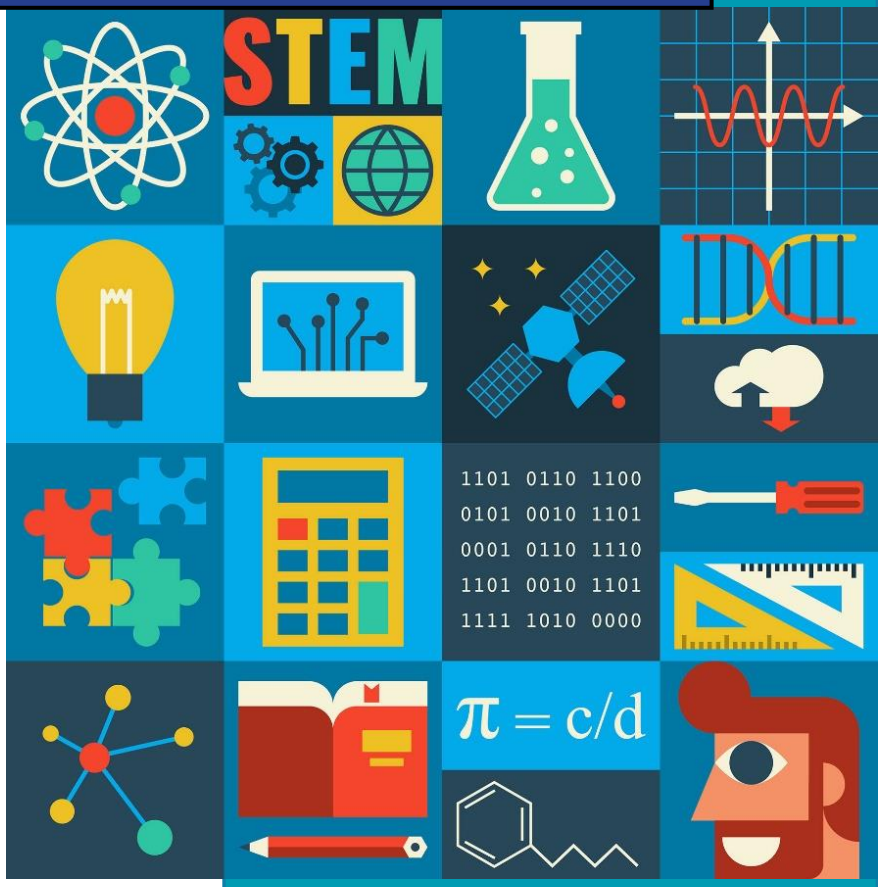
GWI Resolutions Committee

GWI VP Advocacy and Education

GWI 2020

Women and Science, Technology, Engineering and Mathematics (STEM)



2019 Policy Resolution 4

- ✓ GWI Policy Position 2019
- ✓ Policy Resolution 2019

GWI Strategic Advocacy Plan 2020

Resources and prior resolutions

Associated UN documents

GWI Strategic Advocacy Toolkit 2020

Graduate Women International (GWI)

Policy Position

POLICY POSITION RESOLUTION 4 2019

WOMEN AND SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM)

GWI Resolutions Committee

The Issue

Although research has made clear that girls are no less talented than boys in Science, Technology, Engineering and Mathematics (STEM), girls and women are still underrepresented in (STEM) fields in higher education and in the labour market. This is a loss for girls/women as well as society. Girls/women have equal rights as boys/men to develop their STEM talents, and society would benefit from fully exploiting all available talent.

Increasing opportunities for women in these fields is an important step towards realizing greater economic success and equality for women across the board.

Over the past decade, employment in the technology sector has grown three times faster than overall employment. Governments, businesses and individuals are learning to adapt to and embrace what has been called the "fourth industrial revolution". Advances in technology have made autonomous vehicles, robotics, 3D-printing, genetic diagnostics and the Internet of Things more than a reality; they have become commonplace.

This new world needs skilled scientists, engineers and technicians of both genders who have experience in STEM subjects over a long period.

Barriers

Working conditions and the work-life balance in STEM professions do not promote family life. Although there are organisations active in this field with promising activities, they lack support.

There is no shortage of inspirational role models for young girls looking towards a career in the sciences. But too often their stories aren't just about the difficulties they faced in cracking some of the toughest problems in science, but also about overcoming social and professional obstacles just because of their gender, many of those obstacles still face women working and studying in science today.

