands in Maldives are reported to be too small for higher educational institutions to be set up. A review of literature found evidence that girls residing in remote atolls in Maldives may be experiencing a disadvantage over boys, as parents tend to display greater degree of unwillingness to allow their daughters to move to Malé for higher/technical education (El-Horr, Pande, and World Bank Group 2016).

Employment and Career Opportunities

Maldives has had a large gender gap in its labour force participation rate (LFPR) over the years. In 2021, male LFPR was 77.2% while female LFPR was only 41.2%.

Figure 45

Labour force participation rate in Maldives



Note: Adapted from World Bank

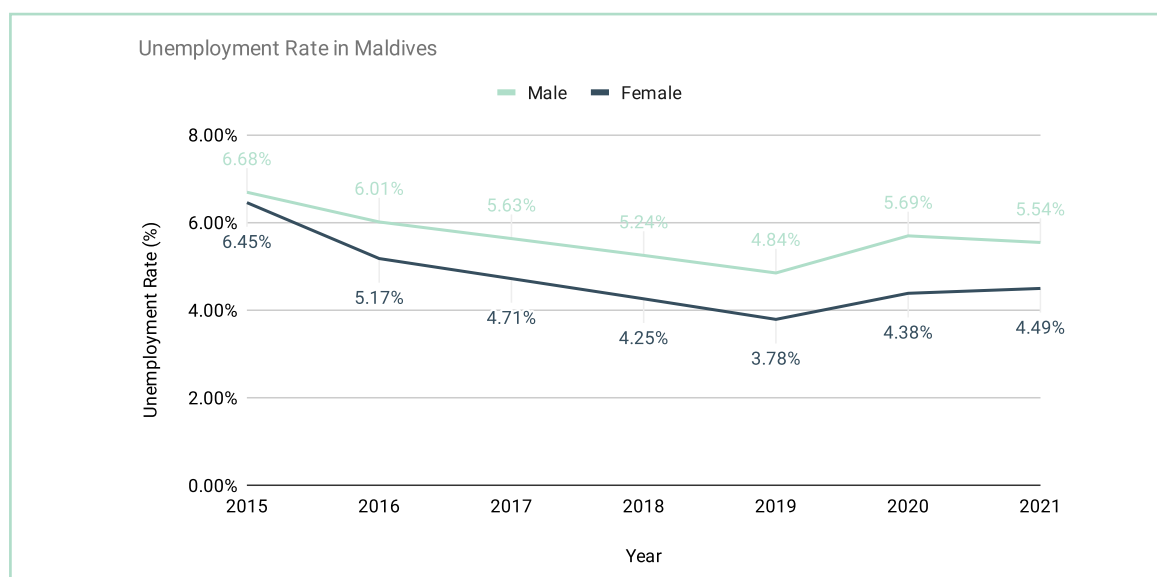
Unemployment in Maldives is common for both, men and women. The gender gap in unemployment has also widened from 2015 to 2021, with consistently more females being unemployed than males. In 2021, 4.49% females and 5.54% males were unemployed in the country.

Key reasons for unemployment for women: household responsibilities & lack of mobility

Lack of employment options on resident islands is cited as the main reason for unemployment, by both men and women. Reports from the country state that women cite household responsibilities and lack of mobility as key reasons for their unemployment (El-Horr, Pande, and World Bank Group 2016). The prevalence of gangs, illicit drug use and the involvement of youth (particularly men) in violence is also a major issue faced by the country (Ministry of Education and Global Partnership for Education 2019).

Figure 46

Unemployment rate in Maldives



Note: Adapted from World Bank

A UNDP Pilot study identified two key barriers that may be preventing girls from aspiring for careers in STEM. First, “the stereotype of what a STEM career looks like” and second, “their mental model of the sort of person that works in STEM” (UNDP 2021).

Specifically, jobs in energy sector require one to have a technical educational background or work experience. As stated before, female enrollment has been minimal in these fields in the country, thus only a limited number of females are reported to be staffed in the energy regulatory bodies and service providing organisations in Maldives. Women’s involvement in energy sector jobs as well as entrepreneurship is underdeveloped in the country (Asian Development Bank 2014).

Perfect score in mobility, workplace & entrepreneurship but poorly in assets & parenthood

Maldives’s laws and regulations scored 73.8 out of 100 on the Women, Business and the Law Index 2023. The country got a perfect score (100 out of 100) on mobility, workplace and entrepreneurship. But scored very poorly on assets and parenthood (40 out of 100 on each). Despite the laws receiving a perfect score on mobility, women in the country lack vehicle ownership rights. Lack of access to transportation is reported to impede ability of Maldivian women in engaging in income-generating and commercial activities, as vehicles are critical for means of transportation with and between different islands (El-Horr, Pande, and World Bank Group 2016). In 2017 only 16% of the registered motorcycles and cars were owned by women (National Bureau of Statistics 2019). Lastly, Maldives ranked 138th out of 156 countries and 127th out of 146 countries on the ‘economic participation and opportunity’ indicator of the Global Gender Gap Index report 2021 and 2022, respectively.

NEPAL

In 2020, Nepal officially became a lower-middle income country, graduating from its low income country status. The geography of the country is said to be a natural barrier to development as it is landlocked and has a difficult to manage topography—making it prone to natural disasters that lead to destruction of physical assets followed by economic and developmental setbacks (World Bank, n.d.). Since the 1960s, the annual GDP per capita growth has not crossed the 8% mark, often dipping below 0%, thus experiencing negative growth. In 2020, the country had a -4.1% GDP per capita growth rate, rising to 1.9% in 2021 (World Bank, n.d.).

Unemployment rate among females has consistently been higher than males in the country. The economy is also heavily dependent on remittances, as migration has been a common phenomenon. In 2021, remittances accounted for 22.7% of Nepal's GDP (World Bank Data 2021).

Though female enrollment in tertiary education is higher than male enrollment, female representation in STEM disciplines continues to be less, with the exception of medicine.

Education

Nepal's education system is governed by several government bodies at both the national and provincial levels. The Ministry of Education, Science, and Technology is responsible for policy formulation, planning, and coordination of education programs at the national level. The Ministry is also responsible for formulating and implementing policies related to primary, secondary, and higher education. The Department of Education is responsible for the implementation of education policies and programs at the national level. The department is responsible for the management of primary, secondary, and non-formal education.

The University Grants Commission (UGC) is an independent regulatory body established in 1985 to oversee and regulate higher education in Nepal. The UGC is responsible for formulating policies, accrediting universities, and ensuring quality education in universities and colleges. The National Examinations Board (NEB) is responsible for conducting national-level examinations such as the School Leaving Certificate (SLC) and Higher Secondary Education Board (HSEB) examinations. District Education Offices (DEOs) are responsible for the management of education at the district level. They are responsible for the management of primary and secondary schools within their jurisdiction.

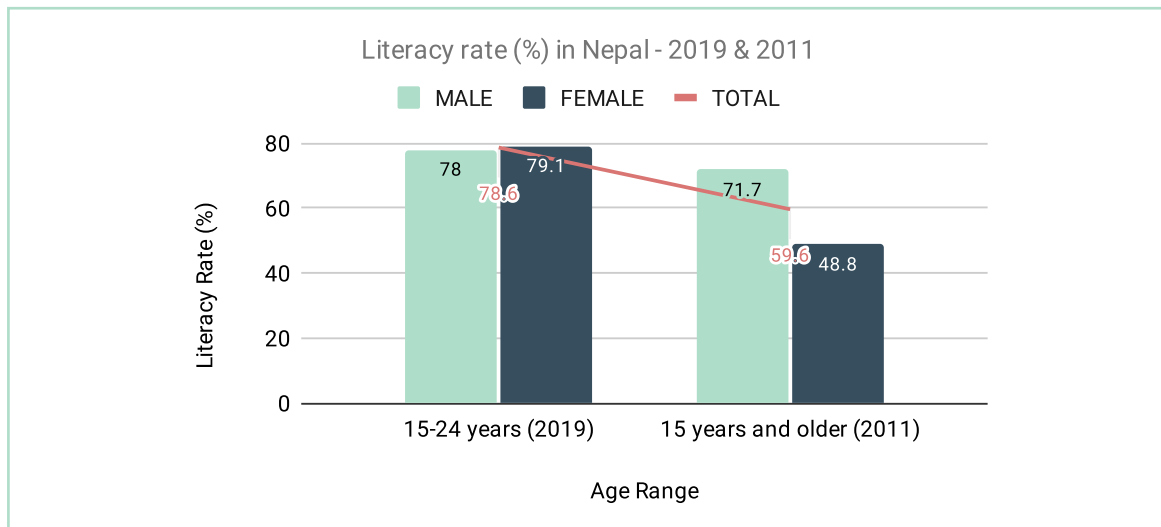
The Technical and Vocational Education and Training Council (TVET) is responsible for the management and development of technical and vocational education and training programs in Nepal.

Nepal's education system comprises three levels: primary, secondary, and tertiary. The primary education cycle is for five years, followed by a four-year secondary education cycle, culminating in the School Leaving Certificate (SLC) examination. Higher education in Nepal includes universities, colleges, and technical and vocational education and training institutions.

The literacy rate gender gap in the adult population of Nepal (15 years and older) is extremely large, as male literacy rate is 71.7% female literacy rate is 48.8%. Data across decades shows more insight into the progress of the country. Data from 2019 also shows the gender gap seems to be closing among the younger population (15-24 years).

Figure 47

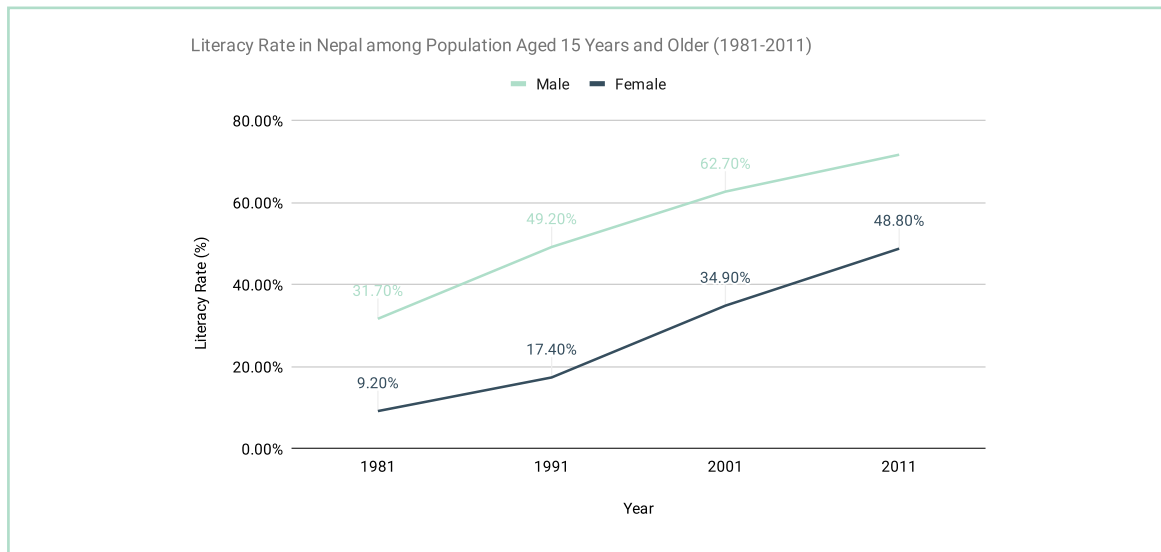
Literacy rate in Nepal (2019 and 2011)



Note: Adapted from UNESCO Institute of Statistics

Figure 48

Literacy rate in Nepal (1981-2011)



Note: Adapted from UNESCO Institute of Statistics

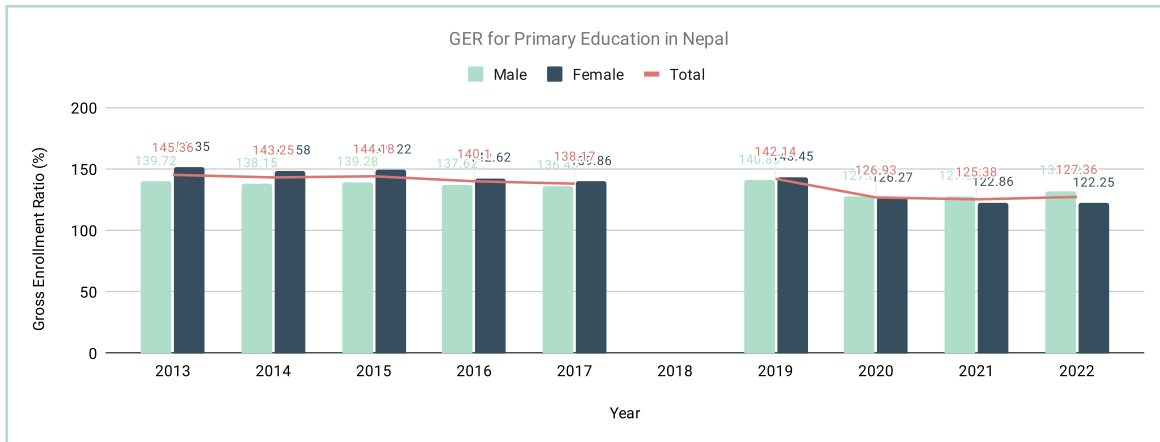
Primary and Secondary Education

GER falls as students move from primary to secondary education levels

Though the gender gap in enrollment at primary and secondary levels of education seem marginal, gross enrollment is observed to fall as students move from primary to secondary education. However, from year 2013 to 2022 the enrollment in secondary education has improved, as it increased from 64.37% to 86.08% for males and from 66.35% to 84.98% for females.

