The 2018 Policy Report on Balanced Development of Human Resources for the Future

Analysis of Global Gender Indices and Joint Survey Results from INWES APNN/ARN Member Countries

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Foreword

We have recently been exposed to the risks of social and economic inequalities. Gender inequality is certainly one of those risks. Women make up one half of the world's population. Hence it is fundamental that women must have equal access to education, health, economic and political representation. However, the reality is far from that; half of the world's human resources does not have equal opportunities. In the era of the fourth industrial revolution, it is urgently needed to accelerate progress towards gender equality for a sustainable human society.

This policy initiative series was launched in 2014, as part of the International Cooperation Policy Project of the Association of Korean Woman Scientists & Engineers (KWSE). Korea is facing a rapidly aging society with an extremely low birth rate, which is expected to be the main factor hindering economic growth and national competitiveness. Despite this situation, only about half of the highly educated women in Korea participate in economic activities. Maximizing the utilization of highly educated women in all fields including science and engineering, hence, will be an utmost priority policy in Korea. We also would like to emphasize that the most efficient approach to the balanced development of human resources for the future comes from empowering women who make up more than half of the global population.

As reported in the previous researches, the well-known international indices related to human resources development by the United Nations Development Program (UNDP) and the World Economic Forum (WEF) are updated every even number of years. The indices are Human Development Index, Inequality-adjusted Human Development Index, Gender Development Index and the Global Gender Gap Index. Special analyses on status of human development are performed for 36 member countries of the Organization for Economic Co-operation and Development (OECD), 13 member countries of the Asia and Pacific Nations Network (APNN) and 12 member countries of the Africa Regional Network (ARN) under the International Network of Women Engineers and Scientists (INWES). According to the definition and purpose of each index, different measurement from each other is applied. As a result, the interpretation for each index could be diverse. However, these indices provide a rough comparison of the status of human resources development and gender equality around the world.

The second part of this report is dedicated to the results of the 2018 joint survey on the gender barriers in the fields of science and technology for 1,604 respondents from 12 countries of the APNN and 490 respondents from 3 countries of the ARN. The joint survey has been conducted since 2014 for women scientists and engineers of the APNN. Focusing on the gender barriers, the questionnaire was designed for women in 2016, for men in 2017, and for female and male students majoring in science and engineering in 2018. It is quite meaningful that the ARN member countries participated in this 2018 survey for the first time. In general, the APNN's respondents turned out to perceive more gender barrier and

to be more progressive in perception of gender role stereotype than the ARN's respondents. However, the ARN's respondents had more direct or indirect experiences of gender barrier and showed more positive career outlook than the APNN's respondents.

In the beginning of this research project, we hoped to lay a foundation to create an Asian "She Figures" which is a collection of statistics targeting gender innovation published by the EU every three years since 2003. We also aimed to serve as a useful reference in policy development for a full utilization of highly educated women scientists and engineers in the Asia-Pacific region. Change does come very slowly. However, such an effort is hoped to continue until balanced development of all human resources and complete gender equality come true.

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1) A representative to APNN/ARN or the person who carried out the survey.
APNN is the network of countries in the Asia-Pacific region under the INWES. Established in 2011, APNN currently has 15 member countries, including INWES's members in Asia (excluding the middle east) and the Pacific islands (Australia, Bangladesh, India, Japan, Korea, Malaysia, Mongolia, Nepal, New Zealand, Pakistan, Sri Lanka, Taiwan, Vietnam, and Australia and New Zealand.). Myanmar and the Philippines joined in 2018.
ARN was established in 2014 as the African Regional Network of INWES. Members include, 12 countries in the African continent excluding the North African countries. Members are from Algeria, Botswana, Burkina Faso, Cameroon, Ghana, Kenya, Liberia, Mali, Nigeria, Senegal, Tanzania, and Uganda

Summary

Summary

1) Global Gender Indices on Human Resource Development for APNN and ARN Member Countries

(HDI or IHDI=1: most developed, GDI=1: complete equality, GII=0: complete equality, GGI=1: fully closed gap)

	Country	UNDP HDI 2015 188 countries		UNDP IHDI[a] 2015 151 countries		UNDP GDI 2015 160 countries		UNDP GII 2015 159 countries		WEF GGI 2017 144 countries	
		Rank	Value	Loss(%)[b]	Value	Group[c]	Value	Rank	Value	Rank	Value
APNN	Australia	2	0.939	8.2	0.861	1	0.978	24	0.120	35	0.731
	Bangladesh[d]	139	0.579	28.9	0.412	3	0.927	119	0.520	47	0.719
	India	131	0.624	27.2	0.454	5	0.819	125	0.530	108	0.669
	Japan	17	0.903	12.2	0.791	2	0.970	21	0.116	114	0.657
	Korea	18	0.901	15.9	0.753	3	0.929	10	0.067	118	0.650
	Malaysia	59	0.789	-	-	-	-	59	0.291	104	0.670
	Mongolia	92	0.735	13.0	0.639	2	1.026	53	0.278	53	0.713
	Nepal	144	0.558	27.0	0.407	4	0.925	115	0.497	111	0.664
	New Zealand	13	0.915	-	-	2	0.963	34	0.158	9	0.791
	Pakistan	147	0.550	30.9	0.380	5	0.742	130	0.546	143	0.546
	Sri Lanka	73	0.766	11.6	0.678	3	0.934	87	0.386	109	0.669
	Taiwan[e]	(27)	(0.885)	-	-	-	-	(9)	(0.058)	(33)	(0.734)
	Vietnam	115	0.683	17.8	0.562	1	1.010	71	0.337	69	0.698
ARN	Algeria	83	0.745	-	-	5	0.854	94	0.429	127	0.629
	Botswana	108	0.698	37.9	0.433	1	0.984	95	0.435	46	0.720
	Burkina Faso	185	0.402	33.6	0.267	5	0.874	146	0.615	121	0.646
	Cameroon	153	0.518	32.8	0.348	5	0.853	138	0.568	87	0.689
	Ghana	139	0.579	32.5	0.391	5	0.899	131	0.547	72	0.695
	Kenya	146	0.555	29.5	0.391	4	0.919	135	0.565	76	0.694
	Liberia	177	0.427	33.4	0.284	5	0.830	150	0.649	107	0.669
	Mali	175	0.442	33.7	0.293	5	0.786	156	0.689	139	0.583
	Nigeria	152	0.527	37.8	0.328	5	0.847	-	-	122	0.641
	Senegal	162	0.494	33.1	0.331	5	0.886	120	0.521	91	0.684
	Tanzania	151	0.531	25.4	0.396	3	0.937	129	0.544	68	0.700
	Uganda	163	0.493	30.9	0.341	5	0.878	121	0.522	45	0.721

[a] **IHDI = Inequality-adjusted Human Development Index**

[b] **Loss due to inequality(%)** $= (HDI - IHDI)/HDI \times 100$.

[c] **Group 1 is for** $x \leq 2.5$, **Group 2 for** $2.5 < x \leq 5.0$, **Group 3 for** $5.0 < x \leq 7.5$, **Group 4 for** $7.5 < x \leq 10.0$, **and Group 5 for** $10.0 < x$, **where** $x = |GDI - 1| \times 100$ **is the absolute deviation of GDI from gender parity.**

[d] **Bangladesh has been an INWES APNN member country since 2015.**

[e] **Taiwan's data were determined by the Taiwanese government based on the UNDP and WEF methodology. (source: http://eng.stat.gov.tw/ct.asp?xItem=25280&ctNode=6032&mp=5)**

(source: UNDP Human Development Report 2016, WEF Global Gender Gap Report 2017)

2) Survey on Gender barriers Among APNN & ARN Member Countries: Overall Average

(Unit: Point)

Classifications		Question	Network	APNN				ARN			
			sex	average	standard deviation	t	*(p)*	average	standard deviation	t	*p*
1. Perception of Gender Barriers (P.G.B.)	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	2.46	1.252	2.802	0.005**	2.38	1.335	3.809	0.000***
			male	2.29	1.153			1.96	0.992		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	2.51	1.191	3.724	0.000***	2.20	1.146	0.666	0.506
			male	2.29	1.166			2.13	1.057		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	2.88	1.235	6.235	0.000***	3.00	1.453	-0.149	0.881
			male	2.50	1.207			3.02	1.536		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	2.74	1.200	-1.299	0.194	2.51	1.421	-1.909	0.057
			male	2.82	1.193			2.76	1.477		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	2.76	1.141	-0.938	0.349	2.03	0.987	0.222	0.824
			male	2.82	1.194			2.00	1.110		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	2.87	1.140	5.083	0.000***	1.88	1.079	1.811	0.071
			male	2.57	1.178			1.73	0.743		
	Average		female	2.70	0.820	3.814	0.000***	2.33	0.599	1.301	0.194
			male	2.56	0.829			2.27	0.470		
2. Experience of Gender Barriers (E.G.B.)	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	2.08	1.063	3.146	0.002**	2.27	0.813	4.698	0.000***
			male	1.91	1.026			1.92	0.759		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	2.21	1.083	4.714	0.000***	2.38	1.089	2.734	0.007**
			male	1.96	1.037			2.14	0.710		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	2.50	1.190	3.108	0.002**	2.54	1.149	-1.941	0.053
			male	2.32	1.149			2.73	1.008		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	2.37	1.176	2.094	0.036*	2.52	0.927	1.404	0.161
			male	2.25	1.123			2.40	0.884		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	2.17	1.087	4.935	0.000***	2.31	1.035	6.758	0.000***
			male	1.90	1.123			1.74	0.686		
	6	Women in STEM being in trouble or leaving work due to her Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	2.81	1.103	5.089	0.000***	2.91	1.039	1.398	0.163
			male	2.51	1.181			2.78	1.104		
	Average		female	2.35	0.820	3.944	0.000***	2.49	0.651	3.718	0.000***
			male	2.20	0.855			2.29	0.498		

2) Survey on Gender barriers Among APNN & ARN Member Countries: Overall Average

(Unit: Point)

Classifications		Question	Network	APNN				ARN			
			sex	average	standard deviation	t	*(p)*	average	standard deviation	t	*p*
3. Career Outlook (C.O.)	1	I believe things will turn out fine in the future career for women in STEM	female	3.82	1.011	-4.511	0.000***	4.41	0.985	0.710	0.478
			male	4.03	0.944			4.34	1.049		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.**(N.S.P)**	female	3.99	1.037	3.785	0.000***	4.36	0.898	3.509	0.000***
			male	3.78	1.114			4.02	1.199		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	3.70	0.975	7.862	0.000***	3.84	1.331	2.610	0.009**
			male	3.25	1.269			3.51	1.442		
5. Perception of Gender Role Stereotype (P.G.S.)	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	3.07	1.249	4.163	0.000***	2.63	1.400	2.371	0.018*
			male	2.81	1.233			2.34	1.296		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	3.71	1.261	7.259	0.000***	2.20	1.352	-0.811	0.418
			male	3.25	1.260			2.30	1.285		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	3.39	1.322	3.596	0.000***	1.66	1.116	1.754	0.080
			male	3.15	1.275			1.49	0.930		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	3.73	1.396	4.133	0.000***	2.18	1.372	0.760	0.448
			male	3.45	1.334			2.09	1.152		
	Average		female	3.47	1.039	5.861	0.000***	2.17	0.948	1.472	0.142
			male	3.18	1.023			2.05	0.662		
6. Perception of Gender Equity (P.G.E.)	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	2.24	1.217	-2.706	0.007**	2.20	1.099	-0.687	0.493
			male	2.42	1.233			2.26	1.077		

2) Survey on Gender barriers Among APNN & ARN Member Countries: Overall Average

(Unit: Point)

Classifications		Question	Network	APNN				ARN			
			sex	average	standard deviation	t	*(p)*	average	standard deviation	t	*p*
7. Perception of Gender Equality for study and research Environment (P.G.B. Env)	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	2.42	1.051	5.404	0.000***	2.03	1.110	0.472	0.637
			male	2.13	1.053			1.98	1.078		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	2.41	1.145	7.311	0.000***	1.65	0.892	2.024	0.044*
			male	2.01	0.979			1.51	0.541		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	2.26	1.027	3.776	0.000***	2.93	1.378	-0.999	0.318
			male	2.06	1.069			3.07	1.568		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	2.45	1.041	5.814	0.000***	1.81	1.020	1.054	0.293
			male	2.14	1.023			1.73	0.743		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	2.68	1.161	8.053	0.000***	3.84	1.257	3.518	0.000***
			male	2.22	1.096			3.42	1.330		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	3.10	1.386	7.632	0.000***	3.60	1.442	0.202	0.840
			male	2.59	1.217			3.57	1.535		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	2.75	1.209	-0.665	0.506	3.66	1.125	2.212	0.027*
			male	2.79	1.221			3.42	1.208		
	Average		female	2.58	0.771	7.970	0.000***	2.79	0.624	1.975	0.049*
			male	2.28	0.719			2.67	0.683		

Note: ***p<.001, **p<.01, *p<.05

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers: Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers: Higher score means more experiences of gender barrier in STEM
3. Career Outlook for Women in STEM: Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers': Higher score means more agreement (reverse coded)

5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype

6. Perception of Gender Equity: Higher score means higher perception or understanding of gender equity
7. Perception of Gender Barrier for study & research environment: Higher score means higher perception (7-7 was reverse coded)

3) Survey on Gender barriers Among APNN & ARN Member Countries: Average by Nation and by indicators

(Unit: Point)

		P.G.B.[a]		E.G.B.[b]		C.O.[c]		N.S.P.[d]		P.G.S.[e]		P.G.E.[f]		P.G.B. Env.[g]	
		female	male	female	male	female	male	female	male	female	male	female	male	female	male
ALL	**APNN**	2.70	2.56	2.35	2.20	3.82	4.03	3.99	3.78	3.47	3.18	2.24	2.42	2.58	2.28
	ARN	2.33	2.27	2.49	2.29	4.41	4.34	4.36	4.02	2.17	2.05	2.20	2.26	2.79	2.67
	t	7.200	6.860	-2.543	-2.415	-7.345	-4.449	-4.890	-2.962	17.028	20.879	0.451	1.786	-3.995	-8.045
	p	.000***	.000***	.011*	.016*	.000***	.000***	.000***	.004**	.000***	000***	.652	.075	.000***	.000***
APNN	**Nepal**	2.78	2.23	2.70	2.15	4.17	4.85	4.67	4.35	3.96	3.41	1.63	1.94	2.53	1.89
	New Zealand	2.85	2.50	2.17	1.85	3.86	4.40	4.26	3.62	4.60	4.00	1.64	1.83	2.90	2.42
	Taiwan	2.16	1.93	2.04	2.12	4.34	4.40	4.44	4.36	3.79	3.11	1.79	2.11	2.11	1.95
	Mongolia	2.69	2.65	2.28	1.96	4.33	3.91	4.18	3.77	3.00	2.79	2.13	2.62	2.53	2.54
	Bangladesh	2.51	2.42	2.55	2.55	3.90	4.36	4.10	4.11	3.42	2.85	1.73	2.20	2.69	2.38
	Vietnam	3.19	2.88	2.74	2.95	3.23	3.51	2.67	3.70	2.87	2.91	3.74	2.92	2.99	2.88
	Sri Lanka	2.29	2.37	2.76	3.68	3.86	4.50	4.35	4.00	3.54	3.28	1.86	2.40	2.58	1.76
	Japan	2.22	2.52	1.75	1.54	3.37	3.61	3.82	3.39	3.60	3.51	2.19	2.61	2.07	1.87
	Pakistan	3.21	3.09	2.50	1.94	4.03	4.30	4.38	3.98	2.81	2.62	1.90	2.32	2.79	2.12
	South Korea	2.86	2.49	2.51	1.84	3.46	3.65	4.00	3.13	4.17	3.76	2.49	2.55	2.83	2.28
	Average[h]	2.70	2.56	2.35	2.20	3.82	4.03	3.99	3.78	3.47	3.18	2.24	2.42	2.58	2.28
	F [i]	47.073	21.346	26.731	30.939	18.311	29.569	43.995	13.175	49.995	18.941	66.134	6.323	25.428	36.317
	sig [i]	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***
ARN	**Nigeria**	2.26	2.27	2.45	2.41	4.32	4.15	4.14	3.83	1.83	1.94	2.56	2.25	2.89	2.97
	Uganda	2.19	2.27	2.67	1.99	4.73	4.85	4.81	4.49	2.40	2.33	1.58	2.55	2.40	1.90
	Kenya	2.68	2.25	2.51	1.89	4.50	4.85	4.80	4.62	3.13	2.41	1.40	1.81	2.72	1.81
	Average	2.33	2.27	2.49	2.29	4.41	4.34	4.36	4.02	2.17	2.05	2.20	2.26	2.79	2.67
	F [i]	3.413	0.008	0.873	14.744	4.271	30.315	28.812	14.171	21.468	3.339	36.738	6.934	5.859	161.16
	sig [i]	.042*	.992	.452	.000***	.017*	000***	.000***	000***	.000***	.043*	.000***	.002**	.005**	.000***

Note: ***p<.001, **p<.01, *p<.05

[a] Perception of Gender Barriers in STEM
[b] Direct/Indirect Experience of Gender Barriers in STEM
[c] Women Career Outlook in STEM
[d] Need for Support policy to overcome gender barrier in STEM
[e] Perception of Gender Equity
[f] Perception of Gender Stereotype
[g] Perception of Gender Barriers for the study and research environment in STEM
[h] Excluding data from Malaysia and India. In other tables APNN average includes both Malaysia and India.
[i] Welchi test, as robust ANOVA was applied to analyze the differences between countries, according to variable sample sizes by country.

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Current Status of Human Resource Development in APNN and ARN

1. Introduction

As low fertility rate and aging of population are getting worse, Korea has entered the aged society in 2017 and is estimated to enter the super-aged society in 2026, according to Statistics Korea. The aged society is defined by the elderly (65 or older) population exceeding 14% and the super-aged society by that exceeding 20%. It took only 17 years to transit from the aging society, which is defined by the elderly population exceeding 7%, to aged society and is expected to take 26 years from the aging to super-aged society in Korea. This transition rates are the fastest in the world, considering that it took 24 years in Japan to transit from the aging to the aged society and about 100 years in the United States and the United Kingdom to transit from the aging to the super-aged society. As a result, the economically actable population of ages from 15 to 64 was declined for the first time last year in Korea. It is no doubt that Korea's economy is facing great risks.

It is well-known that the educational heat of Korean parents is excessive. The excessive heat of education has caused many social problems, but it has also brought gender equality in education. According to the Global Gender Gap Report 2017 by the WEF, 96% of the gender gap in education attainment is closed in Korea. On the other hand, labour force participation rate turns out to be 55.9% for women, which is only 73% of the rate for men. The labour force participation rates for highly educated women and men are higher than the overall rates, as easy to expect. However, the gender gap in labour force participation rate becomes much wider for highly educated population than the one for the all economically active population. Interestingly, the negative factor provides the solution for the decline in Korean workforce, caused by rapid aging and low birth rate. The solution is certainly a sufficient utilization of highly educated women. It is regrettable that it has been a constantly proposed solution for the past decade but has not yet been fully realized. Nevertheless, we can not stop our efforts. It has been a highly challenging task to encourage highly educated women to participate more actively in economic activities. Social and structural inequalities in gender lie at the base of the low labour force participation rate of women. This research series continues to approach the social and structural issues using an analysis of international indices measuring human resources development and a survey on gender barriers, specially in science and engineering fields.

The current status of human resources development by country based on the aforementioned international indices is examined in Chapter 2. Our concern of the international indices related to human resources development are Human Development Index (HDI), Inequality-adjusted Human Development Index (IHDI), Gender Development Index (GDI) by the United Nations Development Program (UNDP) and the Global Gender Gap Index (GGI) by the World Economic Forum (WEF). Special analyses on status of human development are performed for 36 member countries of the Organization for Economic Co-operation and Development

(OECD), 13 member countries of the Asia and Pacific Nations Network (APNN) and 12 member countries of the Africa Regional Network (ARN) under the International Network of Women Engineers and Scientists (INWES). At the first time the analysis is classified for the ARN in this report and the analysis on those indices has been updated every two years since 2014.

Chapter 3 presents a summary of the survey on gender barrier in science and engineering fields among APNN and ARN member countries and Chapter 4 provides briefly the survey's overall results by key classification of questionnaire and country. The detailed analysis on each question are collected in the Appendix by country. 1,604 respondents participated from Bangladesh, India, Japan, Korea, Malaysia, Mongolia, Nepal, New Zealand, Pakistan, Sri Lanka, Taiwan and Vietnam, which are 12 out of 13 APNN member countries, and 490 respondents participated from Kenya, Nigeria and Uganda out of 12 ARN member countries. The ARN member countries participated in this 2018 survey for the first time. The joint survey within the APNN has been conducted since 2014. Focusing on the gender barriers since 2016, the questionnaire was asked for women in 2016, for men in 2017, and for female and male students majoring in science and engineering in 2018. The gender barrier refers to the existence and experiences of gender discrimination that function as hindrances to gender equality. This includes institutional or customary barriers and conscious or unconscious barriers. Specific examples are traditional gender role stereotypes, unfairness in employment and promotion, work-life balance and responsibility for family and other unfair treatment. To access gender barriers in STEM fields, the survey was broadly classified into perception of gender barriers, direct or indirect experience of gender barriers, perception on policy to overcome gender barriers, perception of gender equality and perception of gender equality for study and research environment. Three consecutive surveys on the same subject for different respondent sectors such as women professionals, men professionals and future professionals in science and engineering fields are expected to suggest meaningful results. The joint survey has been opening up more opportunities for countries in the Asia-Pacific region and now in the Africa region to share methods of nurturing and utilizing female scientists and engineers. This report closes in Chapter 5 with conclusion and suggestions.

2. Current Status of Human Resources Development by Nation

This chapter provides a brief overview of human development based on the Human Development Report 2016 by the UN and the Global Gender Gap Report 2017 by the WEF. We summarize, for this purpose, all the composite indices of the Human Development Index (HDI), the Inequality-adjusted Human Development Index (IHDI), the Gender Development Index (GDI), the Gender Inequality Index (GII), and the Gender Gap Index (GGI). The current status of human resources development is reviewed among the member countries of the OECD, APNN INWES, and ARN INWES through these indices. Such an analysis has been done every two years since 2014. The description for the composite indices are not changed as before, however, this report of 2018 includes the IHDI for the first time in our analysis. The status of human development among the member countries of the ARN INWES is also reviewed for the first time since the ARN participates in the KWSE survey 2018 on the gender barrier.

The UNESCO Institute for Statistics (UIS) presents regional profiles of women in science according to the latest data. We will also briefly review the UIS data on women scientists in all fields and only in STEM. The USI offers wonderful visualization about the latest data for the countries around the world in this link, http://uis.unesco.org/apps/visualisations/women-in-science/#overview!view=map&region=40515.

2.1 Human Development Index by the UNDP

2.1.1 HDI composition and cross-country comparison

The "technical notes" of the Human Development Report 2016 describes that the Human Development Index (hereinafter referred to as "HDI") is a summary measure of achievements in three key dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living. For the health dimension, life expectancy is chosen as an indicator. For the education dimension, expected years of schooling and mean years of schooling are chosen as indicators. Gross national income per capita is the indicator for the standard living dimension. Data sources for the measurement are from UNDESA (2015), UIS (2016), UNICEF, IMF (2016), UNSD (2016), and World Bank (2106). The HDI is designed to have a value between 0 and 1; the higher HDI translates to the greater achievement in human development. To transform the indicators on a scale of 0 to 1, minimum and maximum values are set as in the Table 2-1. The dimension indices are calculated as:

$$I = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}} .$$

For the education dimension which has two indicators, the arithmetic mean is

taken. Then the HDI is calculated as the geometric mean of the three dimension indices: $HDI = \left(I_{\text{Health}} I_{\text{Education}} I_{\text{Income}}\right)^{1/3}$.

<Table 2-1 The indicators of HDI>

Dimension	Indicator	Min	Max	Description
Health	Life expectancy	20	85	Life expectancy at birth assuming that the death rate will be maintained as when one was born
Education	Expected years of schooling	0	18	Years that a 5-year-old child will spend with his education in his whole life
	Mean years of schooling	0	15	Years that a 25-year-old person or older has spent in schools
Standard of living	Gross national income per capita (2011 PPP $)	100	75,000	Measured based on Purchasing Power Parity (PPP)

According to the following cutoff values of the HDI, 188 countries divide into four groups: very high human development for $HDI \geq 0.800$, high human development for $0.799 \geq HDI \geq 0.700$, medium human development for $0.699 \geq HDI \geq 0.550$, and low human development for $HDI < 0.550$. Table 2-2 presents the country ranks by 2015 HDI values and the values of four HDI indicators for several countries in each group. The APNN member countries are shaded and the ARN member countries are check-shaded in the table.

Norway's rank of HDI value is 1 out of 188 countries, topping the list of countries for the 13th consecutive year. The HDI value of Norway, 0.949 is significantly larger than both the average of 0.892 for very high human development group and the average of 0.887 for OECD countries. Compared to Norway's HDI value of 0.849 for 1990, there was an increase of 11.8% between 1990 and 2015.

Australia which is one of the APNN member countries follows Norway in the list with the HDI value of 0.939. Among the APNN member countries shaded (orange in color-version) in Table 2-2, Australia, New Zealand, Japan and Korea are in the group of very high human development. Japan's HDI value is 0.903 ranked at 17 and increased 1.35% compared to the value for 2014. Korea's HDI value is 0.901 ranking it at 18. The value increased from 0.731 to 0.901 between 1990 and 2015 which was an increase of 23.3%. Table 2-3 shows Korea's HDI trends since 1990. It is noticeable that the GNl per capita increased by 186.3% for 25 years. Malaysia, Sri Lanka and Mongolia are in the group of high human development. Nepal and Pakistan, which belonged to the group of low human development in 2014, moved up to the group of medium human development in 2015.

Among the ARN member countries, Algeria's HDI value is highest and grouping in the high human development. Botswana, Ghana and Kenya positioned in the group of medium human development.

<Table 2-2 HDI and its components by nation (2015)>

(HDI=1: highest human development)

Rank /188	Country	HDI value	Life expectancy at birth (years)	Expected years of schooling (years)	Mean years of schooling (years)	Gross National Income per capita (2011 PPP $)
Very high human development (*HDI* ≥ 0.800): average HDI value of 0.892						
1	Norway	0.949	81.7	17.7	12.7	67,614
2	Australia	0.939	82.5	20.4	13.2	42,822
2	Switzerland	0.939	83.1	16.0	13.4	56,364
4	Germany	0.926	81.1	17.1	13.2	45,000
5	Denmark	0.925	80.4	19.2	12.7	44,519
5	Singapore	0.925	83.2	15.4	11.6	78,162
7	Netherlands	0.924	81.7	18.1	11.9	46,326
8	Ireland	0.923	81.1	18.6	12.3	43,798
9	Iceland	0.921	82.7	19.0	12.2	37,065
10	Canada	0.920	82.2	16.3	13.1	42,582
10	United States	0.920	79.2	16.5	13.2	53,245
13	New Zealand	0.915	82.0	19.2	12.5	32,870
14	Sweden	0.913	82.3	16.1	12.3	46,251
16	United Kingdom	0.909	80.8	16.3	13.3	37,931
17	Japan	0.903	83.7	15.3	12.5	37,268
18	Korea	0.901	82.1	16.6	12.2	34,541
21	France	0.897	82.4	16.3	11.6	38,085
26	Italy	0.887	83.3	16.3	10.9	33,573
36	Poland	0.855	77.6	16.4	11.9	24,117
44	Latvia	0.830	74.3	16.0	11.7	22,589
51	Kuwait	0.800	74.5	23.3	7.3	76,075
High human development (0.799 ≥ *HDI* ≥ 0.700): average HDI value of 0.746						
59	Malaysia	0.789	74.9	13.1	10.1	24,620
73	Sri Lanka	0.766	75.0	14.0	10.9	10,789
83	Algeria	0.745	75.0	14.4	7.8	13,533
90	China	0.738	76.0	13.5	7.6	13,345
92	Mongolia	0.735	69.8	14.8	9.8	10,449
Medium human development (0.699 ≥ *HDI* ≥ 0.550): average HDI value of 0.631						
108	Botswana	0.698	64.5	12.6	9.2	14,663
115	Viet Nam	0.683	75.9	12.6	8.0	5,335
131	India	0.624	68.3	11.7	6.3	5,663
139	Bangladesh	0.579	72	10.2	5.2	3,341
139	Ghana	0.579	61.5	11.5	6.9	3,839
144	Nepal	0.558	70.0	12.2	4.1	2,337
146	Kenya	0.555	62.2	11.1	6.3	2,881
147	Pakistan	0.550	66.4	8.1	5.1	5,031
Low human development (0.550 > *HDI*): average HDI value of 0.497						
151	Tanzania	0.531	65.5	8.9	5.8	2,467
152	Nigeria	0.527	53.1	10.0	6.0	5,443
153	Cameroon	0.518	56.0	10.4	6.1	2,894
162	Senegal	0.494	66.9	9.5	2.8	2,250
163	Uganda	0.493	59.2	10.0	5.7	1,670
175	Mali	0.442	58.5	8.4	2.3	2,218
177	Liberia	0.427	61.2	9.9	4.4	683
185	Burkina Faso	0402	59.0	7.7	1.4	1,537
(27)	Taiwan[a)]	(0.885)				

[a)]Taiwan's data from http://eng.stat.gov.tw/ct.asp?xItem=25280&ctNode=6032&mp=5

APNN member countries

ARN member countries

(Source: UNDP Human Development Report 2016)

<Table 2-3 Korea's trends in HDI and its components (1990~2015)>

(HDI=1: highest human development)

Year	HDI value	Life expectancy at birth (years)	Expected years of schooling (years)	Mean years of schooling (years)	Gross National Income per capita (2011 PPP $)
1990	0.731	71.7	13.7	8.9	12,064
1995	0.781	73.9	14.7	10.0	16,733
2000	0.820	76.1	15.9	10.6	20,602
2005	0.860	78.7	16.7	11.4	25,340
2010	0.884	80.8	16.7	11.8	30,475
2011	0.889	81.1	16.8	11.8	31,498
2012	0.891	81.3	16.7	11.9	32,213
2013	0.896	81.6	16.6	12.2	32,911
2014	0.899	81.9	16.6	12.2	33,741
2015	0.901	82.1	16.6	12.2	34,541

(Source: UNDP Human Development Report 2016)

2.1.2 Cross-country comparison of the IHDI

The Inequality-adjusted HDI (hereinafter referred to as "IHDI") was introduced in the Human Development Report 2010 to take into account inequality in all three dimensions of the HDI. Following the report, the inequality measure(A) is defined as a deviation of the ratio of geometric mean (g) to arithmetic mean(a) of the distribution from 1 ($A=1-g/a$). The IHDI is then defined as the geometric mean of the three dimensions adjusted by the inequality measures, $IHDI=\left[(1-A_{\text{Health}})(1-A_{\text{Education}})(1-A_{\text{Income}})\right]^{1/3}HDI$. Hence the IHDI shows how the average achievements in human development of a country are distributed among its residents. The 'loss(%)' due to inequality is given by $(HDI-IHDI)/HDI\times 100$. Note that the IHDI does not avoid overlapping inequality.

Table 2-4 contains the IHDI value and the loss due to inequality for the countries in Table 2-2. Norway's rank of IHDI value is still 1 out of 151 countries, not changed from the rank of HDI value. The 2nd rank is positioned by Iceland with a loss of only 5.8% due to inequality. Iceland's rank of HDI value is 9 out of 188. The average loss due to inequality for the group of very high human development is 11.1% which is slightly less than 12.6% for OECD. Korea's IHDI for 2015 is 0.753. Comparing to HDI of 0.901 yields a serious loss of 16.4% due to inequality in human development. Japan shows a loss of 12.4% which is about the average for OECD.

The average loss for the APNN member countries turns out to be 19.3%. Among the APNN member countries, Australia takes the least loss of 8.2% and Sri Lanks follows next with the loss of 11.6%. The average loss of 32.8% is for the ARN member countries revealing a significant inequality in human development. The least loss due to inequality among the ARN member countries comes to Tanzania with the loss of 25.4%.

<Table 2-4 IHDI and its components by nation (2015)>

(IHDI=1: highest human development)

HDI rank /188	IHDI rank /151[a)]	Country	HDI value	IHDI value	Loss[b)] (%)	Inequality-adjusted Life expectancy index $(1-A_{Health})I_{Health}$	Inequality-adjusted Education index $(1-A_{Education})I_{Education}$	Inequality-adjusted Income index $(1-A_{income})I_{income}$
Very high human development ($HDI \geq 0.800$): average HDI value of 0.892								
1	1	Norway	0.949	0.898	5.4	0.918	0.894	0.882
2	3	Australia	0.939	0.861	8.2	0.921	0.921	0.753
2	5	Switzerland	0.939	0.859	8.6	0.934	0.840	0.806
4	5	Germany	0.926	0.859	7.2	0.905	0.891	0.787
5	7	Denmark	0.925	0.858	7.2	0.894	0.896	0.789
5	-	Singapore	0.925	-	-	0.943	-	-
7	3	Netherlands	0.924	0.861	6.9	0.914	0.859	0.812
8	9	Ireland	0.923	0.850	7.9	0.905	0.883	0.769
9	2	Iceland	0.921	0.868	5.8	0.937	0.884	0.789
10	11	Canada	0.920	0.839	8.9	0.912	0.856	0.755
10	19	United States	0.920	0.796	13.5	0.856	0.850	0.692
13	-	New Zealand	0.915	-	-	0.910	-	-
14	8	Sweden	0.913	0.851	6.7	0.928	0.826	0.806
16	13	United Kingdom	0.909	0.836	8.0	0.894	0.871	0.752
17	21	Japan	0.903	0.791	12.4	0.948	0.675	0.774
18	33	Korea	0.901	0.753	16.4	0.920	0.645	0.720
21	18	France	0.897	0.813	9.4	0.921	0.776	0.752
26	25	Italy	0.887	0.784	11.5	0.945	0.734	0.696
36	27	Poland	0.855	0.774	9.5	0.840	0.806	0.685
44	36	Latvia	0.830	0.742	10.6	0.780	0.803	0.653
51	-	Kuwait	0.800	-	-	0.779	-	-
High human development ($0.799 \geq HDI \geq 0.700$): average HDI value of 0.746								
59	-	Malaysia	0.789	-	-	0.788	-	-
73	46	Sri Lanka	0.766	0.678	11.6	0.778	0.656	0.610
83	-	Algeria	0.745	-	-	0.689	-	-
90	-	China	0.738	-	-	0.784	-	-
92	56	Mongolia	0.735	0.639	13.0	0.635	0.668	0.616
Medium human development ($0.699 \geq HDI \geq 0.550$): average HDI value of 0.631								
108	103	Botswana	0.698	0.433	37.9	0.542	0.447	0.335
115	76	Viet Nam	0.683	0.562	17.8	0.738	0.508	0.472
131	97	India	0.624	0.454	27.2	0.565	0.324	0.512
139	110	Bangladesh	0.579	0.412	28.9	0.639	0.287	0.380
139	115	Ghana	0.579	0.391	32.5	0.442	0.358	0.377
144	111	Nepal	0.558	0.407	27.0	0.618	0.267	0.410
146	115	Kenya	0.555	0.391	29.5	0.440	0.400	0.339
147	117	Pakistan	0.550	0.380	30.9	0.479	0.220	0.523
Low human development ($0.550 > HDI$): average HDI value of 0.497								
151	112	Tanzania	0.531	0.396	25.4	0.525	0.315	0.374
152	130	Nigeria	0.527	0.328	37.8	0.301	0.270	0.432
153	122	Cameroon	0.518	0.348	32.8	0.335	0.322	0.391
162	128	Senegal	0.494	0.331	33.1	0.541	0.196	0.340
163	124	Uganda	0.493	0.341	30.9	0.388	0.330	0.309
175	140	Mali	0.442	0.293	33.7	0.353	0.182	0.393
177	141	Liberia	0.427	0.284	33.4	0.424	0.242	0.224
185	146	Burkina Faso	0402	0.267	33.6	0.377	0.161	0.313
(27)	-	Taiwan[c)]	(0.885)	-	-	-	-	-

[a)] 151 countries among 188 have relevant data to discount for inequalities.
[b)] Loss due to inequality(%) $= (HDI - IHDI)/HDI \times 100$.
[c)] Taiwan's data from http://eng.stat.gov.tw/ct.asp?xItem=25280&ctNode=6032&mp=5

APNN member countries
ARN member countries

(Source: UNDP Human Development Report 2016)

2.1.3 Cross-country comparison of the GDI

The Gender Development Index (hereinafter referred to as GDI) is a measure of gender inequality in three dimensions of the HDI and defined simply as the ratio of female HDI to male HDI. Hence $GDI = HDI_{female} / HDI_{male}$. According to the absolute deviation of GDI from 1 which means 'gender parity', $d(\%) = |1 - GDI| \times 100$, countries are classified in five groups. Group 1 of high equality is for $d \leq 2.5\%$, group 2 of medium-high equality for $2.5\% < d \leq 5\%$, group 3 of medium equality for $5\% < d \leq 7.5\%$, group 4 of medium-low equality for $7.5\% < d \leq 10\%$, group 5 of low equality for $d > 10\%$.

The GDI is calculated for 160 countries in 2015. The GDI values and groups for the same countries in Table 2-2 are listed in Table 2-5. Most countries achieved the very high human development in the HDI are classified as the groups 1 and 2 in the GDI. Exceptions are Saudi Arabia that is classified as the group 5, Malta as group 4, Netherlands and Korea as group 3. It is worth to comment on Finland that is not included in Table 2-5. Finland's HDI rank is 23 with 0.895 of the HDI value, but the GDI value is perfectly one indicating no absolute deviation from gender parity. Poland, Latvia, Mongolia, and Viet Nam in the table show the GDI values larger than 1, hence $HDI_{female} > HDI_{male}$ for those countries unlike others. Interestingly, the absolute deviation (d) is larger than 2.5% for Latvia and Mongolia classified as the group 2. In all countries, the GNI for female is much less than the GNI for male as easily expected.

Despite its 18th position in the HDI, Korea is classified as the group 3 in GDI, indicating that female HDI value 0.863 is much lower than male HDI value 0.929. The absolute deviation for Korea is $d = 7.1\%$ that is much higher than $d = 3.0\%$ for Japan. Mean years of schooling for female, 11.5 years, are significantly shorter than those for male, 12.9 years in Korea. Expected years of schooling in Korea are also shorter for female (15.8 years) than for male (17.3 years). Considering that almost every countries in very high human development show longer years of schooling for female than for male, the situation in Korea amazingly reveals the gender inequality in education dimension.

Among the APNN member countries, India and Pakistan are classified as the group 5 in GDI with the absolute deviation $d = 18.1\%$ and $d = 25.8\%$, respectively. Nepal is in the border of group 4 with $d = 7.5\%$. Bangladesh with the absolute deviation $d = 7.3\%$ and Sri Lanka with $d = 6.6\%$ are also classified as the group 3 like Korea. For Mongolia and Viet Nam, as mentioned above, the female HDI values exceed the male HDI values. The absolute deviation $d = 1.0\%$ is for Viet Nam positioning in the group 1, on the other hand, $d = 2.6\%$ is for Mongolia positioning in the group 2.

Most of the ARN member countries are classified as the group 5 in the GDI indicating not only poor human development but also severe gender inequality in human development. Botswana is exceptionally classified as the group 1 with the absolute deviation $d = 1.6\%$.

<Table 2-5 GDI and its components by nation (2015)>

(GDI=1: Gender parity)

Rank /188	Country	GDI		HDI value		Life expectancy at birth (years)		Expected years of schooling (years)		Mean years of schooling (years)		Gross National Income per capita (2011 PPP $)	
		Value	Group	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Very high human development (*HDI* ≥ 0.800): average HDI value of 0.892													
1	Norway	0.993	1	0.944	0.951	83.7	79.7	18.3	17.1	12.8	12.7	59,800	75,317
2	Australia	0.978	1	0.927	0.948	84.6	80.5	20.9	20.0	13.4	13.0	34,271	51,386
2	Switzerland	0.974	2	0.926	0.951	85.1	81.0	16.0	16.1	13.3	13.5	46,798	66,116
4	Germany	0.964	2	0.908	0.942	83.4	78.7	16.9	17.3	12.9	13.6	35,878	54,440
5	Denmark	0.970	2	0.910	0.938	82.3	78.5	20.0	18.4	12.6	12.9	36,854	52,293
5	Singapore	0.985	1	0.913	0.927	86.2	80.1	15.5	15.3	11.1	12.1	60,787	96,001
7	Netherlands	0.946	3	0.895	0.946	83.5	79.9	18.2	18.1	11.6	12.2	30,117	62,773
8	Ireland	0.976	1	0.99	0.931	83.1	79.0	18.6	18.6	12.5	11.9	33,497	54,135
9	Iceland	0.965	2	0.905	0.938	84.2	81.2	20.1	17.9	12.2	12.6	30,530	43,576
10	Canada	0.983	1	0.911	0.926	84.1	80.2	16.8	15.9	13.3	12.9	33,288	52,026
10	United States	0.993	1	0.915	0.922	81.6	76.9	17.3	15.8	13.2	13.2	42,272	64,410
13	New Zealand	0.963	2	0.896	0.930	83.7	80.3	20.0	18.5	12.6	12.5	24,413	41,718
14	Sweden	0.997	1	0.909	0.911	84.0	80.6	16.6	15.1	12.4	12.2	40,328	52,181
16	United Kingdom	0.964	2	0.890	0.924	82.7	78.9	16.7	15.9	13.2	13.4	26,324	49,872
17	Japan	0.970	2	0.887	0.914	86.9	80.4	15.2	15.5	12.6	12.4	25,385	49,818
18	Korea	0.929	3	0.863	0.929	85.2	78.8	15.8	17.3	11.5	12.9	21,308	47,934
21	France	0.988	1	0.892	0.902	85.2	79.4	16.6	15.9	11.5	11.8	31,742	44,776
26	Italy	0.963	2	0.865	0.899	85.7	80.9	16.7	15.9	10.5	11.0	22,910	44,844
36	Poland	1.006	1	0.857	0.852	81.5	73.6	17.2	15.5	11.9	12.0	18,928	29,658
44	Latvia	1.025	2	0.840	0.820	79.0	69.3	16.6	15.5	12.0	11.6	18,824	27,031
51	Kuwait	0.972	2	0.769	0.791	75.9	73.6	13.6	12.4	7.4	6.9	35,164	107,991
High human development (0.799 ≥ *HDI* ≥ 0.700): average HDI value of 0.746													
59	Malaysia	--	--	--	--	77.3	72.6	--	--	10.0	10.8	17,170	32,208
73	Sri Lanka	0.934	3	0.734	0.785	78.4	71.7	14.3	13.6	10.3	11.4	6,067	15,869
83	Algeria	0.854	5	0.665	0.779	77.5	72.7	14.6	14.1	6.6	8.5	4,022	22,926
90	China	0.954	2	0.718	0.753	77.5	74.5	13.7	13.4	7.2	7.9	10,705	15,830
92	Mongolia	1.026	2	0.744	0.725	74.2	65.6	15.5	14.2	10.0	9.5	8,809	12,122
Medium human development (0.699 ≥ *HDI* ≥ 0.550): average HDI value of 0.631													
108	Botswana	0.984	1	0.693	0.704	66.9	62.2	12.8	12.5	9.2	9.5	13,278	16,050
115	Viet Nam	1.010	1	0.687	0.681	80.6	71.2	12.9	12.5	7.9	8.2	4,834	5,846
131	India	0.819	5	0.549	0.671	69.9	66.9	11.9	11.3	4.8	8.2	2,184	8,897
139	Bangladesh	0.927	3	0.556	0.599	73.3	70.7	10.4	9.9	5.0	5.6	2,379	4,285
139	Ghana	0.899	5	0.545	0.606	62.5	60.5	11.1	11.7	5.8	7.9	3,200	4,484
144	Nepal	0.925	4	0.538	0.582	71.5	68.6	12.7	12.2	3.2	5.0	1,979	2,718
146	Kenya	0.919	4	0.531	0.577	64.1	60.3	10.8	11.4	5.7	7.0	2,357	3,405
147	Pakistan	0.742	5	0.452	0.610	67.4	65.4	7.4	8.8	3.7	6.5	1,498	8,376
Low human development (0.550 > *HDI*): average HDI value of 0.497													
151	Tanzania	0.937	3	0.512	0.546	66.9	64.1	8.3	9.3	5.4	6.2	2,359	2,576
152	Nigeria	0.847	5	0.482	0.569	53.4	52.7	9.2	10.8	4.9	7.1	4,132	6,706
153	Cameroon	0.853	5	0.474	0.555	57.1	54.8	9.6	11.3	4.6	7.4	2,340	3,448
162	Senegal	0.886	5	0.464	0.523	68.8	64.9	9.2	9.7	2.1	3.6	1,706	2,814
163	Uganda	0.878	5	0.459	0.523	61.1	57.3	9.9	10.1	4.5	6.8	1,266	2,075
175	Mali	0.786	5	0.385	0.491	58.3	58.6	7.5	9.4	1.7	3.0	1,349	3,071
177	Liberia	0.830	5	0.387	0.466	62.2	60.2	9.3	10.6	3.1	6.0	575	788
185	Burkina Faso	0.874	5	0.375	0.429	60.3	57.6	7.3	8.1	1.0	2.0	1,278	1,800
	Taiwan[a)]												

[a)]Taiwan's data from http://eng.stat.gov.tw/ct.asp?xItem=25280&ctNode=6032&mp=5

APNN member countries

ARN member countries

(Source: UNDP Human Development Report 2016)

As mentioned above, Korea's HDI value belongs to the group of very high human development, but the gender inequality in the HDI turns out to be strikingly severe even in education dimension. Examining more indices regarding the gender inequality could lead to some effective policies to reduce the gender gap. For this purpose the Gender Inequality Index (hereinafter referred to as GII) by the UNDP and the Gender Gap Index (hereinafter referred to as GGI) by the WEF will be reviewed in the following two sections.

2.2 Gender Inequality Index by the UNDP

The GII was introduced by the UNDP in 2010 in order to improve the shortcomings of the GDI and the Gender Empowerment Measure (GEM). The GDI was briefly reviewed in the previous section and the GEM, which was not mentioned specifically, is an index reflecting female participation in political activities and decision-making, economic activities and decision-making, and female share of income. The GEM is not treated here, but this section examines the GII composition and the current status of member countries of the OECD, the APNN, and the ARN.

2.2.1 GII composition

The GII consists of three dimensions and five indicators as listed in Table 2-6. Three dimensions measuring gender inequality are reproductive health, empowerment and the labour market. Two indicators of the maternal mortality ratio and adolescent birth rate measure the reproductive health. Empowerment is measured also by two indicators of the female share of seats in parliament and the male and female populations with at least some secondary education. The indicator of the labour force participation rate by gender measures the labour market dimension. The higher GII value indicates the greater inequality between men and women.

Note that the GII does not include income as one of the indicators and is designed to have the higher values for indicators that present the higher correlation to gender inequality. These are sometimes pointed out as a weakness of the GII.

<Table 2-6 The indicators of GII>

Dimension	Indicator	Description
Reproductive Health	Maternal mortality ratio	Number of deaths due to pregnancy-related causes per 100,000 live births
	Adolescent birth rate	Number of births to women ages 15~19 per 1,000 women ages 15~19
Empowerment	Share of seats in parliament	Proportion of seats held by women in the national parliament expressed as percentage of total seats
	Population with at least some secondary education	Percentage of the population ages 25 and older that has reached (but not necessarily completed) a secondary level of education
Labour Market	Labour force participation rate	Proportion of the working-age population (ages 15 and older) that engages in the labour market, either by working or actively looking for work, expressed as a percentage of the working-age population

2.2.2 Comparison of the GII among OECD member countries

The GII can be understood as the loss in human development due to gender inequality. Table 2-7 presents the GII status of the OECD member countries in 2015. The GII takes a value between 0 and 1, with 0 meaning complete gender equality and with 1 meaning complete gender inequality.

<Table 2-7 GII and its components for OECD (2015)>

(GII=0: complete gender-equality)

UN rank /159	OECD rank /36[a)]	Country	GII value	Maternal mortality ratio	Adolescent birth rate	Share of seats in parliament % held by women	Population with at least some secondary education[b)]		Labour force participation rate	
							Female	Male	Female	Male
1	1	Switzerland	0.040	5	2.9	28.9	96.1	97.4	62.7	74.8
2	2	Denmark	0.041	6	4.0	37.4	89.1	98.5	58.0	66.2
3	3	Netherlands	0.044	7	4.0	36.4	86.2	90.3	57.5	70.2
4	4	Sweden	0.048	4	5.7	43.6	87.8	88.3	60.9	68.2
5	5	Iceland	0.051	3	6.1	41.3	100.0	97.2	70.7	77.5
6	6	Norway	0.053	5	5.9	39.6	96.1	94.6	61.2	68.5
6	6	Slovenia	0.053	9	3.8	27.7	96.5	98.3	52.2	63.0
8	8	Finland	0.056	3	6.5	41.5	100.0	100.0	55.0	62.1
9	9	Germany	0.066	6	6.7	36.9	96.4	97.0	54.5	66.4
10	10	Korea	0.067	11	1.6	16.3	88.8	94.6	50.0	71.8
12	11	Belgium	0.073	7	8.2	42.4	80.1	84.7	48.2	59.3
13	12	Luxembourg	0.075	10	5.9	28.3	100.0	99.4	52.2	66.1
14	13	Austria	0.078	4	7.1	30.3	98.7	99.2	54.7	66.0
15	14	Spain	0.081	5	8.4	38.0	70.9	76.7	52.3	64.8
16	15	Italy	0.085	4	6.0	30.1	79.1	83.3	39.3	58.1
17	16	Portugal	0.091	10	9.9	34.8	50.8	52.2	53.6	64.2
18	17	Canada	0.098	7	9.8	28.3	100.0	100.0	61.0	70.3
19	18	France	0.102	8	8.9	25.7	79.7	85.5	50.7	60.1
20	19	Israel	0.103	5	9.7	26.7	87.3	90.3	58.9	69.4
21	20	Japan	0.116	5	4.1	11.6	93.0	90.6	49.1	70.2
23	21	Greece	0.119	3	7.5	19.7	63.7	71.7	43.9	60.0
24	22	Australia	0.120	6	14.1	30.5	91.4	91.5	58.6	70.9
25	23	Lithuania	0.121	10	11.0	23.4	91.1	95.6	53.9	65.5
26	24	Ireland	0.127	8	10.4	19.9	86.8	82.2	52.4	67.8
27	25	Czech Republic	0.129	4	9.9	19.6	99.8	99.8	51.1	68.2
28	26	Estonia	0.131	9	13.1	23.8	100.0	100.0	55.4	69.5
28	26	United Kingdom	0.131	9	14.6	26.7	81.3	84.6	56.9	68.7
30	28	Poland	0.137	3	13.4	24.8	81.1	86.9	49.1	65.3
34	29	New Zealand	0.158	11	23.6	31.4	98.8	98.7	62.4	73.1
39	30	Slovakia	0.179	6	20.2	18.7	99.2	99.5	51.4	68.3
41	31	Latvia	0.191	18	13.6	18.0	99.3	98.8	54.4	67.7
43	32	United States	0.203	14	22.6	19.5	95.4	95.1	56.0	68.4
49	33	Hungary	0.252	17	18.0	10.1	95.6	97.9	46.4	62.5
65	34	Chile	0.322	22	47.8	15.8	76.1	76.9	50.7	74.6
69	35	Turkey	0.328	16	27.6	14.9	43.5	64.8	30.4	71.4
73	36	Mexico	0.345	38	62.8	40.6	56.1	59.0	45.4	79.5
Average		OECD	0.194	15	22.4	27.7	84.2	86.9	51.1	68.6

[a)]Lithuania became a full member of the OECD since July 2018 so that the number of member countries is now 36.
[b)]Data refer to the most recent year available during 2005~2015.

(Source: UNDP Human Development Report 2016)

Compared to 2014, the GII values and ranks for Slovenia, Germany and Austria are significantly changed in 2015. The GII values for Slovenia, Germany

and Austria are increased from 0.016 to 0.052, from 0.041 to 0.066 and from 0.053 to 0.078, respectively. Also the GII ranks for Slovenia, Germany and Austria are dropped from 1 to 6, from 3 to 9 and from 5 to 14. Interestingly, these countries showed increased adolescent birth rates in 2015 compared to 2014. For instance, the adolescent birth rate of Slovenia is increased from 0.6 in 2014 to 3.8 in 2015.

Korea's GII value is greatly lowered from 0.125, positioning 23th among 155 countries in 2014, to 0.067, ranking 10th among 159 countries and also among 36 OECD countries in 2015. This value, 0.067 is much lower than the average value, 0.194 of the OECD and the average value, 0.174 of the group of very high HDI. The reason for reducing the loss in human development due to gender inequality turns out to be a significantly reduced maternal mortality ratio from 27 to 11. The maternal mortality ratio is defined as the annual number of female deaths per 100,000 live births due to any cause related to pregnancy. Korea's maternal mortality ratio was very high among the OECD member countries for a long time. It is needed to closely monitor the future trend to analyze whether Korea's maternal mortality ratio in 2015 is peculiar and spontaneous or not. Though the overall GII value presents the gender inequality reduced in Korea, female participation in the labour market is still only 50.0% compared to 71.8% for men.

Latvia which became a member of the OECD in 2016 and Lithuania which became a member in 2018 have GII values of 0.191 and 0.121, respectively. The GII ranks of Latvia and Lithuania among OECD member countries are 41 and 23, respectively. In Finland, Canada and Estonia, amazingly, all female and male population ages 25 and older have reached a secondary level of education.

2.2.3 Comparison of the GII among APNN member countries

Table 2-8 shows the GII status of the APNN member countries, in increasing order of gender inequality, in 2015. Recent trends of the GII values and ranks for three year are also listed in Table 2-9. As mentioned above, Korea's GII value is reduced significantly in 2015 so that it is the lowest among the APNN member countries. Although the rapidly decreased maternal mortality ratio is the main reason for the low value of the GII, the maternal mortality ratio for Korea is higher than the ratio for Japan. Japan's GII value is steadily decreasing with very low maternal mortality ratio. The female labour force participation rates for Korea and Japan are 50.0% and 49.1%, respectively. The male labour force participation rates for Korea and Japan are 71.8% and 70.2%, respectively. Hence the participations in labour market for both countries are very similar. Mongolia's GII can be analyzed as a decreasing trend recent years. On the other hand, Malaysia' GII is increased abruptly in 2015 compared to in 2014.

The adolescent birth rates for Vietnam, Pakistan, Nepal and Bangladesh are 38.6, 38.7, 71.9 and 83.0, respectively. Most countries of the APNN show also very large maternal mortality ratio. For instance, in Nepal, 258 women die from pregnancy related causes for every 100,000 live births. Bangladesh, India

and Pakistan show more than 170 deaths due to pregnancy related causes. The percentages of parliamentary seats held by women are relatively high in New Zealand, Australia, Nepal and Vietnam with 31.4%, 30.5%, 29.5% and 24.3%, respectively. In Korea, only 16.3% of parliamentary seats are held by women. Nepal and Vietnam show high female participation rates in labour market which are 79.7% and 73.8%, compared to 86.8% and 83.2% for men, respectively. In this analysis, Taiwan's data is not compared to other member countries because they are measured by Taiwanese government based on the UNDP methodology.

<Table 2-8 GII and its components for APNN (2015)>

(GII=0: complete gender-equality)

UN rank /159	APNN rank /13	Country	GII value	Maternal mortality ratio	Adolescent birth rate	Share of seats in parliament % held by women	Population with at least some secondary education[b]		Labour force participation rate	
							Female	Male	Female	Male
10	1	Korea	0.067	11	1.6	16.3	88.8	94.6	50.0	71.8
21	2	Japan	0.116	5	4.1	11.6	93.0	90.6	49.1	70.2
24	3	Australia	0.120	6	14.1	30.5	91.4	91.5	58.6	70.9
34	4	New Zealand	0.158	11	23.6	31.4	98.8	98.7	62.4	73.1
53	5	Mongolia	0.278	44	15.7	14.5	89.7	85.8	56.5	68.8
59	6	Malaysia	0.291	40	13.6	13.2	75.4	79.1	49.3	77.6
71	7	Vietnam	0.337	54	38.6	24.3	64.0	76.7	73.8	83.2
87	8	Sri Lanka	0.386	30	14.8	4.9	80.2	80.6	30.2	75.6
115	9	Nepal	0.497	258	71.9	29.5	24.1	41.2	79.7	86.8
119	10	Bangladesh[a]	0.520	176	83.0	20.0	42.0	44.3	43.1	81.0
125	11	India	0.530	174	24.5	12.2	35.3	61.4	26.8	79.1
130	12	Pakistan	0.546	178	38.7	20.0	26.5	46.1	24.3	82.2
Average		APNN	0.324	83	28.7	19.0	67.4	74.2	50.3	76.7
(9)	(1)	Taiwan[b]	(0.058)							

[a]Bangladesh has been an INWES APNN member country since 2015.
[b]Taiwan's data were determined by the Taiwanese government based on the UNDP methodology.
(source: http://eng.stat.gov.tw/ct.asp?xItem=25280&ctNode=6032&mp=5)

(Source: UNDP Human Development Report 2016)

<Table 2-9 Recent trends of GII for APNN (2013~2015)>

(GII=0: complete gender-equality)

Country	2013 (152 countries)		2014 (155 countries)		2015 (159 countries)	
	Rank	Value	Rank	Value	Rank	Value
Australia	19	0.113	19	0.110	24	0.120
Bangladesh[a]	142	0.529	111	0.503	119	0.520
India	127	0.563	130	0.563	125	0.530
Japan	25	0.138	26	0.133	21	0.116
Korea	17	0.101	23	0.125	10	0.067
Malaysia	39	0.210	42	0.209	59	0.291
Mongolia	54	0.320	63	0.325	53	0.278
Nepal	98	0.479	108	0.489	115	0.497
New Zealand	34	0.185	32	0.157	34	0.158
Pakistan	127	0.563	121	0.536	130	0.546
Sri Lanka	75	0.383	72	0.370	87	0.386
Taiwan[b]	(5)	(0.055)	(5)	(0.052)	(9)	(0.058)
Vietnam	58	0.322	60	0.308	71	0.337

[a]Bangladesh has been an INWES APNN member country since 2015.
[b]Taiwan's data were determined by the Taiwanese government based on the UNDP methodology.
(source: http://eng.stat.gov.tw/ct.asp?xItem=25280&ctNode=6032&mp=5)

(source: UNDP Human Development Report 2016)

2.2.4 Recent trends in Korea's GII

Korea's GII values and ranks have been a zig-zag pattern, as shown in Table 2-10, but overall, the gender inequality tends to be lower. The maternal mortality ratio and the adolescent birth rate have been reduced. The female share of seats in parliament has been slowly increased, and yet it is much less than the average percentages for the OECD and the UN member countries.

<Table 2-10 GII trends in Korea from 2008 to 2015>

(GII=0: complete gender-equality)

Year	GII		Reproductive Health		Empowerment			Labour Market	
	UN Rank	Value	Maternal mortality ratio	Adolescent birth rate	Share of seats in parliament % held by women	Population with at least some secondary education		Labour force participation rate	
						Female	Male	Female	Male
2008	20/138	0.310	14	5.5	13.7	79.4	91.7	54.4	75.6
2011	11/146	0.111	18	2.3	14.7	79.4	91.7	50.1	72.0
2012	27/148	0.153	16	5.8	15.7	79.4	91.7	49.2	71.4
2013	17/152	0.101	16	2.2	15.7	77.0	89.1	49.9	72.0
2014	23/155	0.125	27	2.2	16.3	77.0	89.1	50.1	72.1
2015	10/159	0.067	11	1.6	16.3	88.8	94.6	50.0	71.8
2015(OECD)	-	0.194	15	22.4	27.7	84.2	86.9	51.1	68.6
2015(UN)	-	0.443	216	44.7	22.5	60.3	69.2	49.6	76.2

(Source: UNDP Human Development Report 2010~2016)

The female population with at least some secondary education for Korea is 88.8%, which is higher than 84.2%, the average of the OECD member countries and much higher than 60.3%, the average of the UN countries. On the other hand, the female labour force participation rate for Korea, 50.0%, is about the average rates for the OECD and the UN countries. It can be interpreted as highly educated Korean women are not actively participating in the labour market. Note that the dimension of labour market for Korea does not show any improvement in gender equality, compared to other dimensions.

2.2.5 Comparison of the GII among ARN member countries

Table 2-11 shows the GII status of the ARN member countries, in increasing order of gender inequality, in 2015. The average of the ARN's GII is 0.545. Algeria and Botswana show relatively low values of 0.429 and 0.435, respectively. In Botswana, 85.1% of women have reached at least some secondary education compared to 86.7% of men. All the ARN member countries except Botswana show quite low female and male populations with at least some secondary education. The average populations with at least some secondary education of the ARN are 27.9% for women and 36.0% for men. On the other hand, the labour force participation rates turn out to be relatively high. The average rates of the labour force participation are 61.1% for women and 77.1% for men. It is very peculiar that female participation in the labour market is only 16.8% compared to 70.4% for men in Algeria. The highest female participation in the labour market among the ARN is 82.3% marked by Uganda.

<Table 2-11 GII and its components for ARN (2015)>

(GII=0: complete gender-equality)

UN rank /159	ARN rank /13	Country	GII value	Maternal mortality ratio	Adolescent birth rate	Share of seats in parliament % held by women	Population with at least some secondary education		Labour force participation rate	
							Female	Male	Female	Male
94	1	Algeria	0.429	140	10.6	25.7	34.1	35.7	16.8	70.4
95	2	Botswana	0.435	129	32.3	9.5	85.1	86.7	73.4	81.3
120	3	Senegal	0.521	315	78.6	42.7	10.2	19.2	45.0	70.0
121	4	Uganda	0.522	343	111.9	35.0	25.9	32.1	82.3	87.7
129	5	Tanzania	0.544	398	118.6	36.0	10.1	15.3	74.0	83.3
131	6	Ghana	0.547	319	66.8	10.9	51.8	68.5	75.5	78.5
135	7	Kenya	0.565	510	90.9	20.8	27.8	34.1	62.1	72.1
138	8	Cameroon	0.568	596	104.6	27.1	31.7	37.9	71.0	81.1
146	9	Burkina Faso	0.615	371	108.5	9.4	6.0	11.5	76.6	90.7
150	10	Liberia	0.649	725	108.8	10.7	17.3	39.7	58.0	63.9
156	11	Mali	0.689	587	174.6	8.8	7.3	16.2	50.1	82.3
-	-	Nigeria	-	814	110.6	5.8	-	-	48.4	64.0
Average		ARN	0.545	437	93.0	20.2	27.9	36.0	61.1	77.1

(Source: UNDP Human Development Report 2016)

All the ARN member countries exhibit very high adolescent birth rates and maternal mortality ratios. The average adolescent birth rate is 93.0 births per 1,000 women of ages 15-19. On average 437 women die from pregnancy related causes for every 100,000 live births. Algeria and Botswana show much lower adolescent birth rate and maternal mortality ratio among the ARN. 20.2% of parliamentary seats are held by women on average and it is lower than the UN average 22.5% and the OECD average 27.7% but higher than Korea's 16.3%. In Senegal, 42.7% of parliamentary seats are held by women, while only 5.8% of parliamentary seats are held by women in Nigeria.

2.3 Summary on HDI, IHDI, GDI, and GII for APNN and ARN

Sections 2-1 and 2-2 examined four specific indices on human resources development reported by the UNDP, which are Human Development Index, Inequality-adjusted Human Development Index, Gender Development Index, and Gender Inequality Index. Current status of human resources development for the APNN and the ARN member countries measured by these four indices is summarized in Table 2-12.

Most countries of low HDI values show relatively large loss in human development due to inequality, low GDI values indicating that female HDI is less than male HDI, and high GII values measuring high gender inequality. As pointed out previously, Korea has an individual human development higher than those of many other countries, however, the loss in human development due to inequality is quite high. Korea's GDI is also low positioning in the group 3. Among the APNN and the ARN member countries, Australia, Vietnam and Botswana positioned in the group 1 of GDI. The status of GDI is not parallel

to the status of GII. For instance, Australia placed in the group 1 of GDI is ranked at 24 in GII, while Korea placed in the group 3 of GDI is ranked at 10 in GII. As mentioned before, the GDI is simply the ratio of female HDI value to male HDI value so that it could not be seriously understood as the status of gender equality in human development.

<Table 2-12 HDI, IHDI, GDI, and GII for APNN and ARN (2015)>

(HDI or IHDI=1: most developed, GDI=1: complete equality, GII=0: complete equality)

	Country	UNDP HDI		UNDP IHDI[a)]		UNDP GDI		UNDP GII	
		2015 (188 countries)		2015 (151 countries)		2015 (160 countries)		2015 (159 countries)	
		Rank	Value	Loss(%)[b)]	Value	Group[c)]	Value	Rank	Value
APNN	Australia	2	0.939	8.2	0.861	1	0.978	24	0.120
	Bangladesh[d)]	139	0.579	28.9	0.412	3	0.927	119	0.520
	India	131	0.624	27.2	0.454	5	0.819	125	0.530
	Japan	17	0.903	12.2	0.791	2	0.970	21	0.116
	Korea	18	0.901	15.9	0.753	3	0.929	10	0.067
	Malaysia	59	0.789	-	-	-	-	59	0.291
	Mongolia	92	0.735	13.0	0.639	2	1.026	53	0.278
	Nepal	144	0.558	27.0	0.407	4	0.925	115	0.497
	New Zealand	13	0.915	-	-	2	0.963	34	0.158
	Pakistan	147	0.550	30.9	0.380	5	0.742	130	0.546
	Sri Lanka	73	0.766	11.6	0.678	3	0.934	87	0.386
	Taiwan[e)]	(27)	(0.885)	-	-	-	-	(9)	(0.058)
	Vietnam	115	0.683	17.8	0.562	1	1.010	71	0.337
ARN	Algeria	83	0.745	-	-	5	0.854	94	0.429
	Botswana	108	0.698	37.9	0.433	1	0.984	95	0.435
	Burkina Faso	185	0.402	33.6	0.267	5	0.874	146	0.615
	Cameroon	153	0.518	32.8	0.348	5	0.853	138	0.568
	Ghana	139	0.579	32.5	0.391	5	0.899	131	0.547
	Kenya	146	0.555	29.5	0.391	4	0.919	135	0.565
	Liberia	177	0.427	33.4	0.284	5	0.830	150	0.649
	Mali	175	0.442	33.7	0.293	5	0.786	156	0.689
	Nigeria	152	0.527	37.8	0.328	5	0.847		
	Senegal	162	0.494	33.1	0.331	5	0.886	120	0.521
	Tanzania	151	0.531	25.4	0.396	3	0.937	129	0.544
	Uganda	163	0.493	30.9	0.341	5	0.878	121	0.522

[a)] IHDI = Inequality-adjusted Human Development Index
[b)] Loss due to inequality(%) $= (HDI - IHDI)/HDI \times 100$.
[c)] Group 1 is for $x \leq 2.5$, Group 2 for $2.5 < x \leq 5.0$, Group 3 for $5.0 < x \leq 7.5$, Group 4 for $7.5 < x \leq 10.0$, and Group 5 for $10.0 < x$, where $x = |GDI - 1| \times 100$ is the absolute deviation of GDI from gender parity.
[d)] Bangladesh has been an INWES APNN member country since 2015.
[e)] Taiwan's data were determined by the Taiwanese government based on the UNDP and WEF methodology. (source: http://eng.stat.gov.tw/ct.asp?xItem=25280&ctNode=6032&mp=5)

(source: UNDP Human Development Report 2016, WEF Global Gender Gap Report 2017)

2.4 Global Gender Gap Index by the WEF

The GGI, reported by the World Economic Forum every year, measures gender gaps in economy, education, health and politics for each country. Measuring the GGI is to focus on closing the gender gap in a country rather than on improving female rights and empowerment as the GDI and GII by the UNDP. In this section the composition of the GGI is discussed and the GGI values among different sectors are compared to each other.

2.4.1 GGI composition and data source

Table 2-13 summarizes the structure of the global GGI consisting of four subindices and fourteen variables. All variables except wage equality measure the ratios of female value over male value.

<Table 2-13 Structure of the global GGI>

Subindex	Variable	Weight	Source
Economic Participation and Opportunity	Ratio: female labour force participation over male value	0.199	International Labour Organization
	Wage equality between women and men for similar work (normalized on a 0-to-1 scale)	0.310	World Economic Forum
	Ratio: female estimated earned income over male value	0.221	World Economic Forum
	Ratio: female legislators, senior officials and managers over male value	0.149	International Labour Organization
	Ratio: female professional and technical workers over male value	0.121	International Labour Organization
	Weight Total	1	
Educational Attainment	Ratio: female literacy rate over male value	0.191	UNESCO Institute for Statistics
	Ratio: female net primary enrolment rate over male value	0.459	UNESCO Institute for Statistics
	Ratio: female net secondary enrolment rate over male value	0.230	UNESCO Institute for Statistics
	Ratio: female gross tertiary enrolment ratio over male value	0.121	UNESCO Institute for Statistics
	Weight Total	1	
Health and Survival	Sex ratio at birth (converted to female-over-male ratio)	0.693	Central Intelligence Agency
	Ratio: female healthy life expectancy over male value	0.307	World Health Organization
	Weight Total	1	
Political Empowerment	Ratio: females with seats in parliament over male value	0.310	Inter-Parliamentary Union
	Ratio: females at ministerial level over male value	0.247	Inter-Parliamentary Union
	Ratio: number of years of a female head of state (last 50 years) over male value	0.443	World Economic Forum
	Weight Total	1	

(source: UNDP Human Development Report 2016, WEF Global Gender Gap Report 2017)

The Global Gender Gap Report 2017 emphasizes three underlying concepts on the global GGI. First of all, the GGI measures gender gaps rather than levels by intentionally dissociating the index from countries' levels of development. As the second concept, the report points that the GGI captures gaps in outcome variables rather than gaps in input variables. The input variables are indicators related to country-specific policies, rights, culture or customs, while economic participation, education, health and political empowerment are the outcome variables. Finally, the GGI ranks countries according to gender equality rather than women's empowerment. This means that the case of women outperforming men are treated the same as the case of outcomes for women equal to those for men. Hence the case of women outperforming men are neither rewarded nor penalized.

The subindex of economic participation and opportunity consists of five indicators measuring the gender gaps in participation, remuneration and advancement. Education attainment subindex captures the gender gaps in current access to education and literacy rate. In health and survival category, the sex ratio at birth and the gender gap in life expectancy are measured. The subindex of political empowerment measuring the gender gaps in ministerial positions, parliamentary positions and prime minister or president is certainly not capturing the gender gap at local levels of government. As seen in Table 2-13, the variables in each subindex possess different weights. For instance, the variable of wage equality between women and men for similar work is much more weighted than the variable of female professional and technical workers over male value in the category of economic participation and opportunity. The variable of female net primary enrolment rate over male value and the variable of sex ratio at birth are most highly weighted in categories of education attainment and health and survival, respectively.

2.4.2. Recent trends in subindices of the global GGI

The Global Gender Gap Report 2017 covers 144 countries and Table 2-14 shows a global snapshot of the GGI on average. The gap of 68% is closed worldwide across the four subindices. It means that a gap to be closed is 32%, which is slightly higher than 31.7% of the gap in last year. The gap to be closed in health and survival subindex is only 4%, unchanged since last year. The gap between men and women in education attainment is about 5% which is slightly decreased from last year. However, only 58% of the economic participation and opportunity gap and 23% of the political empowerment gap have been closed. Moreover the economic participation and opportunity gap has been reversely progressed for two consecutive years.

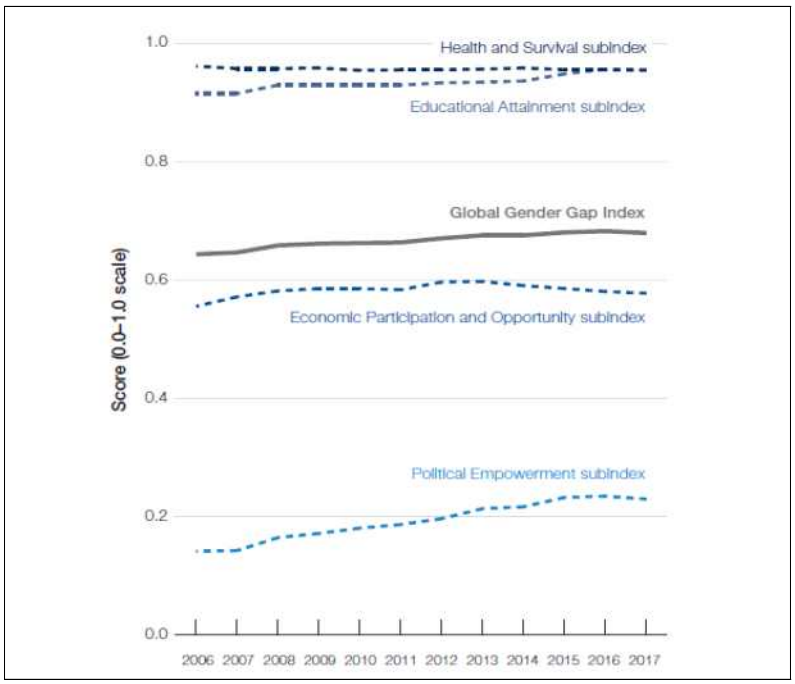
<Table 2-14 The global snapshot of GGI (2017)>

144 countries	GGI	Economic Participation and Opportunity	Education Attainment	Health and Survival	Political Empowerment
Gap to be closed (%)	32	42	5	4	77

(source: WEF Global Gender Gap Report 2017)

Since the first edition of the Global Gender Gap Report was published in 2006, 106 countries have consistently been participated in the index. Figure 2-1 shows the yearly changes in the GGI and its subindices based on those 106 countries' data. The Report 2017 expects that it takes 100 years to close the overall global gender gap, under current conditions and trends. The time to close the education attainment gap is estimated as 13 years. The gender gap in the political empowerment is widest but shows the most progress last decade. On current trends, it could be 99 years to close the political empowerment gap. The worst thing happens in the economic dimension. The economic gender gap widens continuously since 2013 and the gap in 2017 has reverted back to that in 2008. In this trends, the economic gender gap is expected to take 217 years to be closed. Interestingly, the Report 2017 says that the time to close the gap in health and survival subindex remains undefined.

<Figure 2-1 Global GGI and subindices evolution (2006~2017)>



(source: WEF Global Gender Gap Report 2017, Figure 6)

2.4.3. Comparison of the GGI among OECD member countries

Table 2-15 presents the 2017 GGI of 36 OECD member countries with rankings and scores for each dimension. The rankings are based on 144 countries. The GII rankings reported by the UNDP among 159 countries are also provided to emphasize the importance of index design and concept. As previously mentioned, the GGI measures gender gaps in each country rather than levels. Hence the GGI is intentionally dissociated from countries' levels of development. On the other hand, the GII measurement is strongly associated with the countries' levels of development. The biggest discrepancy between the GGI and the GII ranks occurs in Korea, which ranks at 10 in the GII but at 118 in the GGI.

<Table 2-15 GGI ranks and scores for OECD countries (2017)>

(GGI=1: fully closed gap)

GII UN Rank /159	GGI OECD Rank /36[a)]	Country	GGI (/144)		Economic Participation and Opportunity		Education Attainment		Health and Survival		Political Empowerment	
			Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value
5	1	Iceland	1	0.878	14	0.798	57	0.995	114	0.969	1	0.750
6	2	Norway	2	0.830	8	0.816	38	0.999	80	0.973	4	0.530
8	3	Finland	3	0.823	16	0.793	1	1.00	46	0.978	5	0.519
4	4	Sweden	5	0.816	12	0.809	37	0.999	112	0.969	8	0.486
6	5	Slovenia	7	0.805	13	0.801	1	1.000	1	0.980	11	0.440
26	6	Ireland	8	0.794	50	0.710	1	1.000	96	0.971	6	0.493
34	7	New Zealand	9	0.791	23	0.768	43	0.998	115	0.969	12	0.430
19	8	France	11	0.778	64	0.683	1	1.000	54	0.997	9	0.453
9	9	Germany	12	0.778	43	0.720	98	0.970	70	0.975	10	0.447
2	10	Denmark	14	0.776	36	0.728	1	1.000	95	0.971	16	0.406
28	11	United Kingdom	15	0.770	53	0.705	36	0.999	100	0.971	17	0.404
18	12	Canada	16	0.769	29	0.744	1	1.000	105	0.970	20	0.361
41	13	Latvia	20	0.756	15	0.798	1	1.000	1	0.980	41	0.246
1	14	Switzerland	21	0.755	31	0.743	63	0.993	90	0.972	28	0.314
15	15	Spain	24	0.746	81	0.657	45	0.998	81	0.973	22	0.354
25	16	Lithuania	28	0.742	28	0.749	1	1.000	1	0.980	42	0.241
12	17	Belgium	31	0.739	46	0.716	1	1.000	63	0.976	37	0.264
3	18	Netherlands	32	0.737	82	0.657	1	1.000	108	0.970	25	0.323
17	19	Portugal	33	0.734	35	0.730	70	0.992	55	0.977	43	0.240
24	20	Australia	35	0.731	42	0.724	1	1.000	104	0.970	48	0.232
28	21	Estonia	37	0.731	38	0.726	1	1.000	36	0.979	52	0.218
30	22	Poland	39	0.728	55	0.702	31	1.000	1	0.980	49	0.230
20	23	Israel	44	0.721	65	0.681	1	1.000	98	0.971	47	0.232
43	24	United States	49	0.718	19	0.776	1	1.000	82	0.973	96	0.124
14	25	Austria	57	0.709	80	0.660	84	0.988	72	0.975	54	0.216
13	26	Luxembourg	59	0.706	76	0.667	1	1.000	86	0.973	66	0.184
65	27	Chile	63	0.704	117	0.573	39	0.999	47	0.978	36	0.266
39	28	Slovakia	74	0.694	79	0.662	1	1.000	1	0.980	89	0.135
23	29	Greece	78	0.692	73	0.670	76	0.991	89	0.973	88	0.136
73	30	Mexico	81	0.692	124	0.518	53	0.996	58	0.977	34	0.276
16	31	Italy	82	0.692	118	0.571	60	0.995	123	0.967	46	0.234
27	32	Czech Republic	88	0.688	92	0.643	1	1.000	1	0.980	91	0.130
49	33	Hungary	103	0.670	68	0.675	68	0.992	36	0.979	138	0.035
21	34	Japan	114	0.657	114	0.580	74	0.991	1	0.980	123	0.078
10	35	Korea	118	0.650	121	0.533	105	0.960	84	0.973	90	0.134
69	36	Turkey	131	0.625	128	0.471	101	0.965	59	0.977	118	0.088
OECD Average				0.740		0.693		0.995		0.975		0.296

[a)]Lithuania became a full member of the OECD since July 2018 so that the number of member countries is now 36.