Globally 72% of scientific researchers are men. Only one in five countries achieves what is classed as "gender parity" with women making up 45%-55% of researchers. And in only a handful do women working in science outnumber men.

GWI's Position

GWI recognises that this is not merely an educational issue but one of support and retention. GWI will use their position to highlight the ongoing issues in this area. They will promote the use of research to highlight the gender disparity in the professions distinct from the numbers in University.

GWI recommends that NFAs:

- Urge their respective governments to encourage the promotion of STEM, particularly among girls and women;

- Lobby their governments, research and innovation organizations (e.g. universities), businesses and other relevant organisations to
  - ensure access and give encouragement to a greater number of girls and women to pursue an education and careers in STEM;
  - increase the representation of girls and women in STEM;
  - to include women in decision-making positions in STEM;

- Advocate for research to improve and increase the delivery of STEM education and training within their countries in a responsible way including research includes focused on gender issues and gender analysis of data.

- Promote publication of regular information and statistics about achievements of girls and women in STEM, through their networks; This will raise the creation of role models in STEM and to make the contribution of women in this field more visible;

- Urge their respective governments to monitor research in these areas of STEM innovation for women and girls and communicate the results;

- Offer or assist in the setting up of STEM training workshops or courses;

- Urge their respective governments to implement practices that would identify and appoint women to decision-making positions in STEM.

POLICY RESOLUTION 4 – WOMEN AND SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM)

Proposed by: Graduate Women International Netherlands (GWI-NL)
Seconded by: The Lithuanian University Women's Association (LUWA), The Federation of Graduate Women (Russia) and The British Federation of Women Graduates

The 33rd GWI General Assembly wishes to reaffirm Resolutions 2010/2, 1995/4, 1980/16, 1965/10, 1965/15, 1962/10, 1959/15 and resolves that:

1. National Federations and Associations (NFAs) urge their respective governments to encourage the promotion of STEM, particularly among girls and women;

2. NFAs lobby their governments, research and innovation organizations (e.g. universities), businesses and other relevant organisations to ensure access and give encouragement to a greater number of girls and women to pursue an education and careers in STEM;

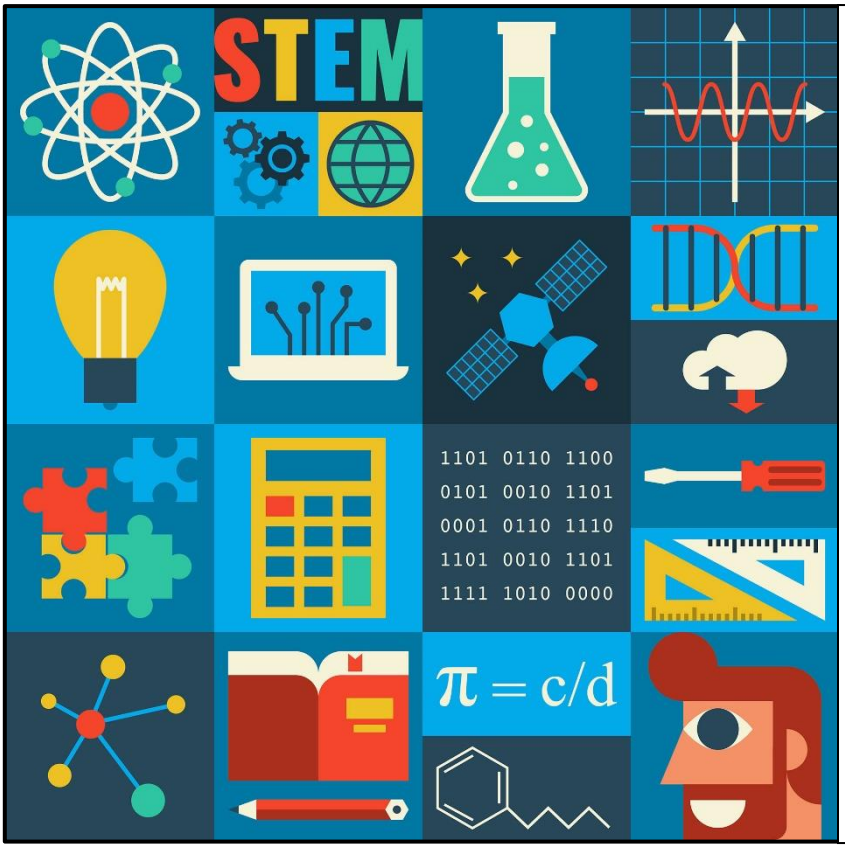
3. NFAs urge their governments, research and innovation organizations (e.g. universities), businesses and other relevant organisations to increase the representation of girls and women in STEM;

4. NFAs urge their governments, research and innovation organizations (e.g. universities), businesses and other relevant organisations to include women in decision-making positions in STEM;

5. NFAs advocate for research to improve and increase the delivery of STEM education and training within their countries in a responsible way. This research includes focus on gender issues.