Figure 49

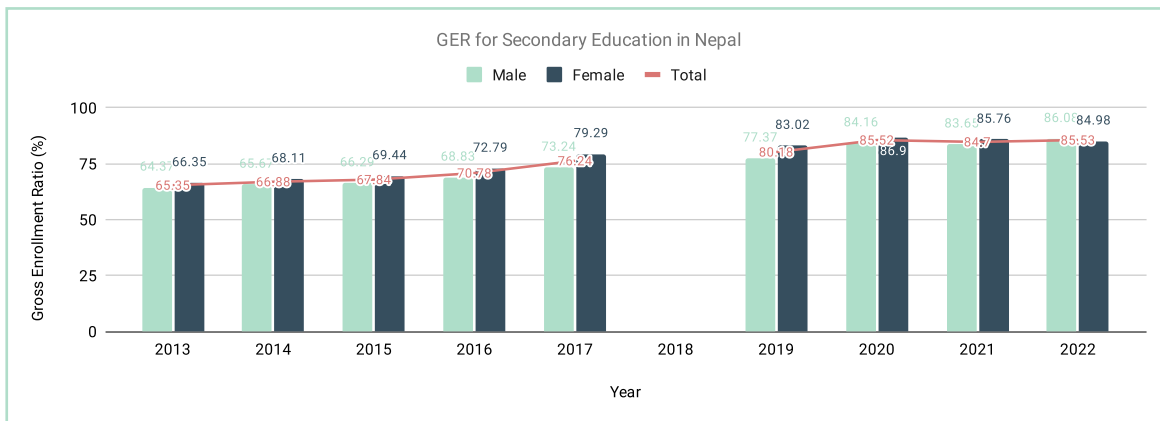
Gross enrollment ratio for primary education in Nepal



Note: Adapted from UNESCO Institute of Statistics

Figure 50

Gross enrollment ratio for secondary education in Nepal



Note: Adapted from UNESCO Institute of Statistics

In the academic year 2020-21, the completion rate of girls at basic level education was 76.1%, while total rate was 75.3%. For the same year, Nepal's Ministry of Education, Science and Technology reported "gender parity index (GPI) for the net enrolment rate (NER) remains at 0.99 at lower basic level, 0.98 at upper basic level, 0.99 at basic level, 1.01 at secondary level with grade 9-10, 1.01 at secondary with grade 11-12 and 1.01 at secondary level (Grades 9–12)".

Inequalities & household issues causing diminishing interest in education pursuit

Despite these impressive statistics, research suggests inequalities across regions and caste/ethnicities. For example, a study interviewing students from rural communities reported that "some of the students, especially girls from Janajati groups, expressed a desire for early marriage in order to escape from their unhealthy home environments". The community is said to have high alcoholism rates that may create "an unhealthy home environment for education". The study also highlighted the burden of family household chores among issues reported by some Dalit girls (Neupane 2017).

Another study from villages in Panchthar, Nepal highlighted that many young boys end up migrating and losing years of education. The learnings acquired by these men from migration is often socially valued much more than the formal education obtained by women in the same communities. While education is a means to “become somebody” for the women, the labour mobility of men is considered to give them the “ability to speak” in meetings, since they are perceived to have more access to information and social networks (Korzenevica 2016).

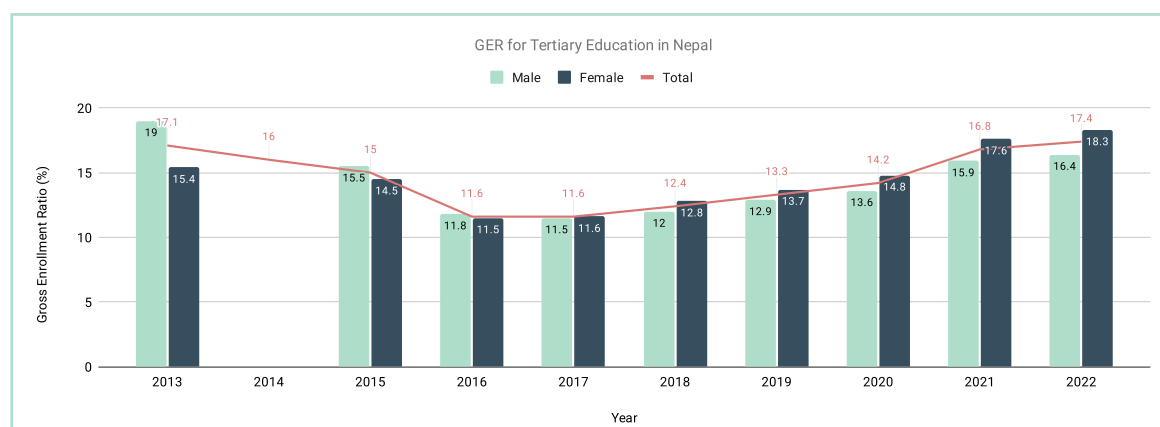
Tertiary Education

As per University Grants Commission (UGC) Nepal’s 2021-2022 annual report, the country has 12 full universities and 5 medical academies that provide higher education in the country. “Altogether there are 1,440 campuses and 460,826 students. Among 1,440 campuses 150 are constituent, 537 are community and 753 are private”. Tribhuvan University (TU) is an important University in the country. TU has 1144 campuses, out of which 62 are constituent, 528 are community and 554 are private. Among the 460,826 students in HEIs in 2021-2022, 47.5% were male and 52.5% were female. Karnali Pradesh and Madesh Pradesh are the only 2 out of 7 provinces where male students outnumber female students.

Though gross enrollment ratio (GER) at the tertiary education level is extremely poor, it has increased from 12.4% in 2017 to 17.4% in 2022. Female GER has consistently been more than male GER since 2017 and in the year 2022, male GER stood at 16.4%, while female GER was 18.3%.

Figure 51

Gross enrollment ratio for tertiary education in Nepal



Note: Adapted from UNESCO Institute of Statistics

Some of the issues in the tertiary education system of Nepal include concentration of higher education institutions (HEIs) and lack of institute options beyond bachelors degree level. Among the higher education institutions of Nepal, “91.20% of the HEIs run only bachelor level programs (undergraduate) whereas 22.9% HEIs have Bachelor, Masters and above programs”. Moreover, 43.37% of the HEIs in the country are concentrated in the Bagmati Province (University Grants Commission Nepal 2020).

Student migration due to lack of options after undergraduate courses

The lack of options after bachelors level is considered as one of the major reasons for international migration of students in the country. Migration to Australia, United States, Japan and India for studies is becoming increasingly popular. As per reports, by the year 2016, roughly 84,700 Nepali students were studying abroad. It is pertinent to note that most of these students came from the urban areas (76%) and males heavily outnumbered females (International Organization for Migration 2020).

Popularity Index: Management > Education > Humanities

As per UGC data from 2019-20, among the higher education students within Nepal, management subjects are most popular among students as the management courses make up 46.37% of the total share of students enrolled. This is followed by the courses on Education (17.19%) and then Humanities (10.96%). In the STEM courses of “science and technology, health science and engineering subjects there are 8.38%, 6.39% and 6.57% students respectively” (Ibid.).

A report from Asian Development Bank points to the gender and caste inequalities that exist in engineering courses of Nepal (Asian Development Bank 2018). Excerpts from the report are as follows:

“ According to the Nepal Engineering Council, in disciplines related to the energy sectors, such as civil, mechanical, and electrical engineering, women make up less than 10% of the total engineers in each discipline, with only 1.7% in mechanical engineering. ”

“ Student enrollment in bachelor’s level in civil engineering reveals that although there is steady increase in female student enrollment, especially after 2000, gender imbalance persists. The situation is no different at the diploma level of 2 years’ training, which provides the base for technicians in the field, with the share of women students crossing 20% only once in 31 years and generally hovering around 10%.. ”

“ The intersection between gender, caste, and ethnicity among female students additionally mirrors divisions that persist in Nepali society. It is mostly women from upper caste, urban Bahun-Chhetri and Newar groups who have accessed engineering education.. ”

Source: Gender Equality and Social Inclusion Assessment of the Energy Sector: Enhancing Social Sustainability of Energy Development in Nepal, 2018

The following table shows the share of female enrollment in select STEM higher education courses in the year 2016:

	Bachelor	Masters	Mphil/PGD	PhD	Total
Science & Technology	31.3%	34.1%	10%	34.5%	31.4%
Engineering	21.4%	17.0%	-	12.5%	21.3%
Medicine	57.3%	45.7%	-	-	56.7%

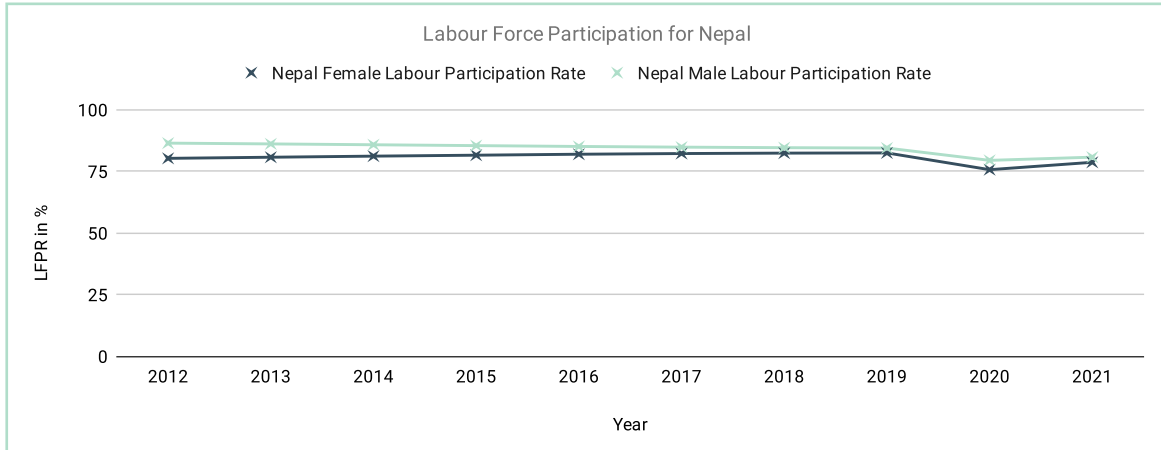
Source: (Central Bureau of Statistics, Nepal 2018)

Employment and Career Opportunities

Nepal has an impressive labour force participation rate, with marginal gender gap. In the year 2021, male LFPR was 80.7% and female LFPR was 78.7%. The following graph shows the gradual closing of the gender gap in LFPR from the year 1990 to 2021.

Figure 52

Labour force participation rate in Nepal



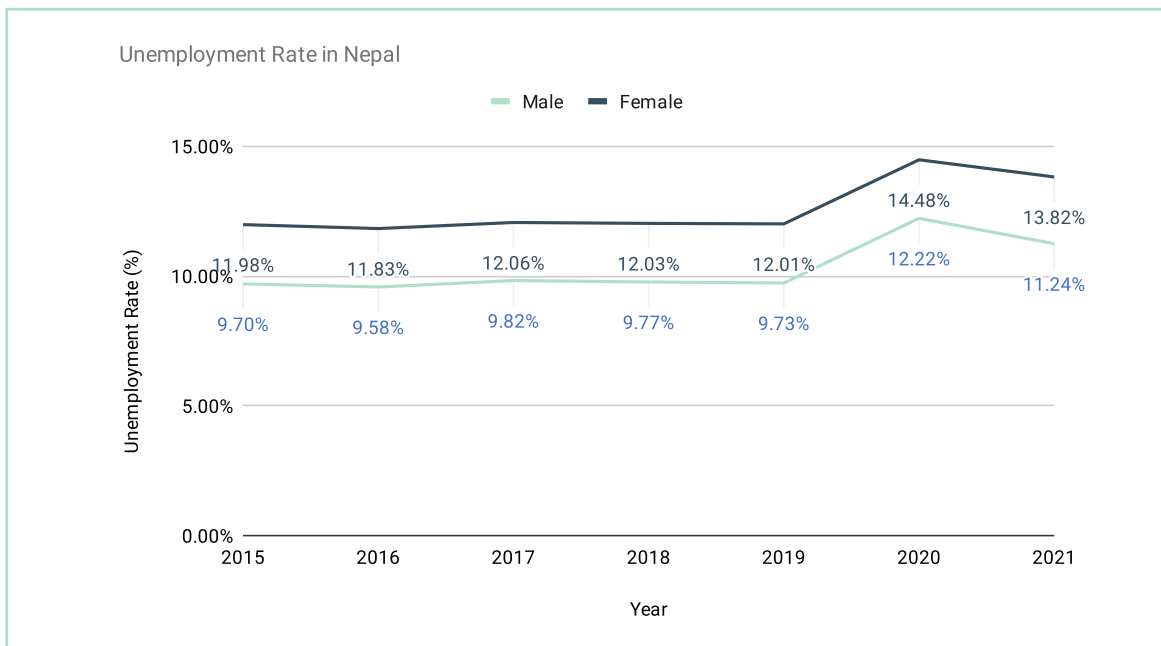
Note: Adapted from World Bank

Consistently higher unemployment rates among females

Unemployment rate data for the country is reported to show a consistent gender gap over the years, with 11.24% being the rate of unemployment among males and 13.82% among females.

Figure 53

Unemployment rate in Nepal



Note: Adapted from World Bank

Migration: Predominantly driven by economic factors

International labour migration has been a common phenomenon in the country for decades. In 2021, remittances accounted for 22.7% of Nepal's GDP (World Bank Data 2021). As per reports, by the International Organization for Migration, Nepali migration is predominantly driven by economic factors. The organisation's reports state the following:

"Nepali migrant workers are characterized by low levels of education and professional experience, reflecting a low level of education among the overall population and Nepali migrants' tendency to obtain low-skilled employment in destination countries. Only 7 per cent of all Nepali migrant workers have completed university-level education, while 45 per cent have completed high school or vocational education...Nepali migration is also a gendered phenomenon: in Saudi Arabia, Nepali migrants are predominantly male, while in Lebanon and Israel, the reverse is true. In the latter, labour demand is mainly restricted to domestic workers"

(International Organization for Migration 2020).

In 2021, "a proposal by Nepal's Immigration Department requiring consent from a guardian and local government for women under the age of 40 travelling to the Gulf or Africa", sparked anger in the public. Allegedly, the proposal was made to curb trafficking of women in cases of no labour permits, particularly to Gulf countries ("History of female (im)mobility in Nepal", n.d.).

“ I believe social and cultural stereotyping and our patriarchal thinking are two key reasons for the lack of women's participation in STEM fields in Nepal. Parents are still not ready to invest in quality education for girls. Stereotyping jobs like engineering and intensive field-based jobs, as jobs only for men and not for women, is another major issue.