(Source: WEF Global Gender Gap Report 2017)

Seven countries among the OECD members are positioned in the top 10 list of the world GGI. These top countries perform outstandingly on the political empowerment compared to both the world and the OECD averages. Top five countries in the Table 2-15 show that more than 80% of their gender gaps are closed. Iceland has been the first for nine years in a row, closing almost 88% of the overall gender gap. Closing 75% of the political empowerment gap in Iceland is quite remarkable, if considering that only 57.6% of the gap in the next top country (Nicaragua) is closed.

75% of the OECD members have a remaining gender gap of less than 30% and about 47%, 17 countries, have fully closed the gap in the education attainment subindex. Among these 17 countries, Czech Republic, Latvia, Lithuania, Slovakia (officially Slovak Republic) and Slovenia are amazingly positioned at the first rank on both the health and survival subindex and the education attainment subindex. On the other hand, four countries, which are Hungary, Japan, Korea and Turkey, mark the rankings below 100, yielding a large discrepancy between the GII and the GGI. These four countries show much wider gaps in all subindices than the OECD average, except Japan's health and survival gap.

2.4.4. Comparison of the GGI among APNN member countries

The 2017 GGI of 13 APNN member countries with rankings and scores for each dimension are listed in Table 2-16. New Zealand performs best as usual by closing the overall gender gap up to 79% and by closing 43% of the political empowerment gap. Australia fully closed the gender gap in education attainment subindex, but only 23% is closed in the gap of political empowerment subindex. Japan, Mongolia and Sri Lanka are positioned at the first rank in the health and survival subindex by closing 98% of the gap. Japan and Korea show a very similar characteristics that they perform outstandingly in the GII but very poorly in the GGI. As mentioned before, the GGI does not measure a level of an individual country, hence highly developed country like Japan or Korea can exhibit a relatively wide gender gap. Japan opens about 34% of overall gender gap and Korea does 35%. Both countries show the widest gap in the political empowerment subindex.

<Table 2-16 GGI ranks and scores for APNN countries (2017)>

(GGI=1: fully closed gap)

GII UN Rank /159	GGI APNN Rank /13	Country	GGI (/144)		Economic Participation and Opportunity		Education Attainment		Health and Survival		Political Empowerment	
			Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value
24	3	Australia	35	0.731	42	0.724	1	1.000	104	0.970	48	0.232
119	4	Bangladesh	47	0.719	129	0.465	111	0.954	125	0.966	7	0.493
125	8	India	108	0.669	139	0.376	112	0.952	141	0.942	15	0.407
21	11	Japan	114	0.657	114	0.580	74	0.991	1	0.980	123	0.078
10	12	Korea	118	0.650	121	0.533	105	0.960	84	0.973	90	0.134
59	7	Malaysia	104	0.670	87	0.654	77	0.991	53	0.977	133	0.058
53	5	Mongolia	53	0.713	20	0.776	65	0.993	1	0.980	107	0.102
115	10	Nepal	111	0.664	110	0.599	116	0.936	116	0.969	80	0.155
34	1	New Zealand	9	0.791	23	0.768	43	0.998	115	0.969	12	0.430
130	13	Pakistan	143	0.546	143	0.309	136	0.802	140	0.948	95	0.127
87	9	Sri Lanka	109	0.669	123	0.521	86	0.986	1	0.980	65	0.188
(9)	(2)	Taiwan[a)]	(33)	(0.734)	-	-	-	-	-	-	-	-
71	6	Vietnam	69	0.698	33	0.738	97	0.972	138	0.957	97	0.124
APNN Average[b)]				0.681		0.587		0.961		0.968		0.211

[a)]Taiwan's data were determined by the Taiwanese government based on the UNDP and WEF methodology. (source: http://eng.stat.gov.tw/ct.asp?xItem=25280&ctNode=6032&mp=5)

[b)]Taiwan's data are not included in the average calculation.

(Source: WEF Global Gender Gap Report 2017)

About half of the APNN countries are positioned at lower than 100 in the GGI rankings, by closing roughly 65% of the overall gender gap except Pakistan where about 55% of the gap is closed. The GGI rankings and values of the APNN countries for last four years from 2014 to 2017 are given in Table 2-17. Australia's gender gap has been slightly widened, while New Zealand's gap has been slightly reduced. However, there has been no noticeable changes for last four years. Note that Taiwan's data were determined by the Taiwanese government based on the UNDP and WEF methodology.

<Table 2-17 The GGI of APNN countries in 2014~2017>

(GGI=1: fully closed gap)

Country	WEF Global Gender Gap Index							
	2014 (142 countries)		2015 (145 countries)		2016 (144 countries)		2017 (144 countries)	
	Rank	Value	Rank	Value	Rank	Value	Rank	Value
Australia	24	0.741	36	0.733	46	0.721	35	0.731
Bangladesh	68	0.697	64	0.704	72	0.698	47	0.719
India	114	0.646	108	0.664	87	0.683	108	0.669
Japan	104	0.658	101	0.670	111	0.660	114	0.657
Korea	117	0.640	115	0.651	116	0.649	118	0.650
Malaysia	107	0.652	111	0.655	106	0.666	104	0.670
Mongolia	42	0.721	56	0.709	58	0.705	53	0.713
Nepal	112	0.646	110	0.658	110	0.661	111	0.664
New Zealand	13	0.777	10	0.782	9	0.781	9	0.791
Pakistan	141	0.552	144	0.559	143	0.556	143	0.546
Sri Lanka	79	0.690	84	0.686	100	0.673	109	0.669
Taiwan[a)]	(50)	(0.714)	(79)	(0.690)	-	-	(33)	(0.734)
Vietnam	76	0.692	83	0.687	65	0.700	69	0.698

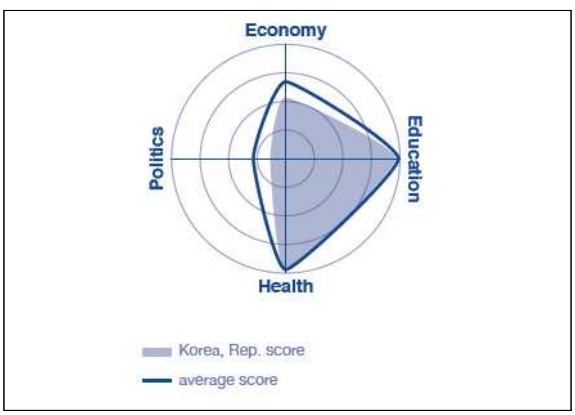
[a)] Taiwan's data were determined by the Taiwanese government based on the UNDP and WEF methodology.
(source: http://eng.stat.gov.tw/ct.asp?xItem=25280&ctNode=6032&mp=5)

(source: WEF Global Gender Gap Report 2014~2017)

2.4.5 Recent trends in Korea's GGI

Korea's global GGI scores in 2017 can be seen at glance in Figure 2-2. The shaded area indicates a connected Korea's scores of four subindices of the

<Figure 2-2 Korea's GGI at glance (2017)>



(source: WEF Global Gender Gap Report 2017, p.198)

GGI and the solid line guides the world average scores. Economy and politics dimensions show quite wide gender gaps to be closed. The gaps in economic participation and opportunity and political empowerment subindices are closed only 53.3% and 13.4% which are less than the world average 58.0% and 23.0%, respectably. On the other hand, education attainment score is slightly less than the world average and health and survival score is about the average.

<Table 2-18 GGI evolution of Korea (2006~2017)>

(GGI=1: fully closed gap)

Year (Number of participating countries)	GGI (/144)		Economic Participation and Opportunity		Education Attainment		Health and Survival		Political Empowerment	
	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value
2006 (115)	92	0.616	96	0.481	82	0.948	94	0.967	84	0.067
2007 (128)	97	0.641	90	0.580	94	0.949	106	0.967	95	0.067
2008 (130)	108	0.615	110	0.487	99	0.937	107	0.967	102	0.071
2009 (134)	115	0.615	113	0.520	109	0.894	80	0.973	104	0.071
2010 (134)	104	0.634	111	0.520	100	0.947	79	0.973	86	0.097
2011 (135)	107	0.628	117	0.493	97	0.948	78	0.974	90	0.097
2012 (135)	108	0.636	116	0.509	99	0.959	78	0.973	86	0.101
2013 (136)	111	0,635	118	0.504	100	0.959	75	0.973	86	0.105
2014 (142)	117	0,640	124	0.512	103	0.965	74	0.973	93	0.112
2015 (145)	115	0.651	125	0.557	102	0.965	79	0.973	101	0.107
2016 (144)	116	0.649	123	0.537	102	0.964	76	0.973	92	0.120
2017 (144)	118	0.650	121	0.533	105	0.960	84	0.973	90	0.134
Changes ('17 - '06)		0.034		0.052		0.012		0.006		0.067

[a)]Taiwan's data were determined by the Taiwanese government based on the UNDP and WEF methodology. (source: http://eng.stat.gov.tw/ct.asp?xItem=25280&ctNode=6032&mp=5)

(Source: WEF Global Gender Gap Report 2006 ~ 2017)

Table 2-18 shows the evolution of Korea's GGI for last 12 years since 2006 when the WEF began reporting the GGI analysis. Political empowerment gap turns out to be most closed by 6.7% for last decade among subindices. The next performance is followed by economic participation and opportunity in which the gap is reduced by 5.2%. Education and health dimensions that have already shown narrow gaps, close the gaps only by 1.2% and 0.6%, respectively.

There are 14 indicators to measure four subindices. The rankings and scores of these 14 indicators for Korea are listed in Table 2-19 since 2011. Every indicators consisting of political empowerment subindex have been improved slowly but continuously to close the gaps. There has been almost no changes in health and survival since 2011. Female healthy life expectancy over male value has recorded a score of 1.06 and positioned at rank 1, indicating that Korean women have relatively longer life expectancy than men. The gaps in education and economy subindices become wider since 2015. Literacy rate indicator is expected to affect the widening of the education gap. Female estimated earned income and wage equality indicators seem to affect the

widening of the gender gap in economic participation and opportunity, although female professional and technical workers over male value are noticeably increased from 0.69 in 2014 to 0.93 in 2017. The statistical figures as in Tables 2-18 and 2-19 indicate that changes do not occur in the short term. Hence to close the gender gaps in Korea is needed to design elaborate policies.

<Table 2-19 GGI status of Korea (2011 ~ 2017)>

Subindex	Year	2011	2012	2013	2014	2015	2016	2017
	GGI	0.628	0.635	0.635	0.640	0.651	0.649	0.650
	Rank/Number of countries	107/135	108/135	111/136	117/142	115/145	116/144	118/144
Economic Participation and Opportunity	**Value**	0.493	0.509	0.504	0.512	0.557	0.537	0.533
	(Rank)	(117)	(116)	(118)	(124)	(125)	(123)	(121)
	Ratio: female labour force participation over male value	0.73	0.73	0.72	0.72	0.73	0.73	0.73
	(Rank)	(84)	(83)	(87)	(86)	(90)	(91)	(91)
	Wage equality between women and men for similar work	0.51	0.54	0.52	0.51	0.55	0.52	0.51
	(Rank)	(126)	(117)	(120)	(125)	(116)	(125)	(121)
	Ratio: female estimated earned income over male value (Rank)	0.41	0.44	0.44	0.48	0.56	0.45	0.45
		(113)	(109)	(108)	(109)	(101)	(120)	(121)
	Ratio: female legislators, senior officials and managers over male value (Rank)	0.11	0.11	0.11	0.12	0.12	0.12	0.12
		(111)	(104)	(105)	(113)	(113)	(114)	(117)
	Ratio: female professional and technical workers over male value (Rank)	0.69	0.69	0.69	0.69	0.83	0.93	0.93
		(87)	(87)	(90)	(98)	(86)	(78)	(76)
Education Attainment	**Value**	0.948	0.959	0.959	0.965	0.965	0.964	0.960
	(Rank)	(97)	(99)	(100)	(103)	(102)	(102)	(105)
	Ratio: female literacy rate over male value (Rank)	1	1	1	1	1	0.99	-
		(1)	(1)	(1)	(1)	(1)	(66)	-
	Ratio: female net primary enrolment rate over male value	0.99	0.99	0.99	0.99	0.99	0.99	0.995
	(Rank)	(96)	(94)	(86)	(83)	(83)	(79)	(84)
	Ratio: female net secondary enrolment rate over male value	0.96	0.99	0.99	0.99	0.99	0.99	0.99
	(Rank)	(97)	(91)	(82)	(85)	(89)	(99)	(101)
	Ratio: female gross tertiary enrolment ratio over male value (Rank)	0.7	0.72	0.72	0.75	0.75	0.75	0.77
		(110)	(112)	(108)	(114)	(116)	(112)	(112)
Health and Survival	**Value**	0.974	0.973	0.973	0.973	0.973	0.973	0.973
	(Rank)	(78)	(78)	(75)	(74)	(79)	(76)	(84)
	Sex ratio at birth (converted to female-over-male ratio) (Rank)	0.94	0.93	0.93	0.93	0.93	0.94	0.94
		(124)	(121)	(119)	(122)	(128)	(125)	(132)
	Ratio: female healthy life expectancy over male value (Rank)	1.06	1.06	1.06	1.06	1.06	1.06	1.06
		(1)	(1)	(1)	(1)	(1)	(1)	(1)
Political Empowerment	**Value**	0.097	0.101	0.105	0.112	0.107	0.120	0.134
	(Rank)	(90)	(86)	(86)	(93)	(101)	(92)	(90)
	Ratio: females with seats in parliament over male value	0.17	0.19	0.19	0.19	0.20	0.21	0.21
	(Rank)	(79)	(81)	(85)	(91)	(94)	(90)	(97)
	Ratio: females at ministerial level over male value (Rank)	0.14	0.14	0.14	0.13	0.06	0.06	0.10
		(75)	(80)	(79)	(94)	(130)	(128)	(115)
	Ratio: number of years of a female head of state (last 50 years) over male value (Rank)	0.02	0.02	0.03	0.05	0.07	0.09	0.10
		(40)	(41)	(42)	(39)	(31)	(29)	(28)

2.4.6 Comparison of the GGI among ARN member countries

The 2017 GGI of 12 ARN member countries with rankings and scores for each dimension are listed in Table 2-20. Uganda performs best among the ARN by closing the overall gender gap up to 72% and by closing 31% of the political empowerment gap. Botswana fully closes the gender gap in education attainment subindex and does 82% of the gap in economic participation and opportunity subindex. Botswana shows progress on women in ministerial position, but only 7.9% is closed in the gap of political empowerment subindex. Kenya is positioned at the first rank in the health and survival subindex by closing 98% of the gap. Nigeria makes remarkable progress to close its gender gaps in women's estimated earned income, wage equality for similar work, enrolment in secondary education and healthy life expectancy, but a decline in women in ministerial positions and on the education attainment. As a result, Nigeria's overall gender gap becomes wider in 2017.

On average, the ARN member countries need to close the gaps 33% overall, 32% in economy, 12% in education, 3% in health, and 83% in politics dimension. Compared to the APNN, the only gender gap in economic participation and opportunity subindex is more closed. However, it is again worth to point out that the GGI does not measure a level of an individual country.

<Table 2-20 GGI ranks and scores for ARN countries (2017)>

(GGI=1: fully closed gap)

GII UN Rank /159	GGI ARN Rank /12	Country	GGI (/144)		Economic Participation and Opportunity		Education Attainment		Health and Survival		Political Empowerment	
			Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value
94	11	**Algeria**	127	0.629	132	0.442	107	0.957	106	0.970	86	0.145
95	2	**Botswana**	46	0.720	6	0.822	1	1.000	48	0.978	122	0.079
146	9	**Burkina Faso**	121	0.646	47	0.716	133	0.829	134	0.963	125	0.075
138	6	**Cameroon**	87	0.689	40	0.725	129	0.868	92	0.972	64	0.191
131	4	**Ghana**	72	0.695	18	0.784	119	0.931	118	0.968	112	0.097
135	5	**Kenya**	76	0.694	44	0.720	120	0.929	1	0.980	83	0.147
150	8	**Liberia**	107	0.669	58	0.695	138	0.772	85	0.973	45	0.236
156	12	**Mali**	139	0.583	126	0.518	140	0.741	139	0.956	99	0.118
-	10	**Nigeria**	122	0.641	37	0.728	135	0.813	94	0.972	135	0.052
120	7	**Senegal**	91	0.684	102	0.624	132	0.831	87	0.973	29	0.308
129	3	**Tanzania**	68	0.700	69	0.674	125	0.910	62	0.976	44	0.239
121	1	**Uganda**	45	0.721	59	0.693	124	0.913	88	0.973	30	0.305
ARN Average				0.673		0.678		0.875		0.971		0.166

(Source: WEF Global Gender Gap Report 2017)

Five out of the ARN member countries are positioned at lower than 100 in the GGI rankings, by closing roughly 63%~67% of the overall gender gap except Mali where only 58% of the gap is closed. The GGI rankings and values of the ARN countries for last four years from 2014 to 2017 are given in Table 2-21. The overall GGI for last 4 years shows more or less increasing trends from 61% closed to 67% closed. Liberia and Uganda contribute most to close the overall gap of the ARN average. Uganda's GGI rank changes from 88 to 45

during last 4 years, which is the result of notable increases in women's share of estimated earned income and on the political empowerment. Burkina Faso, Senegal and Tanzania show slightly widening trends in the GGI.

<Table 2-21 The GGI of ARN countries in 2014~2017>

(GGI=1: fully closed gap)

Country	WEF Global Gender Gap Index							
	2014 (142 countries)		2015 (145 countries)		2016 (144 countries)		2017 (144 countries)	
	Rank	Value	Rank	Value	Rank	Value	Rank	Value
Algeria	126	0.618	128	0.632	120	0.642	127	0.629
Botswana	51	0.713	55	0.710	54	0.715	46	0.720
Burkina Faso	110	0.650	114	0.651	123	0.640	121	0.646
Cameroon	-	-	90	0.682	85	0.684	87	0.689
Ghana	101	0.666	63	0.704	59	0.705	72	0.695
Kenya	37	0.726	48	0.719	63	0.702	76	0.694
Liberia	111	0.646	112	0.652	114	0.652	107	0.669
Mali	138	0.578	137	0.599	138	0.591	139	0.583
Nigeria	118	0.639	125	0.638	118	0.643	122	0.641
Senegal	77	0.691	72	0.698	82	0.685	91	0.684
Tanzania	47	0.718	49	0.718	53	0.716	68	0.700
Uganda	88	0.682	58	0.708	61	0.704	45	0.721
Average		0.611		0.676		0.673		0.673

(source: WEF Global Gender Gap Report 2014~2017)

The 2018 APNN & ARN Survey Report

3. Survey on Gender Barrier among APNN and ARN Member Countries

3.1. Background

The joint international survey has been conducted annually among members of the APNN (Asia and Pacific Nations Network) since 2014 with support from the Korean government. This study is in continuation of those conducted in 2014 on gender equality in science and engineering, in 2015 on glass ceiling experienced by woman scientists and engineers, in 2016 on gender barrier perceived by women scientists and engineers, and in 2017 on gender barrier experienced by women as perceived by men. This year's survey used the same format as that in 2016 with modifications in the questionnaire to suit the male respondents and the respondents that are still pursuing their studies in STEM. In addition, the African Network of INWES, ARN, has participated in this year's study. Because studies conducted from 2014 to 2017 included responses from a wide age group (20~over 50 years old), there was a slight tendency that could imply that gender barrier was becoming experienced less as the age group became younger. However, based on interviews and discussions with girls enrolled in science or engineering schools, the barrier seemed to have remained, if not becoming stronger. This is the reason why the 2018 survey focused on hearing the voices of 'future scientists and engineers.'

3.2. The Survey

3.2.1 Survey respondents, method and period

The 2018 survey was conducted in 12 member countries (Nepal, New Zealand, Malaysia, Mongolia, Bangladesh, Vietnam, Sri Lanka, India, Japan, Taiwan, Pakistan, and Korea) of the APNN and 3 member countries (Nigeria, Uganda, Kenya) of the ARN. Young female and male in science and engineering were asked about their perception of gender barriers. The respective networks that liaison the study were WISE-Nepal, IPENZ, IEM, WSTEM, WISE-Bangladesh, VAFIW, WISE-Sri Lanka, WISE-India, JNWES, TWiST, WISTEP, and KWSE from APNN and OPAGEST and AWSE from ARN. The original questionnaire was prepared in Korean and English while representatives of the member countries chose to translate the English version into their native language as needed.

The announcement for the 2018 survey was sent out to members of APNN May 27, 2018 via email. The questionnaires were prepared and sent out to members of APNN and ARN on June 15, 2018 together with the commencement of the online forms at https://goo.gl/forms/pnMbTD66VyNcs8fZ2. The survey was to be completed by end of July but because most of the respondents were at summer break, the collection was extended to September, 2018. The survey period, during which the instructional e-mail was sent, was from June 15 to July 31, 2018. Countries that participated in offline surveys compiled and

submitted their results by e-mail while the results of online surveys were downloaded via Google Forms.

3.2.2 Survey tool: Questionnaire composition

The survey consisted of 7 sections from A~G. The first section asked questions on general profiles of the respondents. Section B consisted of 6 questions of the perception of 'gender barriers' in STEM. Section C was to be answered only by the female respondents while D was for male respondents and both consisted of 6 questions on direct/indirect experience of gender barriers in STEM. Section E consisted of 3 questions on the perception on policy to overcome gender barriers. F with 5 questions was about Perception of Gender Role Stereotype and G consisted of 7 questions on the Perception of Gender Role Stereotype for study and research environment.

3.2.3 Analysis of survey data

Responses were coded excluding invalid or insufficient answers. For open-ended questions, similar or common answers were combined together and pre-coded. To ensure that the responses were properly coded, 20 questionnaires were randomly selected and checked. Any errors, if detected, were corrected. Next, SPSS Statistics version 20.0.01 was used to perform the following analyses.

① Basic analysis: Frequency and descriptive statistical analysis

Frequency and descriptive statistical analysis were performed for all questions in the questionnaire.

② Differential and correlational analysis

An independent t-test and two-way ANOVA were employed to analyze the general characteristics of respondents and differences in perceptions of the gender barriers. The analyses were performed on the individual items as well as sub-scales such as the perception of discriminatory reality, discriminatory experiences and gender role ideology. Welchi test was performed to allow multiple comparisons between groups if required.

Pearson's correlation was used to examine the relationships between continuous variables, including the perception of discriminatory reality, discriminatory experiences, gender role ideology, career prospects and policy demands.

3.2.4 The Questionnaire

The following is the questionnaire form that was sent to the APNN and ARN representatives [Table 3-1].

<Table 3-1 The Questionnaire Form >

Gender Barriers in STEM* in Africa, Asia and the Pacific : The 2018 survey for Science and Engineering Young & Future Professionals in Africa, Asia and the Pacific Nations (APNN & ARN)_For respondents of age 19~30.

The purpose of this survey is to evaluate how the young and future scientists and engineers perceive "gender barriers" experienced by women in STEM. The term "gender barriers" is used in this study to describe hurdles and obstacles women in STEM experience in their educational and professional lives because of their biological and social identity as women.

Please take time to answer each and every question as truthfully as possible. There are no right or wrong answers. Please respond based on your experiences and thoughts. Your response and those of approximately 1,200 other young and future scientists and engineers from over 13 countries in Africa and Asia and the Pacific will be utilized in drawing out policy agenda to expand women's participation as well as to promote regional and national development in STEM. Please be assured thant your answers will be used only for analytical purpose. Your personal information will be kept in strict confidence. We deeply appreciate your cooperation.

Please note that this survey is only for respondents (both male and female) who are in the fields of natural science or engineering, born between 1988 to 1998, being of 19 ~ 30 years of age. Please do not participate if you were born before 1988 or after 1998 or if you are not in the STEM field. For female respondents, please answer A, B, C, E, F, G; for male respondents, please answer A, B, D, E, F, G. Thank you.

*STEM : Science, Technology, Engineering, Mathematics

A. Personal Information

1. Sociodemographic information
   ⑴ Your sex ① female ② male ③ other
   ⑵ Year of birth _____(please respond if you were born **1988~1998**)
2. Major and degree
   ⑴ Please select your major field
      ① Nature Science ② Engineering (Technology)
   ⑵ Your specific Major in STEM._____(eg. Physics, Chemical Engineering, etc.)
   ⑶ Your current status
      ① Undergraduate Student pursuing bachelors degree
      ② Graduate Student pursuing Masters degree
      ③ Working, with Masters degree
      ④ Graduate Student, Candidate of Doctorate degree
      ⑤ Working, with Doctorate degree
      ⑥ Postdoctoral Fellow (postdoc)
      ⑦ Others_____ (Please specify)
3. Your Nationality
   ⑴ Your nationality. _____(eg. India)
   ⑵ Country where you are currently enrolled or employed _____ (eg: South Korea)

B. Perception of 'gender barriers' in STEM

* Please indicate 'O' or '√' in the box below that corresponds to your answer.

	① Strongly agree	② Somewhat agree	③ Neutral	④ Somewhat disagree	⑤ Strongly disagree
(1) Girls and boys are equally encouraged to choose their majors in STEM during their education period.					
(2) Female students in STEM receive equally fair assessments and appraisal compared to their male counterpart of the same qualifications and level for their work, task or project results.					
(3) Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.					
(4) It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.					
(5) Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.					
(6) Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.					

C. Direct/Indirect Experience of 'gender barriers' in STEM: Questions only for Women

* If you are female, please indicate 'O' or '√' in the box that corresponds to your (indirect) experiences.

	① Never experienced, seen nor heard from others	② Neither seen nor heard but recognize the possibility	③ Heard from others	④ I have seen others experience	⑤ Experienced for myself
(1) Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because she is female					
(2) Women in STEM being disadvantaged in participating or leading a research project because she is female.					
(3) Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues(in class, laboratory, project group, etc)					
(4) Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc)					
(5) Women in STEM being disadvantaged in accessing research equipment or information because she is female					
(6) Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care					

D. (Indirect) Experience of 'gender barriers' in STEM: Questions only for Men

* If you are male, please indicate 'O' or '√' in the box that corresponds to your (indirect) experiences.

	① Never seen nor heard from others	② Neither seen nor hear but recognize the possibility	③ Heard from others about unknown person's case	④ Heard from my colleague or known person's experience	⑤ I have seen someone experience
(1) Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because she is female					
(2) Women in STEM being disadvantaged in participating or leading a research project because she is female.					
(3) Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues(in class, laboratory, project group, etc)					
(4) Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate or labmate or professor (in university laboratory, project group, etc)					
(5) Women in STEM being disadvantaged in accessing to research equipment or information because she is female					
(6) Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care					

E. Perception on policy to overcome 'gender barriers'

* Please indicate 'O' or '√' in the box below that corresponds to your response.

	① Strongly agree	② Somewhat agree	③ Neutral	④ Somewhat disagree	⑤ Strongly disagree
(1) I believe things will turn out fine in the future career for women in STEM					
(2) It is crucial to have strong policy support to solve gender inequality in the STEM field.					
(3) It is appropriate to introduce the quota system of affirmative plan to solve gender inequality in the STEM field					

* Affirmative Action is the social policy to protect and support members of minority groups intended to end and correct the effects of a specific form of discrimination.
* Quota System is the social policy which gives preference to protected group members (historically unfairly treated due to their sex, class or race) to correct the inequality in hiring, studying or social participation.

F. Perception of gender equality

* Please indicate 'O' or '√' in the box below that corresponds to your response.

	① Strongly agree	② Some-what agree	③ Neutral	④ Some-what disagree	⑤ Strongly disagree
(1) In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for themselves					
(2) Primary breadwinners (who take care of financial obligations) of households should be men					
(3) Women are born to have a way of caring children that men are not capable of in the same way					
(4) In order to maintain the order and peace of a family, the husband should have greater power and authority than the wife.					
(5) I believe gender equality will be fully achieved only if women are given equal opportunities as men.					

G. Perception of gender equality for study and research environment

* Now these are our final question. Please indicate 'O' or '√' in the box below that corresponds to your response.

	① Strongly agree	② Some-what agree	③ Neutral	④ Some-what disagree	⑤ Strongly disagree
(1) Women are equally granted or entrusted equal role for their research or project performance at the laboratory.					
(2) Women equally receive the appraisal or award for the outcome of their project or research.					
(3) The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge.					
(4) Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of applicant.					
(5) Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)					
(6) Marriage, pregnancy or child care have the same effect on scientist/engineer regardless of their sex for their study, research or project performance.					
(7) Female students in STEM are intimidated in the laboratory or in classes because she is female					

♧ We have come to the end of the survey. Thank your for your time and participation!!♧

4. Results of the Survey on Gender Barrier

The current study has collected 2,094 valid responses from 15 countries, of which 12 were APNN countries and 3 were ARN countries. There were 1,604 responses from APNN member countries (76.6%) and 490 responses from ARN (23.4%) member countries. Respondents consisted of 1,011 female (48.3%) and 1,083 male (51.7%) young adults in science and engineering. Among the 2,094 respondents, 1,277 (61.0%) were in the field of engineering, and 817 (39.0%) in natural sciences. 943 (45.0%) respondents were undergraduate students, While the other 737 (35.2%) were studying or working after completing their bachelors degree in science or engineering field. The average age of the respondents was 24.18 (excluding those who did not indicate their age).

This chapter provides the survey results from respondents of APNN and ARN member countries. We first outlined the general profile of respondents (sex, age, major field of study and current status/degree). Then we summarized the results according to the 5 sub-areas of the questionnaire.

4.1. General Respondent Profiles

4.1.1 General Respondent Profiles of APNN member countries

Among the 13 APNN member countries, 1,604 valid responses were collected from 12 countries as shown in Table 4-1 The number of respondents varied depending on the countries, ranging from 227 from Vietnam to 16 from India. The profile of respondents' age, sex, major field, degree and nationality are provided below [Table 4-1].

◦Female / Male

There were 812 female (50.6%) and 792 male (49.4%) young adults in S&T who responded to the survey. The female/male ratio varied among countries. More than 50% of the total respondents were female from Sri Lanka (76.1%), Japan (62.8%), Mongol (54.1%) and Pakistan (50.3%), while more than 50% of the total respondents were male from Malaysia (62.5%), New Zealand (55.8%), South Korea (54.8%), Bangladesh (54.2%), Vietnam (52.0%) and Taiwan (51.1%). The sex ratio of participants was balanced at 50% from Nepal.

◦ Nationality (where enrolled and employed)

Out of 1,604 respondents from APNN, the highest number of participants came from Vietnam at 227 (14.2%), followed by South Korea at 219 (13.7%), Mongolia at 209 (13.0%), Pakistan at 199 (12.4%), Taiwan at 186 (11.6%), Japan at 180 (11.2%), Nepal at 96 (6.0%), New Zealand at 95 (5.9%) and Sri Lanka at 46 (2.9%). The number or respondents from Malaysia and India were 24 (1.5%) and 16 (1.0%) respectively. The survey report by countries (see Appendix) for Malaysia and for India thus could not be prepared due to the insufficient number of respondents.

◦ **Age**

The average age of the 1,604 APNN respondents' was 24.18. Male respondent (24.24) were slightly older than female (24.12) on the average.

◦ **Major field of study**

Regarding the major field of respondents, engineering accounted for 1,019 (63.5%), and natural sciences 585 (36.5%). Among female respondents of APNN member countries, 491 persons (60.5%) were studying, or doing research or working in engineering while 321 (39.5%) were in natural sciences. For male respondents, 528 (66.7%) were in engineering and 264 (33.3%) in natural sciences.

◦ **Current Status (Degree)**

Out of the 1,604 respondents of APNN member countries, 647 (40.3%) were undergraduate students, 415 (25.9%) were graduate students in masters degree programs and 126 (7.9%) were graduate students pursuing their doctorate degree. The respondents working with masters degree were 222 (13.8%) and those working with doctorate degree 24 (1.5%). The respondents who checked theirs status as others were 170 persons (10.6%)[1].

<Table 4-1 Profile of Respondents by Country from APNN>

(Unit: Person, %)

APNN		Female		Male		Total	
		person	%	person	%	person	%
		812	**100.0**	**792**	**100.0**	**1,604**	**100.0**
Country where working or enrolled	Nepal	48	5.9	48	6.1	96	6.0
	New Zealand	42	5.2	53	6.7	95	5.9
	Taiwan	91	11.2	95	12.0	186	11.6
	Malaysia	9	1.1	15	1.9	24	1.5
	Mongolia	113	13.9	96	12.1	209	13.0
	Bangladesh	49	6.0	58	7.3	107	6.7
	Vietnam	109	13.4	118	14.9	227	14.2
	Sri Lanka	35	4.3	11	1.4	46	2.9
	India	4	0.5	12	1.5	16	1.0
	Japan	113	13.9	67	8.5	180	11.2
	Pakistan	100	12.3	99	12.5	199	12.4
	South Korea	99	12.2	120	15.2	219	13.7
Age	18-24	467	57.5	420	53.0	887	55.3
	25-30	337	41.5	363	45.8	700	43.6
	No response	8	1.0	9	1.1	17	1.1
	Average age	24.12		24.24		24.18	
Major field	Natural Science	321	39.5	264	33.3	585	36.5
	Engineering	491	60.5	528	66.7	1019	63.5
Current Status	Undergraduate Student	312	38.4	335	42.3	647	40.3
	Graduate Student(Masters)	226	27.8	189	23.9	415	25.9
	Working with Masters	109	13.4	113	14.3	222	13.8
	Graduate Student(Ph.D)	53	6.5	73	9.2	126	7.9
	Working with Ph.D	10	1.2	14	1.8	24	1.5
	Others	102	12.6	68	8.6	170	10.6

1) Most of the respondents classified in 'others' group as current status was deemed to be working and studying after their study in STEM.

4.1.2 General Respondent Profiles of ARN member countries

This is the first study in which ARN member countries were included; the APNN countries have participated since 2014. Nigeria, Uganda and Kenya participated from which a total of 490 valid responses were collected. The profiles of the respondents are provided in [Table 4-2].

◦ **Female / Male**

Among those responded, 199 (40.6%) were female, and 291 (59.4%) were male young adults in S&T. More than 60.0% of the respondents was male in Nigeria (61.4%) and Uganda (67.1%). Among the 66 respondents from Kenya, 26 were male (39.4%).

◦ **Nationality (where enrolled and/or employed)**

Out of the 490 respondents from the 3 ARN member countries this year, the highest number of participants came from Nigeria at 345 (70.4%), followed by Uganda at 79 (16.1%), and Kenya at 66 (13.5%).

◦ **Age**

The average age of the 490 ARN respondents was 24.58[1]. Male respondent (24.94) were slightly older than female (24.16) on average. Participants from Uganda were the oldest on the average (24.96), and those from Nigeria were the youngest (23.00).

◦ **Major field of study**

Regarding the major field of respondents, engineering accounted for 258 (52.7%), and natural sciences 232 (47.3%). Among the 199 female respondents of the 3 ARN member countries, 112 persons (56.3%) were studying, doing research or working in natural sciences while 87 (43.7%) were in engineering. For male respondents, 171 (58.8%) were in engineering and 120 (41.2%) in natural sciences.

◦ **Current Status (Degree)**

Out of the 490 respondents of ARN member countries, 296 (60.4%) were undergraduate students, 74 (15.1%) were graduate students in master degree programs, 45 (9.2%) were working after their doctorate degree, 32 (6.5%) were graduate students in doctoral program and 26 (5.3%) were working after their master degree. The respondents who checked theirs status as others were 17 persons (3.5%)[2].

1) Note that this is based on the 30.2% of the respondents who indicated their age. 69.8% did not.

2) Most of the respondents classified in ‘others’ group as current status was deemed to be working and studying after their study in STEM.

<Table 4-2 Profile of Respondents by Country from ARN>

(Unit: Person, %)

ARN		Female		Male		Total	
		person	%	person	%	person	%
		199	**100.0**	**291**	**100.0**	**490**	**100.0**
Country where working or enrolled	Nigeria	133	66.8	212	72.9	345	70.4
	Uganda	26	13.1	53	18.2	79	16.1
	Kenya	40	20.1	26	8.9	66	13.5
Age	18-24	37	18.6	42	14.4	79	16.1
	25-30	31	15.6	38	13.1	69	14.1
	No response	131	65.8	211	72.5	342	69.8
	Average Age	24.16		24.94		24.58	
Major field	Natural Science	112	56.3	120	41.2	232	47.3
	Engineering	87	43.7	171	58.8	258	52.7
Current Status	Undergraduate Student	156	78.4	140	48.1	296	60.4
	Graduate Student(Masters)	19	9.6	55	18.9	74	15.1
	Working with Masters	5	2.5	21	7.2	26	5.3
	Graduate Student(Ph.D)	2	1.0	30	10.3	32	6.5
	Working with Ph.D	8	4.0	37	12.7	45	9.2
	Others	9	4.5	8	2.8	17	3.5

4.1.3 General Profiles of Respondent by Network

The following table shows the general profiles of the survey respondents in each regional network.

<Table 4-3 Respondent Profile by Network>

(unit: person, %)

Country	Sex (%)	Average Age[1]	Major Field (%)			Current Status (Degree) (%)			Nationality (%)		
APNN	Female 812 (50.6)	24.12	Natural Science	321	39.5	Undergraduate Student	312	38.4	APNN	790	97.3
						Graduate Student(Master's)	226	27.8			
						Working with Master's	109	13.4			
			Engineering	491	60.5	Graduate Student(Ph.D)	53	6.5	Others	22	2.7
						Working with Ph.D	10	1.2			
			total	812	100.0	Others	102	12.6	total	812	100.0
						Total	812	100.0			
	Male 792 (49.4)	24.24	Natural Science	264	33.3	Undergraduate Student	335	42.3	APNN	786	99.2
						Graduate Student(Master's)	189	23.9			
						Working with Master's	113	14.3			
			Engineering	528	66.7	Graduate Student(Ph.D)	73	9.2	Others	6	0.8
						Working with Ph.D	14	1.8			
			total	792	100.0	Others	68	8.6	total	792	100.0
						Total	792	100.0			
	Total 1604 (100.0)	24.18	Natural Science	585	36.5	Undergraduate Student	647	40.3	APNN	1576	98.3
						Graduate Student(Master's)	415	25.9			
						Working with Master's	222	13.8			
			Engineering	1019	63.5	Graduate Student(Ph.D)	126	7.9	Others	28	1.7
						Working with Ph.D	24	1.5			
			total	1604	100.0	Others	170	10.6	total	1604	100.0
						Total	1604	100.0			
ARN	Female 199 (40.6)	24.16	Natural Science	112	56.3	Undergraduate Student	156	78.4	ARN	199	100.0
						Graduate Student(Master's)	19	9.5			
						Working with Master's	5	2.5			
			Engineering	87	43.7	Graduate Student(Ph.D)	2	1.0	Others	0	0
						Working with Ph.D	8	4.0			
			total	199	100.0	Others	9	4.5	total	199	100.0
						Total	199	100.0			
	Male 291 (59.4)	24.94	Natural Science	120	41.2	Undergraduate Student	140	48.1	ARN	291	100.0
						Graduate Student(Master's)	55	18.9			
						Working with Master's	21	7.2			
			Engineering	171	58.8	Graduate Student(Ph.D)	30	10.3	Others	0	0
						Working with Ph.D	37	12.7			
			total	291	100.0	Others	8	2.7	total	291	100.0
						Total	291	100.0			
	Total 490 (100.0)	24.58	Natural Science	232	47.3	Undergraduate Student	296	60.4	ARN	490	100.0
						Graduate Student(Master's)	74	15.1			
						Working with Master's	26	5.3			
			Engineering	258	52.7	Graduate Student(Ph.D)	32	6.5	Others	0	0
						Working with Ph.D	45	9.2			
			total	490	100.0	Others	17	3.5	total	490	100.0
						Total	490	100.0			

1) Average age is based on those that indicated their age. 69.8% from ARN did not and thus is not included in the calculation.

4.1.4 General Profiles of Respondent by Country (APNN)

The following table shows the general profiles of the survey respondents in each country from APNN [Table 4-4].

<Table 4-4 Respondent Profile by Country from APNN>

(unit: person, %)

Country	Sex (%)	Average Age	Major Field (%)			Current Status (Degree) (%)			Nationality (%)		
Nepal	Female 48 (50.0)	25.31	Natural Science	1	2.1	Undergraduate Student	4	8.3	Nepal	47	97.9
						Graduate Student(Master's)	16	33.3			
						Working with Master's	7	14.6	New Zealand	1	2.1
			Engineering	47	97.9	Graduate Student(Ph.D)	0	0.0			
						Working with Ph.D	0	0.0	Others[1)]	0	0.0
						Others	21	43.8			
			total	48	100.0	Total	48	100.0	total	48	100.0
	Male 48 (50.0)	25.10	Natural Science	0	0.0	Undergraduate Student	7	14.6	Nepal	47	97.9
						Graduate Student(Master's)	27	56.3			
						Working with Master's	6	12.5	India	1	2.1
			Engineering	48	100.0	Graduate Student(Ph.D)	0	0.0			
						Working with Ph.D	0	0.0	Others	0	0.0
						Others	8	16.7			
			total	48	100	Total	48	100.0	total	48	100.0
	Total 96 (100.0)	25.21	Natural Science	1	1.0	Undergraduate Student	11	11.5	Nepal	94	97.9
						Graduate Student(Master's)	43	44.8			
						Working with Master's	13	13.5			
			Engineering	95	99.0	Graduate Student(Ph.D)	0	0.0	Others	2	2.1
						Working with Ph.D	0	0.0			
						Others	29	30.2			
			total	96	100	Total	96	100.0	total	96	100.0

1) Others means respondents whose nationality is of a country not in the APNN Network

<Table 4-4 Respondent Profile by Country from APNN>

(unit: person, %)

Country	Sex (%)	Average Age	Major Field (%)			Current Status (Degree) (%)			Nationality (%)		
New Zealand	Female 42 (44.2)	22.28	Natural Science	0	0	Undergraduate Student	37	88.1	New Zealand	41	97.6
						Graduate Student(Master's)	0	0.0			
						Working with Master's	1	2.4			
			Engineering	42	100	Graduate Student(Ph.D)	1	2.4	Others	1	2.4
						Working with Ph.D	0	0.0			
						Others	3	7.1			
			total	42	100	Total	48	100	total	42	100
	Male 53 (55.8)	21.83	Natural Science	0	0	Undergraduate Student	43	81.1	New Zealand	53	100
						Graduate Student(Master's)	3.8	0.0			
						Working with Master's	0	0.0			
			Engineering	53	100	Graduate Student(Ph.D)	13.2	2.4	Others	0	0.0
						Working with Ph.D	0	0.0			
						Others	1	1.9			
			total	53	100	Total	53	100.0	total	53	100
	Total 95 (100.0)	22.03	Natural Science	0	0.0	Undergraduate Student	80	84.2	New Zealand	94	98.9
						Graduate Student(Master's)	2	2.1			
						Working with Master's	1	1.1			
			Engineering	95	100.0	Graduate Student(Ph.D)	8	8.4	Others	1	1.1
						Working with Ph.D	0	0.0			
						Others	4	4.2			
			total	95	100.0	Total	95	100.0	total	95	100.0
Taiwan	Female 91 (48.9)	22.95	Natural Science	66	72.5	Undergraduate Student	49	53.8	Taiwan	83	91.2
						Graduate Student(Master's)	24	26.4	Malaysia	2	2.2
						Working with Master's	9	9.9			
			Engineering	25	27.5	Graduate Student(Ph.D)	4	4.4	Japan	2	2.2
						Working with Ph.D	1	1.1	Others	4	4.4
						Others	4	4.4			
			total	91	100.0	Total	91	100.0	total	91	100.0
	Male 95 (51.1)	22.87	Natural Science	84	88.4	Undergraduate Student	64	67.4	Taiwan	88	92.6
						Graduate Student(Master's)	17	17.9			
						Working with Master's	10	10.5	Malaysia	2	2.1
			Engineering	11	11.6	Graduate Student(Ph.D)	3	3.2			
						Working with Ph.D	1	1.1	Others	5	5.3
						Others	0	0.0			
			total	95	100	Total	95	100.1	total	95	100.0
	Total 186 (100.0)	22.91	Natural Science	150	80.6	Undergraduate Student	113	60.8	Taiwan	171	91.9
						Graduate Student(Master's)	41	22.0			
						Working with Master's	19	10.2	Malaysia	4	2.2
			Engineering	36	19.4	Graduate Student(Ph.D)	7	3.7	Japan	2	1.1
						Working with Ph.D	2	1.0			
						Others	4	2.2	Others	9	4.8
			total	186	100.0	Total	277	197.8	total	186	100.0

<Table 4-4 Respondent Profile by Country from APNN>

(unit: person, %)

Country	Sex (%)	Average Age	Major Field (%)			Current Status (Degree) (%)			Nationality (%)		
Malaysia	Female 9 (37.5)	22.56	Natural Science	1	11.1	Undergraduate Student	6	66.7	Malaysia	9	100.0
						Graduate Student(Master's)	1	11.1			
						Working with Master's	1	11.1			
			Engineering	8	88.9	Graduate Student(Ph.D)	0	0.0	Others	0	0.0
						Working with Ph.D	0	0.0			
						Others	1	11.1			
			total	9	100.0	Total	9	100.0	total	9	100.0
	Male 15 (62.5)	22.73	Natural Science	0	0.0	Undergraduate Student	11	73.3	Malaysia	15	100.0
						Graduate Student(Master's)	1	6.7			
						Working with Master's	1	6.7			
			Engineering	15	100.0	Graduate Student(Ph.D)	1	6.7	Others	0	0.0
						Working with Ph.D	0	0.0			
						Others	1	6.7			
			total	15	100	Total	15	100.0	total	15	100.0
	Total 24 (100.0)	22.67	Natural Science	1	4.2	Undergraduate Student	17	70.8	Malaysia	24	100.0
						Graduate Student(Master's)	2	8.3			
						Working with Master's	2	8.3			
			Engineering	23	95.8	Graduate Student(Ph.D)	1	4.2	Others	0	0.0
						Working with Ph.D	0	0.0			
						Others	2	8.3			
			total	24	100.0	Total	263	238.6	total	24	100.0
Mongolia	Female 113 (54.1)	25.75	Natural Science	47	41.6	Undergraduate Student	29	25.7	Mongolia	113	100.0
						Graduate Student(Master's)	25	22.1			
						Working with Master's	16	14.2			
			Engineering	66	58.4	Graduate Student(Ph.D)	1	0.9	Others	0	0.0
						Working with Ph.D	2	1.8			
						Others	40	35.4			
			total	113	100.0	Total	113	100.0	total	113	100
	Male 96 (45.9)	24.90	Natural Science	21	21.9	Undergraduate Student	37	38.5	Mongolia	96	100.0
						Graduate Student(Master's)	11	11.5			
						Working with Master's	10	10.4			
			Engineering	75	78.1	Graduate Student(Ph.D)	2	2.1	Others	0	0.0
						Working with Ph.D	1	1.0			
						Others	35	36.5			
			total	96	100.0	Total	96	100.0	total	96	100
	Total 209 (100.0)	25.36	Natural Science	68	32.5	Undergraduate Student	66	31.6	Mongolia	209	100.0
						Graduate Student(Master's)	36	17.2			
						Working with Master's	26	12.4			
			Engineering	141	67.5	Graduate Student(Ph.D)	3	14.4	Others	0	0.0
						Working with Ph.D	3	14.3			
						Others	75	35.9			
			total	209	100.0	Total	209	100.0	total	209	100.0

<Table 4-4 Respondent Profile by Country from APNN>

(unit: person, %)

Country	Sex (%)	Average Age	Major Field (%)			Current Status (Degree) (%)			Nationality (%)		
Bangladesh	Female 49 (45.8)	23.60	Natural Science	39	79.6	Undergraduate Student	23	46.9	Bangladesh	49	100.0
						Graduate Student(Master's)	12	24.5			
						Working with Master's	9	18.4			
			Engineering	10	20.4	Graduate Student(Ph.D)	0	0.0	Others	0	0.0
						Working with Ph.D	0	0.0			
			total	49	100.0	Others	5	10.2	total	49	100
						Total	49	100.0			
	Male 58 (54.2)	24.93	Natural Science	33	56.9	Undergraduate Student	22	37.9	Bangladesh	58	100.0
						Graduate Student(Master's)	17	29.3			
						Working with Master's	12	20.7			
			Engineering	25	43.1	Graduate Student(Ph.D)	1	1.7	Others	0	0.0
						Working with Ph.D	1	1.7			
			total	58	100.0	Others	5	8.6	total	58	100
						Total	58	100.0			
	Total 107 (100.0)	24.30	Natural Science	72	67.3	Undergraduate Student	45	42.1	Bangladesh	107	100.0
						Graduate Student(Master's)	29	27.1			
						Working with Master's	21	19.6			
			Engineering	35	32.7	Graduate Student(Ph.D)	1	0.9	Others	0	0.0
						Working with Ph.D	1	0.9			
			total	107	100.0	Others	10	9.3	total	107	100.0
						Total	107	100.0			
Vietnam	Female 109 (48.0)	24.20	Natural Science	44	40.4	Undergraduate Student	34	31.2	Vietnam	109	100.0
						Graduate Student(Master's)	29	26.6			
						Working with Master's	25	22.9			
			Engineering	65	59.6	Graduate Student(Ph.D)	17	15.6	Others	0	0.0
						Working with Ph.D	4	3.7			
			total	109	100.0	Others	0	0.0	total	109	0
						Total	109	100.0			
	Male 118 (52.0)	26.03	Natural Science	70	59.3	Undergraduate Student	9	7.6	Vietnam	118	100.0
						Graduate Student(Master's)	29	24.6			
						Working with Master's	52	44.1			
			Engineering	48	40.7	Graduate Student(Ph.D)	27	22.9	Others	0	0.0
						Working with Ph.D	1	0.8			
			total	118	100.0	Others	0	0.0	total	118	100
						Total	118	100.0			
	Total 227 (100.0)	25.15	Natural Science	114	50.2	Undergraduate Student	43	18.9	Vietnam	227	100.0
						Graduate Student(Master's)	58	25.6			
						Working with Master's	77	33.9			
			Engineering	113	49.8	Graduate Student(Ph.D)	44	19.4	Others	0	0.0
						Working with Ph.D	5	2.2			
			total	227	100.0	Others	0	0.0	total	227	100.0
						Total	227	100.0			

<Table 4-4 Respondent Profile by Country from APNN>

(unit: person, %)

Country	Sex (%)	Average Age	Major Field (%)			Current Status (Degree) (%)			Nationality (%)		
Sri Lanka	Female 35 (76.1)	25.36	Natural Science	28	80.0	Undergraduate Student	11	31.4	Sri Lanka	30	85.7
						Graduate Student(Master's)	13	37.1			
						Working with Master's	6	17.1			
			Engineering	7	20.0	Graduate Student(Ph.D)	2	5.7	Others	5	14.3
						Working with Ph.D	0	0.0			
			total	35	100.0	Others	3	8.6	total	35	100.0
						Total	35	100.0			
	Male 11 (23.9)	26.55	Natural Science	4	36.4	Undergraduate Student	3	27.3	Sri Lanka	11	100.0
						Graduate Student(Master's)	3	27.3			
						Working with Master's	1	9.1			
			Engineering	7	63.6	Graduate Student(Ph.D)	0	0.0	Others	0	0.0
						Working with Ph.D	0	0.0			
			total	11	100.0	Others	4	36.4	total	11	100
						Total	11	100.0			
	Total 46 (100.0)	25.66	Natural Science	32	69.6	Undergraduate Student	14	30.4	Sri Lanka	41	89.1
						Graduate Student(Master's)	16	34.8			
						Working with Master's	7	15.2			
			Engineering	14	30.4	Graduate Student(Ph.D)	2	4.3	Others	5	10.9
						Working with Ph.D	0	0.0			
			total	46	100.0	Others	7	15.2	total	46	100.0
						Total	46	100.0			
India	Female 4 (25.0)	23.25	Natural Science	0	0.0	Undergraduate Student	1	25.0	India	4	100.0
						Graduate Student(Master's)	2	50.0			
						Working with Master's	0	0.0			
			Engineering	4	100.0	Graduate Student(Ph.D)	0	0.0	Others	0	0.0
						Working with Ph.D	0	0.0			
			total	4	100.0	Others	1	25.0	total	4	100.0
						Total	1	100.0			
	Male 12 (75.0)	25.75	Natural Science	1	8.3	Undergraduate Student	2	16.7	India	12	100.0
						Graduate Student(Master's)	7	58.3			
						Working with Master's	0	0.0			
			Engineering	11	91.7	Graduate Student(Ph.D)	3	25.0	Others	0	0.0
						Working with Ph.D	0	0.0			
			total	12	100.0	Others	0	0.0	total	12	100
						Total	12	100.0			
	Total 16 (100.0)	25.13	Natural Science	1	6.3	Undergraduate Student	3	18.8	India	16	100.0
						Graduate Student(Master's)	9	56.3			
						Working with Master's	0	0.0			
			Engineering	15	93.8	Graduate Student(Ph.D)	3	18.8	Others	0	0.0
						Working with Ph.D	0	0.0			
			total	16	100.0	Others	1	6.3	total	16	100.0
						Total	16	100.0			

<Table 4-4 Respondent Profile by Country from APNN>

(unit: person, %)

Country	Sex (%)	Average Age	Major Field (%)			Current Status (Degree) (%)			Nationality (%)		
Japan	Female 113 (62.8)	24.15	Natural Science	66	58.4	Undergraduate Student	39	34.5	Japan	100	88.5
						Graduate Student(Master's)	39	34.5			
						Working with Master's	15	13.3	Malaysia	12	10.6
			Engineering	47	41.6	Graduate Student(Ph.D)	12	10.6			
						Working with Ph.D	2	1.8	Others	1	0.9
						Others	6	5.3			
			total	113	100.0	Total	113	100.0	total	113	100
	Male 67 (37.2)	24.65	Natural Science	35	52.2	Undergraduate Student	21	31.3	Japan	65	97.0
						Graduate Student(Master's)	23	34.3			
						Working with Master's	9	13.4	Malaysia	1	1.5
			Engineering	32	47.8	Graduate Student(Ph.D)	7	10.4			
						Working with Ph.D	5	7.5	Others	1	2
						Others	2	3.0			
			total	67	100.0	Total	67	100.0	total	67	100
	Total 180 (100.0)	24.34	Natural Science	101	56.1	Undergraduate Student	60	33.3	Japan	165	91.7
						Graduate Student(Master's)	62	34.4			
						Working with Master's	24	13.3	Malaysia	13	7.2
			Engineering	79	43.9	Graduate Student(Ph.D)	19	10.6			
						Working with Ph.D	7	3.9	Others	2	1.1
						Others	8	4.4			
			total	180	100.0	Total	180	100.0	total	180	100.0
Pakistan	Female 100 (50.3)	23.51	Natural Science	1	1.0	Undergraduate Student	37	37.0	Pakistan	100	100.0
						Graduate Student(Master's)	35	35.0			
						Working with Master's	14	14.0			
			Engineering	99	99.0	Graduate Student(Ph.D)	0	0.0	Others	0	0.0
						Working with Ph.D	1	1.0			
						Others	13	13.0			
			total	100	100.0	Total	100	100.0	total	100	100.0
	Male 99 (49.7)	22.84	Natural Science	2	2.0	Undergraduate Student	52	52.5	Pakistan	99	100.0
						Graduate Student(Master's)	28	28.3			
						Working with Master's	9	9.1			
			Engineering	97	98.0	Graduate Student(Ph.D)	3	3.0	Others	0	0.0
						Working with Ph.D	0	0.0			
						Others	7	7.1			
			total	99	100.0	Total	99	100.0	total	99	100
	Total 199 (100.0)	23.18	Natural Science	3	1.5	Undergraduate Student	89	44.7	Pakistan	199	100.0
						Graduate Student(Master's)	63	31.7			
						Working with Master's	23	11.6			
			Engineering	196	98.5	Graduate Student(Ph.D)	3	1.5	Others	0	0.0
						Working with Ph.D	1	0.5			
						Others	20	10.1			
			total	199	100.0	Total	199	100.0	total	199	100.0

<Table 4-4 Respondent Profile by Country from APNN>

(unit: person, %)

Country	Sex (%)	Average Age	Major Field (%)			Current Status (Degree) (%)			Nationality (%)		
South Korea	Female 99 (45.2)	24.01	Natural Science	28	28.3	Undergraduate Student	42	42.4	South Korea	98	99.0
						Graduate Student(Master's)	30	30.3			
						Working with Master's	6	6.1			
			Engineering	71	71.7	Graduate Student(Ph.D)	16	16.2	Nepal	1	1.0
						Working with Ph.D	0	0.0			
						Others	5	5.1			
			total	99	100.0	Total	99	100.1	total	99	100.0
	Male 120 (54.8)	24.20	Natural Science	14	11.7	Undergraduate Student	64	53.3	South Korea	119	99.2
						Graduate Student(Master's)	24	20.0			
						Working with Master's	3	2.5			
			Engineering	106	88.3	Graduate Student(Ph.D)	19	15.8	India	1	0.8
						Working with Ph.D	5	4.2			
						Others	5	4.2			
			total	120	100.0	Total	120	100.0	total	120	100.0
	Total 219 (100.0)	24.11	Natural Science	42	19.2	Undergraduate Student	106	48.4	South Korea	217	99.1
						Graduate Student(Master's)	54	24.7			
						Working with Master's	9	4.1	Nepal	1	0.45
			Engineering	177	80.8	Graduate Student(Ph.D)	35	16.0	India	1	0.45
						Working with Ph.D	5	2.3	Others	0	0.0
						Others	10	4.6			
			total	219	100.0	Total	219	100.1	total	219	100.0
APNN	Female 812 (50.6)	24.11	Natural Science	321	39.5	Undergraduate Student	312	38.4	APNN	790	97.3
						Graduate Student(Master's)	226	27.8			
						Working with Master's	109	13.4			
			Engineering	491	60.5	Graduate Student(Ph.D)	53	6.5	Others	22	2.7
						Working with Ph.D	10	1.2			
						Others	102	12.6			
			total	812	100.0	Total	812	99.9	total	812	100.0
	Male 792 (49.4)	24.24	Natural Science	264	33.3	Undergraduate Student	335	42.3	APNN	786	99.2
						Graduate Student(Master's)	189	23.9			
						Working with Master's	113	14.3			
			Engineering	528	66.7	Graduate Student(Ph.D)	73	9.2	Others	6	0.8
						Working with Ph.D	14	1.8			
						Others	68	8.6			
			total	792	100.0	Total	792	100.1	total	792	100.0
	Total 1,604 (100.0)	24.18	Natural Science	585	36.5	Undergraduate Student	647	40.3	APNN	1576	98.3
						Graduate Student(Master's)	415	25.9			
						Working with Master's	222	13.8			
			Engineering	1019	63.5	Graduate Student(Ph.D)	126	7.9	Others	28	1.7
						Working with Ph.D	24	1.5			
						Others	170	10.6			
			total	1604	100.0	Total	1604	100.0	total	1604	100.0

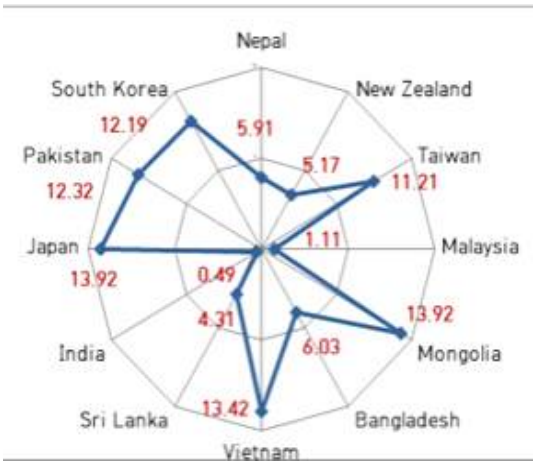
Overall, respondents from APNN countries consisted of 50.6% female and 49.4% male.

The average age of respondents was 24.18. Respondents from New Zealand were the youngest (22.03), followed by Taiwan (22.91), Pakistan (23.18), and South Korea (24.11). Respondents from Sri Lanka were the oldest (25.66), followed by Mongolia (25.36), Nepal (25.21), Vietnam (25.15), Bangladesh (24.30) and Japan (24.34).

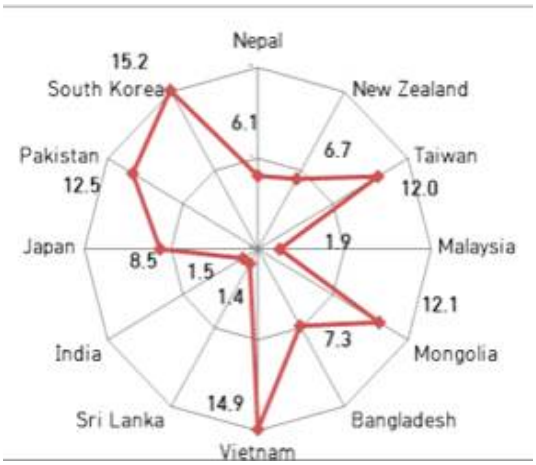
The ratio between engineering majors and natural science majors was 63.5% to 36.5%. The country with the most number of respondents from engineering were New Zealand (100%), Nepal (99%), Pakistan (98.5%), South Korea (80.8%) and Mongolia (67.5%). On the other hand, those with higher number of respondents from natural sciences were Taiwan (80.6%), Sri Lanka (69.6%), Bangladesh (67.3%), Japan (56.1%) and Vietnam (50.2%).

Majority of those responded were graduate students and/or working with their masters/doctoral degree (49.1%) while 40.3% were undergraduate students. 10.6% checked 'others' as theirs status (degree). Among the APNN countries, Vietnam had the most number of graduate students and/or working with masters/doctoral degree (81.1%) followed by Japan (62.2%), Nepal (58.3%) and Sri Lanka (54.3%). Undergraduate students were more higher in number from New Zealand (84.2%), Taiwan (60.8%) and South Korea (48.4%).

Figure 4-1 shows the female respondents make up according to country and Figure 4-2 shows that of male respondents. Among the total number of female respondents in APNN, Mongolia and Japan showed the highest numbers, consisting of 13.92% and India the lowest of 0.49%. Among male respondents, Korean respondents were highest at 15.2% and Sri Lanka lowest at 1.4%.



<Figure 4-1 Female respondents make up by country in APNN>



<Figure 4-2 Male respondents make up by country in APNN>

4.1.5 General Profiles of Respondent by Country (ARN)

The following table shows the general profiles of the respondents from ARN countries.

<Table. 4-5 Respondent Profile by Country from ARN>

(unit: person, %)

Country	Sex (%)	Average Age	Major Field (%)			Current Status (Degree) (%)			Nationality (%)		
Nigeria	Female 133 (38.6)	24.00	Natural Science	68	51.1	Undergraduate Student	116	87.2	Nigeria	133	100.0
						Graduate Student(Master's)	4	3.0			
						Working with Master's	4	3.0			
			Engineering	65	48.9	Graduate Student(Ph.D)	1	0.8	Others[1]	0	0.0
						Working with Ph.D	8	6.0			
						Others	0	0.0			
			total	133	100.0	Total	133	100.0	total	133	100.0
	Male 212 (61.4)	21.00	Natural Science	74	34.9	Undergraduate Student	90	42.5	Nigeria	212	100.0
						Graduate Student(Master's)	37	17.5			
						Working with Master's	21	9.9			
			Engineering	138	65.1	Graduate Student(Ph.D)	27	12.7	Others	0	0.0
						Working with Ph.D	37	17.5			
						Others	0	0.0			
			total	212	100.0	Total	212	100.1	total	212	100.0
	Total 345 (100.0)	23.00	Natural Science	142	41.2	Undergraduate Student	206	59.7	Nigeria	345	100.0
						Graduate Student(Master's)	41	11.9			
						Working with Master's	25	7.2			
			Engineering	203	58.8	Graduate Student(Ph.D)	28	8.1	Others	0	0.0
						Working with Ph.D	45	13.0			
						Others	0	0.0			
			total	345	100.0	Total	345	99.9	total	345	100.0
Uganda	Female 26 (32.9)	25.50	Natural Science	21	80.8	Undergraduate Student	17	65.4	Uganda	26	100.0
						Graduate Student(Master's)	6	23.1			
						Working with Master's	0	0.0			
			Engineering	5	19.2	Graduate Student(Ph.D)	0	0.0	Others	0	0.0
						Working with Ph.D	0	0.0			
						Others	3	11.5			
			total	26	100.0	Total	26	100.0	total	26	100.0
	Male 53 (67.1)	21.00	Natural Science	37	69.8	Undergraduate Student	28	52.8	Uganda	53	100.0
						Graduate Student(Master's)	14	26.4			
						Working with Master's	0	0.0			
			Engineering	16	30.2	Graduate Student(Ph.D)	3	5.7	Others	0	0.0
						Working with Ph.D	0	0.0			
						Others	8	15.1			
			total	53	100.0	Total	53	100.0	total	53	100.0
	Total 79 (100.0)	24.96	Natural Science	58	73.4	Undergraduate Student	45	57.0	Nigeria	79	100.0
						Graduate Student(Master's)	20	25.3			
						Working with Master's	0	0.0			
			Engineering	21	26.6	Graduate Student(Ph.D)	3	3.8	Others	0	0.0
						Working with Ph.D	0	0.0			
						Others	11	13.9			
			total	79	100.0	Total	79	100.0	total	79	100.0

1) Unlike APNN countries, nationalities of all respondents from ARN countries were from the respective countries. However, to keep the format the same as that of APNN, 'others' was included.

<Table. 4-5 Respondent Profile by Country from ARN>

(unit: person, %)

Country	Sex (%)	Average Age	Major Field (%)			Current Status (Degree) (%)			Nationality (%)		
Kenya	Female 40 (60.6)	24.05	Natural Science	23	57.5	Undergraduate Student	23	57.5	Kenya	40	100.0
						Graduate Student(Master's)	9	22.5			
						Working with Master's	1	2.5			
			Engineering	17	42.5	Graduate Student(Ph.D)	1	2.5	Others	0	0.0
						Working with Ph.D	0	0.0			
						Others	6	15.0			
			total	40	100.0	Total	40	100.0	total	40	100.0
	Male 26 (39.4)	24.42	Natural Science	9	34.6	Undergraduate Student	22	84.6			
						Graduate Student(Master's)	4	15.4	Kenya	26	100.0
						Working with Master's	0	0.0			
			Engineering	17	65.4	Graduate Student(Ph.D)	0	0.0			
						Working with Ph.D	0	0.0	Others	0	0.0
						Others	0	0.0			
			total	26	100.0	Total	26	100.0	total	26	100.0
	Total 66 (100.0)	24.20	Natural Science	32	48.5	Undergraduate Student	45	68.2			
						Graduate Student(Master's)	13	19.7	Kenya	66	100.0
						Working with Master's	1	1.5			
			Engineering	34	51.5	Graduate Student(Ph.D)	1	1.5	Others	0	0.0
						Working with Ph.D	0	0.0			
						Others	6	9.1			
			total	66	100.0	Total	66	100.0	total	66	100.0
ARN	Female 199 (40.6)	24.16	Natural Science	112	56.3	Undergraduate Student	156	78.4			
						Graduate Student(Master's)	19	9.5	ARN	199	100.0
						Working with Master's	5	2.5			
			Engineering	87	43.7	Graduate Student(Ph.D)	2	1.0	Others	0	0
						Working with Ph.D	8	4.0			
						Others	9	4.5			
			total	199	100.0	Total	199	99.9	total	199	100.0
	Male 291 (59.4)	24.94	Natural Science	120	41.2	Undergraduate Student	140	48.1			
						Graduate Student(Master's)	55	18.9	ARN	291	100.0
						Working with Master's	21	7.2			
			Engineering	171	58.8	Graduate Student(Ph.D)	30	10.3	Others	0	0
						Working with Ph.D	37	12.7			
						Others	8	2.7			
			total	291	100.0	Total	291	99.9	total	291	100.0
	Total 490 (100.0)	24.58	Natural Science	232	47.3	Undergraduate Student	296	60.4			
						Graduate Student(Master's)	74	15.1	ARN	490	100.0
						Working with Master's	26	5.3			
			Engineering	258	52.7	Graduate Student(Ph.D)	32	6.5	Others	0	0
						Working with Ph.D	45	9.2			
						Others	17	3.5			
			total	490	100.0	Total	490	100.0	total	490	100.0

Table 4-5 compares the respondent profiles by country in ARN. Overall, respondents from ARN countries consisted of 40.6% female and 59.4% male.

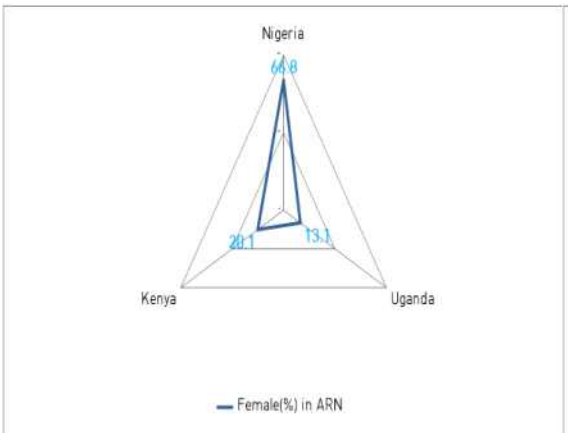
There were more female respondents than male in Kenya (60.6%) while more male respondents from Uganda (67.1%) and Nigeria (61.4%).

The average age of respondents was 24.58. Respondents from Nigeria were the youngest (23.00), followed by Kenya (24.20) and Uganda (24.96). However, only 30.8% indicated their age, and thus the average does not include 69.8% of respondents.

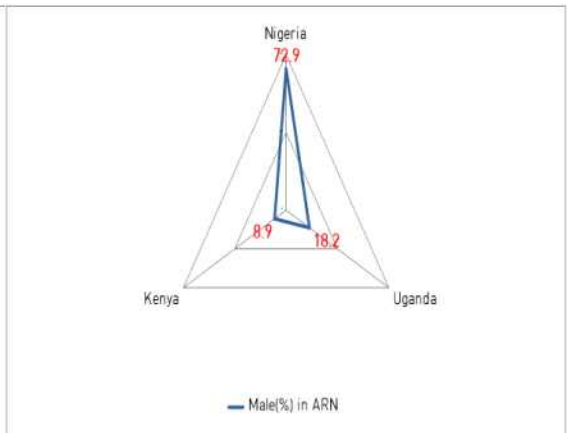
Over half of the respondents were in engineering (52.7%) while 47.3% were in natural sciences. The overall ratio was not as high as that of APNN due to the high percentage of respondents in natural sciences from Uganda (73.4%). Nigeria and Kenya consisted of less than half of respondents in natural sciences (41.2% and 48.5% respectively).

A higher ratio of undergraduate students (60.4%) are shown in ARN. Graduate students and/or working with their master/doctoral degree were 36.1 % while 3.5% responded as 'others.' Undergraduates among female respondents were highest from Nigeria (87.7%) followed by Uganda (65.4%) and Kenya (57.5%). On the other hand, undergraduates were highest among male students in the order of Kenya (84.6%), Uganda (52.8%) and Nigeria (42.5%).

Figure 4-3 shows the female respondents make up according to country and Figure 4-4 shows that of male respondents. Among the total number of female respondents in ARN, Nigerian respondents were the majority followed by those from Kenya and Uganda. Among male respondents, Nigerian were the majority followed by those from Uganda and Kenya.



<Figure 4-3 Female respondents make up by country in ARN>



<Figure 4-4 Male respondents make up by country in ARN>

Survey Results from APNN

4.2. Results from APNN

4.2.1. Overall Results of APNN by Sub-area and by Country

The following is a cross-country comparison of the results by sub-area from APNN (see Table 4-6 and Table 4-7)

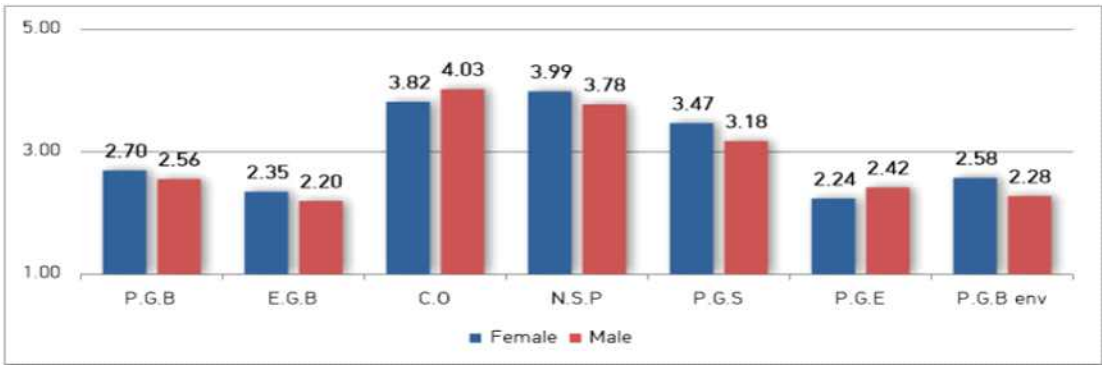
<Table 4-6 Summary of Results by sub-areas and by Country from APNN>

(unit: points)

	Sub-areas	P.G.B [a]		E.G.B [b]		C.O [c]		N.S.P [d]		P.G.S [e]		P.G.E [f]		P.G.B Env [g]	
		female	male	female	male	female	male	female	male	female	male	female	male	female	male
APNN	Nepal	2.78	2.23	2.70	2.15	4.17	4.85	4.67	4.35	3.96	3.41	1.63	1.94	2.53	1.89
	New Zealand	2.85	2.50	2.17	1.85	3.86	4.40	4.26	3.62	4.60	4.00	1.64	1.83	2.90	2.42
	Taiwan	2.16	1.93	2.04	2.12	4.34	4.40	4.44	4.36	3.79	3.11	1.79	2.11	2.11	1.95
	Mongolia	2.69	2.65	2.28	1.96	4.33	3.91	4.18	3.77	3.00	2.79	2.13	2.62	2.53	2.54
	Bangladesh	2.51	2.42	2.55	2.55	3.90	4.36	4.10	4.11	3.42	2.85	1.73	2.20	2.69	2.38
	Vietnam	3.19	2.88	2.74	2.95	3.23	3.51	2.67	3.70	2.87	2.91	3.74	2.92	2.99	2.88
	Sri Lanka	2.29	2.37	2.76	3.68	3.86	4.50	4.35	4.00	3.54	3.28	1.86	2.40	2.58	1.76
	Japan	2.22	2.52	1.75	1.54	3.37	3.61	3.82	3.39	3.60	3.51	2.19	2.61	2.07	1.87
	Pakistan	3.21	3.09	2.50	1.94	4.03	4.30	4.38	3.98	2.81	2.62	1.90	2.32	2.79	2.12
	South Korea	2.86	2.49	2.51	1.84	3.46	3.65	4.00	3.13	4.17	3.76	2.49	2.55	2.83	2.28
	APNN [h]	2.70	2.56	2.35	2.20	3.82	4.03	3.99	3.78	3.47	3.18	2.24	2.42	2.58	2.28
	F [i]	47.073	21.346	26.731	30.939	18.311	29.569	43.995	13.175	49.995	18.941	66.134	6.323	25.428	36.317
	sig [j]	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***

***p<.001, **p<.01, *p<.05

[a] Perception of Gender Barriers in STEM
[b] Direct/Indirect Experience of Gender Barriers in STEM
[c] Women Career Outlook in STEM
[d] Need for Support policy to overcome gender barrier in STEM
[e] Perception of Gender Equity
[f] Perception of Gender Stereotype
[g] Perception of Gender Barriers for the study and research environment in STEM
[h] Excluding data from Malaysia and India. In other tables APNN average includes both Malaysia and India.
[i], [j] Welchi test, as robust ANOVA was applied to analyze the differences between countries, according to variable sample sizes by country.