Suggested Plan of Action:

- NFAs urge their respective governments to focus on STEM and to publish regularly information and statistics about achievements of girls and women in STEM, including gender analysis of data;
- NFAs urge the creation of role models in STEM and to make the contribution of women in this field more visible;
- NFAs urge their respective governments to monitor and research the areas of STEM innovation attractive for women and girls (e.g. medical, robotics etc.) and communicate the results;
- NFAs offer or assist in the setting up of STEM training workshops or courses;
- NFAs urge their respective governments to implement practices that would identify and appoint women to decision-making positions in STEM.



GWI Strategic Advocacy Campaign

GWI VP Advocacy and Education

Women and Science, Technology, Engineering and Mathematics (STEM)

Based on
GWI Policy Resolution 2019, 4

GWI Advocacy-G
NFA Advocacy-N

GWI mission-related
Systemic Change
SDG 4 | SDG 5
Education | Gender Equality | STEM | Global Issue

GOAL

Recognition of gender disparity in, and to provide support for, equal opportunities for education in STEM subjects for girls and women leading to STEM professions that include decision-making positions (through research in data and analysis).

THE ISSUE

Although research has made clear that girls are no less talented than boys in Science, Technology, Engineering and Mathematics (STEM), girls and women are still underrepresented in (STEM) fields in higher education and in the labour market. This is a loss for girls/women as well as society. Girls/women have equal rights as boys/men to develop their STEM talents, and society would benefit from fully exploiting all available talent.

Increasing opportunities for women in these fields is an important step towards realizing greater economic success and equality for women across the board.

Over the past decade, employment in the technology sector has grown three times faster than overall employment. Governments, businesses and individuals are learning to adapt to and embrace what has been called the “fourth industrial revolution”. Advances in technology have made autonomous vehicles,

robotics, 3D-printing, genetic diagnostics and the Internet of Things more than a reality; they have become commonplace.

This new world needs skilled scientists, engineers and technicians of both genders who have experience in STEM subjects over a long period.

CURRENT STATUS[1]

According to UNESCO data, less than 30% of scientific researchers worldwide are women and only around 30% of all female students select science, technology, engineering and math (STEM) -related fields in higher education. In the past, women were in fact discouraged from, or became less interested in STEM, entering the fields of at a young age. [2]

According to a 2019 AWIS Membership Report [3] women now earn more than half of all STEM degrees but remain in STEM occupations at half the rate of men and that despite the diversity in leadership, organizations are not adequately addressing the barriers women, especially women of colour, face in pursuit of STEM leadership roles, the main reason being pay and promotion inequities.

Effects of Covid-19

The COVID-19 pandemic has impacted everyone's life in many different ways. It has exacerbated many challenges but also highlighted opportunities. Women scientists face significant barriers to gain access to careers in science. While STEM education rates have improved over the last decades, employment for women follows at a much slower rate, especially for women in senior managerial positions. How does the Covid-19 crisis affect this? Will the effect be positive or negative? In 2020, a group of 18 south Asian women scientists shared their views.[4]

Given that UNESCO estimates that over 1.5 billion students in 165 countries are out of school due to the COVID-19 pandemic, the future is uncertain for everyone, particularly for the 11 million girls who will likely not return to school once the pandemic is over. The pandemic's economic impact may eliminate a further additional 23.8 million children who will not have access to school.[5] The financing of education will face major challenges in low and lower-middle-income countries where there were already education funding gaps.

Making the extrapolation from the breakdown in education systems due to Covid-19 and the loss of education opportunities for girls, it is easy to concur that girls will be lost to STEM subjects and the future effect of such a loss will be included in the economic fallout.

[1] Time of writing: January 2021
[2] https://en.unesco.org/news/covid-19-and-impact-women-scientists
[3] https://www.awis.org/leadership-report/
[4] https://www.youtube.com/watch?v=e5mTYXLAMsQ
[5] https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf

REVIEW OF LAW

NFAs to research current national / regional laws[6].