Lastly, the lack of a decent working environment also affects women's participation in the sector. Political instability and concentration of opportunities in the capital city, Kathmandu, have only worsened it further. ”



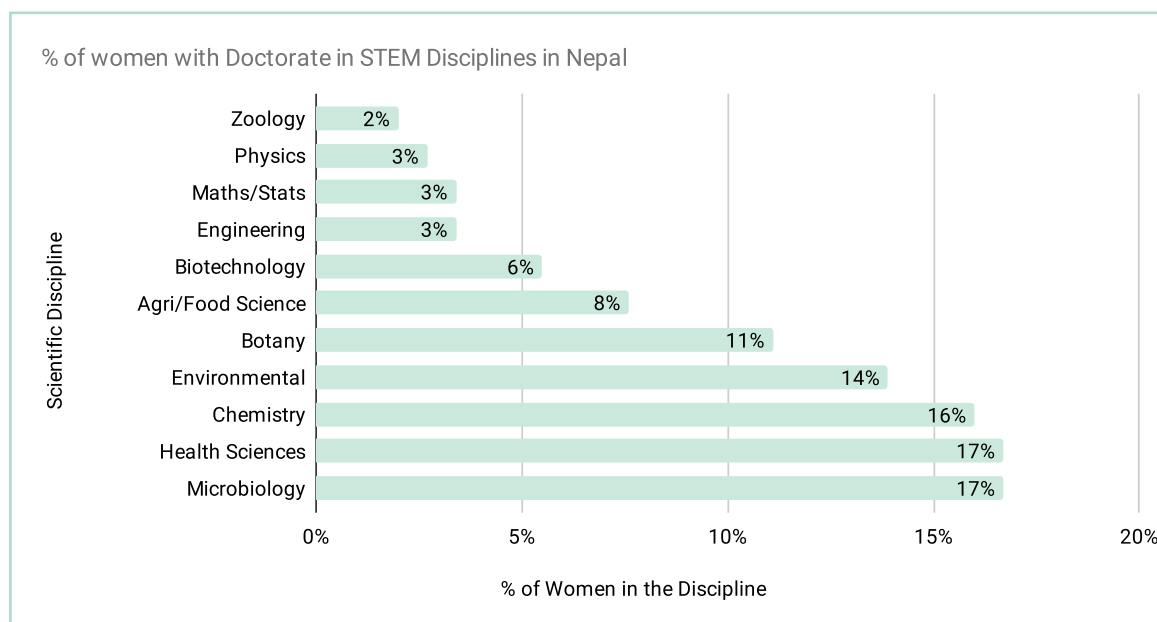
Dr. Shobha Poudel

Early Career Women Scientist Fellow at Organization for Women in Science for the Developing World (OWSD), Nepal

As per a presentation made by Dr Tista Prasai Joshi from Nepal Academy of Science and Technology (NAST), only 16.4% of PhD holding scientists in the country are female. As per Dr Joshi's presentation, NAST's directory of scientists published in 2020 shows that share of women scientists with doctoral degree varies greatly across different scientific disciplines. Furthermore, most women scientists in the country belong to the castes Brahmin/Chhetri (39.3%) and Newar (49%) (Joshi 2022).

Figure 54

Percentage of women with doctorates in STEM disciplines in Nepal



Note: Adapted from Joshi 2022

Low share of females in technical disciplines

According to the Nepal Engineering Council, disciplines such as civil and electrical engineering have less than 10% women engineers. Mechanical engineering, in particular, has only 1.7% women (Asian Development Bank 2018).

Nepal has the highest score on the Women, Business and the Law Index 2023, scoring 80.6 out of 100. The country's laws and regulations get a perfect score on indicators related to workplace, pay and marriage. However, the country received a particularly low score on laws and regulations related to parenthood (World Bank 2023).

Lastly, the Global Gender Gap Index report 2021 ranked the country 107th out of 156 countries on the 'economic participation and opportunity' indicator assessing gender gap across countries (World Economic Forum 2021). The country was ranked 98th out of 146 in the 2022 version of the report under the same indicator (World Economic Forum 2022).

PAKISTAN

Pakistan is a lower middle income economy in the South Asia region. It is currently recovering from the aftereffects of heavy floods that caused enormous damage to humans and the economy. The country is also going through an economic crisis, struggling with large external debts, rising inflation, an extremely weak local currency and dipping foreign exchange reserves.

The country has an increasing gender gap in its unemployment rates and labour force participations among females remains much lower than that of males. The Global Gender Gap Report 2022 report ranked the country as 145th out of 146 countries, with only Afghanistan getting a lower score. Women continue to struggle with patriarchal biases in hiring and gendered perceptions of careers.

Education

The education system in Pakistan is overseen by several government bodies at both the federal and provincial levels. Education is almost completely decentralised, with province and area education departments responsible for the education system, from planning to implementation, The federal government has a limited role.

The Ministry of Professional and Technical Training is responsible for policy formulation, planning, and coordination of education programs at the federal level. The Ministry is also responsible for formulating and implementing policies related to primary, secondary, and higher education. Further, each of Pakistan's four provinces (Punjab, Sindh, Khyber Pakhtunkhwa, and Balochistan) has its own education department. These departments are responsible for the implementation of education policies and programs at the provincial level.

The country has a Higher Education Commission (HEC), an independent regulatory body established in 2002 to oversee and regulate higher education in Pakistan. The HEC is responsible for formulating policies, accrediting universities, and ensuring quality education in universities and colleges. This is aided by the National Education Management Information System (NEMIS), which is a web-based system that collects, manages, and reports education-related data in Pakistan. NEMIS is maintained by the Federal Ministry of Education and is used by various stakeholders, including policymakers, educators, and researchers.

The Pakistan Bureau of Statistics is responsible for collecting, compiling, and disseminating statistical information on various aspects of Pakistan's economy, including education. The Bureau releases reports and publications on education-related statistics, including enrollment rates, literacy rates, and gender disparities in education.

In terms of levels of education, "the education system in Pakistan is generally divided into five levels: Primary (grades one through five); Middle (grades six through eight); High (grades nine and ten, leading to the Secondary School Certificate or SSC); Intermediate (grades eleven and twelve, leading to a Higher Secondary School Certificate or HSC); and University programs leading to undergraduate and graduate degrees" (Khanum and Nasim 2015). The education system is designed for 12 years of schooling, with five years in primary school, three in middle school, and four in high school. After two years of basic secondary school students that want to continue on choose between a two-year higher secondary program or a two-year technical school.

Free and compulsory primary education is a constitutional right (under Article 25-A) in the country, for all children from age 5 to 16. Schooling system in Pakistan consists of mainly three types of schools: public, private and Deeni Madaris. As per data from the Pakistan Education Statistics 2017-18, the public sector alone has roughly 56% of the school students while private sector has the remaining 44%. However, the private sector has a slightly higher per-institution enrolment ratio as compared to the public sector. The report also notes the following: "ratio of male teachers is higher in public sector whereas ratio of female teachers is higher in private sector. Gender composition of the enrolled students is 56 percent

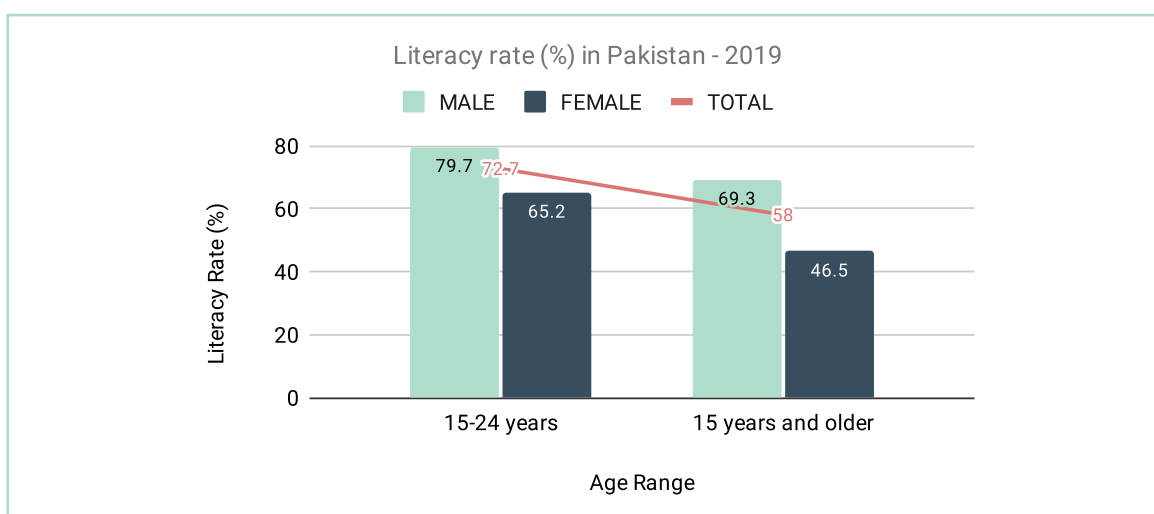
males compared to 44 percent female students, whereas there are 40 percent male and 60 percent female teachers imparting education upto the degree colleges in the year 2017-18” (National Education Management Information System et al. 2021).

Variations in literacy rates w.r.t. age-group and gender

The literacy rate for 15 years or older in the country, showcases a large gender gap with female literacy rate (46.5%) being much lower than male literacy rate (69.3%). The gap lessens in the younger age bracket of 15-24 year olds, but with female literacy rate (65.2%) still being reported to be lesser than that of males (79.7%).

Figure 55

Literacy rate in Pakistan



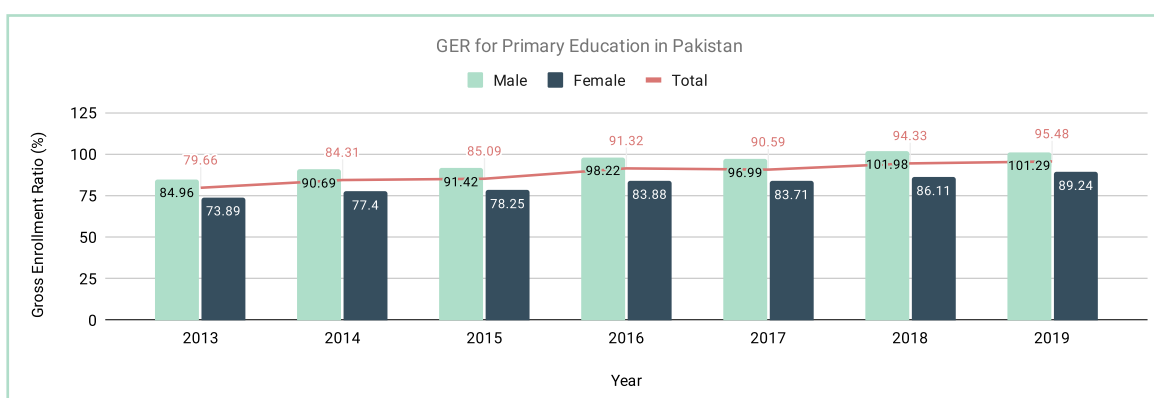
Note: Adapted from UNESCO Institute of Statistics

Primary and Secondary Education

As per UN Women data, 33.6% girls and 21.7% boys are out of school from the primary and secondary level education (World Bank 2022). Gross enrollment ratio data from 2019 shows a gender disparity in both, primary education level (female: 89.24% and male: 101.29%) and secondary education level (female: 41.59% and male: 47.9%) (UNESCO Institute of Statistics, n.d.).

Figure 56

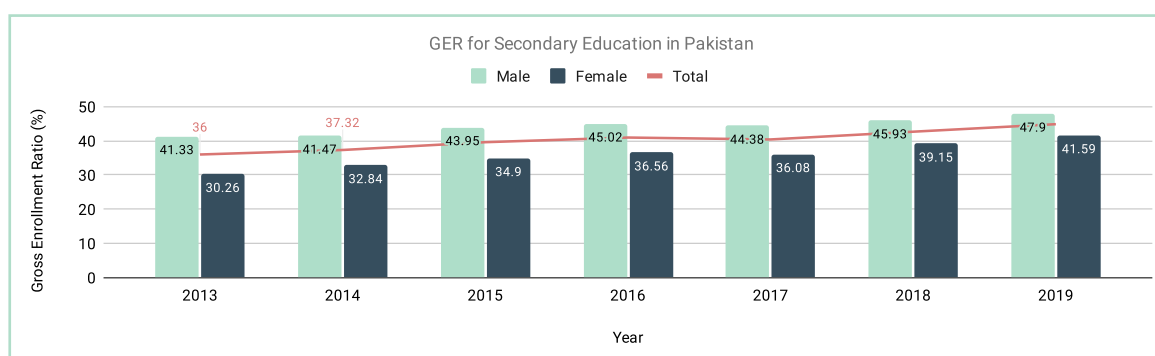
Gross enrollment ratio for primary education in Pakistan



Note: Adapted from UNESCO Institute of Statistics

Figure 57:

Gross enrollment ratio for secondary education in Pakistan



Note: Adapted from UNESCO Institute of Statistics

Missing women in STEM

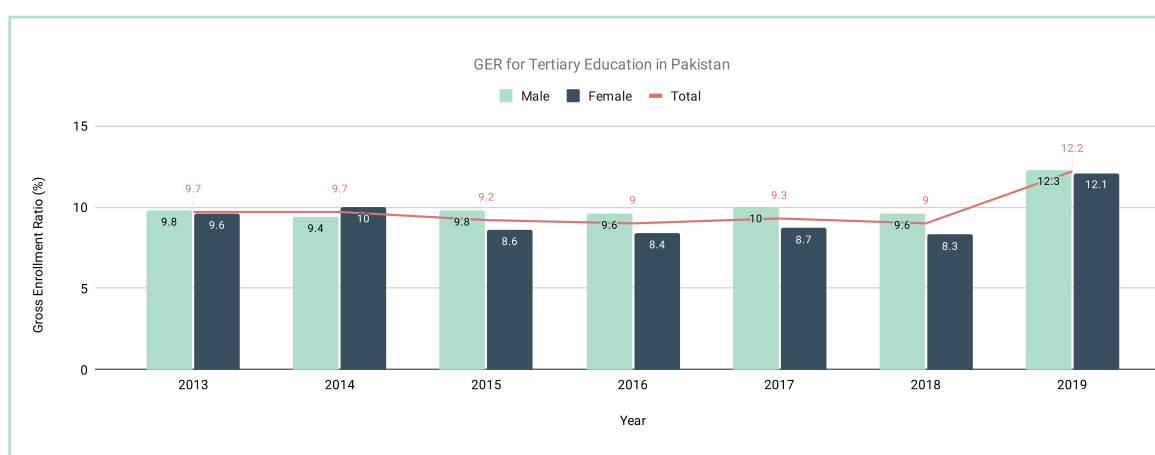
A survey based study by British Council Pakistan in 2016, showcased that at the High School Certificate level, out of the top 5 subjects studied by girls, none were in the STEM field. In stark contrast, 3 of the top 5 subjects studied by boys were related to STEM. Moreover, a similar trend is observed in GCSE exams, as girls were enrolled only in an average of 1.7 STEM subjects, whereas for boys the enrollment average is 1.93. A limitation of this study, however, is that it had no survey respondents from the region of Balochistan and very few survey respondents from Federal Administered Tribal Areas (FATA) (British Council, n.d.).

Tertiary education

The rate of gross enrollment in tertiary education in Pakistan is low for both males (12.1%) and females (12.3%).