<Figure 4-5 Summary of Results by sub-areas from APNN>

Blue bars indicate APNN average of female respondents and red bars indicate APNN average of male respondents.

The average APNN values in Table 4-6 do not include results from Malaysia and India and thus may slightly differ from values in other tables.

<Table 4-7 Summary of scores of individual questions of APNN>

(unit: points)

Sub-area		Question	sex	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers (P.G.B)	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	2.46	1.252	2.802	0.005**
			male	2.29	1.153		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	2.51	1.191	3.724	0.000***
			male	2.29	1.166		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	2.88	1.235	6.235	0.000***
			male	2.50	1.207		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	2.74	1.200	-1.299	0.194
			male	2.82	1.193		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	2.76	1.141	-0.938	0.349
			male	2.82	1.194		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	2.87	1.140	5.083	0.000***
			male	2.57	1.178		
	Average		female	2.70	0.820	3.814	0.000***
			male	2.56	0.829		
2. Experience of Gender Barriers (E.G.B)	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	2.08	1.063	3.146	0.002**
			male	1.91	1.026		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	2.21	1.083	4.714	0.000***
			male	1.96	1.037		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	2.50	1.190	3.108	0.002**
			male	2.32	1.149		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	2.37	1.176	2.094	0.036*
			male	2.25	1.123		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	2.17	1.087	4.935	0.000***
			male	1.90	1.123		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	2.81	1.103	5.089	0.000***
			male	2.51	1.181		
	Average		female	2.35	0.820	3.944	0.000***
			male	2.20	0.855		
3. Career Outlook (C.O)	1	I believe things will turn out fine in the future career for women in STEM	female	3.82	1.011	-4.511	0.000***
			male	4.03	0.944		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field. (N.S.P)	female	3.99	1.037	3.785	0.000***
			male	3.78	1.114		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	3.70	0.975	7.862	0.000***
			male	3.25	1.269		

<Table 4-7 Summary of scores of individual questions of APNN>

(unit: points)

Sub-area		Question	sex	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype (P.G.S)	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	3.07	1.249	4.163	0.000***
			male	2.81	1.233		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	3.71	1.261	7.259	0.000***
			male	3.25	1.260		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	3.39	1.322	3.596	0.000***
			male	3.15	1.275		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	3.73	1.396	4.133	0.000***
			male	3.45	1.334		
	Average		female	3.47	1.039	5.861	0.000***
			male	3.18	1.023		
6. Perception of Gender Equity (P.G.E)	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	2.24	1.217	-2.706	0.007**
			male	2.42	1.233		
7. Perception of Gender Equality for study and research Environ-ment (P.G.B Env)	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	2.42	1.051	5.404	0.000***
			male	2.13	1.053		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	2.41	1.145	7.311	0.000***
			male	2.01	0.979		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	2.26	1.027	3.776	0.000***
			male	2.06	1.069		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	2.45	1.041	5.814	0.000***
			male	2.14	1.023		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	2.68	1.161	8.053	0.000***
			male	2.22	1.096		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	3.10	1.386	7.632	0.000***
			male	2.59	1.217		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	2.75	1.209	-0.665	0.506
			male	2.79	1.221		
	Average		female	2.58	0.771	7.970	0.000***
			male	2.28	0.719		

***p<.001, **p<.01, *p<.05

◦ **Perception of Gender Barriers in STEM**

: *Higher score, higher Perception of Gender Barriers (5-point scale).*

As shown in Table 4-7, the average scores on the Perception of Gender Barriers (2.70 for female respondent, 2.56 for male) indicates that respondents overall do not feel that severe discrimination existed. However, a statistically significant difference ($t=3.814$, $p\leq0.000$) between female and male respondents was observed on average; the score for female was generally higher than that of male from the sum of 6 questions. Female participants responded with the highest score of 2.88 for the statement, "Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level" followed by 2.87 for "Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues." However, two questions showed higher scores from male respondents, although not statistically significant. It is noteworthy that men perceived more discrimination of women than women themselves on the two statements "It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications" and "Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male."

◦ **Experience of Gender Barriers**

: *Higher score, more Experience of Gender Barriers (5-point scale).*

The average score on Experience of Gender Barriers (2.35 for female and 2.20 for male, Table 4-7) indicates that respondents perceive experiences of gender barriers as "neither seen nor heard but recognize the possibility." A statistically significant difference according to t-test was observed between results from female and male respondents ($t=3.944$, $p\leq0.000$). On average of the six questions, the scores from female participants were higher than those from male. Both female (2.81) and male (2.51) gave the highest score for experience of "Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care", followed by 2.50 (female) and 2.32 (male) on "Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc)." The question with the lowest score from male respondents among the 6 questions was 1.90 for "Women in STEM being disadvantaged in accessing research equipment or information because she is female", followed by 1.91 for "Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female". For female respondents, the lowest scored question was 2.08 for "Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because she is female" followed by 2.17 for "Women in STEM being disadvantaged in accessing research equipment or information because they are female." The results show that more severe experience of gender barriers are on sexual or biological aspects of women compared to those related to research or work.

◦ **Career Outlook for Women in STEM**

: *Higher score means more positive outlook (5-point scale).*

As shown in Table 4-7, how career outlook is perceived by young female adults was examined through the statement “I believe things will turn out fine in the future career for women in STEM.” The responses were reverse coded such that a higher score indicates a more positive outlook. The average response at 3.82 from female respondents showed that they were optimistic. Interestingly, an even higher score of positive outlook at 4.03 was observed from male respondents.

◦ **Need for Policy to Overcome Gender Barriers**

: Higher score means more agreement to supportive policy (5-point scale).

Two questions were asked for this sub-area as shown in Table 4-7. However, unlike the other sub-areas, the two questions are dealt separately rather than by average. The sub-area ‘NSP’ herein comprehensively showed is the response result for the first question in the sub-area. The responses to “It is crucial to have strong policy support to solve gender inequality in the STEM field” were reversely coded, and the results showed an average of 3.99 for female respondents and 3.78 for male respondents. Even though the average score is significantly different ($t=3.785$, $p\leq0.000$) between female and male respondents, that is female respondents seemed to agree more than male respondents, both scores reflect a high demand for supportive policy.

The scores for introducing a quota system or affirmative action plan (question 4-2) were 3.70 for female respondents and 3.25 for male respondents with a statistical significant difference between the sexes ($t=7.862$, $p\leq0.000$). It is noteworthy that both female and male young scientists and engineers responded with a strong need for policy to overcome gender barriers yet the responses to the introduction of a quota system were not as strong, especially from men.

◦ **Perception of Gender Role Stereotype**

: *Higher score means more progressive gender role perception*

To measure the respondents’ attitudes towards gender role stereotype within their family or social environment, four questions were asked as shown in Table 4-7. The average response to the four questions was 3.47 for female and 3.18 for male respondents. The most progressive attitude was found in “In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife” with an average of 3.73 (female) and 3.45 (male). This shows that most respondents did not agree on patriarchal power within the family. The second most progressive attitude was shown in the scores of 3.39 by female respondents on “Women are born to have a way of caring children that men are not capable of in the same way” and 3.25 by male respondents on “Primary breadwinners(who take care of financial obligations) of households should be men.” For the statement “In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for themselves” received the lowest score at 3.07 from female respondents and at 2.81 from male respondents.

◦ **Perception of Gender Equity**

: *Higher score means higher gender equity perception*

This sub-area consisted of one question asking whether equal opportunities can be a sufficient condition for achieving gender equality. The question was to examine the understanding of the gender equality concept[1]. We interestingly find that the average score from male respondents on this statement is significantly higher than that from female respondents ($t=-2.706$, $p\leq0.007$) although both male (2.42) and female (2.24) average scores were less than the middle value of 3.0 (Table 4-7). In other words, both male and female respondents seemed to have weak understanding of gender equity.

◦ **Perception of Gender Barrier for study and research Environment**

: *Higher score means higher perception of gender equality for study and research environment in STEM*

This sub-area has been newly added this year because the respondents were those in their twenties and mostly expected to be in school or research labs. The 7 questions in this sub-area aimed to capture overt / covert discriminatory reality that may exist in educational or research environment for female students or young adults[2]. The average score for the seven questions was 2.58 for female and 2.28 for male (Table 4-7). The strongest perception from respondents was shown in "Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance," with scores of 3.10 (female) and 2.59 (male), followed by "Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)," showing an average of 2.68 by female respondents and 2.22 by male respondents. We reversely coded the response score of the question "Female students in STEM are intimidated in the laboratory or in classes because they are female" The average score for this question was 2.75 by female and 2.79 by male respondents. The statement "Women equally receive the appraisal or award for the outcome of their project or research" got the lowest score of 2.01 from male respondents, while "The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge" of 2.26 from female respondents. Sex difference on the

1) "Gender equality, equality between men and women…does not mean that women and men have to become the same, but that their rights, responsibilities and opportunities will not depend on whether they were born male or female. Gender equity means fairness of treatment for men and women according to their respective needs. This may include equal treatment or treatment that is different but which is considered equivalent in terms of rights, benefits, obligations, and opportunities." (by United Nations Educational, Scientific and Cultural Organization). We also understand the concept of equity from "The route to achieving equity will not be accomplished through treating everyone equally. It will be achieved by treating everyone just according to their circumstance" (Paula Dressel, Race Matters Institute).

2) The historical long invisibility or insufficient appraisal for women in STEM is now well known subject. UNESCO estimate the share of female researcher worldwide at 28.4%, but 22.5% for Southest Asia, and 16.9% for South Asia in 2013 or closest year. The share of female for education, working, research and decision making status was continuously increased but there exist sticky barrier which make unable the gender equality in STEM such as maternal wall/glass ceiling/performance evaluation criteria, lack of recognition, lack of support for leadership bids, unconscious gender bias (UNESCO Science Report: toward 2030, 2015).

7 questions was statistically significant (t= 7.970, p≤ 0.000).

4.2.2 Analyses of Variables by sub-areas (APNN)

1) Perception of Gender Barriers

Table 4-8 lists the average scores of 6 questions for sub-area 1 according to their major field and current status for both sexes. The results of 2 way Analyses of Variances (ANOVA) is shown in Table 4-9. There existed significant differences independently by major field (F=8.37, df=1, 790, p≤0.004) and by current status (F=3.62, df=5, 790, p≤0.003) for female respondents. For male respondents there was a significant interaction effects between the major field and current status of respondents (F=2.67, df=5, 768, p≤0.021).

For female respondents, a significant difference in the Perception of Gender Barriers was observed between those in engineering and natural sciences, engineering showing higher values of 2.86 compared to those in natural sciences of 2.46. Difference was also observed among those of different status, that is whether one is a student pursuing a masters degree or studying for a doctoral degree. Female respondents working with a masters degree showed highest score of 2.93.

For male respondents, those in engineering (2.63) also showed higher values than those in natural sciences (2.38) and those working with a Ph.D (2.82) showed the highest value compared to others. In addition, difference among those in different majors and current status was observed. That is, male undergraduate student in natural science (2.16) would show a difference in perception of gender barrier from respondents working with MA in engineering (2.50). Those with the highest score among male respondents was those working with their Ph.D (2.95) in engineering.

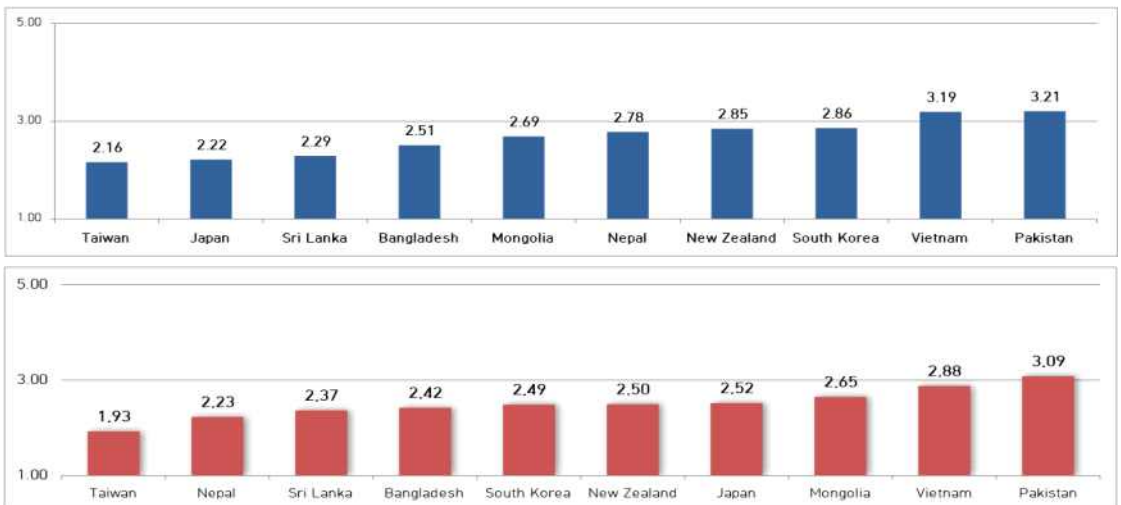
Cross country comparison of PGB is shown in Figure 4-6 below. Both female and male responses was lowest from Taiwan (2.16, 1.93) and highest from Pakistan (3.21, 3.09). In general, all APNN countries showed higher scores from female respondents compared to their male counterparts.

<Table 4-8 Comparison of scores from Sub-area 1 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.33	0.740	104	2.16	0.744
	STUDENT IN MA	84	2.46	0.697	54	2.36	0.797
	WORKING WITH MA	47	2.79	0.795	56	2.57	0.602
	STUDENT IN DOCTORAL DEGREE	20	2.32	0.671	24	2.66	0.706
	WORKING WITH Ph.D	4	3.04	1.022	6	2.67	0.983
	OTHERS	30	2.54	0.624	15	2.71	0.602
	TOTAL	317	2.46	0.741	259	2.38	0.744
ENGINEERING	UNDERGRADUATE STUDENT	177	2.77	0.848	227	2.66	0.918
	STUDENT IN MA	140	2.86	0.877	130	2.53	0.868
	WORKING WITH MA	60	3.04	0.844	57	2.50	0.769
	STUDENT IN DOCTORAL DEGREE	32	3.01	0.650	49	2.80	0.821
	WORKING WITH Ph.D	6	2.72	0.892	7	2.95	0.209
	OTHERS	70	2.89	0.743	51	2.66	0.692
	TOTAL	485	2.86	0.832	521	2.63	0.857
TOTAL	UNDERGRADUATE STUDENT	309	2.58	0.831	331	2.51	0.897
	STUDENT IN MA	224	2.71	0.836	184	2.48	0.849
	WORKING WITH MA	107	2.93	0.829	113	2.53	0.689
	STUDENT IN DOCTORAL DEGREE	52	2.74	0.734	73	2.76	0.783
	WORKING WITH Ph.D	10	2.85	0.904	13	2.82	0.668
	OTHERS	100	2.78	0.724	66	2.67	0.669
	TOTAL	802	2.70	0.820	780	2.56	0.829

<Table 4-9 Analyses of Variables for Sub-area 1 (PGB, APNN)>

1	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	785.47	0.000	0.923	12	638.65	0.000	0.909
MAJORFIELD	1	8.37	0.004	0.010	1	2.71	0.100	0.004
CURRENTSTATUS	5	3.62	0.003	0.022	5	2.73	0.019	0.017
MAJORFIELD * CURRENTSTATUS	5	0.96	0.439	0.006	5	2.67	0.021	0.017
error	790				768			



<Figure 4-6 Comparative PGB values by APNN Countries (female and male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

2) Experience of Gender Barriers (EGB)

There were 6 questions to measure the direct and/or indirect Experience of Gender Barriers. For this sub-area, women and men were asked different questions: women were asked of their direct experience while men were asked if they have seen/heard of women's experience. The comprehensive result for these 6 questions was categorized as 'Experience of Gender Barriers' (EGB) and Table 4-10 lists the average scores of 6 questions for sub-area 2 according to their major field and current status. The overall average was 2.35 for female and 2.20 for male. The higher score means the more direct (female) or indirect (male) Experience of Gender Barriers.

<Table 4-10 Comparison of scores from Sub-area 2 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	130	2.19	0.771	91	2.09	0.865
	STUDENT IN MA	85	2.25	0.824	47	2.51	0.855
	WORKING WITH MA	47	2.54	0.820	49	2.46	0.639
	STUDENT IN DOCTORAL DEGREE	21	2.16	0.706	19	2.66	0.708
	WORKING WITH Ph.D	4	2.38	1.658	4	2.50	1.045
	OTHERS	31	2.53	0.977	13	1.91	1.006
	TOTAL	318	2.29	0.829	223	2.31	0.840
ENGINEERING	UNDERGRADUATE STUDENT	178	2.31	0.830	217	1.92	0.824
	STUDENT IN MA	140	2.35	0.816	119	2.20	0.867
	WORKING WITH MA	61	2.30	0.671	50	2.53	0.880
	STUDENT IN DOCTORAL DEGREE	30	2.92	0.659	46	2.42	0.853
	WORKING WITH Ph.D	6	1.89	0.502	5	2.40	0.548
	OTHERS	69	2.61	0.841	51	2.16	0.743
	TOTAL	484	2.39	0.812	488	2.13	0.856
TOTAL	UNDERGRADUATE STUDENT	308	2.26	0.806	308	1.97	0.839
	STUDENT IN MA	225	2.31	0.818	166	2.29	0.872
	WORKING WITH MA	108	2.40	0.745	99	2.49	0.767
	STUDENT IN DOCTORAL DEGREE	51	2.61	0.772	65	2.49	0.816
	WORKING WITH Ph.D	10	2.08	1.058	9	2.44	0.750
	OTHERS	100	2.58	0.881	64	2.11	0.801
	TOTAL	802	2.35	0.820	711	2.20	0.855

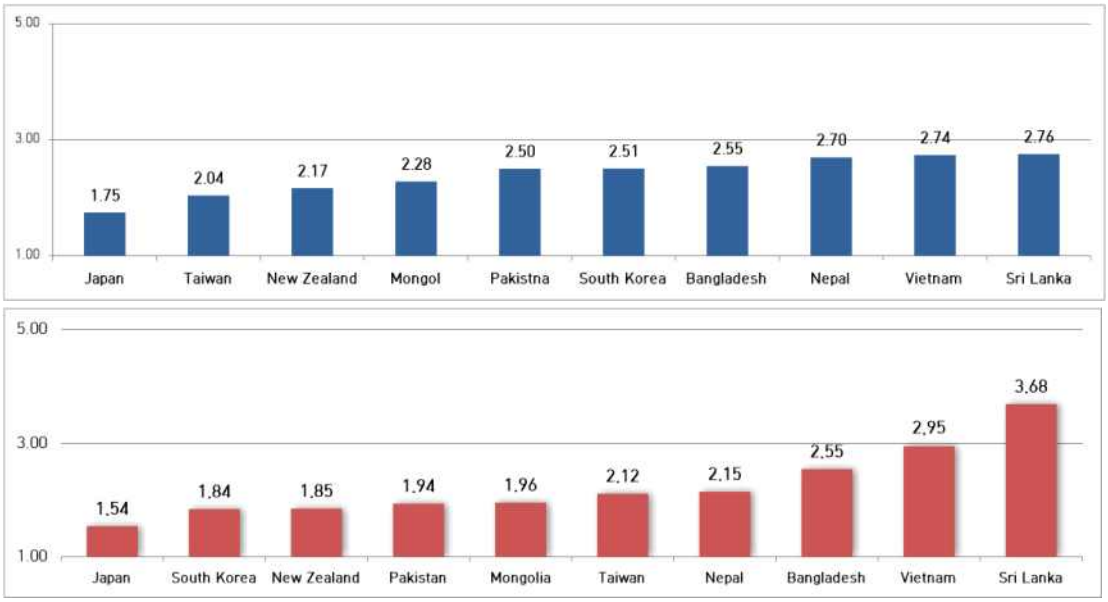
<Table 4-11 Analyses of Variables for Sub-area 2 (EGB, APNN)>

2	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	571.12	0.000	0.897	12	416.42	0.000	0.877
MAJORFIELD	1	0.28	0.598	0.000	1	0.51	0.475	0.001
CURRENTSTATUS	5	3.11	0.009	0.019	5	8.41	0.000	0.057
MAJORFIELD * CURRENTSTATUS	5	2.85	0.015	0.018	5	1.10	0.359	0.008
error	790				699			

The scores by female respondents were higher than those of male respondents. The results of 2 way Analyses of Variances (ANOVA) are shown in Table 4-11. For female respondents a significant interaction effect between major field and current status of respondents ($F=2.85$, $df=5, 790$, $p \leq 0.015$) was observed. Graduate students in doctoral studies (2.16) showed the lowest EGB among female respondents in natural sciences while those working with Ph.D

(1.89) showed the lowest EGB among engineering female respondents. For male, there existed significant differences independently by current status (F=8.41, df=5, 699, p≤0.000). Undergraduate students (1.97) showed the lowest indirect EGB while those working with MA degree or students in doctoral studies showed more indirect EGB among the male respondents.

Figure 4-7 is the cross country comparison of EGB in APNN countries. For both female and male respondents, Japan showed the lowest score of 1.75 and 1.54 respectively while Sri Lanka the highest scores of 2.76 and 3.68 respectively. Except for Vietnam, Sri Lanka and Taiwan, scores for EGB were higher for female respondents than male.



<Figure 4-7 Comparative EGB values by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

3) Career Outlook (CO)

Table 4-12 lists the average scores for sub-area 3. The overall average was 3.82 for female and 4.03 male respondents. The higher score means more positive prospect on career outlook for women in STEM.

<Table 4-12 Comparison of scores from sub-area 3 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	131	3.67	0.980	103	4.18	0.988
	STUDENT IN MA	85	4.01	0.970	56	3.71	1.124
	WORKING WITH MA	48	3.73	1.067	56	3.50	1.128
	STUDENT IN DOCTORAL DEGREE	21	3.71	1.056	24	3.83	0.761
	WORKING WITH Ph.D	4	3.75	1.258	7	3.86	1.069
	OTHERS	31	4.13	0.885	15	3.87	0.990
	TOTAL	320	3.82	0.998	261	3.88	1.060
ENGINEERING	UNDERGRADUATE STUDENT	174	3.85	1.003	231	4.02	0.906
	STUDENT IN MA	141	3.76	1.006	132	4.26	0.853
	WORKING WITH MA	61	3.59	1.086	57	4.11	0.795
	STUDENT IN DOCTORAL DEGREE	30	3.93	0.740	49	4.35	0.751
	WORKING WITH Ph.D	6	2.33	1.506	7	3.43	0.535
	OTHERS	70	4.17	0.947	52	4.15	0.894
	TOTAL	482	3.82	1.022	528	4.13	0.871
TOTAL	UNDERGRADUATE STUDENT	305	3.77	0.996	334	4.07	0.934
	STUDENT IN MA	226	3.85	0.998	188	4.10	0.971
	WORKING WITH MA	109	3.65	1.075	113	3.81	1.016
	STUDENT IN DOCTORAL DEGREE	51	3.84	0.880	73	4.18	0.788
	WORKING WITH Ph.D	10	2.90	1.524	14	3.64	0.842
	OTHERS	101	4.16	0.924	67	4.09	0.917
	TOTAL	802	3.82	1.011	789	4.03	0.944

<Table 4-13 Analyses of Variables for Sub-area 3 (CO, APNN)>

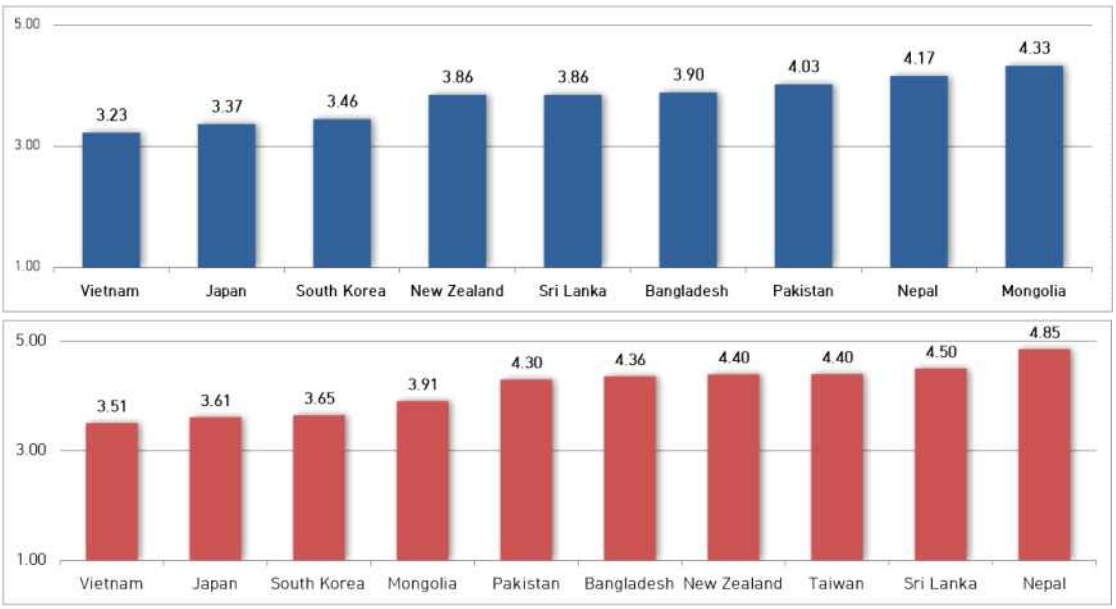
3	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	987.00	0.000	0.937	12	1265.59	0.000	0.951
MAJORFIELD	1	3.08	0.080	0.004	1	4.26	0.039	0.005
CURRENTSTATUS	5	4.01	0.001	0.025	5	2.28	0.045	0.014
MAJORFIELD * CURRENTSTATUS	5	2.36	0.039	0.015	5	5.08	0.000	0.032
error	790				777			

A significant effect from current status ($F = 4.01$, $df = 5, 790$, $p \leq 0.001$) was observed for female respondents while that from major field ($F = 4.26$, $df = 1, 777$, $p \leq 0.039$) was observed for male respondents. The 2 way ANOVA result show a significant interaction effects between major field and current status for both women ($F=2.36$, $df=5, 790$, $p \leq 0.039$) and men ($F=5.08$, $df=5, 777$, $p \leq 0.000$).

For male respondents in natural science, the score of undergraduate students (4.18) was the highest, while the score of working with MA (3.50) was the lowest. On the other hand, for male respondents in engineering the highest score was of the graduate students in doctoral degree (4.35), followed by

graduate students in masters degree (4.26). The score of male respondents working with Ph.D (3.43) was the lowest in engineering.

Figure 4-8 is the cross country comparison of CO in APNN countries. The average score of Vietnam (3.23) was the lowest while Mongolia (4.33) was the highest for female respondents. For male, the score from Vietnam (3.51) was the lowest while that of Nepal (4.85) was the highest.



<Figure 4-8 Comparative CO values by APNN Countries (Female and Male)>

Blue bars (above) represent data for female, red bars (below) represent data for male.

4) Need for Supportive Policy (NSP)

Table 4-14 lists the average scores for the first question of sub-area 4. The results are reversely coded to show that higher score means higher agreement to the need for supportive policy. The overall average was 3.99 female and 3.78 male.

<Table 4-14 Comparison of scores from sub-area 4 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	131	3.73	1.144	103	4.13	1.054
	STUDENT IN MA	85	4.09	0.840	56	3.95	1.052
	WORKING WITH MA	48	4.08	0.846	56	4.04	0.852
	STUDENT IN DOCTORAL DEGREE	21	4.43	0.870	24	2.79	1.215
	WORKING WITH Ph.D	4	4.75	0.500	7	4.00	1.414
	OTHERS	30	4.17	0.913	15	3.80	1.014
	TOTAL	319	3.98	1.004	261	3.92	1.093
ENGINEERING	UNDERGRADUATE STUDENT	175	4.15	1.008	230	3.69	1.113
	STUDENT IN MA	140	4.01	0.982	132	3.80	1.162
	WORKING WITH MA	60	3.72	1.106	57	3.60	1.033
	STUDENT IN DOCTORAL DEGREE	30	3.20	1.157	49	3.67	1.248
	WORKING WITH Ph.D	6	2.67	0.816	7	3.29	1.113
	OTHERS	70	4.36	0.979	51	3.98	0.990
	TOTAL	481	4.01	1.060	526	3.73	1.120
TOTAL	UNDERGRADUATE STUDENT	306	3.97	1.088	333	3.82	1.112
	STUDENT IN MA	225	4.04	0.930	188	3.85	1.129
	WORKING WITH MA	108	3.88	1.011	113	3.81	0.969
	STUDENT IN DOCTORAL DEGREE	51	3.71	1.205	73	3.38	1.298
	WORKING WITH Ph.D	10	3.50	1.269	14	3.64	1.277
	OTHERS	100	4.30	0.959	66	3.94	0.990
	TOTAL	800	3.99	1.037	787	3.78	1.114

<Table 4-15 Analyses of Variables for Sub-area 4 (NSP, APNN)>

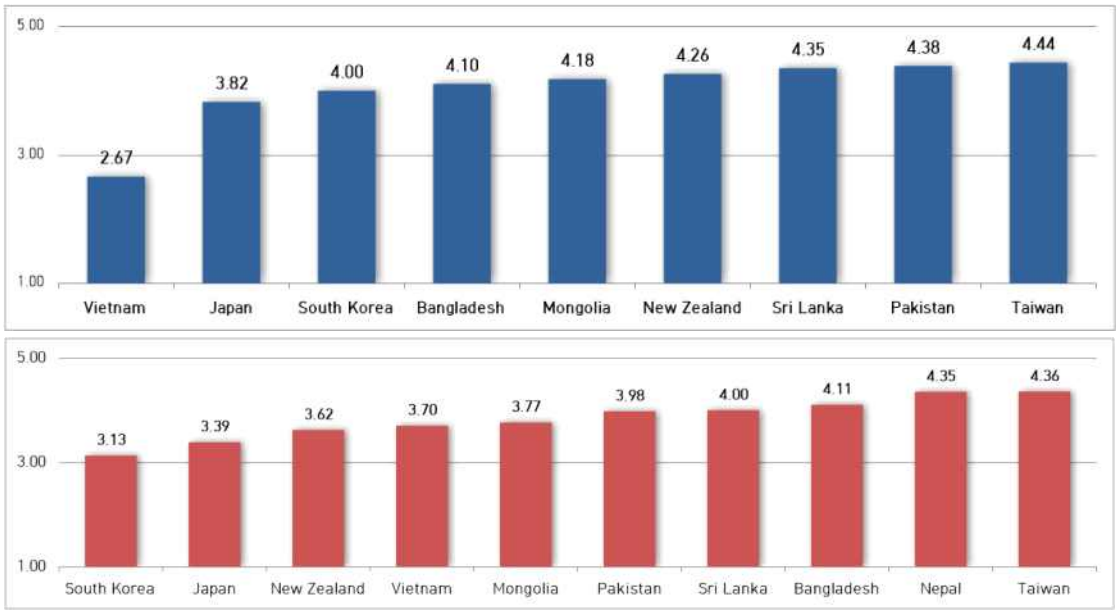
4	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	1062.35	0.000	0.942	12	793.32	0.000	0.925
MAJORFIELD	1	15.89	0.000	0.020	1	0.75	0.388	0.001
CURRENTSTATUS	5	2.18	0.054	0.014	5	4.27	0.001	0.027
MAJORFIELD * CURRENTSTATUS	5	9.43	0.000	0.056	5	4.56	0.000	0.029
error	788				775			

In general, the score by female respondents was higher than that of male respondents. The 2 way ANOVA results show that a significant effect from major field ($F=15.89$, $df=1, 788$, $p\leq0.000$) was observed in female while from current status ($F=4.27$ $df=5, 775$, $p\leq0.001$) was observed for male. A significant interaction effect existed between major field and current status for both female ($F=9.43$ $df=5, 788$, $p\leq0.000$) and male ($F=4.56$, $df=5, 775$, $p\leq0.000$) respondents.

For female respondents in natural science, the score of those working with Ph.D (4.75) was the highest while the score of undergraduate students (3.73) was the lowest. For female respondents in engineering, the score for other

(4.36) was the highest while those working with Ph.D was the lowest (2.67). For male response, the highest score in natural science was of undergraduate students (4.13), while that of graduate students in doctoral degree (2.79) was the lowest. For male in engineering, the score for other (3.98) was the highest, while that of working with Ph.D (3.29) was the lowest.

Among the APNN countries, Vietnam (2.67) showed the lowest NSP among female while, Taiwan (4.44) the highest. For male, South Korea (3.13) scored the lowest for NSP while Taiwan (4.36) the highest.



<Figure 4-9 Comparative NSP values by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

5) Perception of Gender Role Stereotype (PGS)

There were 4 questions to measure the Perception of Gender Role Stereotype. The comprehensive result for these 4 questions are summarized in Table 4-16. The overall average was 3.47 for female and 3.18 for male. The higher score means higher perception of gender role stereotype.

<Table 4-16 Comparison of scores from sub-area 5 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	131	3.21	1.033	101	3.00	1.000
	STUDENT IN MA	84	3.58	1.061	56	3.04	1.033
	WORKING WITH MA	48	3.48	0.949	55	2.91	0.763
	STUDENT IN DOCTORAL DEGREE	21	4.00	0.862	24	3.10	0.906
	WORKING WITH Ph.D	4	2.94	0.875	6	3.33	1.320
	OTHERS	31	3.28	1.121	15	2.83	0.929
	TOTAL	319	3.41	1.043	257	3.00	0.951
ENGINEERING	UNDERGRADUATE STUDENT	179	3.72	1.085	229	3.29	1.117
	STUDENT IN MA	140	3.39	0.985	130	3.18	1.013
	WORKING WITH MA	61	3.32	1.001	57	3.16	0.864
	STUDENT IN DOCTORAL DEGREE	32	3.59	0.827	49	3.52	1.027
	WORKING WITH Ph.D	6	3.58	0.492	7	3.54	0.684
	OTHERS	69	3.37	1.093	52	3.07	1.023
	TOTAL	487	3.51	1.036	524	3.25	1.047
TOTAL	UNDERGRADUATE STUDENT	310	3.50	1.090	330	3.20	1.089
	STUDENT IN MA	224	3.46	1.016	186	3.14	1.018
	WORKING WITH MA	109	3.39	0.977	112	3.04	0.822
	STUDENT IN DOCTORAL DEGREE	53	3.75	0.858	73	3.38	1.002
	WORKING WITH Ph.D	10	3.33	0.708	13	3.44	0.985
	OTHERS	100	3.34	1.097	67	3.01	1.001
	TOTAL	806	3.47	1.039	781	3.18	1.023

<Table 4-17 Analyses of Variables for Sub-area 5 (PGS, APNN)>

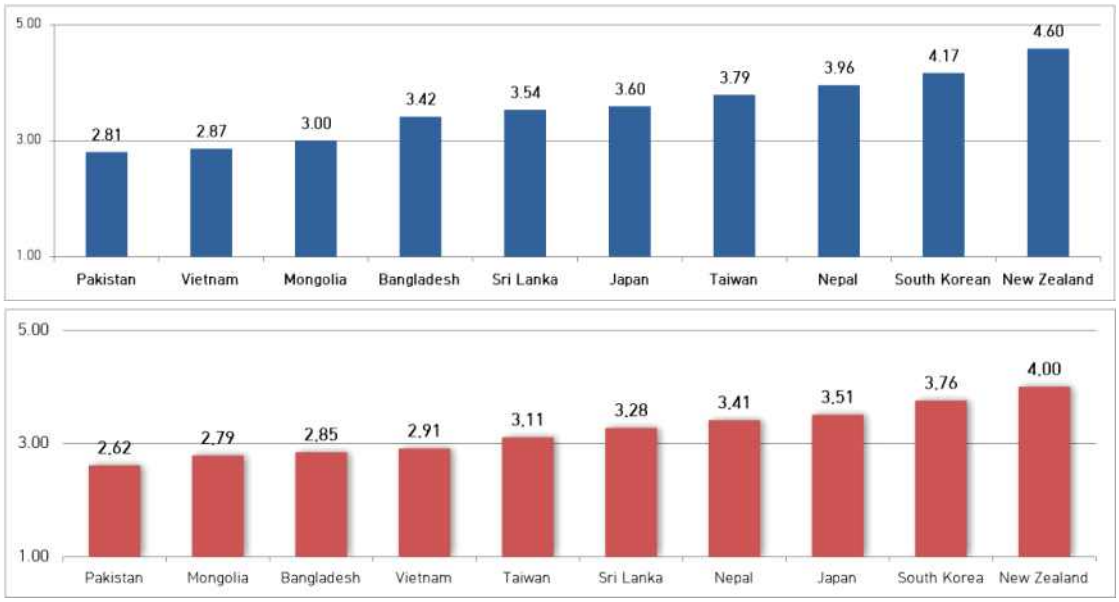
5	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	770.08	0.000	0.921	12	633.15	0.000	0.908
MAJORFIELD	1	0.35	0.555	0.000	1	4.25	0.039	0.006
CURRENTSTATUS	5	1.53	0.179	0.010	5	1.16	0.328	0.007
MAJORFIELD * CURRENTSTATUS	5	4.25	0.001	0.026	5	0.19	0.967	0.001
error	794				769			

The 2 way ANOVA result show us that there was a significant interaction effect between major field and current status for female respondents ($F=4.25$, $df=5$, 794, $p\leq0.001$). For male respondents there was significant effect observed by the major field ($F=4.25$, $df=1$, 769, $p\leq0.039$).

For female respondents in natural science, students in a doctoral degree (4.00) gave the highest average score, while that of those working with Ph.D (2.94) was the lowest. In engineering, the score of undergraduate students (3.72) was the highest, while that of those working with MA (3.32) was the lowest. For male, the score of respondents working with Ph.D (3.44) was the highest,

while that of those in others (3.01) was the lowest.

Among APNN countries, Pakistan (2.81) showed the lowest PGS while New Zealand (4.60) the highest among female respondents. A similar pattern was shown among male respondents, where Pakistan (2.62) was the lowest while New Zealand (4.00) was the highest.



<Figure 4-10 Comparative PGS values by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

6) Perception of Gender Equity (PGE)

"I believe gender equality will be fully achieved only if women are given equal opportunities as men" was the question used to measure the perception of gender equity (PGE). The result for this question is summarized in Table 4-18. The overall average was 2.24 for female and 2.42 for male. The higher score means the higher perception and/or understanding of the notion of gender equity.

<Table 4-18 Comparison of scores from sub-area 6 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.41	1.272	103	2.36	1.228
	STUDENT IN MA	85	2.16	1.143	56	2.68	1.428
	WORKING WITH MA	48	2.40	1.180	56	2.41	1.172
	STUDENT IN DOCTORAL DEGREE	21	1.71	0.956	24	2.08	1.060
	WORKING WITH Ph.D	4	2.00	0.816	6	2.67	1.366
	OTHERS	30	1.97	1.066	15	2.53	1.407
	TOTAL	320	2.25	1.193	260	2.43	1.261
ENGINEERING	UNDERGRADUATE STUDENT	179	2.11	1.234	229	2.33	1.215
	STUDENT IN MA	141	2.33	1.285	132	2.23	1.241
	WORKING WITH MA	61	2.15	1.030	57	2.84	1.099
	STUDENT IN DOCTORAL DEGREE	32	3.00	1.270	49	2.57	1.242
	WORKING WITH Ph.D	6	3.17	0.408	7	2.57	1.397
	OTHERS	70	1.96	1.148	52	2.35	1.186
	TOTAL	489	2.23	1.233	526	2.39	1.220
TOTAL	UNDERGRADUATE STUDENT	311	2.23	1.257	332	2.34	1.217
	STUDENT IN MA	226	2.27	1.234	188	2.37	1.312
	WORKING WITH MA	109	2.26	1.101	113	2.63	1.151
	STUDENT IN DOCTORAL DEGREE	53	2.49	1.310	73	2.41	1.200
	WORKING WITH Ph.D	10	2.70	0.823	13	2.62	1.325
	OTHERS	100	1.96	1.118	67	2.39	1.230
	TOTAL	809	2.24	1.217	786	2.42	1.233

<Table 4-19 Analyses of Variables for Sub-area 6 (PGE, APNN)>

6	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	236.79	0.000	0.781	12	251.92	0.000	0.796
MAJORFIELD	1	4.81	0.029	0.006	1	0.03	0.857	0.000
CURRENTSTATUS	5	1.18	0.315	0.007	5	1.03	0.401	0.007
MAJORFIELD * CURRENTSTATUS	5	4.77	0.000	0.029	5	2.30	0.044	0.015
error	797				774			

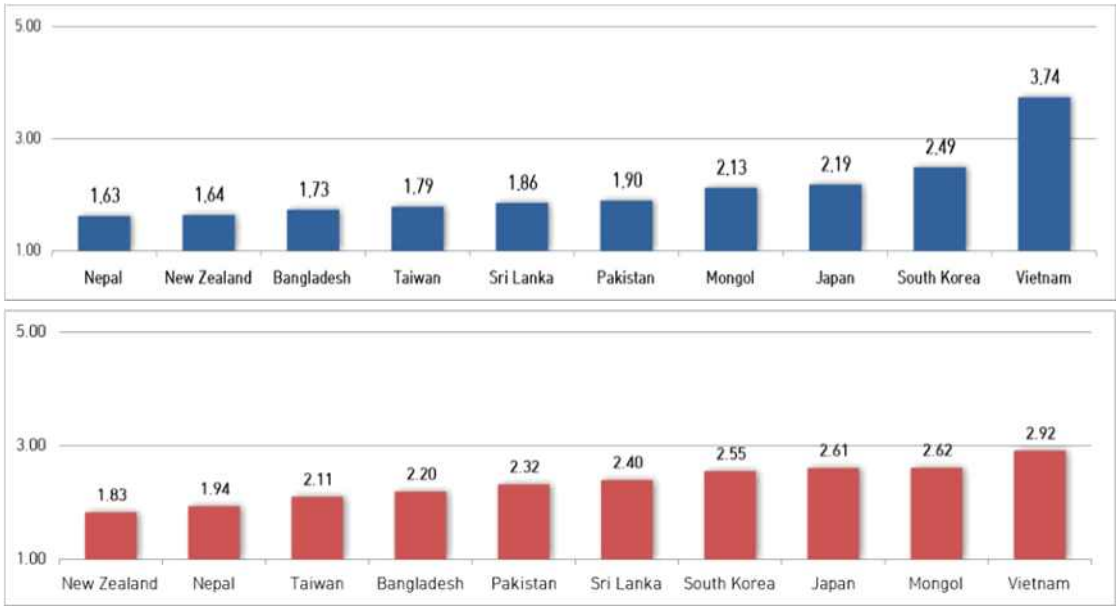
The 2 way ANOVA results show us that there is significant effect of major field for female respondents (F=4.81, df=1, 797, p=0.029). In addition, there existed significant interaction effects between major field and current status for both female (F=4.77, df=5, 797, p=0.000) and male (F=2.30, df=5, 774, p=0.044) respondents.

For female respondents in natural science, the undergraduate students (2.41) gave the highest average score while those studying for a doctoral degree

(1.71) gave the lowest. For female respondents in engineering, the respondents who are working with a Ph.D (3.17) gave the highest score while those in others (1.96) was the lowest.

For male in natural science, the graduate students in masters degree (2.68) gave the highest average score while those studying for a doctoral degree (2.08) gave the lowest. For male in engineering, those working with MA (2.84) scored highest while students in masters degree (2.23) was the lowest.

The cross country comparison results showed that Nepal (1.63) was lowest in PGE while Vietnam (3.74) was the highest among female respondents. Among male respondents, New Zealand (1.83) showed the lowest, while Vietnam (2.92) the highest PGE.



<Figure 4-11 Comparative PGE values by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

7) Perception of Gender Barriers for study and research Environment (PGB Env)

There were 7 questions asked to measure the perception of gender barriers during the respondents' study or research. The comprehensive results for these 7 questions under the sub-area 'Perception of Gender Barrier for study and research Environment' (PGB Env) are summarized in Table 4-20. The overall average was 2.58 for female and 2.28 for male. The higher score means the higher perception of gender barrier for study and research environment.

<Table 4-20 Comparison of scores from sub-area 7 by Personal Variable from APNN>

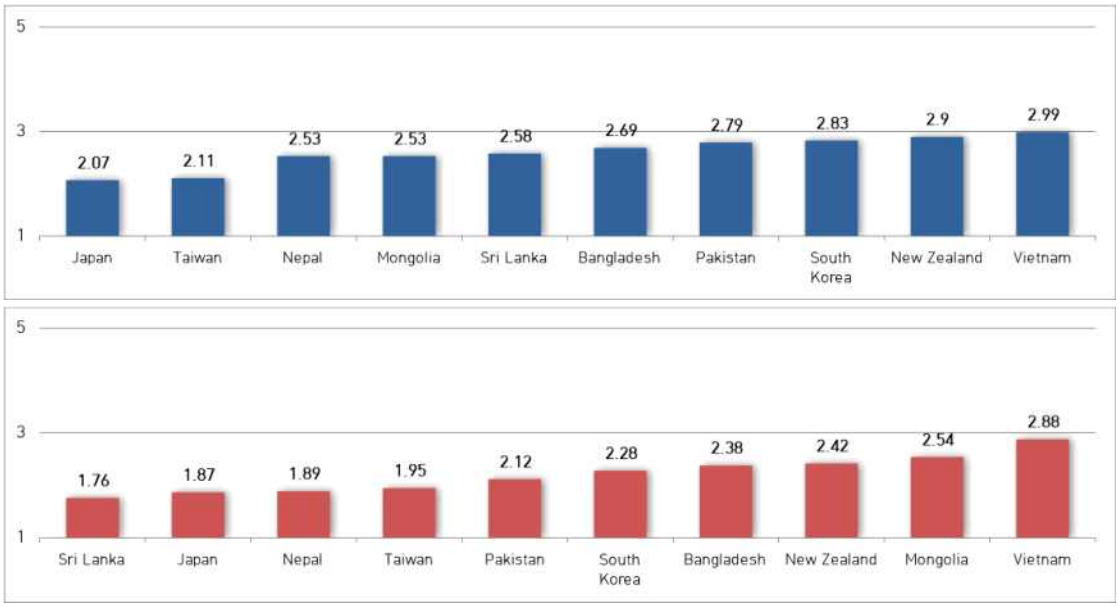
Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.47	0.772	103	2.09	0.707
	STUDENT IN MA	85	2.30	0.740	57	2.52	0.903
	WORKING WITH MA	47	2.54	0.769	56	2.56	0.710
	STUDENT IN DOCTORAL DEGREE	21	2.33	0.913	24	2.21	0.625
	WORKING WITH Ph.D	4	2.61	0.623	6	2.38	1.188
	OTHERS	28	2.32	0.710	14	2.13	0.507
	TOTAL	317	2.42	0.766	260	2.31	0.775
ENGINEERING	UNDERGRADUATE STUDENT	166	2.75	0.784	213	2.32	0.718
	STUDENT IN MA	137	2.65	0.724	129	2.06	0.628
	WORKING WITH MA	61	2.68	0.779	55	2.31	0.661
	STUDENT IN DOCTORAL DEGREE	32	2.71	0.704	49	2.37	0.684
	WORKING WITH Ph.D	6	2.79	0.888	7	2.75	0.669
	OTHERS	60	2.63	0.752	44	2.30	0.650
	TOTAL	462	2.69	0.755	497	2.26	0.689
TOTAL	UNDERGRADUATE STUDENT	298	2.63	0.789	316	2.25	0.721
	STUDENT IN MA	222	2.52	0.748	186	2.20	0.752
	WORKING WITH MA	108	2.62	0.774	111	2.44	0.695
	STUDENT IN DOCTORAL DEGREE	53	2.56	0.807	73	2.32	0.666
	WORKING WITH Ph.D	10	2.71	0.759	13	2.58	0.922
	OTHERS	88	2.53	0.749	58	2.26	0.618
	TOTAL	779	2.58	0.771	757	2.28	0.719

<Table 4-21 Analyses of Variables for Sub-area 7 (PGB Env, APNN)>

7	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	2.841	0.000	0.928	11	3.745	0.000	0.052
MAJORFIELD	1	7.403	0.001	0.013	1	0.166	0.683	0.000
CURRENTSTATUS	5	1.093	0.017	0.018	5	2.152	0.058	0.014
MAJORFIELD * CURRENTSTATUS	5	0.325	0.503	0.006	5	5.987	0.000	0.039
error	767				745			

The 2 way ANOVA results show that there was significant effect of major field (F=7.403, df=1, 767, p≤0.001) and of current status (F=1.093, df=5, 767, p≤0.017) for female respondents. There was a difference observed between those in engineering (2.69) and those in natural science (2.42) among female respondents. In addition, female respondents working with a Ph.D showed highest PGB Env (2.71), while students in masters degree (2.52) was lowest. For male respondents significant interaction effect of major field and current status (F=5.987, df=5, 745, p≤0.000) was observed.

Among the APNN countries, Japan (2.07) showed the lowest PGB Env while Vietnam (2.99) the highest among female respondents. Similarly, for male respondents, Sri Lanka (1.76) showed the lowest and Vietnam (2.88) the highest.



<Figure 4-12 Comparative PGB Env values by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

Survey Results from ARN

4.3 Results from ARN

4.3.1 Overall Results of ARN by Sub-area and by Country

The following is a cross-country comparison of the results by sub-area from ARN (see Table 4-22 and Table 4-23)

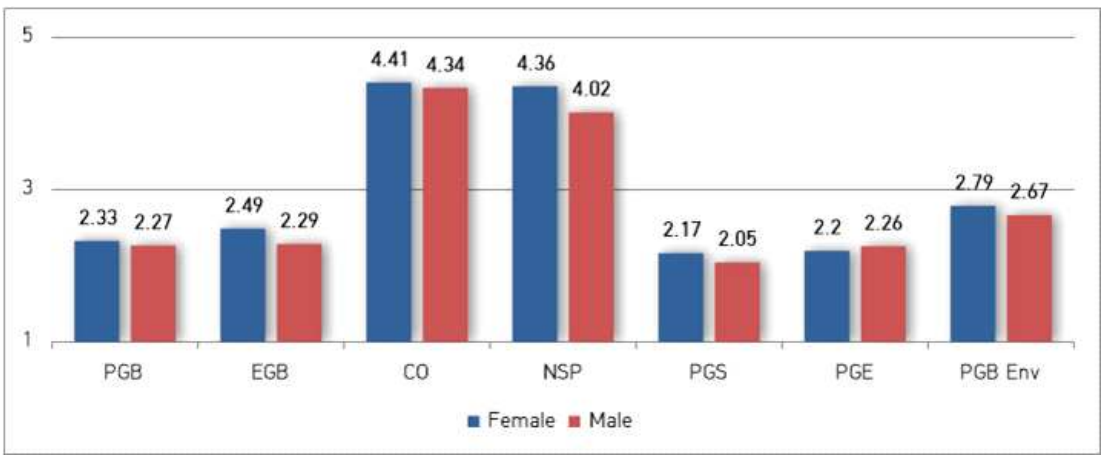
<Table 4-22 Summary of Results by Sub-area and by Country from ARN>

(unit: points)

	Classification	P.G.B [a]		E.G.B [b]		C.O [c]		N.S.P [d]		P.G.S [e]		P.G.E [f]		P.G.D Env [g]	
		female	male	female	male	female	male	female	male	female	male	female	male	female	male
ARN	Nigeria	2.26	2.27	2.45	2.41	4.32	4.15	4.14	3.83	1.83	1.94	2.56	2.25	2.89	2.97
	Uganda	2.19	2.27	2.67	1.99	4.73	4.85	4.81	4.49	2.40	2.33	1.58	2.55	2.40	1.90
	Kenya	2.68	2.25	2.51	1.89	4.50	4.85	4.80	4.62	3.13	2.41	1.40	1.81	2.72	1.81
	ARN	2.33	2.27	2.49	2.29	4.41	4.34	4.36	4.02	2.17	2.05	2.20	2.26	2.79	2.67
	F [h]	3.413	0.008	0.873	14.744	4.271	30.315	28.812	14.171	21.468	3.339	36.738	6.934	5.859	161.16
	sig [i]	.042*	.992	.452	.000***	.017*	000***	.000***	000***	.000***	.043*	.000***	.002**	.005**	.000***

***p<.001, **p<.01, *p<.05

[a] Perception of Gender Barriers in STEM
[b] Direct/Indirect Experience of Gender Barriers in STEM
[c] Women Career Outlook in STEM
[d] Need for Support policy to overcome gender barrier in STEM
[e] Perception of Gender Equity
[f] Perception of Gender Stereotype
[g] Perception of Gender Barriers for the study and research environment in STEM
[h], [i] Welchi test, as robust ANOVA was applied to analyze the differences between countries, according to variable sample sizes by country.



<Figure 4-13 Summary of Results by sub-areas>

Blue bars indicate ARN average of female respondents and red bars indicate ARN average of male respondents.

<Table 4-23 Summary of scores of individual questions from ARN>

(unit: points)

Classifications		Question	sex	ARN			
				average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	2.38	1.335	3.809	0.000***
			male	1.96	0.992		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	2.20	1.146	0.666	0.506
			male	2.13	1.057		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	3.00	1.453	-0.149	0.881
			male	3.02	1.536		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	2.51	1.421	-1.909	0.057
			male	2.76	1.477		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	2.03	0.987	0.222	0.824
			male	2.00	1.110		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	1.88	1.079	1.811	0.071
			male	1.73	0.743		
	Average		female	2.33	0.599	1.301	0.194
			male	2.27	0.470		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	2.27	0.813	4.698	0.000***
			male	1.92	0.759		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	2.38	1.089	2.734	0.007**
			male	2.14	0.710		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	2.54	1.149	-1.941	0.053
			male	2.73	1.008		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	2.52	0.927	1.404	0.161
			male	2.40	0.884		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	2.31	1.035	6.758	0.000***
			male	1.74	0.686		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	2.91	1.039	1.398	0.163
			male	2.78	1.104		
	Average		female	2.49	0.651	3.718	0.000***
			male	2.29	0.498		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	female	4.41	0.985	0.710	0.478
			male	4.34	1.049		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field. (N.S.P)	female	4.36	0.898	3.509	0.000***
			male	4.02	1.199		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	3.84	1.331	2.610	0.009**
			male	3.51	1.442		

<Table 4-23 Summary of scores of individual questions from ARN>

(unit: points)

Classifications		Question	sex	ARN			
				average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	2.63	1.400	2.371	0.018*
			male	2.34	1.296		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	2.20	1.352	-0.811	0.418
			male	2.30	1.285		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	1.66	1.116	1.754	0.080
			male	1.49	0.930		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	2.18	1.372	0.760	0.448
			male	2.09	1.152		
	Average		female	2.17	0.948	1.472	0.142
			male	2.05	0.662		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	2.20	1.099	-0.687	0.493
			male	2.26	1.077		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	2.03	1.110	0.472	0.637
			male	1.98	1.078		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	1.65	0.892	2.024	0.044*
			male	1.51	0.541		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	2.93	1.378	-0.999	0.318
			male	3.07	1.568		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	1.81	1.020	1.054	0.293
			male	1.73	0.743		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	3.84	1.257	3.518	0.000***
			male	3.42	1.330		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	3.60	1.442	0.202	0.840
			male	3.57	1.535		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	3.66	1.125	2.212	0.027*
			male	3.42	1.208		
	Average		female	2.79	0.624	1.975	0.049*
			male	2.67	0.683		

***p<.001, **p<.01, *p<.05

◦ **Perception of Gender Barriers in STEM**

: *Higher score, higher Perception of Gender Barriers (5-point scale).*

As shown in Table 4-23, the average scores on the Perception of Gender Barriers (2.33 for female respondent, 2.27 for male) indicate that respondents overall do not feel that severe discrimination existed. No statistically significant difference between female and male respondents was observed on average. However, the overall scores for female were slightly higher than those for male for all six questions in this sub-area. Both female and male participants responded with the highest scores of 3.00 and 3.02 respectively for the statement, "Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level" followed by 2.51 (female) and 2.76 (male) on "It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications." The lowest score (1.88 for female and 1.73 for male) was shown for the statement, "Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues."

◦ **Experience of Gender Barriers**

: *Higher score, more Experience of Gender Barriers (5-point scale).*

The average score on Experience of Gender Barriers (2.49 for female and 2.29 for male, Table 4-23) indicates that respondents perceive experiences of gender barriers as "neither seen nor heard but recognize the possibility." A statistically significant difference according to t-test was observed between results from female and male respondents ($t=3.718$, $p\leq0.000$). On average of the six questions, the scores from female participants were higher than those from male. Both female (2.91) and male (2.78) gave the highest score for experience of "Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care", followed by 2.54 (female) and 2.73 (male) on "Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc)." The question with the lowest score from female respondents among the 6 questions was 2.27 for "Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.", followed by 2.31 for "Women in STEM being disadvantaged in accessing research equipment or information because they are female." For male respondents, the lowest scored question was 1.74 for "Women in STEM being disadvantaged in accessing research equipment or information because they are female." followed by 1.92 for "Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female." Similar to results from APNN respondents, the above mentioned results indicate that more severe experience of gender barriers are on sexual or biological aspects of women compared to those related to research or work.

◦ **Career Outlook for Women in STEM**

: *Higher score means more positive outlook(5-point scale).*

As shown in Table 4-23, how career outlook is perceived by young female adults was examined through the statement "I believe things will turn out fine in the future career for women in STEM." The responses were reverse coded such that a higher score indicates a more positive outlook. The average response at 4.41 from female respondents and 4.34 from male showed that both sexes were highly optimistic.

◦ **Need for Supportive Policy to overcome Gender Barrier**

: *Higher score means more agreement to supportive policy (5-point scale).*

Two questions were asked for this sub-area as shown in Table 4-23. However, unlike the other sub-areas, the two questions are dealt separately rather than by average. The responses to "It is crucial to have strong policy support to solve gender inequality in the STEM field" were reversely coded, and the results showed an average of 4.36 for female respondents and 4.02 for male respondents. Even though the average score is significantly different ($t=3.509$, $p\leq 0.000$) between female and male respondents, that is female respondents seemed to agree more than male respondents, both scores reflect a high demand for supportive policy. The scores for introducing a quota system or affirmative action plan, on the other hand, were 3.84 for female respondents and 3.51 for male respondents with a statistical significant difference between the sexes ($t=2.610$, $p\leq 0.009$). It is noteworthy that both female and male young scientists and engineers responded with a strong need for policy to overcome gender barriers yet the responses to the introduction of a quota system were not as strong.

◦ **Perception of Gender Role Stereotype**

: *Higher score means more progressive gender role perception*

To measure the respondents' attitudes towards gender role stereotype within their family or social environment, four questions were asked as shown in Table 4-23. The average response to the four questions was 2.17 for female and 2.05 for male respondents. Compared to the results from APNN, ARN respondents seemed to be more conservative on the perception of gender role. The most progressive attitude was found in "In a relative sense, men are rational while women are emotional and thus, they out to complement each other by doing what is appropriate for their sex" with an average of 2.63 (female) and 2.34 (male). However respondents seem to somewhat agree on patriarchal power within the family. The lowest score was for "Women are born to have a way of caring children that men are not capable of in the same way." with scores of 1.66 from female and 1.49 from male respondents.

◦ **Perception of Gender Equity**

: *Higher score means higher gender equity perception*

This sub-area consisted of one question asking whether equal opportunities can be a sufficient condition for achieving gender equality. The question was to examine the understanding of the gender equality concept[1]. The average score from both female and male respondents are relatively low at 2.20 for female and 2.26 for male respondents. Similar to the observation among APNN members, ARN members also reveal a weak understanding of gender equity.

◦ **Perception of Gender Equality for study and research Environment in STEM**

: *Higher score means higher perception of discrimination for study and research environment in STEM*

This sub-area has been newly added this year because the respondents were those in their twenties and mostly expected to be in school or research labs. The 7 questions in this sub-area aimed to capture overt / covert discriminatory reality that may exist in educational or research environment for female students or young adults[2]. The average score for the seven questions was 2.79 for female and 2.67 for male (Table 4-23). The strongest perception from female respondents was shown in "Women receive the same social evaluation and respect to men as scientists and engineers" (3.84). The second strongest was for "Female students in STEM are intimidated in the laboratory or in classes because they are female." with scores of 3.66. However the other 5 statements showed relatively less perception on gender equality with average scores ranging from 1.65 to 3.60. As for male respondents, the highest score was 3.57 for "Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance," followed by 3.42 for the two statements, "Women receive the same social evaluation and respect to men as scientists and engineers" and "Female students in STEM are intimidated in the laboratory or in classes because they are female." The rest of the statements scores ranged from 1.51 to 3.07 similar to female responses. Significant difference was observed between sexes in three statements. One was "Women receive the same social evaluation to men as scientists or engineers" ($t=3.518$, $p\leq0.000$) where both sexes showed

1) "Gender equality, equality between men and women…does not mean that women and men have to become the same, but that their rights, responsibilities and opportunities will not depend on whether they were born male or female. Gender equity means fairness of treatment for men and women according to their respective needs. This may include equal treatment or treatment that is different but which is considered equivalent in terms of rights, benefits, obligations, and opportunities." (by United Nations Educational, Scientific and Cultural Organization). We also understand the concept of equity from "The route to achieving equity will not be accomplished through treating everyone equally. It will be achieved by treating everyone just according to their circumstance" (Paula Dressel, Race Matters Institute).

2) The historical long invisibility or insufficient appraisal for women in STEM is now well known subject. UNESCO estimate the share of female researcher worldwide at 28.4%, but 22.5% for Southest Asia, and 16.9% for South Asia in 2013 or closest year. The share of female for education, working, research and decision making status was continuously increased but there exist sticky barrier which make unable the gender equality in STEM such as maternal wall/glass ceiling/performance evaluation criteria, lack of recognition, lack of support for leadership bids, unconscious gender bias (UNESCO Science Report: toward 2030, 2015).

high perception of gender equality but female respondents showing higher. The second statement was “Women equally receive the appraisal or award for the outcome of their project or research” ($t=2.024$, $p\leq0.044$) where both sexes showed low perception of gender equality but male respondents showing even lower. The third statement was “Female students in STEM are intimidated in the laboratory or in classes because they are female.”($t=2.212$, $p\leq0.027$)

4.3.2 Analyses of Variables by sub-areas (ARN)

1) Perception of Gender Barriers

Table 4-24 lists the average scores of 6 questions for sub-area 1 according to their major field and current status for both sexes. The results of 2 way Analyses of Variances (ANOVA) are shown in Table 4-25. No significant effect by major field nor by current status was observed for both female and male respondents in the perception of gender barriers for ARN respondents.

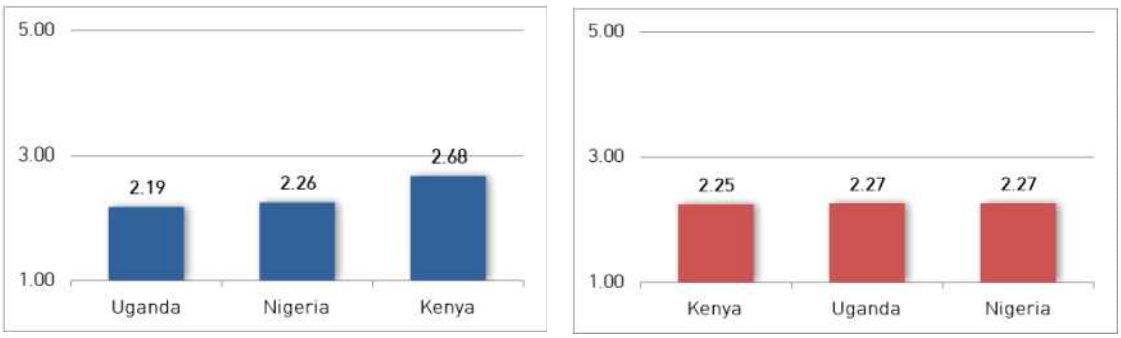
<Table 4-24 Comparison of scores from Sub-area 1 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.30	0.558	49	2.27	0.517
	STUDENT IN MA	15	2.58	1.023	30	2.32	0.633
	WORKING WITH MA	3	2.28	0.536	11	2.00	0.279
	STUDENT IN DOCTORAL DEGREE	2	2.75	0.589	13	2.33	0.312
	WORKING WITH Ph.D	6	2.06	0.390	10	2.40	0.211
	OTHERS	5	2.60	0.932	7	2.21	0.880
	TOTAL	112	2.34	0.650	120	2.27	0.523
ENGINEERING	UNDERGRADUATE STUDENT	75	2.30	0.496	91	2.28	0.486
	STUDENT IN MA	4	2.54	0.786	25	2.23	0.469
	WORKING WITH MA	2	2.25	0.354	10	2.43	0.161
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	2.24	0.264
	WORKING WITH Ph.D	2	2.33	0.000	27	2.17	0.332
	OTHERS	4	2.58	1.076	1	2.67	-
	TOTAL	87	2.32	0.530	171	2.26	0.430
TOTAL	UNDERGRADUATE STUDENT	156	2.30	0.527	140	2.28	0.495
	STUDENT IN MA	19	2.57	0.958	55	2.28	0.561
	WORKING WITH MA	5	2.27	0.418	21	2.21	0.316
	STUDENT IN DOCTORAL DEGREE	2	2.75	0.589	30	2.28	0.285
	WORKING WITH Ph.D	8	2.13	0.354	37	2.23	0.318
	OTHERS	9	2.59	0.932	8	2.27	0.831
	TOTAL	199	2.33	0.599	291	2.27	0.470

<Table 4-25 Analyses of Variables for Sub-area 1 (PGB, ARN)>

1	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	271.63	0.000	0.941	12	560.22	0.000	0.960
MAJORFIELD	1	0.05	0.832	0.000	1	0.61	0.435	0.002
CURRENTSTATUS	5	1.06	0.386	0.027	5	0.16	0.978	0.003
MAJORFIELD * CURRENTSTATUS	4	0.08	0.987	0.002	5	1.54	0.176	0.027
error	188				279			

Figure 4-14 shows the comparative PGB scores by ARN countries that participated in this survey. For female respondents, Uganda (2.19) showed the lowest PGB followed by Nigeria (2.26) and Kenya (2.68) among female respondents. For male respondents, Kenya (2.25) showed the lowest followed by Uganda (2.27) and Nigeria (2.27).



<Figure 4-14 Comparative PGB values by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

2) Experience of Gender Barriers

There were 6 questions to measure the direct and/or indirect Experience of Gender Barriers. For this sub-area, women and men were asked different questions: women were asked of their direct experience while men were asked if they have seen/heard of women's experience. The comprehensive result for these 6 questions was categorized as 'Experience of Gender Barriers' (EGB) and Table 4-26 lists the average scores of 6 questions for sub-area 2 according to their major field and current status. The overall average was 2.49 for female and 2.29 for male. The higher score means the more direct (female) or indirect (male) Experience of Gender Barriers.

The scores by female respondents tended to be higher than those of male respondents. The results of 2 way Analyses of Variances (ANOVA) are shown in Table 4-27. For female respondents, the current status had a significant effect on scores of EGB ($F=2.46$, $df=5$, 187, $p\leq0.035$). Moreover, a significant interaction effect between major field and current status of respondents ($F=4.02$, $df=4$, 187, $p\leq0.004$) was observed. The score of respondents who are working with a Ph.D (2.39) was the lowest in natural science, while that of graduate student in master degree (2.25) was the lowest in engineering. The highest score

in natural science was that of the graduate students in master degree (3.20), while the score of students working with a doctoral degree (3.67) was the highest in engineering. However, no significant effect by major field, current status, nor interaction effect of major field and current status was observed for male respondents.

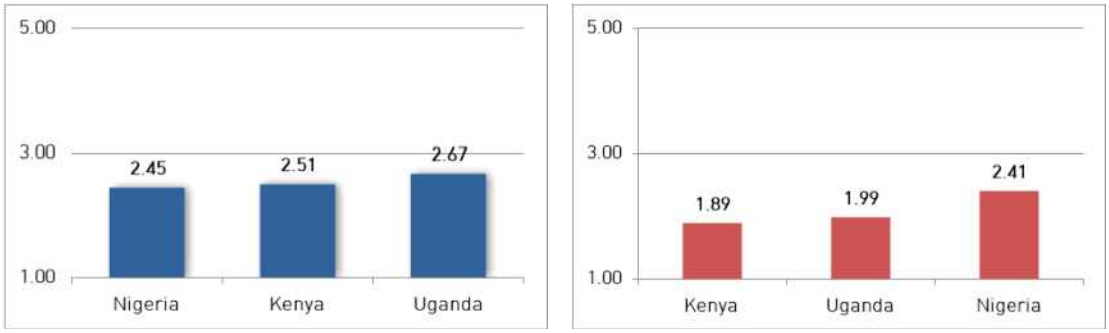
<Table 4-26 Comparison of scores from Sub-area 2 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.41	0.631	48	2.27	0.553
	STUDENT IN MA	14	3.20	0.899	29	2.23	0.522
	WORKING WITH MA	3	2.61	0.770	11	2.42	0.137
	STUDENT IN DOCTORAL DEGREE	2	2.50	0.236	13	2.22	0.571
	WORKING WITH Ph.D	6	2.39	0.136	10	2.53	0.375
	OTHERS	5	2.40	1.018	7	1.98	0.742
	TOTAL	111	2.52	0.711	118	2.28	0.525
ENGINEERING	UNDERGRADUATE STUDENT	75	2.42	0.487	90	2.27	0.564
	STUDENT IN MA	4	2.25	0.616	25	2.44	0.425
	WORKING WITH MA	2	3.42	1.061	10	2.28	0.409
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	2.29	0.375
	WORKING WITH Ph.D	2	3.67	0.707	27	2.27	0.267
	OTHERS	4	2.33	0.871	1	2.00	-
	TOTAL	87	2.46	0.567	170	2.30	0.480
TOTAL	UNDERGRADUATE STUDENT	156	2.42	0.565	138	2.27	0.558
	STUDENT IN MA	18	2.99	0.923	54	2.33	0.487
	WORKING WITH MA	5	2.93	0.879	21	2.36	0.299
	STUDENT IN DOCTORAL DEGREE	2	2.50	0.236	30	2.26	0.463
	WORKING WITH Ph.D	8	2.71	0.659	37	2.34	0.318
	OTHERS	9	2.37	0.897	8	1.98	0.687
	TOTAL	198	2.49	0.651	288	2.29	0.498

<Table 4-27 Analyses of Variables for Sub-area 2 (EGB, ARN)>

2	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	299.74	0.000	0.946	12	504.12	0.000	0.956
MAJORFIELD	1	1.35	0.248	0.007	1	0.02	0.880	0.000
CURRENTSTATUS	5	2.46	0.035	0.062	5	0.72	0.611	0.013
MAJORFIELD * CURRENTSTATUS	4	4.02	0.004	0.079	5	1.01	0.415	0.018
error	187				276			

Figure 4-15 is the cross country comparison of EGB in ARN countries. For female respondents, the scores were Nigeria (2.45), Kenya (2.51) and Uganda (2.67). For male respondents, Kenya (1.89) was the lowest followed by Uganda (1.99) and Nigeria (2.41).



<Figure 4-15 Comparative EGB values by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

3) Career Outlook

Table 4-28 lists the average scores for sub-area 3. The overall average was 4.41 for female and 4.34 for male respondents. The higher score means more positive prospect on career outlook for women in STEM.

The 2 way ANOVA resulted in a significant effect from major field ($F = 7.03$, $df = 1, 188$, $p \leq 0.009$) for female respondents while that from current status ($F = 5.30$, 279, $df = 5$, $p \leq 0.000$) and from interaction effect by major field and current status ($F = 6.75$, $df=5, 279$, $p \leq 0.000$) for male respondents.

For female respondents, those in engineering (4.59) showed significantly higher scores in CO than those in natural science (4.27). For male respondents in natural science, the score of graduate students in master degree (4.73) was the highest, followed by that of respondents in other status (4.71) and that of undergraduate students (4.69). The score of respondents who are working with a Ph.D (3.50) was the lowest. For male respondents in engineering, the score of those in "others" status (5.00) was the highest followed by graduate students in doctoral degree (4.59), undergraduate students (4.47), and by those working with a Ph.D (4.37). Those working with a MA (3.30) was the lowest in engineering.

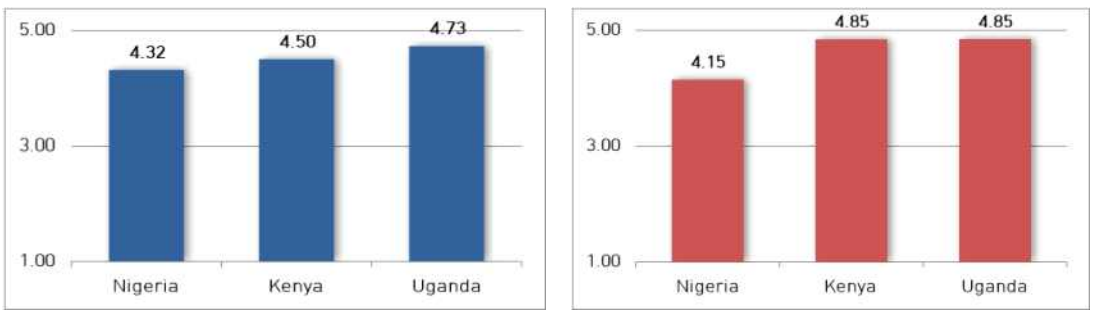
Figure 4-16 is the cross country comparison of CO in ARN countries. The scores for both female and male were lowest for Nigeria (4.32, 4.15 respectively) followed by Kenya (4.50, 4.85, respectively) and Uganda (4.73, 4.85, respectively).

<Table 4-28 Comparison of scores from Sub-area 3 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	4.31	1.200	49	4.69	0.619
	STUDENT IN MA	15	4.53	0.640	30	4.73	0.450
	WORKING WITH MA	3	2.67	2.082	11	4.09	0.539
	STUDENT IN DOCTORAL DEGREE	2	3.50	2.121	13	3.85	1.573
	WORKING WITH Ph.D	6	3.83	0.408	10	3.50	1.354
	OTHERS	5	4.60	0.548	7	4.71	0.488
	TOTAL	112	4.27	1.155	120	4.46	0.897
ENGINEERING	UNDERGRADUATE STUDENT	75	4.56	0.683	91	4.47	0.981
	STUDENT IN MA	4	4.75	0.500	25	3.48	1.503
	WORKING WITH MA	2	5.00	0.000	10	3.30	1.636
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	4.59	0.618
	WORKING WITH Ph.D	2	5.00	0.000	27	4.37	0.839
	OTHERS	4	4.50	1.000	1	5.00	-
	TOTAL	87	4.59	0.674	171	4.26	1.139
TOTAL	UNDERGRADUATE STUDENT	156	4.43	0.991	140	4.55	0.876
	STUDENT IN MA	19	4.58	0.607	55	4.16	1.229
	WORKING WITH MA	5	3.60	1.949	21	3.71	1.231
	STUDENT IN DOCTORAL DEGREE	2	3.50	2.121	30	4.27	1.172
	WORKING WITH Ph.D	8	4.13	0.641	37	4.14	1.058
	OTHERS	9	4.56	0.726	8	4.75	0.463
	TOTAL	199	4.41	0.985	291	4.34	1.049

<Table 4-29 Analyses of Variables for Sub-area 3 (CO, ARN)>

3	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	380.38	0.000	0.957	12	487.17	0.000	0.954
MAJORFIELD	1	7.03	0.009	0.036	1	0.08	0.773	0.000
CURRENTSTATUS	5	0.64	0.668	0.017	5	5.30	0.000	0.087
MAJORFIELD * CURRENTSTATUS	4	1.76	0.138	0.036	5	6.75	0.000	0.108
error	188				279			



<Figure 4-16 Comparative CO values by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

4) Need for Supportive Policy

Table 4-30 lists the average scores for the first question of sub-area 4. The results are reversely coded to show that higher score means higher agreement to the need for supportive policy. The overall average was 4.36 for female and 4.02 for male.

In general, the score by female respondents was higher than that of male respondents. The 2 way ANOVA results show that a significant effect from current status ($F=3.01$, $df=5, 188$, $p\leq0.012$) was observed in female, while from major field ($F=10.93$ $df=1, 279$, $p\leq0.001$), current status ($F=2.42$ $df=5, 279$, $p\leq 0.036$) as well as a significant interaction effect between major field and current status ($F=2.34$ $df=5, 279$, $p\leq0.042$) for male respondents.

For female respondents, the score of female graduate students in master degree (4.84) was the highest, followed by that of other status (4.78), that of the respondents who are working with a Ph.D (4.50) and of undergraduate students (4.31); the lowest score was from respondents who are working with a MA (3.20).

For male respondents in natural science, the score of other status (4.71) was the highest while that of graduate students in doctoral degree (3.77) was the lowest. For male respondents in engineering, the score of graduate student in master degree (4.20) was the highest and that of other status was lowest (2.00).