POLICY REVIEW

NFAs to research national, regional, local, community, institutional policies[7].

SOCIO-ECONOMIC, POLITICAL IMPACTS ON ISSUE

It is a well recognized fact that STEM professions play a direct role in driving a country's economic growth and that the creation of new technologies and technological innovation, in return, requires experienced specialists in STEM fields. In other words, the strength of an economy requiring technological innovation is only as strong as the talent pool supplying it. This talent pool is significantly diminished when half of the population, the female half, fail to take part in STEM professions or are discouraged from playing leaderships roles. It is only when high-ability women contribute equitably in the fields of science, engineering, technology and mathematics that the economy benefits from their innovation strategies and expertise.

In short, STEM fields are an essential component of any country's global competitiveness and the participation of women is critical. It is important therefore to understand why women feel the need to leave their STEM professions after investing so much of their personal resources and time in their training.

POTENTIAL ALLIES

- Teachers and educators
- Education Institutions and administrators
- Parents
- Role models and mentors
- GWI NFAs

[6] National Education Systems | Education Profiles (education-profiles.org)
[7] National Education Systems | Education Profiles (education-profiles.org)

RECOMMENDATIONS

Urge governments to encourage the promotion of STEM, particularly among girls and women; [N]

Lobby governments, research and innovation organizations (e.g. universities), businesses and other relevant organisations to [N]

- ensure access and give encouragement to a greater number of girls and women to pursue an education and careers in STEM;
- increase the representation of girls and women in STEM;
- to include women in decision-making positions in STEM;

Advocate for research to improve and increase the delivery of STEM education and training within their countries in a responsible way. [N]

- Including research includes focused on gender issues and gender analysis of data.

Promote publication of regular information and statistics about achievements of girls and women in STEM, through their networks; This will raise the creation of role models in STEM and to make the contribution of women in this field more visible; [N][G]

Urge governments to monitor research in these areas of STEM innovation for women and girls and communicate the results; [N]

• Offer or assist in the setting up of STEM training workshops or courses; [N]

• Urge governments to implement practices that would identify and appoint women to decision-making positions in STEM. [N]

DEVELOP A MESSAGE

GWI Position

GWI recognises that gender disparity in STEM education is not merely an educational issue but one of support and retention.

GWI promotes equal opportunities for education in STEM subjects for girls and women especially those leading to STEM professions that include decision-making positions.

GWI promotes the use of research to highlight the gender disparity in the professions distinct from the numbers in University.

The lack of representation of women in leadership and key decision-making positions in STEM fields has a two-fold result: firstly, their expertise is under-utilized and secondly, they have little to no influence how funds are used for projects that more and more have an impact on their communities.

Beginning in 1959, GWI and its NFAs have encouraged women and girls to engage in opportunities for education in new fields as they become available, that governments ensure that those opportunities are equally available for men and women, boys and girls along with equal advancement in the career of their choice.

Since that time, GWI has taken note of the shortage in many countries of certain categories of university graduates, and, in nearly every country, a shortage, to a greater or lesser degree, of secondary school teachers (especially in mathematics, science and languages), and of engineers and often of doctors, mathematicians, economists and scientific research workers: observing that a need is frequently indicated for university graduates who are highly qualified and specialised in certain scientific disciplines and professional categories.

From that perspective and recognizing the continuing need for women scientists and technologists, GWI has:

1. Encouraged the teaching of science to girls from an early age, with the provision of adequate laboratory facilities;

2. Urged girls to seek vocational guidance about scientific work;

3. Sought to induce industry and scientific organisations to consider women for appointment and promotion, on equal terms with men;

4. Encourage professional associations and universities to sponsor refresher courses to enable married women to return to scientific work in later life

5. Promoted education, equally to both sexes, in

    a. The history of science at elementary and secondary school levels;
    b. Mathematics, the natural sciences and the computer sciences;
    c. Ecology and the environmental sciences;
    d. Nutrition;
    e. Health care;
    f. Techniques and skills which can prevent displacement in employment by technological advances;
    g. Ethical values as related to science and technology.

6. Lobbied for equal access to a greater number of women to scientific and technological education in order that they may achieve the same career development as men.

Barriers

Working conditions and the work-life balance in STEM professions do not promote family life. Although there are organisations active in this field with promising activities, they lack support.