Figure 58

Gross enrollment ratio for tertiary education in Pakistan



Note: Adapted from UNESCO Institute of Statistics

The Higher Education Commission (HEC) of Pakistan was established in the year 2002 with the “specific aim to facilitate institutes of higher learning to serve as an engine of socio-economic development of Pakistan” (Khanum and Nasim 2015). HEC’s data shows that though PhDs in science fields tend to make up more than half the total PhDs in the country, gender-segregated data shows that women in Pakistan are less likely to complete PhDs in science. “During the years 2004-05 to 2009-10, 2050 PhDs in science disciplines have been produced by Pakistani universities in total, out of which 73.60 % (1509) were male and 26.39% (541) were female” (Awan et al. 2017). The PhD supervisors in STEM fields also majorly male, with only 277 of the 1919 STEM PhD research supervisors being females (Ibid.).

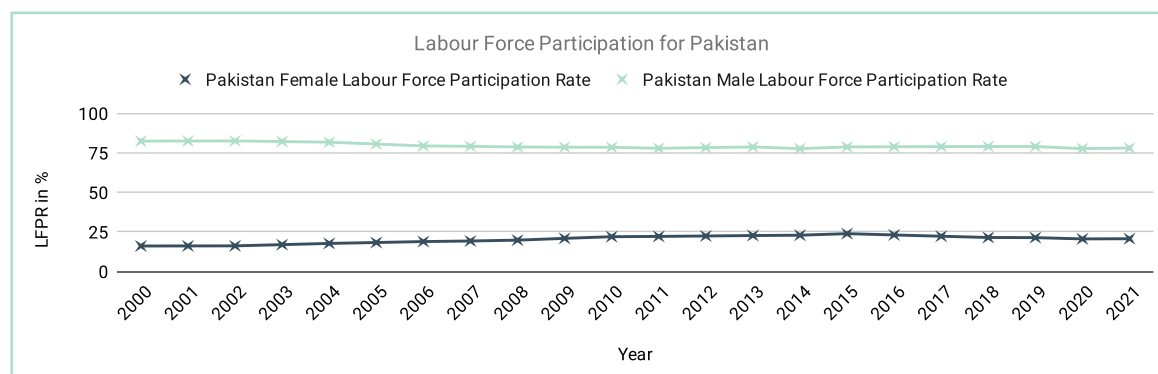
There were a total 3,740 **technical and vocational education training institutions (TVET)** in Pakistan in 2017-18, of which roughly 44% were in public sector and 56% were in private sector. These TVETs made up roughly 1.23% of the overall institutions in the country. Male students comprised 65% of the enrollment in these institutions, whereas female students made up the remaining 35% (National Education Management Information System et al. 2021).

Employment and Career Opportunities

Pakistan’s labour force participation rate (LFPR) showcases an alarming gender gap. The male LFPR in year 2021 was 78.1%, while female LFPR was as low as 20.7%.

Figure 59

Labour force participation rate in Pakistan



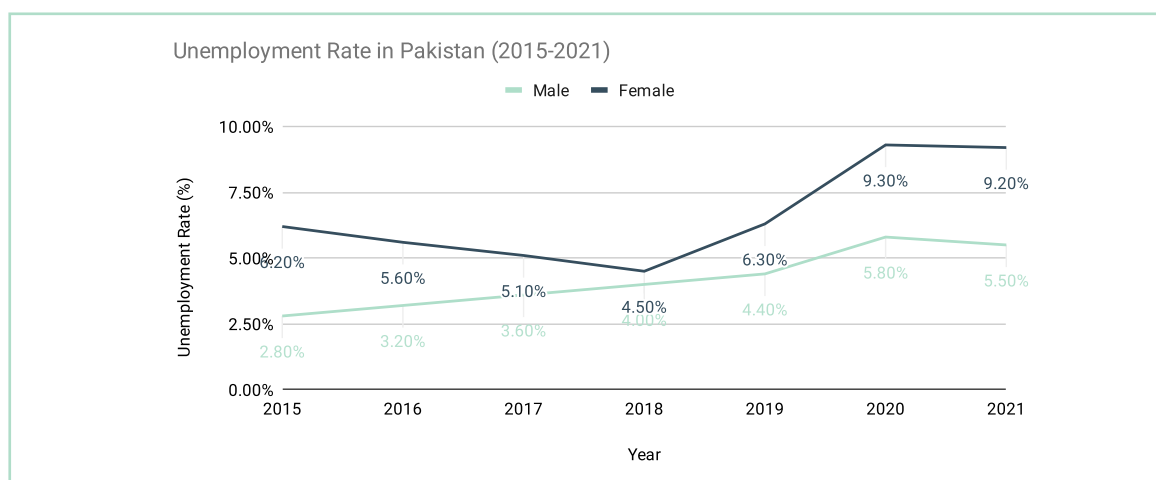
Note: Adapted from World Bank

Increasing household engagement & professional unemployment among women

As per UN Women data, 18.8% of females and 1.8% of males in Pakistan spend time doing care work and unpaid domestic chores (UN Women, n.d.). Unemployment in the country has significantly increased in the country from the year 2018 to 2020, particularly for females, as visible in the following chart. As on 2021, the unemployment rate among females stood at 9.2%, while for males the rate was 5.50%. This large scale unemployment of females in the country seems to require an immediate policy intervention.

Figure 60

Unemployment rate in Pakistan



Note: Adapted from World Bank

Most female researchers opt for natural and medical sciences; few opt engineering and technology

In 2017, only 38.8% of the total researchers in Pakistan were female (UIS UNESCO 2019). Of these, most worked in academic research and government sector research units. In the private sector—which arguably offers better remunerations and opportunities—men outnumbered women. As per UNESCO, a breakdown of field-wise data of Pakistani researchers shows significant variations within the STEM fields opted by females researchers in the country. Females make up 40% and 45% of the total personnel in Natural Sciences and Medical Sciences, respectively; share of females in Engineering & Technology (21%) and Agriculture Sciences (12%) is abysmally low (UNESCO 2019).

Coveted doctor brides and the opposing expectations post marriage

As per Pakistan Medical Commission's (PMC) data on registered doctors for 2021, the country had 46.9% female doctors and 53.1% male doctors registered with PMC. Moreover, female dentists (66.5%) heavily outnumbered male dentists (33.5%) registered in the country. Among the doctors, roughly 12.6% were registered anesthesiologists and 0.42%, in particular, were specialist anesthesiologists with active licences. The data on this 0.42% section of doctors shows an interesting insight into the sector as 73.2% of them are males while only 26.7% are females (Ismail 2022). Interestingly, the 'doctor bride' situation has been highlighted by many experts and media channels in the country. Allegedly, a large number of female medical graduates drop out of work and do not continue in the profession. Though families boast having a doctor bride, many of them wish for these women to only take the role of wives and mothers (Iqbal 2020).

Less women in technical roles, relatively more in medical roles

As per World Economic Forum's (WEF) Global Gender Gap Report 2021, women hold only 25.3% of technical roles in Pakistan. Additionally, the presence of women in senior roles stands at a mere 4.9% in country (World Economic Forum 2021). Additionally, a World Bank blog, while citing a WEF report highlights the lack of women in mathematical and computer jobs (23% share of women) and engineering and architectural jobs (11% share of women) in the country. It further highlights that a mere 4.9% of 'engineering supervisory roles' are held by women. Moreover, only 3% of the engineers in Pakistan's energy transmission and distribution sector are female (Qureshi and Hameed 2019).

The Global Gender Gap Report 2022 report ranks the country as 145th out of 146 countries on the 'economic participation and opportunity' indicator, with only Afghanistan getting a rank lower than Pakistan (World Economic Forum 2022).



“ Girls in Pakistan with a STEM degree usually are considered to take up teaching or become a doctor only. While, both careers are great in their own accord, there are many more career opportunities that they can pursue.

As a female entrepreneur when you're sitting across the table from an investor, they will deal with you in a very different way in terms of the offers they make. At times you have to prove that you know what you're talking about.

When I was going through the Founder Institute program, I remember all the assignments and work that I had to do—although it was for my startup—it was so time-consuming that I would get frustrated and overwhelmed. That journey was certainly challenging to manage with all the family responsibilities, but I believe it was worth it. I deeply value whatever I learned during that time. And I feel that women have that capacity. If we push ourselves, we can go really far to actually achieve what we want to. ”

Zartaj Ahmed

Director, Pi Space Science Education Centre and Founder, Robotics & STEM Studio at Haque Academy, Karachi

Pakistan has an extremely low score of 58.8 out of 100 on the Women, Business and the Law 2023 Index. It only has a perfect score on the workplace indicator and fares very poorly on indicators of parenthood (20 out of 100) and assets (40 out of 100). However, the country has recently shown improvement on the entrepreneurship indicator as the country's laws and regulations now allow women to register their businesses in the same manner as men (World Bank 2023).

SRI LANKA

In October 2022, Sri Lanka's cabinet approved the shift of Sri Lanka from middle income to low income. The country is currently facing the economic turmoils caused by an unsustainable debt and an unfavourable balance of payments crisis. Both of these are resulting in a negative impact on economic growth of the country. Poverty reduction has severely slowed down and unemployment rates among females continue to be much higher than that of males. Gendered structures continue to be reinforced in different avenues of STEM sector employment in the country.

Education

Sri Lanka's education system is overseen by several government bodies at both the national and provincial levels. The country's education system consists of several levels including, i) Early Childhood Education, ii) General Education, iii) Higher Education, and iv) Vocational and Technical Education and Training. In this broader system of education, there are several sub-sectors of education such as i) Pirivena Education, ii) Special and Inclusive Education, iii) Non-Formal/Adult Education, and iv) International School Education.

The Ministry of Education is responsible for policy formulation, planning, and coordination of education programs at the national level. The Ministry is also responsible for formulating and implementing policies related to primary, secondary, and higher education. Each of Sri Lanka's nine provinces also has its own education department. These departments are responsible for the implementation of education policies and programs at the provincial level.

The University Grants Commission (UGC) is an independent regulatory body established in 1978 to oversee and regulate higher education in Sri Lanka. The UGC is responsible for formulating policies, accrediting universities, and ensuring quality education in universities and colleges. The UGC website currently lists 17 universities in the country.

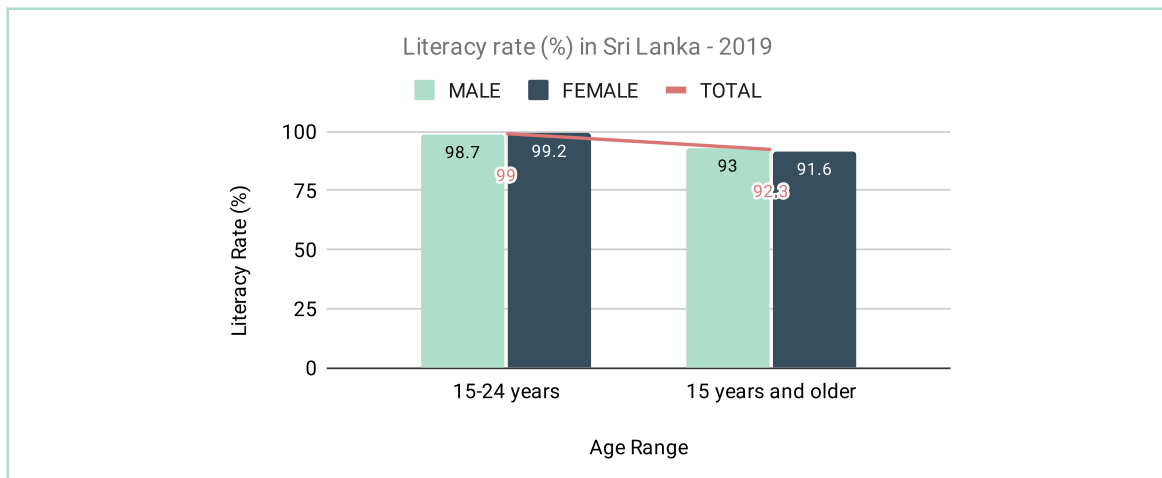
The National Education Commission (NEC) is responsible for the overall development and improvement of the education system in Sri Lanka. The NEC advises the government on education policy and planning, and also serves as a forum for educational research and policy analysis.

The Department of Census and Statistics is responsible for collecting, compiling, and disseminating statistical information on various aspects of Sri Lanka's economy, including education. The main source of education statistics is the annual school census carried out by the Statistics Branch of the Ministry of Education and Higher Education. This census has been carried out for about two decades. It covers the schools in the country and collects information on schools, teachers, pupils, physical resources etc. Besides, information on educational institutions such as Pirivenas and Teacher Training Colleges are also collected.

The literacy rate for 15 years or older in the country, showcases a marginal gender gap with female literacy rate (91.6%) being lower than male literacy rate (93%). However, in the younger age bracket of 15-24 year olds, female literacy rate (99.2%) is reported to be higher than that of males (98.7%).

Figure 61

Literacy rate in Sri Lanka



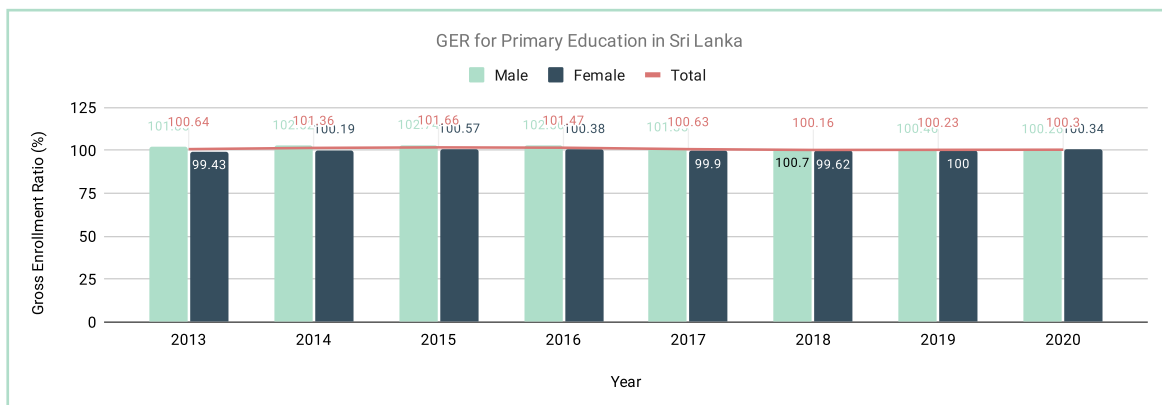
Note: Adapted from UNESCO Institute of Statistics

Primary and Secondary education

Sri Lanka has a high gross enrollment rate (GER) in primary education, with GER of females (100.34%) and males (100.26%) being almost equal. In secondary education level, disparity emerges, with GER of male students falling to 98.04% and GER of female students increasing to 102.63%.