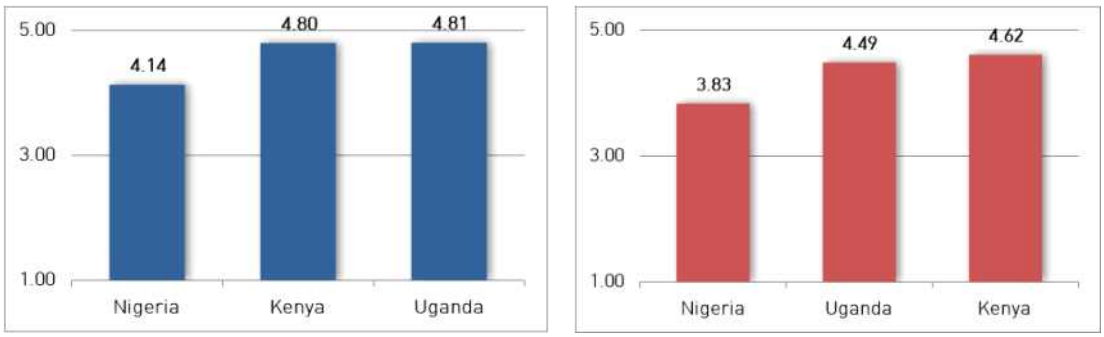
<Table 4-30 Comparison of scores from Sub-area 4 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	4.11	1.118	49	4.24	1.109
	STUDENT IN MA	15	4.87	0.352	30	4.07	1.202
	WORKING WITH MA	3	2.67	2.082	11	4.09	0.701
	STUDENT IN DOCTORAL DEGREE	2	3.50	0.707	13	3.77	1.536
	WORKING WITH Ph.D	6	4.33	0.816	10	4.70	0.483
	OTHERS	5	4.80	0.447	7	4.71	0.756
	TOTAL	112	4.21	1.092	120	4.20	1.112
ENGINEERING	UNDERGRADUATE STUDENT	75	4.53	0.502	91	4.00	1.155
	STUDENT IN MA	4	4.75	0.500	25	4.20	1.323
	WORKING WITH MA	2	4.00	0.000	10	2.70	1.337
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	3.71	1.263
	WORKING WITH Ph.D	2	5.00	0.000	27	3.93	1.207
	OTHERS	4	4.75	0.500	1	2.00	-
	TOTAL	87	4.55	0.500	171	3.90	1.245
TOTAL	UNDERGRADUATE STUDENT	156	4.31	0.900	140	4.09	1.141
	STUDENT IN MA	19	4.84	0.375	55	4.13	1.248
	WORKING WITH MA	5	3.20	1.643	21	3.43	1.248
	STUDENT IN DOCTORAL DEGREE	2	3.50	0.707	30	3.73	1.363
	WORKING WITH Ph.D	8	4.50	0.756	37	4.14	1.110
	OTHERS	9	4.78	0.441	8	4.38	1.188
	TOTAL	199	4.36	0.898	291	4.02	1.199

<Table 4-31 Analyses of Variables for Sub-area 4 (NSP, ARN)>

4	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	480.59	0.000	0.966	12	289.61	0.000	0.926
MAJORFIELD	1	3.09	0.081	0.016	1	10.93	0.001	0.038
CURRENTSTATUS	5	3.01	0.012	0.074	5	2.42	0.036	0.042
MAJORFIELD * CURRENTSTATUS	4	0.86	0.491	0.018	5	2.34	0.042	0.040
error	188				279			

As shown in figure below, the score of Nigeria (4.14) was the lowest while Uganda (4.81) was the highest for female from ARN. For male, the score from Nigeria (3.83) was the lowest, while that of Kenya (4.62) was the highest.



<Figure 4-17 Comparative NSP values by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

5) Perception of Gender Role Stereotype

There were 4 questions to measure the Perception of Gender Role Stereotype. The comprehensive result for these 4 questions are summarized in Table 4-32. The overall average was 2.17 for female and 2.05 for male. The higher score means higher perception of gender role stereotype. The scores for both male and female tend to be low in this sub-area.

The 2 way ANOVA results show us that current status had a significant effect for female respondents ($F=2.72$, $df=5, 188$, $p \leq 0.021$). For male respondents there was no significant effect observed by major field nor current status.

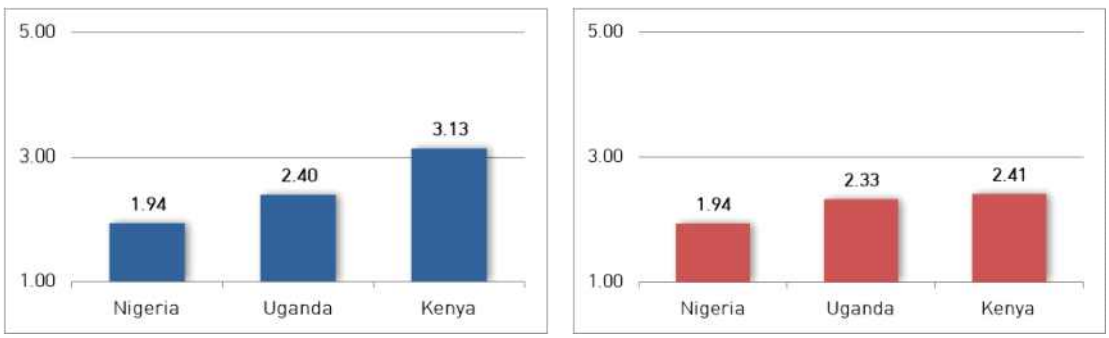
Among the participating ARN countries, Nigeria (1.94, 1.94, respectively) was the lowest, while of Kenya (3.13, 2.41, respectively) was the highest for both female and male respondents.

<Table 4-32 Comparison of scores from Sub-area 5 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.20	0.891	49	2.04	0.752
	STUDENT IN MA	15	2.68	1.314	30	2.21	0.820
	WORKING WITH MA	3	1.42	0.382	11	1.95	0.245
	STUDENT IN DOCTORAL DEGREE	2	3.63	1.237	13	1.98	0.525
	WORKING WITH Ph.D	6	2.13	0.306	10	2.23	0.343
	OTHERS	5	2.55	1.204	7	2.39	1.049
	TOTAL	112	2.28	0.973	120	2.10	0.710
ENGINEERING	UNDERGRADUATE STUDENT	75	1.98	0.883	91	2.04	0.733
	STUDENT IN MA	4	1.94	0.657	25	1.92	0.443
	WORKING WITH MA	2	2.38	0.177	10	1.93	0.501
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	1.94	0.472
	WORKING WITH Ph.D	2	1.00	0.000	27	2.08	0.470
	OTHERS	4	3.13	1.031	1	3.25	-
	TOTAL	87	2.02	0.899	171	2.02	0.627
TOTAL	UNDERGRADUATE STUDENT	156	2.10	0.891	140	2.04	0.737
	STUDENT IN MA	19	2.53	1.230	55	2.08	0.685
	WORKING WITH MA	5	1.80	0.597	21	1.94	0.378
	STUDENT IN DOCTORAL DEGREE	2	3.63	1.237	30	1.96	0.487
	WORKING WITH Ph.D	8	1.84	0.582	37	2.12	0.439
	OTHERS	9	2.81	1.102	8	2.50	1.018
	TOTAL	199	2.17	0.948	291	2.05	0.662

<Table 4-33 Analyses of Variables for Sub-area 5 (PGS, ARN)>

5	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	103.39	0.000	0.858	12	233.09	0.000	0.909
MAJORFIELD	1	0.16	0.688	0.001	1	0.17	0.682	0.001
CURRENTSTATUS	5	2.72	0.021	0.067	5	1.32	0.255	0.023
MAJORFIELD * CURRENTSTATUS	4	1.54	0.193	0.032	5	0.73	0.604	0.013
error	188				279			



<Figure 4-18 Comparative PGS values by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

6) Perception of Gender Equity

"I believe gender equality will be fully achieved only if women are given equal opportunities as men" was the question used to measure the perception of gender equity (PGE). The result for this question is summarized in Table 4-34. The overall average was 2.20 for female and 2.26 for male. The higher score means the higher perception and/or understanding of the notion of gender equity.

The 2 way ANOVA results show us that there is significant effect of major field (F=7.20, df=1, 188, p=0.008), current status (F=3.86, df=5, 188, p=0.002) as well as interaction effect between major field and current status (F=3.16, df=4, 188, p=0.015) for female respondents. For male respondents, no significant effect by major field nor current status was observed.

For female respondents in natural science, the respondents who are working with a MA (2.33) showed the highest while those in other status (1.20) the lowest score. For female respondents in engineering, the respondents who are working with a Ph.D (5.00) showed the highest score while those in other status (1.50) the lowest score.

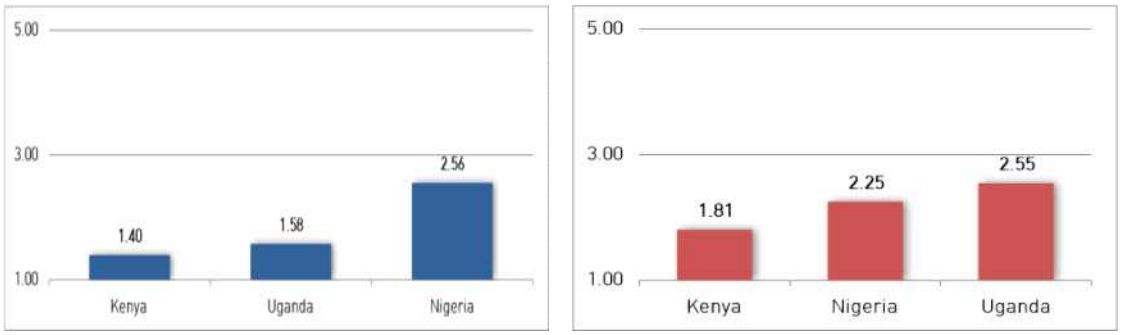
The cross country comparison results showed Kenya (1.40) with the lowest score in PGE while that of Nigeria (2.56) was the highest for female respondents. For male, Kenya (1.81) showed the lowest while Uganda (2.55) the highest.

<Table 4-34 Comparison of scores from Sub-area 6 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.02	0.851	49	2.27	1.036
	STUDENT IN MA	15	1.53	1.125	30	2.43	1.547
	WORKING WITH MA	3	2.33	1.155	11	2.27	0.786
	STUDENT IN DOCTORAL DEGREE	2	2.00	1.414	13	2.62	1.193
	WORKING WITH Ph.D	6	1.67	0.816	10	2.50	0.707
	OTHERS	5	1.20	0.447	7	2.57	1.718
	TOTAL	112	1.91	0.906	120	2.38	1.189
ENGINEERING	UNDERGRADUATE STUDENT	75	2.61	1.196	91	2.18	1.160
	STUDENT IN MA	4	1.75	0.500	25	2.00	0.816
	WORKING WITH MA	2	2.00	0.000	10	2.50	0.527
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	2.29	0.686
	WORKING WITH Ph.D	2	5.00	0.000	27	2.11	0.698
	OTHERS	4	1.50	0.577	1	4.00	-
	TOTAL	87	2.56	1.217	171	2.18	0.986
TOTAL	UNDERGRADUATE STUDENT	156	2.31	1.069	140	2.21	1.116
	STUDENT IN MA	19	1.58	1.017	55	2.24	1.276
	WORKING WITH MA	5	2.20	0.837	21	2.38	0.669
	STUDENT IN DOCTORAL DEGREE	2	2.00	1.414	30	2.43	0.935
	WORKING WITH Ph.D	8	2.50	1.690	37	2.22	0.712
	OTHERS	9	1.33	0.500	8	2.75	1.669
	TOTAL	199	2.20	1.099	291	2.26	1.077

<Table 4-35 Analyses of Variables for Sub-area 6 (PGE, ARN)>

6	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	89.63	0.000	0.840	12	107.08	0.000	0.822
MAJORFIELD	1	7.20	0.008	0.037	1	0.09	0.765	0.000
CURRENTSTATUS	5	3.86	0.002	0.093	5	0.92	0.470	0.016
MAJORFIELD * CURRENTSTATUS	4	3.16	0.015	0.063	5	0.81	0.544	0.014
error	188				279			



<Figure 4-19 Comparative PGE values by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

7) Perception of Gender Equality for study and research Environment

There were 7 questions asked to measure the perception of gender barriers during the respondents' study or research. The comprehensive results for these 7 questions under the sub-area 'Perception of Gender Barrier for study and research Environment' (PGB Env) are summarized in Table 4-36. The overall average was 2.79 for female and 2.67 for male. The higher score means the higher perception of gender barrier for study and research environment.

The 2 way ANOVA results show that there was no significant effect of major field nor of current status for female respondents. For male respondents, the current status had an effect ($F=8.165$, $df=5, 279$, $p \leq 0.000$)

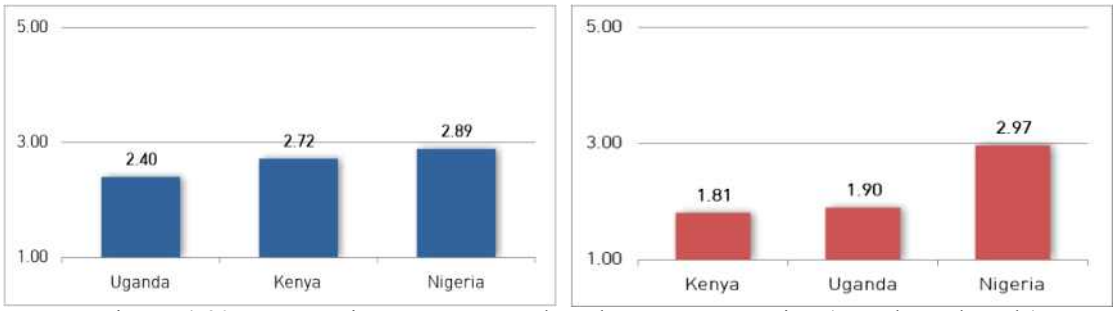
Among the ARN participating countries, Uganda (2.40) scored the lowest, while Nigeria (2.89) the highest among female respondents. For male, the average score of Kenya (1.81) was the lowest while, that of Nigeria (2.97) was the highest.

<Table 4-36 Comparison of scores from Sub-area 7 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.77	0.659	49	2.40	0.643
	STUDENT IN MA	15	2.70	0.766	30	2.48	0.735
	WORKING WITH MA	3	3.19	0.297	11	2.97	0.478
	STUDENT IN DOCTORAL DEGREE	2	2.86	0.806	13	2.92	0.665
	WORKING WITH Ph.D	6	2.64	0.077	10	3.05	0.370
	OTHERS	5	2.80	1.166	7	2.06	0.306
	TOTAL	112	2.77	0.671	120	2.56	0.674
ENGINEERING	UNDERGRADUATE STUDENT	75	2.81	0.534	91	2.54	0.710
	STUDENT IN MA	4	2.79	0.601	25	2.96	0.670
	WORKING WITH MA	2	2.58	0.403	10	2.94	0.378
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	3.08	0.376
	WORKING WITH Ph.D	2	2.79	0.106	27	3.01	0.568
	OTHERS	4	3.00	1.202	1	1.57	
	TOTAL	87	2.81	0.560	171	2.75	0.680
TOTAL	UNDERGRADUATE STUDENT	156	2.79	0.601	140	2.49	0.688
	STUDENT IN MA	19	2.72	0.719	55	2.69	0.740
	WORKING WITH MA	5	2.95	0.447	21	2.96	0.423
	STUDENT IN DOCTORAL DEGREE	2	2.86	0.806	30	3.01	0.518
	WORKING WITH Ph.D	8	2.68	0.102	37	3.02	0.517
	OTHERS	9	2.89	1.110	8	2.00	0.332
	TOTAL	199	2.79	0.624	291	2.67	0.683

<Table 4-37 Analyses of Variables for Sub-area 7 (PGB Env, ARN)>

7	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	10	0.262	0.988	0.014	11	4.974	0.000	0.164
MAJORFIELD	1	0.027	0.869	0.000	1	0.075	0.785	0.000
CURRENTSTATUS	5	0.107	0.991	0.003	5	8.165	0.000	0.128
MAJORFIELD * CURRENTSTATUS	4	0.369	0.830	0.008	5	1.102	0.359	0.019
error	188				279			



<Figure 4-20 Comparative PGB Env values by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

Comparison of Results between APNN and ARN

4.4 Comparison of Results between APNN and ARN

4.4.1 Comparing Responses between APNN and ARN by sub-area

This section compares and summarizes the overall results between responses from APNN versus ARN members. Table 4-38 and Figure 4-21 shows the average scores by sub-area from APNN and ARN respondents. Results of t-test are shown where $p \leq 0.05$ was considered statistically different.

All scores except for PGE and PGB Env from female were significantly different between APNN and ARN where scores were higher in APNN for PGB and PGS in both male and female. ARN scored higher for CO and NSP for both sexes.

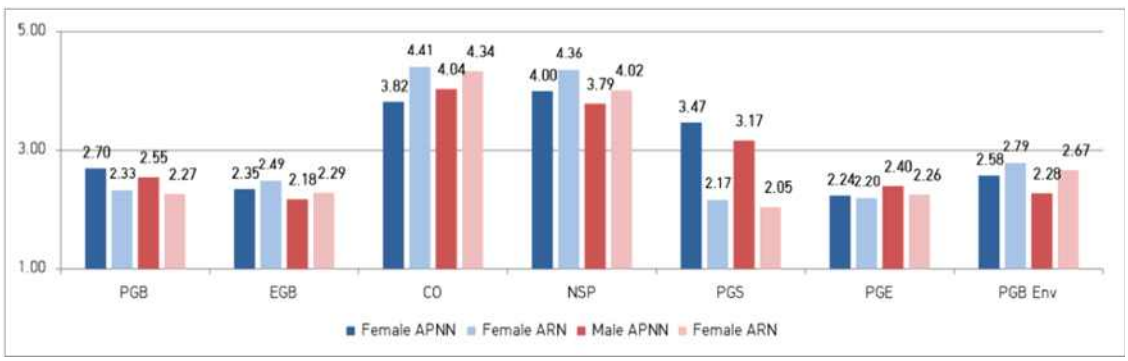
<Table 4-38 APNN and ARN results by Sub-area>

(unit: points)

	Classification	P.G.B [a]		E.G.B [b]		C.O [c]		N.S.P [d]		P.G.S [e]		P.G.E [f]		P.G.B Env [g]	
		female	male	female	male	female	male	female	male	female	male	female	male	female	male
ALL	APNN	2.70	2.56	2.35	2.20	3.82	4.03	3.99	3.78	3.47	3.18	2.24	2.42	2.58	2.28
	ARN	2.33	2.27	2.49	2.29	4.41	4.34	4.36	4.02	2.17	2.05	2.20	2.26	2.79	2.67
	t	7.200	6.860	-2.543	-2.415	-7.345	-4.449	-4.890	-2.962	17.028	20.879	0.451	1.786	-3.995	-8.045
	P	.000***	.000***	.011*	.016*	.000***	.000***	.000***	.004**	.000***	000***	.652	.075	.000***	000***

Note: ***p<.001, **p<.01, *p<.05

[a] Perception of Gender Barriers in STEM
[b] Direct/Indirect Experience of Gender Barriers in STEM
[c] Women Career Outlook in STEM
[d] Need for Support policy to overcome gender barrier in STEM
[e] Perception of Gender Equity
[f] Perception of Gender Stereotype
[g] Perception of Gender Barriers for the study and research environment in STEM



<Figure 4-21 APNN and ARN results by Sub-area>

Blue bars indicate ARN average of female respondents and red bars indicate ARN average of male respondents.

4.4.2 Comparing scores by sexes between APNN and ARN

A more detailed comparison of responses by individual questions are shown in Table 4-39 (for female) and Table 4-40 (for male).

Responses to the six questions under the sub-area 'Perception of Gender Barriers' (PGB) was generally higher in score by APNN than ARN except for one question for both female and male respondents. Responses to "Women in STEM receive equal work distribution and work appraisal compared to men of the same qualification and level" for both male and female respondents showed higher scores by ARN members.

'Perception of Gender Role Stereotype' (PGS), also showed significantly higher scores from APNN, for both female (3.47, $t=16.030$, $p\leq0.000$) and male (3.18, $t=20.879$, $p\leq0.000$). Although not statistically significant, another sub-area where APNN scored higher was Perception of Gender Equity. The comprehensive score was significantly higher from APNN, for both female (2.24 of APNN, 2.20 of ARN) and male (2.42 of APNN, 2.26 of ARN). However, for both networks, it is noteworthy that the score for male was higher than that of female.

The sub-areas showing higher scores from ARN are as follows:
Respondents from ARN experienced more gender barriers than those from APNN for both female ($t=-2.543$ $p\leq0.011$) and male ($t=-2.415$, $p\leq0.016$). The comprehensive score on 'Experience of Gender Barriers' (EGB) of APNN was 2.35 for female, 2.20 for male while that of ARN were 2.49 for female and 2.29 for male.

As for Career Outlook, the responses from ARN was more positive than those from APNN. The difference was statistically significant for both female ($t=-7.345$ $p\leq0.000$) and male ($t=-4.449$ $p\leq0.000$). In addition, a stronger need for policy was shown by ARN for both female ($t=-4.890$ $p\leq0.000$) and male ($t=-2.962$ $p\leq0.003$). ARN also scored higher on the question on introducing a quota system or affirmative action for both female (3.70 from APNN, 3.84 from ARN, but not statistically significant) and male (3.25 from APNN and 3.51 from ARN, $t=-2.664$ $p\leq0.008$).

The sub-area, 'Perception of Gender Equality for study and research Environment in STEM' (PGB Env) also showed ARN with higher scores. ARN (2.79) showed a slightly higher score than that of APNN (2.58) with significant difference from female respondents. ($t=-3.995$, $p\leq0.000$). And, for male, the score from ARN (2.67) was higher than that from APNN (2.28) with a significant difference ($t=-8.045$ $p\leq0.000$).

In summary, our respondents from APNN tended to perceive more gender barrier than those from ARN, in general. However, more direct or indirect experience of gender barrier was shown by ARN. APNN respondents tended to be more progressive in their attitude toward the Perception of Gender

Role Stereotype than ARN respondents. However, ARN members showed a more positive career outlook than those from APNN.

<Table 4-39 Comparison of Results by Female Respondents between APNN and ARN (812 from APNN, 199 from ARN, person)>

(Unit: Point, Note: ***p<.001, **p<.01, *p<.05)

Classification		Item	Network	average	sd	t	p
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	APNN	2.46	1.252	0.795	0.427
			ARN	2.38	1.335		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	APNN	2.51	1.191	3.367	0.001***
			ARN	2.20	1.146		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	APNN	2.88	1.235	-1.096	0.274
			ARN	3.00	1.453		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	APNN	2.74	1.200	2.160	0.032*
			ARN	2.51	1.421		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	APNN	2.76	1.141	9.155	0.000***
			ARN	2.03	0.987		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	APNN	2.87	1.140	11.397	0.000***
			ARN	1.88	1.079		
	Average		APNN	2.70	0.820	7.200	0.000***
			ARN	2.33	0.599		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	APNN	2.08	1.063	-2.776	0.006**
			ARN	2.27	0.813		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	APNN	2.21	1.083	-2.050	0.041*
			ARN	2.38	1.089		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues(in class, laboratory, project group, etc)	APNN	2.50	1.190	-0.466	0.641
			ARN	2.54	1.149		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc)	APNN	2.37	1.176	-1.908	0.057
			ARN	2.52	0.927		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	APNN	2.17	1.087	-1.616	0.106
			ARN	2.31	1.035		
	6	Women in STEM being in trouble or leaving work due to her Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care	APNN	2.81	1.103	-1.252	0.211
			ARN	2.91	1.039		

<Table 4-39 Comparison of Results by Female Respondents between APNN and ARN (812 from APNN, 199 from ARN, person)>

(Unit: Point, Note: ***p<.001, **p<.01, *p<.05)

Classification		Item	Network	average	sd	t	p
	Average		APNN	2.35	0.820	-2.543	0.011*
			ARN	2.49	0.651		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	APNN	3.82	1.011	-7.345	0.000***
			ARN	4.41	0.985		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field. (N.S.P)	APNN	3.99	1.037	-4.890	0.000***
			ARN	4.36	0.898		
	2	It is appropriate to introduce the quota system of affirmative plan to solve gender inequality in the STEM field	APNN	3.70	0.975	-1.382	0.168
			ARN	3.84	1.331		
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for themselves	APNN	3.07	1.249	3.995	0.000***
			ARN	2.63	1.400		
	2	Primary breadwinners (who take care of financial obligations) of households should be men	APNN	3.71	1.261	14.899	0.000***
			ARN	2.20	1.352		
	3	Women are born to have a way of caring children that men are not capable of in the same way	APNN	3.39	1.322	18.774	0.000***
			ARN	1.66	1.116		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	APNN	3.73	1.396	14.258	0.000***
			ARN	2.18	1.372		
	Average		APNN	3.47	1.039	16.030	0.000***
			ARN	2.17	0.948		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	APNN	2.24	1.217	0.451	0.652
			ARN	2.20	1.099		
	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	APNN	2.42	1.051	4.503	0.000***
			ARN	2.03	1.110		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	APNN	2.41	1.145	10.045	0.000***
			ARN	1.65	0.892		

<Table 4-39 Comparison of Results by Female Respondents between APNN and ARN (812 from APNN, 199 from ARN, person)>

(Unit: Point, Note: ***p<.001, **p<.01, *p<.05)

Classification		Item	Network	average	sd	t	p
7. Perception of Gender Equality for study and research Environment	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge.	APNN	2.26	1.027	-6.470	0.000***
			ARN	2.93	1.378		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant.	APNN	2.45	1.041	7.684	0.000***
			ARN	1.81	1.020		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	APNN	2.68	1.161	-12.340	0.000***
			ARN	3.84	1.257		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	APNN	3.10	1.386	-4.457	0.000***
			ARN	3.60	1.442		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female	APNN	2.75	1.209	-10.040	0.000***
			ARN	3.66	1.125		
	Average		APNN	2.58	0.771	-3.995	0.000***
			ARN	2.79	0.624		

· The questions are evaluated on a Likert-type scale (5 points).
· 1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
· 2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
For the same questions, different answering set was provided to the respondents depending on their sex.
-Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself
-Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
· 3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
· 4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
· 5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
· 6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
· 7. Perception of Gender Equality for study & research environment : Higher score means higher perception (7-7 was reverse coded)

<Table 4-40 Comparison of Results by Male Respondents between APNN and ARN (792 from APNN, 291 from ARN, person)>

(Unit: Point, Note: ***p<.001, **p<.01, *p<.05)

Classification		Item	Network	average	sd	t	p
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	APNN	2.29	1.153	4.701	0.000***
			ARN	1.96	0.992		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	APNN	2.29	1.166	2.078	0.038*
			ARN	2.13	1.057		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	APNN	2.50	1.207	-5.257	0.000***
			ARN	3.02	1.536		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	APNN	2.82	1.193	0.606	0.545
			ARN	2.76	1.477		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	APNN	2.82	1.194	10.488	0.000***
			ARN	2.00	1.110		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	APNN	2.57	1.178	14.036	0.000***
			ARN	1.73	0.743		
	Average		APNN	2.56	0.829	6.860	0.000***
			ARN	2.27	0.470		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	APNN	1.91	1.026	-0.293	0.770
			ARN	1.92	0.759		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	APNN	1.96	1.037	-3.341	0.001***
			ARN	2.14	0.710		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues(in class, laboratory, project group, etc)	APNN	2.32	1.149	-5.769	0.000***
			ARN	2.73	1.008		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc)	APNN	2.25	1.123	-2.323	0.021*
			ARN	2.40	0.884		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	APNN	1.90	1.123	2.714	0.007**
			ARN	1.74	0.686		

<Table 4-40 Comparison of Results by Male Respondents between APNN and ARN (792 from APNN, 291 from ARN, person)>

(Unit: Point, Note: ***p<.001, **p<.01, *p<.05)

Classification		Item	Network	average	sd	t	p
	6	Women in STEM being in trouble or leaving work due to her Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care	APNN	2.51	1.181	-3.377	0.001***
			ARN	2.78	1.104		
		Average	APNN	2.20	0.855	-2.415	0.016*
			ARN	2.29	0.498		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	APNN	4.03	0.944	-4.449	0.000***
			ARN	4.34	1.049		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	APNN	3.78	1.114	-2.962	0.003**
			ARN	4.02	1.199		
	2	It is appropriate to introduce the quota system of affirmative plan to solve gender inequality in the STEM field	APNN	3.25	1.269	-2.664	0.008**
			ARN	3.51	1.442		
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for themselves	APNN	2.81	1.233	5.371	0.000***
			ARN	2.34	1.296		
	2	Primary breadwinners (who take care of financial obligations) of households should be men	APNN	3.25	1.260	10.861	0.000***
			ARN	2.30	1.285		
	3	Women are born to have a way of caring children that men are not capable of in the same way	APNN	3.15	1.275	23.332	0.000***
			ARN	1.49	0.930		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	APNN	3.45	1.334	16.461	0.000***
			ARN	2.09	1.152		
		Average	APNN	3.18	1.023	20.879	0.000***
			ARN	2.05	0.662		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	APNN	2.42	1.233	1.786	0.075
			ARN	2.26	1.077		
	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	APNN	2.13	1.053	2.025	0.043*
			ARN	1.98	1.078		

<Table 4-40 Comparison of Results by Male Respondents between APNN and ARN (792 from APNN, 291 from ARN, person)>

(Unit: Point, Note: ***p<.001, **p<.01, *p<.05)

Classification		Item	Network	average	sd	t	p
7. Perception of Gender Equality for study and research Environment	2	Women equally receive the appraisal or award for the outcome of their project or research.	APNN	2.01	0.979	10.547	0.000***
			ARN	1.51	0.541		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge.	APNN	2.06	1.069	-10.141	0.000***
			ARN	3.07	1.568		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant.	APNN	2.14	1.023	7.249	0.000***
			ARN	1.73	0.743		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	APNN	2.22	1.096	-13.779	0.000***
			ARN	3.42	1.330		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	APNN	2.59	1.217	-9.730	0.000***
			ARN	3.57	1.535		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female	APNN	2.79	1.221	-7.515	0.000***
			ARN	3.42	1.208		
	Average		APNN	2.28	0.719	-8.045	0.000***
			ARN	2.67	0.683		

· The questions are evaluated on a Likert-type scale (5 points).
· 1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
· 2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
For the same questions, different answering set was provided to the respondents depending on their sex.
-Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself
-Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
· 3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
· 4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
· 5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
· 6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
· 7. Perception of Gender Equality for study & research environment : Higher score means higher perception (7-7 was reverse coded)

Conclusion & Suggestions

5. Conclusion and Suggestions

This policy report presented various indices developed and analyzed by the United Nations Development Program (UNDP) and the World Economy Forum (WEF) to measure current status of human resources development. Those are Human Development Index (HDI), Inequality-adjusted Human Development Index (IHDI), Gender Development Index (GDI), Gender Inequality Index (GII) and global Gender Gap Index (GGI). The first four indices are from the UNDP and the last index, GGI is from the WEF. Analyzing biannually these indices for countries which belong to the Asia Pacific Nations Network (APNN) under INWES has been an important task of this research since 2014. In this year's analysis, one of the UNDP's indices, IHDI was included to figure out the inequality effect and the human resources development for countries belonging to the African Regional Network (ARN) under INWES was reviewed at first time since last 5 years.

Among APNN countries, Australia shows the best achievement in HDI, IHDI, and GDI. Except Australia, all APNN member countries exhibit more than 10% of loss due to inequality in HDI. Korea is the best among APNN in GII with value of 0.067, while the average value of GII for APNN countries except Taiwan is 0.324. Note that the lower value of GII is the better gender equality. On the other hand, New Zealand closes the gender gap 79% which is the best in GGI among APNN countries. Interestingly, Korea's GGI value is only 0.650 that places in the lowest group in not only APNN but also worldwide. This discrepancy between GII and GGI evaluation for Korea comes from measurement. The UNDP's GII has 5 indicators, while the WEF's GGI has 14 indicators. It can be understood that Korea seems to show gender equality at a glance. However, when looking into the details, quite large gender gaps are shown. The indices suggest that Bangladesh, India, Mongolia, Nepal. Pakistan, and Vietnam need more efforts for human resources development though these countries except Pakistan close the gender gap more than Korea and Japan. Japan and Korea show similar pattern that is a high achievement in UNDP's indices but a wide gender gap in WEF's GGI. On average 68.1% of the gender gap is closed in the APNN countries.

Among the ARN countries, Algeria shows the best achievement in the UNDP's HDI with value 0.745 and world ranking 83 out of 188 countries. However, most of the ARN countries mark the HDI values less than 0.5. The losses due to inequality in HDI are more than 30% for almost every countries in the ARN. Botswana is the only country that GDI belongs to the group 1. Note that the group 1 in GDI means $|GDI-1|\times 100 \leq 2.5$. The gender gap in Botswana turns out to be relatively narrow by closing 72%. Uganda and Tanzania also close the gender gap more than 70%. The GII values for all the ARN countries are quite large with the average value of 0.545 which is much higher than the APNN's average of 0.324. Such a severe gender inequality comes from high maternal mortality ratio and also high adolescent birth rate. On average 437 women die from pregnancy related causes for every 100,000 live

births and the average adolescent birth rate is 93.0 births per 1,000 women of ages 15-19. As easily expected, the economic development needs human resources development. The gender gap in the ARN countries is closed on average 67.3% following the WEF's report. The average value is lower than the world average 68%. Botswana shows no gender gap in the dimension of education attainment and Kenya turns out to exhibit the narrowest gap in the dimension of health and survival.

Another important part of this report is about a joint international survey. KWSE has been conducting a joint international survey annually among members of the APNN (Asia and Pacific Nations Network) since 2014. The survey has been a meaningful endeavor in that it explored the state of glass ceiling and other gender barriers women in the STEM field face. Science has long been regarded as objective and value-neutral. However, as Robert Young(1987) said a while ago science is not value-free and people-proof:

> *Science is not something in the sky, not a set of eternal truths waiting for discovery. Science is a practice. There is no other science than the science that gets done. The science that exists is the record of the questions that has occurred to scientists to ask, the proposals that get funded, the paths that get pursued... Whether or not they get asked, how far they get pursued, are matters for a given society, its educational system, its patronage system and its funding bodies (Young, 1987: 16-17).*

The assumption that scientific and technological activities are based on the principle of rationality and thus, there is no room for any sort of biases, including gender bias, has been proven to be a myth. Moreover, meritocracy prevails in this field, implying that anyone can achieve what she/he wants if only she/he thrives hard enough. However, it has been argued recently that although the number of women entering into the STEM field has been steadily increasing, the paucity of women in decision-making positions and male dominated culture in the work-sites (e.g., laboratories) have not changed much. The overall working environment in the STEM field is still very much inconsiderate of women scientists' and engineers' specific needs. That can be attributed to, among other things, a collective ignorance as to what constitute discriminations against women. Gender-sensitive innovation is called for in terms of laws and institutions as well as peoples' perceptions and behaviors regarding gender so that women scientists and engineers are guaranteed equal rights in their work and career.

The 2018 survey, though it was a continuation of the previous surveys, was unique in two aspects. First, it focused on younger/future generation scientists and engineers in their 20s and 30s. It was because that although it may seem as though gender barriers are disappearing, close interviews and discussions with younger generations reveal that barriers remain untacked. Second, the 2018 survey included respondents not only from the APNN but also

from the African Network of INWES, ARN with an aim to compare gender state between two regions.

Analysis of survey data revealed that gender differences were statistically significant among the APNN respondents. Specifically, female scientists and engineers in this region perceived and experienced more gender barriers/discriminations than their male counterparts. Among six different items on the perception of gender barriers, APNN women perceived 'equal work distribution and equal appraisal' and 'equal pay for equal work' to be the most serious. Of the six items asking about the experiences of various kinds of gender discriminations, the highest response was on the item on women having trouble or having to leave work due to marriage, pregnancy or child care. This calls for strong policy measures to eradicate any discriminatory practices women have to face in relation to marriage and children and to ease their tension for maintaining the work-life balance in APNN countries.

Also, APNN women's perception of gender barriers in the research/lab environment was higher than that of males (2.58 vs. 2.28). Here again, the highest response among the seven items included in this sub-scale, was on the item addressing women scientists and engineers having difficulties in relation to marriage, pregnancy and child care. Understandably, the need for policy to solve gender inequality in the STEM field was higher among females than for males (3.99 vs. 3.78). Also, women in the APNN agreed more to the introduction of a quota system or other affirmative action programs than their male counterparts (3.70 vs. 3.25).

On the other hand, male respondents were more optimistic than females toward future career of women female scientists and engineers, implying males are not as sensitive as females of gender barriers women confront throughout their career. Lastly, females reported more progressive attitudes toward gender role stereotypes than males as shown in the previous studies (e.g., Kim & Kim, 1999). Particularly, women in the STEM field in the APNN showed the most progressive attitude on the item addressing power relations between husband and wife and the item regarding who should be the breadwinner for the family (3.73 and 3.71 respectively). These results seem to reflect, to some extent, that APNN women in their 20s and 30s reject patriarchal power structure between wives and husbands and traditional role of husband as a breadwinner.

For the ARN respondents, the pattern of gender differences was similar to that of APNN respondents, but the differences were not as much explicit as those for the APNN counterparts with two exceptions. For the need for policy to solve gender inequality in the STEM field and experiences of gender barriers, ARN respondents showed bigger gender differences than their APNN counterparts. For the participants from the ARN, gender differences were not big enough to reach a statistically significant level for the perception of gender barriers and future career outlook.

Next, female respondents from the APNN showed a higher perception of gender barriers and had much more progressive attitudes toward gender role stereotypes than females from the ARN (2.70 vs. 2.33; 3.47 vs. 2.17 respectively). One can imagine that women with progressive gender role ideology would be more sensitive to gender barriers in the society. Among different kinds of gender barriers the largest gap between APNN women and ARN women was found in the item dealing with 'the equal pay for the equal job' (2.87 for APNN, 1.88 for ARN), implying that the principle of the equal pay for the equal job has not been put into practice among the ARN countries.

Among four items assessing gender role stereotypes, the biggest gap was found between women from the APNN and from the ARN on the item addressing women born to fit child care unlike men (3.39 APNN, 1.66 ARN), followed by the item on men should be the primary breadwinner of households (3.71 APNN, 2.20 ARN). ARN females were significantly more conservative than APNN females regarding who should be the carer of the children and who should be the breadwinner for the family. These two kinds of ideology have a tendency to reinforce each other and form a vicious circle, thus strengthening patriarchal family relations and sustaining women's lower position not only within the family but also in the society. A systematic training is needed to explore and change patriarchal beliefs ARN women had internalized in their early socialization process.

On the contrary to the perception of gender barriers, female scientists and engineers from the ARN reported more experiences of gender discriminations than APNN females (2.49 vs. 2.35). And yet, they had a brighter outlook for their future career than females among the APNN countries (4.41 vs. 3.82). Both groups of women strongly confirmed to the need for policy to eradicate gender discriminations, but women from the ARN considered policy support more important than their APNN counterparts (4.36 vs. 3.99). Also, it should be noted that both female groups thought institutions such as a quota system or other affirmative action plans are appropriate (3.84 for ARN, 3.70 for APNN).

When responses were compared between males from the two regions, the pattern of regional differences was similar to that of female respondents. APNN males showed a higher perception of gender barriers (2.56 vs. 2.27) and had much more progressive attitudes toward gender role stereotypes than ARN males (3.18 vs. 2.05). The ARN males reported a higher level of (indirect) experiences of gender discriminations than the APNN males (2.29 vs. 2.20). On the other hand, the ARN males were less aware of gender barriers in study/research environment than the APNN males(2.67 vs. 2.28). Concomitantly, the ARN male scientists and engineers had a more optimistic outlook for women scientists' and engineers' future career than the APNN males (4.34 vs. 4.03). Also, ARN males perceived the importance of policy support to solve gender inequality more than APNN males (4.02 vs. 3.78).

Based on the above-mentioned results, one can conclude that a

comprehensive policy scheme needs to be developed and put into action to eradicate gender barriers women scientists and engineers face. First of all, institutes should examine whether there are unequitable elements in their HR practices, including hiring, evaluating or promoting. Measures to reduce the gender pay gap and to eradicate negative consequences of marriage, pregnancy or child care are urgent. Many women, even after getting advanced degrees in STEM fields, drop out of research/professional careers primarily because marriage, pregnancy or child care. Motherhood is incompatible with research career when there is not a strong support system to maintain work-life balance. Especially, for many women the burden of child care is so detrimental that they either have to leave the work or give up on having children. The effect of children on women scientists' and engineers' career is so remarkable that it eclipses other factors in contributing to women's low income level as well as under-representation in this field. Therefore, some universities adopt policies to alleviate the pressures from mothering while they are working toward tenure by, for instance, creating a part-time tenure track. In the same context, some research institutes adopt flexible work hours or allow more freedom to work from home. It should be kept in mind that work-life balance is not just married women's issues but everyone's issue. It is because that policy measures limited to married women often come with negative costs such as reduction of payment or delay of promotion.

Further, it will be worthwhile to discuss ways to introduce affirmative action programs such as a quota system to solve gender inequality in the STEM field. Last but not least, gender training programs should be provided for both male and female scientists and engineers to help them overcome outdated gender role ideology. Males than females and those in the ARN region than the APNN region will benefit more from these initiatives as the former groups show more conservative attitudes toward gender role ideology. Campaigns such as the 'HeForShe' run by the UNWomen should be extended to the STEM field to help men become supporters of gender equality.

Recommendations delineated above can be summarized within a framework for gender mainstreaming[2] of the STEM field. There are three steps of gender mainstreaming: ① mainstreaming of women, ② mainstreaming of gender perspective and ③ transforming the mainstream.

The first element, the mainstreaming of women, is a political aspect. It is an issue of equal representation and having enough women in decision-making positions. This can be achieved by improving HR practices that are discriminatory against women, providing support for work-life balance,

2) Gender mainstreaming has been defined as the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality (United Nations, 1997. "Report of the Economic and Social Council for 1997". A/52/3.18 September).

introducing affirmative action programs, etc. The paucity of women scientists renders S&T as a field ignorant of or slow to react to women's needs or gender issues. Consequences will include, for example, the lack of interests in investing in technologies for women's agricultural, domestic and professional activities (Kim, et. al., 2000).

Second element, mainstreaming gender perspectives in policies and programs is a technical aspect. It is to make sure that differential voices and needs of women and men are equally incorporated. For this gender training should be provided for public officials and those who work in the STEM field. Also, tools such as gender impact assessment(GIA)[3] and gender budget(GB)[4] are very much helpful. The Republic of Korea has institutionalized both GIA and GB with strong legal foundations and thus can paly a key role in sharing experiences with members of the APNN and the ARN networks and helping them implement those mechanisms.

The third element of gender mainstreaming is about transforming the mainstream system to be more gender responsive. This can be done, for example, by establishing a gender division within the Ministry of Science, universities or research institutes to address gender issues and to initiate institutional as well as cultural changes. This framework can be applied in the future survey to monitor gender state in terms of policies and institutions of member countries of the APNN and the ARN networks.

3) Gender impact assessment has been defined as an ex ante evaluation, analysis or assessment of a law, policy or programme that makes it possible to identify, in a preventative way, the likelihood of a given decision having negative consequences for the state of equality between women and men (European Institute for Gender Equality, https://eige.europa.eu/gender-mainstreaming/toolkits/gender-impact-assessment/what-gender-impact-assessment)

4) The Council of Europe defines gender budgeting as a 'gender based assessment of budgets incorporating a gender perspective at all levels of the budgetary process and restructuring revenues and expenditures in order to promote gender equality' (European Institute for Gender Equality, https://eige.europa.eu/gender-mainstreaming/toolkits/gender-impact-assessment/what-gender-impact-assessment)

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Appendix

Appendix 1. Survey Results by Participating Country (APNN)

Individual country results of the 10 APNN countries are shown herein in table format. Among the 12 countries that have participated in this year's survey, India and Malaysia are not included in this section due to insufficient number of responses. The three tables for each country are: 1) Results of female responses of the country in comparison with APNN female average (which excludes the particular country). For example, for Nepal, the average score from female respondents are compared with those from APNN countries excluding those from Nepal; 2) Results of male responses of the country in comparison with APNN average (which excludes the particular country). For example, for Nepal, the average score from male respondents are compared with those of APNN countries excluding those from Nepal; 3) Comparison of results from female and male respondents of the country. For example for each question results from female respondents of Nepal is compared with those from male respondents of Nepal. A p value of less than 0.05 indicates a statistically significant difference.

A1.1 Nepal

1) Comparison with Other APNN Member Countries : Female Response

<Table A1-1 Results from Female Respondents of Nepal (n=48) compared with Average of APNN without Nepal>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Nepal	1.98	1.101	-3.103	0.003
			~Nepal	2.49	1.255		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Nepal	2.75	1.246	1.448	0.148
			~Nepal	2.49	1.187		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Nepal	3.42	1.108	3.452	0.001
			~Nepal	2.84	1.235		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Nepal	2.77	1.242	0.163	0.871
			~Nepal	2.74	1.198		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Nepal	2.77	1.225	0.047	0.962
			~Nepal	2.76	1.136		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Nepal	3.00	1.321	0.719	0.475
			~Nepal	2.86	1.128		
		Average	Nepal	2.78	0.615	0.882	0.381
			~Nepal	2.70	0.832		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Nepal	2.06	1.080	-0.088	0.930
			~Nepal	2.08	1.062		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Nepal	2.73	1.198	3.139	0.003
			~Nepal	2.17	1.067		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Nepal	3.00	0.968	3.635	0.001
			~Nepal	2.47	1.196		

<Table A1-1 Results from Female Respondents of Nepal (n=48) compared with Average of APNN without Nepal>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Nepal	2.69	0.993	2.244	0.029
			~Nepal	2.35	1.184		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Nepal	2.02	1.176	-0.972	0.331
			~Nepal	2.18	1.081		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Nepal	3.71	0.824	7.647	0.000
			~Nepal	2.75	1.094		
		Average	Nepal	2.70	0.654	3.733	0.000
			~Nepal	2.33	0.825		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Nepal	4.17	0.907	2.445	0.015
			~Nepal	3.80	1.014		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Nepal	4.67	0.724	6.400	0.000
			~Nepal	3.95	1.040		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Nepal	3.90	0.951	1.434	0.152
			~Nepal	3.69	0.976		
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Nepal	2.63	1.214	-2.536	0.011
			~Nepal	3.09	1.246		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Nepal	4.46	0.849	6.075	0.000
			~Nepal	3.66	1.268		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Nepal	3.96	1.220	3.340	0.002
			~Nepal	3.35	1.321		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Nepal	4.81	0.641	10.908	0.000
			~Nepal	3.66	1.402		
		Average	Nepal	3.96	0.610	5.449	0.000
			~Nepal	3.44	1.053		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Nepal	1.63	1.044	-4.137	0.000
			~Nepal	2.27	1.217		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Nepal	2.21	1.202	-1.287	0.204
			~Nepal	2.44	1.039		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Nepal	2.08	1.088	-2.110	0.040
			~Nepal	2.43	1.146		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Nepal	2.06	1.060	-1.370	0.171
			~Nepal	2.27	1.024		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Nepal	2.56	0.987	0.795	0.427
			~Nepal	2.44	1.044		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Nepal	2.63	1.214	-0.344	0.731
			~Nepal	2.68	1.159		

<Table A1-1 Results from Female Respondents of Nepal (n=48) compared with Average of APNN without Nepal>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Nepal	3.53	1.501	2.194	0.029
			~Nepal	3.08	1.375		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Nepal	2.64	1.206	-0.635	0.526
			~Nepal	2.75	1.209		
		Average	Nepal	2.53	0.771	-0.493	0.622
			~Nepal	2.58	0.771		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

2) Comparison with Other APNN Member Countries : Male Response

<Table A1-2 Results from Male Respondents of Nepal (n=48) compared with Average of APNN without Nepal>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Nepal	1.94	1.192	-2.212	0.027
			~Nepal	2.32	1.147		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Nepal	2.02	1.194	-1.645	0.100
			~Nepal	2.31	1.163		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Nepal	2.23	1.153	-1.583	0.114
			~Nepal	2.51	1.209		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Nepal	2.60	1.393	-1.154	0.254
			~Nepal	2.84	1.179		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Nepal	2.58	1.318	-1.406	0.160
			~Nepal	2.83	1.185		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Nepal	2.04	1.129	-3.246	0.001
			~Nepal	2.61	1.174		
		Average	Nepal	2.23	0.639	-3.410	0.001
			~Nepal	2.57	0.836		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Nepal	1.54	0.713	-3.542	0.001
			~Nepal	1.93	1.040		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Nepal	1.75	0.812	-1.417	0.157
			~Nepal	1.97	1.049		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Nepal	2.54	1.148	1.395	0.163
			~Nepal	2.30	1.148		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Nepal	2.19	0.982	-0.458	0.649
			~Nepal	2.26	1.132		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Nepal	1.51	0.856	-3.104	0.003
			~Nepal	1.92	1.134		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Nepal	3.29	1.352	4.144	0.000
			~Nepal	2.46	1.152		
		Average	Nepal	2.15	0.551	-0.384	0.702
			~Nepal	2.19	0.872		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Nepal	4.85	0.412	12.541	0.000
			~Nepal	3.99	0.945		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Nepal	4.35	0.887	4.445	0.000
			~Nepal	3.76	1.118		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Nepal	3.15	1.414	-0.604	0.546
			~Nepal	3.26	1.260		

<Table A1-2 Results from Male Respondents of Nepal (n=48) compared with Average of APNN without Nepal>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Nepal	2.27	1.086	-3.505	0.001
			~Nepal	2.84	1.234		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Nepal	3.94	1.262	3.927	0.000
			~Nepal	3.21	1.248		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Nepal	3.32	1.431	0.834	0.408
			~Nepal	3.14	1.265		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Nepal	4.15	1.185	4.187	0.000
			~Nepal	3.40	1.331		
		Average	Nepal	3.41	0.888	1.709	0.088
			~Nepal	3.15	1.029		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Nepal	1.94	1.359	-2.705	0.007
			~Nepal	2.43	1.219		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Nepal	1.51	0.718	-5.915	0.000
			~Nepal	2.17	1.059		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Nepal	1.50	0.684	-5.142	0.000
			~Nepal	2.04	0.987		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Nepal	1.38	0.841	-5.695	0.000
			~Nepal	2.10	1.067		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Nepal	1.85	0.978	-2.006	0.045
			~Nepal	2.16	1.024		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Nepal	1.71	0.988	-3.650	0.001
			~Nepal	2.25	1.095		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Nepal	2.88	1.299	1.651	0.099
			~Nepal	2.58	1.209		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Nepal	2.46	1.148	-1.937	0.053
			~Nepal	2.81	1.223		
		Average	Nepal	1.89	0.538	-4.970	0.000
			~Nepal	2.30	0.723		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

3) Comparison of results between Female and Male respondents (n=96)

<Table A1-3 Comparative Results between Female and Male Respondents of Nepal (48 female, 48 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	1.98	1.101	0.178	0.859
			male	1.94	1.192		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	2.75	1.246	2.927	0.004
			male	2.02	1.194		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	3.42	1.108	5.146	0.000
			male	2.23	1.153		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	2.77	1.242	0.647	0.519
			male	2.60	1.393		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	2.77	1.225	0.722	0.472
			male	2.58	1.318		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	3.00	1.321	3.821	0.000
			male	2.04	1.129		
		Average	female	2.78	0.615	4.279	0.000
			male	2.23	0.639		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	2.06	1.080	2.788	0.007
			male	1.54	0.713		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	2.73	1.198	4.687	0.000
			male	1.75	0.812		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	3.00	0.968	2.115	0.037
			male	2.54	1.148		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	2.69	0.993	2.481	0.015
			male	2.19	0.982		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	2.02	1.176	2.413	0.018
			male	1.51	0.856		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	3.71	0.824	1.823	0.072
			male	3.29	1.352		
		Average	female	2.70	0.654	4.417	0.000
			male	2.15	0.551		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	female	4.17	0.907	-4.781	0.000
			male	4.85	0.412		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	female	4.67	0.724	1.890	0.062
			male	4.35	0.887		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	3.90	0.951	3.050	0.003
			male	3.15	1.414		

<Table A1-3 Comparative Results between Female and Male Respondents of Nepal (48 female, 48 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	2.63	1.214	1.506	0.135
			male	2.27	1.086		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	4.46	0.849	2.372	0.020
			male	3.94	1.262		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	3.96	1.220	2.341	0.021
			male	3.32	1.431		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	4.81	0.641	3.429	0.001
			male	4.15	1.185		
		Average	female	3.96	0.610	3.502	0.001
			male	3.41	0.888		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	1.63	1.044	-1.263	0.210
			male	1.94	1.359		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	2.21	1.202	3.442	0.001
			male	1.51	0.718		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	2.08	1.088	3.144	0.002
			male	1.50	0.684		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	2.06	1.060	3.520	0.001
			male	1.38	0.841		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	2.56	0.987	3.529	0.001
			male	1.85	0.978		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	2.63	1.214	4.057	0.000
			male	1.71	0.988		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	3.53	1.501	2.282	0.025
			male	2.88	1.299		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	2.64	1.206	0.745	0.458
			male	2.46	1.148		
		Average	female	2.53	0.771	4.661	0.000
			male	1.89	0.538		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

A1.2 New Zealand

1) Comparison with Other APNN Member Countries : Female Response

<Table A1-4 Results from Female Respondents of New Zealand (n=42) compared with Average of APNN without New Zealand>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	N.Zealand	3.00	1.414	2.549	0.014
			~N.Zealand	2.43	1.236		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	N.Zealand	2.17	1.010	-2.230	0.031
			~N.Zealand	2.53	1.198		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	N.Zealand	2.74	0.964	-0.946	0.349
			~N.Zealand	2.89	1.248		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	N.Zealand	2.90	1.100	0.895	0.371
			~N.Zealand	2.73	1.205		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	N.Zealand	3.02	1.115	1.521	0.129
			~N.Zealand	2.75	1.141		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	N.Zealand	3.26	1.149	2.305	0.021
			~N.Zealand	2.85	1.136		
		Average	N.Zealand	2.85	0.740	1.183	0.237
			~N.Zealand	2.70	0.824		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	N.Zealand	1.71	0.742	-3.153	0.003
			~N.Zealand	2.10	1.074		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	N.Zealand	2.00	0.937	-1.450	0.154
			~N.Zealand	2.22	1.090		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	N.Zealand	2.71	1.215	1.199	0.231
			~N.Zealand	2.49	1.188		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	N.Zealand	2.48	1.234	0.591	0.555
			~N.Zealand	2.37	1.173		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	N.Zealand	1.64	0.692	-4.869	0.000
			~N.Zealand	2.20	1.098		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	N.Zealand	2.45	1.109	-2.126	0.039
			~N.Zealand	2.83	1.100		
		Average	N.Zealand	2.17	0.698	-1.765	0.084
			~N.Zealand	2.36	0.825		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	N.Zealand	3.86	1.026	0.233	0.816
			~N.Zealand	3.82	1.011		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	N.Zealand	4.26	1.037	1.699	0.090
			~N.Zealand	3.98	1.036		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	N.Zealand	3.14	1.354	-2.780	0.008
			~N.Zealand	3.73	0.941		

<Table A1-4 Results from Female Respondents of New Zealand (n=42) compared with Average of APNN without New Zealand>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	N.Zealand	4.29	1.043	6.670	0.000
			~N.Zealand	3.00	1.225		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	N.Zealand	4.90	0.370	17.248	0.000
			~N.Zealand	3.64	1.260		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	N.Zealand	4.31	1.316	4.714	0.000
			~N.Zealand	3.33	1.304		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	N.Zealand	4.88	0.504	13.096	0.000
			~N.Zealand	3.67	1.401		
		Average	N.Zealand	4.60	0.646	11.149	0.000
			~N.Zealand	3.41	1.021		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	N.Zealand	1.64	1.032	-3.788	0.000
			~N.Zealand	2.27	1.218		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	N.Zealand	2.69	1.070	1.699	0.090
			~N.Zealand	2.41	1.048		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	N.Zealand	2.55	0.993	0.827	0.408
			~N.Zealand	2.40	1.153		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	N.Zealand	2.60	1.106	2.187	0.029
			~N.Zealand	2.24	1.019		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	N.Zealand	2.69	0.897	1.793	0.079
			~N.Zealand	2.43	1.047		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	N.Zealand	3.21	1.071	3.077	0.002
			~N.Zealand	2.65	1.160		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	N.Zealand	3.67	1.426	2.720	0.007
			~N.Zealand	3.07	1.378		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	N.Zealand	2.90	1.284	0.871	0.384
			~N.Zealand	2.74	1.205		
		Average	N.Zealand	2.90	0.766	2.783	0.006
			~N.Zealand	2.56	0.768		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

2) Comparison with Other APNN Member Countries : Male response

<Table A1-5 Results from Male Respondents of New Zealand (n=53) compared with Average of APNN without New Zealand>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	N.Zealand	2.49	1.234	1.290	0.197
			~N.Zealand	2.28	1.146		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	N.Zealand	1.77	0.993	-3.862	0.000
			~N.Zealand	2.33	1.170		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	N.Zealand	2.30	1.170	-1.214	0.225
			~N.Zealand	2.51	1.209		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	N.Zealand	2.96	1.285	0.890	0.373
			~N.Zealand	2.81	1.187		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	N.Zealand	2.94	1.216	0.792	0.429
			~N.Zealand	2.81	1.193		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	N.Zealand	2.51	1.187	-0.409	0.683
			~N.Zealand	2.58	1.178		
		Average	N.Zealand	2.50	0.904	-0.440	0.660
			~N.Zealand	2.55	0.824		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	N.Zealand	1.53	0.639	-4.231	0.000
			~N.Zealand	1.94	1.045		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	N.Zealand	1.72	0.717	-2.413	0.018
			~N.Zealand	1.97	1.055		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	N.Zealand	2.49	1.295	1.135	0.257
			~N.Zealand	2.31	1.138		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	N.Zealand	2.15	1.099	-0.672	0.502
			~N.Zealand	2.26	1.125		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	N.Zealand	1.40	0.631	-5.550	0.000
			~N.Zealand	1.93	1.142		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	N.Zealand	1.83	0.914	-5.519	0.000
			~N.Zealand	2.56	1.184		
		Average	N.Zealand	1.85	0.689	-3.567	0.001
			~N.Zealand	2.21	0.862		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	N.Zealand	4.40	0.689	3.749	0.000
			~N.Zealand	4.02	0.955		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	N.Zealand	3.62	1.289	-1.152	0.250
			~N.Zealand	3.81	1.100		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	N.Zealand	2.57	1.308	-4.123	0.000
			~N.Zealand	3.30	1.253		

<Table A1-5 Results from Male Respondents of New Zealand (n=53) compared with Average of APNN without New Zealand>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	N.Zealand	3.72	1.231	5.668	0.000
			~N.Zealand	2.74	1.207		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	N.Zealand	4.21	1.183	5.838	0.000
			~N.Zealand	3.18	1.238		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	N.Zealand	3.72	1.473	2.923	0.005
			~N.Zealand	3.11	1.251		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	N.Zealand	4.38	1.180	5.896	0.000
			~N.Zealand	3.38	1.320		
		Average	N.Zealand	4.00	1.116	6.322	0.000
			~N.Zealand	3.11	0.989		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	N.Zealand	1.83	1.252	-3.522	0.000
			~N.Zealand	2.44	1.222		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	N.Zealand	2.00	1.019	-0.949	0.343
			~N.Zealand	2.14	1.056		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	N.Zealand	1.96	1.018	-0.352	0.725
			~N.Zealand	2.01	0.977		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	N.Zealand	1.89	0.974	-1.202	0.230
			~N.Zealand	2.07	1.075		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	N.Zealand	2.58	1.117	3.024	0.004
			~N.Zealand	2.11	1.009		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	N.Zealand	2.43	1.152	1.503	0.133
			~N.Zealand	2.20	1.091		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	N.Zealand	3.40	1.349	4.521	0.000
			~N.Zealand	2.53	1.185		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	N.Zealand	2.70	1.202	-0.556	0.578
			~N.Zealand	2.79	1.223		
		Average	N.Zealand	2.42	0.786	1.534	0.125
			~N.Zealand	2.27	0.713		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

3) Comparison of results between Female and Male respondents (n=95)

<Table A1-6 Comparative Results between Female and Male Respondents of New Zealand (42 female, 53 male)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	3.00	1.414	1.873	0.064
			male	2.49	1.234		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	2.17	1.010	1.902	0.060
			male	1.77	0.993		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	2.74	0.964	1.948	0.054
			male	2.30	1.170		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	2.90	1.100	-0.231	0.818
			male	2.96	1.285		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	3.02	1.115	0.332	0.741
			male	2.94	1.216		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	3.26	1.149	3.112	0.002
			male	2.51	1.187		
		Average	female	2.85	0.740	2.042	0.044
			male	2.50	0.904		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	1.71	0.742	1.312	0.193
			male	1.53	0.639		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	2.00	0.937	1.668	0.099
			male	1.72	0.717		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	2.71	1.215	0.859	0.393
			male	2.49	1.295		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	2.48	1.234	1.357	0.178
			male	2.15	1.099		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	1.64	0.692	1.813	0.073
			male	1.40	0.631		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	2.45	1.109	2.932	0.004
			male	1.83	0.914		
		Average	female	2.17	0.698	2.196	0.031
			male	1.85	0.689		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	female	3.86	1.026	-3.056	0.003
			male	4.40	0.689		
4. Need for Policy to Overcome Gender	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	female	4.26	1.037	2.612	0.011
			male	3.62	1.289		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	3.14	1.354	2.102	0.038
			male	2.57	1.308		

<Table A1-6 Comparative Results between Female and Male Respondents of New Zealand (42 female, 53 male)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
Barriers							
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	4.29	1.043	2.391	0.019
			male	3.72	1.231		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	4.90	0.370	4.049	0.000
			male	4.21	1.183		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	4.31	1.316	2.068	0.041
			male	3.72	1.473		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	4.88	0.504	2.801	0.007
			male	4.38	1.180		
		Average	female	4.60	0.646	3.228	0.002
			male	4.00	1.116		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	1.64	1.032	-0.782	0.436
			male	1.83	1.252		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	2.69	1.070	3.208	0.002
			male	2.00	1.019		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	2.55	0.993	2.813	0.006
			male	1.96	1.018		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	2.60	1.106	3.316	0.001
			male	1.89	0.974		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	2.69	0.897	0.511	0.611
			male	2.58	1.117		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	3.21	1.071	3.381	0.001
			male	2.43	1.152		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	3.67	1.426	0.946	0.346
			male	3.40	1.349		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	2.90	1.284	0.807	0.422
			male	2.70	1.202		
		Average	female	2.90	0.766	2.975	0.004
			male	2.42	0.786		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

A1.3 Taiwan

1) Comparison with Other APNN Member Countries : Female Response

<Table A1-7 Results from Female Respondents Taiwan (n=91) compared with Average of APNN without Taiwan>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Taiwan	1.81	0.988	-6.427	0.000
			~Taiwan	2.54	1.258		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Taiwan	1.87	0.945	-6.641	0.000
			~Taiwan	2.59	1.195		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Taiwan	2.12	1.063	-7.081	0.000
			~Taiwan	2.97	1.223		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Taiwan	2.44	1.108	-2.575	0.010
			~Taiwan	2.78	1.206		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Taiwan	2.51	1.119	-2.293	0.022
			~Taiwan	2.80	1.140		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Taiwan	2.24	1.036	-5.667	0.000
			~Taiwan	2.95	1.129		
		Average	Taiwan	2.16	0.771	-6.840	0.000
			~Taiwan	2.77	0.801		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Taiwan	1.77	0.857	-3.505	0.001
			~Taiwan	2.11	1.080		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Taiwan	1.82	0.825	-4.494	0.000
			~Taiwan	2.25	1.102		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Taiwan	2.24	1.139	-2.204	0.028
			~Taiwan	2.53	1.193		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Taiwan	2.18	1.160	-1.689	0.092
			~Taiwan	2.40	1.176		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Taiwan	1.68	0.842	-5.645	0.000
			~Taiwan	2.23	1.099		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Taiwan	2.56	1.002	-2.264	0.024
			~Taiwan	2.84	1.112		
		Average	Taiwan	2.04	0.742	-3.884	0.000
			~Taiwan	2.39	0.821		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Taiwan	4.34	0.885	5.285	0.000
			~Taiwan	3.76	1.008		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Taiwan	4.44	0.806	5.351	0.000
			~Taiwan	3.94	1.051		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Taiwan	4.25	0.877	5.860	0.000
			~Taiwan	3.63	0.965		

<Table A1-7 Results from Female Respondents Taiwan (n=91) compared with Average of APNN without Taiwan>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Taiwan	3.24	1.369	1.308	0.194
			~Taiwan	3.04	1.232		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Taiwan	3.88	1.272	1.358	0.175
			~Taiwan	3.69	1.259		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Taiwan	3.97	1.320	4.509	0.000
			~Taiwan	3.31	1.305		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Taiwan	4.09	1.253	2.857	0.005
			~Taiwan	3.68	1.407		
		Average	Taiwan	3.79	1.086	3.161	0.002
			~Taiwan	3.43	1.027		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Taiwan	1.79	0.863	-4.930	0.000
			~Taiwan	2.29	1.243		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Taiwan	1.84	0.910	-6.438	0.000
			~Taiwan	2.50	1.044		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Taiwan	1.76	0.835	-7.484	0.000
			~Taiwan	2.49	1.154		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Taiwan	1.71	0.873	-6.201	0.000
			~Taiwan	2.33	1.024		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Taiwan	1.89	0.948	-5.532	0.000
			~Taiwan	2.52	1.031		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Taiwan	2.12	1.143	-4.969	0.000
			~Taiwan	2.76	1.144		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Taiwan	2.59	1.406	-3.763	0.000
			~Taiwan	3.17	1.371		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Taiwan	2.84	1.213	0.742	0.458
			~Taiwan	2.74	1.208		
		Average	Taiwan	2.11	0.687	-6.392	0.000
			~Taiwan	2.64	0.760		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

2) Comparison with Other APNN Member Countries : Male response

<Table A1-8 Results from Male Respondents of Taiwan (n=95) compared with Average of APNN without Taiwan>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Taiwan	1.64	0.862	-7.495	0.000
			~Taiwan	2.38	1.159		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Taiwan	1.80	0.985	-5.033	0.000
			~Taiwan	2.36	1.174		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Taiwan	1.80	0.974	-7.201	0.000
			~Taiwan	2.59	1.205		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Taiwan	2.15	1.010	-6.779	0.000
			~Taiwan	2.91	1.187		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Taiwan	2.18	1.021	-6.369	0.000
			~Taiwan	2.91	1.190		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Taiwan	2.00	0.978	-5.928	0.000
			~Taiwan	2.65	1.182		
		Average	Taiwan	1.93	0.697	-8.054	0.000
			~Taiwan	2.63	0.810		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Taiwan	1.93	1.013	0.197	0.844
			~Taiwan	1.90	1.029		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Taiwan	2.04	1.010	0.869	0.385
			~Taiwan	1.94	1.041		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Taiwan	2.23	1.134	-0.778	0.437
			~Taiwan	2.33	1.151		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Taiwan	2.28	1.164	0.308	0.758
			~Taiwan	2.25	1.117		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Taiwan	1.79	0.977	-1.099	0.274
			~Taiwan	1.91	1.141		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Taiwan	2.42	1.068	-0.898	0.371
			~Taiwan	2.53	1.196		
		Average	Taiwan	2.12	0.837	-0.833	0.405
			~Taiwan	2.19	0.858		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Taiwan	4.40	0.791	3.965	0.000
			~Taiwan	3.99	0.953		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Taiwan	4.36	0.849	6.620	0.000
			~Taiwan	3.72	1.124		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Taiwan	4.08	0.986	8.444	0.000
			~Taiwan	3.14	1.262		

<Table A1-8 Results from Male Respondents of Taiwan (n=95) compared with Average of APNN without Taiwan>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Taiwan	2.65	1.210	-1.312	0.190
			~Taiwan	2.83	1.235		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Taiwan	3.04	1.193	-1.811	0.073
			~Taiwan	3.28	1.267		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Taiwan	3.36	1.360	1.685	0.092
			~Taiwan	3.12	1.262		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Taiwan	3.40	1.402	-0.362	0.718
			~Taiwan	3.45	1.325		
		Average	Taiwan	3.11	1.072	-0.558	0.577
			~Taiwan	3.18	1.016		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Taiwan	2.11	1.036	-2.897	0.004
			~Taiwan	2.44	1.253		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Taiwan	1.80	0.929	-3.659	0.000
			~Taiwan	2.18	1.062		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Taiwan	1.80	0.858	-2.219	0.027
			~Taiwan	2.04	0.992		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Taiwan	1.71	0.898	-3.971	0.000
			~Taiwan	2.11	1.082		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Taiwan	1.79	0.886	-3.604	0.000
			~Taiwan	2.19	1.032		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Taiwan	1.77	0.939	-4.853	0.000
			~Taiwan	2.28	1.103		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Taiwan	2.01	1.077	-5.562	0.000
			~Taiwan	2.68	1.213		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Taiwan	2.80	1.404	0.090	0.928
			~Taiwan	2.79	1.194		
		Average	Taiwan	1.95	0.638	-4.756	0.000
			~Taiwan	2.32	0.719		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

3) Comparison of results between Female and Male respondents (n=186)

<Table A1-9 Comparative Results between Female and Male Respondents of Taiwan (91 female, 95 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	1.81	0.988	1.260	0.209
			male	1.64	0.862		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	1.87	0.945	0.481	0.631
			male	1.80	0.985		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	2.12	1.063	2.148	0.033
			male	1.80	0.974		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	2.44	1.108	1.881	0.062
			male	2.15	1.010		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	2.51	1.119	2.076	0.039
			male	2.18	1.021		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	2.24	1.036	1.636	0.103
			male	2.00	0.978		
		Average	female	2.16	0.771	2.199	0.029
			male	1.93	0.697		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	1.77	0.857	-1.139	0.256
			male	1.93	1.013		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	1.82	0.825	-1.608	0.109
			male	2.04	1.010		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	2.24	1.139	0.061	0.951
			male	2.23	1.134		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	2.18	1.160	-0.636	0.526
			male	2.28	1.164		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	1.68	0.842	-0.807	0.421
			male	1.79	0.977		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	2.56	1.002	0.917	0.360
			male	2.42	1.068		
		Average	female	2.04	0.742	-0.634	0.527
			male	2.12	0.837		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	female	4.34	0.885	-0.483	0.630
			male	4.40	0.791		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	female	4.44	0.806	0.672	0.502
			male	4.36	0.849		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	4.25	0.877	1.230	0.220
			male	4.08	0.986		

<Table A1-9 Comparative Results between Female and Male Respondents of Taiwan (91 female, 95 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	3.24	1.369	3.113	0.002
			male	2.65	1.210		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	3.88	1.272	4.630	0.000
			male	3.04	1.193		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	3.97	1.320	3.098	0.002
			male	3.36	1.360		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	4.09	1.253	3.531	0.001
			male	3.40	1.402		
		Average	female	3.79	1.086	4.301	0.000
			male	3.11	1.072		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	1.79	0.863	-2.241	0.026
			male	2.11	1.036		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	1.84	0.910	0.261	0.795
			male	1.80	0.929		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	1.76	0.835	-0.336	0.737
			male	1.80	0.858		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	1.71	0.873	0.069	0.945
			male	1.71	0.898		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	1.89	0.948	0.748	0.455
			male	1.79	0.886		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	2.12	1.143	2.292	0.023
			male	1.77	0.939		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	2.59	1.406	3.164	0.002
			male	2.01	1.077		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	2.84	1.213	0.183	0.855
			male	2.80	1.404		
		Average	female	2.11	0.687	1.577	0.117
			male	1.95	0.638		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

A1.4 Mongolia

1) Comparison with Other APNN Member Countries : Female Response

<Table A1-10 Results from Female Respondents of Mongolia (n=113) compared with Average of APNN without Mongolia>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Mongolia	2.59	1.099	1.249	0.214
			~Mongolia	2.44	1.274		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Mongolia	2.96	1.044	4.843	0.000
			~Mongolia	2.44	1.198		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Mongolia	2.99	1.027	1.205	0.230
			~Mongolia	2.86	1.264		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Mongolia	2.16	1.034	-6.190	0.000
			~Mongolia	2.83	1.199		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Mongolia	2.64	1.081	-1.203	0.229
			~Mongolia	2.78	1.150		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Mongolia	2.88	1.080	0.159	0.874
			~Mongolia	2.87	1.150		
		Average	Mongolia	2.69	0.525	-0.241	0.810
			~Mongolia	2.71	0.856		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Mongolia	2.08	0.896	0.067	0.946
			~Mongolia	2.07	1.088		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Mongolia	2.23	1.068	0.202	0.840
			~Mongolia	2.20	1.086		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Mongolia	2.38	1.229	-1.160	0.246
			~Mongolia	2.52	1.183		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Mongolia	2.26	1.134	-1.066	0.287
			~Mongolia	2.39	1.182		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Mongolia	1.94	1.094	-2.420	0.016
			~Mongolia	2.21	1.082		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Mongolia	2.85	1.124	0.492	0.623
			~Mongolia	2.80	1.101		
		Average	Mongolia	2.28	0.777	-0.950	0.342
			~Mongolia	2.36	0.826		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Mongolia	4.33	0.813	6.881	0.000
			~Mongolia	3.74	1.017		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Mongolia	4.18	0.876	2.295	0.023
			~Mongolia	3.97	1.059		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Mongolia	3.99	0.803	3.965	0.000
			~Mongolia	3.65	0.992		

<Table A1-10 Results from Female Respondents of Mongolia (n=113) compared with Average of APNN without Mongolia>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Mongolia	2.68	1.087	-3.495	0.000
			~Mongolia	3.13	1.263		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Mongolia	2.95	1.142	-6.921	0.000
			~Mongolia	3.83	1.239		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Mongolia	3.32	1.160	-0.668	0.505
			~Mongolia	3.40	1.346		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Mongolia	3.09	1.113	-6.220	0.000
			~Mongolia	3.83	1.410		
		Average	Mongolia	3.00	0.939	-5.502	0.000
			~Mongolia	3.54	1.036		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Mongolia	2.13	0.959	-1.223	0.223
			~Mongolia	2.25	1.252		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Mongolia	2.23	0.896	-2.083	0.039
			~Mongolia	2.45	1.066		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Mongolia	2.41	0.963	0.041	0.967
			~Mongolia	2.40	1.165		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Mongolia	2.33	0.964	0.622	0.534
			~Mongolia	2.25	1.034		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Mongolia	2.54	0.999	0.830	0.407
			~Mongolia	2.44	1.046		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Mongolia	2.48	1.004	-1.872	0.064
			~Mongolia	2.70	1.177		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Mongolia	2.94	1.141	-1.341	0.182
			~Mongolia	3.12	1.412		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Mongolia	2.82	0.946	0.738	0.462
			~Mongolia	3.74	1.237		
		Average	Mongolia	2.53	0.656	-0.669	0.505
			~Mongolia	2.59	0.784		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

2) Comparison with Other APNN Member Countries : Male response

<Table A1-11 Results from Male Respondents of Mongolia (n=96) compared with Average of APNN without Mongolia>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Mongolia	2.31	0.998	0.197	0.844
			~Mongolia	2.29	1.173		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Mongolia	2.63	1.136	3.015	0.003
			~Mongolia	2.24	1.164		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Mongolia	2.53	1.060	0.289	0.773
			~Mongolia	2.49	1.227		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Mongolia	2.57	0.956	-2.573	0.011
			~Mongolia	2.85	1.218		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Mongolia	2.91	1.067	0.850	0.397
			~Mongolia	2.81	1.210		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Mongolia	3.05	1.118	4.294	0.000
			~Mongolia	2.51	1.172		
		Average	Mongolia	2.65	0.744	1.307	0.192
			~Mongolia	2.53	0.839		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Mongolia	1.79	0.841	-1.214	0.225
			~Mongolia	1.92	1.050		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Mongolia	1.86	0.829	-1.104	0.272
			~Mongolia	1.97	1.063		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Mongolia	1.91	0.876	-4.676	0.000
			~Mongolia	2.37	1.171		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Mongolia	1.96	0.879	-3.315	0.001
			~Mongolia	2.29	1.147		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Mongolia	1.81	1.009	-0.769	0.442
			~Mongolia	1.91	1.138		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Mongolia	2.41	1.052	-0.960	0.338
			~Mongolia	2.53	1.198		
		Average	Mongolia	1.96	0.678	-3.282	0.001
			~Mongolia	2.22	0.873		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Mongolia	3.91	0.941	-1.516	0.130
			~Mongolia	4.06	0.944		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Mongolia	3.77	0.932	-0.290	0.772
			~Mongolia	3.80	1.137		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Mongolia	3.45	1.113	1.606	0.109
			~Mongolia	3.23	1.288		