There is no shortage of inspirational role models for young girls looking towards a career in the sciences. But too often their stories aren't just about the difficulties they faced in cracking some of the toughest

problems in science, but also about overcoming social and professional obstacles just because of their gender, many of those obstacles still face women working and studying in science today.

Globally 72% of scientific researchers are men. Only one in five countries achieves what is classed as "gender parity" with women making up 45%-55% of researchers. And in only a handful do women working in science outnumber men.

Academic STEM search committees regularly report that the absence of women in STEM fields is due to a lack of available women. STEM educated women on the other hand report job unavailability and barriers to getting hired especially black and indigenous women.[8]

Steps to overcome barriers to corporate advancement should include the expansion of hiring networks to include women, expansion of leadership talent pools, fair evaluation of candidates for leadership roles and the cultivation of inclusive leadership cultures.

Suggested Focal points and Influencers

- UN Agencies and other NGOs
- Governments and legislators (national, regional, local)
- Academic Institutions
- Technology agencies, corporations, businesses
- Data research agencies
- Policy Makers
- Professional associations

Advocacy tools

- Social media
- Blogs
- Community Action Calls
- Face-to-face meetings
- Phone calls
- Email
- Letter-writing
- Letters to the Editor, news articles
- TV and radio outreach
- White papers, research and data
- Community Action Toolkits

[8] https://www.awis.org/leadership-report/

GWI Advocacy Tools

Toolkits: https://graduatewomen.org/media-publications/toolkit/

- SDG 4 Toolkit
- International Day of Education Toolkit
- World Teachers' Day Toolkit

Press Releases: https://graduatewomen.org/media-publications/press-releases/

Strategic Advocacy Tools

- GWI Strategic Advocacy Template
- GWI Strategic Advocacy Checklist
- GWI Strategic Advocacy Toolkit

Reference Documents

Transforming STEM Leadership Culture 2019 AWIS Membership Report
National Education Systems | Education Profiles (education-profiles.org)

Advocacy Timing

UN International Days

- UN International Day of Education – 24 January – (A/RES/73/25)
  24 January 2021: Graduate Women International celebrates education – echoes digital divide concerns | https://graduatewomen.org/wp-content/uploads/2021/01/2021-GWI-International-Day-of-Education-Toolkit-.pdf
  24 January 2020: On International Day of Education, GWI members reflect on the potential of education for girls
- International Day of Women and Girls in Science – 11 February - (A/RES/70/2120)
- 11 February 2020: Graduate Women International highlights underlying issues due to the lack of women in STEM fields
  11 February 2018: International Day of Women and Girls in Science: future development must include roles for women and girls in science
- International Women's Day – 8 March
  8 March 2019: On International Women's Day GWI galvanizes towards gender equal innovation opportunities
- International Girls in ICT Day – 23 April 2020
  23 April 2020: On International Girls in ICT Day, GWI promotes opportunities for girls in the tech sector with an awarenes-raising infographic.
  25 April 2019: On International Girls in ICT Day, GWI envisions young girls as ICT creators
  26 April 2017: On International Girls in ICT Day GWI celebrates women's and girls' potential as creators of technological and digital solutions for a better future

27 April 2017 On International Girls in ICT Day, Graduate Women International urges States and educational institutions to encourage women and girls to learn how to code

- World Teachers' Day [UNESCO] – 5 October – (27 C/INF.7)
- International Day of the Girl – 11 October
  11 October 2018 On International Day of the Girl, GWI celebrates "Skilled GirlForce" and girls' future potential
- Human Rights Day – 10 December - (A/RES 423(V))

UN Human Rights Council (quarterly)

UN Commission on the Status of Women (annually in March)

UN High Level Political Forum (annually July)

Other UN events and meetings where GWI can deliver written and oral statements as thematically appropriate.

CAREER DEVELOPMENT (1995,4)

That NFAs lobby their governments to ensure access and give encouragement to a greater number of women to scientific and technological education in order that they may achieve the same career development as men.

SCIENCE AND MATH EDUCATION (1980, NO. 16)

To recommend that NFAs promote education, equally to both sexes, in

7. The history of science at elementary and secondary school levels;
8. Mathematics, the natural sciences and the computer sciences;
9. Ecology and the environmental sciences;
10. Nutrition;
11. health care;
12. techniques and skills which can prevent displacement in employment by technological advances;
13. ethical values as related to science and technology.