Figure 62

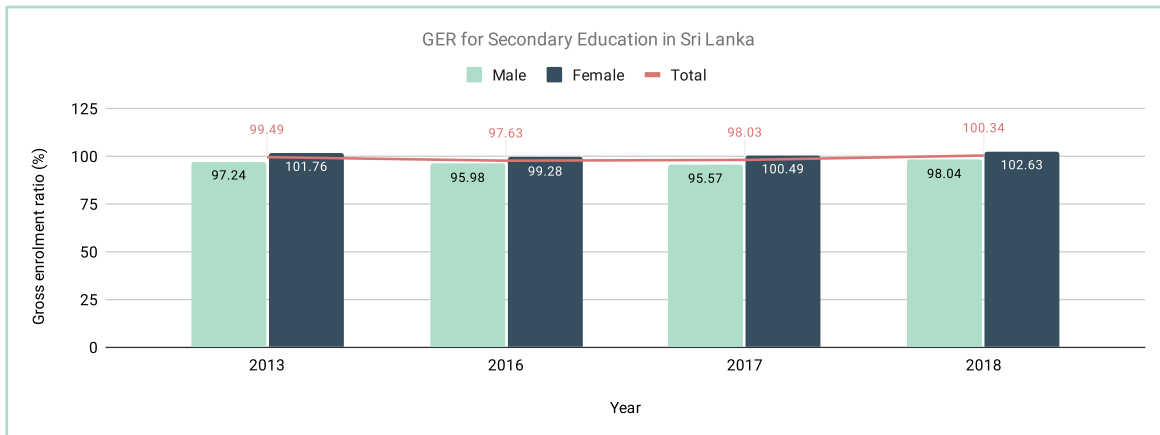
Gross enrollment ratio for primary education in Sri Lanka



Note: Adapted from UNESCO Institute of Statistics

Figure 63

Gross enrollment ratio for secondary education in Sri Lanka



Note: Adapted from UNESCO Institute of Statistics

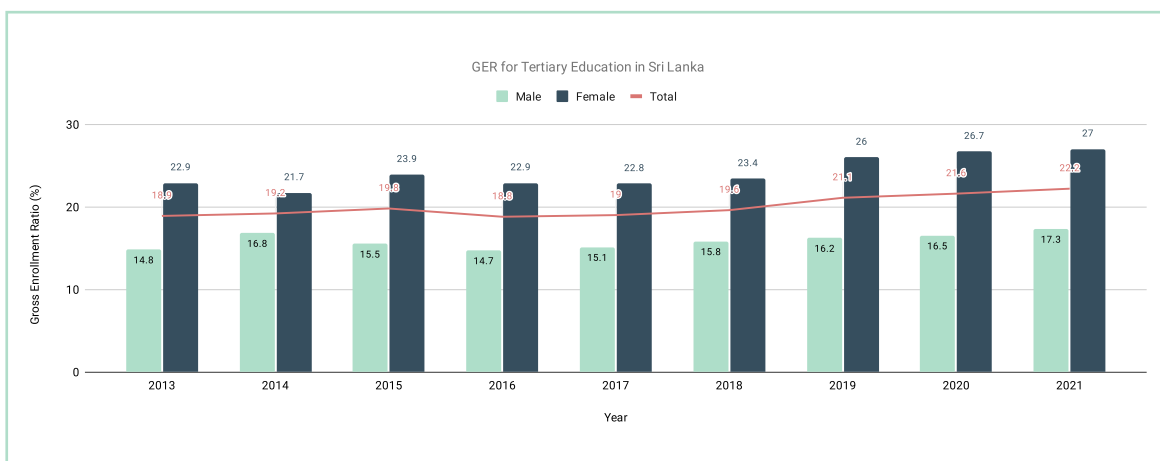
Tertiary education

Highly competitive university selection processes: primary reason for low GER

The gross enrollment rate in tertiary education in the country is low for both males and females and also shows a significant gender disparity. Female student GER was 27% and male student GER stood at 17.3% in the years 2021. The sharp decline in enrollments from secondary to tertiary education, is often attributed to the country's highly competitive university selection processes. Literature suggests that among the students who pass the 'G.C.E. advanced level examination' [Sri Lanka's main school leaving certification], a mere 15% enter university system, while the remaining 85% students are left behind. Moreover, for the students who are able to enter the university system, getting into the course of their choice—that can be a sustainable career choice and match their interests, skills as well as qualifications—becomes difficult (Ranwala and Siriwardena 2020).

Figure 64

Gross enrollment ratio for tertiary education in Sri Lanka



Note: Adapted from UNESCO Institute of Statistics

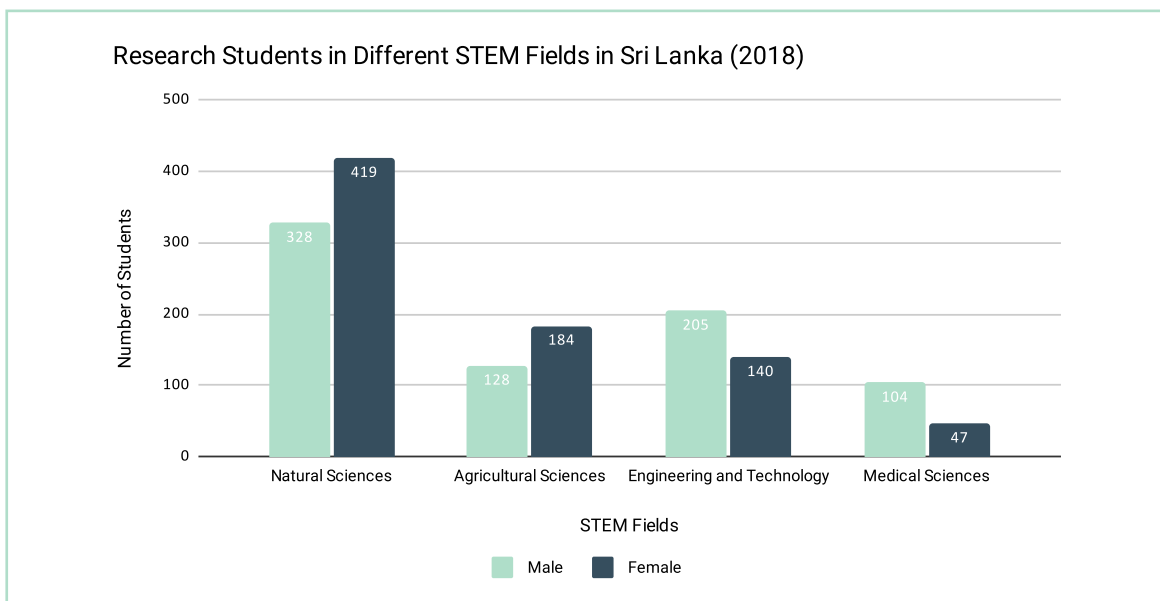
Overall, most disciplines at the university level in Sri Lanka have a higher share of women graduates. Some pertinent exceptions include computer science (41.8% female) and engineering (21.5% female) (Perera 2017).

More females in natural & agricultural sciences but less in medical, engineering & technical fields

Sectoral skewness across STEM research disciplines is also visible. While share of female research students in natural sciences and agriculture sciences is more, the number of female research students are much lesser than male students in medical sciences and engineering and technology (National Science Foundation of Sri Lanka 2018).

Figure 65

Research students in different STEM fields in Sri Lanka

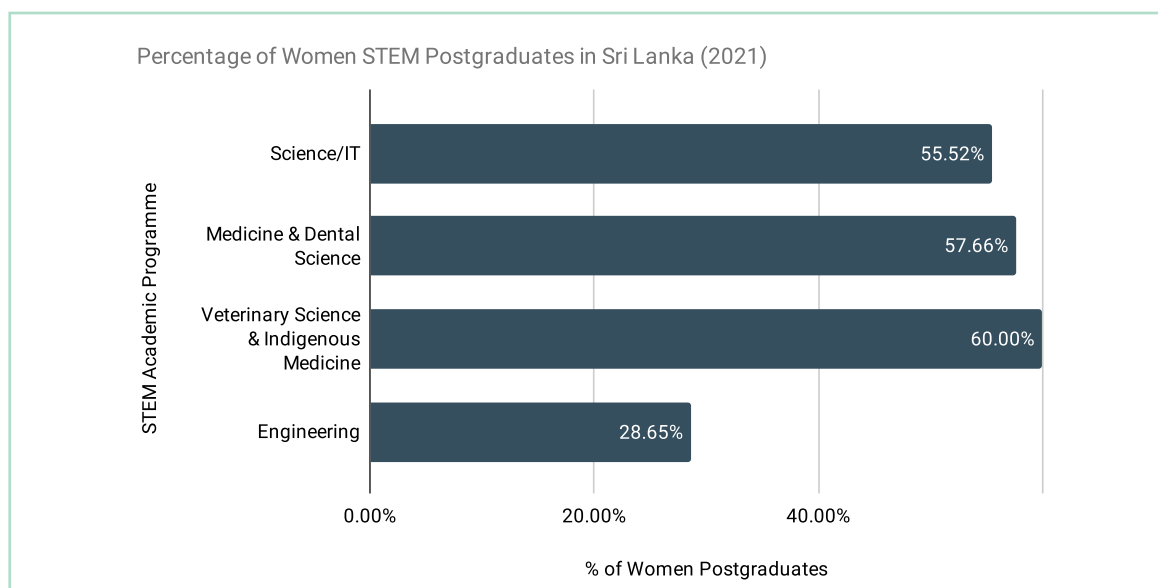


Note: Adapted from National R&D Survey of Sri Lanka, 2018 (NSF) and Statistical Handbook on Research and Development of Sri Lanka 2018

Among STEM postgraduate courses in Sri Lanka, the share of women postgraduates across STEM disciplines in the year 2021 was as follows:

Figure 66

Percentage of women STEM postgraduates in Sri Lanka



Note: Adapted from Chapter 4 of Sri Lanka University Statistics 2021 by Universities Grants Commission

Females made up 60% of the share of postgraduate output in veterinary science and indigenous medicine postgraduate courses. However, the engineering postgraduate courses were dominated by male students, as women made up only 28.65% of the postgraduate output for the engineering academic programmes.

Problem of occupational segregation

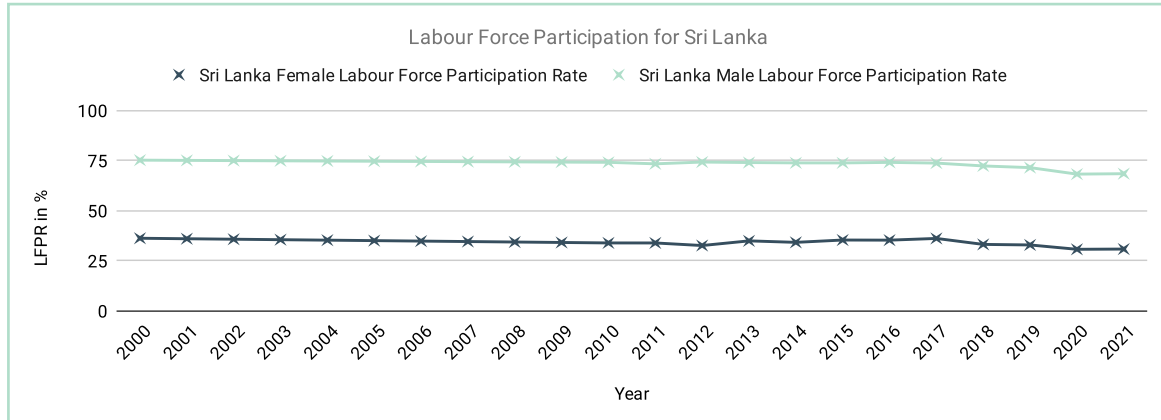
Among the traditionally male-dominated vocational and technical training courses of the country, female enrollment continues to be low, despite the country's 2012 National Human Resources and Employment policy emphasising an increase of women in labour force through their increased participation in TVET courses. Sri Lanka's Vocational Training Authority's (VTA) reports over the years has reported an abysmally low enrollment of females in courses such as 'automobile repairing & maintenance' and 'electrical and electronics areas' (Vocational Training Authority 2020). Share of female enrollment in tailoring vocational courses, however, is extremely high, indicating the existence of a problem of occupational segregation (WePOWER, World Bank Group, and ESMAP, n.d.).

Employment and Career Opportunities

Falling labour force participation rate (LFPR) and a large gender disparity in labour force participation is a persisting problem in Sri Lanka. LFPR for both males and females has decreased in the period 2017 to 2020, followed by negligible increase in 2021.

Figure 67

Labour force participation rate in Sri Lanka



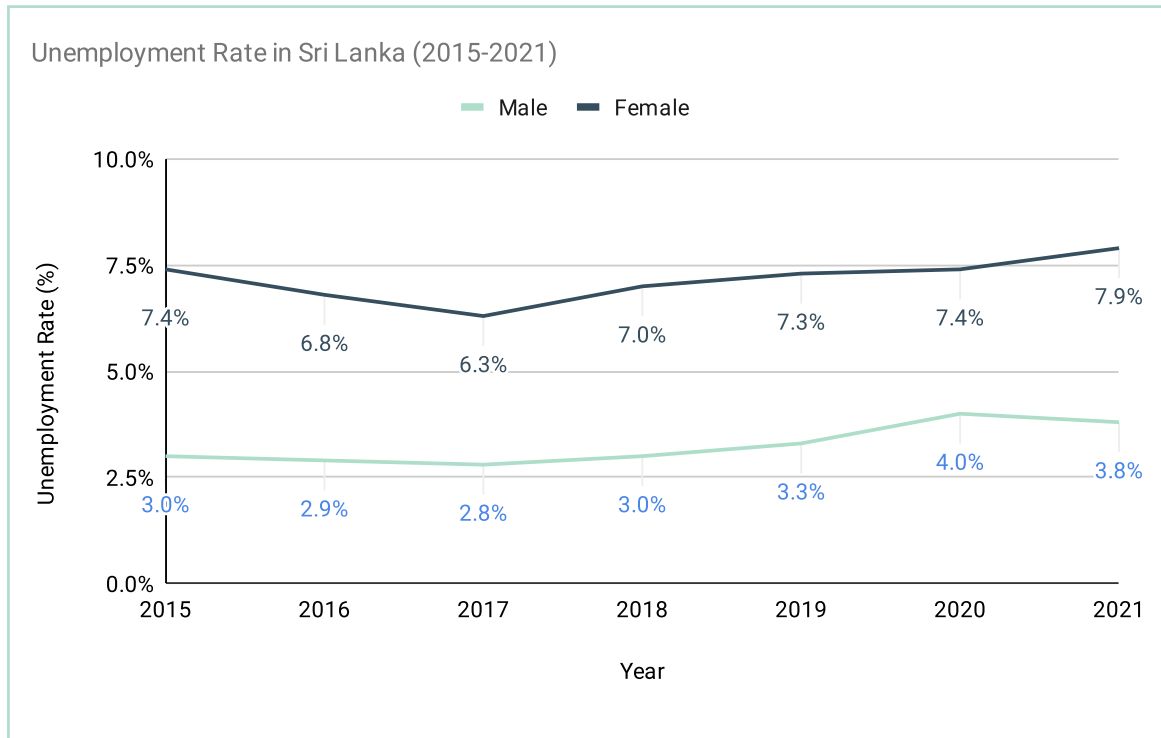
Note: Adapted from World Bank

Alarming high unemployment rates for females in both rural & urban areas

Sri Lanka had a roughly 8.4 million economically inactive population at the end of 2020. Among this population an alarming 72.7% were females (Department of Census and Statistics 2020). The problem persists in both rural and urban areas of the country. Unemployment rates for males and females in the country also showcase that the rate of unemployment among females has consistently been much higher than that of males. Existing literature has attempted to analyse the issue from the demand-side (ranging from employer attitude to firm characteristics) (UN Women 2022) as well as supply-side perspective (such as women wanting to be homemakers to provide best quality childcare themselves) (Gunatilaka 2016). The unemployment rate for females with GCE advanced level and above qualification (12.8%) is also much higher than that of males with such qualification (6.3%) (Department of Census and Statistics 2020).