<Table A1-11 Results from Male Respondents of Mongolia (n=96) compared with Average of APNN without Mongolia>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Mongolia	2.44	1.034	-3.646	0.000
			~Mongolia	2.86	1.250		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Mongolia	2.82	1.056	-4.130	0.000
			~Mongolia	3.31	1.275		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Mongolia	3.01	1.110	-1.300	0.196
			~Mongolia	3.17	1.296		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Mongolia	2.89	1.207	-4.690	0.000
			~Mongolia	3.52	1.334		
		Average	Mongolia	2.79	0.923	-3.885	0.000
			~Mongolia	3.22	1.025		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Mongolia	2.62	1.069	2.034	0.044
			~Mongolia	2.37	1.251		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Mongolia	2.33	0.714	2.177	0.032
			~Mongolia	2.11	1.078		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Mongolia	2.45	0.942	3.836	0.000
			~Mongolia	1.97	0.973		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Mongolia	2.42	0.989	2.869	0.004
			~Mongolia	2.02	1.070		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Mongolia	2.53	1.083	3.215	0.001
			~Mongolia	2.10	1.010		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Mongolia	2.39	0.828	1.706	0.092
			~Mongolia	2.20	1.117		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Mongolia	2.62	1.007	0.196	0.845
			~Mongolia	2.59	1.235		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Mongolia	3.03	1.023	1.950	0.055
			~Mongolia	2.77	1.236		
		Average	Mongolia	2.54	0.568	3.790	0.000
			~Mongolia	2.25	0.727		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

3) Comparison of results between Female and Male respondents (n=209)

<Table A1-12 Comparative Results between Female and Male Respondents of Mongolia (113 female, 96 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	2.59	1.099	1.860	0.064
			male	2.31	0.998		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	2.96	1.044	2.207	0.028
			male	2.63	1.136		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	2.99	1.027	3.181	0.002
			male	2.53	1.060		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	2.16	1.034	-2.962	0.003
			male	2.57	0.956		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	2.64	1.081	-1.762	0.080
			male	2.91	1.067		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	2.88	1.080	-1.101	0.272
			male	3.05	1.118		
		Average	female	2.69	0.525	0.414	0.679
			male	2.65	0.744		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	2.08	0.896	2.407	0.017
			male	1.79	0.841		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	2.23	1.068	2.732	0.007
			male	1.86	0.829		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	2.38	1.229	3.213	0.002
			male	1.91	0.876		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	2.26	1.134	2.159	0.032
			male	1.96	0.879		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	1.94	1.094	0.840	0.402
			male	1.81	1.009		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	2.85	1.124	2.942	0.004
			male	2.41	1.052		
		Average	female	2.28	0.777	3.130	0.002
			male	1.96	0.678		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	female	4.33	0.813	3.503	0.001
			male	3.91	0.941		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	female	4.18	0.876	3.275	0.001
			male	3.77	0.932		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	3.99	0.803	3.969	0.000
			male	3.45	1.113		

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	2.68	1.087	1.669	0.097
			male	2.44	1.034		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	2.95	1.142	0.850	0.396
			male	2.82	1.056		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	3.32	1.160	1.924	0.056
			male	3.01	1.110		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	3.09	1.113	1.210	0.228
			male	2.89	1.207		
		Average	female	3.00	0.939	1.645	0.102
			male	2.79	0.923		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	2.13	0.959	-3.449	0.001
			male	2.62	1.069		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	2.23	0.896	-0.747	0.456
			male	2.33	0.714		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	2.41	0.963	-0.274	0.784
			male	2.45	0.942		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	2.33	0.964	-0.595	0.552
			male	2.42	0.989		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	2.54	0.999	0.026	0.979
			male	2.53	1.083		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	2.48	1.004	0.589	0.557
			male	2.39	0.828		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	2.94	1.141	1.769	0.079
			male	2.62	1.007		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	2.82	0.946	-1.290	0.199
			male	3.03	1.023		
		Average	female	2.53	0.656	-0.075	0.941
			male	2.54	0.568		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

A1.5 Bangladesh

1) Comparison with Other APNN Member Countries : Female Response

<Table A1-13 Results from Female Respondents of Bangladesh (n=49) compared with Average of APNN without Bangladesh>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Bangladesh	2.35	1.347	-0.662	0.508
			~Bangladesh	2.47	1.246		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Bangladesh	2.51	1.386	0.008	0.993
			~Bangladesh	2.51	1.179		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Bangladesh	2.90	1.461	0.102	0.919
			~Bangladesh	2.88	1.220		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Bangladesh	2.14	1.173	-3.644	0.000
			~Bangladesh	2.78	1.192		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Bangladesh	2.35	1.128	-2.645	0.008
			~Bangladesh	2.79	1.137		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Bangladesh	2.82	1.349	-0.280	0.781
			~Bangladesh	2.87	1.126		
		Average	Bangladesh	2.51	0.953	-1.704	0.089
			~Bangladesh	2.72	0.810		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Bangladesh	2.06	1.162	-0.098	0.922
			~Bangladesh	2.08	1.057		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Bangladesh	2.37	1.220	0.963	0.340
			~Bangladesh	2.20	1.073		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Bangladesh	2.73	1.106	1.377	0.169
			~Bangladesh	2.49	1.194		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Bangladesh	2.84	1.124	2.869	0.004
			~Bangladesh	2.34	1.174		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Bangladesh	2.33	1.162	1.049	0.295
			~Bangladesh	2.16	1.082		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Bangladesh	3.00	1.021	1.268	0.205
			~Bangladesh	2.79	1.108		
		Average	Bangladesh	2.55	0.793	1.731	0.084
			~Bangladesh	2.34	0.820		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Bangladesh	3.90	1.077	0.523	0.601
			~Bangladesh	3.82	1.008		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Bangladesh	4.10	0.994	0.734	0.463
			~Bangladesh	3.99	1.040		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Bangladesh	3.27	1.267	-2.455	0.018
			~Bangladesh	3.73	0.948		

<Table A1-13 Results from Female Respondents of Bangladesh (n=49) compared with Average of APNN without Bangladesh>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Bangladesh	2.73	1.221	-1.924	0.055
			~Bangladesh	3.09	1.248		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Bangladesh	3.47	1.459	-1.201	0.235
			~Bangladesh	3.73	1.247		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Bangladesh	3.41	1.540	0.109	0.914
			~Bangladesh	3.38	1.308		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Bangladesh	4.06	1.232	1.929	0.059
			~Bangladesh	3.71	1.404		
		Average	Bangladesh	3.42	1.041	-0.369	0.712
			~Bangladesh	3.47	1.040		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Bangladesh	1.73	0.995	-3.583	0.001
			~Bangladesh	2.27	1.223		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Bangladesh	2.42	1.127	-0.042	0.966
			~Bangladesh	2.42	1.046		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Bangladesh	2.25	1.120	-0.971	0.332
			~Bangladesh	2.42	1.147		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Bangladesh	2.35	1.082	0.663	0.508
			~Bangladesh	2.25	1.023		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Bangladesh	2.55	1.062	0.724	0.469
			~Bangladesh	2.44	1.040		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Bangladesh	3.13	1.265	2.747	0.006
			~Bangladesh	2.65	1.149		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Bangladesh	2.94	1.360	-0.856	0.392
			~Bangladesh	3.11	1.388		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Bangladesh	3.20	1.172	2.747	0.006
			~Bangladesh	2.72	1.206		
		Average	Bangladesh	2.69	0.743	0.991	0.322
			~Bangladesh	2.57	0.773		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

2) Comparison with Other APNN Member Countries : Male response

<Table A1-14 Results from Male Respondents of Bangladesh (n=58) compared with Average of APNN without Bangladesh>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Bangladesh	2.03	1.376	-1.506	0.137
			~Bangladesh	2.31	1.132		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Bangladesh	2.09	1.288	-1.376	0.169
			~Bangladesh	2.31	1.156		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Bangladesh	2.40	1.363	-0.583	0.562
			~Bangladesh	2.50	1.195		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Bangladesh	2.76	1.315	-0.415	0.678
			~Bangladesh	2.83	1.184		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Bangladesh	2.95	1.288	0.850	0.396
			~Bangladesh	2.81	1.187		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Bangladesh	2.33	1.272	-1.599	0.110
			~Bangladesh	2.59	1.169		
		Average	Bangladesh	2.42	0.841	-1.150	0.251
			~Bangladesh	2.55	0.828		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Bangladesh	1.98	1.281	0.451	0.654
			~Bangladesh	1.90	1.003		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Bangladesh	2.15	1.307	1.144	0.258
			~Bangladesh	1.94	1.015		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Bangladesh	3.11	1.251	5.310	0.000
			~Bangladesh	2.26	1.121		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Bangladesh	2.91	1.364	3.714	0.000
			~Bangladesh	2.20	1.088		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Bangladesh	2.13	1.275	1.593	0.112
			~Bangladesh	1.88	1.110		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Bangladesh	2.93	1.358	2.661	0.008
			~Bangladesh	2.48	1.163		
		Average	Bangladesh	2.55	0.924	3.242	0.001
			~Bangladesh	2.15	0.843		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Bangladesh	4.36	0.903	2.592	0.010
			~Bangladesh	4.02	0.944		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Bangladesh	4.11	1.056	2.196	0.028
			~Bangladesh	3.77	1.115		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Bangladesh	2.77	1.525	-2.501	0.015
			~Bangladesh	3.29	1.241		

<Table A1-14 Results from Male Respondents of Bangladesh (n=58) compared with Average of APNN without Bangladesh>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Bangladesh	2.36	1.007	-3.335	0.001
			~Bangladesh	2.84	1.242		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Bangladesh	2.80	1.380	-2.767	0.006
			~Bangladesh	3.29	1.245		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Bangladesh	3.02	1.328	-0.813	0.417
			~Bangladesh	3.16	1.272		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Bangladesh	3.13	1.248	-1.957	0.055
			~Bangladesh	3.47	1.338		
		Average	Bangladesh	2.85	0.896	-2.359	0.019
			~Bangladesh	3.19	1.028		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Bangladesh	2.20	1.212	-1.296	0.195
			~Bangladesh	2.42	1.234		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Bangladesh	2.07	1.158	-0.450	0.653
			~Bangladesh	2.14	1.045		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Bangladesh	1.96	1.095	-0.346	0.729
			~Bangladesh	2.01	0.970		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Bangladesh	2.02	1.053	-0.284	0.777
			~Bangladesh	2.06	1.071		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Bangladesh	2.45	1.159	2.073	0.042
			~Bangladesh	2.12	1.008		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Bangladesh	2.38	1.225	1.166	0.244
			~Bangladesh	2.20	1.085		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Bangladesh	2.66	1.352	0.383	0.703
			~Bangladesh	2.59	1.206		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Bangladesh	3.07	1.126	1.808	0.071
			~Bangladesh	2.77	1.226		
		Average	Bangladesh	2.38	0.751	1.153	0.249
			~Bangladesh	2.27	0.716		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

3) Comparison of results between Female and Male respondents (n=107)

<Table A1-15 Comparative Results between Female and Male Respondents of Bangladesh (49 female, 58 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	2.35	1.347	1.182	0.240
			male	2.03	1.376		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	2.51	1.386	1.638	0.104
			male	2.09	1.288		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	2.90	1.461	1.834	0.069
			male	2.40	1.363		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	2.14	1.173	-2.534	0.013
			male	2.76	1.315		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	2.35	1.128	-2.533	0.013
			male	2.95	1.288		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	2.82	1.349	1.895	0.061
			male	2.33	1.272		
		Average	female	2.51	0.953	0.500	0.618
			male	2.42	0.841		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	2.06	1.162	0.330	0.742
			male	1.98	1.281		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	2.37	1.220	0.863	0.390
			male	2.15	1.307		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	2.73	1.106	-1.628	0.107
			male	3.11	1.251		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	2.84	1.124	-0.285	0.776
			male	2.91	1.364		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	2.33	1.162	0.817	0.416
			male	2.13	1.275		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	3.00	1.021	0.315	0.754
			male	2.93	1.358		
		Average	female	2.55	0.793	0.005	0.996
			male	2.55	0.924		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	female	3.90	1.077	-2.376	0.019
			male	4.36	0.903		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	female	4.10	0.994	-0.015	0.988
			male	4.11	1.056		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	3.27	1.267	1.836	0.069
			male	2.77	1.525		

<Table A1-15 Comparative Results between Female and Male Respondents of Bangladesh (49 female, 58 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	2.73	1.221	1.698	0.093
			male	2.36	1.007		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	3.47	1.459	2.404	0.018
			male	2.80	1.380		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	3.41	1.540	1.381	0.171
			male	3.02	1.328		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	4.06	1.232	3.833	0.000
			male	3.13	1.248		
		Average	female	3.42	1.041	2.965	0.004
			male	2.85	0.896		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	1.73	0.995	-2.142	0.035
			male	2.20	1.212		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	2.42	1.127	1.535	0.128
			male	2.07	1.158		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	2.25	1.120	1.312	0.192
			male	1.96	1.095		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	2.35	1.082	1.604	0.112
			male	2.02	1.053		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	2.55	1.062	0.480	0.632
			male	2.45	1.159		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	3.13	1.265	3.025	0.003
			male	2.38	1.225		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	2.94	1.360	1.048	0.297
			male	2.66	1.352		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	3.20	1.172	0.591	0.556
			male	3.07	1.126		
		Average	female	2.69	0.743	2.082	0.040
			male	2.38	0.751		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

A1.6 Vietnam

1) Comparison with Other APNN Member Countries : Female Response

<Table A1-16 Results from Female Respondents of Vietnam (n=109) compared with Average of APNN without Vietnam>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Vietnam	3.47	0.675	14.536	0.000
			~Vietnam	2.31	1.248		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Vietnam	2.87	0.640	5.427	0.000
			~Vietnam	2.45	1.247		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Vietnam	3.77	0.647	13.253	0.000
			~Vietnam	2.74	1.247		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Vietnam	2.97	0.967	2.555	0.012
			~Vietnam	2.71	1.229		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Vietnam	3.06	0.926	3.513	0.001
			~Vietnam	2.72	1.164		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Vietnam	3.02	0.490	2.652	0.008
			~Vietnam	2.84	1.209		
		Average	Vietnam	3.19	0.276	13.598	0.000
			~Vietnam	2.63	0.850		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Vietnam	2.64	0.850	6.080	0.000
			~Vietnam	1.99	1.066		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Vietnam	2.56	0.881	3.668	0.000
			~Vietnam	2.15	1.101		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Vietnam	2.55	0.954	0.575	0.566
			~Vietnam	2.49	1.222		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Vietnam	2.90	0.823	6.610	0.000
			~Vietnam	2.29	1.201		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Vietnam	2.70	0.827	6.812	0.000
			~Vietnam	2.09	1.099		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Vietnam	3.07	0.544	4.516	0.000
			~Vietnam	2.77	1.160		
		Average	Vietnam	2.74	0.387	8.973	0.000
			~Vietnam	2.29	0.852		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Vietnam	3.23	0.959	-6.758	0.000
			~Vietnam	3.91	0.988		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Vietnam	2.67	0.806	-18.185	0.000
			~Vietnam	4.21	0.907		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Vietnam	3.55	0.887	-1.730	0.084
			~Vietnam	3.72	0.986		

<Table A1-16 Results from Female Respondents of Vietnam (n=109) compared with Average of APNN without Vietnam>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Vietnam	2.90	0.407	-3.045	0.002
			~Vietnam	3.09	1.331		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Vietnam	3.68	0.826	-0.385	0.701
			~Vietnam	3.71	1.317		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Vietnam	2.68	0.622	-10.352	0.000
			~Vietnam	3.50	1.368		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Vietnam	2.21	1.210	-13.513	0.000
			~Vietnam	3.97	1.269		
		Average	Vietnam	2.87	0.512	-10.992	0.000
			~Vietnam	3.57	1.069		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Vietnam	3.74	0.658	22.989	0.000
			~Vietnam	2.00	1.111		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Vietnam	2.94	0.506	9.446	0.000
			~Vietnam	2.34	1.091		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Vietnam	3.70	0.822	16.964	0.000
			~Vietnam	2.19	1.048		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Vietnam	2.97	0.552	12.491	0.000
			~Vietnam	2.14	1.039		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Vietnam	2.83	0.948	4.244	0.000
			~Vietnam	2.38	1.042		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Vietnam	3.18	0.626	7.692	0.000
			~Vietnam	2.60	1.207		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Vietnam	3.36	0.967	2.742	0.007
			~Vietnam	3.06	1.440		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Vietnam	1.90	0.526	-14.217	0.000
			~Vietnam	2.88	1.232		
		Average	Vietnam	2.99	0.435	9.114	0.000
			~Vietnam	2.51	0.793		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

2) Comparison with Other APNN Member Countries : Male response

<Table A1-17 Results from Male Respondents of Vietnam (n=118) compared with Average of APNN without Vietnam>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Vietnam	2.75	0.837	6.055	0.000
			~Vietnam	2.21	1.182		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Vietnam	2.80	0.843	6.616	0.000
			~Vietnam	2.20	1.193		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Vietnam	3.10	0.885	7.538	0.000
			~Vietnam	2.39	1.225		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Vietnam	2.91	0.773	1.168	0.244
			~Vietnam	2.81	1.252		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Vietnam	2.73	0.844	-1.147	0.252
			~Vietnam	2.83	1.245		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Vietnam	2.94	0.854	4.690	0.000
			~Vietnam	2.51	1.215		
		Average	Vietnam	2.88	0.364	8.174	0.000
			~Vietnam	2.49	0.873		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Vietnam	2.68	0.914	9.462	0.000
			~Vietnam	1.76	0.978		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Vietnam	2.92	0.859	11.956	0.000
			~Vietnam	1.78	0.970		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Vietnam	3.13	0.790	11.185	0.000
			~Vietnam	2.17	1.144		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Vietnam	3.03	0.805	10.614	0.000
			~Vietnam	2.12	1.115		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Vietnam	3.08	1.069	12.974	0.000
			~Vietnam	1.69	0.999		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Vietnam	2.88	0.742	5.182	0.000
			~Vietnam	2.45	1.232		
		Average	Vietnam	2.95	0.551	14.910	0.000
			~Vietnam	2.04	0.823		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Vietnam	3.51	0.985	-6.862	0.000
			~Vietnam	4.14	0.906		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Vietnam	3.70	0.937	-1.087	0.279
			~Vietnam	3.81	1.142		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Vietnam	3.44	0.873	2.315	0.021
			~Vietnam	3.22	1.325		

<Table A1-17 Results from Male Respondents of Vietnam (n=118) compared with Average of APNN without Vietnam>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Vietnam	2.89	0.941	0.964	0.336
			~Vietnam	2.79	1.277		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Vietnam	2.90	0.851	-4.454	0.000
			~Vietnam	3.31	1.310		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Vietnam	2.97	0.928	-2.182	0.030
			~Vietnam	3.18	1.325		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Vietnam	2.88	1.044	-6.059	0.000
			~Vietnam	3.55	1.355		
		Average	Vietnam	2.91	0.588	-4.386	0.000
			~Vietnam	3.21	1.075		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Vietnam	2.92	1.098	5.401	0.000
			~Vietnam	2.31	1.234		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Vietnam	2.85	1.010	8.388	0.000
			~Vietnam	2.00	1.008		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Vietnam	2.77	0.778	9.777	0.000
			~Vietnam	1.87	0.947		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Vietnam	3.09	0.924	13.129	0.000
			~Vietnam	1.87	0.981		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Vietnam	2.48	0.759	4.989	0.000
			~Vietnam	2.08	1.053		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Vietnam	3.19	0.787	13.890	0.000
			~Vietnam	2.03	1.049		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Vietnam	2.70	0.799	1.443	0.150
			~Vietnam	2.57	1.279		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Vietnam	3.06	0.936	3.227	0.001
			~Vietnam	2.74	1.261		
		Average	Vietnam	2.88	0.402	15.340	0.000
			~Vietnam	2.17	0.710		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

3) Comparison of results between Female and Male respondents (n=227)

<Table A1-18 Comparative Results between Female and Male Respondents of Vietnam (109 female, 118 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	3.47	0.675	7.100	0.000
			male	2.75	0.837		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	2.87	0.640	0.758	0.449
			male	2.80	0.843		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	3.77	0.647	6.509	0.000
			male	3.10	0.885		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	2.97	0.967	0.563	0.574
			male	2.91	0.773		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	3.06	0.926	2.845	0.005
			male	2.73	0.844		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	3.02	0.490	0.851	0.396
			male	2.94	0.854		
		Average	female	3.19	0.276	7.390	0.000
			male	2.88	0.364		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	2.64	0.850	-0.281	0.779
			male	2.68	0.914		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	2.56	0.881	-3.127	0.002
			male	2.92	0.859		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	2.55	0.954	-4.901	0.000
			male	3.13	0.790		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	2.90	0.823	-1.259	0.210
			male	3.03	0.805		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	2.70	0.827	-2.953	0.003
			male	3.08	1.069		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	3.07	0.544	2.244	0.026
			male	2.88	0.742		
		Average	female	2.74	0.387	-3.363	0.001
			male	2.95	0.551		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	female	3.23	0.959	-2.161	0.032
			male	3.51	0.985		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	female	2.67	0.806	-8.880	0.000
			male	3.70	0.937		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	3.55	0.887	0.940	0.348
			male	3.44	0.873		

<Table A1-18 Comparative Results between Female and Male Respondents of Vietnam (109 female, 118 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	2.90	0.407	0.097	0.923
			male	2.89	0.941		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	3.68	0.826	7.000	0.000
			male	2.90	0.851		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	2.68	0.622	-2.747	0.007
			male	2.97	0.928		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	2.21	1.210	-4.462	0.000
			male	2.88	1.044		
		Average	female	2.87	0.512	-0.617	0.538
			male	2.91	0.588		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	3.74	0.658	6.947	0.000
			male	2.92	1.098		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	2.94	0.506	0.930	0.354
			male	2.85	1.010		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	3.70	0.822	8.719	0.000
			male	2.77	0.778		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	2.97	0.552	-1.205	0.230
			male	3.09	0.924		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	2.83	0.948	3.070	0.002
			male	2.48	0.759		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	3.18	0.626	-0.121	0.903
			male	3.19	0.787		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	3.36	0.967	5.533	0.000
			male	2.70	0.799		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	1.90	0.526	-11.620	0.000
			male	3.06	0.936		
		Average	female	2.99	0.435	1.927	0.055
			male	2.88	0.402		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

A1.7 Sri Lanka

1) Comparison with Other APNN Member Countries : Female Response

<Table A1-19 Results from Female Respondents of Sri Lanka (n=35) compared with Average of APNN without Sri Lanka>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Sri Lanka	1.89	1.132	-3.064	0.004
			~Sri Lanka	2.49	1.251		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Sri Lanka	2.23	1.239	-1.423	0.155
			~Sri Lanka	2.52	1.189		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Sri Lanka	2.66	1.327	-1.079	0.281
			~Sri Lanka	2.89	1.231		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Sri Lanka	2.29	1.100	-2.314	0.021
			~Sri Lanka	2.76	1.200		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Sri Lanka	2.46	1.172	-1.624	0.105
			~Sri Lanka	2.78	1.138		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Sri Lanka	2.23	1.140	-3.415	0.001
			~Sri Lanka	2.90	1.132		
		Average	Sri Lanka	2.29	0.738	-3.368	0.002
			~Sri Lanka	2.72	0.819		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Sri Lanka	2.74	1.245	3.263	0.002
			~Sri Lanka	2.05	1.045		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Sri Lanka	2.69	1.323	2.210	0.034
			~Sri Lanka	2.18	1.067		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Sri Lanka	2.83	1.175	1.672	0.095
			~Sri Lanka	2.49	1.189		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Sri Lanka	2.91	1.358	2.803	0.005
			~Sri Lanka	2.35	1.162		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Sri Lanka	2.94	1.259	4.356	0.000
			~Sri Lanka	2.13	1.066		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Sri Lanka	2.43	1.092	-2.076	0.038
			~Sri Lanka	2.82	1.101		
		Average	Sri Lanka	2.76	0.954	2.992	0.003
			~Sri Lanka	2.34	0.809		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Sri Lanka	3.86	0.879	0.212	0.832
			~Sri Lanka	3.82	1.018		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Sri Lanka	4.35	0.812	2.046	0.041
			~Sri Lanka	3.98	1.044		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Sri Lanka	4.03	1.000	2.015	0.044
			~Sri Lanka	3.69	0.972		

<Table A1-19 Results from Female Respondents of Sri Lanka (n=35) compared with Average of APNN without Sri Lanka>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Sri Lanka	3.00	1.299	-0.314	0.754
			~Sri Lanka	3.07	1.247		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Sri Lanka	3.68	1.387	-0.158	0.874
			~Sri Lanka	3.71	1.256		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Sri Lanka	3.66	1.474	1.245	0.214
			~Sri Lanka	3.37	1.314		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Sri Lanka	3.89	1.409	0.678	0.498
			~Sri Lanka	3.72	1.395		
		Average	Sri Lanka	3.54	1.070	0.375	0.708
			~Sri Lanka	3.47	1.038		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Sri Lanka	1.86	1.089	-2.094	0.043
			~Sri Lanka	2.25	1.220		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Sri Lanka	2.26	1.024	-0.897	0.370
			~Sri Lanka	2.43	1.052		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Sri Lanka	2.15	0.989	-1.546	0.131
			~Sri Lanka	2.42	1.151		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Sri Lanka	2.06	0.864	-1.336	0.190
			~Sri Lanka	2.27	1.033		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Sri Lanka	2.47	0.929	0.137	0.891
			~Sri Lanka	2.45	1.046		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Sri Lanka	2.62	1.256	-0.324	0.746
			~Sri Lanka	2.68	1.158		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Sri Lanka	3.35	1.300	1.075	0.283
			~Sri Lanka	3.09	1.390		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Sri Lanka	3.18	1.267	2.125	0.034
			~Sri Lanka	2.73	1.203		
		Average	Sri Lanka	2.58	0.712	0.030	0.976
			~Sri Lanka	2.58	0.774		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

2) Comparison with Other APNN Member Countries : Male response

<Table A1-20 Results from Male Respondents of Sri Lanka (n=11) compared with Average of APNN without Sri Lanka>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Sri Lanka	1.45	0.522	-5.225	0.000
			~Sri Lanka	2.31	1.155		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Sri Lanka	1.80	0.919	-1.335	0.182
			~Sri Lanka	2.30	1.168		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Sri Lanka	2.20	1.317	-0.781	0.435
			~Sri Lanka	2.50	1.206		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Sri Lanka	3.09	1.221	0.755	0.451
			~Sri Lanka	2.82	1.193		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Sri Lanka	3.18	1.079	1.018	0.309
			~Sri Lanka	2.81	1.195		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Sri Lanka	2.45	1.293	-0.337	0.736
			~Sri Lanka	2.58	1.177		
		Average	Sri Lanka	2.37	0.532	-0.686	0.493
			~Sri Lanka	2.55	0.832		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Sri Lanka	3.90	1.287	6.354	0.000
			~Sri Lanka	1.88	0.995		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Sri Lanka	4.10	1.101	6.766	0.000
			~Sri Lanka	1.93	1.008		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Sri Lanka	3.80	1.398	4.148	0.000
			~Sri Lanka	2.30	1.134		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Sri Lanka	3.80	1.398	4.445	0.000
			~Sri Lanka	2.23	1.105		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Sri Lanka	3.80	1.317	5.500	0.000
			~Sri Lanka	1.87	1.100		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Sri Lanka	2.70	1.636	0.362	0.726
			~Sri Lanka	2.51	1.176		
		Average	Sri Lanka	3.68	1.148	4.174	0.002
			~Sri Lanka	2.16	0.832		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Sri Lanka	4.50	0.707	1.541	0.124
			~Sri Lanka	4.04	0.946		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Sri Lanka	4.00	0.943	0.592	0.554
			~Sri Lanka	3.79	1.116		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Sri Lanka	3.50	1.434	0.619	0.536
			~Sri Lanka	3.25	1.268		

<Table A1-20 Results from Male Respondents of Sri Lanka (n=11) compared with Average of APNN without Sri Lanka>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Sri Lanka	2.40	1.265	-1.054	0.292
			~Sri Lanka	2.81	1.232		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Sri Lanka	3.40	1.075	0.375	0.708
			~Sri Lanka	3.25	1.263		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Sri Lanka	3.10	1.663	-0.099	0.924
			~Sri Lanka	3.15	1.271		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Sri Lanka	3.89	1.453	1.001	0.317
			~Sri Lanka	3.44	1.333		
		Average	Sri Lanka	3.28	1.011	0.324	0.746
			~Sri Lanka	3.17	1.023		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Sri Lanka	2.40	1.174	-0.005	0.996
			~Sri Lanka	2.40	1.234		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Sri Lanka	1.60	0.699	-1.611	0.108
			~Sri Lanka	2.14	1.056		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Sri Lanka	1.50	0.707	-1.653	0.099
			~Sri Lanka	2.01	0.981		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Sri Lanka	1.50	0.707	-1.660	0.097
			~Sri Lanka	2.06	1.071		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Sri Lanka	1.70	0.949	-1.371	0.171
			~Sri Lanka	2.15	1.023		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Sri Lanka	2.40	1.430	0.411	0.691
			~Sri Lanka	2.21	1.092		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Sri Lanka	2.10	1.197	-1.295	0.196
			~Sri Lanka	2.60	1.216		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Sri Lanka	1.44	1.014	-3.344	0.001
			~Sri Lanka	2.80	1.215		
		Average	Sri Lanka	1.76	0.800	-2.291	0.022
			~Sri Lanka	2.28	0.716		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

3) Comparison of results between Female and Male respondents (n=46)

<Table A1-21 Comparative Results between Female and Male Respondents of Sri Lanka (35 female, 11 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	1.89	1.132	1.216	0.230
			male	1.45	0.522		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	2.23	1.239	1.014	0.316
			male	1.80	0.919		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	2.66	1.327	0.962	0.341
			male	2.20	1.317		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	2.29	1.100	-2.064	0.045
			male	3.09	1.221		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	2.46	1.172	-1.821	0.075
			male	3.18	1.079		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	2.23	1.140	-0.556	0.581
			male	2.45	1.293		
		Average	female	2.29	0.738	-0.304	0.763
			male	2.37	0.532		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	2.74	1.245	-2.574	0.014
			male	3.90	1.287		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	2.69	1.323	-3.082	0.004
			male	4.10	1.101		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	2.83	1.175	-2.211	0.032
			male	3.80	1.398		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	2.91	1.358	-1.807	0.078
			male	3.80	1.398		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	2.94	1.259	-1.880	0.067
			male	3.80	1.317		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	2.43	1.092	-0.494	0.631
			male	2.70	1.636		
		Average	female	2.76	0.954	-2.588	0.013
			male	3.68	1.148		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	female	3.86	0.879	-2.119	0.040
			male	4.50	0.707		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	female	4.35	0.812	1.165	0.250
			male	4.00	0.943		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	4.03	1.000	1.329	0.191
			male	3.50	1.434		

<Table A1-21 Comparative Results between Female and Male Respondents of Sri Lanka (35 female, 11 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	3.00	1.299	1.287	0.205
			male	2.40	1.265		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	3.68	1.387	0.580	0.565
			male	3.40	1.075		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	3.66	1.474	1.025	0.311
			male	3.10	1.663		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	3.89	1.409	-0.006	0.995
			male	3.89	1.453		
		Average	female	3.54	1.070	0.653	0.517
			male	3.28	1.011		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	1.86	1.089	-1.368	0.179
			male	2.40	1.174		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	2.26	1.024	1.917	0.062
			male	1.60	0.699		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	2.15	0.989	1.922	0.061
			male	1.50	0.707		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	2.06	0.864	1.867	0.069
			male	1.50	0.707		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	2.47	0.929	2.296	0.027
			male	1.70	0.949		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	2.62	1.256	0.467	0.643
			male	2.40	1.430		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	3.35	1.300	2.724	0.009
			male	2.10	1.197		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	3.18	1.267	3.783	0.000
			male	1.44	1.014		
		Average	female	2.58	0.712	3.128	0.003
			male	1.76	0.800		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

A1.8 Japan

1) Comparison with Other APNN Member Countries : Female Response

<Table A1-22 Results from Female Respondents of Japan (n=113) compared with Average of APNN without Japan>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Japan	1.70	0.925	-8.941	0.000
			~Japan	2.59	1.254		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Japan	1.94	1.080	-5.972	0.000
			~Japan	2.60	1.184		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Japan	2.04	0.990	-9.268	0.000
			~Japan	3.01	1.219		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Japan	2.86	1.156	1.098	0.272
			~Japan	2.72	1.206		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Japan	2.35	1.024	-4.597	0.000
			~Japan	2.83	1.145		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Japan	2.37	1.104	-5.064	0.000
			~Japan	2.95	1.126		
		Average	Japan	2.22	0.553	-9.232	0.000
			~Japan	2.78	0.830		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Japan	1.53	0.782	-7.547	0.000
			~Japan	2.16	1.076		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Japan	1.58	0.804	-8.413	0.000
			~Japan	2.31	1.088		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Japan	1.89	1.142	-5.943	0.000
			~Japan	2.60	1.169		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Japan	1.30	0.757	-14.832	0.000
			~Japan	2.54	1.140		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Japan	2.31	0.881	1.788	0.075
			~Japan	2.15	1.115		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Japan	1.90	1.022	-9.900	0.000
			~Japan	2.95	1.045		
		Average	Japan	1.75	0.636	-10.423	0.000
			~Japan	2.45	0.804		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Japan	3.37	1.002	-5.184	0.000
			~Japan	3.90	0.995		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Japan	3.82	0.928	-1.933	0.054
			~Japan	4.03	1.052		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Japan	3.86	0.854	2.072	0.040
			~Japan	3.67	0.991		

<Table A1-22 Results from Female Respondents of Japan (n=113) compared with Average of APNN without Japan>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Japan	3.03	1.312	-0.370	0.712
			~Japan	3.07	1.239		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Japan	3.88	1.148	1.591	0.112
			~Japan	3.68	1.277		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Japan	3.24	1.248	-1.268	0.205
			~Japan	3.41	1.333		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Japan	4.24	1.055	5.243	0.000
			~Japan	3.65	1.427		
		Average	Japan	3.60	0.883	1.586	0.115
			~Japan	3.45	1.062		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Japan	2.19	1.221	-0.473	0.636
			~Japan	2.24	1.216		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Japan	2.54	1.009	1.280	0.201
			~Japan	2.40	1.057		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Japan	1.81	0.924	-7.186	0.000
			~Japan	2.51	1.148		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Japan	1.78	0.842	-6.328	0.000
			~Japan	2.34	1.033		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Japan	1.96	0.999	-5.423	0.000
			~Japan	2.53	1.026		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Japan	2.09	1.040	-6.445	0.000
			~Japan	2.78	1.152		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Japan	1.97	1.122	-11.243	0.000
			~Japan	3.30	1.335		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Japan	2.34	1.313	-3.646	0.000
			~Japan	2.82	1.177		
		Average	Japan	2.07	0.626	-9.074	0.000
			~Japan	2.67	0.760		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

2) Comparison with Other APNN Member Countries : Male response

<Table A1-23 Results from Male Respondents of Japan (n=67) compared with Average of APNN without Japan>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Japan	2.06	1.242	-1.736	0.083
			~Japan	2.31	1.143		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Japan	1.93	0.974	-3.133	0.002
			~Japan	2.32	1.178		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Japan	2.24	1.164	-1.787	0.074
			~Japan	2.52	1.209		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Japan	3.46	1.223	4.660	0.000
			~Japan	2.76	1.174		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Japan	3.10	1.281	2.058	0.040
			~Japan	2.79	1.183		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Japan	2.33	1.050	-1.782	0.075
			~Japan	2.60	1.187		
		Average	Japan	2.52	0.613	-0.369	0.713
			~Japan	2.55	0.847		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Japan	1.50	0.577	-0.795	0.427
			~Japan	1.91	1.028		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Japan	1.33	0.637	-7.871	0.000
			~Japan	2.01	1.048		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Japan	1.61	0.953	-6.223	0.000
			~Japan	2.38	1.144		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Japan	1.75	1.064	-3.884	0.000
			~Japan	2.30	1.117		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Japan	1.19	0.500	-10.288	0.000
			~Japan	1.96	1.143		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Japan	2.00	0.985	-4.389	0.000
			~Japan	2.56	1.187		
		Average	Japan	1.54	0.438	-1.508	0.132
			~Japan	2.19	0.855		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Japan	3.61	1.029	-3.943	0.000
			~Japan	4.08	0.927		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Japan	3.39	1.325	-2.652	0.010
			~Japan	3.83	1.086		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Japan	3.33	1.186	0.507	0.613
			~Japan	3.25	1.277		

<Table A1-23 Results from Male Respondents of Japan (n=67) compared with Average of APNN without Japan>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Japan	3.06	1.324	1.749	0.081
			~Japan	2.78	1.222		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Japan	3.57	1.209	2.148	0.032
			~Japan	3.22	1.262		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Japan	3.24	1.315	0.586	0.558
			~Japan	3.14	1.272		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Japan	4.18	1.058	5.782	0.000
			~Japan	3.38	1.337		
		Average	Japan	3.51	0.908	2.886	0.004
			~Japan	3.14	1.027		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Japan	2.61	1.414	1.285	0.203
			~Japan	2.38	1.214		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Japan	2.34	1.175	1.554	0.124
			~Japan	2.11	1.040		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Japan	1.46	0.745	-6.077	0.000
			~Japan	2.06	0.983		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Japan	1.67	0.975	-3.108	0.002
			~Japan	2.09	1.071		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Japan	1.94	1.057	-1.679	0.094
			~Japan	2.16	1.018		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Japan	1.72	0.934	-4.508	0.000
			~Japan	2.26	1.099		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Japan	1.91	0.949	-6.010	0.000
			~Japan	2.66	1.220		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Japan	2.30	1.218	-5.424	0.000
			~Japan	2.86	1.197		
		Average	Japan	1.87	0.666	-4.954	0.000
			~Japan	2.32	0.712		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

3) Comparison of results between Female and Male respondents (n=180)

<Table A1-24 Comparative Results between Female and Male Respondents of Japan (113 female, 67 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	1.70	0.925	-2.062	0.042
			male	2.06	1.242		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	1.94	1.080	0.079	0.937
			male	1.93	0.974		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	2.04	0.990	-1.156	0.250
			male	2.24	1.164		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	2.86	1.156	-3.318	0.001
			male	3.46	1.223		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	2.35	1.024	-4.132	0.000
			male	3.10	1.281		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	2.37	1.104	0.259	0.796
			male	2.33	1.050		
		Average	female	2.22	0.553	-3.346	0.001
			male	2.52	0.613		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	1.53	0.782	0.068	0.946
			male	1.50	0.577		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	1.58	0.804	2.277	0.024
			male	1.33	0.637		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	1.89	1.142	1.692	0.092
			male	1.61	0.953		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	1.30	0.757	-2.984	0.004
			male	1.75	1.064		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	2.31	0.881	10.839	0.000
			male	1.19	0.500		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	1.90	1.022	-0.631	0.529
			male	2.00	0.985		
		Average	female	1.75	0.636	0.637	0.525
			male	1.54	0.438		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	female	3.37	1.002	-1.540	0.125
			male	3.61	1.029		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	female	3.82	0.928	2.365	0.020
			male	3.39	1.325		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	3.86	0.854	3.200	0.002
			male	3.33	1.186		

<Table A1-24 Comparative Results between Female and Male Respondents of Japan (113 female, 67 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	3.03	1.312	-0.163	0.870
			male	3.06	1.324		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	3.88	1.148	1.761	0.080
			male	3.57	1.209		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	3.24	1.248	0.001	0.999
			male	3.24	1.315		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	4.24	1.055	0.368	0.714
			male	4.18	1.058		
		Average	female	3.60	0.883	0.626	0.532
			male	3.51	0.908		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	2.19	1.221	-2.132	0.034
			male	2.61	1.414		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	2.54	1.009	1.187	0.237
			male	2.34	1.175		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	1.81	0.924	2.577	0.011
			male	1.46	0.745		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	1.78	0.842	0.777	0.438
			male	1.67	0.975		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	1.96	0.999	0.154	0.878
			male	1.94	1.057		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	2.09	1.040	2.408	0.017
			male	1.72	0.934		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	1.97	1.122	0.385	0.701
			male	1.91	0.949		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	2.34	1.313	1.554	0.122
			male	2.03	1.218		
		Average	female	2.07	0.626	2.040	0.043
			male	1.87	0.666		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

A1.9 Pakistan

1) Comparison with Other APNN Member Countries : Female Response

<Table A1-25 Results from Female Respondents of Pakistan (n=100) compared with Average of APNN without Pakistan>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Pakistan	2.92	1.509	3.321	0.001
			~Pakistan	2.40	1.198		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Pakistan	3.03	1.521	3.770	0.000
			~Pakistan	2.44	1.119		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Pakistan	3.39	1.435	3.893	0.000
			~Pakistan	2.81	1.188		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Pakistan	3.18	1.336	3.543	0.001
			~Pakistan	2.68	1.167		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Pakistan	3.26	1.300	4.155	0.000
			~Pakistan	2.69	1.100		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Pakistan	3.46	1.105	5.650	0.000
			~Pakistan	2.78	1.121		
		Average	Pakistan	3.21	1.090	5.104	0.000
			~Pakistan	2.63	0.748		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Pakistan	2.24	1.288	1.396	0.165
			~Pakistan	2.05	1.026		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Pakistan	2.50	1.227	2.603	0.010
			~Pakistan	2.16	1.055		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Pakistan	2.66	1.249	1.438	0.151
			~Pakistan	2.48	1.180		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Pakistan	2.41	1.102	0.347	0.728
			~Pakistan	2.37	1.187		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Pakistan	2.13	1.143	-0.381	0.704
			~Pakistan	2.17	1.080		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Pakistan	3.08	1.212	2.443	0.016
			~Pakistan	2.77	1.082		
		Average	Pakistan	2.50	0.921	1.763	0.080
			~Pakistan	2.33	0.803		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Pakistan	4.03	0.937	2.350	0.020
			~Pakistan	3.79	1.019		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Pakistan	4.38	0.829	4.774	0.000
			~Pakistan	3.94	1.053		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Pakistan	3.00	0.000	-21.128	0.000
			~Pakistan	3.80	1.003		

<Table A1-25 Results from Female Respondents of Pakistan (n=100) compared with Average of APNN without Pakistan>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Pakistan	2.62	1.347	-3.584	0.000
			~Pakistan	3.13	1.222		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Pakistan	2.80	1.385	-7.136	0.000
			~Pakistan	3.84	1.189		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Pakistan	2.66	1.437	-5.463	0.000
			~Pakistan	3.49	1.273		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Pakistan	3.15	1.466	-4.256	0.000
			~Pakistan	3.81	1.367		
		Average	Pakistan	2.81	1.153	-6.257	0.000
			~Pakistan	3.57	0.987		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Pakistan	1.90	1.087	-3.248	0.001
			~Pakistan	2.28	1.227		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Pakistan	2.42	1.288	-0.025	0.980
			~Pakistan	2.42	1.012		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Pakistan	2.37	1.134	-0.331	0.741
			~Pakistan	2.41	1.147		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Pakistan	2.34	1.183	0.747	0.456
			~Pakistan	2.25	1.002		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Pakistan	2.65	1.077	2.097	0.036
			~Pakistan	2.42	1.033		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Pakistan	2.92	1.308	1.991	0.049
			~Pakistan	2.65	1.135		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Pakistan	3.50	1.360	3.085	0.002
			~Pakistan	3.04	1.382		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Pakistan	3.30	1.168	4.977	0.000
			~Pakistan	2.67	1.194		
		Average	Pakistan	2.79	0.827	2.857	0.004
			~Pakistan	2.55	0.758		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

2) Comparison with Other APNN Member Countries : Male response

<Table A1-26 Results from Male Respondents of Pakistan (n=99) compared with Average of APNN without Pakistan>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Pakistan	2.86	1.407	4.348	0.000
			~Pakistan	2.21	1.090		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Pakistan	2.78	1.468	3.645	0.000
			~Pakistan	2.22	1.100		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Pakistan	3.11	1.456	4.607	0.000
			~Pakistan	2.41	1.141		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Pakistan	3.36	1.344	4.369	0.000
			~Pakistan	2.74	1.150		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Pakistan	3.31	1.375	3.905	0.000
			~Pakistan	2.75	1.149		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Pakistan	3.13	1.353	4.474	0.000
			~Pakistan	2.49	1.130		
		Average	Pakistan	3.09	1.089	5.425	0.000
			~Pakistan	2.47	0.755		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Pakistan	1.68	0.915	-2.325	0.020
			~Pakistan	1.94	1.039		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Pakistan	1.56	0.785	-5.162	0.000
			~Pakistan	2.01	1.057		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Pakistan	2.13	1.056	-1.854	0.066
			~Pakistan	2.34	1.160		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Pakistan	1.98	0.969	-2.911	0.004
			~Pakistan	2.29	1.138		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Pakistan	1.61	0.959	-3.043	0.003
			~Pakistan	1.94	1.139		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Pakistan	2.77	1.449	1.877	0.063
			~Pakistan	2.48	1.135		
		Average	Pakistan	1.94	0.724	-3.444	0.001
			~Pakistan	2.22	0.868		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Pakistan	4.30	0.762	2.943	0.003
			~Pakistan	4.01	0.962		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Pakistan	3.98	1.106	1.788	0.074
			~Pakistan	3.77	1.113		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Pakistan	3.09	1.377	-1.314	0.189
			~Pakistan	3.28	1.253		

<Table A1-26 Results from Male Respondents of Pakistan (n=99) compared with Average of APNN without Pakistan>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Pakistan	2.45	1.342	-3.069	0.002
			~Pakistan	2.86	1.208		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Pakistan	2.69	1.337	-4.836	0.000
			~Pakistan	3.33	1.228		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Pakistan	2.54	1.296	-5.226	0.000
			~Pakistan	3.24	1.249		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Pakistan	2.79	1.423	-5.346	0.000
			~Pakistan	3.54	1.294		
		Average	Pakistan	2.62	1.083	-5.868	0.000
			~Pakistan	3.25	0.989		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Pakistan	2.32	1.284	-0.680	0.497
			~Pakistan	2.41	1.226		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Pakistan	1.72	0.869	-4.939	0.000
			~Pakistan	2.20	1.065		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Pakistan	1.67	0.881	-3.752	0.000
			~Pakistan	2.06	0.984		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Pakistan	1.82	0.962	-2.391	0.017
			~Pakistan	2.09	1.080		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Pakistan	1.80	0.947	-3.601	0.000
			~Pakistan	2.19	1.025		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Pakistan	1.90	1.064	-3.104	0.002
			~Pakistan	2.26	1.094		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Pakistan	2.76	1.422	1.248	0.214
			~Pakistan	2.57	1.182		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Pakistan	3.18	1.248	3.467	0.001
			~Pakistan	2.73	1.207		
		Average	Pakistan	2.12	0.546	-2.931	0.004
			~Pakistan	2.30	0.739		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

3) Comparison of results between Female and Male respondents (n=199)

<Table A1-27 Comparative Results between Female and Male Respondents of Pakistan (100 female, 99 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	2.92	1.509	0.303	0.762
			male	2.86	1.407		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	3.03	1.521	1.190	0.235
			male	2.78	1.468		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	3.39	1.435	1.361	0.175
			male	3.11	1.456		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	3.18	1.336	-0.967	0.335
			male	3.36	1.344		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	3.26	1.300	-0.280	0.780
			male	3.31	1.375		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	3.46	1.105	1.876	0.062
			male	3.13	1.353		
		Average	female	3.21	1.090	0.785	0.433
			male	3.09	1.089		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	2.24	1.288	3.509	0.001
			male	1.68	0.915		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	2.50	1.227	6.474	0.000
			male	1.56	0.785		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	2.66	1.249	3.226	0.001
			male	2.13	1.056		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	2.41	1.102	2.926	0.004
			male	1.98	0.969		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	2.13	1.143	3.449	0.001
			male	1.61	0.959		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	3.08	1.212	1.656	0.099
			male	2.77	1.449		
		Average	female	2.50	0.921	4.766	0.000
			male	1.94	0.724		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	female	4.03	0.937	-2.254	0.025
			male	4.30	0.762		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	female	4.38	0.829	2.907	0.004
			male	3.98	1.106		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	3.00	0.000	-0.667	0.506
			male	3.09	1.377		

<Table A1-27 Comparative Results between Female and Male Respondents of Pakistan (100 female, 99 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	2.62	1.347	0.868	0.386
			male	2.45	1.342		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	2.80	1.385	0.586	0.559
			male	2.69	1.337		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	2.66	1.437	0.642	0.521
			male	2.54	1.296		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	3.15	1.466	1.768	0.079
			male	2.79	1.423		
		Average	female	2.81	1.153	1.206	0.229
			male	2.62	1.083		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	1.90	1.087	-2.508	0.013
			male	2.32	1.284		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	2.42	1.288	4.514	0.000
			male	1.72	0.869		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	2.37	1.134	4.889	0.000
			male	1.67	0.881		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	2.34	1.183	3.416	0.001
			male	1.82	0.962		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	2.65	1.077	5.928	0.000
			male	1.80	0.947		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	2.92	1.308	6.043	0.000
			male	1.90	1.064		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	3.50	1.360	3.765	0.000
			male	2.76	1.422		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	3.30	1.168	0.690	0.491
			male	3.18	1.248		
		Average	female	2.79	0.827	6.709	0.000
			male	2.12	0.546		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

A1.10 South Korea

1) Comparison with Other APNN Member Countries : Female Response

<Table A1-28 Results from Female Respondents of South Korea (n=99) compared with Average of APNN without South Korea>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	S Korea	2.53	1.091	0.605	0.546
			~S Korea	2.45	1.273		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	S Korea	2.44	1.090	-0.572	0.567
			~S Korea	2.52	1.205		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	S Korea	2.80	1.069	-0.772	0.441
			~S Korea	2.89	1.257		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	S Korea	3.21	1.223	4.192	0.000
			~S Korea	2.68	1.182		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	S Korea	2.95	1.091	1.801	0.074
			~S Korea	2.74	1.146		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	S Korea	3.24	1.126	3.511	0.000
			~S Korea	2.82	1.133		
		Average	S Korea	2.86	0.855	2.058	0.040
			~S Korea	2.68	0.813		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	S Korea	2.12	1.136	0.430	0.668
			~S Korea	2.07	1.053		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	S Korea	2.16	1.017	-0.435	0.664
			~S Korea	2.21	1.092		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	S Korea	2.79	1.264	2.580	0.010
			~S Korea	2.46	1.174		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	S Korea	2.70	1.233	2.952	0.003
			~S Korea	2.33	1.161		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	S Korea	2.11	1.211	-0.512	0.609
			~S Korea	2.18	1.069		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	S Korea	3.17	0.990	3.859	0.000
			~S Korea	2.76	1.109		
		Average	S Korea	2.51	0.907	1.837	0.069
			~S Korea	2.33	0.805		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	S Korea	3.46	0.844	-3.710	0.000
			~S Korea	3.87	1.022		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	S Korea	4.00	0.926	0.027	0.978
			~S Korea	4.00	1.052		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	S Korea	3.80	1.030	1.088	0.277
			~S Korea	3.69	0.967		

<Table A1-28 Results from Female Respondents of South Korea (n=99) compared with Average of APNN without South Korea>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	S Korea	3.94	1.077	7.684	0.000
			~S Korea	2.94	1.223		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	S Korea	4.42	0.858	8.248	0.000
			~S Korea	3.61	1.277		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	S Korea	3.78	1.174	3.490	0.001
			~S Korea	3.33	1.333		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	S Korea	4.55	0.786	9.750	0.000
			~S Korea	3.62	1.424		
		Average	S Korea	4.17	0.782	9.103	0.000
			~S Korea	3.37	1.033		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	S Korea	2.49	1.320	2.266	0.024
			~S Korea	2.20	1.198		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	S Korea	2.48	1.076	0.560	0.575
			~S Korea	2.41	1.048		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	S Korea	2.59	1.072	1.724	0.085
			~S Korea	2.38	1.153		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	S Korea	2.40	1.041	1.396	0.163
			~S Korea	2.24	1.024		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	S Korea	2.59	1.032	1.479	0.139
			~S Korea	2.43	1.041		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	S Korea	2.85	1.114	1.563	0.118
			~S Korea	2.66	1.167		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	S Korea	3.86	1.262	6.249	0.000
			~S Korea	3.00	1.370		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	S Korea	3.04	1.205	2.562	0.011
			~S Korea	2.71	1.204		
		Average	S Korea	2.83	0.813	3.440	0.001
			~S Korea	2.54	0.759		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

2) Comparison with Other APNN Member Countries : Male response

<Table A1-29 Results from Male Respondents of South Korea (n=120) compared with Average of APNN without South Korea>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	S Korea	2.41	0.921	1.415	0.159
			~S Korea	2.27	1.189		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	S Korea	2.27	1.035	-0.227	0.820
			~S Korea	2.29	1.189		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	S Korea	2.40	1.056	-1.055	0.293
			~S Korea	2.51	1.232		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	S Korea	2.72	1.139	-1.043	0.297
			~S Korea	2.84	1.202		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	S Korea	2.70	1.120	-1.175	0.240
			~S Korea	2.84	1.206		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	S Korea	2.45	1.091	-1.246	0.213
			~S Korea	2.60	1.193		
		Average	S Korea	2.49	0.794	-0.790	0.430
			~S Korea	2.56	0.835		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	S Korea	1.61	0.938	-3.520	0.000
			~S Korea	1.97	1.033		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	S Korea	1.68	0.954	-3.237	0.001
			~S Korea	2.01	1.044		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	S Korea	1.93	0.997	-4.564	0.000
			~S Korea	2.39	1.161		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	S Korea	1.93	1.022	-3.482	0.001
			~S Korea	2.31	1.130		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	S Korea	1.68	0.980	-2.340	0.020
			~S Korea	1.93	1.143		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	S Korea	2.25	1.125	-2.677	0.008
			~S Korea	2.56	1.186		
		Average	S Korea	1.84	0.845	-4.865	0.000
			~S Korea	2.25	0.841		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	S Korea	3.65	0.857	-5.028	0.000
			~S Korea	4.11	0.942		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	S Korea	3.13	1.061	-7.275	0.000
			~S Korea	3.91	1.082		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	S Korea	2.91	1.188	-3.415	0.001
			~S Korea	3.32	1.274		

<Table A1-29 Results from Male Respondents of South Korea (n=120) compared with Average of APNN without South Korea>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	S Korea	3.45	1.163	6.356	0.000
			~S Korea	2.69	1.210		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	S Korea	3.96	0.978	8.151	0.000
			~S Korea	3.13	1.264		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	S Korea	3.57	1.046	4.571	0.000
			~S Korea	3.08	1.299		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	S Korea	4.07	0.972	7.069	0.000
			~S Korea	3.34	1.360		
		Average	S Korea	3.76	0.816	8.284	0.000
			~S Korea	3.06	1.020		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	S Korea	2.55	1.219	1.467	0.143
			~S Korea	2.37	1.234		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	S Korea	2.29	1.067	1.731	0.084
			~S Korea	2.10	1.049		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	S Korea	2.10	0.951	1.128	0.260
			~S Korea	1.99	0.984		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	S Korea	2.01	0.934	-0.539	0.590
			~S Korea	2.07	1.093		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	S Korea	2.13	1.005	-0.167	0.868
			~S Korea	2.14	1.027		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	S Korea	2.17	0.986	-0.564	0.573
			~S Korea	2.22	1.116		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	S Korea	2.78	1.187	1.828	0.068
			~S Korea	2.56	1.220		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	S Korea	2.51	1.163	-2.693	0.007
			~S Korea	2.84	1.225		
		Average	S Korea	2.28	0.784	0.090	0.929
			~S Korea	2.28	0.707		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

3) Comparison of results between Female and Male respondents (n=219)

<Table A1-30 Comparative Results between Female and Male Respondents of South Korea (99 female, 120 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	2.53	1.091	0.860	0.391
			male	2.41	0.921		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	2.44	1.090	1.235	0.218
			male	2.27	1.035		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	2.80	1.069	2.760	0.006
			male	2.40	1.056		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	3.21	1.223	3.099	0.002
			male	2.72	1.139		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	2.95	1.091	1.660	0.098
			male	2.70	1.120		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	3.24	1.126	5.273	0.000
			male	2.45	1.091		
		Average	female	2.86	0.855	3.329	0.001
			male	2.49	0.794		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	2.12	1.136	3.594	0.000
			male	1.61	0.938		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	2.16	1.017	3.646	0.000
			male	1.68	0.954		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	2.79	1.264	5.522	0.000
			male	1.93	0.997		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	2.70	1.233	4.977	0.000
			male	1.93	1.022		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	2.11	1.211	2.887	0.004
			male	1.68	0.980		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	3.17	0.990	6.368	0.000
			male	2.25	1.125		
		Average	female	2.51	0.907	5.611	0.000
			male	1.84	0.845		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	female	3.46	0.844	-1.640	0.102
			male	3.65	0.857		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	female	4.00	0.926	6.227	0.000
			male	3.13	1.061		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	3.80	1.030	5.762	0.000
			male	2.91	1.188		

<Table A1-30 Comparative Results between Female and Male Respondents of South Korea (99 female, 120 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	3.94	1.077	3.175	0.002
			male	3.45	1.163		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	4.42	0.858	3.704	0.000
			male	3.96	0.978		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	3.78	1.174	1.371	0.172
			male	3.57	1.046		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	4.55	0.786	4.016	0.000
			male	4.07	0.972		
		Average	female	4.17	0.782	3.755	0.000
			male	3.76	0.816		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	2.49	1.320	-0.347	0.729
			male	2.55	1.219		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	2.48	1.076	1.317	0.189
			male	2.29	1.067		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	2.59	1.072	3.568	0.000
			male	2.10	0.951		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	2.40	1.041	2.872	0.004
			male	2.01	0.934		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	2.59	1.032	3.353	0.001
			male	2.13	1.005		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	2.85	1.114	4.786	0.000
			male	2.17	0.986		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	3.86	1.262	6.466	0.000
			male	2.78	1.187		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	3.04	1.205	3.263	0.001
			male	2.51	1.163		
		Average	female	2.83	0.813	5.020	0.000
			male	2.28	0.784		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

Appendix 2. Survey Results by Participating Country (ARN)

Individual country results of the 3 ARN countries are shown herein in table format. The three tables for each country are: 1) Results of female responses of the country in comparison with ARN female average (which excludes the particular country). For example, for Nigeria, the average score from female respondents are compared with those from ARN countries excluding those from Nigeria; 2) Results of male responses of the country in comparison with ARN average (which excludes the particular country). For example, for Nigeria, the average score from male respondents are compared with those of ARN countries excluding those from Nigeria; 3) Comparison of results from female and male respondents of the country. For example for each question results from female respondents of Nigeria is compared with those from male respondents of Nigeria. A *p* value of less than 0.05 indicates a statistically significant difference.

A2.1 Nigeria

1) Comparison with Other ARN Member Countries : Female Response

<Table A2-1 Results from Female Respondents of Nigeria (n=133) compared with Average of ARN without Nigeria>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Nigeria	2.50	1.312	1.723	0.086
			~Nigeria	2.15	1.361		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Nigeria	2.08	1.005	-2.009	0.047
			~Nigeria	2.45	1.361		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Nigeria	3.16	1.461	2.197	0.029
			~Nigeria	2.68	1.394		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Nigeria	2.50	1.412	-0.159	0.874
			~Nigeria	2.53	1.449		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Nigeria	1.76	0.641	-4.722	0.000
			~Nigeria	2.56	1.302		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Nigeria	1.56	0.595	-5.103	0.000
			~Nigeria	2.53	1.480		
		Average	Nigeria	2.26	0.308	-1.928	0.058
			~Nigeria	2.48	0.930		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Nigeria	2.35	0.591	1.624	0.108
			~Nigeria	2.11	1.125		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Nigeria	2.33	1.071	-0.923	0.358
			~Nigeria	2.48	1.126		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Nigeria	2.40	1.000	-2.300	0.024
			~Nigeria	2.83	1.365		

<Table A2-1 Results from Female Respondents of Nigeria (n=133) compared with Average of ARN without Nigeria>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Nigeria	2.28	0.542	-4.412	0.000
			~Nigeria	3.02	1.293		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Nigeria	2.51	0.858	3.661	0.000
			~Nigeria	1.89	1.229		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Nigeria	2.86	0.947	-1.023	0.308
			~Nigeria	3.03	1.202		
		Average	Nigeria	2.45	0.476	-0.984	0.328
			~Nigeria	2.57	0.909		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Nigeria	4.32	1.097	-2.173	0.031
			~Nigeria	4.59	0.679		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Nigeria	4.14	0.983	-6.622	0.000
			~Nigeria	4.80	0.437		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Nigeria	3.47	1.423	-7.390	0.000
			~Nigeria	4.58	0.681		
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Nigeria	2.68	1.345	0.729	0.467
			~Nigeria	2.53	1.511		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Nigeria	1.70	0.937	-7.526	0.000
			~Nigeria	3.21	1.494		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Nigeria	1.23	0.420	-7.011	0.000
			~Nigeria	2.55	1.501		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Nigeria	1.73	0.872	-5.985	0.000
			~Nigeria	3.08	1.721		
		Average	Nigeria	1.83	0.466	-6.237	0.000
			~Nigeria	2.84	1.269		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Nigeria	2.56	1.040	7.403	0.000
			~Nigeria	1.47	0.827		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Nigeria	1.93	1.067	-1.719	0.088
			~Nigeria	2.23	1.174		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Nigeria	1.38	0.502	-5.310	0.000
			~Nigeria	2.20	1.205		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Nigeria	3.32	1.258	6.008	0.000
			~Nigeria	2.17	1.296		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Nigeria	1.56	0.711	-4.323	0.000
			~Nigeria	2.32	1.326		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Nigeria	4.24	0.872	6.037	0.000
			~Nigeria	3.03	1.509		

<Table A2-1 Results from Female Respondents of Nigeria (n=133) compared with Average of ARN without Nigeria>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Nigeria	3.80	1.278	2.574	0.011
			~Nigeria	3.20	1.666		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Nigeria	3.97	0.843	5.185	0.000
			~Nigeria	3.03	1.347		
		Average	Nigeria	2.89	0.413	2.526	0.014
			~Nigeria	2.60	0.884		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

2) Comparison with Other ARN Member Countries : Male Response

<Table A2-2 Results from Male Respondents of Nigeria (n=212) compared with Average of ARN without Nigeria>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Nigeria	2.15	0.991	5.699	0.000
			~Nigeria	1.44	0.797		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Nigeria	2.17	1.030	0.946	0.345
			~Nigeria	2.04	1.126		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Nigeria	3.33	1.556	6.739	0.000
			~Nigeria	2.20	1.137		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Nigeria	2.62	1.467	-2.682	0.008
			~Nigeria	3.14	1.448		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Nigeria	1.65	0.703	-7.814	0.000
			~Nigeria	2.95	1.413		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Nigeria	1.70	0.562	-0.772	0.442
			~Nigeria	1.80	1.091		
		Average	Nigeria	2.27	0.304	0.092	0.927
			~Nigeria	2.26	0.756		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Nigeria	2.06	0.720	5.018	0.000
			~Nigeria	1.56	0.749		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Nigeria	2.37	0.582	10.876	0.000
			~Nigeria	1.51	0.641		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Nigeria	2.93	0.881	5.139	0.000
			~Nigeria	2.19	1.136		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Nigeria	2.45	0.798	1.373	0.173
			~Nigeria	2.27	1.077		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Nigeria	1.79	0.571	1.740	0.085
			~Nigeria	1.60	0.921		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Nigeria	2.84	0.954	1.460	0.147
			~Nigeria	2.59	1.427		
		Average	Nigeria	2.41	0.339	5.486	0.000
			~Nigeria	1.96	0.689		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Nigeria	4.15	1.154	-7.825	0.000
			~Nigeria	4.85	0.361		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Nigeria	3.83	1.245	-5.294	0.000
			~Nigeria	4.53	0.889		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Nigeria	3.30	1.471	-4.629	0.000
			~Nigeria	4.08	1.196		

<Table A2-2 Results from Male Respondents of Nigeria (n=212) compared with Average of ARN without Nigeria>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Nigeria	2.56	1.353	6.065	0.000
			~Nigeria	1.73	0.887		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Nigeria	2.10	1.135	-3.850	0.000
			~Nigeria	2.82	1.509		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Nigeria	1.16	0.363	-8.383	0.000
			~Nigeria	2.41	1.306		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Nigeria	1.94	1.024	-3.087	0.003
			~Nigeria	2.47	1.376		
		Average	Nigeria	1.94	0.475	-3.745	0.000
			~Nigeria	2.36	0.945		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Nigeria	2.25	0.913	-0.311	0.757
			~Nigeria	2.30	1.435		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Nigeria	2.17	1.128	6.331	0.000
			~Nigeria	1.47	0.713		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Nigeria	1.57	0.496	3.455	0.001
			~Nigeria	1.33	0.614		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Nigeria	3.75	1.262	24.217	0.000
			~Nigeria	1.25	0.493		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Nigeria	1.75	0.675	0.667	0.506
			~Nigeria	1.67	0.902		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Nigeria	3.98	0.903	14.666	0.000
			~Nigeria	1.92	1.118		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Nigeria	3.87	1.393	5.431	0.000
			~Nigeria	2.76	1.611		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Nigeria	3.70	0.834	5.253	0.000
			~Nigeria	2.67	1.662		
		Average	Nigeria	2.97	0.472	17.623	0.000
			~Nigeria	1.87	0.482		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

3) Comparison of results between Female and Male respondents (n=345)

<Table A2-3 Comparative Results between Female and Male Respondents of Nigeria (133 female, 212 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	2.50	1.312	2.605	0.010
			male	2.15	0.991		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	2.08	1.005	-0.838	0.402
			male	2.17	1.030		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	3.16	1.461	-0.997	0.320
			male	3.33	1.556		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	2.50	1.412	-0.790	0.430
			male	2.62	1.467		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	1.76	0.641	1.442	0.150
			male	1.65	0.703		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	1.56	0.595	-2.083	0.038
			male	1.70	0.562		
		Average	female	2.26	0.308	-0.341	0.733
			male	2.27	0.304		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	2.35	0.591	3.885	0.000
			male	2.06	0.720		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	2.33	1.071	-0.413	0.680
			male	2.37	0.582		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	2.40	1.000	-5.167	0.000
			male	2.93	0.881		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	2.28	0.542	-2.419	0.016
			male	2.45	0.798		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	2.51	0.858	8.544	0.000
			male	1.79	0.571		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	2.86	0.947	0.122	0.903
			male	2.84	0.954		
		Average	female	2.45	0.476	0.962	0.337
			male	2.41	0.339		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	female	4.32	1.097	1.316	0.189
			male	4.15	1.154		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	female	4.14	0.983	2.488	0.013
			male	3.83	1.245		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	3.47	1.423	1.099	0.273
			male	3.30	1.471		

<Table A2-3 Comparative Results between Female and Male Respondents of Nigeria (133 female, 212 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	2.68	1.345	0.823	0.411
			male	2.56	1.353		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	1.70	0.937	-3.440	0.001
			male	2.10	1.135		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	1.23	0.420	1.585	0.114
			male	1.16	0.363		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	1.73	0.872	-1.999	0.046
			male	1.94	1.024		
		Average	female	1.83	0.466	-2.043	0.042
			male	1.94	0.475		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	2.56	1.040	2.874	0.004
			male	2.25	0.913		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	1.93	1.067	-1.981	0.048
			male	2.17	1.128		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	1.38	0.502	-3.535	0.000
			male	1.57	0.496		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	3.32	1.258	-3.080	0.002
			male	3.75	1.262		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	1.56	0.711	-2.379	0.018
			male	1.75	0.675		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	4.24	0.872	2.633	0.009
			male	3.98	0.903		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	3.80	1.278	-0.517	0.606
			male	3.87	1.393		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	3.97	0.843	2.934	0.004
			male	3.70	0.834		
		Average	female	2.89	0.413	-1.721	0.086
			male	2.97	0.472		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

A2.2 Uganda

1) Comparison with Other ARN Member Countries : Female Response

<Table A2-4 Results from Female Respondents of Uganda (n=26) compared with Average of ARN without Uganda>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Uganda	1.65	1.018	-3.735	0.001
			~Uganda	2.49	1.345		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Uganda	1.92	1.017	-1.329	0.185
			~Uganda	2.24	1.161		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Uganda	2.04	1.216	-4.219	0.000
			~Uganda	3.14	1.433		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Uganda	2.73	1.663	0.749	0.459
			~Uganda	2.47	1.383		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Uganda	2.50	1.304	2.061	0.048
			~Uganda	1.95	0.914		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Uganda	2.27	1.343	1.611	0.118
			~Uganda	1.83	1.025		
		Average	Uganda	2.19	0.672	-1.349	0.179
			~Uganda	2.36	0.586		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Uganda	2.19	1.132	-0.371	0.713
			~Uganda	2.28	0.757		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Uganda	2.42	1.172	0.206	0.837
			~Uganda	2.38	1.080		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Uganda	2.96	1.216	2.009	0.046
			~Uganda	2.48	1.129		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Uganda	3.08	1.222	2.534	0.017
			~Uganda	2.44	0.851		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Uganda	1.85	1.190	-2.462	0.015
			~Uganda	2.38	0.996		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Uganda	3.35	1.231	2.297	0.023
			~Uganda	2.85	0.994		
		Average	Uganda	2.67	0.816	1.219	0.233
			~Uganda	2.47	0.622		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Uganda	4.73	0.533	2.851	0.006
			~Uganda	4.36	1.028		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Uganda	4.81	0.491	4.345	0.000
			~Uganda	4.29	0.926		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Uganda	4.54	0.706	4.640	0.000
			~Uganda	3.73	1.372		

<Table A2-4 Results from Female Respondents of Uganda (n=26) compared with Average of ARN without Uganda>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Uganda	2.31	1.408	-1.273	0.204
			~Uganda	2.68	1.397		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Uganda	2.46	1.272	1.054	0.293
			~Uganda	2.16	1.363		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Uganda	2.00	1.386	1.658	0.099
			~Uganda	1.61	1.065		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Uganda	2.85	1.690	2.230	0.033
			~Uganda	2.08	1.294		
		Average	Uganda	2.40	1.109	1.361	0.175
			~Uganda	2.13	0.920		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Uganda	1.58	1.027	-3.148	0.002
			~Uganda	2.29	1.082		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Uganda	1.88	0.993	-0.716	0.475
			~Uganda	2.05	1.127		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Uganda	1.69	0.928	0.270	0.788
			~Uganda	1.64	0.888		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Uganda	1.88	1.211	-4.677	0.000
			~Uganda	3.09	1.335		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Uganda	2.23	1.306	1.800	0.082
			~Uganda	1.75	0.959		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Uganda	2.58	1.447	-4.903	0.000
			~Uganda	4.03	1.112		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Uganda	3.38	1.651	-0.720	0.477
			~Uganda	3.63	1.411		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Uganda	3.15	1.156	-2.483	0.014
			~Uganda	3.73	1.104		
		Average	Uganda	2.40	0.715	-3.492	0.001
			~Uganda	2.85	0.589		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

2) Comparison with Other ARN Member Countries : Male Response

<Table A2-5 Results from Male Respondents of Uganda (n=53) compared with Average of ARN without Uganda>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Uganda	1.47	0.846	-4.055	0.000
			~Uganda	2.07	0.991		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Uganda	2.06	1.099	-0.589	0.556
			~Uganda	2.15	1.049		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Uganda	2.34	1.159	-4.406	0.000
			~Uganda	3.17	1.570		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Uganda	3.13	1.481	2.023	0.044
			~Uganda	2.68	1.467		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Uganda	2.89	1.450	5.199	0.000
			~Uganda	1.81	0.912		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Uganda	1.72	1.099	-0.063	0.950
			~Uganda	1.73	0.641		
		Average	Uganda	2.27	0.746	-0.002	0.998
			~Uganda	2.27	0.385		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Uganda	1.58	0.750	-3.723	0.000
			~Uganda	2.00	0.741		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Uganda	1.49	0.644	-7.968	0.000
			~Uganda	2.28	0.643		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Uganda	2.23	1.165	-3.551	0.001
			~Uganda	2.84	0.937		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Uganda	2.29	1.143	-0.838	0.405
			~Uganda	2.43	0.817		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Uganda	1.59	0.898	-1.398	0.167
			~Uganda	1.77	0.629		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Uganda	2.71	1.446	-0.371	0.712
			~Uganda	2.79	1.018		
		Average	Uganda	1.99	0.649	-3.855	0.000
			~Uganda	2.35	0.435		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Uganda	4.85	0.361	7.087	0.000
			~Uganda	4.23	1.117		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Uganda	4.49	0.912	3.181	0.002
			~Uganda	3.92	1.232		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Uganda	3.92	1.253	2.586	0.011
			~Uganda	3.42	1.467		

<Table A2-5 Results from Male Respondents of Uganda (n=53) compared with Average of ARN without Uganda>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Uganda	1.66	0.898	-5.506	0.000
			~Uganda	2.49	1.324		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Uganda	2.83	1.590	2.807	0.007
			~Uganda	2.18	1.179		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Uganda	2.32	1.397	5.133	0.000
			~Uganda	1.31	0.666		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Uganda	2.51	1.436	2.479	0.016
			~Uganda	1.99	1.059		
		Average	Uganda	2.33	0.955	2.478	0.016
			~Uganda	1.99	0.562		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Uganda	2.55	1.551	1.560	0.124
			~Uganda	2.20	0.933		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Uganda	1.40	0.631	-6.361	0.000
			~Uganda	2.11	1.114		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Uganda	1.32	0.613	-2.778	0.006
			~Uganda	1.55	0.516		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Uganda	1.19	0.395	-21.555	0.000
			~Uganda	3.49	1.416		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Uganda	1.75	0.939	0.265	0.792
			~Uganda	1.72	0.694		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Uganda	1.96	1.143	-10.323	0.000
			~Uganda	3.75	1.138		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Uganda	2.98	1.704	-2.852	0.006
			~Uganda	3.70	1.467		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Uganda	2.68	1.696	-3.742	0.000
			~Uganda	3.58	1.002		
		Average	Uganda	1.90	0.411	-13.765	0.000
			~Uganda	2.84	0.608		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

3) Comparison of results between Female and Male respondents (n=79)

<Table A2-6 Comparative Results between Female and Male Respondents of Uganda (26 female, 53 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	1.65	1.018	0.840	0.403
			male	1.47	0.846		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	1.92	1.017	-0.520	0.605
			male	2.06	1.099		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	2.04	1.216	-1.068	0.289
			male	2.34	1.159		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	2.73	1.663	-1.087	0.281
			male	3.13	1.481		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	2.50	1.304	-1.150	0.254
			male	2.89	1.450		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	2.27	1.343	1.949	0.055
			male	1.72	1.099		
		Average	female	2.19	0.672	-0.470	0.639
			male	2.27	0.746		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	2.19	1.132	2.510	0.017
			male	1.58	0.750		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	2.42	1.172	3.778	0.001
			male	1.49	0.644		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	2.96	1.216	2.574	0.012
			male	2.23	1.165		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	3.08	1.222	2.782	0.007
			male	2.29	1.143		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	1.85	1.190	0.973	0.336
			male	1.59	0.898		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	3.35	1.231	1.916	0.059
			male	2.71	1.446		
		Average	female	2.67	0.816	3.975	0.000
			male	1.99	0.649		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	female	4.73	0.533	-1.021	0.314
			male	4.85	0.361		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	female	4.81	0.491	2.006	0.048
			male	4.49	0.912		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	4.54	0.706	2.779	0.007
			male	3.92	1.253		

<Table A2-6 Comparative Results between Female and Male Respondents of Uganda (26 female, 53 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	2.31	1.408	2.141	0.039
			male	1.66	0.898		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	2.46	1.272	-1.112	0.271
			male	2.83	1.590		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	2.00	1.386	-0.961	0.339
			male	2.32	1.397		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	2.85	1.690	0.923	0.359
			male	2.51	1.436		
		Average	female	2.40	1.109	0.305	0.761
			male	2.33	0.955		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	1.58	1.027	-3.310	0.001
			male	2.55	1.551		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	1.88	0.993	2.291	0.028
			male	1.40	0.631		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	1.69	0.928	1.852	0.072
			male	1.32	0.613		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	1.88	1.211	2.857	0.008
			male	1.19	0.395		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	2.23	1.306	1.661	0.105
			male	1.75	0.939		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	2.58	1.447	1.895	0.065
			male	1.96	1.143		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	3.38	1.651	0.999	0.321
			male	2.98	1.704		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	3.15	1.156	1.460	0.149
			male	2.68	1.696		
		Average	female	2.40	0.715	3.342	0.002
			male	1.90	0.411		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

A2.3 Kenya

1) Comparison with Other ARN Member Countries : Female Response

<Table A2-7 Results from Female Respondents of Kenya (n=40) compared with Average of ARN without Kenya>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Kenya	2.48	1.467	0.492	0.623
			~Kenya	2.36	1.304		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Kenya	2.80	1.454	3.082	0.003
			~Kenya	2.05	1.005		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Kenya	3.10	1.355	0.486	0.627
			~Kenya	2.97	1.480		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Kenya	2.40	1.297	-0.535	0.594
			~Kenya	2.53	1.453		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Kenya	2.60	1.317	3.296	0.002
			~Kenya	1.88	0.830		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Kenya	2.70	1.556	4.016	0.000
			~Kenya	1.68	0.806		
		Average	Kenya	2.68	1.027	2.619	0.012
			~Kenya	2.25	0.389		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Kenya	2.05	1.131	-1.445	0.155
			~Kenya	2.32	0.706		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Kenya	2.53	1.109	0.929	0.354
			~Kenya	2.35	1.085		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Kenya	2.75	1.463	1.055	0.297
			~Kenya	2.49	1.055		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Kenya	2.98	1.349	2.573	0.013
			~Kenya	2.41	0.749		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Kenya	1.93	1.269	-2.229	0.030
			~Kenya	2.40	0.949		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Kenya	2.83	1.152	-0.609	0.543
			~Kenya	2.94	1.011		
		Average	Kenya	2.51	0.967	0.125	0.901
			~Kenya	2.49	0.547		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Kenya	4.50	0.751	0.667	0.506
			~Kenya	4.38	1.036		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Kenya	4.80	0.405	5.600	0.000
			~Kenya	4.25	0.953		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Kenya	4.60	0.672	6.226	0.000
			~Kenya	3.65	1.388		

<Table A2-7 Results from Female Respondents of Kenya (n=40) compared with Average of ARN without Kenya>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Kenya	2.68	1.575	0.211	0.833
			~Kenya	2.62	1.358		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Kenya	3.70	1.436	7.772	0.000
			~Kenya	1.82	1.034		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Kenya	2.90	1.482	6.414	0.000
			~Kenya	1.35	0.730		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Kenya	3.23	1.747	4.526	0.000
			~Kenya	1.91	1.122		
		Average	Kenya	3.13	1.298	5.657	0.000
			~Kenya	1.93	0.648		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Kenya	1.40	0.672	-7.257	0.000
			~Kenya	2.40	1.097		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Kenya	2.45	1.239	2.467	0.017
			~Kenya	1.92	1.053		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Kenya	2.53	1.261	5.355	0.000
			~Kenya	1.43	0.600		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Kenya	2.35	1.331	-3.064	0.002
			~Kenya	3.08	1.355		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Kenya	2.38	1.353	3.124	0.003
			~Kenya	1.67	0.868		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Kenya	3.33	1.492	-2.542	0.014
			~Kenya	3.97	1.161		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Kenya	3.08	1.685	-2.280	0.027
			~Kenya	3.73	1.349		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Kenya	2.95	1.467	-3.637	0.001
			~Kenya	3.84	0.947		
		Average	Kenya	2.72	0.966	-0.533	0.597
			~Kenya	2.81	0.505		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

2) Comparison with Other ARN Member Countries : Male Response

<Table A2-8 Results from Male Respondents of Kenya (n=26) compared with Average of ARN without Kenya>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	Kenya	1.38	0.697	-3.139	0.002
			~Kenya	2.02	1.000		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	Kenya	2.00	1.200	-0.677	0.499
			~Kenya	2.15	1.043		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	Kenya	1.92	1.055	-5.299	0.000
			~Kenya	3.13	1.534		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	Kenya	3.15	1.405	1.417	0.158
			~Kenya	2.72	1.481		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	Kenya	3.08	1.354	4.319	0.000
			~Kenya	1.90	1.027		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	Kenya	1.96	1.076	1.205	0.238
			~Kenya	1.70	0.700		
		Average	Kenya	2.25	0.792	-0.122	0.904
			~Kenya	2.27	0.428		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	Kenya	1.54	0.761	-2.747	0.006
			~Kenya	1.96	0.749		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	Kenya	1.54	0.647	-4.706	0.000
			~Kenya	2.20	0.689		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	Kenya	2.12	1.092	-3.237	0.001
			~Kenya	2.79	0.982		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	Kenya	2.23	0.951	-1.044	0.297
			~Kenya	2.42	0.877		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	Kenya	1.62	0.983	-0.698	0.491
			~Kenya	1.75	0.651		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	Kenya	2.35	1.384	-1.690	0.102
			~Kenya	2.82	1.067		
		Average	Kenya	1.89	0.774	-2.753	0.011
			~Kenya	2.33	0.448		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	Kenya	4.85	0.368	5.665	0.000
			~Kenya	4.29	1.081		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	Kenya	4.62	0.852	3.549	0.001
			~Kenya	3.97	1.213		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	Kenya	4.38	1.023	4.383	0.000
			~Kenya	3.42	1.449		

<Table A2-8 Results from Male Respondents of Kenya (n=26) compared with Average of ARN without Kenya>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	Kenya	1.88	0.864	-2.642	0.012
			~Kenya	2.38	1.324		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	Kenya	2.81	1.357	2.128	0.034
			~Kenya	2.25	1.270		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	Kenya	2.58	1.102	5.348	0.000
			~Kenya	1.39	0.842		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	Kenya	2.38	1.267	1.388	0.166
			~Kenya	2.06	1.138		
		Average	Kenya	2.41	0.941	2.095	0.046
			~Kenya	2.02	0.620		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	Kenya	1.81	1.021	-2.282	0.023
			~Kenya	2.31	1.074		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	Kenya	1.62	0.852	-1.829	0.068
			~Kenya	2.02	1.092		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	Kenya	1.35	0.629	-1.576	0.116
			~Kenya	1.52	0.530		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	Kenya	1.38	0.637	-11.814	0.000
			~Kenya	3.23	1.534		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	Kenya	1.50	0.812	-1.624	0.106
			~Kenya	1.75	0.734		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	Kenya	1.85	1.084	-6.811	0.000
			~Kenya	3.58	1.250		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	Kenya	2.31	1.320	-4.542	0.000
			~Kenya	3.69	1.500		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	Kenya	2.65	1.623	-2.579	0.016
			~Kenya	3.49	1.135		
		Average	Kenya	1.81	0.606	-7.342	0.000
			~Kenya	2.76	0.630		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

3) Comparison of results between Female and Male respondents (n=66)

<Table A2-9 Comparative Results between Female and Male Respondents of Kenya (40 female, 26 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
1. Perception of Gender Barriers	1	Girls and boys are equally encouraged to choose their majors in STEM during their education period.	female	2.48	1.467	4.049	0.000
			male	1.38	0.697		
	2	Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.	female	2.80	1.454	2.335	0.023
			male	2.00	1.200		
	3	Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.	female	3.10	1.355	3.748	0.000
			male	1.92	1.055		
	4	It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.	female	2.40	1.297	-2.233	0.029
			male	3.15	1.405		
	5	Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.	female	2.60	1.317	-1.422	0.160
			male	3.08	1.354		
	6	Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.	female	2.70	1.556	2.278	0.026
			male	1.96	1.076		
		Average	female	2.68	1.027	1.910	0.061
			male	2.25	0.792		
2. Experience of Gender Barriers	1	Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.	female	2.05	1.131	2.025	0.047
			male	1.54	0.761		
	2	Women in STEM being disadvantaged in participating or leading a research project because they are female.	female	2.53	1.109	4.558	0.000
			male	1.54	0.647		
	3	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues (in class, laboratory, project group, etc).	female	2.75	1.463	1.980	0.052
			male	2.12	1.092		
	4	Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc).	female	2.98	1.349	2.443	0.017
			male	2.23	0.951		
	5	Women in STEM being disadvantaged in accessing research equipment or information because they are female.	female	1.93	1.269	1.055	0.296
			male	1.62	0.983		
	6	Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.	female	2.83	1.152	1.523	0.133
			male	2.35	1.384		
		Average	female	2.51	0.967	2.686	0.009
			male	1.89	0.774		
3. Career Outlook	1	I believe things will turn out fine in the future career for women in STEM	female	4.50	0.751	-2.491	0.016
			male	4.85	0.368		
4. Need for Policy to Overcome Gender Barriers	1	It is crucial to have strong policy support to solve gender inequality in the STEM field.	female	4.80	0.405	1.032	0.310
			male	4.62	0.852		
	2	It is appropriate to introduce a quota system or affirmative action plan to solve gender inequality in the STEM field.	female	4.60	0.672	1.034	0.305
			male	4.38	1.023		

<Table A2-9 Comparative Results between Female and Male Respondents of Kenya (40 female, 26 male persons)>

(Unit: Point)

Classifications		Question	Country	average	standard deviation	t	*(p)*
5. Perception of Gender Role Stereotype	1	In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for their sex.	female	2.68	1.575	2.624	0.011
			male	1.88	0.864		
	2	Primary breadwinners (who take care of financial obligations) of households should be men.	female	3.70	1.436	2.520	0.014
			male	2.81	1.357		
	3	Women are born to have a way of caring children that men are not capable of in the same way.	female	2.90	1.482	1.014	0.315
			male	2.58	1.102		
	4	In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.	female	3.23	1.747	2.262	0.027
			male	2.38	1.267		
		Average	female	3.13	1.298	2.578	0.012
			male	2.41	0.941		
6. Perception of Gender Equity	1	I believe gender equality will be fully achieved only if women are given equal opportunities as men.	female	1.40	0.672	-1.960	0.054
			male	1.81	1.021		
7. Perception of Gender Equality for study and research Environment	1	Women are equally granted or entrusted equal role for their research or project at the laboratory.	female	2.45	1.239	3.241	0.002
			male	1.62	0.852		
	2	Women equally receive the appraisal or award for the outcome of their project or research.	female	2.53	1.261	5.030	0.000
			male	1.35	0.629		
	3	The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge	female	2.35	1.331	3.944	0.000
			male	1.38	0.637		
	4	Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant	female	2.38	1.353	3.281	0.002
			male	1.50	0.812		
	5	Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc)	female	3.33	1.492	4.657	0.000
			male	1.85	1.084		
	6	Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.	female	3.08	1.685	2.066	0.043
			male	2.31	1.320		
	7	Female students in STEM are intimidated in the laboratory or in classes because they are female.	female	2.95	1.467	0.768	0.445
			male	2.65	1.623		
		Average	female	2.72	0.966	4.717	0.000
			male	1.81	0.606		

The questions are evaluated on a Likert-type scale (5 points).