WOMEN AND SCIENCE TEACHING (1965, NO. 10)

That, in view of the present need for scientists and technologists of a high level and of the small number of women qualifying in scientific subjects, the NFAs should do all in their power:

14. To encourage the teaching of science to girls from an early age, with the provision of adequate laboratory facilities;
15. To make available to girls vocational guidance about scientific work;
16. To induce industry and scientific organisations to consider women for appointment and promotion, on equal terms with men:
17. To encourage professional associations and universities to sponsor refresher courses to enable married women to return to scientific work in later life.

WOMEN AND SCIENTIFIC EMPLOYMENT (1965, NO. 15)

Noting the present shortage in many countries of certain categories of university graduates, and, in nearly every country, a shortage, to a greater or lesser degree, of secondary school teachers (especially in mathematics, science and languages), and of engineers and often of doctors, mathematicians, economists and scientific research workers: observing that a need is frequently indicated for university graduates who are highly qualified and specialised in certain scientific disciplines and professional categories;

Recommends to NFAs:

- To keep themselves as up to date as possible with the needs and employment possibilities for graduates in their country,

- to bring this information to public notice, drawing particular attention to the great shortage of graduates in scientific and technical fields, and the need to do away with prejudices against the employment of women in certain professions requiring university training,
- and further to do all in their power to encourage young women to pursue their studies to a high degree of competence and specialisation.

GIRLS AND CAREERS (1962, NO. 10)

Invites each NFA to take such steps as are appropriate in its country to ensure that girls and young women are adequately informed of the wide variety of careers available, especially those in new occupations and those not often followed by women, and are encouraged to secure training adequate to permit advancement to the highest level in their chosen career.

WOMEN IN NEW PROFESSIONS (1959, NO. 15)

That NFAs be urged:

1. To keep themselves continually informed of the possibilities of openings in new professions and occupations;

2. to draw the attention of young women to these new openings;

3. do their utmost to ensure that, in these new professions and occupations, women are admitted from the beginning on an equal footing with men.

Putting it all together

Strategic Advocacy

"Strategic Advocacy is a planned process, not an event"

Advocacy is a process involving a series of inter-related steps that take you from the identification of an issue, to the satisfactory resolution of that issue.

Advocacy's goal is to bring about changes in laws or regulations, public behavior and political perspectives concerning your advocacy issue.

Advocacy benefits all people: the marginalized and the mainstream.

Advocacy is about caring enough about social, economic and political issues that have the potential to either negate or affirm human rights and gender equality.

Planning is important. It helps you to:

- head in the right direction;
- break down your goals into manageable pieces or stepping stones;
- use the right tools;
- use scarce resources wisely by making strategic choices;
- make sure activities reinforce rather than undermine each other;
- get the timing right;
- start preparing early enough and become prepared to counter opposition.

Common Mistakes

- Unclear aims and objectives
- Activity planning without a strategy leading to untargeted actions, wasted effort and ultimately reduced impact
- Action plans that run to an internal timetable, rather than being determined by external events and opportunities
- Asking decision makers to do something which is not in their power
- Getting the timing wrong and trying to influence a process when key decisions have already been made
- Messages that don't get noticed and move people or fail to include a call to action
- Not having a clearly defined 'ask'
- Use the wrong tools
- Scarce resources used unwisely
- Activities that run at cross purposes
- Inability to counter opposition

Strategic Advocacy is about:

- achieving specific outcomes, not just raising awareness of problems;
- developing strategies based on research and analysis rather than guesswork;
- choosing approaches and deploying resources where they will have the most impact

The process is about:

- knowing what is wrong;
- identifying the problem you want to tackle and therefore which issue you want to work on;
- knowing what you would like to see as the solution to the problem;
- knowing what must change;
- knowing what you will ask for and the least that you will be satisfied with;
- recognizing who has the power to achieve change;
- recognizing who will help or hinder this process;
- identifying which resources will be needed;
- understanding how those with the power to make changes will be influenced.