Figure 68:

Unemployment rate in Sri Lanka



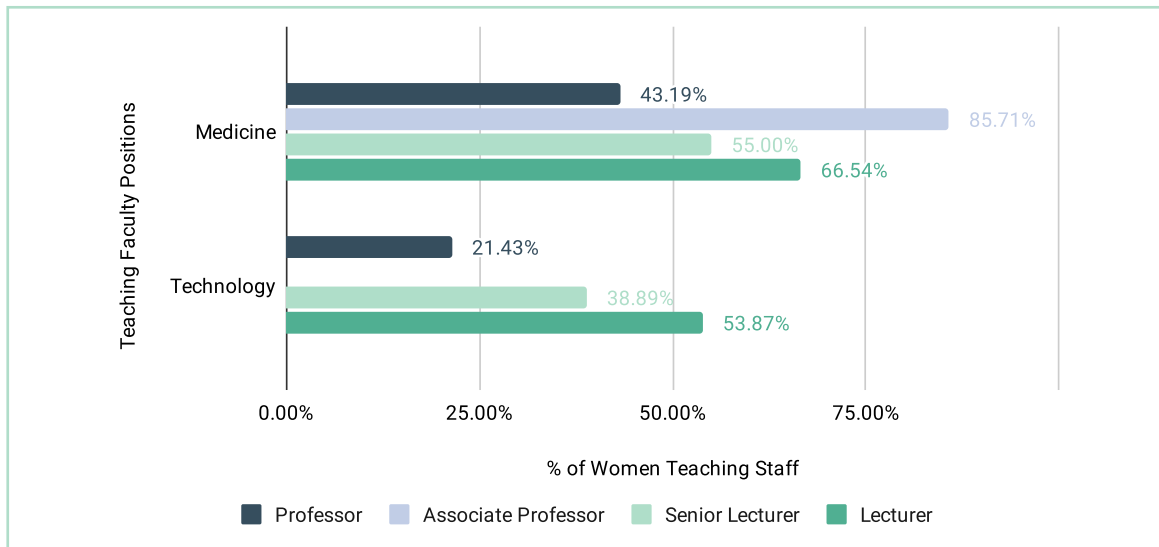
Note: Adapted from World Bank

Fair level of parity in teaching staff of STEM fields

Aggregated data from Sri Lanka depicts that it has a gender parity (49.50% females) in teaching staff in its universities. A look into the teaching staff of STEM fields such as medicine (55.27% females) and technology (46.02%) across Sri Lankan Universities also depicts a fair level of parity. The following chart gives the detailed teaching faculty position-wise data for the two STEM fields:

Figure 69

Percentage of women teaching staff in medicine and technology fields in Sri Lanka's universities

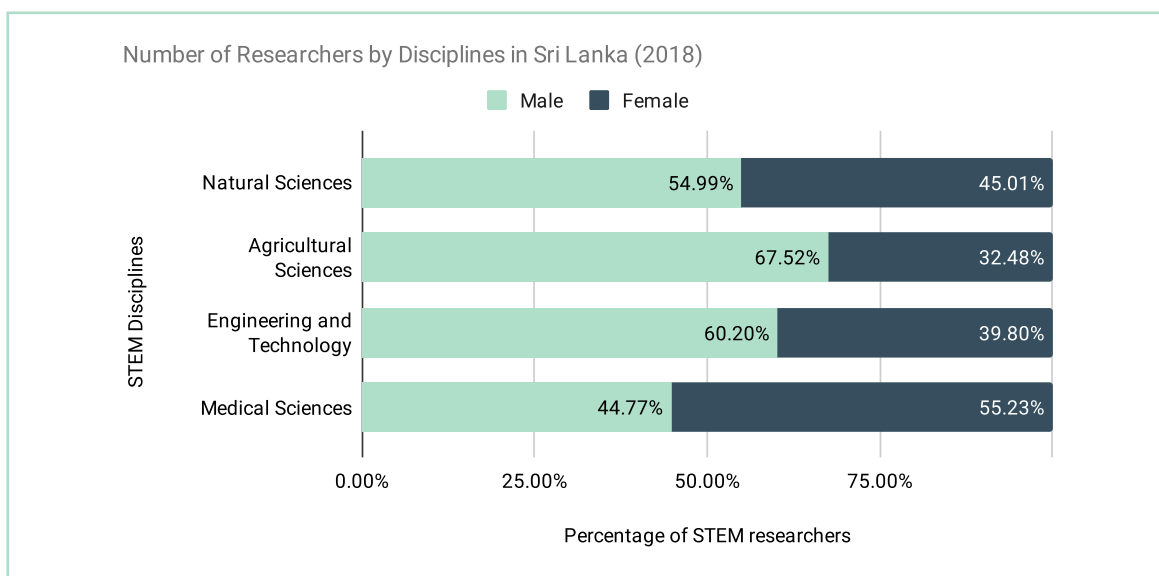


Note: Adapted from Chapter 5 of Sri Lanka University Statistics 2021 by Universities Grants Commission. Only includes permanent teaching staff data

However, gender disparity among Sri Lanka's STEM researchers is evident. Number of females are less than number of male researchers across Natural Sciences, Agricultural Sciences and Engineering & Technology. The only exception is medical sciences, where male researchers outnumber male researchers (NSF of Sri Lanka 2018).

Figure 70:

Number of researchers by disciplines in Sri Lanka



Note: Adapted from National R&D Survey of Sri Lanka, 2018 (NSF) and Statistical Handbook on Research and Development of Sri Lanka 2018

“ As I progressed in my education in the technology field, I saw very less women around me. For example, there were only 30 girls in my batch of 320 students during engineering. As I joined my first project group in my first job in telecommunication sector, I was the only woman out of 70 engineers on the project. Although the number of girls has increased in the telecommunication sector since then, most of the girls are only temporarily joining this industry. After working for some time they are going for higher education or for some other jobs. The glass ceiling effect is also something I have observed as I'm going up the career ladder. Sometimes despite our available skills and the things we are accomplishing, we are getting less chances to get move forward, just because we are ladies.

People in Sri Lanka have a mindset that engineering is only what they see civil engineers do. Which means that they think all engineers are working on-site, on the roads, at construction sites, and so on. People don't seem to be as familiar with software engineering jobs. So perhaps this perception about engineering jobs is leading people to think that it is a very physically straining job for women. Thus, it seems to me that acceptance of women in STEM jobs such as being doctors is much more socially acceptable in the country. ”

“ “ ”



Subhashini Kadurugasyaya

ICT Engineer | Manager | Community Trainer

*The views are personal in nature and they are not represented or warranted on behalf of/by her place of work

Sri Lanka scores 65.6 out of 100 on the Women, Business and the Law Index 2023. The country's laws and regulations got a perfect score on indicators of mobility (constraints on freedom of movement) and marriage but performed extremely poorly on indicators of pay (25 out of 100) and parenthood (20 out of 100) (World Bank 2022). The pay and parenthood indicators are critical factors to be considered by lawmakers of the country to provide a level-playing field to women in the country (World Bank 2023).

Lastly, Sri Lanka ranks 132nd out of 156 countries in the world, on economic participation and opportunity under the Gender Gap Report by World Economic Forum. In particular, the report highlights issues of wage inequality, poor female labour force participation, low earned income for women, and lack of women in key positions (such as legislators, managers and senior officials), under the economic participation indicator (World Economic Forum 2021). The 2022 version of the report ranks Sri Lanka 122nd out of 146 countries (World Economic Forum 2022).

Discourse Analysis of Policies

METHOD

To conduct the policy discourse analysis, we employed the method utilised by Andersson and Hatakka in their research (2017). We adapted their approach for analysing the Science and Technology (S&T) of South Asian countries. In the case of lack of access to or unavailability of S&T policies, Information Communication Technology (ICT) and other policies were analysed. In the case of Afghanistan, due to the shift in governance in August 2021, we opted to not undertake a discourse analysis of the country's policy.

First, we studied the **subject positions** ascribed to women in the policies. Second, we interpreted the **dividing practices** these positionings created. Third, we analysed the terms used to describe women and whether these terms entrusted them with specific roles. To conduct this analysis, we included the following questions from Carol Bacchi's **WPR approach**:

-
- » What is the problem described in a specific policy or policy proposal?

 - » What presuppositions or assumptions underpin this representation of the problem?

 - » What effects are produced by this representation of the problem?

SUBJECT POSITION

Refers to the ways in which individuals are positioned and constructed in language and discourse, which shape, define and possibly limit how individuals may act, speak, or be seen within a particular context. Through their subject position, individuals are also assigned different roles with different attributes, for example, a parent, a criminal etc. (Foucault 1982).

DIVIDING PRACTICE

Refers to how individuals (through their subject position) are categorised in discourse. These categorisations may divide individuals from others, thereby reinforcing social hierarchies and power relations (Foucault 1982). For example, the male–female binary in discourse often imposes gender roles based on biological sex, which in turn shapes our understanding of gender, ostensibly leading to discrimination along those lines.

WHAT'S THE PROBLEM REPRESENTED TO BE? (WPR) APPROACH

The “What’s the Problem Represented to be?” approach is a means of conducting discourse analysis of public policy instruments. WPR is based on the idea that “what one proposes to do about something reveals what one thinks is problematic (needs to change)” (Bletsas and Beasley 2012). It primarily examines how problems are represented in policies and highlights what policymakers deem problematic; their understanding of the problem often determines the solutions that are suggested.

BANGLADESH: IS WOMEN'S EMPOWERMENT A MEANS TO AN END?

To conduct the policy analysis, Bangladesh's National Science and Technology Policy, 2011 was utilised ("National Science and Technology Policy" 2011).

Subject Position	Dividing Practice
Women are positioned as a group whose participation in S&T activities is seen as a vehicle for achieving sustainable economic growth	The subject position of women does not indicate an apparent dividing practice

What's the Problem Represented to be?	
What's the problem represented to be in a specific policy or policy proposal?	Lack of participation of women in S&T, which impedes the country's sustainable growth
What presuppositions or assumptions underpin this representation of the problem?	Women are not empowered and therefore, hindered from fully participating in S&T activities
What effects are produced by this representation of the problem?	Women's empowerment is seen as a means to an end

The text of the policy indicates that the application of ST&I is seen as a means of achieving sustainable economic growth. For the same, gender equity is one of the focus areas under the policy:

"The prime objective of the updated NSTP is to ensure application(s) of science, technology and innovation (ST&I) for achieving sustainable economic growth with due attention to... gender equity..."

Additionally, women empowerment in relation to S&T activities has been highlighted as one of the objectives of this policy. It may be argued that the policy views women as a resource whose equal participation in S&T has the potential to contribute towards the country's sustainable economic growth. Hence the problem, as represented in this policy, is a lack of participation of women in S&T, which impedes the country's progress.

The effect of such a representation is that the empowerment of women is seen as a means to an end, instead of their empowerment and equal participation also being considered as an end in itself. Many academics have theorised that women's empowerment is not only a means to achieve development goals, but also an end in itself, and a process 'by which those who have been denied the ability to make strategic life choices acquire such an ability' (Kabeer 1999, as cited in Pettit 2012).

Similarly, a World Bank report argued that gender equality is both a development objective in its own right, and also a means to enable growth, reduce poverty, and promote effective governance in countries (Nguyen, Artecona, and Begum 2001). In contrast, the text of this policy represents a blinkered approach of seeing the advancement of women in S&T as a vehicle for propelling the economic growth of the country, rather than regarding the former as an equally worthy goal in itself.

Aside from this, while gender equity is stated as one of the focus areas of the policy, it does not present women-centric/specific measures. Additionally, none of the policy's interventions include gender as a differential.

Hence, the policy's stated focus area of gender equity serves more as a token rather than an actionable measure. The underlying structural reasons that impede the equal participation of women in S&T are not acknowledged nor addressed by the policy. Therefore, while the policy may regard women's empowerment as means to an end, they are not meaningfully equipped to act as that means.

BHUTAN: THE VULNERABLE WOMAN

Our research as well as stakeholder consultations indicated that Bhutan does not have a separate S&T policy. While an ICT and e-gov plan do exist, they are primarily geared towards building the digital capacity of the government and upgrading the digital infrastructure of the country. In this scenario, the 12th Five-Year Plan (2018-2023) was utilised to conduct the policy analysis ("12th Five Year Plan" 2018).

Subject Position	Dividing Practice
Women are positioned as a group that lacks parity in various sectors	No apparent dividing practice is created in this regard
Women are positioned as a group that is vulnerable to violence	Women are part of a vulnerable group that is seen separate from the rest of society

What's the Problem Represented to be?	
What's the problem represented to be in a specific policy or policy proposal?	First, there is an existing gender gap in various sectors; Second, women are part of a vulnerable group that requires targeted interventions
What presuppositions or assumptions underpin this representation of the problem?	Generalisations are made in the context of women
What effects are produced by this representation of the problem?	Women may be regarded as 'victims'

Under Bhutan's 12th Five Year Plan, gender equality and women's empowerment are regarded as the 10th 'National Key Result Area' (NKRA) i.e. one of a total of 16 national level development outcomes to contribute towards achieving the 12th five-year plan's objective ("12th Five Year Plan" 2018). The following box presents this NKRA, along with its indicators as mentioned in the plan:

NKRA_10: Gender Equality Promoted and Women and Girls Empowered

- 10.1** Women's representation in the Parliament
- 10.2** Women's representation in the Local Governments
- 10.3** Gender Parity Index in tertiary education
- 10.4** Female Unemployment
- 10.5** Gender Equality Index
- 10.6** Female participating as candidate in management position in public Sector

Source: "12th Five Year Plan" 2018

Here, women are positioned as a group that lacks parity in political representation, tertiary education, employment, and management roles. While there is no apparent dividing practice this positioning creates, the text of the plan acknowledges the existing gender gap in various sectors of the country's socio-political-economic and education landscape. Aside from this acknowledgement, the plan posits an intention to address the gap through indicators that present baselines and targets.