1. Perception of Gender Barriers : Higher score means higher perception of gender barriers in STEM
2. Direct/Indirect Experience of Gender Barriers : Higher score means more experiences of gender barrier in STEM
   For the same questions, different answering set was provided to the respondents depending on their sex.
   -Female respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others, 4. I have seen others experience, 5. Experienced for myself.
   -Male respondent : 1. Never experienced, seen nor heard from others, 2. Neither seen nor heard but recognize the possibility, 3. Heard from others about unknown person's case, 4. Heard from my colleague or known person's experience, 5. I have seen someone experience
3. Career Outlook for Women in STEM : Higher score means more positive prospect (reverse coded)
4. Need for policy to overcome 'gender barriers' : Higher score means more agreement (reverse coded)
5 Perception of Gender Role Stereotype: The higher the score, the more progressive attitude towards gender role stereotype
6. Perception of Gender Equity : Higher score means higher perception or understanding of gender equity
7. Perception of Gender Equality for study & research environment : Higher score means higher perception

Appendix 3. Analyses of Variables by individual questions (APNN)

Similar to 4.2.2, the two way ANOVA results for individual questions are summarized in table format. A significant effect of either major field or current status or both on the individual questions are shown as *p* values in the tables of "Analyses of Variables for Question x-y (where x indicates the sub-area and y the question number under the sub-area)." A *p* value less than 0.05 is considered statistically significant. For example, if *p* value is less than 0.05 for major field, this means that the major field has a significant effect on the scores for the individual question for the particular sex (female or male). Similar interpretation can be made for current status. For major field * current status, a *p* value of less than 0.05 would mean a significant interaction effect. The cells that are highlighted are those which show *p* value less than 0.05.

For each question, figures showing comparative scores for the participating countries are presented. The blue bars represent results from female respondents while the red bars from male.

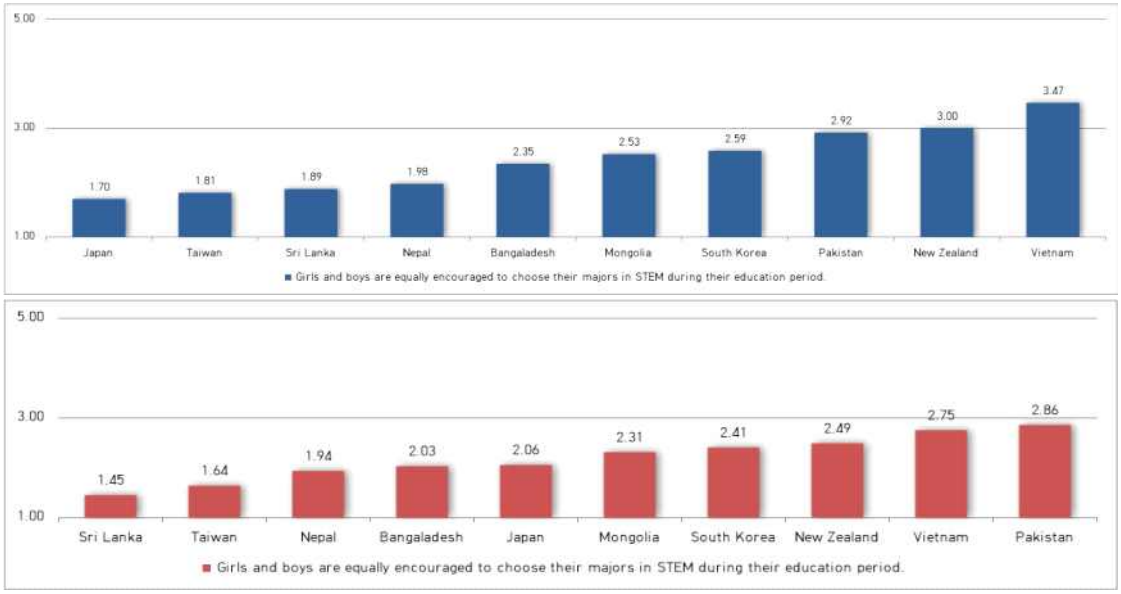
1-1) Girls and boys are equally encouraged to choose their majors in STEM during their education period.

<Table A3-1 Comparison of scores from question 1-1 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.00	1.070	104	1.84	1.053
	STUDENT IN MA	85	2.22	1.189	57	2.26	1.142
	WORKING WITH MA	48	2.63	1.248	56	2.34	0.880
	STUDENT IN DOCTORAL DEGREE	21	1.76	0.889	24	2.54	1.062
	WORKING WITH Ph.D	4	2.75	0.957	7	1.86	1.464
	OTHERS	31	1.97	0.912	16	2.38	0.957
	TOTAL	321	2.14	1.126	264	2.13	1.069
ENGINEERING	UNDERGRADUATE STUDENT	179	2.59	1.306	230	2.48	1.177
	STUDENT IN MA	141	2.55	1.328	132	2.15	1.245
	WORKING WITH MA	60	2.98	1.157	57	2.35	1.232
	STUDENT IN DOCTORAL DEGREE	32	3.22	1.211	49	2.73	1.095
	WORKING WITH Ph.D	6	3.00	1.265	7	2.43	0.976
	OTHERS	71	2.59	1.226	52	2.15	1.017
	TOTAL	489	2.67	1.287	527	2.37	1.186
TOTAL	UNDERGRADUATE STUDENT	311	2.34	1.244	334	2.28	1.177
	STUDENT IN MA	226	2.42	1.284	189	2.19	1.213
	WORKING WITH MA	108	2.82	1.206	113	2.35	1.067
	STUDENT IN DOCTORAL DEGREE	53	2.64	1.302	73	2.67	1.081
	WORKING WITH Ph.D	10	2.90	1.101	14	2.14	1.231
	OTHERS	102	2.40	1.171	68	2.21	1.001
	TOTAL	810	2.46	1.252	791	2.29	1.153

<Table A3-2 Analyses of Variables for question 1-1 (APNN)>

1-1	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	283.48	0.000	0.810	12	272.03	0.000	0.807
MAJORFIELD	1	14.40	0.000	0.018	1	1.81	0.179	0.002
CURRENTSTATUS	5	3.36	0.005	0.021	5	2.12	0.061	0.013
MAJORFIELD * CURRENTSTATUS	5	1.98	0.079	0.012	5	3.25	0.007	0.020
error	798				779			



<Figure A3-1 Comparative values for question 1-1 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

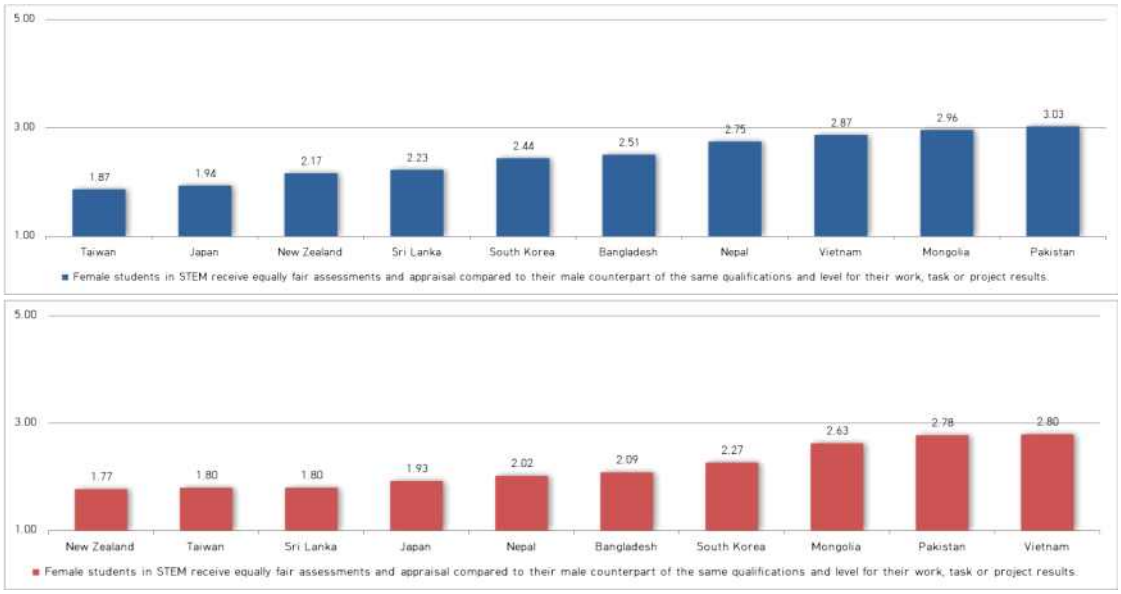
1-2) Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.

<Table A3-3 Comparison of scores from question 1-2 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.01	0.937	104	2.02	1.132
	STUDENT IN MA	85	2.38	1.144	57	2.11	0.994
	WORKING WITH MA	47	2.70	1.267	56	2.36	0.923
	STUDENT IN DOCTORAL DEGREE	21	2.19	1.123	24	2.75	1.260
	WORKING WITH Ph.D	4	3.50	1.291	7	2.43	1.618
	OTHERS	31	2.32	1.137	15	2.33	0.900
	TOTAL	320	2.27	1.110	263	2.21	1.089
ENGINEERING	UNDERGRADUATE STUDENT	179	2.41	1.226	230	2.29	1.213
	STUDENT IN MA	141	2.67	1.210	132	2.23	1.229
	WORKING WITH MA	61	2.92	1.282	57	2.21	1.145
	STUDENT IN DOCTORAL DEGREE	32	2.81	0.859	49	2.65	1.200
	WORKING WITH Ph.D	6	2.50	0.837	7	2.71	0.951
	OTHERS	71	3.01	1.213	51	2.55	1.137
	TOTAL	490	2.67	1.218	526	2.33	1.202
TOTAL	UNDERGRADUATE STUDENT	311	2.24	1.129	334	2.20	1.193
	STUDENT IN MA	226	2.56	1.192	189	2.20	1.162
	WORKING WITH MA	108	2.82	1.274	113	2.28	1.039
	STUDENT IN DOCTORAL DEGREE	53	2.57	1.010	73	2.68	1.212
	WORKING WITH Ph.D	10	2.90	1.101	14	2.57	1.284
	OTHERS	102	2.80	1.227	66	2.50	1.085
	TOTAL	810	2.51	1.191	789	2.29	1.166

<Table A3-4 Analyses of Variables for question 1-2 (APNN)>

1-2	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	322.36	0.000	0.829	12	257.78	0.000	0.799
MAJORFIELD	1	1.86	0.173	0.002	1	0.63	0.429	0.001
CURRENTSTATUS	5	5.90	0.000	0.036	5	2.98	0.011	0.019
MAJORFIELD * CURRENTSTATUS	5	1.28	0.272	0.008	5	0.67	0.645	0.004
error	798				777			



<Figure A3-2 Comparative values for question 1-2 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

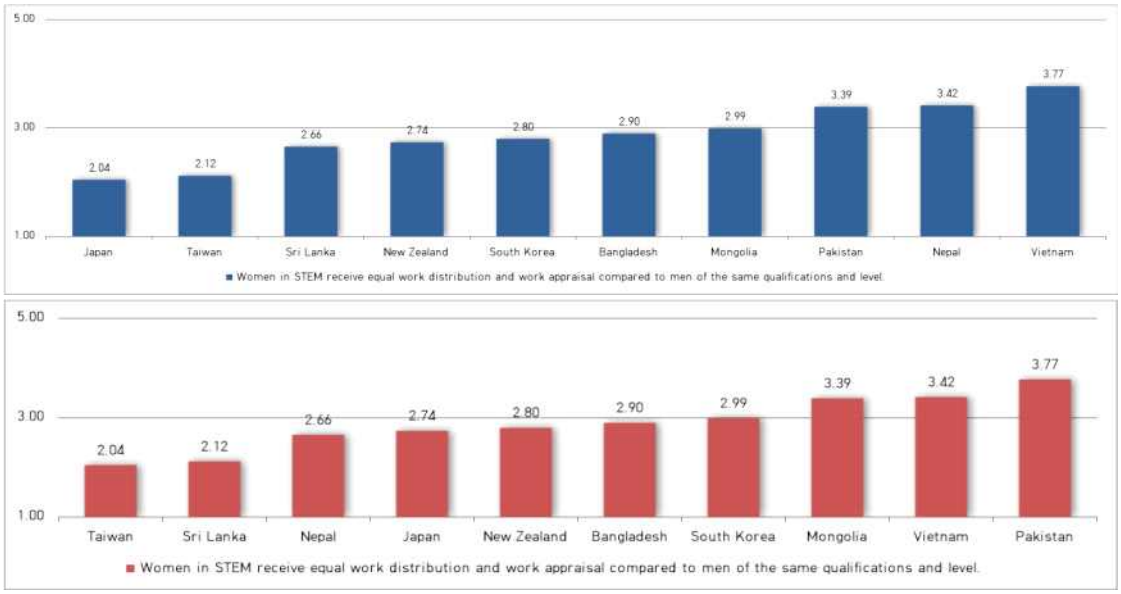
1-3) Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.

<Table A3-5 Comparison of scores from question 1-3 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.55	1.298	104	2.09	1.158
	STUDENT IN MA	85	2.51	1.109	56	2.50	1.307
	WORKING WITH MA	48	3.31	1.170	56	2.88	1.176
	STUDENT IN DOCTORAL DEGREE	20	2.45	0.999	24	2.75	1.073
	WORKING WITH Ph.D	4	4.00	0.816	6	2.67	1.633
	OTHERS	31	2.61	1.054	15	2.67	1.113
	TOTAL	320	2.67	1.220	261	2.45	1.229
ENGINEERING	UNDERGRADUATE STUDENT	177	2.84	1.271	231	2.56	1.249
	STUDENT IN MA	141	3.04	1.210	131	2.45	1.254
	WORKING WITH MA	61	3.28	1.280	57	2.44	1.150
	STUDENT IN DOCTORAL DEGREE	32	3.13	1.100	49	2.59	1.039
	WORKING WITH Ph.D	6	2.17	0.983	7	2.86	0.900
	OTHERS	71	3.20	1.116	52	2.48	1.057
	TOTAL	488	3.01	1.228	527	2.52	1.197
TOTAL	UNDERGRADUATE STUDENT	309	2.72	1.288	335	2.41	1.240
	STUDENT IN MA	226	2.84	1.198	187	2.47	1.267
	WORKING WITH MA	109	3.29	1.227	113	2.65	1.178
	STUDENT IN DOCTORAL DEGREE	52	2.87	1.103	73	2.64	1.046
	WORKING WITH Ph.D	10	2.90	1.287	13	2.77	1.235
	OTHERS	102	3.02	1.126	67	2.52	1.064
	TOTAL	808	2.88	1.235	788	2.50	1.207

<Table A3-6 Analyses of Variables for question 1-3 (APNN)>

1-3	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	386.85	0.000	0.854	12	286.11	0.000	0.816
MAJORFIELD	1	0.05	0.829	0.000	1	0.04	0.848	0.000
CURRENTSTATUS	5	4.22	0.001	0.026	5	2.00	0.076	0.013
MAJORFIELD * CURRENTSTATUS	5	2.73	0.019	0.017	5	2.91	0.013	0.018
error	796				776			



<Figure A3-3 Comparative values for question 1-3 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

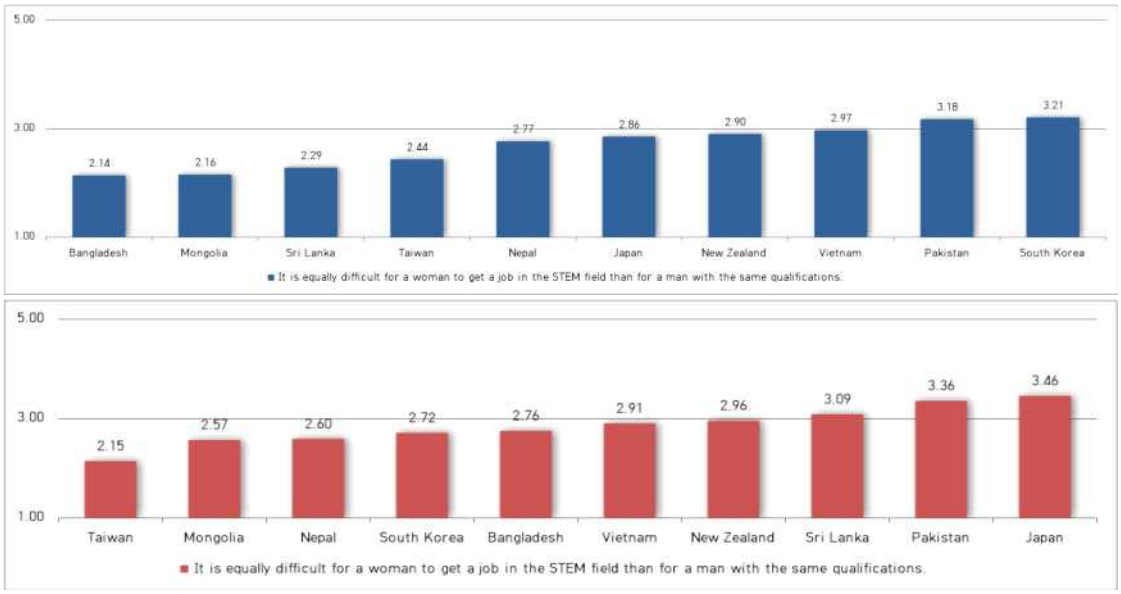
1-4) It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.

<Table A3-7 Comparison of scores from question 1-4 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.76	1.205	104	2.45	1.096
	STUDENT IN MA	84	2.57	1.122	57	2.61	1.146
	WORKING WITH MA	48	2.65	1.158	56	2.57	0.912
	STUDENT IN DOCTORAL DEGREE	21	2.52	1.209	24	2.63	1.135
	WORKING WITH Ph.D	4	2.75	1.708	7	3.00	1.291
	OTHERS	30	2.40	0.968	16	3.13	1.088
	TOTAL	319	2.64	1.159	264	2.58	1.082
ENGINEERING	UNDERGRADUATE STUDENT	179	2.85	1.209	229	2.99	1.257
	STUDENT IN MA	140	2.87	1.313	131	2.95	1.291
	WORKING WITH MA	61	2.85	1.138	57	2.74	1.188
	STUDENT IN DOCTORAL DEGREE	32	2.50	1.016	49	2.98	1.108
	WORKING WITH Ph.D	6	2.83	0.983	7	3.71	0.951
	OTHERS	70	2.67	1.248	52	2.79	1.109
	TOTAL	488	2.81	1.222	525	2.94	1.229
TOTAL	UNDERGRADUATE STUDENT	311	2.81	1.206	333	2.82	1.233
	STUDENT IN MA	224	2.76	1.251	188	2.85	1.255
	WORKING WITH MA	109	2.76	1.146	113	2.65	1.059
	STUDENT IN DOCTORAL DEGREE	53	2.51	1.085	73	2.86	1.122
	WORKING WITH Ph.D	10	2.80	1.229	14	3.36	1.151
	OTHERS	100	2.59	1.173	68	2.87	1.105
	TOTAL	807	2.74	1.200	789	2.82	1.193

<Table A3-8 Analyses of Variables for question 1-4 (APNN)>

1-4	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	352.37	0.000	0.842	12	377.76	0.000	0.854
MAJORFIELD	1	0.99	0.320	0.001	1	4.46	0.035	0.006
CURRENTSTATUS	5	1.03	0.398	0.006	5	1.26	0.281	0.008
MAJORFIELD * CURRENTSTATUS	5	0.28	0.924	0.002	5	1.40	0.221	0.009
error	795				777			



<Figure A3-4 Comparative values for question 1-4 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

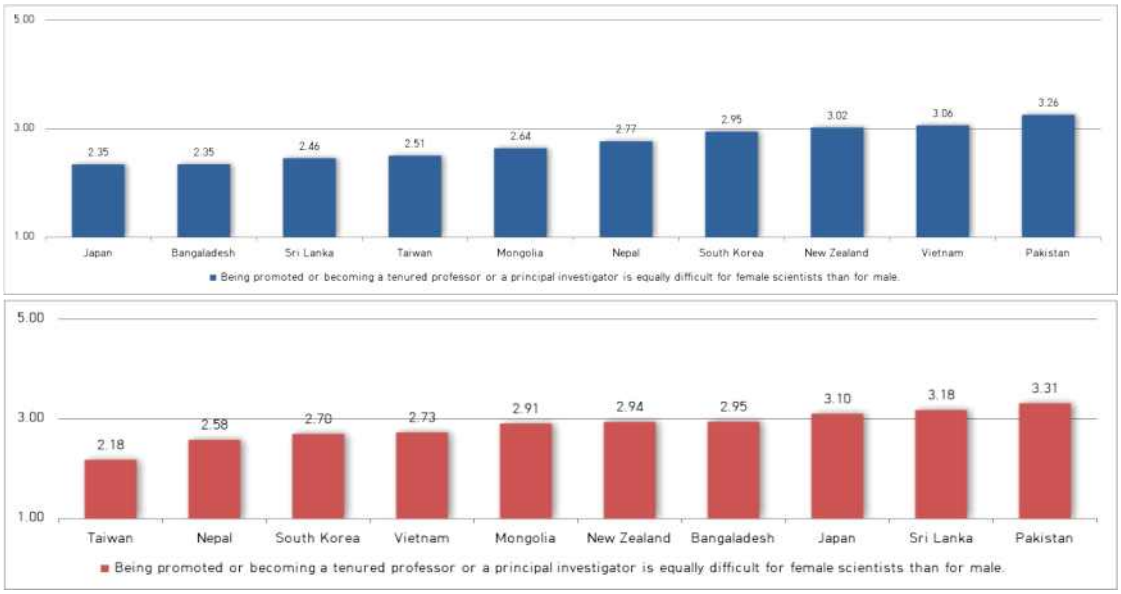
1-5) Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.

<Table A3-9 Comparison of scores from question 1-5 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.24	0.950	104	2.45	1.140
	STUDENT IN MA	85	2.48	1.031	56	2.29	1.155
	WORKING WITH MA	48	2.75	1.139	56	2.66	0.959
	STUDENT IN DOCTORAL DEGREE	21	2.14	0.964	24	2.75	1.260
	WORKING WITH Ph.D	4	2.75	1.708	7	3.14	1.215
	OTHERS	31	2.87	1.056	16	2.81	0.911
	TOTAL	321	2.44	1.042	263	2.53	1.115
ENGINEERING	UNDERGRADUATE STUDENT	179	2.92	1.151	231	2.96	1.243
	STUDENT IN MA	141	2.99	1.222	132	2.89	1.276
	WORKING WITH MA	61	3.26	1.109	57	2.91	1.154
	STUDENT IN DOCTORAL DEGREE	32	3.19	0.859	49	3.14	1.061
	WORKING WITH Ph.D	6	3.33	1.211	7	3.43	1.134
	OTHERS	71	2.70	1.139	52	3.00	1.066
	TOTAL	490	2.97	1.155	528	2.96	1.207
TOTAL	UNDERGRADUATE STUDENT	311	2.63	1.119	335	2.80	1.233
	STUDENT IN MA	226	2.80	1.178	188	2.71	1.269
	WORKING WITH MA	109	3.04	1.146	113	2.79	1.064
	STUDENT IN DOCTORAL DEGREE	53	2.77	1.031	73	3.01	1.136
	WORKING WITH Ph.D	10	3.10	1.370	14	3.29	1.139
	OTHERS	102	2.75	1.112	68	2.96	1.028
	TOTAL	811	2.76	1.141	791	2.82	1.194

<Table A3-10 Analyses of Variables for question 1-5 (APNN)>

1-5	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	431.48	0.000	0.866	12	380.85	0.000	0.854
MAJORFIELD	1	13.46	0.000	0.017	1	7.08	0.008	0.009
CURRENTSTATUS	5	2.71	0.020	0.017	5	1.82	0.106	0.012
MAJORFIELD * CURRENTSTATUS	5	2.55	0.027	0.016	5	0.46	0.804	0.003
error	799				779			



<Figure A3-5 Comparative values for question 1-5 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male

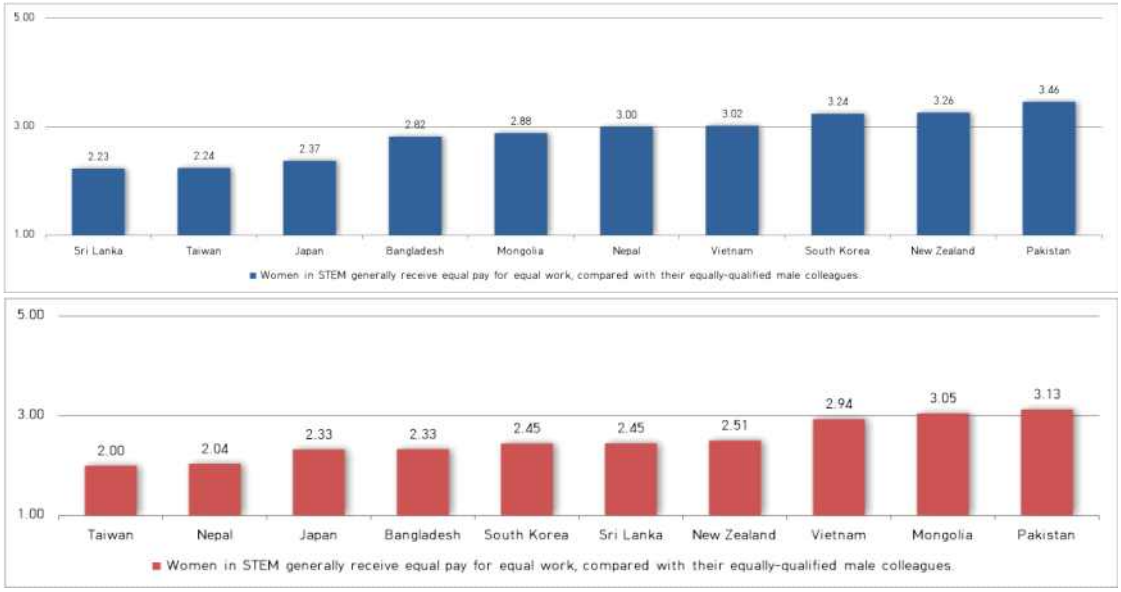
1-6) Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.

<Table A3-11 Comparison of scores from question 1-6 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.45	1.093	104	2.13	1.058
	STUDENT IN MA	85	2.60	1.049	56	2.54	1.361
	WORKING WITH MA	48	2.79	1.220	56	2.59	0.949
	STUDENT IN DOCTORAL DEGREE	21	2.52	1.167	24	2.54	0.884
	WORKING WITH Ph.D	4	2.50	1.291	6	2.33	0.816
	OTHERS	31	3.06	0.964	16	2.88	1.147
	TOTAL	321	2.60	1.105	262	2.40	1.112
ENGINEERING	UNDERGRADUATE STUDENT	179	3.05	1.177	231	2.75	1.207
	STUDENT IN MA	141	3.04	1.161	132	2.49	1.263
	WORKING WITH MA	61	2.93	1.209	57	2.35	1.094
	STUDENT IN DOCTORAL DEGREE	32	3.19	0.644	49	2.71	1.137
	WORKING WITH Ph.D	6	2.50	0.837	7	2.57	0.787
	OTHERS	71	3.10	1.084	52	2.96	1.154
	TOTAL	490	3.04	1.131	528	2.66	1.201
TOTAL	UNDERGRADUATE STUDENT	311	2.79	1.179	335	2.56	1.197
	STUDENT IN MA	226	2.87	1.138	188	2.51	1.290
	WORKING WITH MA	109	2.87	1.210	113	2.47	1.027
	STUDENT IN DOCTORAL DEGREE	53	2.92	0.937	73	2.66	1.057
	WORKING WITH Ph.D	10	2.50	0.972	13	2.46	0.776
	OTHERS	102	3.09	1.045	68	2.94	1.145
	TOTAL	811	2.87	1.140	790	2.57	1.178

<Table A3-12 Analyses of Variables for question 1-6 (APNN)>

1-6	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	447.27	0.000	0.870	12	324.93	0.000	0.834
MAJORFIELD	1	4.61	0.032	0.006	1	1.00	0.318	0.001
CURRENTSTATUS	5	1.39	0.227	0.009	5	1.58	0.162	0.010
MAJORFIELD * CURRENTSTATUS	5	1.44	0.208	0.009	5	3.07	0.009	0.019
error	799				778			



<Figure A3-6 Comparative values for question 1-6 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

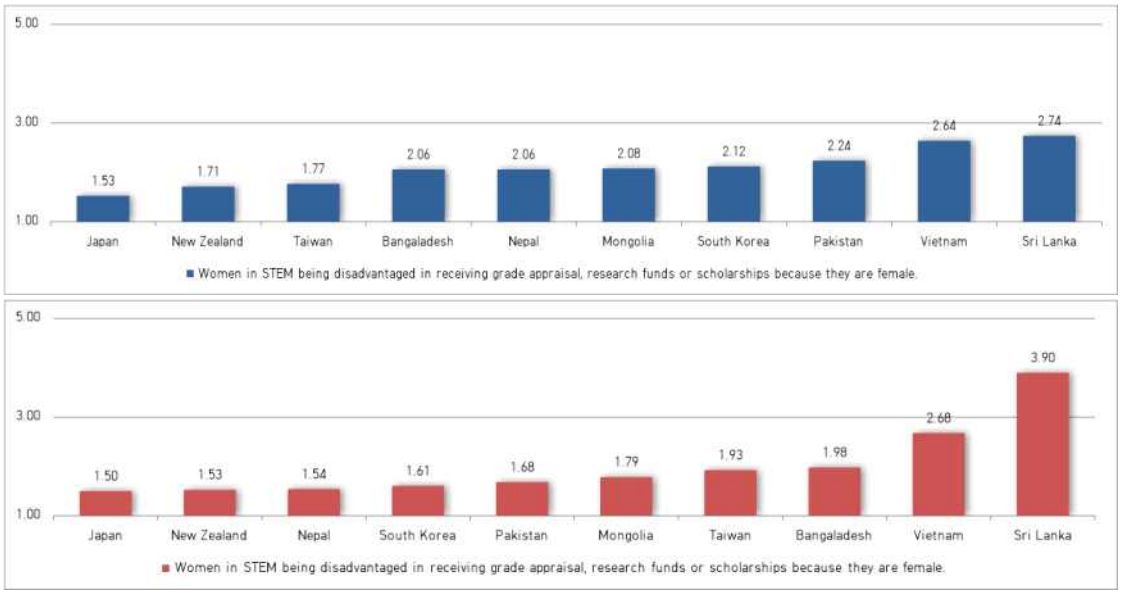
2-1) Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.

<Table A3-13 Comparison of scores from question 2-1 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	131	1.89	0.847	91	1.82	0.984
	STUDENT IN MA	85	2.00	1.134	47	2.13	1.035
	WORKING WITH MA	48	2.21	1.071	52	2.42	1.144
	STUDENT IN DOCTORAL DEGREE	21	1.62	0.805	19	2.16	0.765
	WORKING WITH Ph.D	4	2.75	1.708	4	2.00	1.414
	OTHERS	31	2.32	1.137	13	1.62	1.121
	TOTAL	320	2.00	1.014	226	2.04	1.053
ENGINEERING	UNDERGRADUATE STUDENT	179	1.96	0.979	220	1.66	0.894
	STUDENT IN MA	141	2.05	1.023	119	1.86	1.152
	WORKING WITH MA	61	2.48	1.410	52	2.29	1.091
	STUDENT IN DOCTORAL DEGREE	30	2.10	0.759	47	2.00	0.909
	WORKING WITH Ph.D	6	3.00	1.549	5	2.40	0.548
	OTHERS	70	2.33	1.164	51	1.94	0.988
	TOTAL	487	2.13	1.092	494	1.84	1.008
TOTAL	UNDERGRADUATE STUDENT	310	1.93	0.925	311	1.71	0.923
	STUDENT IN MA	226	2.03	1.064	166	1.93	1.123
	WORKING WITH MA	109	2.36	1.273	104	2.36	1.114
	STUDENT IN DOCTORAL DEGREE	51	1.90	0.806	66	2.05	0.867
	WORKING WITH Ph.D	10	2.90	1.524	9	2.22	0.972
	OTHERS	101	2.33	1.150	64	1.88	1.016
	TOTAL	807	2.08	1.063	720	1.91	1.026

<Table A3-14 Analyses of Variables for question 2-1 (APNN)>

2-1	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	266.13	0.000	0.801	12	219.46	0.000	0.788
MAJORFIELD	1	1.89	0.170	0.002	1	0.00	0.998	0.000
CURRENTSTATUS	5	5.25	0.000	0.032	5	6.13	0.000	0.042
MAJORFIELD * CURRENTSTATUS	5	0.53	0.753	0.003	5	0.69	0.629	0.005
error	795				708			



<Figure A3-7 Comparative values for question 2-1 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

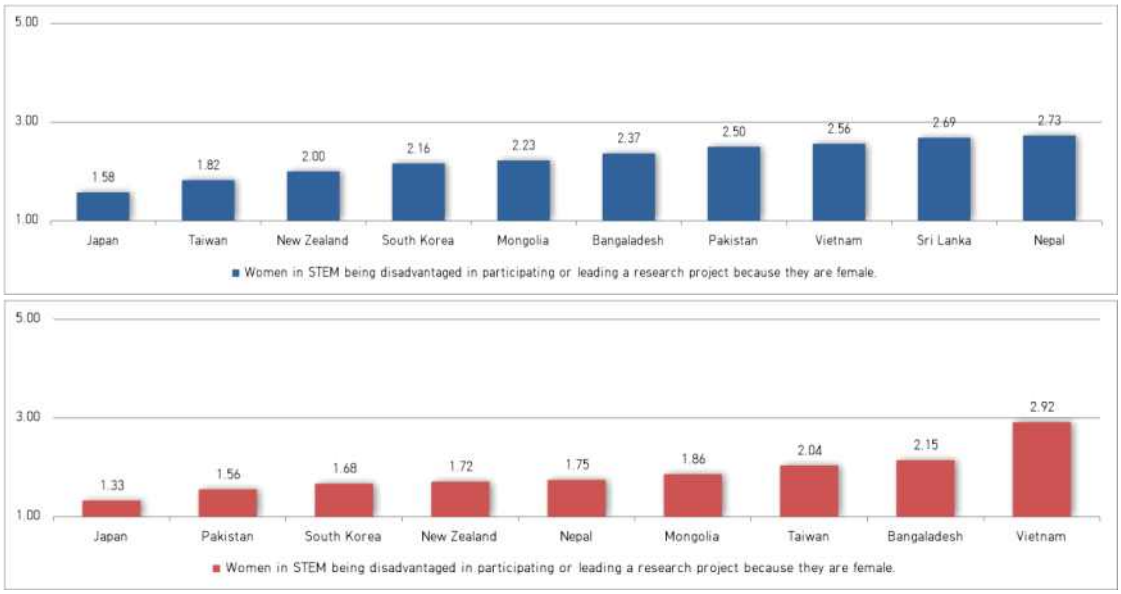
2-2) Women in STEM being disadvantaged in participating or leading a research project because they are female.

<Table A3-15 Comparison of scores from question 2-2 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	131	2.00	0.859	101	1.97	1.081
	STUDENT IN MA	85	2.06	1.051	56	2.30	1.190
	WORKING WITH MA	47	2.40	1.136	55	2.00	0.667
	STUDENT IN DOCTORAL DEGREE	21	1.81	0.873	24	2.00	0.885
	WORKING WITH Ph.D	4	2.25	1.893	7	2.00	1.000
	OTHERS	31	2.39	1.256	15	1.60	1.121
	TOTAL	319	2.10	1.021	258	2.03	1.021
ENGINEERING	UNDERGRADUATE STUDENT	179	2.22	1.103	230	1.74	0.925
	STUDENT IN MA	141	2.21	1.151	132	1.89	1.086
	WORKING WITH MA	61	2.10	0.995	57	2.26	1.126
	STUDENT IN DOCTORAL DEGREE	30	2.67	1.061	49	2.45	1.276
	WORKING WITH Ph.D	6	1.17	0.408	7	1.86	0.900
	OTHERS	70	2.61	1.133	52	1.88	0.900
	TOTAL	487	2.27	1.117	527	1.92	1.044
TOTAL	UNDERGRADUATE STUDENT	310	2.13	1.011	331	1.81	0.979
	STUDENT IN MA	226	2.15	1.115	188	2.02	1.130
	WORKING WITH MA	108	2.23	1.064	112	2.13	0.935
	STUDENT IN DOCTORAL DEGREE	51	2.31	1.068	73	2.30	1.175
	WORKING WITH Ph.D	10	1.60	1.265	14	1.93	0.917
	OTHERS	101	2.54	1.171	67	1.82	0.952
	TOTAL	806	2.21	1.083	785	1.96	1.037

<Table A3-16 Analyses of Variables for question 2-2 (APNN)>

2-2	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	289.60	0.000	0.814	12	242.85	0.000	0.790
MAJORFIELD	1	0.01	0.936	0.000	1	0.09	0.765	0.000
CURRENTSTATUS	5	2.39	0.036	0.015	5	2.98	0.011	0.019
MAJORFIELD * CURRENTSTATUS	5	2.78	0.017	0.017	5	2.90	0.013	0.018
error	794				773			



<Figure A3-8 Comparative values for question 2-2 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

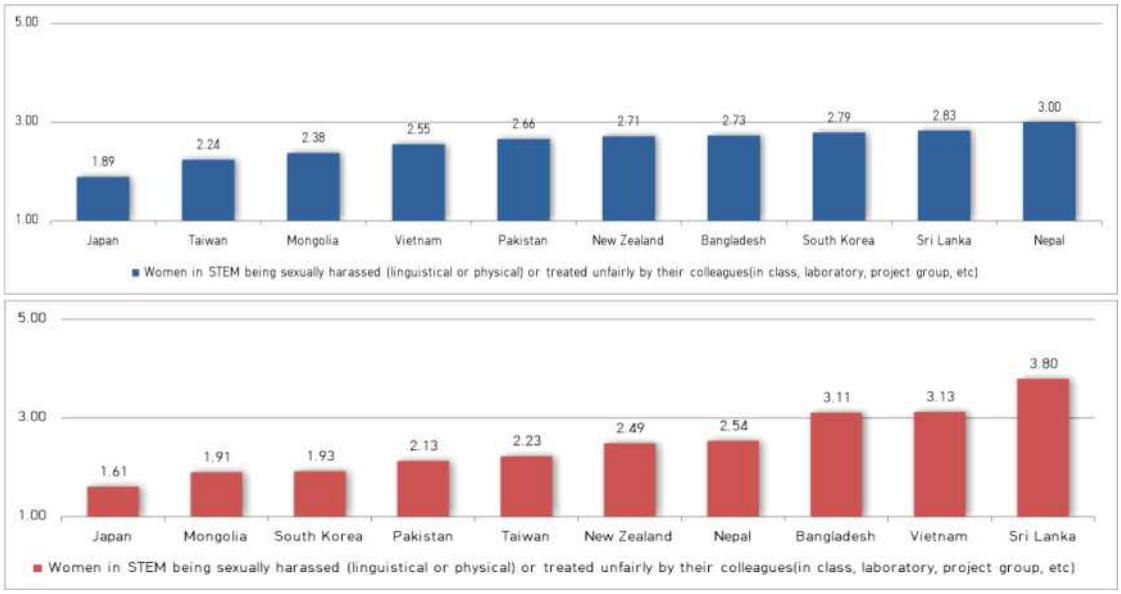
2-3) Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues(in class, laboratory, project group, etc)

<Table A3-17 Comparison of scores from question 2-3 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	130	2.25	1.088	101	2.15	1.169
	STUDENT IN MA	85	2.31	1.215	56	2.70	1.249
	WORKING WITH MA	48	2.69	1.095	55	2.69	0.879
	STUDENT IN DOCTORAL DEGREE	21	2.43	1.121	24	2.50	1.216
	WORKING WITH Ph.D	4	2.25	1.893	7	2.43	1.397
	OTHERS	31	2.61	1.308	15	2.00	1.363
	TOTAL	319	2.38	1.162	258	2.41	1.175
ENGINEERING	UNDERGRADUATE STUDENT	179	2.55	1.186	229	2.12	1.104
	STUDENT IN MA	141	2.51	1.211	132	2.31	1.127
	WORKING WITH MA	61	2.41	1.101	57	2.88	1.297
	STUDENT IN DOCTORAL DEGREE	30	3.20	1.186	49	2.20	0.889
	WORKING WITH Ph.D	6	1.00	0.000	7	2.14	0.900
	OTHERS	70	2.80	1.211	52	2.25	1.153
	TOTAL	487	2.58	1.202	526	2.27	1.134
TOTAL	UNDERGRADUATE STUDENT	309	2.43	1.153	330	2.13	1.123
	STUDENT IN MA	226	2.43	1.214	188	2.43	1.175
	WORKING WITH MA	109	2.53	1.102	112	2.79	1.110
	STUDENT IN DOCTORAL DEGREE	51	2.88	1.211	73	2.30	1.009
	WORKING WITH Ph.D	10	1.50	1.269	14	2.29	1.139
	OTHERS	101	2.74	1.238	67	2.19	1.196
	TOTAL	806	2.50	1.190	784	2.32	1.149

<Table A3-18 Analyses of Variables for question 2-3 (APNN)>

2-3	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	308.64	0.000	0.823	12	278.28	0.000	0.812
MAJORFIELD	1	0.01	0.943	0.000	1	0.49	0.486	0.001
CURRENTSTATUS	5	2.96	0.012	0.018	5	6.33	0.000	0.039
MAJORFIELD * CURRENTSTATUS	5	2.32	0.042	0.014	5	1.25	0.283	0.008
error	794				772			



<Figure A3-9 Comparative values for question 2-3 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

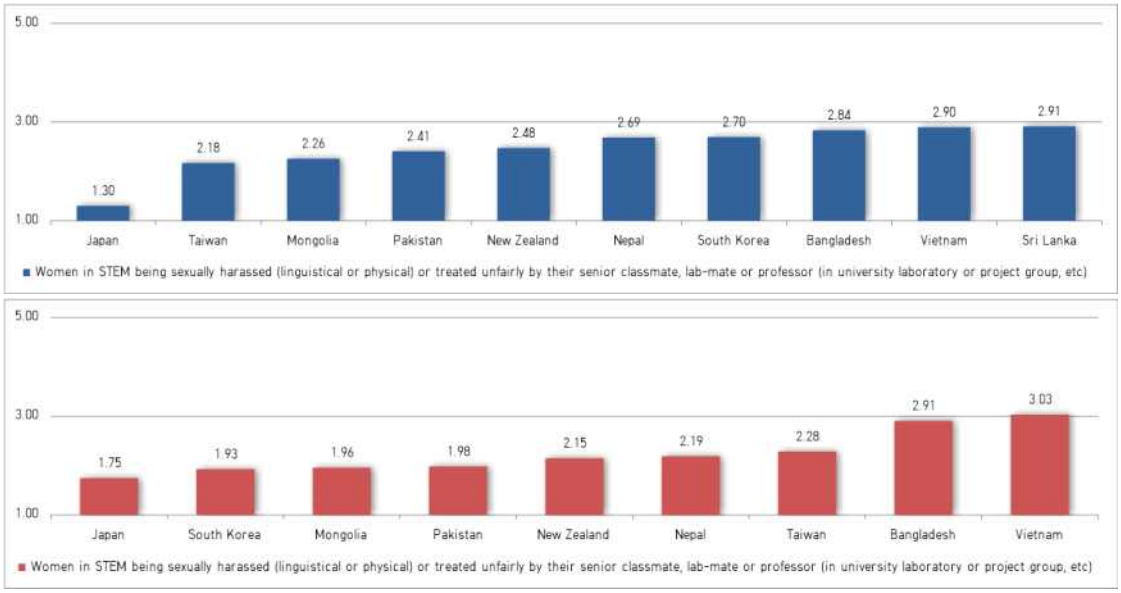
2-4) Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc)

<Table A3-19 Comparison of scores from question 2-4 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	131	2.18	1.029	101	2.05	1.108
	STUDENT IN MA	85	2.41	1.312	56	2.55	1.159
	WORKING WITH MA	48	2.35	1.158	55	2.67	0.904
	STUDENT IN DOCTORAL DEGREE	21	2.52	1.436	24	2.67	1.308
	WORKING WITH Ph.D	4	2.00	1.155	7	1.86	0.900
	OTHERS	31	2.48	1.313	15	2.13	1.506
	TOTAL	320	2.32	1.184	258	2.35	1.148
ENGINEERING	UNDERGRADUATE STUDENT	179	2.33	1.095	228	1.98	1.053
	STUDENT IN MA	141	2.32	1.203	132	2.30	1.110
	WORKING WITH MA	61	2.08	0.988	56	2.39	1.171
	STUDENT IN DOCTORAL DEGREE	30	3.67	1.124	48	2.73	1.144
	WORKING WITH Ph.D	6	1.67	0.516	7	2.14	0.900
	OTHERS	70	2.59	1.148	52	2.25	1.064
	TOTAL	487	2.41	1.170	523	2.20	1.108
TOTAL	UNDERGRADUATE STUDENT	310	2.27	1.068	329	2.00	1.069
	STUDENT IN MA	226	2.35	1.243	188	2.37	1.128
	WORKING WITH MA	109	2.20	1.070	111	2.53	1.052
	STUDENT IN DOCTORAL DEGREE	51	3.20	1.371	72	2.71	1.192
	WORKING WITH Ph.D	10	1.80	0.789	14	2.00	0.877
	OTHERS	101	2.55	1.196	67	2.22	1.165
	TOTAL	807	2.37	1.176	781	2.25	1.123

<Table A3-20 Analyses of Variables for question 2-4 (APNN)>

2-4	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	291.88	0.000	0.815	12	276.51	0.000	0.812
MAJORFIELD	1	0.59	0.441	0.001	1	0.03	0.858	0.000
CURRENTSTATUS	5	5.69	0.000	0.035	5	7.03	0.000	0.044
MAJORFIELD * CURRENTSTATUS	5	2.98	0.011	0.018	5	0.56	0.727	0.004
error	795				769			



<Figure A3-10 Comparative values for question 2-4 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

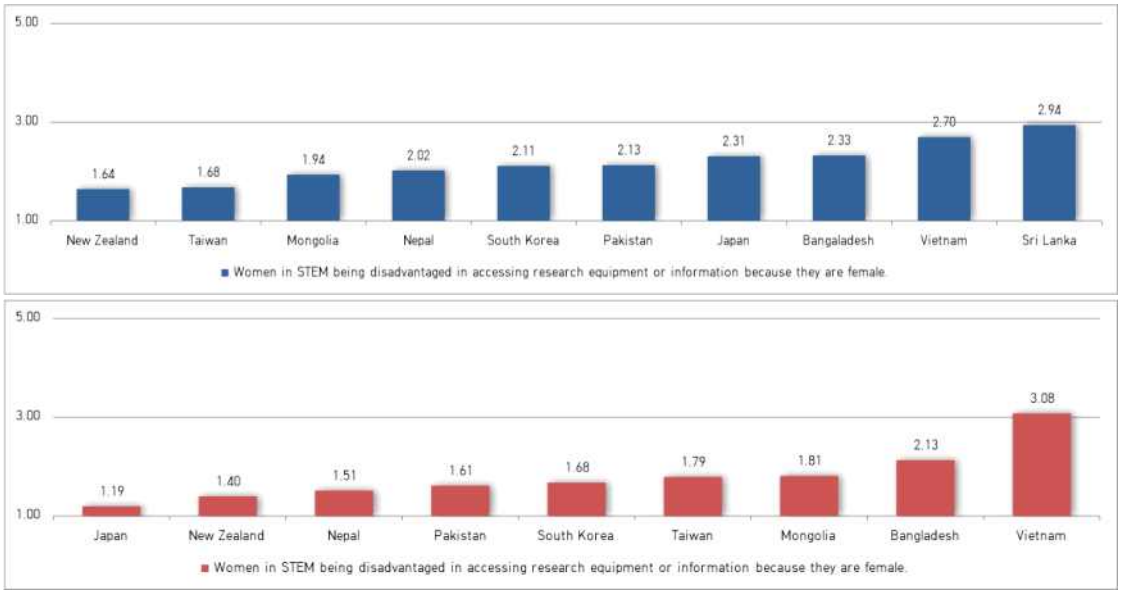
2-5) Women in STEM being disadvantaged in accessing research equipment or information because they are female.

<Table A3-21 Comparison of scores from question 2-5 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	131	2.24	1.038	101	1.79	1.071
	STUDENT IN MA	85	2.12	1.062	56	2.16	1.187
	WORKING WITH MA	48	2.63	1.265	55	2.07	0.997
	STUDENT IN DOCTORAL DEGREE	21	2.19	1.078	24	2.54	1.382
	WORKING WITH Ph.D	4	2.50	1.915	7	2.29	1.496
	OTHERS	31	2.19	1.327	15	1.67	1.113
	TOTAL	320	2.26	1.128	258	2.01	1.143
ENGINEERING	UNDERGRADUATE STUDENT	179	2.07	1.086	230	1.70	1.029
	STUDENT IN MA	140	2.14	1.081	131	1.79	1.093
	WORKING WITH MA	61	1.89	0.858	55	2.09	1.266
	STUDENT IN DOCTORAL DEGREE	30	2.63	1.066	48	2.35	1.313
	WORKING WITH Ph.D	6	1.83	0.408	7	1.86	0.900
	OTHERS	70	2.13	1.062	52	1.83	1.004
	TOTAL	486	2.11	1.056	523	1.84	1.109
TOTAL	UNDERGRADUATE STUDENT	310	2.15	1.068	331	1.73	1.041
	STUDENT IN MA	225	2.13	1.072	187	1.90	1.132
	WORKING WITH MA	109	2.21	1.114	110	2.08	1.134
	STUDENT IN DOCTORAL DEGREE	51	2.45	1.083	72	2.42	1.330
	WORKING WITH Ph.D	10	2.10	1.197	14	2.07	1.207
	OTHERS	101	2.15	1.144	67	1.79	1.023
	TOTAL	806	2.17	1.087	781	1.90	1.123

<Table A3-22 Analyses of Variables for question 2-5 (APNN)>

2-5	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	272.80	0.000	0.805	12	193.56	0.000	0.751
MAJORFIELD	1	1.95	0.163	0.002	1	1.29	0.257	0.002
CURRENTSTATUS	5	0.69	0.629	0.004	5	5.12	0.000	0.032
MAJORFIELD * CURRENTSTATUS	5	2.75	0.018	0.017	5	0.69	0.629	0.004
error	794				769			



<Figure A3-11 Comparative values for question 2-5 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

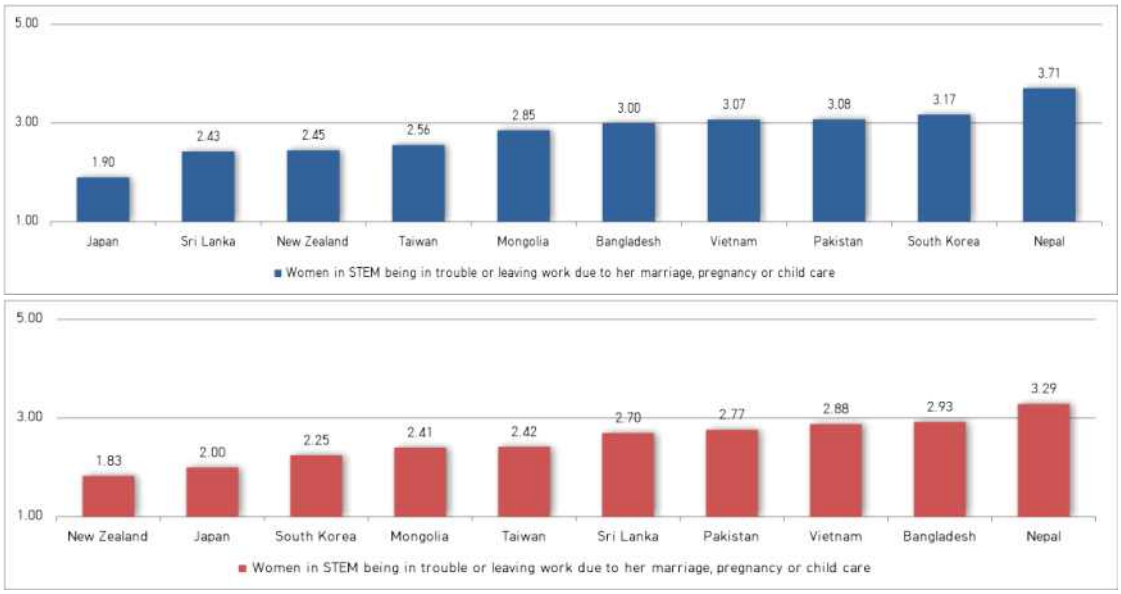
2-6) Women in STEM being in trouble or leaving work due to her marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care

<Table A3-23 Comparison of scores from question 2-6 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	131	2.62	1.041	101	2.47	1.082
	STUDENT IN MA	85	2.60	1.167	56	2.54	0.934
	WORKING WITH MA	48	2.94	0.998	56	2.55	0.933
	STUDENT IN DOCTORAL DEGREE	21	2.38	1.071	24	2.50	1.063
	WORKING WITH Ph.D	4	2.50	1.732	7	2.86	0.690
	OTHERS	31	3.16	1.267	15	2.07	0.961
	TOTAL	320	2.70	1.114	259	2.49	1.001
ENGINEERING	UNDERGRADUATE STUDENT	180	2.73	1.077	229	2.28	1.192
	STUDENT IN MA	140	2.86	1.133	132	2.73	1.341
	WORKING WITH MA	61	2.84	1.067	57	2.75	1.353
	STUDENT IN DOCTORAL DEGREE	30	3.27	0.740	49	2.59	1.135
	WORKING WITH Ph.D	6	2.67	0.816	7	2.57	1.272
	OTHERS	69	3.19	1.141	52	2.77	1.215
	TOTAL	486	2.88	1.092	526	2.53	1.261
TOTAL	UNDERGRADUATE STUDENT	311	2.68	1.062	330	2.34	1.161
	STUDENT IN MA	225	2.76	1.151	188	2.68	1.235
	WORKING WITH MA	109	2.88	1.034	113	2.65	1.163
	STUDENT IN DOCTORAL DEGREE	51	2.90	0.985	73	2.56	1.105
	WORKING WITH Ph.D	10	2.60	1.174	14	2.71	0.994
	OTHERS	100	3.18	1.175	67	2.61	1.193
	TOTAL	806	2.81	1.103	785	2.51	1.181

<Table A3-24 Analyses of Variables for question 2-6 (APNN)>

2-6	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	447.21	0.000	0.871	12	302.39	0.000	0.824
MAJORFIELD	1	2.50	0.114	0.003	1	0.75	0.388	0.001
CURRENTSTATUS	5	3.19	0.007	0.020	5	1.62	0.151	0.010
MAJORFIELD * CURRENTSTATUS	5	1.59	0.159	0.010	5	1.57	0.167	0.010
error	794				773			



<Figure A3-12 Comparative values for question 2-6 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

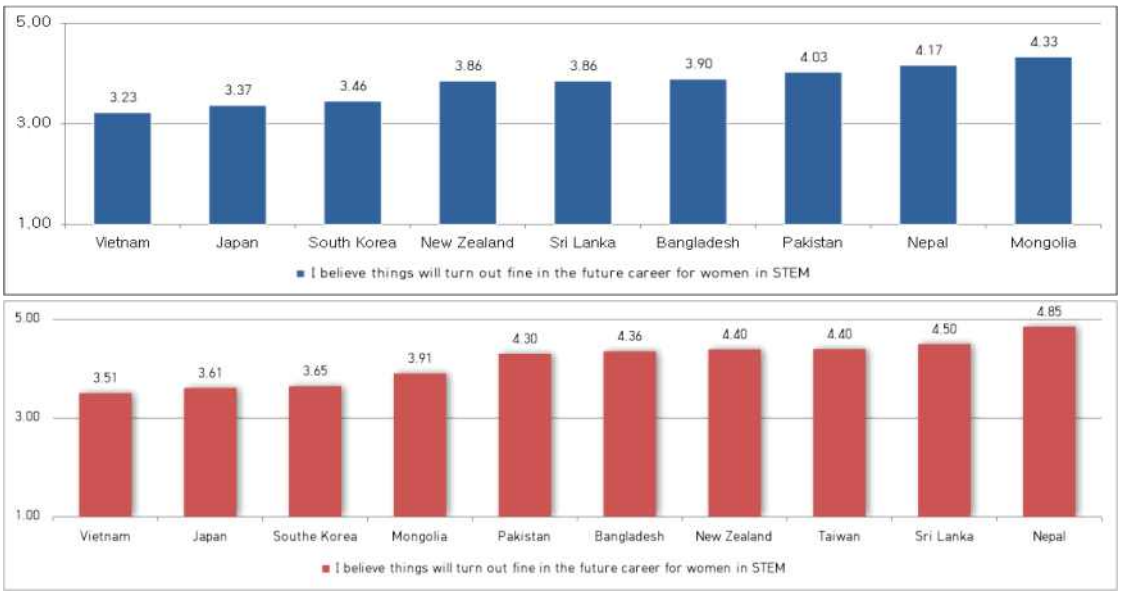
3) I believe things will turn out fine in the future career for women in STEM

<Table A3-25 Comparison of scores from question 3 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	131	3.67	0.980	103	4.18	0.988
	STUDENT IN MA	85	4.01	0.970	56	3.71	1.124
	WORKING WITH MA	48	3.73	1.067	56	3.50	1.128
	STUDENT IN DOCTORAL DEGREE	21	3.71	1.056	24	3.83	0.761
	WORKING WITH Ph.D	4	3.75	1.258	7	3.86	1.069
	OTHERS	31	4.13	0.885	15	3.87	0.990
	TOTAL	320	3.82	0.998	261	3.88	1.060
ENGINEERING	UNDERGRADUATE STUDENT	174	3.85	1.003	231	4.02	0.906
	STUDENT IN MA	141	3.76	1.006	132	4.26	0.853
	WORKING WITH MA	61	3.59	1.086	57	4.11	0.795
	STUDENT IN DOCTORAL DEGREE	30	3.93	0.740	49	4.35	0.751
	WORKING WITH Ph.D	6	2.33	1.506	7	3.43	0.535
	OTHERS	70	4.17	0.947	52	4.15	0.894
	TOTAL	482	3.82	1.022	528	4.13	0.871
TOTAL	UNDERGRADUATE STUDENT	305	3.77	0.996	334	4.07	0.934
	STUDENT IN MA	226	3.85	0.998	188	4.10	0.971
	WORKING WITH MA	109	3.65	1.075	113	3.81	1.016
	STUDENT IN DOCTORAL DEGREE	51	3.84	0.880	73	4.18	0.788
	WORKING WITH Ph.D	10	2.90	1.524	14	3.64	0.842
	OTHERS	101	4.16	0.924	67	4.09	0.917
	TOTAL	802	3.82	1.011	789	4.04	0.944

<Table A3-26 Analyses of Variables for question 3 (APNN)>

3	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	987.00	0.000	0.937	12	1265.59	0.000	0.951
MAJORFIELD	1	3.08	0.080	0.004	1	4.26	0.039	0.005
CURRENTSTATUS	5	4.01	0.001	0.025	5	2.28	0.045	0.014
MAJORFIELD * CURRENTSTATUS	5	2.36	0.039	0.015	5	5.08	0.000	0.032
error	790				777			



<Figure A3-13 Comparative values for question 3 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

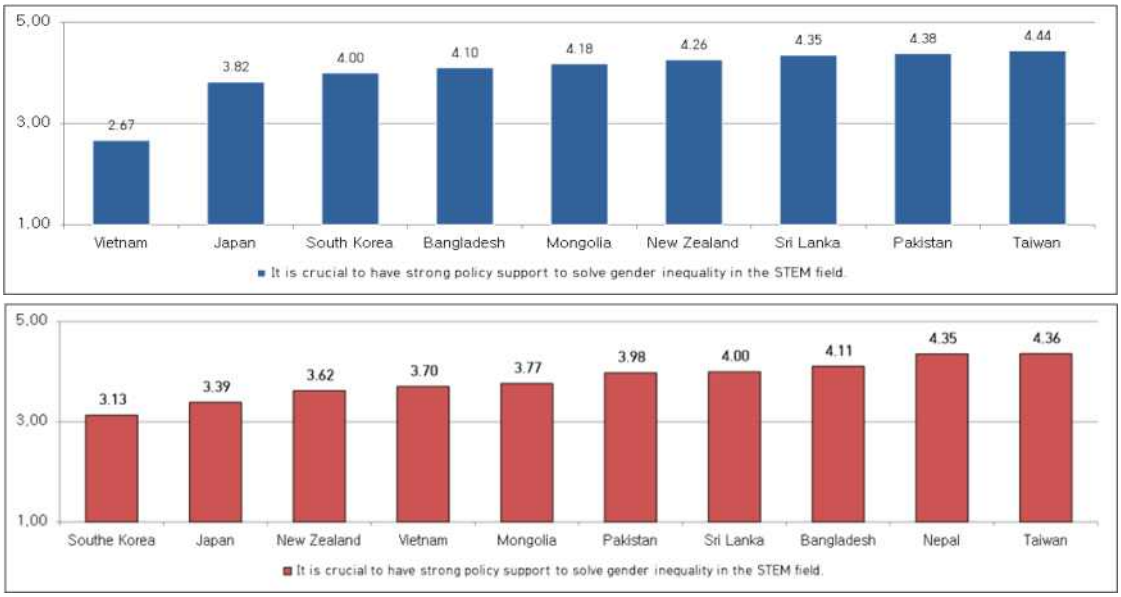
4-1) It is crucial to have strong policy support to solve gender inequality in the STEM field.

