

The 8<sup>th</sup> KAGRA International Workshop  
(On line)

# Women's Leadership in STEM

International Collaboration Activities by the KWSE  
(Association of Korean Woman Scientists & Engineers)

Hyo-Suk LIM, Ph.D.  
President of KWSE



대한여성과학기술인회  
The Association of  
Korean Woman Scientists & Engineers



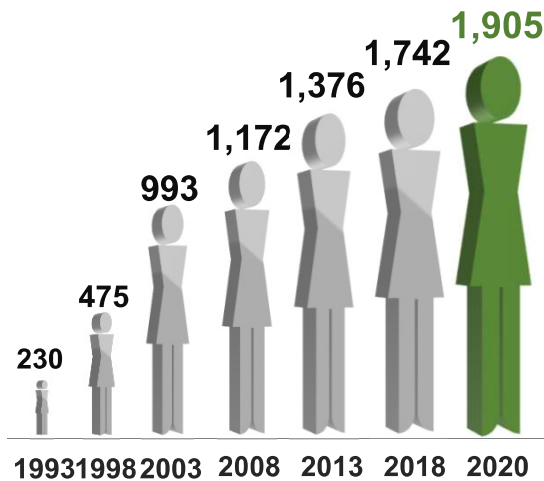
# Introduction of KWSE (1/2)

- The Association of **K**orean **W**oman **S**cientists and **E**ngineers
  - Founded in 1993, as the first association of women scientists and engineers in Korea
  - Aims to empower scientific capacity as well as to uplift the status of women in academia, research institute, and industry
  - The Major activities includes

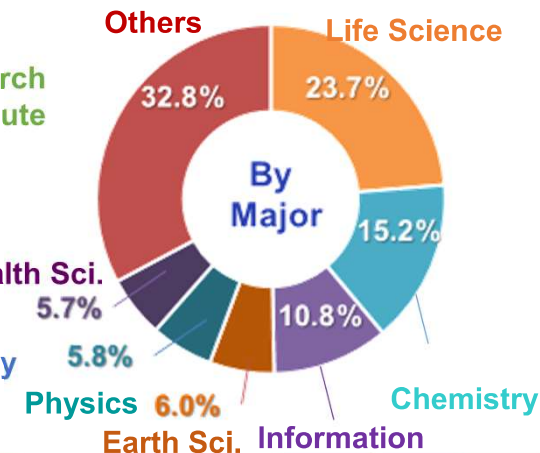
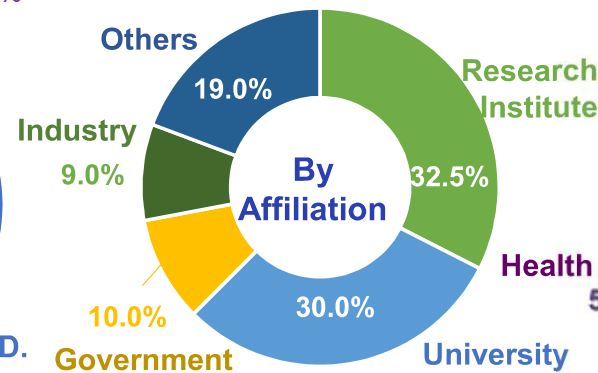
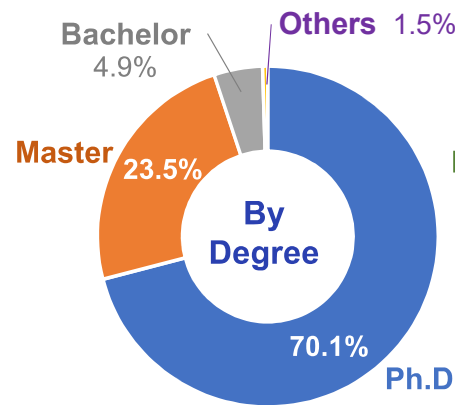


# Introduction of KWSE (2/2)

- The Association of **K**orean **W**oman **S**cientists and **E**ngineers
  - Current Membership Status (Lifelong member: 591)



(2020.  
Sept.)



# Importance of collaboration and network

- By analysis of research performance 20 years, 12 geographies, and 27 subject area, Elseviers found

The proportion of women among researchers and inventors is increasing in all twelve comparator countries and regions over time.