Further ahead in the plan, NKRA 14 (which deals with 'healthy population and a caring society') mentions women in one of its indicators, i.e. "*Targeted intervention for vulnerable groups*". Its description goes on to define the same:

"...Vulnerable groups are defined as senior citizens, people with disability, youth in conflict with law, women/girls."

In this instance, women are positioned as part of a vulnerable group that is distinct from the rest of society. By referencing women as a generalised group, it may be contended that the text of the plan places them in the 'victim discourse'.

While NKRA 10 of the plan does attempt to highlight existing socio-political barriers that hinder gender parity, however later on, women are depicted as 'vulnerable', arguably painting them as passive victims in need of special treatment. Additionally, women are clubbed with various other groups such as the elderly, differently-abled and youth in conflict with the law. As the interests of these groups may be varied, grouping them under one indicator may not be effective in addressing their unique needs.

INDIA: PLACING WOMEN IN THE MARGINS

To conduct the policy analysis, India's Draft Science, Technology and Innovation Policy, 2020 was utilised ("Science, Technology, and Innovation Policy" 2020).

Subject Position	Dividing Practice
Women are positioned on the same terms as those who are differently-abled, marginalised and excluded	The position of women in this policy creates a dividing practice as women are seen as belonging to a different group than the rest of society

What's the Problem Represented to be?	
What's the problem represented to be in a specific policy or policy proposal?	Lack of inclusivity in the STEM field
What presuppositions or assumptions underpin this representation of the problem?	Women are seen as different from mainstream society as they are placed in the category of excluded groups
What effects are produced by this representation of the problem?	First, women are placed in the 'victim discourse'. Second, it reinforces an us-vs-them paradigm. Third, it clubs disparate groups together, which may have diverse interests and needs

India's Draft Science, Technology and Innovation Policy, 2020 places a strong emphasis on creating an inclusive culture for women and other excluded and marginalised groups in STEM. Hence, the problem—as represented in this policy—is a lack of inclusivity in the STEM field.

The text of the policy frequently regards women to be coterminous to rural, differently-abled groups, marginalised and excluded, as illustrated in the following box.

“ An inclusive culture will be facilitated through equal opportunity for women along with candidates from rural remote areas, marginalised communities, differently-abled individuals including Divyangjans.... ”

“ There will be equal opportunity in academics for women along with candidates from rural – remote areas, marginalised communities, differently abled groups...” ”

“ Efforts will be made to attract young women/girls and other excluded groups (in school – early college) and foster awareness and interest in STEM fields and eventually, careers in science.. ”

“ Statistics will be collected on drop-out rates of women, Divyangjan community, socially and economically backward communities, individuals from remote areas and other marginalised groups in science education and research. ”

Source: Science, Technology, and Innovation Policy” 2020.

While the lack of participation and representation of women in STEM fields is acknowledged, the policy positions women (in four instances) in the same category as other excluded groups. In this manner, the policy ostensibly creates a divide between women and other 'included' or 'advantaged' groups while designing measures and solutions to enhance inclusivity in the STEM field.

The possible effects such a representation are threefold:

First, it may be argued that this amounts to the 'otherisation' of women. They are seen as separate from mainstream society. Such descriptions reinforce an 'us-vs-them' paradigm. When they are placed in the 'out-group' in policy instruments, women are viewed the same as other disadvantaged groups that lack opportunities and agency, thereby impacting the kind of interventions created for them.

Second, it may be argued that policy paints women as 'victims'. The policy addresses women as a generalised group that suffers from disadvantages and is excluded from the mainstream. Rather than highlighting the existing social structures and norms that hinder the participation of women in STEM fields, the policy views women as passive entities subject to inequities and disadvantages, thereby placing them in the victim discourse. Arguably, it reads as a devaluing of women's capacities.

Third, there is danger in clubbing these disparate groups together as their needs and interests may differ. The same interventions cannot cater to their specific needs.

MALDIVES: WOMEN AS A POTENTIAL WORKFORCE

Our research did not yield any specific S&T or ICT policy in Maldives. Therefore, to conduct the policy analysis, Maldives' Strategic Action Plan (2019-2023) was utilised ("Strategic Action Plan" 2019). In particular, chapter 4.8 under this policy i.e. 'Information Communication, & Technology' was studied.


Subject Position	Dividing Practice
The plan positions women as a potential workforce in the ICT industry	Women are not categorised in relation to or in opposition to other groups

What's the Problem Represented to be?	
What's the problem represented to be in a specific policy or policy proposal?	Women's lack of participation in the workforce of the ICT industry
What presuppositions or assumptions underpin this representation of the problem?	Women's labour is seen as a useful but unrealised resource
What effects are produced by this representation of the problem?	Women are regarded as a potential workforce


Under the Information, Communications and Technology sub-section of Maldives' Strategic Action Plan, clear targets, strategies and action points have been delineated to increase women's participation in the ICT industry, which is presented as a strategy for building a digital-ready workforce and human capacity in the ICT industry. The same are illustrated in the following box:

Policy 5:

Develop a digital-ready workforce and build human capacity in the ICT industry



Target 5.2:
By 2023, young girls in STEM education increased by 30%



Strategy 5.2:
Increase women participation in ICT fields

Source: Strategic Action Plan" 2019

From our WPR analysis, the problem is represented as women's lack of participation in the workforce of the ICT industry. It may be argued that the text of the plan positions women as a potential workforce. While their labour is seen as useful, their usefulness is presented to be unrealised. No apparent dividing practice is created by this positioning of women.

Studies have indicated that increasing women's participation in the workforce can lead to significant economic benefits, such as increased productivity and GDP growth (Lagarde and Ostry 2018). However, as Amartya Sen argued: "economic growth cannot sensibly be treated as an end in itself. Development has to be more concerned with enhancing the lives we lead and the freedom we enjoy" (Sen 2001). Hence, policies must look to enable more women to enter the workforce, not only in the interest of economic growth but also to enhance their freedom. In order to do this, it is important to recognize and address the structural barriers that women may face while trying to enter and sustain themselves in the workforce, such as gender stereotypes, lack of role models, paucity of opportunities for mentorship and training etc.

In this regard, the plan may be considered progressive as it acknowledges the gender gap in technical fields. It also aims to conduct a study *"to gauge existing data and information on women's participation in the ICT field..."* and *"...conduct awareness on addressing gender stereotypes related to STEM education and profession in schools and in public..."* thereby aiming to understand and perhaps address the barriers and systemic issues that prevent women from fully participating in this field ("Strategic Action Plan" 2019). Additionally, the plan mentions that *"...career advice sessions for girls and parents..."* will be conducted, ostensibly recognising that a lack of role models alters the perception of young persons as to the kind of careers they may pursue ("Strategic Action Plan" 2019). It may be surmised that while this plan represents women as a potential human resource to enhance the country's workforce, it also strives to address structural and socio-cultural barriers to women's participation in the ICT industry.

NEPAL: THE FOIBLES OF GENDER-BLIND POLICY

To conduct the policy analysis, Nepal's National Science, Technology and Innovation Policy of 2019 was utilised. ("National Science, Technology and Innovation Policy" 2019).

Subject Position	Dividing Practice
Policy makes no mention of women, save for the annexure	No apparent dividing practice is indicated from the text of the policy

What's the Problem Represented to be?	
What's the problem represented to be in a specific policy or policy proposal?	While the policy lists a number of problems and challenges, women are not referenced in the same. Therefore, no problem representation (in the case of women) is made out in the policy
What presuppositions or assumptions underpin this representation of the problem?	No presuppositions or assumptions are indicated in the context of women
What effects are produced by this representation of the problem?	Since women are not represented in any manner in the policy, no apparent effects are produced

Nepal's National Science, Technology and Innovation Policy, 2019 does not make any reference to women except in the annexure, which provides for the composition of a Science and Technology Development Coordination Council, under which at least two women (who are renowned scientists and technicians) will be selected as members along with other stakeholders.

The purpose of the council is "for policy guidance...and for effective coordination in order to utilize science, technology and innovation" ("National Science, Technology and Innovation Policy" 2019).

Beyond this, the policy makes no mention of women. While a list of problems and challenges in the science and technology sector are mentioned in the policy, this list does not mention any women or gender-specific issues to be tackled. The strategies mentioned in the policy also do not include any consideration on the basis of gender. To that effect, this policy may be considered blind towards issues of gender as it addresses both men and women alike.

Several arguments exist in favour of gender-blind policies. For instance, they provide rights and opportunities to all individuals fairly, without considering their gender. However, as per an ILO publication, gender-blind policies are not neutral in their impact on gender:

A gender division of labour exists both outside and within the labour market. Gender differences also exist in employment patterns and histories, and in the terms and conditions of employment. Thus, "gender-blind" policies and programmes (which do not distinguish targets, participants or beneficiaries by sex) are often not "gender-neutral" in their impact (i.e., they do not affect men and women in the same way) (Lim 1996).

Gender blindness is defined as “the failure to recognize that the roles and responsibilities of men/boys and women/girls are assigned to them in specific social, cultural, economic, and political contexts and backgrounds” (“Gender blindness”, n.d.). One of the ramifications of gender-blind policies is that they maintain the status quo, as they do not take into account the diverse needs of different genders; in effect, they do not transform the unequal structure of gender relations (“Gender blindness”, n.d.). For example, Nepal’s policy states: “*Talented scientists/technicians shall be provided, on the basis of inclusion, with the opportunities of scientific research, technology development and innovation*” (“National Science, Technology and Innovation Policy” 2019). While the provision for opportunities is stated to be inclusive, the policy fails to delineate the dimensions of such inclusion, and whether or not concerns of gender inequity in STEM fields shall be addressed. In this manner, it does not confront the disparity between male and female participation in STEM; arguably maintaining rather than dismantling the existing dynamics of hierarchy and power between the genders.

Hence, gender-blind policies may not be the appropriate solution for making a level-playing field in STEM, as they do not interrogate the existing structures and norms of society. By remaining blind to the issues of gender and providing solutions along these lines, such policies maintain the status quo, thereby impeding rather than enabling the full participation of women in STEM.

PAKISTAN: PROFFERING PROBLEMS, NOT SOLUTIONS

To conduct the policy analysis, Pakistan's Draft National Science, Technology and Innovation Policy 2021 was utilised ("Draft National Science, Technology and Innovation Policy" 2021).

Subject Position	Dividing Practice
Women are positioned as lacking the same level of participation as men in the learning, teaching and practice of S&T	This positioning of women divides them from men in the context of their low participation in S&T

What's the Problem Represented to be?	
What's the problem represented to be in a specific policy or policy proposal?	Low participation of women in S&T
What presuppositions or assumptions underpin this representation of the problem?	Prevailing sociocultural environment and lack of educational opportunities exclude women from participating in S&T
What effects are produced by this representation of the problem?	Women may be viewed as passive entities subject to their socio-cultural conditions

The policy lists four development challenges in Pakistan, one of them being human resource development. In this context, the policy notes low female participation in S&T and positions women as separate from men by stating...*"a lopsided picture of the relative proportions of women and men involved in the learning, teaching and practice of science, engineering, technology and related fields..."*

The policy goes on to cite statistics that depict the gender gap in higher education at the Bachelor, Master, MPhil and PhD levels in Pakistan. It notes: *"the percentage of female researchers in Pakistan has jumped from 30% (2007) to 39% in 2017...despite this progress, there is still a long way to achieve gender parity in science and technology."*

The reason for the gap (as mentioned in the policy) is the lack of opportunities in education and other factors related to the prevailing social and cultural environment; ostensibly leading to low enrollment in STEM programs and a low number of female researchers in the country.

One of the potential issues with representing women in this manner is that they may be viewed as passive entities that are subject to (and perhaps shackled by) their sociocultural reality, with little to no agency to confront the same. Additionally, the policy does not proffer solutions that may interrogate and challenge these conditions. While the policy does state that special incentives and motivation packages for female science students will be designed, however, what these incentives and packages will consist of and how they shall be distributed is not laid out in the policy.

Finally, the policy presents the 'policy statement' in the context of women: *"Policy Statement 26: Women will be encouraged to participate in science and technology at all levels of education and supported to opt for scientific research careers."* The text indicates the policymakers' intent towards boosting women's participation in S&T, however, there is no concrete strategy or call to action presented in the policy to bring this intention to fruition. It may be argued that, in effect, this policy may have identified the problem, but does not offer clear solutions for the same.

SRI LANKA: THE PRIMARY ROLE OF WOMEN

To conduct the policy analysis, Sri Lanka's Draft Science, Technology and Innovation Policy of 2018 was utilised. ("Draft National Science, Technology and Innovation Policy" 2018).

Subject Position	Dividing Practice
Women are seen as a group that must balance domestic responsibilities with professional activities	Women are seen as distinct from men in terms of their domestic responsibilities

What's the Problem Represented to be?	
What's the problem represented to be in a specific policy or policy proposal?	Women's full participation in the S&T field is challenged by inadequate facilities and systems to balance domestic responsibilities and professional activities
What presuppositions or assumptions underpin this representation of the problem?	Women must balance their domestic responsibilities and professional activities
What effects are produced by this representation of the problem?	First, traditional gender roles and stereotypes are reinforced. Second, men and women are not seen to have equal and shared responsibilities in the domestic sphere

One of the policy goals under Sri Lanka's draft S&T policy is: "A strengthened and sufficiently expanded human resource base of scientists and technologists...". A list of strategies has been provided for the same, one of which is to ensure equal participation in the S&T field irrespective of gender, language, economic status or similar considerations ("Draft National Science, Technology and Innovation Policy" 2018).

In this context, the policy suggests that "[I]nadequate facilities and systems for women to balance domestic responsibilities and professional activities..." is a challenge towards their full participation in scientific and technological fields. The suggested measure to respond to this challenge is "...flexi hours, crèches in working places, working from home etc. to accommodate special needs of parents to facilitate their contribution" ("Draft National Science, Technology and Innovation Policy" 2018).

While such measures may indeed facilitate increased participation, the subject position of women under this policy suggests that their core responsibility is towards their homes and families; their professional activities (if any) may be conducted in tandem (and perhaps secondary to) their role as a homemaker. This positioning of women creates dividing practice between men and women in the context of their domestic responsibilities.