<Table A3-27 Comparison of scores from question 4-1 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	131	3.73	1.144	103	4.13	1.054
	STUDENT IN MA	85	4.09	0.840	56	3.95	1.052
	WORKING WITH MA	48	4.08	0.846	56	4.04	0.852
	STUDENT IN DOCTORAL DEGREE	21	4.43	0.870	24	2.79	1.215
	WORKING WITH Ph.D	4	4.75	0.500	7	4.00	1.414
	OTHERS	30	4.17	0.913	15	3.80	1.014
	TOTAL	319	3.98	1.004	261	3.92	1.093
ENGINEERING	UNDERGRADUATE STUDENT	175	4.15	1.008	230	3.69	1.113
	STUDENT IN MA	140	4.01	0.982	132	3.80	1.162
	WORKING WITH MA	60	3.72	1.106	57	3.60	1.033
	STUDENT IN DOCTORAL DEGREE	30	3.20	1.157	49	3.67	1.248
	WORKING WITH Ph.D	6	2.67	0.816	7	3.29	1.113
	OTHERS	70	4.36	0.979	51	3.98	0.990
	TOTAL	481	4.01	1.060	526	3.73	1.120
TOTAL	UNDERGRADUATE STUDENT	306	3.97	1.088	333	3.82	1.112
	STUDENT IN MA	225	4.04	0.930	188	3.85	1.129
	WORKING WITH MA	108	3.88	1.011	113	3.81	0.969
	STUDENT IN DOCTORAL DEGREE	51	3.71	1.205	73	3.38	1.298
	WORKING WITH Ph.D	10	3.50	1.269	14	3.64	1.277
	OTHERS	100	4.30	0.959	66	3.94	0.990
	TOTAL	800	4.00	1.037	787	3.79	1.114

<Table A3-28 Analyses of Variables for question 4-1 (APNN)>

4-1	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	1062.35	0.000	0.942	12	793.32	0.000	0.925
MAJORFIELD	1	15.89	0.000	0.020	1	0.75	0.388	0.001
CURRENTSTATUS	5	2.18	0.054	0.014	5	4.27	0.001	0.027
MAJORFIELD * CURRENTSTATUS	5	9.43	0.000	0.056	5	4.56	0.000	0.029
error	788				775			



<Figure A3-14 Comparative values for question 4-1 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

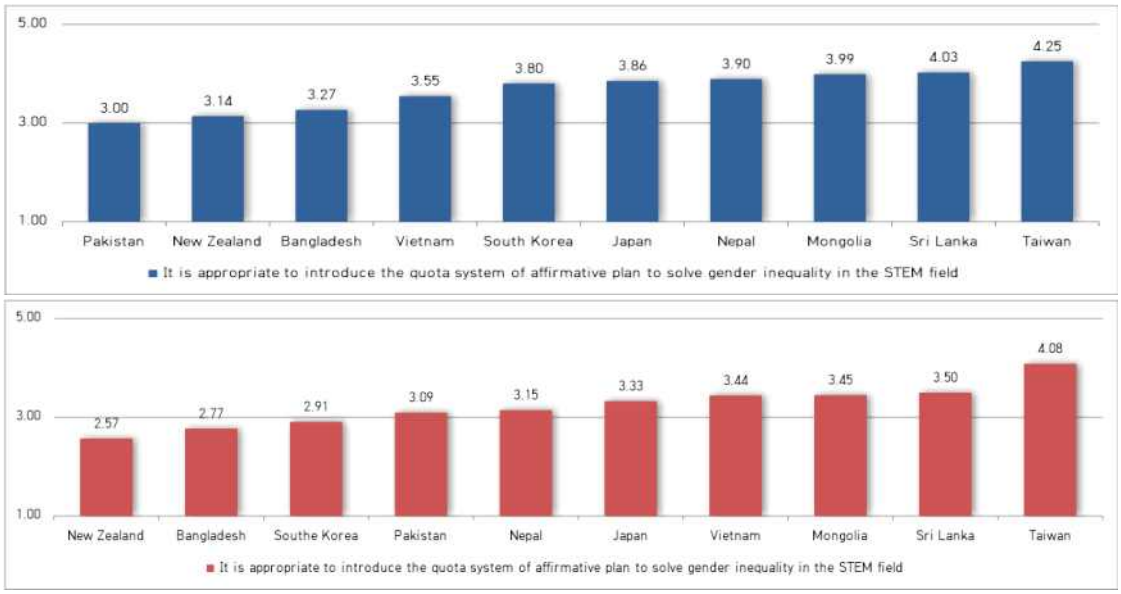
4-2) It is appropriate to introduce the quota system of affirmative plan to solve gender inequality in the STEM field

<Table A3-29 Comparison of scores from question 4-2 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	130	3.98	0.936	103	3.84	1.127
	STUDENT IN MA	85	3.95	0.912	56	3.54	1.206
	WORKING WITH MA	48	3.79	1.031	56	3.57	1.219
	STUDENT IN DOCTORAL DEGREE	21	4.05	0.973	24	2.50	1.103
	WORKING WITH Ph.D	4	4.25	0.957	7	3.29	1.380
	OTHERS	31	3.90	1.012	15	3.53	1.598
	TOTAL	319	3.94	0.950	261	3.56	1.244
ENGINEERING	UNDERGRADUATE STUDENT	174	3.45	1.017	229	3.10	1.268
	STUDENT IN MA	141	3.67	0.851	131	3.15	1.292
	WORKING WITH MA	61	3.13	0.957	57	2.89	1.160
	STUDENT IN DOCTORAL DEGREE	30	3.83	0.791	49	3.00	1.190
	WORKING WITH Ph.D	6	2.33	0.516	7	3.00	0.816
	OTHERS	70	3.84	0.895	52	3.29	1.319
	TOTAL	482	3.54	0.958	525	3.10	1.255
TOTAL	UNDERGRADUATE STUDENT	304	3.67	1.016	332	3.33	1.272
	STUDENT IN MA	226	3.77	0.883	187	3.27	1.276
	WORKING WITH MA	109	3.42	1.039	113	3.23	1.232
	STUDENT IN DOCTORAL DEGREE	51	3.92	0.868	73	2.84	1.179
	WORKING WITH Ph.D	10	3.10	1.197	14	3.14	1.099
	OTHERS	101	3.86	0.928	67	3.34	1.377
	TOTAL	801	3.70	0.975	786	3.25	1.269

<Table A3-30 Analyses of Variables for question 4-2 (APNN)>

4-2	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	1043.51	0.000	0.941	12	456.67	0.000	0.876
MAJORFIELD	1	24.87	0.000	0.031	1	4.32	0.038	0.006
CURRENTSTATUS	5	3.40	0.005	0.021	5	3.83	0.002	0.024
MAJORFIELD * CURRENTSTATUS	5	2.74	0.018	0.017	5	2.96	0.012	0.019
error	789				774			



<Figure A3-15 Comparative values for question 4-2 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

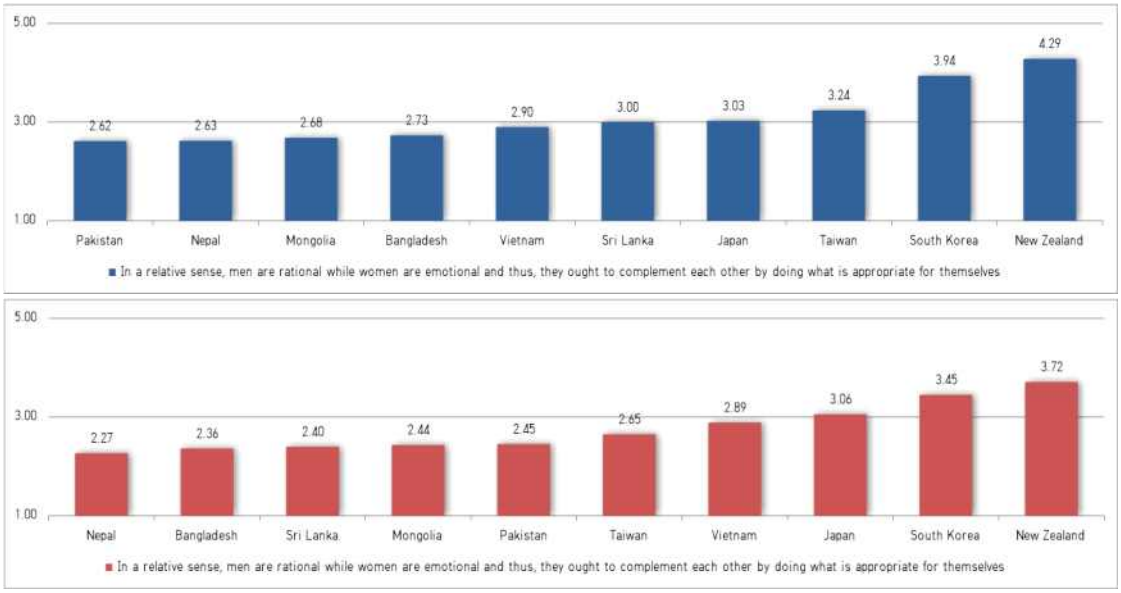
5-1) In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for themselves

<Table A3-31 Comparison of scores from question 5-1 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	131	3.02	1.140	102	2.56	1.174
	STUDENT IN MA	84	3.07	1.360	56	2.75	1.283
	WORKING WITH MA	48	3.13	1.178	56	2.70	1.008
	STUDENT IN DOCTORAL DEGREE	21	3.43	1.399	24	3.29	1.160
	WORKING WITH Ph.D	4	2.25	0.957	7	2.43	1.397
	OTHERS	31	3.00	1.342	15	2.07	0.961
	TOTAL	319	3.07	1.241	260	2.67	1.176
ENGINEERING	UNDERGRADUATE STUDENT	180	3.35	1.356	230	3.00	1.297
	STUDENT IN MA	140	2.90	1.140	132	2.59	1.223
	WORKING WITH MA	61	2.85	1.181	57	2.86	1.172
	STUDENT IN DOCTORAL DEGREE	32	3.31	1.120	49	3.35	1.128
	WORKING WITH Ph.D	6	2.83	1.169	7	2.43	1.134
	OTHERS	70	2.77	1.206	52	2.73	1.206
	TOTAL	489	3.07	1.255	527	2.88	1.255
TOTAL	UNDERGRADUATE STUDENT	311	3.21	1.278	332	2.86	1.274
	STUDENT IN MA	224	2.96	1.227	188	2.64	1.240
	WORKING WITH MA	109	2.97	1.182	113	2.78	1.092
	STUDENT IN DOCTORAL DEGREE	53	3.36	1.226	73	3.33	1.131
	WORKING WITH Ph.D	10	2.60	1.075	14	2.43	1.222
	OTHERS	101	2.84	1.247	67	2.58	1.183
	TOTAL	808	3.07	1.249	787	2.81	1.233

<Table A3-32 Analyses of Variables for question 5-1 (APNN)>

5-1	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	414.14	0.000	0.862	12	353.94	0.000	0.846
MAJORFIELD	1	0.02	0.900	0.000	1	1.80	0.181	0.002
CURRENTSTATUS	5	2.15	0.058	0.013	5	3.95	0.002	0.025
MAJORFIELD * CURRENTSTATUS	5	1.78	0.114	0.011	5	1.62	0.151	0.010
error	796				775			



<Figure A3-16 Comparative values for question 5-1 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

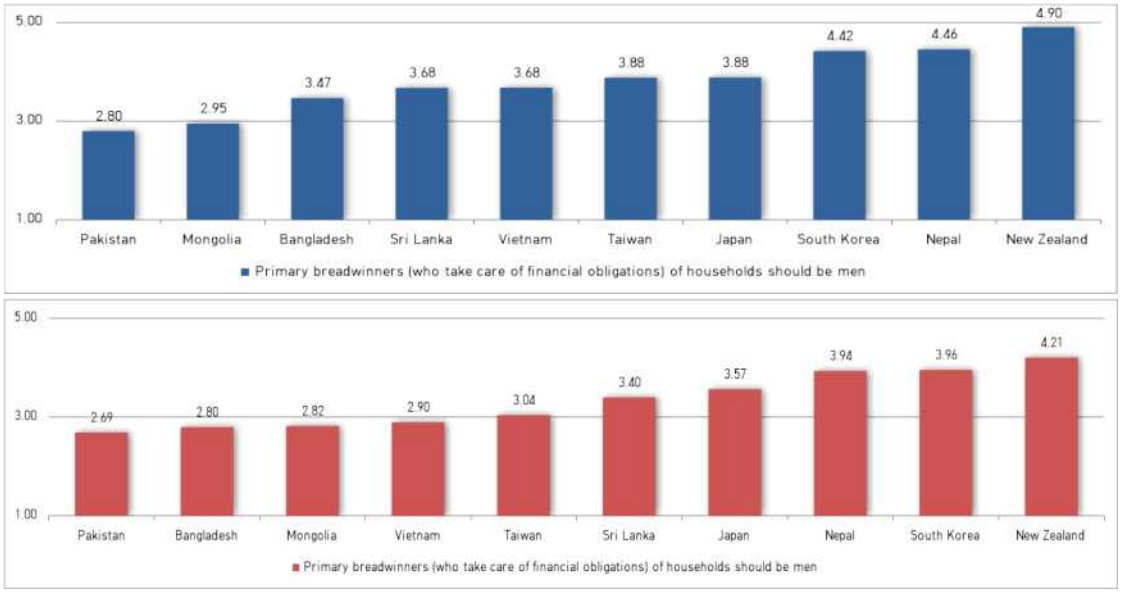
5-2) Primary breadwinners (who take care of financial obligations) of households should be men

<Table A3-33 Comparison of scores from question 5-2 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	131	3.41	1.122	102	2.98	1.243
	STUDENT IN MA	85	3.80	1.361	56	3.05	1.407
	WORKING WITH MA	48	3.75	1.176	56	2.79	0.889
	STUDENT IN DOCTORAL DEGREE	21	4.33	0.913	24	3.08	0.974
	WORKING WITH Ph.D	4	3.25	0.957	7	3.43	1.813
	OTHERS	31	3.26	1.390	15	3.07	1.163
	TOTAL	320	3.61	1.235	260	2.98	1.200
ENGINEERING	UNDERGRADUATE STUDENT	179	3.90	1.259	230	3.43	1.272
	STUDENT IN MA	140	3.69	1.252	132	3.35	1.325
	WORKING WITH MA	61	3.70	1.295	57	3.30	1.149
	STUDENT IN DOCTORAL DEGREE	32	4.31	0.931	49	3.53	1.226
	WORKING WITH Ph.D	6	4.33	0.516	7	3.86	0.900
	OTHERS	69	3.39	1.416	52	3.15	1.319
	TOTAL	487	3.78	1.275	527	3.39	1.269
TOTAL	UNDERGRADUATE STUDENT	310	3.69	1.225	332	3.30	1.279
	STUDENT IN MA	225	3.73	1.292	188	3.26	1.353
	WORKING WITH MA	109	3.72	1.239	113	3.04	1.056
	STUDENT IN DOCTORAL DEGREE	53	4.32	0.915	73	3.38	1.162
	WORKING WITH Ph.D	10	3.90	0.876	14	3.64	1.393
	OTHERS	100	3.35	1.403	67	3.13	1.278
	TOTAL	807	3.71	1.261	787	3.25	1.260

<Table A3-34 Analyses of Variables for question 5-2 (APNN)>

5-2	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	602.73	0.000	0.901	12	446.60	0.000	0.874
MAJORFIELD	1	2.48	0.116	0.003	1	6.24	0.013	0.008
CURRENTSTATUS	5	4.27	0.001	0.026	5	0.85	0.514	0.005
MAJORFIELD * CURRENTSTATUS	5	1.99	0.078	0.012	5	0.28	0.925	0.002
error	795				775			



<Figure A3-17 Comparative values for question 5-2 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

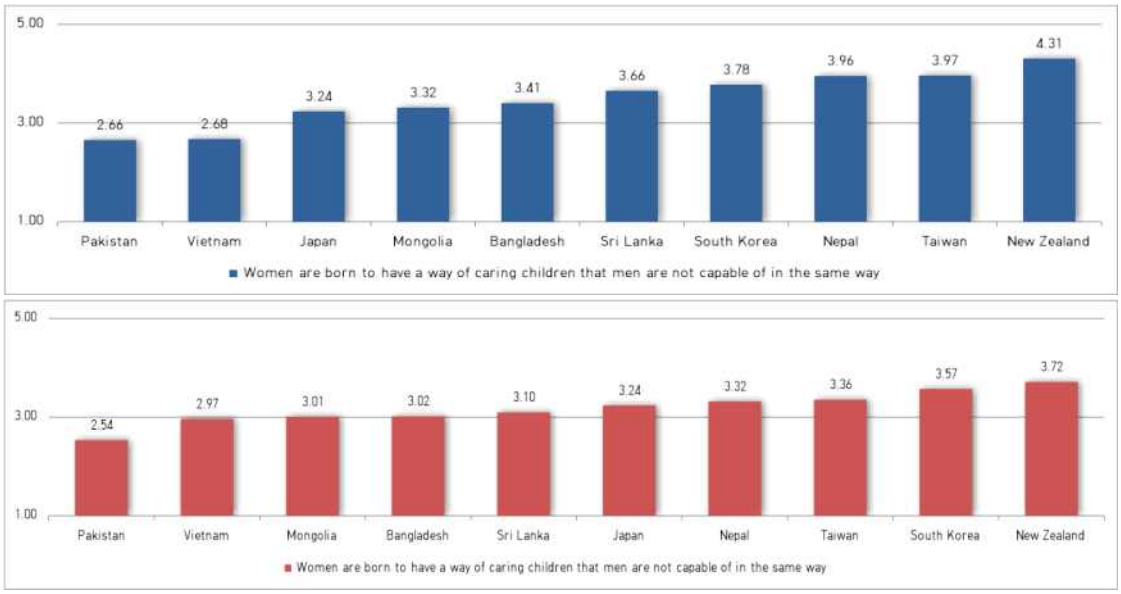
5-3) Women are born to have a way of caring children that men are not capable of in the same way

<Table A3-35 Comparison of scores from question 5-3 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	3.17	1.309	103	3.13	1.370
	STUDENT IN MA	85	3.52	1.368	56	2.96	1.190
	WORKING WITH MA	48	3.44	1.236	56	3.11	0.985
	STUDENT IN DOCTORAL DEGREE	21	3.76	1.300	24	2.92	1.213
	WORKING WITH Ph.D	4	2.75	1.708	6	3.50	1.517
	OTHERS	31	3.32	1.326	15	2.73	1.335
	TOTAL	321	3.35	1.324	260	3.05	1.238
ENGINEERING	UNDERGRADUATE STUDENT	179	3.56	1.382	230	3.17	1.310
	STUDENT IN MA	141	3.30	1.304	131	3.24	1.341
	WORKING WITH MA	61	3.13	1.297	57	2.95	1.141
	STUDENT IN DOCTORAL DEGREE	32	3.41	0.946	49	3.49	1.309
	WORKING WITH Ph.D	6	3.33	0.816	7	3.43	0.787
	OTHERS	70	3.49	1.380	52	3.19	1.269
	TOTAL	489	3.41	1.321	526	3.20	1.292
TOTAL	UNDERGRADUATE STUDENT	311	3.39	1.363	333	3.16	1.327
	STUDENT IN MA	226	3.38	1.329	187	3.16	1.300
	WORKING WITH MA	109	3.27	1.274	113	3.03	1.065
	STUDENT IN DOCTORAL DEGREE	53	3.55	1.102	73	3.30	1.298
	WORKING WITH Ph.D	10	3.10	1.197	13	3.46	1.127
	OTHERS	101	3.44	1.360	67	3.09	1.288
	TOTAL	810	3.39	1.322	786	3.15	1.275

<Table A3-36 Analyses of Variables for question 5-3 (APNN)>

5-3	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	445.14	0.000	0.870	12	400.28	0.000	0.861
MAJORFIELD	1	0.07	0.798	0.000	1	1.45	0.229	0.002
CURRENTSTATUS	5	0.52	0.760	0.003	5	0.54	0.745	0.003
MAJORFIELD * CURRENTSTATUS	5	2.18	0.054	0.013	5	1.00	0.414	0.006
error	798				774			



<Figure A3-18 Comparative values for question 5-3 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

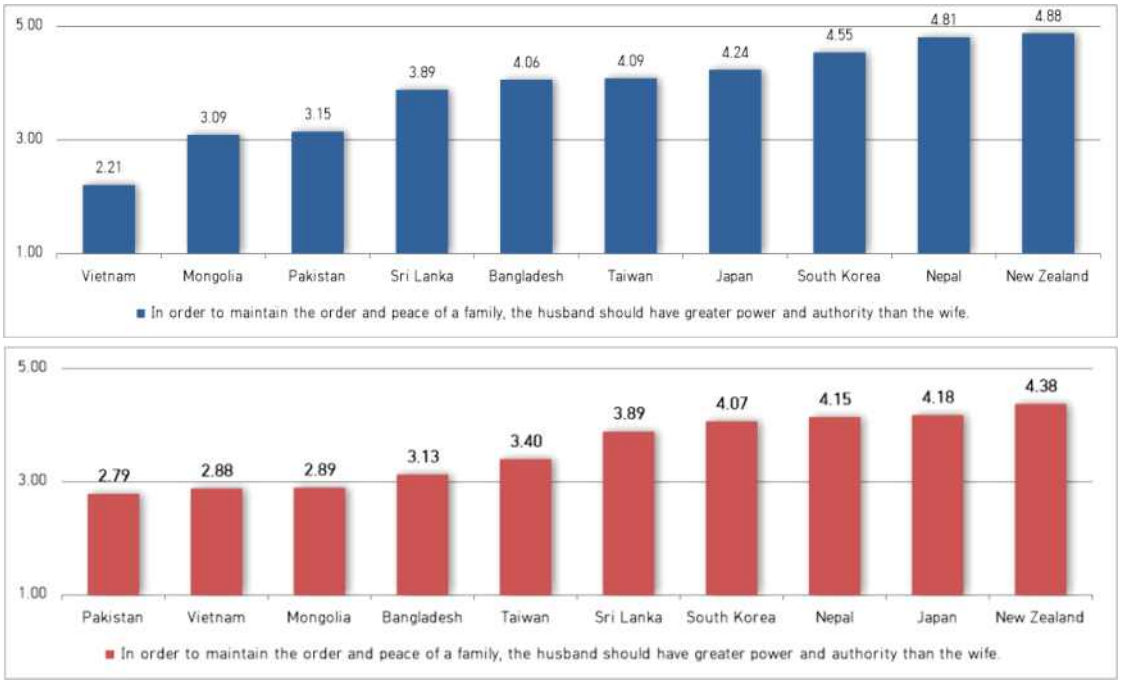
5-4) In order to maintain the order and peace of a family, the husband should have a greater power and authority than the wife.

<Table A3-37 Comparison of scores from question 5-4 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	3.25	1.641	103	3.28	1.458
	STUDENT IN MA	85	3.99	1.277	56	3.39	1.371
	WORKING WITH MA	48	3.60	1.469	55	3.05	1.193
	STUDENT IN DOCTORAL DEGREE	21	4.48	1.030	24	3.13	1.262
	WORKING WITH Ph.D	4	3.50	1.732	6	3.67	1.751
	OTHERS	31	3.55	1.362	15	3.47	1.457
	TOTAL	321	3.61	1.502	259	3.26	1.370
ENGINEERING	UNDERGRADUATE STUDENT	179	4.04	1.206	229	3.55	1.339
	STUDENT IN MA	140	3.68	1.410	131	3.55	1.266
	WORKING WITH MA	61	3.61	1.333	57	3.53	1.197
	STUDENT IN DOCTORAL DEGREE	32	3.31	1.447	49	3.71	1.307
	WORKING WITH Ph.D	6	3.83	0.408	7	4.43	0.976
	OTHERS	70	3.87	1.284	52	3.19	1.387
	TOTAL	488	3.81	1.316	525	3.54	1.308
TOTAL	UNDERGRADUATE STUDENT	311	3.70	1.458	332	3.46	1.380
	STUDENT IN MA	225	3.80	1.367	187	3.50	1.297
	WORKING WITH MA	109	3.61	1.388	112	3.29	1.213
	STUDENT IN DOCTORAL DEGREE	53	3.77	1.409	73	3.52	1.313
	WORKING WITH Ph.D	10	3.70	1.059	13	4.08	1.382
	OTHERS	101	3.77	1.311	67	3.25	1.396
	TOTAL	809	3.73	1.396	784	3.45	1.334

<Table A3-38 Analyses of Variables for question 5-4 (APNN)>

5-4	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	502.01	0.000	0.883	12	441.39	0.000	0.873
MAJORFIELD	1	0.00	0.981	0.000	1	4.13	0.043	0.005
CURRENTSTATUS	5	0.79	0.557	0.005	5	0.88	0.495	0.006
MAJORFIELD * CURRENTSTATUS	5	6.92	0.000	0.042	5	0.85	0.513	0.005
error	797				772			



<Figure A3-19 Comparative values for question 5-4 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

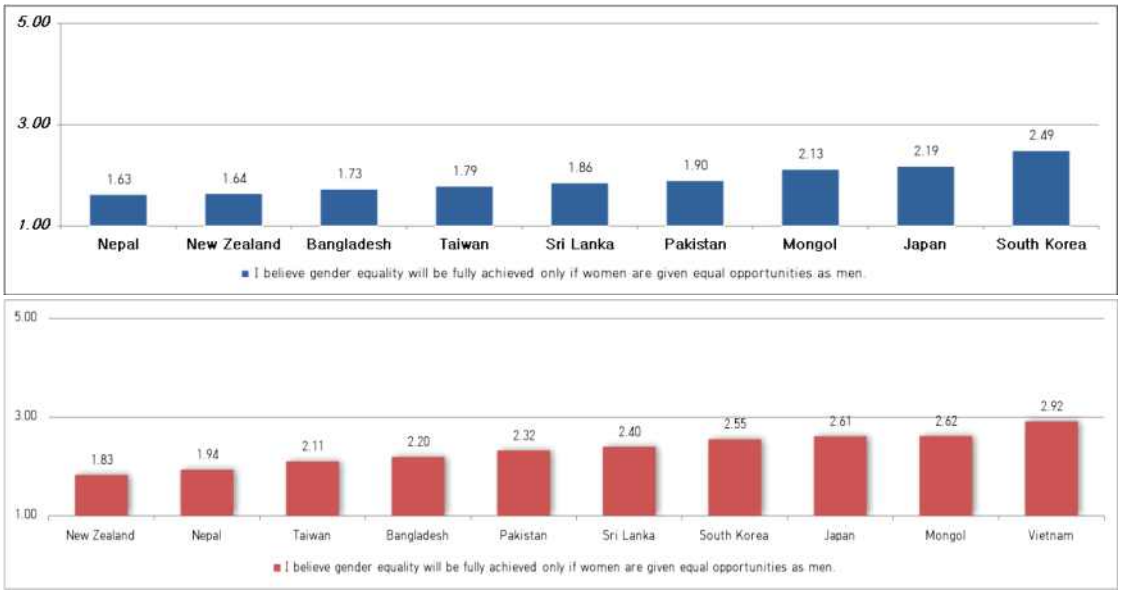
6) Perception of Gender Role Stereotype : I believe gender equality will be fully achieved only if women are given equal opportunities as men.

<Table A3-39 Comparison of scores from question 6 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.41	1.272	103	2.36	1.228
	STUDENT IN MA	85	2.16	1.143	56	2.68	1.428
	WORKING WITH MA	48	2.40	1.180	56	2.41	1.172
	STUDENT IN DOCTORAL DEGREE	21	1.71	0.956	24	2.08	1.060
	WORKING WITH Ph.D	4	2.00	0.816	6	2.67	1.366
	OTHERS	30	1.97	1.066	15	2.53	1.407
	TOTAL	320	2.25	1.193	260	2.43	1.261
ENGINEERING	UNDERGRADUATE STUDENT	179	2.11	1.234	229	2.33	1.215
	STUDENT IN MA	141	2.33	1.285	132	2.23	1.241
	WORKING WITH MA	61	2.15	1.030	57	2.84	1.099
	STUDENT IN DOCTORAL DEGREE	32	3.00	1.270	49	2.57	1.242
	WORKING WITH Ph.D	6	3.17	0.408	7	2.57	1.397
	OTHERS	70	1.96	1.148	52	2.35	1.186
	TOTAL	489	2.23	1.233	526	2.39	1.220
TOTAL	UNDERGRADUATE STUDENT	311	2.23	1.257	332	2.34	1.217
	STUDENT IN MA	226	2.27	1.234	188	2.37	1.312
	WORKING WITH MA	109	2.26	1.101	113	2.63	1.151
	STUDENT IN DOCTORAL DEGREE	53	2.49	1.310	73	2.41	1.200
	WORKING WITH Ph.D	10	2.70	0.823	13	2.62	1.325
	OTHERS	100	1.96	1.118	67	2.39	1.230
	TOTAL	809	2.24	1.217	786	2.40	1.233

<Table A3-40 Analyses of Variables for question 6 (APNN)>

6	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	236.79	0.000	0.781	12	251.92	0.000	0.796
MAJORFIELD	1	4.81	0.029	0.006	1	0.03	0.857	0.000
CURRENTSTATUS	5	1.18	0.315	0.007	5	1.03	0.401	0.007
MAJORFIELD * CURRENTSTATUS	5	4.77	0.000	0.029	5	2.30	0.044	0.015
error	797				774			



<Figure A3-20 Comparative values for question 6 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

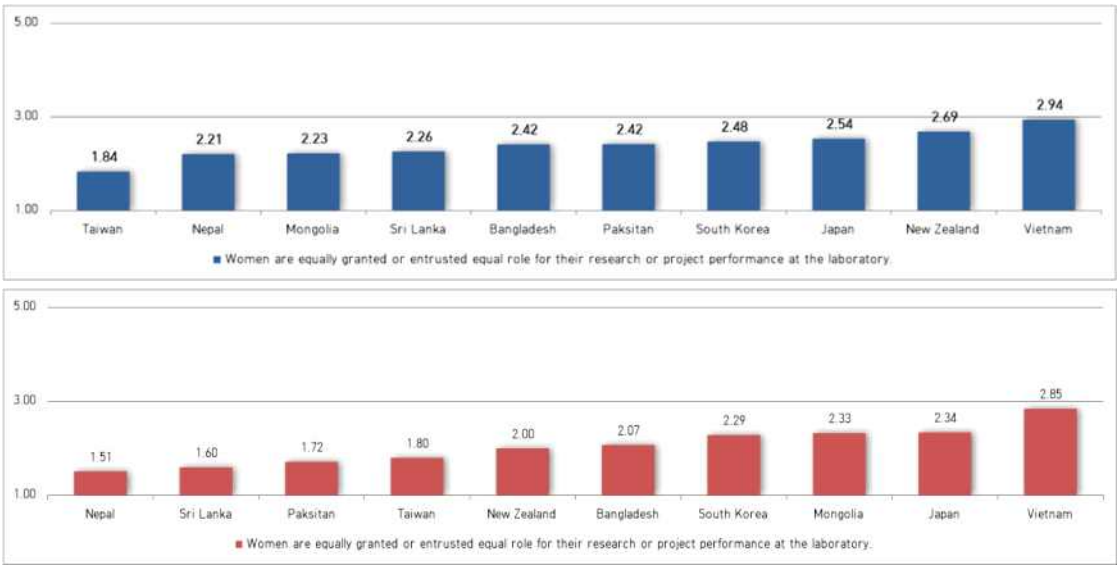
7-1) Women are equally granted or entrusted equal role for their research or project at the laboratory.

<Table A3-41 Comparison of scores from question 7-1 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.40	0.948	103	1.92	0.987
	STUDENT IN MA	85	2.26	1.014	56	2.86	1.368
	WORKING WITH MA	46	2.52	1.005	56	2.52	1.160
	STUDENT IN DOCTORAL DEGREE	21	2.10	0.889	24	2.00	0.780
	WORKING WITH Ph.D	4	2.50	1.291	6	2.67	1.633
	OTHERS	28	2.04	0.999	14	1.86	0.864
	TOTAL	316	2.33	0.982	259	2.27	1.171
ENGINEERING	UNDERGRADUATE STUDENT	166	2.48	1.105	213	2.11	1.011
	STUDENT IN MA	137	2.45	1.064	129	1.76	0.891
	WORKING WITH MA	61	2.54	1.089	55	2.27	1.027
	STUDENT IN DOCTORAL DEGREE	32	2.69	0.896	49	2.24	0.990
	WORKING WITH Ph.D	6	3.17	1.169	7	2.86	0.900
	OTHERS	60	2.37	1.207	43	2.09	0.811
	TOTAL	462	2.49	1.092	496	2.06	0.980
TOTAL	UNDERGRADUATE STUDENT	298	2.45	1.037	316	2.05	1.005
	STUDENT IN MA	222	2.37	1.046	185	2.09	1.169
	WORKING WITH MA	107	2.53	1.049	111	2.40	1.098
	STUDENT IN DOCTORAL DEGREE	53	2.45	0.932	73	2.16	0.928
	WORKING WITH Ph.D	10	2.90	1.197	13	2.77	1.235
	OTHERS	88	2.26	1.150	57	2.04	0.823
	TOTAL	778	2.42	1.051	755	2.13	1.053

<Table A3-42 Analyses of Variables for question 7-1 (APNN)>

7-1	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	347.76	0.000	0.845	12	282.43	0.000	0.820
MAJORFIELD	1	5.18	0.023	0.007	1	0.42	0.517	0.001
CURRENTSTATUS	5	1.38	0.228	0.009	5	4.17	0.001	0.027
MAJORFIELD * CURRENTSTATUS	5	0.83	0.530	0.005	5	9.18	0.000	0.058
error	766				743			



<Figure A3-21 Comparative values for question 7-1 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

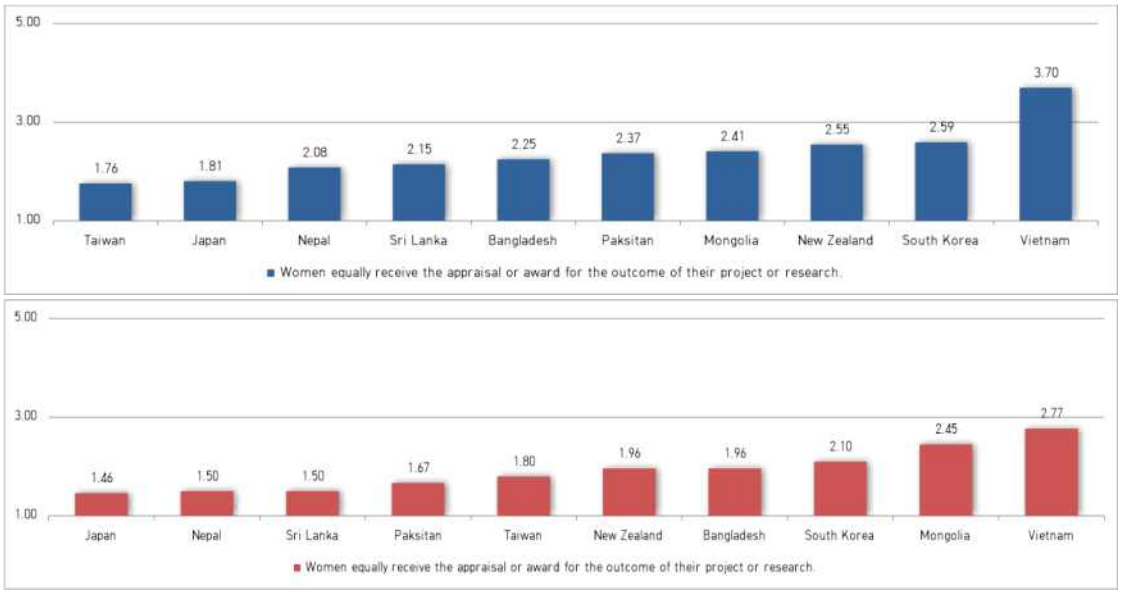
7-2) Women equally receive the appraisal or award for the outcome of their project or research.

<Table A3-43 Comparison of scores from question 7-2 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.39	1.222	103	1.89	0.949
	STUDENT IN MA	85	2.00	0.951	56	2.27	1.120
	WORKING WITH MA	46	2.28	1.129	56	2.54	1.044
	STUDENT IN DOCTORAL DEGREE	21	1.86	0.964	24	2.00	0.780
	WORKING WITH Ph.D	4	2.75	1.708	6	2.17	1.602
	OTHERS	28	1.89	0.737	14	2.00	0.679
	TOTAL	316	2.20	1.107	259	2.14	1.024
ENGINEERING	UNDERGRADUATE STUDENT	165	2.42	1.031	213	2.01	0.986
	STUDENT IN MA	137	2.50	1.099	129	1.70	0.835
	WORKING WITH MA	61	2.82	1.298	55	1.93	1.034
	STUDENT IN DOCTORAL DEGREE	32	3.13	1.212	49	2.12	0.832
	WORKING WITH Ph.D	6	3.67	1.751	7	2.57	1.134
	OTHERS	60	2.30	1.154	44	2.05	0.963
	TOTAL	461	2.55	1.150	497	1.94	0.950
TOTAL	UNDERGRADUATE STUDENT	297	2.41	1.118	316	1.97	0.974
	STUDENT IN MA	222	2.31	1.071	185	1.87	0.964
	WORKING WITH MA	107	2.59	1.251	111	2.23	1.078
	STUDENT IN DOCTORAL DEGREE	53	2.62	1.274	73	2.08	0.812
	WORKING WITH Ph.D	10	3.30	1.703	13	2.38	1.325
	OTHERS	88	2.17	1.053	58	2.03	0.898
	TOTAL	777	2.41	1.145	756	2.01	0.979

<Table A3-44 Analyses of Variables for question 7-2 (APNN)>

7-2	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	306.26	0.000	0.828	12	278.24	0.000	0.818
MAJORFIELD	1	17.46	0.000	0.022	1	0.48	0.489	0.001
CURRENTSTATUS	5	3.23	0.007	0.021	5	1.76	0.119	0.012
MAJORFIELD * CURRENTSTATUS	5	3.40	0.005	0.022	5	4.37	0.001	0.029
error	765				744			



<Figure A3-22 Comparative values for question 7-2 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

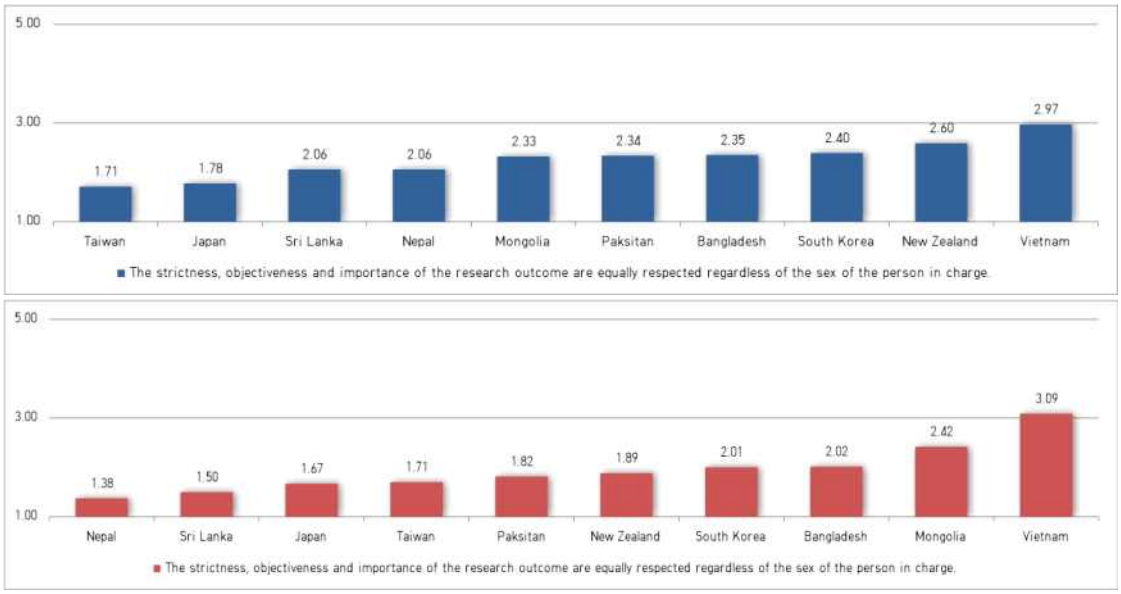
7-3) The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge.

<Table A3-45 Comparison of scores from question 7-3 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.22	0.952	103	1.82	0.937
	STUDENT IN MA	85	1.89	0.887	56	2.41	1.345
	WORKING WITH MA	44	2.27	1.042	56	2.77	1.362
	STUDENT IN DOCTORAL DEGREE	21	1.81	0.981	24	2.29	1.083
	WORKING WITH Ph.D	4	2.00	1.155	6	2.17	1.602
	OTHERS	28	2.07	1.052	14	2.00	0.679
	TOTAL	314	2.10	0.968	259	2.21	1.203
ENGINEERING	UNDERGRADUATE STUDENT	166	2.45	1.036	213	1.95	0.963
	STUDENT IN MA	137	2.31	1.054	129	1.82	1.034
	WORKING WITH MA	61	2.31	1.104	55	2.02	0.991
	STUDENT IN DOCTORAL DEGREE	32	2.47	0.915	49	2.33	0.851
	WORKING WITH Ph.D	6	3.00	1.265	7	2.86	1.215
	OTHERS	60	2.25	1.083	44	1.98	0.902
	TOTAL	462	2.37	1.052	497	1.98	0.983
TOTAL	UNDERGRADUATE STUDENT	298	2.35	1.004	316	1.91	0.955
	STUDENT IN MA	222	2.15	1.011	185	2.00	1.166
	WORKING WITH MA	105	2.30	1.073	111	2.40	1.245
	STUDENT IN DOCTORAL DEGREE	53	2.21	0.988	73	2.32	0.926
	WORKING WITH Ph.D	10	2.60	1.265	13	2.54	1.391
	OTHERS	88	2.19	1.071	58	1.98	0.848
	TOTAL	776	2.26	1.027	756	2.06	1.069

<Table A3-46 Analyses of Variables for question 7-3 (APNN)>

7-3	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	321.83	0.000	0.835	12	252.04	0.000	0.803
MAJORFIELD	1	9.88	0.002	0.013	1	0.43	0.510	0.001
CURRENTSTATUS	5	1.65	0.145	0.011	5	5.22	0.000	0.034
MAJORFIELD * CURRENTSTATUS	5	1.14	0.339	0.007	5	4.78	0.000	0.031
error	764				744			



<Figure A3-23 Comparative values for question 7-3 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

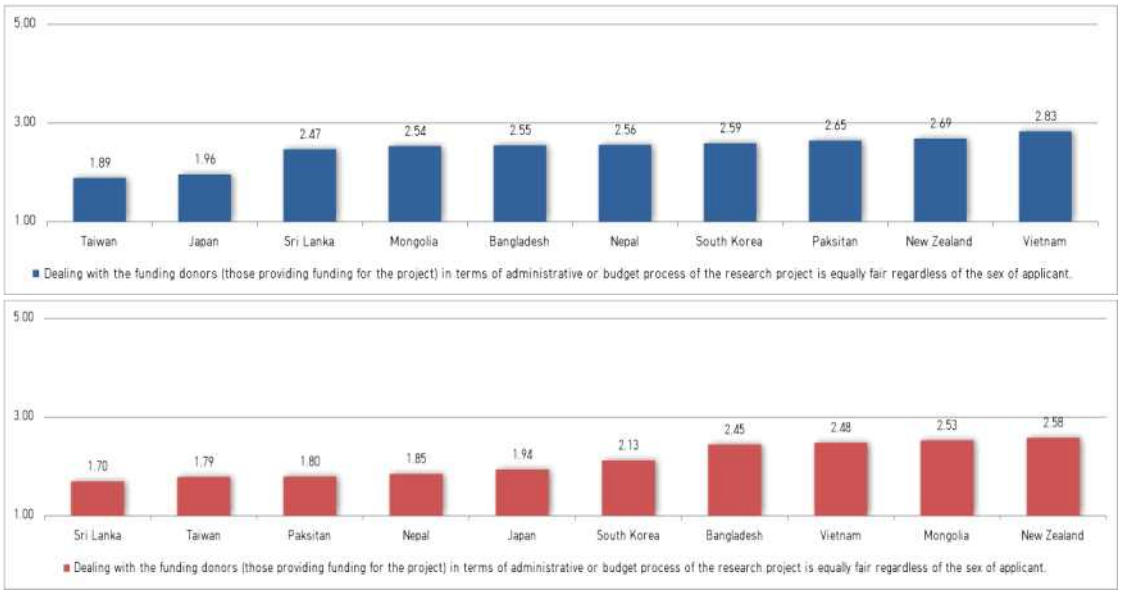
7-4) Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant.

<Table A3-47 Comparison of scores from question 7-4 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.48	1.214	103	2.05	1.070
	STUDENT IN MA	85	2.18	0.953	56	2.43	1.126
	WORKING WITH MA	47	2.62	1.171	56	2.18	0.936
	STUDENT IN DOCTORAL DEGREE	21	2.14	1.195	24	1.88	0.612
	WORKING WITH Ph.D	4	3.00	1.414	6	2.50	1.378
	OTHERS	28	2.25	0.967	14	1.93	0.829
	TOTAL	317	2.38	1.129	259	2.15	1.024
ENGINEERING	UNDERGRADUATE STUDENT	166	2.65	0.978	213	2.17	1.025
	STUDENT IN MA	137	2.50	1.030	128	1.86	0.954
	WORKING WITH MA	61	2.34	0.981	55	2.29	1.133
	STUDENT IN DOCTORAL DEGREE	32	2.16	0.767	49	2.20	0.889
	WORKING WITH Ph.D	6	2.50	0.837	7	3.14	0.900
	OTHERS	60	2.35	0.880	44	2.34	1.055
	TOTAL	462	2.49	0.974	496	2.14	1.024
TOTAL	UNDERGRADUATE STUDENT	298	2.57	1.090	316	2.13	1.040
	STUDENT IN MA	222	2.38	1.012	184	2.03	1.040
	WORKING WITH MA	108	2.46	1.072	111	2.23	1.035
	STUDENT IN DOCTORAL DEGREE	53	2.15	0.949	73	2.10	0.819
	WORKING WITH Ph.D	10	2.70	1.059	13	2.85	1.144
	OTHERS	88	2.32	0.904	58	2.24	1.014
	TOTAL	779	2.45	1.041	755	2.14	1.023

<Table A3-48 Analyses of Variables for question 7-4 (APNN)>

7-4	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	365.61	0.000	0.851	12	284.24	0.000	0.821
MAJORFIELD	1	0.04	0.845	0.000	1	2.00	0.158	0.003
CURRENTSTATUS	5	2.52	0.028	0.016	5	1.53	0.177	0.010
MAJORFIELD * CURRENTSTATUS	5	1.43	0.212	0.009	5	3.70	0.003	0.024
error	767				743			



<Figure A3-24 Comparative values for question 7-4 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

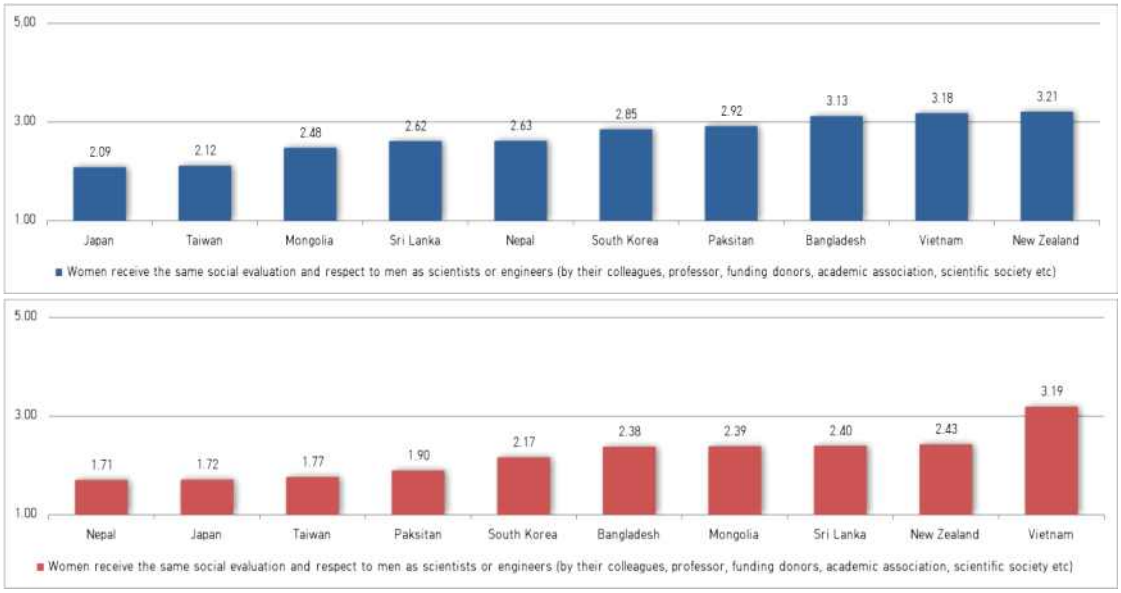
7-5) Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc).

<Table A3-49 Comparison of scores from question 7-5 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	131	2.42	1.074	102	2.01	1.029
	STUDENT IN MA	85	2.31	1.102	56	2.48	1.175
	WORKING WITH MA	47	2.51	1.040	56	2.68	1.081
	STUDENT IN DOCTORAL DEGREE	21	2.52	1.327	24	2.46	1.141
	WORKING WITH Ph.D	4	3.25	1.258	6	2.17	1.602
	OTHERS	27	2.44	1.086	14	2.14	0.864
	TOTAL	315	2.42	1.096	258	2.31	1.114
ENGINEERING	UNDERGRADUATE STUDENT	166	2.99	1.160	213	2.25	1.033
	STUDENT IN MA	137	2.79	1.147	129	1.93	1.126
	WORKING WITH MA	61	2.74	1.303	55	2.11	1.133
	STUDENT IN DOCTORAL DEGREE	32	3.16	1.051	49	2.39	1.133
	WORKING WITH Ph.D	6	2.50	0.837	7	2.57	1.134
	OTHERS	60	2.65	1.191	44	2.20	1.002
	TOTAL	462	2.86	1.173	497	2.17	1.084
TOTAL	UNDERGRADUATE STUDENT	297	2.74	1.156	315	2.17	1.037
	STUDENT IN MA	222	2.60	1.152	185	2.10	1.166
	WORKING WITH MA	108	2.64	1.195	111	2.40	1.138
	STUDENT IN DOCTORAL DEGREE	53	2.91	1.197	73	2.41	1.128
	WORKING WITH Ph.D	10	2.80	1.033	13	2.38	1.325
	OTHERS	87	2.59	1.157	58	2.19	0.963
	TOTAL	777	2.68	1.161	755	2.22	1.096

<Table A3-50 Analyses of Variables for question 7-5 (APNN)>

7-5	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	360.52	0.000	0.850	12	266.30	0.000	0.811
MAJORFIELD	1	2.31	0.129	0.003	1	0.37	0.546	0.000
CURRENTSTATUS	5	0.96	0.444	0.006	5	1.45	0.202	0.010
MAJORFIELD * CURRENTSTATUS	5	1.13	0.341	0.007	5	3.98	0.001	0.026
error	765				743			



<Figure A3-25 Comparative values for question 7-5 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

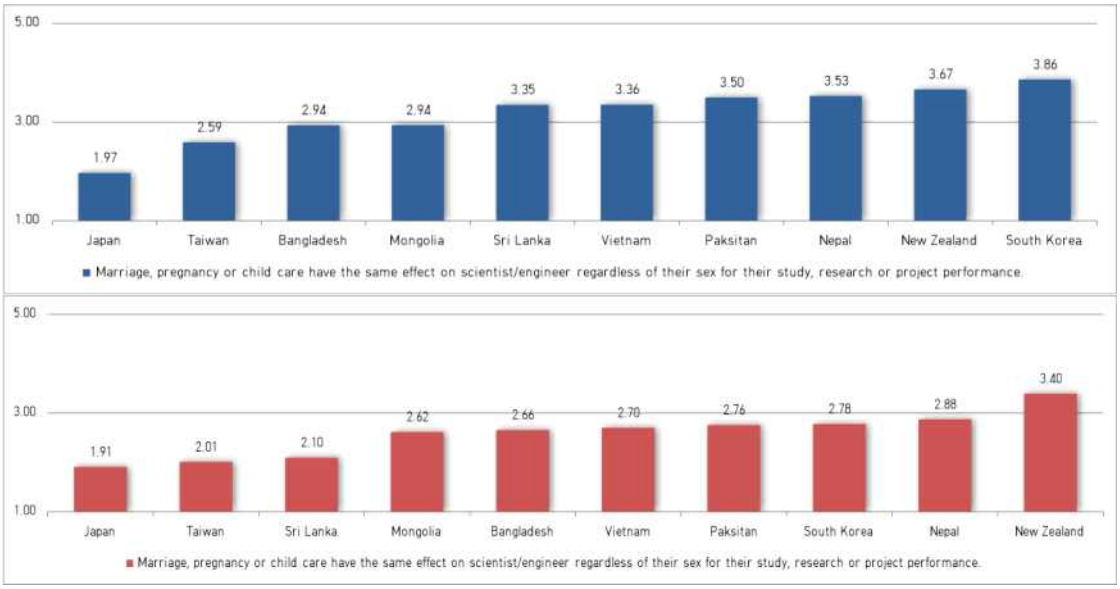
7-6) Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.

<Table A3-51 Comparison of scores from question 7-6 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.78	1.274	103	2.26	1.220
	STUDENT IN MA	85	2.68	1.391	56	2.30	1.043
	WORKING WITH MA	47	2.96	1.334	56	2.11	0.755
	STUDENT IN DOCTORAL DEGREE	21	2.90	1.700	24	2.29	0.955
	WORKING WITH Ph.D	4	2.75	1.258	6	2.50	1.517
	OTHERS	28	2.89	1.227	14	2.14	1.099
	TOTAL	317	2.80	1.335	259	2.24	1.066
ENGINEERING	UNDERGRADUATE STUDENT	165	3.32	1.384	212	2.84	1.267
	STUDENT IN MA	136	3.21	1.461	129	2.62	1.288
	WORKING WITH MA	61	3.66	1.237	55	2.85	1.129
	STUDENT IN DOCTORAL DEGREE	32	3.06	1.435	49	2.73	1.151
	WORKING WITH Ph.D	6	3.50	0.837	7	2.86	1.215
	OTHERS	60	3.30	1.344	44	2.91	1.326
	TOTAL	460	3.31	1.384	496	2.78	1.250
TOTAL	UNDERGRADUATE STUDENT	297	3.08	1.361	315	2.65	1.279
	STUDENT IN MA	221	3.00	1.454	185	2.52	1.225
	WORKING WITH MA	108	3.35	1.321	111	2.48	1.026
	STUDENT IN DOCTORAL DEGREE	53	3.00	1.532	73	2.59	1.103
	WORKING WITH Ph.D	10	3.20	1.033	13	2.69	1.316
	OTHERS	88	3.17	1.315	58	2.72	1.308
	TOTAL	777	3.10	1.386	755	2.59	1.217

<Table A3-52 Analyses of Variables for question 7-6 (APNN)>

7-6	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	12	336.78	0.000	0.841	12	300.48	0.000	0.829
MAJORFIELD	1	8.21	0.004	0.011	1	13.32	0.000	0.018
CURRENTSTATUS	5	1.04	0.392	0.007	5	0.18	0.970	0.001
MAJORFIELD * CURRENTSTATUS	5	0.31	0.906	0.002	5	0.57	0.725	0.004
error	765				743			



<Figure A3-26 Comparative values for question 7-6 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

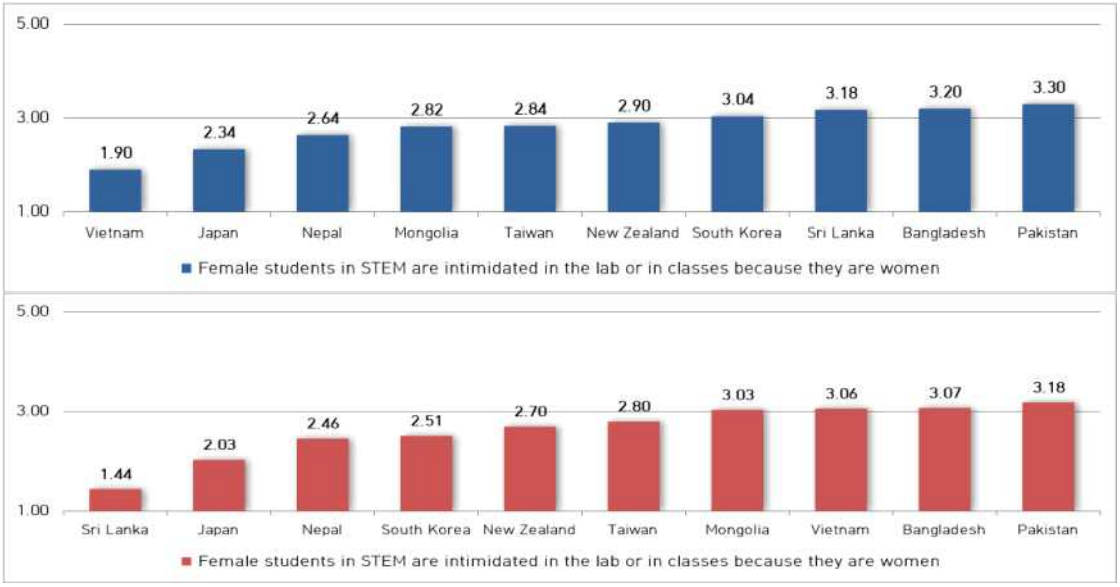
7-7) Female students in STEM are intimidated in the laboratory or in classes because they are female.

<Table A3-53 Comparison of scores from question 7-7 by Personal Variable from APNN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	132	2.62	1.149	103	2.71	1.296
	STUDENT IN MA	85	2.81	1.268	56	2.86	1.445
	WORKING WITH MA	47	2.62	0.990	56	3.14	1.135
	STUDENT IN DOCTORAL DEGREE	21	2.95	1.465	24	2.58	1.139
	WORKING WITH Ph.D	4	2.00	1.155	6	2.50	1.975
	OTHERS	28	2.71	0.937	14	2.86	1.231
	TOTAL	317	2.69	1.166	259	2.83	1.299
ENGINEERING	UNDERGRADUATE STUDENT	166	2.92	1.252	212	2.91	1.208
	STUDENT IN MA	136	2.84	1.169	129	2.73	1.261
	WORKING WITH MA	61	2.34	1.250	55	2.67	1.055
	STUDENT IN DOCTORAL DEGREE	32	2.28	1.054	49	2.59	1.117
	WORKING WITH Ph.D	6	1.17	0.408	7	2.43	0.976
	OTHERS	60	3.17	1.196	44	2.59	0.996
	TOTAL	461	2.78	1.237	496	2.77	1.179
TOTAL	UNDERGRADUATE STUDENT	298	2.79	1.215	315	2.84	1.239
	STUDENT IN MA	221	2.83	1.205	185	2.77	1.317
	WORKING WITH MA	108	2.46	1.147	111	2.91	1.116
	STUDENT IN DOCTORAL DEGREE	53	2.55	1.264	73	2.59	1.116
	WORKING WITH Ph.D	10	1.50	0.850	13	2.46	1.450
	OTHERS	88	3.02	1.134	58	2.66	1.052
	TOTAL	778	2.75	1.209	755	2.79	1.221

<Table A3-54 Analyses of Variables for question 7-7 (APNN)>

7-7	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	3.521	0.000	0.048	11	1.109	0.351	0.016
MAJORFIELD	1	1.156	0.283	0.002	1	0.662	0.416	0.001
CURRENTSTATUS	5	3.624	0.003	0.023	5	0.781	0.563	0.005
MAJORFIELD * CURRENTSTATUS	5	2.642	0.022	0.017	5	1.332	0.249	0.009
error	766				743			



<Figure A3-27 Comparative values for question 7-7 by APNN Countries (Female and Male)>
Blue bars (above) represent data for female, red bars (below) represent data for male.

Appendix 4. Analyses of Variables by individual questions (ARN)

Similar to 4.3.2, the 2 way ANOVA results for individual questions are summarized in table format. A significant effect of either major field or current status or both on the individual questions are shown as *p* values in the tables of "Analyses of Variables for Question x-y (where x indicates the sub-area and y the question number under the sub-area)." A *p* value less than 0.05 is considered statistically significant. For example, if *p* value is less than 0.05 for major field, this means that the major field has a significant effect on the scores for the individual question for the particular sex (female or male). Similar interpretation can be made for current status. For major field * current status, a *p* value of less than 0.05 would mean a significant interaction effect. The cells that are highlighted are those which show *p* value less than 0.05.

For each question, figures showing comparative scores for the participating countries are presented. The blue bars represent results from female respondents while the red bars from male.

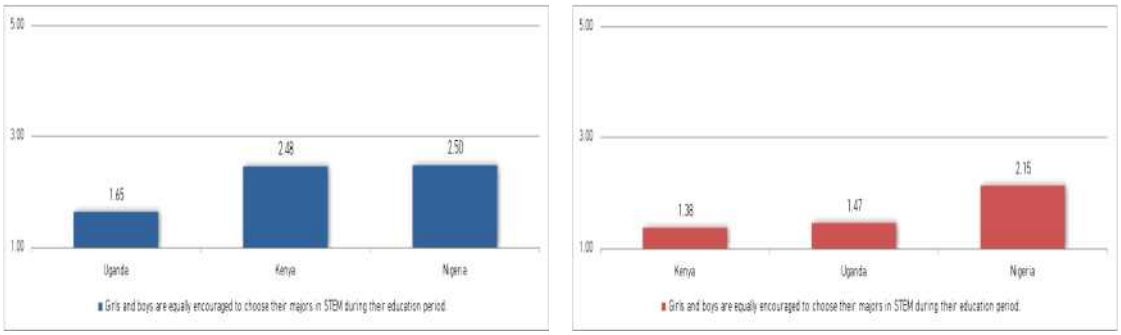
1-1) Girls and boys are equally encouraged to choose their majors in STEM during their education period.

<Table A4-1 Comparison of scores from question 1-1 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.44	1.304	49	1.88	0.992
	STUDENT IN MA	15	2.47	1.457	30	2.10	1.242
	WORKING WITH MA	3	2.33	0.577	11	1.91	0.944
	STUDENT IN DOCTORAL DEGREE	2	3.00	2.828	13	1.92	1.038
	WORKING WITH Ph.D	6	1.50	0.548	10	2.30	0.949
	OTHERS	5	2.40	1.517	7	1.57	1.134
	TOTAL	112	2.40	1.311	120	1.96	1.056
ENGINEERING	UNDERGRADUATE STUDENT	75	2.29	1.363	91	1.95	1.015
	STUDENT IN MA	4	2.50	1.291	25	2.04	1.060
	WORKING WITH MA	2	4.50	0.707	10	2.20	0.422
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	1.65	0.702
	WORKING WITH Ph.D	2	2.00	0.000	27	2.07	0.874
	OTHERS	4	2.50	1.732	1	1.00	-
	TOTAL	87	2.36	1.372	171	1.96	0.948
TOTAL	UNDERGRADUATE STUDENT	156	2.37	1.331	140	1.92	1.004
	STUDENT IN MA	19	2.47	1.389	55	2.07	1.152
	WORKING WITH MA	5	3.20	1.304	21	2.05	0.740
	STUDENT IN DOCTORAL DEGREE	2	3.00	2.828	30	1.77	0.858
	WORKING WITH Ph.D	8	1.63	0.518	37	2.14	0.887
	OTHERS	9	2.44	1.509	8	1.50	1.069
	TOTAL	199	2.38	1.335	291	1.96	0.992

<Table A4-2 Analyses of Variables for question 1-1 (ARN)>

1-1	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	58.04	0.000	0.773	12	93.74	0.000	0.801
MAJORFIELD	1	1.71	0.193	0.009	1	0.35	0.554	0.001
CURRENTSTATUS	5	1.03	0.401	0.027	5	1.03	0.400	0.018
MAJORFIELD * CURRENTSTATUS	4	0.95	0.436	0.020	5	0.37	0.871	0.007
error	188				279			



<Figure A4-1 Comparative values for question 1-1 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

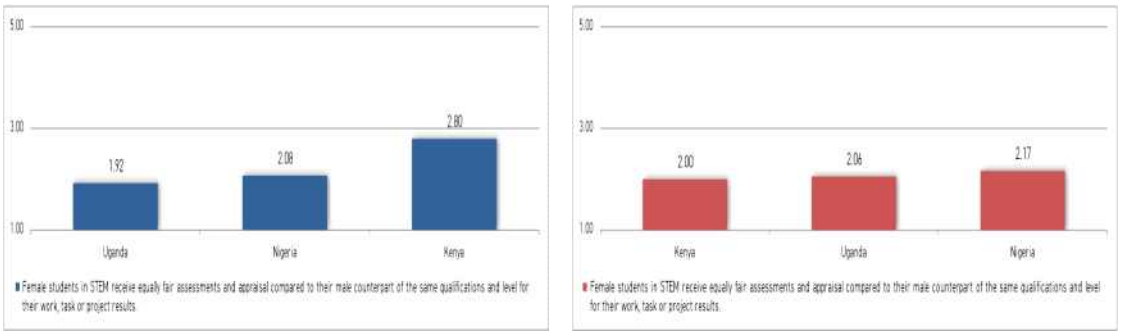
1-2) Female students in STEM receive equally fair assessments and appraisal compared to their male counterparts of the same qualifications and level for their work, task or project results.

<Table A4-3 Comparison of scores from question 1-2 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.14	1.034	49	2.08	0.838
	STUDENT IN MA	15	2.80	1.656	30	2.17	1.053
	WORKING WITH MA	3	2.00	0.000	11	1.36	0.505
	STUDENT IN DOCTORAL DEGREE	2	2.50	0.707	13	2.31	1.251
	WORKING WITH Ph.D	6	1.50	0.837	10	2.30	0.823
	OTHERS	5	2.40	1.140	7	1.86	1.069
	TOTAL	112	2.21	1.132	120	2.07	0.950
ENGINEERING	UNDERGRADUATE STUDENT	75	2.19	1.111	91	2.25	1.244
	STUDENT IN MA	4	2.50	1.732	25	2.20	1.354
	WORKING WITH MA	2	1.00	0.000	10	2.70	0.675
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	2.06	0.243
	WORKING WITH Ph.D	2	2.00	0.000	27	1.81	0.879
	OTHERS	4	2.75	2.062	1	2.00	-
	TOTAL	87	2.20	1.170	171	2.18	1.126
TOTAL	UNDERGRADUATE STUDENT	156	2.16	1.069	140	2.19	1.118
	STUDENT IN MA	19	2.74	1.628	55	2.18	1.188
	WORKING WITH MA	5	1.60	0.548	21	2.00	0.894
	STUDENT IN DOCTORAL DEGREE	2	2.50	0.707	30	2.17	0.834
	WORKING WITH Ph.D	8	1.63	0.744	37	1.95	0.880
	OTHERS	9	2.56	1.509	8	1.88	0.991
	TOTAL	199	2.20	1.146	291	2.13	1.057

<Table A4-4 Analyses of Variables for question 1-2 (ARN)>

1-2	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	67.86	0.000	0.799	12	101.06	0.000	0.813
MAJORFIELD	1	0.05	0.818	0.000	1	0.48	0.490	0.002
CURRENTSTATUS	5	1.18	0.322	0.030	5	0.15	0.979	0.003
MAJORFIELD * CURRENTSTATUS	4	0.42	0.795	0.009	5	2.10	0.066	0.036
error	188				279			



<Figure A4-2 Comparative values for question 1-2 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

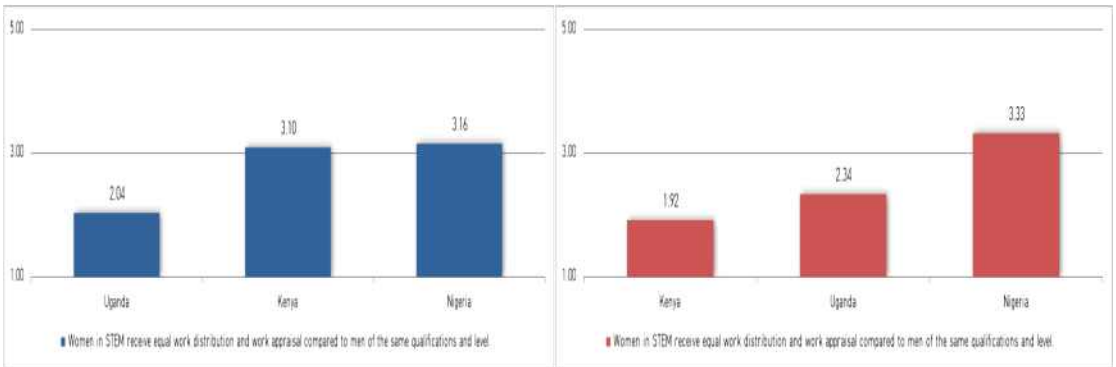
1-3) Women in STEM receive equal work distribution and work appraisal compared to men of the same qualifications and level.

<Table A4-5 Comparison of scores from question 1-3 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.75	1.410	49	2.78	1.490
	STUDENT IN MA	15	2.67	1.447	30	2.93	1.461
	WORKING WITH MA	3	4.00	1.732	11	2.55	1.508
	STUDENT IN DOCTORAL DEGREE	2	4.50	0.707	13	3.62	1.387
	WORKING WITH Ph.D	6	2.50	1.378	10	3.60	1.713
	OTHERS	5	2.80	1.304	7	2.43	1.134
	TOTAL	112	2.79	1.415	120	2.93	1.488
ENGINEERING	UNDERGRADUATE STUDENT	75	3.27	1.492	91	3.01	1.538
	STUDENT IN MA	4	3.25	1.258	25	2.84	1.491
	WORKING WITH MA	2	2.00	0.000	10	3.50	1.841
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	4.41	1.064
	WORKING WITH Ph.D	2	5.00	0.000	27	2.56	1.553
	OTHERS	4	3.00	1.414	1	3.00	-
	TOTAL	87	3.26	1.466	171	3.08	1.570
TOTAL	UNDERGRADUATE STUDENT	156	3.00	1.468	140	2.93	1.520
	STUDENT IN MA	19	2.79	1.398	55	2.89	1.462
	WORKING WITH MA	5	3.20	1.643	21	3.00	1.703
	STUDENT IN DOCTORAL DEGREE	2	4.50	0.707	30	4.07	1.258
	WORKING WITH Ph.D	8	3.13	1.642	37	2.84	1.642
	OTHERS	9	2.89	1.269	8	2.50	1.069
	TOTAL	199	3.00	1.453	291	3.02	1.536

<Table A4-6 Analyses of Variables for question 1-3 (ARN)>

1-3	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	80.56	0.000	0.825	12	100.77	0.000	0.813
MAJORFIELD	1	0.68	0.409	0.004	1	0.53	0.469	0.002
CURRENTSTATUS	5	0.80	0.549	0.021	5	2.89	0.015	0.049
MAJORFIELD * CURRENTSTATUS	4	1.67	0.159	0.034	5	1.61	0.157	0.028
error	188				279			



<Figure A4-3 Comparative values for question 1-3 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

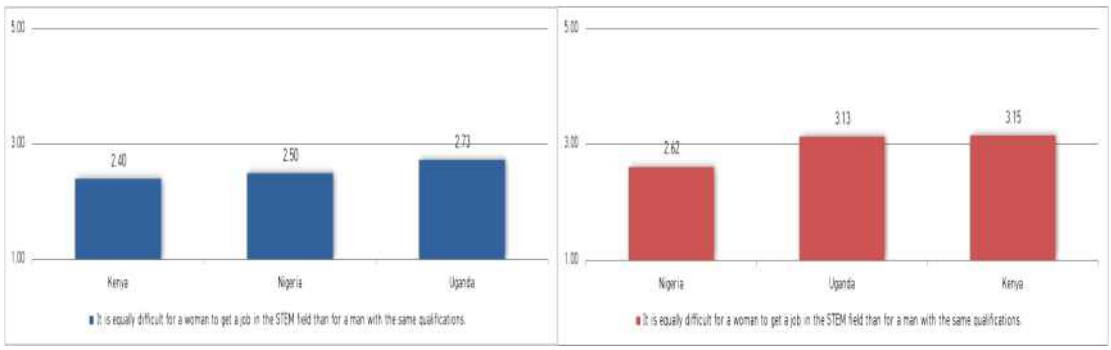
1-4) It is equally difficult for a woman to get a job in the STEM field than for a man with the same qualifications.

<Table A4-7 Comparison of scores from question 1-4 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.73	1.466	49	3.02	1.315
	STUDENT IN MA	15	2.60	1.595	30	2.53	1.592
	WORKING WITH MA	3	1.67	0.577	11	3.00	1.183
	STUDENT IN DOCTORAL DEGREE	2	3.00	1.414	13	2.62	1.557
	WORKING WITH Ph.D	6	3.00	1.095	10	2.80	1.814
	OTHERS	5	2.40	1.949	7	3.29	1.496
	TOTAL	112	2.69	1.458	120	2.85	1.447
ENGINEERING	UNDERGRADUATE STUDENT	75	2.24	1.374	91	2.67	1.461
	STUDENT IN MA	4	3.25	0.957	25	2.96	1.399
	WORKING WITH MA	2	3.00	1.414	10	2.60	2.066
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	1.82	0.951
	WORKING WITH Ph.D	2	1.00	0.000	27	3.11	1.625
	OTHERS	4	2.25	0.957	1	4.00	-
	TOTAL	87	2.28	1.344	171	2.70	1.499
TOTAL	UNDERGRADUATE STUDENT	156	2.49	1.439	140	2.79	1.417
	STUDENT IN MA	19	2.74	1.485	55	2.73	1.509
	WORKING WITH MA	5	2.20	1.095	21	2.81	1.632
	STUDENT IN DOCTORAL DEGREE	2	3.00	1.414	30	2.17	1.289
	WORKING WITH Ph.D	8	2.50	1.309	37	3.03	1.658
	OTHERS	9	2.33	1.500	8	3.38	1.408
	TOTAL	199	2.51	1.421	291	2.76	1.477

<Table A4-8 Analyses of Variables for question 1-4 (ARN)>

1-4	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	57.43	0.000	0.771	12	86.76	0.000	0.789
MAJORFIELD	1	0.09	0.761	0.000	1	0.00	0.963	0.000
CURRENTSTATUS	5	0.46	0.809	0.012	5	1.24	0.292	0.022
MAJORFIELD * CURRENTSTATUS	4	1.41	0.232	0.029	5	1.05	0.387	0.019
error	188				279			



<Figure A4-4 Comparative values for question 1-4 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

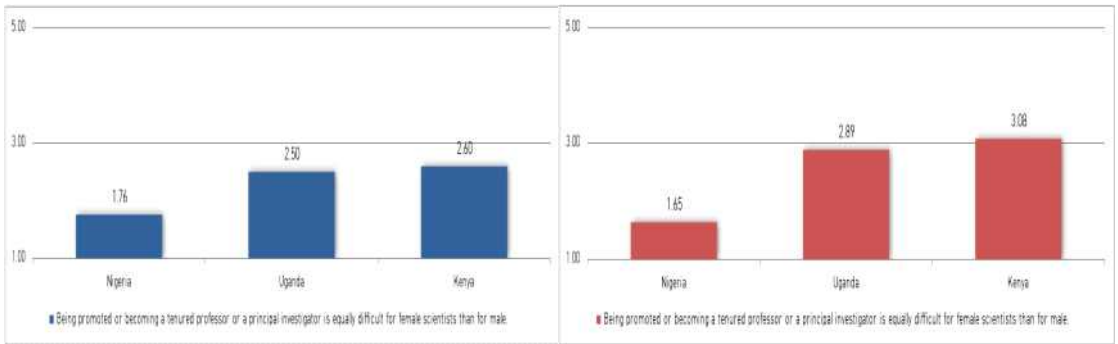
1-5) Being promoted or becoming a tenured professor or a principal investigator is equally difficult for female scientists than for male.

<Table A4-9 Comparison of scores from question 1-5 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	1.91	0.897	49	2.08	1.170
	STUDENT IN MA	15	2.53	1.407	30	2.50	1.526
	WORKING WITH MA	3	1.67	0.577	11	1.55	0.522
	STUDENT IN DOCTORAL DEGREE	2	2.00	0.000	13	1.85	1.144
	WORKING WITH Ph.D	6	2.00	0.000	10	1.70	0.483
	OTHERS	5	3.00	1.871	7	2.43	1.902
	TOTAL	112	2.04	1.026	120	2.10	1.253
ENGINEERING	UNDERGRADUATE STUDENT	75	1.96	0.892	91	2.09	1.142
	STUDENT IN MA	4	1.75	1.500	25	1.72	0.891
	WORKING WITH MA	2	2.00	0.000	10	1.70	0.483
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	1.71	0.470
	WORKING WITH Ph.D	2	2.00	0.000	27	1.78	0.801
	OTHERS	4	3.00	1.414	1	4.00	-
	TOTAL	87	2.00	0.940	171	1.94	0.995
TOTAL	UNDERGRADUATE STUDENT	156	1.94	0.892	140	2.09	1.147
	STUDENT IN MA	19	2.37	1.422	55	2.15	1.325
	WORKING WITH MA	5	1.80	0.447	21	1.62	0.498
	STUDENT IN DOCTORAL DEGREE	2	2.00	0.000	30	1.77	0.817
	WORKING WITH Ph.D	8	2.00	0.000	37	1.76	0.723
	OTHERS	9	3.00	1.581	8	2.63	1.847
	TOTAL	199	2.03	0.987	291	2.00	1.110

<Table A4-10 Analyses of Variables for question 1-5 (ARN)>

1-5	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	79.56	0.000	0.823	12	82.89	0.000	0.781
MAJORFIELD	1	0.07	0.785	0.000	1	0.39	0.535	0.001
CURRENTSTATUS	5	2.09	0.069	0.053	5	2.20	0.054	0.038
MAJORFIELD * CURRENTSTATUS	4	0.57	0.687	0.012	5	1.61	0.158	0.028
error	188				279			



<Figure A4-5 Comparative values for question 1-5 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

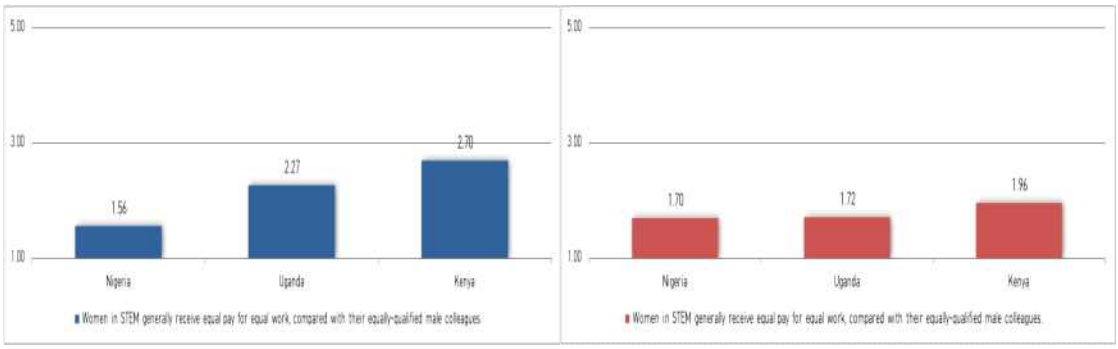
1-6) Women in STEM generally receive equal pay for equal work, compared with their equally-qualified male colleagues.

<Table A4-11 Comparison of scores from question 1-6 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	1.81	1.085	49	1.80	0.935
	STUDENT IN MA	15	2.40	1.549	30	1.67	0.884
	WORKING WITH MA	3	2.00	0.000	11	1.64	0.505
	STUDENT IN DOCTORAL DEGREE	2	1.50	0.707	13	1.69	0.630
	WORKING WITH Ph.D	6	1.83	0.408	10	1.70	0.483
	OTHERS	5	2.60	1.342	7	1.71	1.113
	TOTAL	112	1.93	1.137	120	1.73	0.830
ENGINEERING	UNDERGRADUATE STUDENT	75	1.83	1.005	91	1.74	0.772
	STUDENT IN MA	4	2.00	1.155	25	1.60	0.645
	WORKING WITH MA	2	1.00	0.000	10	1.90	0.568
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	1.76	0.437
	WORKING WITH Ph.D	2	2.00	0.000	27	1.70	0.542
	OTHERS	4	2.00	1.414	1	2.00	-
	TOTAL	87	1.83	1.002	171	1.73	0.678
TOTAL	UNDERGRADUATE STUDENT	156	1.82	1.044	140	1.76	0.830
	STUDENT IN MA	19	2.32	1.455	55	1.64	0.778
	WORKING WITH MA	5	1.60	0.548	21	1.76	0.539
	STUDENT IN DOCTORAL DEGREE	2	1.50	0.707	30	1.73	0.521
	WORKING WITH Ph.D	8	1.88	0.354	37	1.70	0.520
	OTHERS	9	2.33	1.323	8	1.75	1.035
	TOTAL	199	1.88	1.079	291	1.73	0.743

<Table A4-12 Analyses of Variables for question 1-6 (ARN)>

1-6	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	55.34	0.000	0.764	12	127.04	0.000	0.845
MAJORFIELD	1	1.23	0.269	0.007	1	0.26	0.613	0.001
CURRENTSTATUS	5	0.80	0.550	0.021	5	0.28	0.926	0.005
MAJORFIELD * CURRENTSTATUS	4	0.50	0.736	0.011	5	0.23	0.951	0.004
error	188				279			



<Figure A4-6 Comparative values for question 1-6 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

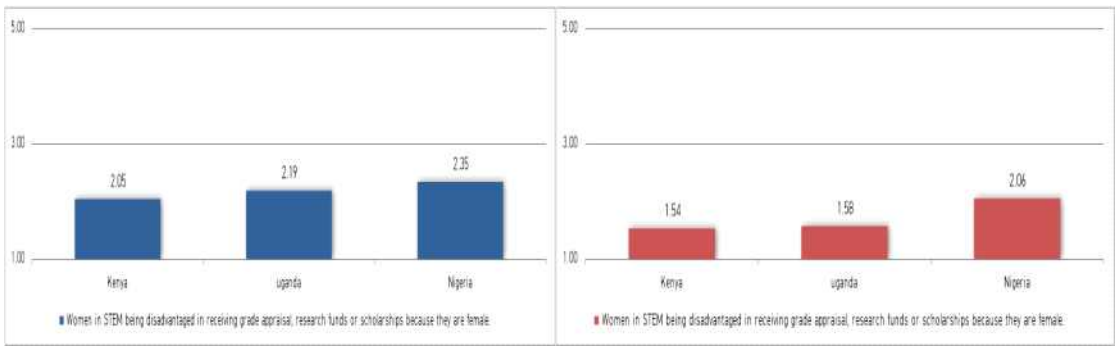
2-1) Women in STEM being disadvantaged in receiving grade appraisal, research funds or scholarships because they are female.