Women are less likely than men to collaborate internationally on research papers.

Among researchers, women are generally less internationally mobile than men.

Source: Gender in the global research landscape, 2017

- The Nobel Laureates, the 2020 Nobel Prize in Chemistry, said that

## Modern science, defined by collaboration

“ For today’s scientists, crossing borders between countries and disciplines is instrumental to opening doors to new questions and new answers. ”

— Professor Emmanuelle Charpentier

“ Collaborations have been a crucial part of the success of my scientific research throughout my career. Multidisciplinary research teams are essential to making fundamental progress in any field. Indeed, collaboration defines the modern mode of scientific research. ”

— Professor Jennifer A. Doudna

Source: <https://en.unesco.org/news/jennifer-doudna-and-emmanuelle-charpentier-win-2020-nobel-prize-chemistry>



# KWSE Key Achievements for Network Platform

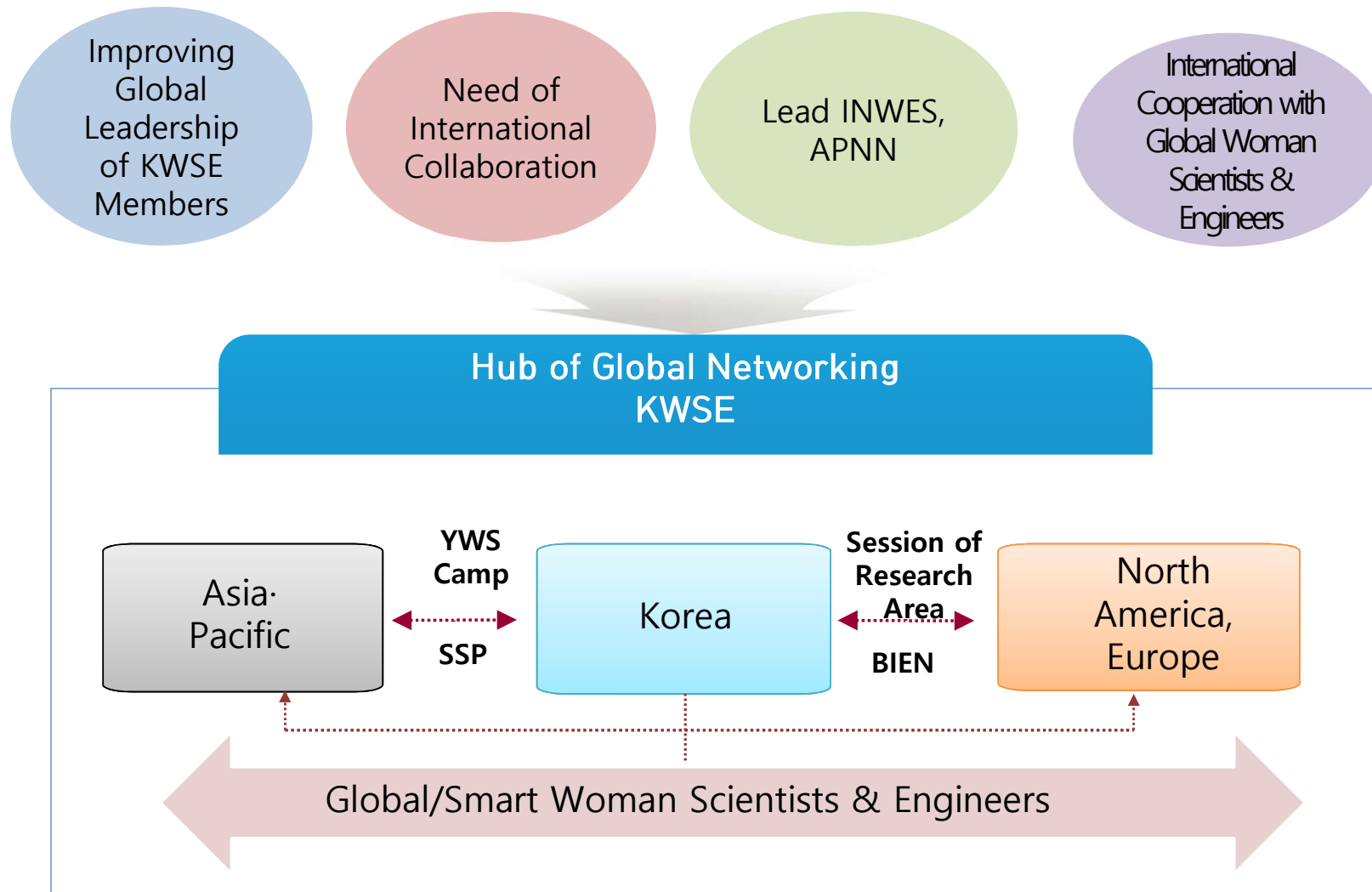
- For Women Professionals in S&T
- On Research Collaboration
  - BIEN (the Convergence-themed International Conference of Women Scientists and Engineers conference on Bio, Information, Energy, Nano Technology)
  - Academic conference & Webinar (on/offline research presentation)
  - MAPWiST (Meeting of Asia and Pacific Women in Science and Technology)
- For Next-generation Women in STEM
- On Expanding Horizons
  - SSP (Smart Sister Program)
  - YWS Camp (Young Woman Scientist Camp)