The planning process has the following elements:

- Identify the issue
- Research the current status of the issue
- Review the law regarding the issue
- Identify the change that needs to be made
- Research socio-economic and political conditions that are causing or exacerbating the issue
- Identify allies – other organizations that are working on the same issue and have a similar goal: NGOs, community-based organizations, agencies
- Develop working partnerships with allies identified
- Develop recommendations
- Develop your message
- Identify institutions and people that you will focus your advocacy efforts towards
- Identify advocacy tools: position papers, press releases, social media
- Train members of your organization to deploy advocacy tools
- Monitor the progress of your advocacy and evaluate results to make necessary adjustments and changes


Graduate Women International
Strategic Advocacy Plan
Checklist
Strategic Advocacy Toolkit Click Here
Identify the issue
Research current status of issue
Review law in your country
Identify needed change
Research exacerbating issues
Identify allies
Develop working partnerships
Develop recommendations
Develop your message
Identify targets of focus
Identify GWI advocacy tools
Train NFA members
Monitor progress
Summarize work
Share success with GWI office
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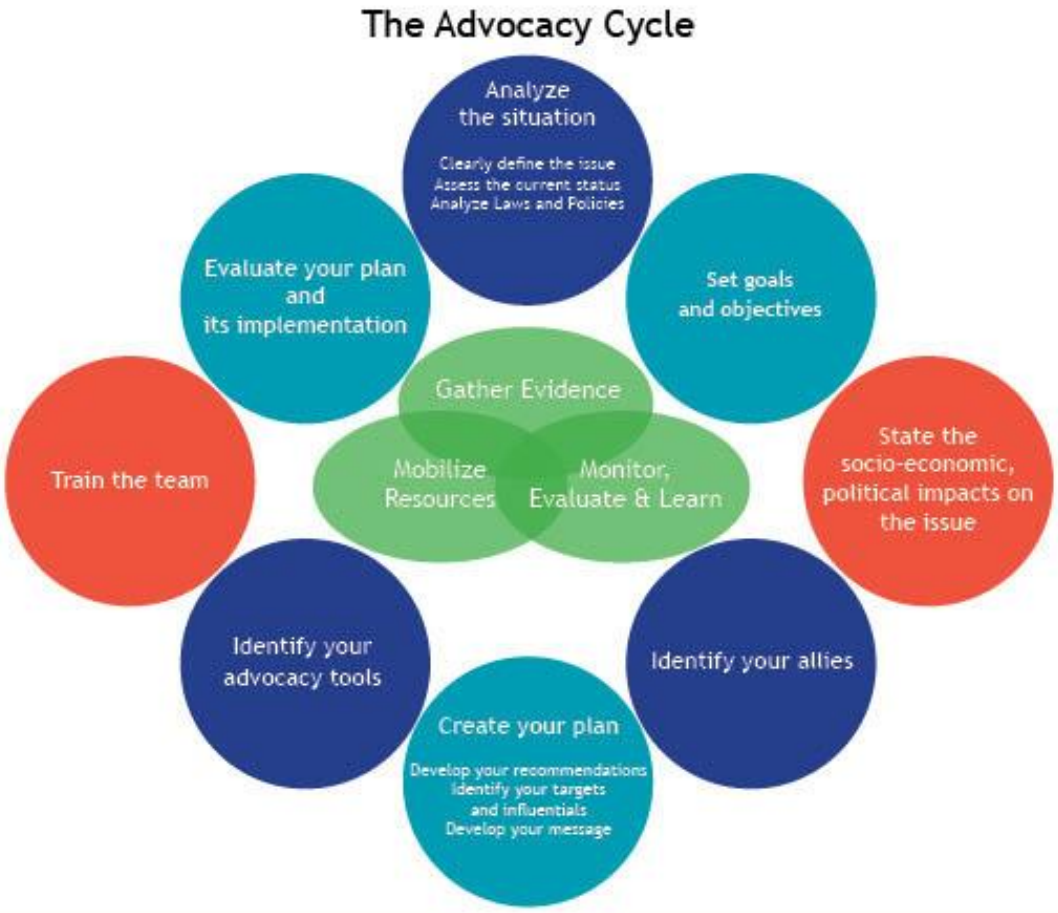

GWI Toolkits
https://graduatewomen.org/members-login/tools-resources/toolkit/

GWI Advocacy and the Media
https://graduatewomen.org/media-publications/press-releases/
https://graduatewomen.org/members-login/advocacy-media/press-release-templates/

GWI Annual Reports
https://graduatewomen.org/media-publications/annual-reports/

GWI Policy Papers
https://graduatewomen.org/what-we-do/policy-advocacy/policy-papers/

GWI Resolutions
https://graduatewomen.org/members-login/constitutional-material/resolutions/

GWI Manifestos
https://graduatewomen.org/who-we-are/gwi-manifestos/