<Table A4-13 Comparison of scores from question 2-1 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.23	0.763	49	1.78	0.715
	STUDENT IN MA	15	2.80	1.373	29	1.76	0.739
	WORKING WITH MA	3	3.00	0.000	11	2.82	0.751
	STUDENT IN DOCTORAL DEGREE	2	2.00	1.414	13	2.00	0.707
	WORKING WITH Ph.D	6	2.17	0.408	10	1.80	0.632
	OTHERS	5	1.80	1.095	7	1.71	0.951
	TOTAL	112	2.30	0.889	119	1.89	0.779
ENGINEERING	UNDERGRADUATE STUDENT	75	2.21	0.643	91	1.85	0.714
	STUDENT IN MA	4	1.75	0.957	25	2.00	0.577
	WORKING WITH MA	2	3.00	0.000	10	2.20	0.789
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	2.29	0.849
	WORKING WITH Ph.D	2	3.00	0.000	27	1.93	0.874
	OTHERS	4	2.00	1.414	1	2.00	-
	TOTAL	87	2.22	0.706	171	1.95	0.746
TOTAL	UNDERGRADUATE STUDENT	156	2.22	0.705	140	1.82	0.712
	STUDENT IN MA	19	2.58	1.346	54	1.87	0.674
	WORKING WITH MA	5	3.00	0.000	21	2.52	0.814
	STUDENT IN DOCTORAL DEGREE	2	2.00	1.414	30	2.17	0.791
	WORKING WITH Ph.D	8	2.38	0.518	37	1.89	0.809
	OTHERS	9	1.89	1.167	8	1.75	0.886
	TOTAL	199	2.27	0.813	290	1.92	0.759

<Table A4-14 Analyses of Variables for question 2-1 (ARN)>

2-1	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	147.24	0.000	0.896	12	166.66	0.000	0.878
MAJORFIELD	1	0.00	0.975	0.000	1	0.17	0.679	0.001
CURRENTSTATUS	5	1.49	0.196	0.038	5	3.86	0.002	0.065
MAJORFIELD * CURRENTSTATUS	4	1.76	0.138	0.036	5	1.21	0.304	0.021
error	188				278			



<Figure A4-7 Comparative values for question 2-1 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

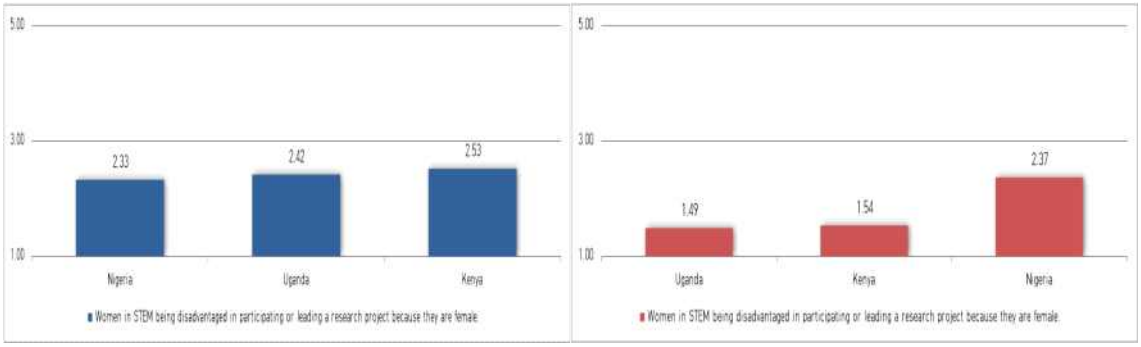
2-2) Women in STEM being disadvantaged in participating or leading a research project because they are female.

<Table A4-15 Comparison of scores from question 2-2 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.38	1.146	48	1.98	0.812
	STUDENT IN MA	15	2.53	1.187	29	2.00	0.707
	WORKING WITH MA	3	2.33	0.577	11	2.27	0.467
	STUDENT IN DOCTORAL DEGREE	2	2.50	0.707	13	2.00	0.707
	WORKING WITH Ph.D	6	2.00	0.632	10	2.70	0.483
	OTHERS	5	1.80	0.837	7	1.57	0.787
	TOTAL	112	2.36	1.098	118	2.05	0.749
ENGINEERING	UNDERGRADUATE STUDENT	75	2.31	1.000	91	2.18	0.693
	STUDENT IN MA	4	2.25	0.500	25	2.28	0.792
	WORKING WITH MA	2	3.50	2.121	10	2.10	0.568
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	2.24	0.664
	WORKING WITH Ph.D	2	5.00	0.000	27	2.22	0.577
	OTHERS	4	2.75	1.258	1	3.00	-
	TOTAL	87	2.41	1.084	171	2.20	0.677
TOTAL	UNDERGRADUATE STUDENT	156	2.35	1.076	139	2.11	0.739
	STUDENT IN MA	19	2.47	1.073	54	2.13	0.754
	WORKING WITH MA	5	2.80	1.304	21	2.19	0.512
	STUDENT IN DOCTORAL DEGREE	2	2.50	0.707	30	2.13	0.681
	WORKING WITH Ph.D	8	2.75	1.488	37	2.35	0.588
	OTHERS	9	2.22	1.093	8	1.75	0.886
	TOTAL	199	2.38	1.089	289	2.14	0.710

<Table A4-16 Analyses of Variables for question 2-2 (ARN)>

2-2	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	91.45	0.000	0.843	12	226.91	0.000	0.908
MAJORFIELD	1	8.64	0.004	0.044	1	2.64	0.105	0.009
CURRENTSTATUS	5	1.67	0.144	0.043	5	1.47	0.198	0.026
MAJORFIELD * CURRENTSTATUS	4	3.77	0.006	0.074	5	2.11	0.064	0.037
error	188				277			



<Figure A4-8 Comparative values for question 2-2 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

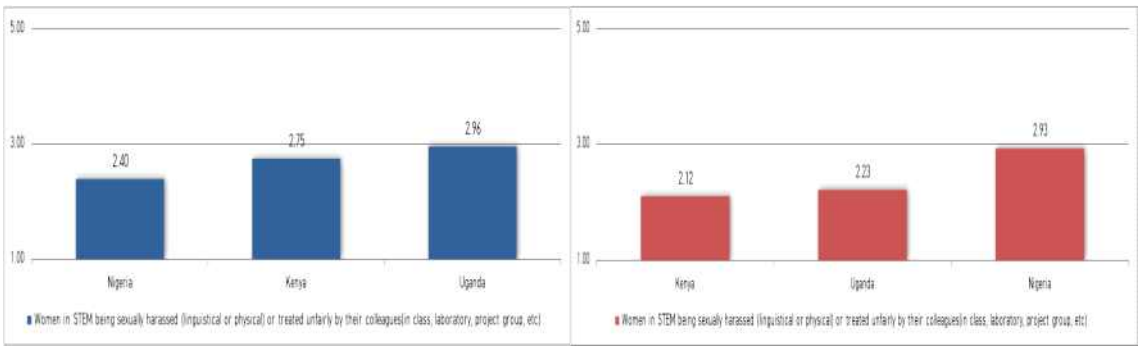
2-3) Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their colleagues(in class, laboratory, project group, etc)

<Table A4-17 Comparison of scores from question 2-3 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.42	1.094	49	2.69	1.045
	STUDENT IN MA	15	3.27	1.223	29	2.72	0.922
	WORKING WITH MA	3	2.67	1.155	11	3.09	1.044
	STUDENT IN DOCTORAL DEGREE	2	1.50	0.707	13	2.23	0.832
	WORKING WITH Ph.D	6	1.83	0.408	10	3.40	0.699
	OTHERS	5	2.80	1.643	7	2.29	1.496
	TOTAL	112	2.51	1.147	119	2.72	1.024
ENGINEERING	UNDERGRADUATE STUDENT	75	2.51	1.070	90	2.72	1.017
	STUDENT IN MA	4	2.75	1.500	25	2.92	0.997
	WORKING WITH MA	2	3.50	2.121	10	2.50	0.527
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	2.94	0.966
	WORKING WITH Ph.D	2	5.00	0.000	27	2.67	1.074
	OTHERS	4	2.25	1.258	1	1.00	-
	TOTAL	87	2.59	1.157	170	2.74	0.999
TOTAL	UNDERGRADUATE STUDENT	156	2.46	1.080	139	2.71	1.023
	STUDENT IN MA	19	3.16	1.259	54	2.81	0.953
	WORKING WITH MA	5	3.00	1.414	21	2.81	0.873
	STUDENT IN DOCTORAL DEGREE	2	1.50	0.707	30	2.63	0.964
	WORKING WITH Ph.D	8	2.63	1.506	37	2.86	1.032
	OTHERS	9	2.56	1.424	8	2.13	1.458
	TOTAL	199	2.54	1.149	289	2.73	1.008

<Table A4-18 Analyses of Variables for question 2-3 (ARN)>

2-3	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	96.84	0.000	0.850	12	181.56	0.000	0.887
MAJORFIELD	1	3.22	0.074	0.017	1	1.64	0.201	0.006
CURRENTSTATUS	5	1.83	0.110	0.046	5	1.60	0.161	0.028
MAJORFIELD * CURRENTSTATUS	4	3.41	0.010	0.068	5	2.29	0.046	0.040
error	188				277			



<Figure A4-9 Comparative values for question 2-3 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

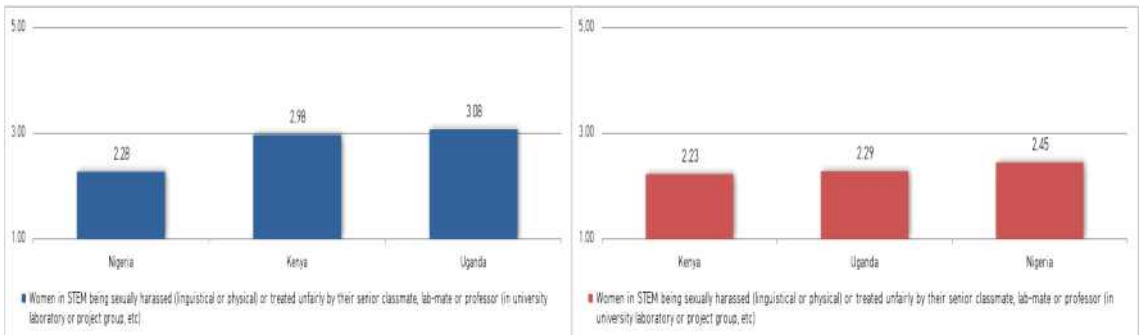
2-4) Women in STEM being sexually harassed (linguistical or physical) or treated unfairly by their senior classmate, lab-mate or professor (in university laboratory or project group, etc)

<Table A4-19 Comparison of scores from question 2-4 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.32	0.739	49	2.59	1.019
	STUDENT IN MA	14	3.64	1.277	29	2.48	0.911
	WORKING WITH MA	3	2.67	1.155	11	2.27	0.467
	STUDENT IN DOCTORAL DEGREE	2	3.00	1.414	13	2.46	1.198
	WORKING WITH Ph.D	6	2.00	0.000	10	2.70	0.823
	OTHERS	5	2.80	1.483	7	1.71	0.951
	TOTAL	111	2.51	0.962	119	2.48	0.964
ENGINEERING	UNDERGRADUATE STUDENT	75	2.48	0.811	91	2.38	0.940
	STUDENT IN MA	4	2.75	1.500	25	2.40	0.816
	WORKING WITH MA	2	2.50	0.707	10	2.20	0.632
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	2.24	0.562
	WORKING WITH Ph.D	2	3.00	0.000	27	2.30	0.609
	OTHERS	4	3.00	1.826	1	3.00	-
	TOTAL	87	2.53	0.887	171	2.35	0.822
TOTAL	UNDERGRADUATE STUDENT	156	2.40	0.776	140	2.46	0.970
	STUDENT IN MA	18	3.44	1.338	54	2.44	0.861
	WORKING WITH MA	5	2.60	0.894	21	2.24	0.539
	STUDENT IN DOCTORAL DEGREE	2	3.00	1.414	30	2.33	0.884
	WORKING WITH Ph.D	8	2.25	0.463	37	2.41	0.686
	OTHERS	9	2.89	1.537	8	1.88	0.991
	TOTAL	198	2.52	0.927	290	2.40	0.884

<Table A4-20 Analyses of Variables for question 2-4 (ARN)>

2-4	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	151.11	0.000	0.899	12	178.99	0.000	0.885
MAJORFIELD	1	0.05	0.822	0.000	1	0.06	0.800	0.000
CURRENTSTATUS	5	2.43	0.037	0.061	5	0.39	0.855	0.007
MAJORFIELD * CURRENTSTATUS	4	1.46	0.215	0.030	5	0.63	0.677	0.011
error	187				278			



<Figure A4-10 Comparative values for question 2-4 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

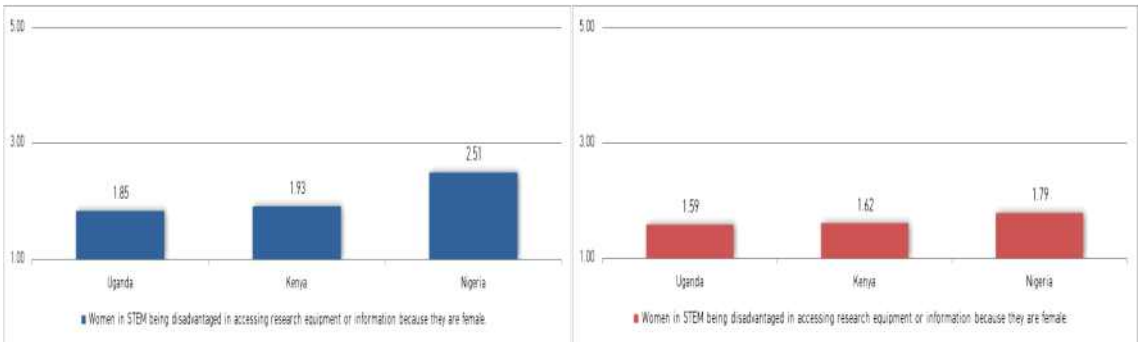
2-5) Women in STEM being disadvantaged in accessing research equipment or information because they are female.

<Table A4-21 Comparison of scores from question 2-5 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.31	0.931	48	1.73	0.676
	STUDENT IN MA	15	2.73	1.580	29	1.59	0.568
	WORKING WITH MA	3	2.00	0.000	11	1.55	0.522
	STUDENT IN DOCTORAL DEGREE	2	3.00	2.828	13	1.69	0.480
	WORKING WITH Ph.D	6	2.50	0.548	10	1.70	0.675
	OTHERS	5	1.80	1.095	7	1.43	0.535
	TOTAL	112	2.36	1.056	118	1.65	0.605
ENGINEERING	UNDERGRADUATE STUDENT	75	2.24	0.867	91	1.81	0.744
	STUDENT IN MA	4	1.50	0.577	25	1.88	0.971
	WORKING WITH MA	2	5.00	0.000	10	1.60	0.516
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	1.53	0.624
	WORKING WITH Ph.D	2	3.50	2.121	27	1.93	0.550
	OTHERS	4	1.00	0.000	1	2.00	-
	TOTAL	87	2.24	1.011	171	1.80	0.733
TOTAL	UNDERGRADUATE STUDENT	156	2.28	0.899	139	1.78	0.720
	STUDENT IN MA	19	2.47	1.504	54	1.72	0.787
	WORKING WITH MA	5	3.20	1.643	21	1.57	0.507
	STUDENT IN DOCTORAL DEGREE	2	3.00	2.828	30	1.60	0.563
	WORKING WITH Ph.D	8	2.75	1.035	37	1.86	0.585
	OTHERS	9	1.44	0.882	8	1.50	0.535
	TOTAL	199	2.31	1.035	289	1.74	0.686

<Table A4-22 Analyses of Variables for question 2-5 (ARN)>

2-5	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	103.79	0.000	0.859	12	155.37	0.000	0.871
MAJORFIELD	1	1.64	0.201	0.009	1	1.41	0.237	0.005
CURRENTSTATUS	5	3.93	0.002	0.095	5	0.57	0.722	0.010
MAJORFIELD * CURRENTSTATUS	4	4.83	0.001	0.093	5	0.56	0.732	0.010
error	188				277			



<Figure A4-11 Comparative values for question 2-5 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

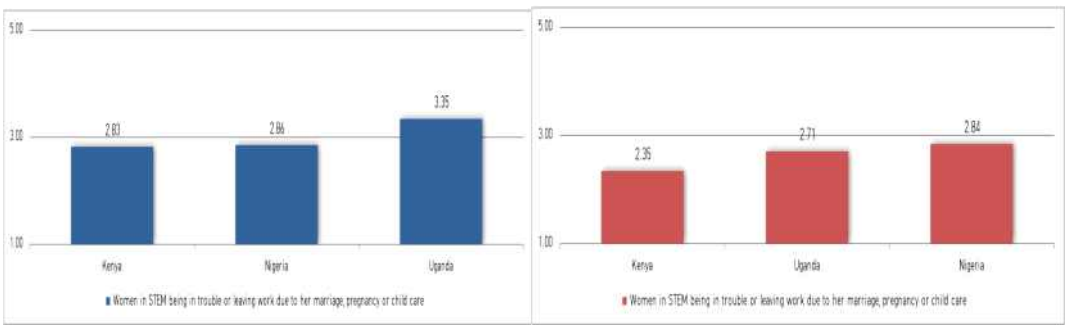
2-6) Women in STEM being in trouble or leaving work due to her Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance, pregnancy or child care.

<Table A4-23 Comparison of scores from question 2-6 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.79	0.996	49	2.82	1.302
	STUDENT IN MA	15	3.73	1.100	29	2.83	1.197
	WORKING WITH MA	3	3.00	1.732	11	2.55	0.522
	STUDENT IN DOCTORAL DEGREE	2	3.00	1.414	13	2.92	0.954
	WORKING WITH Ph.D	6	3.83	0.408	10	2.90	1.197
	OTHERS	5	3.40	1.342	7	3.14	1.864
	TOTAL	112	3.01	1.078	119	2.83	1.203
ENGINEERING	UNDERGRADUATE STUDENT	75	2.80	0.973	91	2.69	1.092
	STUDENT IN MA	4	2.50	1.000	25	3.16	1.028
	WORKING WITH MA	2	3.00	1.414	10	3.10	1.287
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	2.53	0.874
	WORKING WITH Ph.D	2	2.50	2.121	27	2.56	0.641
	OTHERS	4	3.00	0.816	1	1.00	-
	TOTAL	87	2.79	0.978	171	2.74	1.032
TOTAL	UNDERGRADUATE STUDENT	156	2.79	0.982	140	2.74	1.167
	STUDENT IN MA	19	3.47	1.172	54	2.98	1.124
	WORKING WITH MA	5	3.00	1.414	21	2.81	0.981
	STUDENT IN DOCTORAL DEGREE	2	3.00	1.414	30	2.70	0.915
	WORKING WITH Ph.D	8	3.50	1.069	37	2.65	0.824
	OTHERS	9	3.22	1.093	8	2.88	1.885
	TOTAL	199	2.91	1.039	290	2.78	1.104

<Table A4-24 Analyses of Variables for question 2-6 (ARN)>

2-6	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	150.73	0.000	0.898	12	153.40	0.000	0.869
MAJORFIELD	1	3.70	0.056	0.019	1	2.15	0.144	0.008
CURRENTSTATUS	5	0.63	0.675	0.017	5	0.73	0.602	0.013
MAJORFIELD * CURRENTSTATUS	4	1.69	0.155	0.035	5	1.54	0.178	0.027
error	188				278			



<Figure A4-12 Comparative values for question 2-6 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

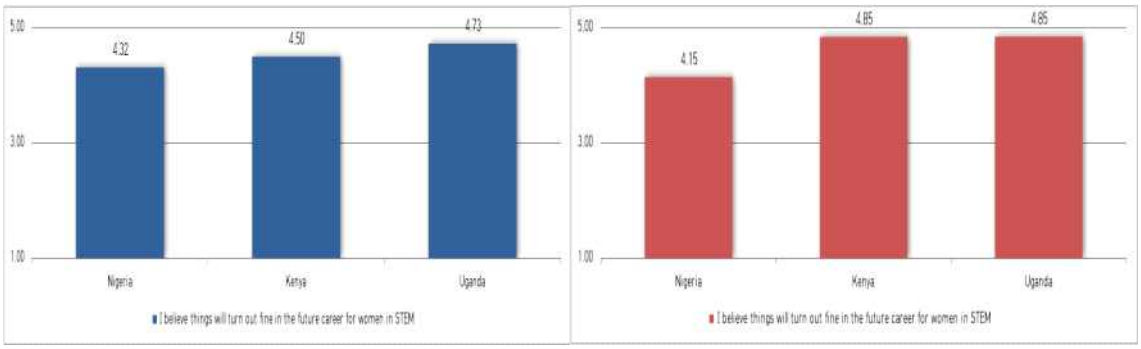
3) I believe things will turn out fine in the future career for women in STEM.

<Table A4-25 Comparison of scores from question 3 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	4.31	1.200	49	4.69	0.619
	STUDENT IN MA	15	4.53	0.640	30	4.73	0.450
	WORKING WITH MA	3	2.67	2.082	11	4.09	0.539
	STUDENT IN DOCTORAL DEGREE	2	3.50	2.121	13	3.85	1.573
	WORKING WITH Ph.D	6	3.83	0.408	10	3.50	1.354
	OTHERS	5	4.60	0.548	7	4.71	0.488
	TOTAL	112	4.27	1.155	120	4.46	0.897
ENGINEERING	UNDERGRADUATE STUDENT	75	4.56	0.683	91	4.47	0.981
	STUDENT IN MA	4	4.75	0.500	25	3.48	1.503
	WORKING WITH MA	2	5.00	0.000	10	3.30	1.636
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	4.59	0.618
	WORKING WITH Ph.D	2	5.00	0.000	27	4.37	0.839
	OTHERS	4	4.50	1.000	1	5.00	-
	TOTAL	87	4.59	0.674	171	4.26	1.139
TOTAL	UNDERGRADUATE STUDENT	156	4.43	0.991	140	4.55	0.876
	STUDENT IN MA	19	4.58	0.607	55	4.16	1.229
	WORKING WITH MA	5	3.60	1.949	21	3.71	1.231
	STUDENT IN DOCTORAL DEGREE	2	3.50	2.121	30	4.27	1.172
	WORKING WITH Ph.D	8	4.13	0.641	37	4.14	1.058
	OTHERS	9	4.56	0.726	8	4.75	0.463
	TOTAL	199	4.41	0.985	291	4.34	1.049

<Table A4-26 Analyses of Variables for question 3 (ARN)>

3	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	380.38	0.000	0.957	12	487.17	0.000	0.954
MAJORFIELD	1	7.03	0.009	0.036	1	0.08	0.773	0.000
CURRENTSTATUS	5	0.64	0.668	0.017	5	5.30	0.000	0.087
MAJORFIELD * CURRENTSTATUS	4	1.76	0.138	0.036	5	6.75	0.000	0.108
error	188				279			



<Figure A4-13 Comparative values for question 3 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

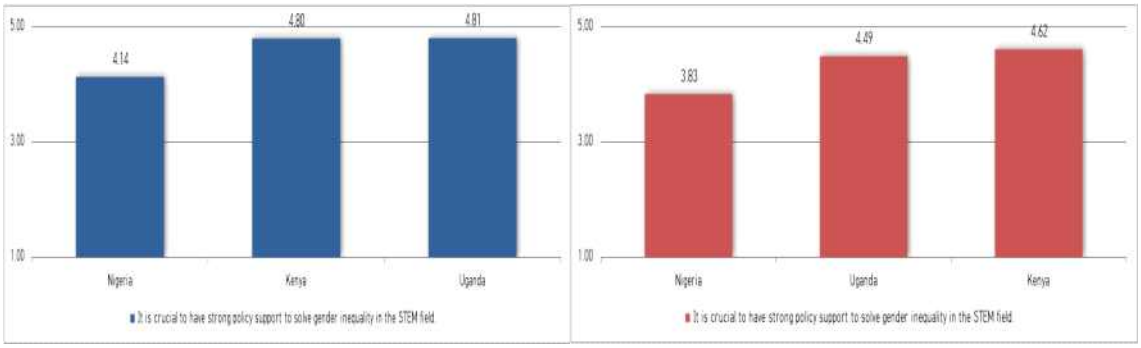
4-1) It is crucial to have strong policy support to solve gender inequality in the STEM field.

<Table A4-27 Comparison of scores from question 4-1 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	4.11	1.118	49	4.24	1.109
	STUDENT IN MA	15	4.87	0.352	30	4.07	1.202
	WORKING WITH MA	3	2.67	2.082	11	4.09	0.701
	STUDENT IN DOCTORAL DEGREE	2	3.50	0.707	13	3.77	1.536
	WORKING WITH Ph.D	6	4.33	0.816	10	4.70	0.483
	OTHERS	5	4.80	0.447	7	4.71	0.756
	TOTAL	112	4.21	1.092	120	4.20	1.112
ENGINEERING	UNDERGRADUATE STUDENT	75	4.53	0.502	91	4.00	1.155
	STUDENT IN MA	4	4.75	0.500	25	4.20	1.323
	WORKING WITH MA	2	4.00	0.000	10	2.70	1.337
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	3.71	1.263
	WORKING WITH Ph.D	2	5.00	0.000	27	3.93	1.207
	OTHERS	4	4.75	0.500	1	2.00	-
	TOTAL	87	4.55	0.500	171	3.90	1.245
TOTAL	UNDERGRADUATE STUDENT	156	4.31	0.900	140	4.09	1.141
	STUDENT IN MA	19	4.84	0.375	55	4.13	1.248
	WORKING WITH MA	5	3.20	1.643	21	3.43	1.248
	STUDENT IN DOCTORAL DEGREE	2	3.50	0.707	30	3.73	1.363
	WORKING WITH Ph.D	8	4.50	0.756	37	4.14	1.110
	OTHERS	9	4.78	0.441	8	4.38	1.188
	TOTAL	199	4.36	0.898	291	4.02	1.199

<Table A4-28 Analyses of Variables for question 4-1 (ARN)>

4-1	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	480.59	0.000	0.966	12	289.61	0.000	0.926
MAJORFIELD	1	3.09	0.081	0.016	1	10.93	0.001	0.038
CURRENTSTATUS	5	3.01	0.012	0.074	5	2.42	0.036	0.042
MAJORFIELD * CURRENTSTATUS	4	0.86	0.491	0.018	5	2.34	0.042	0.040
error	188				279			



<Figure A4-14 Comparative values for question 4-1 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

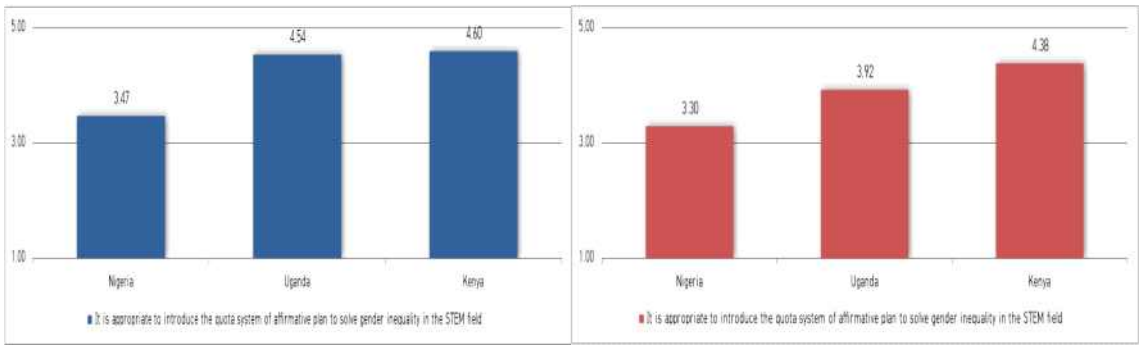
4-2) It is appropriate to introduce the quota system of affirmative plan to solve gender inequality in the STEM field.

<Table A4-29 Comparison of scores from question 4-2 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	3.57	1.549	49	4.04	1.154
	STUDENT IN MA	15	4.47	0.915	30	3.80	1.243
	WORKING WITH MA	3	3.67	2.309	11	3.18	0.751
	STUDENT IN DOCTORAL DEGREE	2	5.00	0.000	13	3.92	1.441
	WORKING WITH Ph.D	6	2.33	1.033	10	2.30	1.567
	OTHERS	5	5.00	0.000	7	3.43	1.397
	TOTAL	112	3.71	1.509	120	3.71	1.305
ENGINEERING	UNDERGRADUATE STUDENT	75	3.95	1.077	91	3.51	1.537
	STUDENT IN MA	4	4.50	0.577	25	2.96	1.695
	WORKING WITH MA	2	3.50	0.707	10	3.40	1.578
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	3.12	1.364
	WORKING WITH Ph.D	2	5.00	0.000	27	3.48	1.369
	OTHERS	4	4.25	0.957	1	2.00	-
	TOTAL	87	4.00	1.045	171	3.37	1.518
TOTAL	UNDERGRADUATE STUDENT	156	3.75	1.352	140	3.69	1.434
	STUDENT IN MA	19	4.47	0.841	55	3.42	1.512
	WORKING WITH MA	5	3.60	1.673	21	3.29	1.189
	STUDENT IN DOCTORAL DEGREE	2	5.00	0.000	30	3.47	1.432
	WORKING WITH Ph.D	8	3.00	1.512	37	3.16	1.500
	OTHERS	9	4.67	0.707	8	3.25	1.389
	TOTAL	199	3.84	1.331	291	3.51	1.442

<Table A4-30 Analyses of Variables for question 4-2 (ARN)>

4-2	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	164.17	0.000	0.906	12	151.85	0.000	0.867
MAJORFIELD	1	1.24	0.267	0.007	1	1.43	0.232	0.005
CURRENTSTATUS	5	1.89	0.098	0.048	5	2.43	0.036	0.042
MAJORFIELD * CURRENTSTATUS	4	1.73	0.145	0.036	5	2.57	0.027	0.044
error	188				279			



<Figure A4-15 Comparative values for question 4-2 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

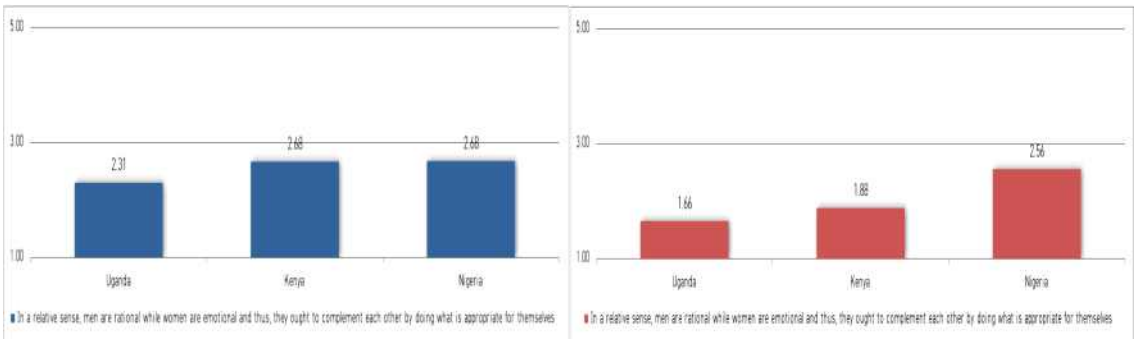
5-1) In a relative sense, men are rational while women are emotional and thus, they ought to complement each other by doing what is appropriate for themselves

<Table A4-31 Comparison of scores from question 5-1 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.57	1.369	49	2.08	1.205
	STUDENT IN MA	15	2.47	1.356	30	1.97	0.964
	WORKING WITH MA	3	1.00	0.000	11	3.55	0.820
	STUDENT IN DOCTORAL DEGREE	2	2.00	1.414	13	1.62	1.121
	WORKING WITH Ph.D	6	3.83	0.983	10	4.10	0.876
	OTHERS	5	2.00	1.732	7	1.57	0.535
	TOTAL	112	2.54	1.388	120	2.28	1.270
ENGINEERING	UNDERGRADUATE STUDENT	75	2.75	1.367	91	2.15	1.182
	STUDENT IN MA	4	2.00	2.000	25	2.96	1.541
	WORKING WITH MA	2	4.00	0.000	10	2.20	1.398
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	2.29	1.047
	WORKING WITH Ph.D	2	1.00	0.000	27	2.63	1.445
	OTHERS	4	3.75	1.500	1	5.00	-
	TOTAL	87	2.75	1.416	171	2.38	1.316
TOTAL	UNDERGRADUATE STUDENT	156	2.65	1.366	140	2.13	1.187
	STUDENT IN MA	19	2.37	1.461	55	2.42	1.343
	WORKING WITH MA	5	2.20	1.643	21	2.90	1.300
	STUDENT IN DOCTORAL DEGREE	2	2.00	1.414	30	2.00	1.114
	WORKING WITH Ph.D	8	3.13	1.553	37	3.03	1.462
	OTHERS	9	2.78	1.787	8	2.00	1.309
	TOTAL	199	2.63	1.400	291	2.34	1.296

<Table A4-32 Analyses of Variables for question 5-1 (ARN)>

5-1	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	68.90	0.000	0.801	12	97.63	0.000	0.808
MAJORFIELD	1	0.62	0.432	0.003	1	2.27	0.133	0.008
CURRENTSTATUS	5	0.35	0.880	0.009	5	7.09	0.000	0.113
MAJORFIELD * CURRENTSTATUS	4	4.01	0.004	0.079	5	7.27	0.000	0.115
error	188				279			



<Figure A4-16 Comparative values for question 5-1 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

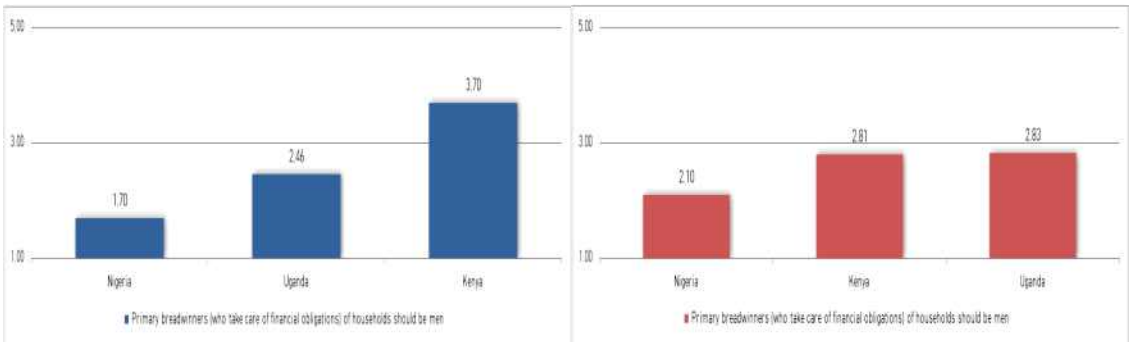
5-2) Primary breadwinners (who take care of financial obligations) of households should be men

<Table A4-33 Comparison of scores from question 5-2 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.36	1.297	49	2.22	1.373
	STUDENT IN MA	15	2.73	1.624	30	2.63	1.497
	WORKING WITH MA	3	2.67	1.528	11	1.45	0.522
	STUDENT IN DOCTORAL DEGREE	2	4.50	0.707	13	2.92	1.553
	WORKING WITH Ph.D	6	1.83	0.408	10	1.50	0.527
	OTHERS	5	3.40	1.673	7	3.00	2.000
	TOTAL	112	2.47	1.362	120	2.32	1.420
ENGINEERING	UNDERGRADUATE STUDENT	75	1.77	1.247	91	2.31	1.244
	STUDENT IN MA	4	2.25	0.500	25	1.92	0.702
	WORKING WITH MA	2	1.00	0.000	10	2.30	1.160
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	2.29	1.263
	WORKING WITH Ph.D	2	1.00	0.000	27	2.48	1.282
	OTHERS	4	3.75	0.957	1	4.00	-
	TOTAL	87	1.85	1.262	171	2.29	1.186
TOTAL	UNDERGRADUATE STUDENT	156	2.08	1.303	140	2.28	1.287
	STUDENT IN MA	19	2.63	1.461	55	2.31	1.245
	WORKING WITH MA	5	2.00	1.414	21	1.86	0.964
	STUDENT IN DOCTORAL DEGREE	2	4.50	0.707	30	2.57	1.406
	WORKING WITH Ph.D	8	1.63	0.518	37	2.22	1.205
	OTHERS	9	3.56	1.333	8	3.13	1.885
	TOTAL	199	2.20	1.352	291	2.30	1.285

<Table A4-34 Analyses of Variables for question 5-2 (ARN)>

5-2	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	56.63	0.000	0.768	12	82.08	0.000	0.779
MAJORFIELD	1	2.76	0.098	0.014	1	0.90	0.344	0.003
CURRENTSTATUS	5	3.96	0.002	0.095	5	1.78	0.118	0.031
MAJORFIELD * CURRENTSTATUS	4	0.53	0.715	0.011	5	2.72	0.020	0.047
error	188				279			



<Figure A4-17 Comparative values for question 5-2 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

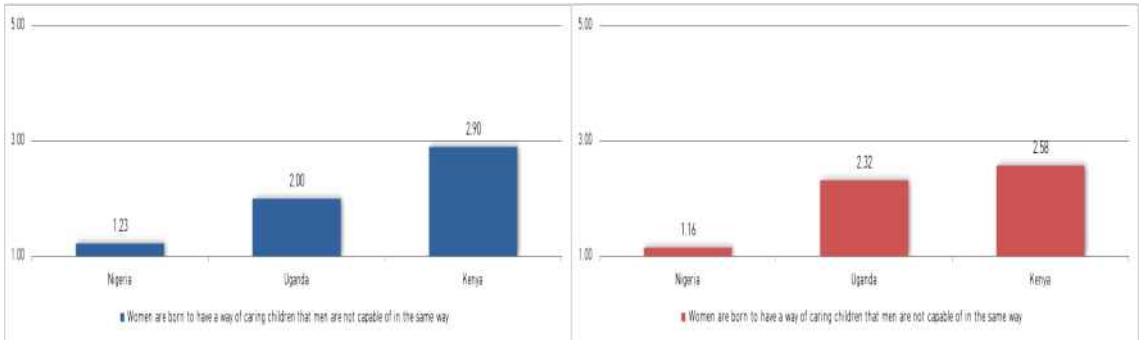
5-3) Women are born to have a way of caring children that men are not capable of in the same way

<Table A4-35 Comparison of scores from question 5-3 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	1.62	1.056	49	1.61	0.953
	STUDENT IN MA	15	2.60	1.502	30	1.97	1.326
	WORKING WITH MA	3	1.00	0.000	11	1.18	0.405
	STUDENT IN DOCTORAL DEGREE	2	3.00	2.828	13	1.00	0.000
	WORKING WITH Ph.D	6	1.00	0.000	10	1.30	0.483
	OTHERS	5	1.80	0.837	7	2.43	1.512
	TOTAL	112	1.73	1.170	120	1.62	1.039
ENGINEERING	UNDERGRADUATE STUDENT	75	1.55	1.017	91	1.65	1.047
	STUDENT IN MA	4	1.25	0.500	25	1.12	0.332
	WORKING WITH MA	2	1.50	0.707	10	1.20	0.422
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	1.24	0.437
	WORKING WITH Ph.D	2	1.00	0.000	27	1.07	0.267
	OTHERS	4	2.75	1.708	1	1.00	-
	TOTAL	87	1.57	1.041	171	1.41	0.838
TOTAL	UNDERGRADUATE STUDENT	156	1.58	1.035	140	1.64	1.012
	STUDENT IN MA	19	2.32	1.455	55	1.58	1.083
	WORKING WITH MA	5	1.20	0.447	21	1.19	0.402
	STUDENT IN DOCTORAL DEGREE	2	3.00	2.828	30	1.13	0.346
	WORKING WITH Ph.D	8	1.00	0.000	37	1.14	0.347
	OTHERS	9	2.22	1.302	8	2.25	1.488
	TOTAL	199	1.66	1.116	291	1.49	0.930

<Table A4-36 Analyses of Variables for question 5-3 (ARN)>

5-3	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	45.36	0.000	0.726	12	71.99	0.000	0.756
MAJORFIELD	1	0.00	0.986	0.000	1	3.63	0.058	0.013
CURRENTSTATUS	5	2.07	0.071	0.052	5	2.89	0.015	0.049
MAJORFIELD * CURRENTSTATUS	4	1.69	0.153	0.035	5	2.64	0.024	0.045
error	188				279			



<Figure A4-18 Comparative values for question 5-3 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

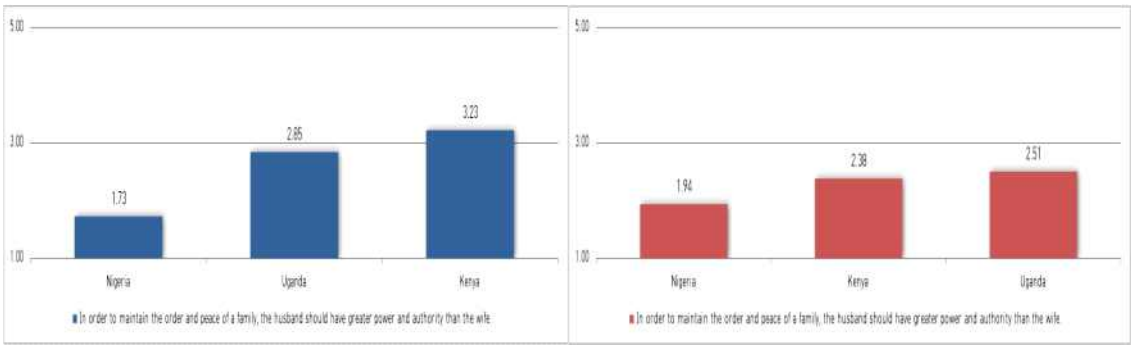
5-4) In order to maintain the order and peace of a family, the husband should have greater power and authority than the wife

<Table A4-37 Comparison of scores from question 5-4 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.27	1.323	49	2.24	1.347
	STUDENT IN MA	15	2.93	1.831	30	2.27	1.258
	WORKING WITH MA	3	1.00	0.000	11	1.64	0.505
	STUDENT IN DOCTORAL DEGREE	2	5.00	0.000	13	2.38	1.261
	WORKING WITH Ph.D	6	1.83	0.408	10	2.00	0.667
	OTHERS	5	3.00	2.000	7	2.57	1.718
	TOTAL	112	2.38	1.447	120	2.21	1.236
ENGINEERING	UNDERGRADUATE STUDENT	75	1.87	1.178	91	2.04	1.134
	STUDENT IN MA	4	2.25	1.893	25	1.68	0.557
	WORKING WITH MA	2	3.00	0.000	10	2.00	1.247
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	1.94	1.249
	WORKING WITH Ph.D	2	1.00	0.000	27	2.15	1.134
	OTHERS	4	2.25	1.893	1	3.00	-
	TOTAL	87	1.91	1.226	171	2.00	1.085
TOTAL	UNDERGRADUATE STUDENT	156	2.08	1.268	140	2.11	1.212
	STUDENT IN MA	19	2.79	1.813	55	2.00	1.036
	WORKING WITH MA	5	1.80	1.095	21	1.81	0.928
	STUDENT IN DOCTORAL DEGREE	2	5.00	0.000	30	2.13	1.252
	WORKING WITH Ph.D	8	1.63	0.518	37	2.11	1.022
	OTHERS	9	2.67	1.871	8	2.63	1.598
	TOTAL	199	2.18	1.372	291	2.09	1.152

<Table A4-38 Analyses of Variables for question 5-4 (ARN)>

5-4	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	51.44	0.000	0.751	12	79.97	0.000	0.775
MAJORFIELD	1	0.11	0.737	0.001	1	0.04	0.848	0.000
CURRENTSTATUS	5	2.73	0.021	0.068	5	0.68	0.640	0.012
MAJORFIELD * CURRENTSTATUS	4	1.11	0.355	0.023	5	0.80	0.548	0.014
error	188				279			



<Figure A4-19 Comparative values for question 5-4 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

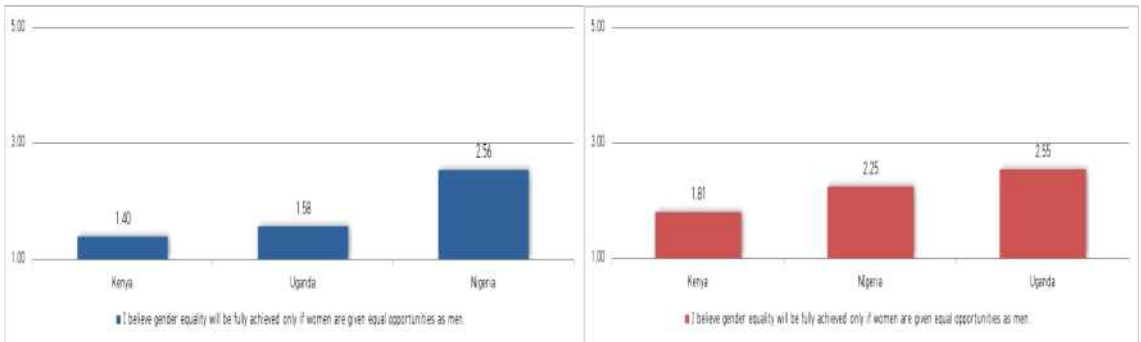
6) Perception of Gender Role Stereotype : I believe gender equality will be fully achieved only if women are given equal opportunities as men

<Table A4-39 Comparison of scores from question 6 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	2.02	0.851	49	2.27	1.036
	STUDENT IN MA	15	1.53	1.125	30	2.43	1.547
	WORKING WITH MA	3	2.33	1.155	11	2.27	0.786
	STUDENT IN DOCTORAL DEGREE	2	2.00	1.414	13	2.62	1.193
	WORKING WITH Ph.D	6	1.67	0.816	10	2.50	0.707
	OTHERS	5	1.20	0.447	7	2.57	1.718
	TOTAL	112	1.91	0.906	120	2.38	1.189
ENGINEERING	UNDERGRADUATE STUDENT	75	2.61	1.196	91	2.18	1.160
	STUDENT IN MA	4	1.75	0.500	25	2.00	0.816
	WORKING WITH MA	2	2.00	0.000	10	2.50	0.527
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	2.29	0.686
	WORKING WITH Ph.D	2	5.00	0.000	27	2.11	0.698
	OTHERS	4	1.50	0.577	1	4.00	-
	TOTAL	87	2.56	1.217	171	2.18	0.986
TOTAL	UNDERGRADUATE STUDENT	156	2.31	1.069	140	2.21	1.116
	STUDENT IN MA	19	1.58	1.017	55	2.24	1.276
	WORKING WITH MA	5	2.20	0.837	21	2.38	0.669
	STUDENT IN DOCTORAL DEGREE	2	2.00	1.414	30	2.43	0.935
	WORKING WITH Ph.D	8	2.50	1.690	37	2.22	0.712
	OTHERS	9	1.33	0.500	8	2.75	1.669
	TOTAL	199	2.20	1.099	291	2.26	1.077

<Table A4-40 Analyses of Variables for question 6 (ARN)>

6	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	89.63	0.000	0.840	12	107.08	0.000	0.822
MAJORFIELD	1	7.20	0.008	0.037	1	0.09	0.765	0.000
CURRENTSTATUS	5	3.86	0.002	0.093	5	0.92	0.470	0.016
MAJORFIELD * CURRENTSTATUS	4	3.16	0.015	0.063	5	0.81	0.544	0.014
error	188				279			



<Figure A4-20 Comparative values for question 6 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

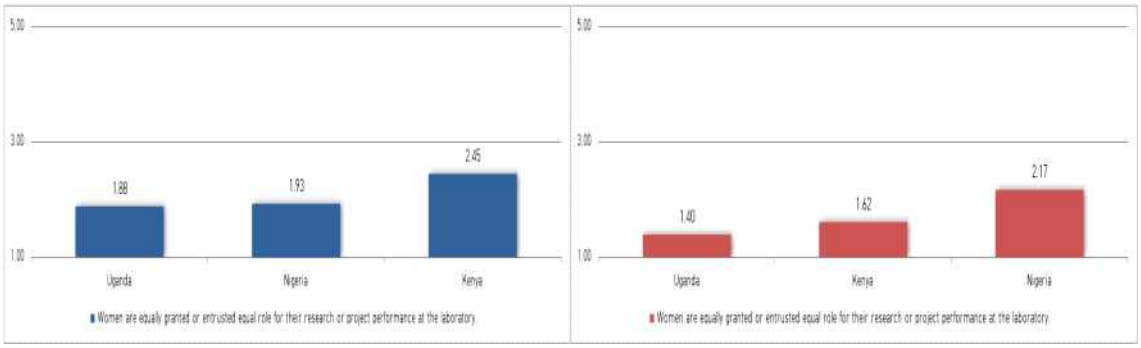
7-1) Women are equally granted or entrusted equal role for their research or project at the laboratory.

<Table A4-41 Comparison of scores from question 7-1 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	1.99	1.112	49	2.12	1.218
	STUDENT IN MA	15	2.00	1.000	30	1.80	0.847
	WORKING WITH MA	3	3.00	1.000	11	1.55	0.688
	STUDENT IN DOCTORAL DEGREE	2	2.50	0.707	13	1.85	0.689
	WORKING WITH Ph.D	6	1.83	0.408	10	2.80	1.476
	OTHERS	5	2.20	1.643	7	1.43	0.535
	TOTAL	112	2.03	1.086	120	1.98	1.073
ENGINEERING	UNDERGRADUATE STUDENT	75	2.04	1.120	91	1.91	1.061
	STUDENT IN MA	4	2.00	0.816	25	2.20	0.957
	WORKING WITH MA	2	2.50	2.121	10	1.70	1.252
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	2.59	1.502
	WORKING WITH Ph.D	2	1.00	0.000	27	1.78	0.801
	OTHERS	4	2.25	1.893	1	2.00	-
	TOTAL	87	2.03	1.146	171	1.99	1.085
TOTAL	UNDERGRADUATE STUDENT	156	2.01	1.113	140	1.99	1.119
	STUDENT IN MA	19	2.00	0.943	55	1.98	0.913
	WORKING WITH MA	5	2.80	1.304	21	1.62	0.973
	STUDENT IN DOCTORAL DEGREE	2	2.50	0.707	30	2.27	1.258
	WORKING WITH Ph.D	8	1.63	0.518	37	2.05	1.104
	OTHERS	9	2.22	1.641	8	1.50	0.535
	TOTAL	199	2.03	1.110	291	1.98	1.078

<Table A4-42 Analyses of Variables for question 7-1 (ARN)>

7-1	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	59.56	0.000	0.777	12	86.42	0.000	0.788
MAJORFIELD	1	0.52	0.470	0.003	1	0.21	0.647	0.001
CURRENTSTATUS	5	0.86	0.511	0.022	5	1.22	0.298	0.021
MAJORFIELD * CURRENTSTATUS	4	0.29	0.886	0.006	5	2.78	0.018	0.047
error	188				279			



<Figure A4-21 Comparative values for question 7-1 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

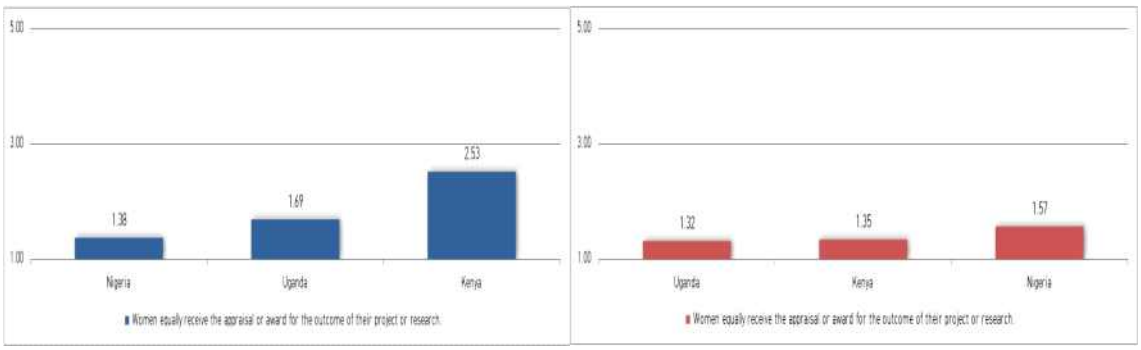
7-2) Women equally receive the appraisal or award for the outcome of their project or research.

<Table A4-43 Comparison of scores from question 7-2 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	1.54	0.759	49	1.55	0.614
	STUDENT IN MA	15	2.20	1.265	30	1.40	0.563
	WORKING WITH MA	3	2.67	1.155	11	1.36	0.505
	STUDENT IN DOCTORAL DEGREE	2	2.50	0.707	13	1.62	0.506
	WORKING WITH Ph.D	6	1.17	0.408	10	1.80	0.422
	OTHERS	5	2.20	1.643	7	1.57	0.787
	TOTAL	112	1.69	0.930	120	1.53	0.579
ENGINEERING	UNDERGRADUATE STUDENT	75	1.52	0.777	91	1.46	0.523
	STUDENT IN MA	4	2.25	0.500	25	1.80	0.408
	WORKING WITH MA	2	2.00	0.000	10	1.20	0.422
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	1.29	0.470
	WORKING WITH Ph.D	2	1.00	0.000	27	1.56	0.506
	OTHERS	4	2.50	1.732	1	1.00	-
	TOTAL	87	1.60	0.842	171	1.49	0.513
TOTAL	UNDERGRADUATE STUDENT	156	1.53	0.766	140	1.49	0.556
	STUDENT IN MA	19	2.21	1.134	55	1.58	0.534
	WORKING WITH MA	5	2.40	0.894	21	1.29	0.463
	STUDENT IN DOCTORAL DEGREE	2	2.50	0.707	30	1.43	0.504
	WORKING WITH Ph.D	8	1.13	0.354	37	1.62	0.492
	OTHERS	9	2.33	1.581	8	1.50	0.756
	TOTAL	199	1.65	0.892	291	1.51	0.541

<Table A4-44 Analyses of Variables for question 7-2 (ARN)>

7-2	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	69.50	0.000	0.803	12	196.63	0.000	0.894
MAJORFIELD	1	0.15	0.696	0.001	1	2.03	0.155	0.007
CURRENTSTATUS	5	4.33	0.001	0.103	5	1.85	0.104	0.032
MAJORFIELD * CURRENTSTATUS	4	0.26	0.900	0.006	5	2.79	0.018	0.048
error	188				279			



<Figure A4-22 Comparative values for question 7-2 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

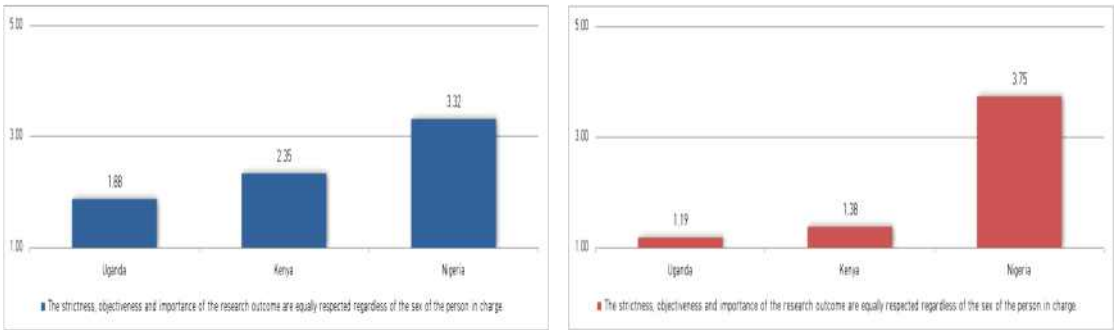
7-3) The strictness, objectiveness and importance of the research outcome are equally respected regardless of the sex of the person in charge.

<Table A4-45 Comparison of scores from question 7-3 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	3.17	1.498	49	2.57	1.500
	STUDENT IN MA	15	2.07	0.961	30	2.33	1.373
	WORKING WITH MA	3	3.67	0.577	11	3.36	1.433
	STUDENT IN DOCTORAL DEGREE	2	3.00	1.414	13	3.54	1.808
	WORKING WITH Ph.D	6	2.17	0.408	10	4.00	0.943
	OTHERS	5	2.40	1.673	7	1.14	0.378
	TOTAL	112	2.95	1.438	120	2.73	1.545
ENGINEERING	UNDERGRADUATE STUDENT	75	2.91	1.275	91	2.78	1.541
	STUDENT IN MA	4	2.50	1.291	25	3.76	1.393
	WORKING WITH MA	2	4.50	0.707	10	3.60	1.265
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	4.12	0.781
	WORKING WITH Ph.D	2	2.00	0.000	27	4.15	1.433
	OTHERS	4	3.25	2.062	1	1.00	-
	TOTAL	87	2.92	1.305	171	3.31	1.543
TOTAL	UNDERGRADUATE STUDENT	156	3.04	1.397	140	2.71	1.524
	STUDENT IN MA	19	2.16	1.015	55	2.98	1.545
	WORKING WITH MA	5	4.00	0.707	21	3.48	1.327
	STUDENT IN DOCTORAL DEGREE	2	3.00	1.414	30	3.87	1.332
	WORKING WITH Ph.D	8	2.13	0.354	37	4.11	1.308
	OTHERS	9	2.78	1.787	8	1.13	0.354
	TOTAL	199	2.93	1.378	291	3.07	1.568

<Table A4-46 Analyses of Variables for question 7-3 (ARN)>

7-3	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	86.20	0.000	0.835	12	117.83	0.000	0.835
MAJORFIELD	1	0.67	0.413	0.004	1	1.73	0.190	0.006
CURRENTSTATUS	5	1.93	0.091	0.049	5	8.21	0.000	0.128
MAJORFIELD * CURRENTSTATUS	4	0.68	0.609	0.014	5	1.58	0.167	0.027
error	188				279			



<Figure A4-23 Comparative values for question 7-3 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

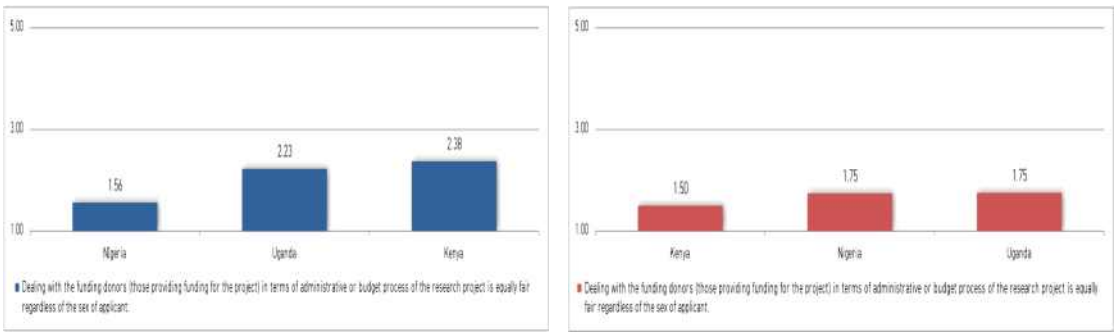
7-4) Dealing with the funding donors (those providing funding for the project) in terms of administrative or budget process of the research project is equally fair regardless of the sex of the applicant.

<Table A4-47 Comparison of scores from question 7-4 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	1.80	0.993	49	1.78	0.848
	STUDENT IN MA	15	2.60	1.298	30	1.67	0.802
	WORKING WITH MA	3	2.00	0.000	11	1.82	0.874
	STUDENT IN DOCTORAL DEGREE	2	1.50	0.707	13	1.77	0.725
	WORKING WITH Ph.D	6	1.00	0.000	10	1.80	0.422
	OTHERS	5	2.40	1.517	7	1.43	0.787
	TOTAL	112	1.89	1.068	120	1.73	0.786
ENGINEERING	UNDERGRADUATE STUDENT	75	1.69	0.930	91	1.59	0.699
	STUDENT IN MA	4	1.50	0.577	25	1.80	0.500
	WORKING WITH MA	2	2.00	0.000	10	1.90	0.994
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	1.76	0.831
	WORKING WITH Ph.D	2	1.00	0.000	27	1.96	0.706
	OTHERS	4	2.50	1.732	1	2.00	-
	TOTAL	87	1.71	0.951	171	1.72	0.713
TOTAL	UNDERGRADUATE STUDENT	156	1.75	0.961	140	1.66	0.756
	STUDENT IN MA	19	2.37	1.257	55	1.73	0.679
	WORKING WITH MA	5	2.00	0.000	21	1.86	0.910
	STUDENT IN DOCTORAL DEGREE	2	1.50	0.707	30	1.77	0.774
	WORKING WITH Ph.D	8	1.00	0.000	37	1.92	0.640
	OTHERS	9	2.44	1.509	8	1.50	0.756
	TOTAL	199	1.81	1.020	291	1.73	0.743

<Table A4-48 Analyses of Variables for question 7-4 (ARN)>

7-4	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	61.99	0.000	0.784	12	130.32	0.000	0.849
MAJORFIELD	1	0.54	0.462	0.003	1	0.61	0.435	0.002
CURRENTSTATUS	5	1.86	0.103	0.047	5	0.47	0.801	0.008
MAJORFIELD * CURRENTSTATUS	4	0.79	0.536	0.016	5	0.63	0.676	0.011
error	188				279			



<Figure A4-24 Comparative values for question 7-4 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

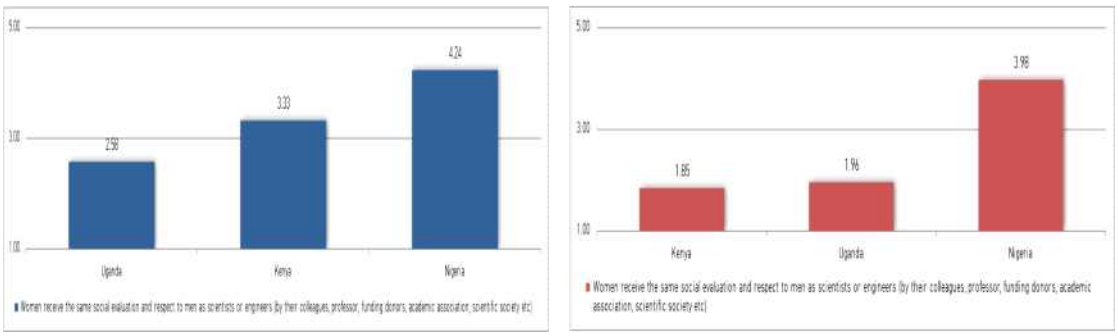
7-5) Women receive the same social evaluation and respect to men as scientists or engineers (by their colleagues, professor, funding donors, academic association, scientific society etc).

<Table A4-49 Comparison of scores from question 7-5 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	3.78	1.351	49	2.80	1.291
	STUDENT IN MA	15	3.33	1.397	30	3.07	1.507
	WORKING WITH MA	3	4.00	0.000	11	4.55	0.522
	STUDENT IN DOCTORAL DEGREE	2	4.50	0.707	13	3.62	1.193
	WORKING WITH Ph.D	6	4.50	0.548	10	3.50	0.707
	OTHERS	5	2.60	1.342	7	2.14	1.069
	TOTAL	112	3.72	1.330	120	3.13	1.347
ENGINEERING	UNDERGRADUATE STUDENT	75	4.00	1.151	91	3.29	1.393
	STUDENT IN MA	4	3.50	1.000	25	3.72	1.021
	WORKING WITH MA	2	2.50	0.707	10	4.50	0.707
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	4.18	0.809
	WORKING WITH Ph.D	2	5.00	0.000	27	4.07	1.141
	OTHERS	4	4.50	1.000	1	2.00	-
	TOTAL	87	3.99	1.146	171	3.63	1.283
TOTAL	UNDERGRADUATE STUDENT	156	3.88	1.260	140	3.11	1.373
	STUDENT IN MA	19	3.37	1.300	55	3.36	1.338
	WORKING WITH MA	5	3.40	0.894	21	4.52	0.602
	STUDENT IN DOCTORAL DEGREE	2	4.50	0.707	30	3.93	1.015
	WORKING WITH Ph.D	8	4.63	0.518	37	3.92	1.064
	OTHERS	9	3.44	1.509	8	2.13	0.991
	TOTAL	199	3.84	1.257	291	3.42	1.330

<Table A4-50 Analyses of Variables for question 7-5 (ARN)>

7-5	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	176.19	0.000	0.912	12	191.09	0.000	0.892
MAJORFIELD	1	0.47	0.492	0.003	1	1.67	0.197	0.006
CURRENTSTATUS	5	1.46	0.206	0.037	5	7.95	0.000	0.125
MAJORFIELD * CURRENTSTATUS	4	1.62	0.172	0.033	5	0.30	0.911	0.005
error	188				279			



<Figure A4-25 Comparative values for question 7-5 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

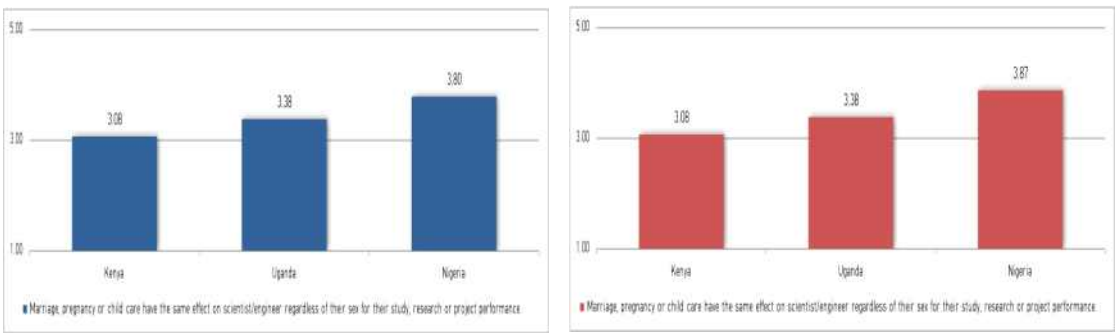
7-6) Marriage, pregnancy or child care have the same effect on scientists/engineers regardless of their sex for their study, research or project performance.

<Table A4-51 Comparison of scores from question 7-6 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	3.56	1.483	49	2.84	1.650
	STUDENT IN MA	15	3.47	1.685	30	3.70	1.317
	WORKING WITH MA	3	3.67	2.309	11	4.00	1.549
	STUDENT IN DOCTORAL DEGREE	2	3.00	2.828	13	4.62	0.870
	WORKING WITH Ph.D	6	3.17	0.753	10	4.00	1.414
	OTHERS	5	4.20	1.304	7	3.14	1.574
	TOTAL	112	3.54	1.494	120	3.47	1.566
ENGINEERING	UNDERGRADUATE STUDENT	75	3.67	1.359	91	3.37	1.554
	STUDENT IN MA	4	4.25	1.500	25	3.68	1.749
	WORKING WITH MA	2	2.00	0.000	10	3.90	1.197
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	4.12	1.054
	WORKING WITH Ph.D	2	4.50	0.707	27	4.22	1.251
	OTHERS	4	3.50	1.915	1	1.00	-
	TOTAL	87	3.67	1.378	171	3.64	1.513
TOTAL	UNDERGRADUATE STUDENT	156	3.61	1.421	140	3.19	1.603
	STUDENT IN MA	19	3.63	1.640	55	3.69	1.514
	WORKING WITH MA	5	3.00	1.871	21	3.95	1.359
	STUDENT IN DOCTORAL DEGREE	2	3.00	2.828	30	4.33	0.994
	WORKING WITH Ph.D	8	3.50	0.926	37	4.16	1.280
	OTHERS	9	3.89	1.537	8	2.88	1.642
	TOTAL	199	3.60	1.442	291	3.57	1.535

<Table A4-52 Analyses of Variables for question 7-6 (ARN)>

7-6	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	11	110.91	0.000	0.866	12	144.46	0.000	0.861
MAJORFIELD	1	0.00	0.950	0.000	1	1.07	0.301	0.004
CURRENTSTATUS	5	0.50	0.778	0.013	5	6.05	0.000	0.098
MAJORFIELD * CURRENTSTATUS	4	1.05	0.382	0.022	5	1.20	0.308	0.021
error	188				279			



<Figure A4-26 Comparative values for question 7-6 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

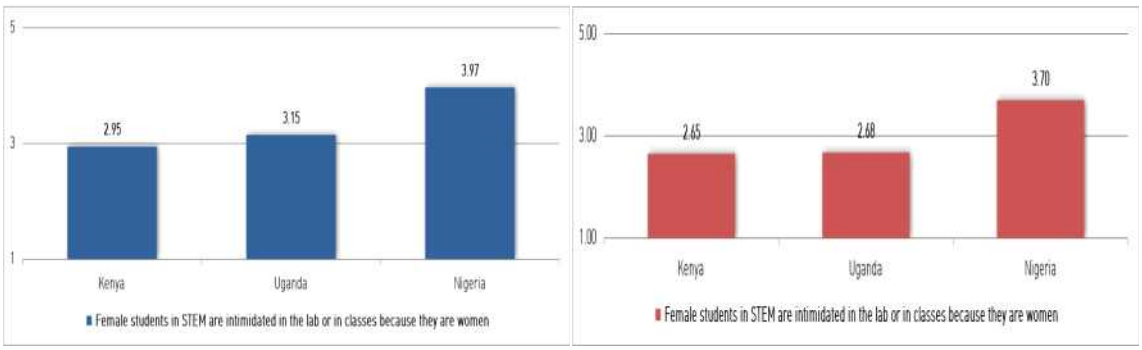
7-7) Female students in STEM are intimidated in the laboratory or in classes because they are female.

<Table A4-53 Comparison of scores from question 7-7 by Personal Variable from ARN>

Major Field		Female			Male		
		N	Average	standard deviation	N	Average	standard deviation
NATURAL SCIENCE	UNDERGRADUATE STUDENT	81	3.58	1.011	49	3.14	1.258
	STUDENT IN MA	15	3.27	1.624	30	3.37	1.608
	WORKING WITH MA	3	3.33	1.155	11	4.18	0.405
	STUDENT IN DOCTORAL DEGREE	2	3.00	1.414	13	3.46	1.330
	WORKING WITH Ph.D	6	4.67	0.816	10	3.40	0.699
	OTHERS	5	3.60	0.548	7	3.57	1.618
	TOTAL	112	3.58	1.112	120	3.38	1.310
ENGINEERING	UNDERGRADUATE STUDENT	75	3.84	1.027	91	3.37	1.330
	STUDENT IN MA	4	3.50	1.732	25	3.72	0.891
	WORKING WITH MA	2	2.50	0.707	10	3.80	0.422
	STUDENT IN DOCTORAL DEGREE	-	-	-	17	3.53	0.514
	WORKING WITH Ph.D	2	5.00	0.000	27	3.33	1.038
	OTHERS	4	2.50	1.915	1	2.00	-
	TOTAL	87	3.76	1.141	171	3.45	1.133
TOTAL	UNDERGRADUATE STUDENT	156	3.71	1.024	140	3.29	1.306
	STUDENT IN MA	19	3.32	1.600	55	3.53	1.331
	WORKING WITH MA	5	3.00	1.000	21	4.00	0.447
	STUDENT IN DOCTORAL DEGREE	2	3.00	1.414	30	3.50	0.938
	WORKING WITH Ph.D	8	4.75	0.707	37	3.35	0.949
	OTHERS	9	3.11	1.364	8	3.38	1.598
	TOTAL	199	3.66	1.125	291	3.42	1.208

<Table A4-54 Analyses of Variables for question 7-7 (ARN)>

7-7	Female				Male			
	df	F	p	eta^2	df	F	p	eta^2
Total	10	2.019	0.033	0.097	11	1.045	0.407	0.040
MAJORFIELD	1	0.444	0.506	0.002	1	0.751	0.387	0.003
CURRENTSTATUS	5	2.797	0.018	0.069	5	1.732	0.127	0.030
MAJORFIELD * CURRENTSTATUS	4	1.071	0.372	0.022	5	0.717	0.611	0.013
error	188				279			



<Figure A4-27 Comparative values for question 7-7 by ARN Countries (Female and Male)>
Blue bars (left) represent data for female, red bars (right) represent data for male.

Appendix 5. Email sent to APNN and ARN members for Survey

1) Email sent to APNN members

June 15, 2018

Dear APNN members,

We at the Association of Korean Woman Scientists and Engineers (KWSE) thank you for your cooperation over the past years in the international joint survey. We kindly ask that your organization participate again in this year's international survey among APNN member countries. Unlike previous years, however, this year's survey will be conducted among "**young male and female scientists and/or engineers, born between 1988 and 1998.**" We ask that **at least 100 male and 100 female respondents** affiliated with your organization participate in the survey by filling up the attached questionnaire sheets. Please send us the raw sheets with summary of the survey no later than by **July 31st, 2018** by e-mail to kwse@kwse.or.kr or by surface mail to #801 National Nanofab Center, 291 Daehak-ro, Yuseong-gu Daejeon, Korea 305-338. You or your members can alternatively participate by responding to the online version of this survey which is being prepared and will be notified within a week or two. Please make sure that each person only participate **once** either online or offline, and not both.

This year's theme is identical to last year's, which is "gender barriers in STEM in Asia and the Pacific." Your cooperation will be crucial in constructing a report on the APNN countries. We are fortunate to have received funding from the Korean government for this project which is managed by KWSE. As we did last year, we will be reimbursing you or your organization for expenses up to 500,000 KWon (equivalent to about 450 USDollars). We may also ask for reports for which we may send you an honorarium of 300,000 KWon (about 270 USDollars) to 500,000 KWon (about 450 USDollars) depending on the content and length.

Please note that the report from this survey is separate from the annual APNN country report.

We look forward to hearing from you at your earliest convenience and thank you for your participation and cooperation. Please do not hesitate to contact KWSE (kwse@kwse.or.kr) or myself (jskimdsu@gmail.com) for any questions you may have.

Yours sincerely,

Jung Sun Kim, Ph.D.
Vice President
& Chair of the KWSE International Network Committee

Guidelines for Survey

You are kindly asked to prepare your report based on the attached questionnaire. Due to the amount of work that needs to be put in, KWSE will be supporting your task with a modest honorarium for each task.

I. Conduct survey

A. The file "questionnaire (2018APNN)" is a six page questionnaire that should be collected from **young female and male scientists and engineers** born between 1988-1998, affiliated with your organization. We are asking for as many participants as possible (at least 100 members of each gender). Male scientists and/or engineers from your country could participate online through the link which will be notified soon. The survey should be conducted by "young male scientists and/or engineers," who are students or graduates of natural science or engineering majors of 19~30 years of age.

B. We ask that you send us the raw data and collate the results. However, you do not need to collate results for those who have participated online; we will let you know how many people from your country participated online later.

C. Depending on the number of surveys conducted, you will be reimbursed for expenses up to 500,000KWon (about 450 USDollars, depending on exchange rate) or more depending on the funding availability.

II. The results of the surveys will be compiled into a printed report and sent to related organizations (including UNESCO) and your organization before the year end.

2) Email sent to ARN members

June 15, 2018

Dear Dr. Caroline Langat Thoruwa,

We at the Association of Korean Woman Scientists and Engineers (KWSE) kindly ask that organizations of ARN participate in this year's international survey. This year's survey will be conducted among "**young male and female scientists and/or engineers, born between 1988 and 1998**." We ask that **at least 100 male and 100 female respondents** affiliated with your organization participate in the survey by filling up the attached questionnaire sheets. Please send us the raw sheets with summary of the survey no later than by **July 31st, 2018** by e-mail to kwse@kwse.or.kr or by surface mail to #801 National Nanofab Center, 291 Daehak-ro, Yuseong-gu Daejeon, Korea 305-338. You or your members can alternatively participate by responding to the online version of this survey which is being prepared and will be notified within a week or two. Please make sure that each person only participate **once** either online or offline, and not both.

This year's theme is identical to that which has been conducted among APNN countries last year, which is "gender barriers in STEM." Your cooperation will be helpful in constructing a report on the APNN countries in cooperation with African countries. We are fortunate to have received funding from the Korean government for this project which is managed by KWSE. As we did last year, we will be reimbursing you or your organization for expenses up to 500,000 KWon (equivalent to about 450 USDollars). We may also ask for reports for which we may send you an honorarium of 300,000 KWon (about 270 USDollars) to 500,000 KWon (about 450 USDollars) depending on the content and length.

We look forward to hearing from you at your earliest convenience and thank you for your participation and cooperation. Please do not hesitate to contact KWSE (kwse@kwse.or.kr) or myself (jskimdsu@gmail.com) for any questions you may have.

Yours sincerely,

Jung Sun Kim, Ph.D.
Vice President
& Chair of the KWSE International Network Committee

Guidelines for Survey

You are kindly asked to prepare your report based on the attached questionnaire. Due to the amount of work that needs to be put in, KWSE will be supporting your task with a modest honorarium for each task.

I. Conduct survey

A. The file "questionnaire (2018ARN)" is a six page questionnaire that should be collected from **young female and male scientists and engineers** born between 1988-1998, affiliated with your organization. We are asking for as many participants as possible (at least 100 members of each gender). Male scientists and/or engineers from your country could participate online through the link which will be notified soon. The survey should be conducted by "young male scientists and/or engineers," who are students or graduates of natural science or engineering majors of 19~30 years of age.

B. We ask that you send us the raw data and collate the results. However, you do not need to collate results for those who have participated online; we will let you know how many people from your country participated online later.

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