# International Cooperation of KWSE



대한여성과학기술인회  
The Association of  
Korean Woman Scientists & Engineers



# INWES & APNN (International Network of Women Engineers and Scientists & Asia & Pacific Nation Network)

INWES is a global network of organizations of women in STEM, an **official NGO partner with UNESCO and UN**

KWSE has participated in INWES as a foundation member and held **International Conference of Women Engineers and Scientist 13 (ICWES13) in 2005**

KWSE has played a key role in establishing APNN, 2011 and served as the **1<sup>st</sup> Chair Organization (2011~2014)**



# Presidents of INWES



Prof. Kong-Joo Lee(Ewha Womans University)  
2011. 07 ~ 2014. 11  
2014. 11 ~ 2017. 10



Prof. Jung Sun Kim(Dongseo University)  
2021. 01 ~ 2023. 12





# MAPWiST (since 2014, every 2 or 3 years)



- To discuss policies for women in STEM and build a policy development map towards gender balance in Asia and the Pacific nations (Australia, Bangladesh, India, Japan, Korea, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Sri Lanka, Taiwan, Vietnam, Pakistan, Philippines)
- Conducted International Collaborative Research on Policies since 2014

## • Chronicles

	2014	2017	2019
Theme	Leadership, Harmony and beyond	Mapping the Future of Women in STEM in Asia and the Pacific Nations	Looking back for a great leap forward
Participants	90 participants 26 countries	60 participants 15 countries	165 participants 24 countries

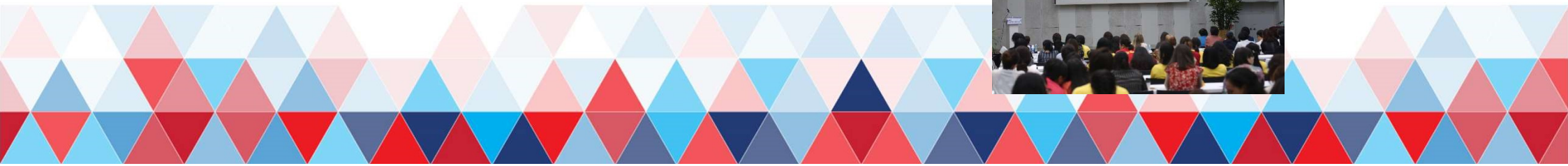


# MAPWiST (since 2014, every 2 or 3 years)

- **2019 MAPWiST (170 participants from 26 countries)**

- **Plenary Session**

Speaker	Title
Chiara BRONCHI Asian Development Bank	Women in STEM in the Asia Pacific: Charting a gender transformative future
Roberta PATTONO European Commission	Gender Equality in Research and Innovation: The European perspective



# MAPWiST (since 2014, every 2 or 3 years)

## ● 2019 MAPWiST

- **Policy Forum:** Looking back 10 years and looking ahead 10 years

Speaker	Title
Byung-Joo MIN (UNIST)	Perspective of national policy for empowerment of women in S&T
Yanghee KIM (Gender & Leadership)	Gender barriers young women scientists and engineers face and policy implications