Arguably, such framing may reinforce traditional gender roles and stereotypes i.e. women are 'mothers' and 'caregivers' whose primary duty is to look after their homes and children. Additionally, it promotes the idea that women and men do not have equal domestic responsibilities. Such discourse gives rise to deleterious gender roles; there exists research to suggest that enhancing the inclusion of women in fields of science is impeded by the perceived role of women in society as mothers and caregivers (Zoonen 1992).

Therefore, equal participation of women in the field of S&T can only be brought about when equal participation by all genders in the domestic sphere is encouraged through policy measures. Additionally, domestic and care work should also be harmonised with professional activities. In this context, an ILO publication contended that: “measures intended to promote the harmonization of work and family responsibilities, such as child-care services, are not and should not be women-specific” (Lim 1996). It may be contended that both men and women should have equal responsibilities towards their children and other family obligations, therefore, policy measures and arrangements in this respect should be equally available to all genders.



Policy Tools Analysis

METHOD

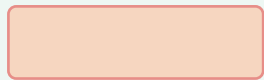
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After conducting the discourse analysis, we reckoned that additional analysis of the instruments utilised in these policies would be useful to understand how they cater to women's interests.

First, we collated text from the policies that mentioned different instruments or tools to advance the objective of the policy.* Second, we organised these tools under different categories i.e. grants, awareness schemes, statistics, reservation, mentorship and others. Third, we colour-coded these collated tools. For the same, we utilised the following colour codes:



depicts a **direct** reference to women



depicts an **indirect** reference to women



depicts **no** reference to women

*policy tools for the development of human resources in science, technology and innovation (STI) were analysed; other policy tools used to strengthen infrastructure, generate funding, equip institutions or promote research in STI were left out of the scope of this analysis.

Country & Policy	Grants & Scholarships	Awareness Schemes	Data & Statistics	Reservation	Mentorship	Others
Bangladesh: National Science and Technology Policy, 2011	College-level scholarships and doctorate-level fiscal support and incentives	Promotion of awareness about the importance of ST&I among politicians, bureaucrats, researchers, administrators, academics, members of the public and other stakeholders				Strengthening of intellectual property rights regime (e.g. enactment and enforcement of laws, strengthening of administrative and judiciary institutions) of the country
Bhutan: 12th Five Year Plan, 2018-2023	The need to give grant is addressed in the context of enhancing research curriculum	Create awareness and build capacities of parliamentarians, policy makers, service providers, media, schools & institutions, LGs and communities on the rights of women and children	Female students enrolled in STEM courses in TELs need to increase by 1% per year from 25% in 2016 to 30% in 2022-23			Establishment of child crèches, conducive working environment in government and non-government agencies, and technical and vocational training programs for women
India: Draft Science, Technology and Innovation Policy, 2020	Community grant schemes will be given to incentivize independent communities and civil society organisations	Efforts will be made to attract young women/girls and other excluded groups (in school – early college) and foster awareness and interest in STEM fields and eventually, careers in science	Statistics will be collected on drop-out rates of women, Divyangjan community, socially and economically backward communities, individuals from remote areas and other marginalised groups in science education and research	Enhanced representation of women, at least 30% of the total strength, in all decision making bodies including selection and evaluation committees will be mandated	For promoting gender inclusion in entrepreneurship, avenues will be created to access resources and opportunities for training and mentoring	Gender audits and social audits; India-centric Equity & Inclusion (E&I) charter
Maldives: Maldives' Strategic Action Plan, 2019-2023; Chapter 4.8		Conduct awareness on addressing gender stereotypes related to STEM education and profession in schools and in public	Conduct a baseline study to gauge existing data and information on women's participation in the ICT field	Establish a national level working group for Women in Science and Technology which includes at least 30% female representation	Conduct career advice sessions for girls and parents in primary schools to encourage STEM professions	Increase targeting/ratio of females in STEM related skills training

Country & Policy	Grants & Scholarships	Awareness Schemes	Data & Statistics	Reservation	Mentorship	Others
Nepal: National Science, Technology and Innovation Policy, 2019	Scholarship, post-masters/post-doctoral fellowship, etc. to scientists and the technicians involved in the progress of scientific knowledge, research and technology development	Science and innovation centre shall be developed at provincial and local level for expansion of scientific awareness and involvement of innovative talents in technology development		Reservation for women under the National Science and Technology Development Council		
Pakistan: Draft National Science, Technology and Innovation Policy 2021	Scholarships, grants-in-aid, or other forms of incentives shall be provided to deserving science students, researchers, scientists, inventors, technologists, and specially gifted citizens	Awareness campaigns that focus on the Islamic perspective of entrepreneurship & circulation of money, glorification of national and international success stories & role models, and encouraging entrepreneurship from childhood	Percentage of female researchers in Pakistan; Percentage of female students enrolled in the Science, Technology, Engineering and Mathematics (STEM) programs at the educational level			
Sri Lanka: Draft Science, Technology and Innovation Policy, 2018	Enhancing financial assistance schemes specifically for economically disadvantaged students in post-secondary education including vocational training	Strengthening and sustaining awareness programmes on patenting and IPR law, among the Science and Technology institutions and society at all levels				Flexible hours, crèches in working places, working from home etc. to accommodate special needs of parents to facilitate their contribution

Gender Budgeting Analysis

GENDER BUDGET OR GENDER RESPONSIVE BUDGETING (GRB)?

'Gender budget' may be considered a misleading term as it suggests an argument for a distinct allocation on the basis of gender. A more accurate term is "gender-responsive budget" (GRB) (Budlender 2003).

GRB is defined as "a means of integrating a gender perspective into all steps of the budget process—planning, drafting, implementing and evaluating—so as to ensure that budget policies take into consideration the gender issues in society and neither directly nor indirectly discriminate against either women or men" (UNESCO, n.d.).

The following table examines gender-responsive budgeting of the countries in South Asia. Separate gender statements and budgets, if any, are also discussed.

Country	Remarks
Afghanistan	<p>Afghanistan's de facto authorities announced their first annual budget in March 2022. From the total sum, 203.5 billion Afghanis (USD 2.2 billion) were allocated to the ordinary budget, while 27.9 billion Afghanis (USD 0.3 billion) were allocated to the development budget (Xinhua 2022). Therefore, 12% of the entire budget is dedicated towards development.</p> <p>However, access to public expenditure statistics from Afghanistan (including granular information on expenditure allocations) is severely limited ("Afghanistan Development Update" 2022). Hence, it is difficult to estimate the allocation of public funds towards women's development.</p>

Country	Remarks
Bangladesh	<p>In Bangladesh, the gender budget was first introduced in FY 2009-10. Annually, the Bangladesh government presents a gender budget report to the national parliament that covers the number of public funds allocated for women's development ("Gender Responsive Budgeting in Bangladesh", n.d.).</p> <p>However, the 2020-21 national budget (as opposed to previous years) did not publish a separate gender budget presenting ministry-wise fund allocations for women (Moslem and Elahi 2020).</p> <p>The gender budget's proportion to the total budget increased in FY 2022-23. Yet, the gender budget as a percentage of GDP decreased from 5.71% in FY 2021-22 to 5.16% in FY 2022-23 ("An Analysis of the National Budget for FY 2022-23" 2022).</p>
Bhutan	<p>The Ministry of Finance, Royal Government of Bhutan includes gender-responsive budgeting as part of its Budget Report. It presents the same annually to the Parliament (Royal Government of Bhutan 2019).</p> <p>The gender budget allocation was reported to have increased by more than double in six years from Bhutanese Ngultrum 225 million in FY 2014-15 to Bhutanese Ngultrum 531 million in FY 2019-20 (Royal Government of Bhutan 2019).</p> <p>More recently, Bhutanese Ngultrum 599.896 million were provisioned under various agencies to implement gender-related activities in FY 2021-22, whereas in FY 2022-23, Bhutanese Ngultrum 679 million has been provisioned for the same, indicating an increase in spending ("National Budget for Financial Year 2022-23" 2022).</p>
India	<p>In India, the gender budget was first introduced in 2005-06 in order to allocate public funds towards women-specific programs. It has been divided into two parts; 'Part A' comprises 100% Women-specific programs (eg. Indira Gandhi National Widow Pension Scheme), and 'Part B' comprises 30% Women-specific programs (eg. Mahatma Gandhi National Rural Employment Guarantee Scheme).</p> <p>India's gender budget has not seen a significant increase in the last 15 years, with an average of 4.9% of the Union Budget (Khullar 2023). In fact, the allocation to the gender budget as a proportion of the Union Budget fell from 5.2% in FY 2022-23 to 5% for FY 2023-24 (Kasliwal 2023).</p> <p>However, in FY 2023-24, the total allocation for Gender Responsive Budgeting (GRB) increased by 2% from the Revised Estimates (RE) of FY 2022-23 (Kasliwal 2023).</p>

Country	Remarks
Maldives	<p>Implementing gender-responsive budgeting is a focal point highlighted in Maldives' National Gender Equality Action Plan 2022-26.</p> <p>However, in Maldives' National Budget for 2023, none of the functional classifications or heads (i.e. gender public services, defence, public order and safety, economic affairs, environmental protection, housing and community amenities, health, recreation, culture and religion, education and social protection) include gender as a differential ("Maldives Budget 2023", n.d.).</p>
Nepal	<p>Nepal first adopted GRB in the fiscal year 2007-08 and separate budget expenditure related to gender was categorised annually under three sections—directly responsive to gender, indirectly responsive, and neutral (The Kathmandu Post 2022).</p> <p>In the last 15 years, the direct responsive gender budgeting in Nepal has indicated a four-fold increase, from 11.03% in FY 2007-08 to 40.25% in FY 2022-23 (The Kathmandu Post 2022).</p>
Pakistan	<p>In 2005, the Pakistan government made Gender Responsive Budgeting necessary in government activities (Shams 2022). The same has been credited with helping to reduce gender disparities by normalising girls' enrolment in schools and increasing their attendance in schools (Wallace 2020).</p>
Sri Lanka	<p>In 2018, Sri Lanka's government introduced 12 gender key performance indicators (KPIs) in order to address the gender gap in the national budget. However, information pertaining to 75% KPIs was reported as undisclosed across two years of assessment (i.e. 2018-19 and 2019-20) making it difficult to assess progress (Marcus 2022). Additionally, for the same years of assessment, one KPI showed no progress and two KPIs were assessed as having deteriorating progress (Marcus 2022).</p>

Gender-responsive budgeting (GRB) is a potent tool for promoting gender equality in South Asian countries. However, significant challenges such as the lack of increase in allocation and paucity of data to map progress indicate the absence of political will towards prioritisation of GRB. In this context, civil society organizations as well as the public may play a critical role in advocating for GRB. By incorporating a gender lens into budget planning and implementation, South Asian countries can allocate public resources to address the needs of women and girls, promote gender equality, and achieve sustainable development.

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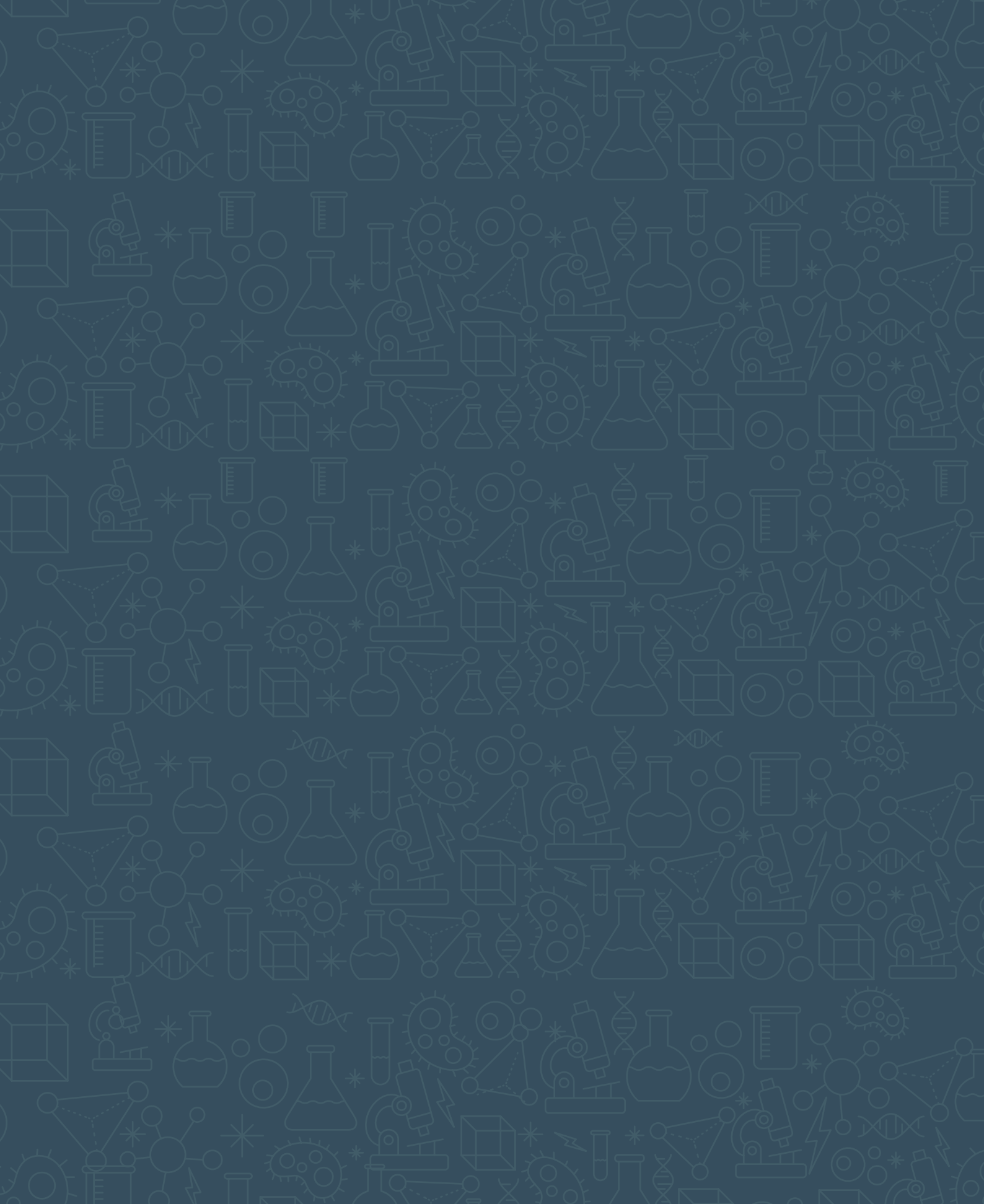
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