- **Panel Discussion:** Analysis of 2018 Int'l joint survey result focusing on social and cultural backgrounds
  - Chair: Kong-Ju-Bock LEE (Ewha Womans University, Korea)

Country	Japan	Korea	Mongolia	Nepal	Taiwan
Panel	Kumi NITTA	Mi-Jung UM & Haryoung POO	Undram CHINBAT	Jeni RAJBAMSH	Chia-Li WU



# BIEN (Since 2003, every 4 years)



- Provides an international research platform for research outcomes exchange in the field of BT, IT, E<sup>3</sup>T (Energy, Environment, Earth), NT
- in conjunction with special session on gender, leadership & policy

## • Chronicles

	BIEN 2003	BIEN 2009	BIEN 2013	BIEN 2017
Theme	The Converging of Bio, Information, Environment, Energy, Space and Nano Technology	Women in Green Technology towards a Sustainable Asia	Korean Woman's Leadership in Science & Engineering and Future	Woman Scientists and Engineers Shaping the Future
Participants	350 participants 30 countries	300 participants 24 countries	730 participants 26 countries	750 participants 28 countries



International Conference on Convergence

# BIEN 2021

Women Scientists and Engineers  
Leading the Future from New Normal



[www.bien.or.kr](http://www.bien.or.kr)



대한여성과학기술인회

The Association of  
Korean Woman Scientists & Engineers

August 18 ~ 20, 2021

Hybrid (Online & Hotel ICC, Daejeon, Korea)

Organized by



THE ASSOCIATION OF KOREAN WOMAN  
SCIENTISTS AND ENGINEERS

Sponsored by



Ministry of Science and ICT

Supported by





# Plenary Speaker



**Strategies for COVID-19 Vaccine Development and Establishment of a Global Herd Immunity Against SARS-CoV-2**

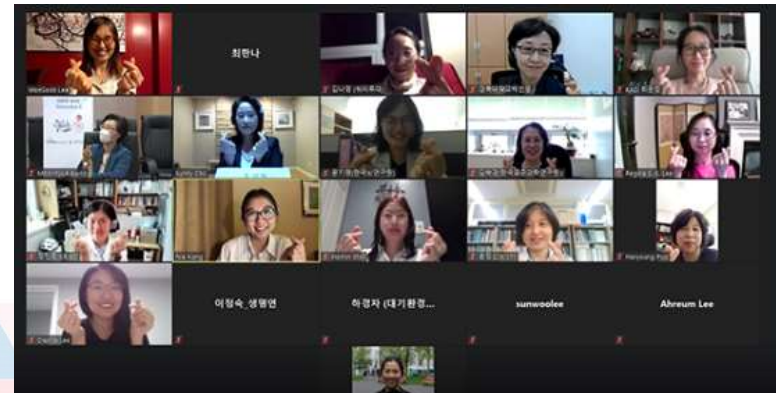
2021. 8. 18.(Wed) 10:30~11:20

**Chil-Yong KANG**  
Professor, University of Western Ontario in Canada

	8.18(Wed)		8.19(Thu)			8.20(Fri)		
	Hybrid		Hybrid			Online Only		
	Crystal Ballroom (1F)	Convention Hall C (2F)	Crystal Ballroom (1F)	Convention Hall C (2F)	Grand Ballroom (3F)			
09:00	Registration		Scientific Session (IT)	Scientific Session (CT)	Special Session II	Scientific Session (BS)	Scientific Session (BT)	MAPWiST
10:00	Opening Ceremony							
11:00	Plenary Session							
12:00	Luncheon		Luncheon					
13:00								
14:00	YWS Camp	Special Session I	Scientific Session (E <sup>3</sup> T)	Scientific Session (NT)	Scientific Session (ST)			
15:00								
16:00								
17:00	Break Time		Break Time					
18:00	Welcome Reception		Banquet					
19:00								
All day	Poster sessions will be organized as virtual sessions.							

# Academic Conferences & Webinar (Since 2014, year around) (On/Offline Research Presentation)

- Focuses on individual woman researcher to strengthen research capabilities, and to expand the research networking in the fields of Atomic/Energy, Bio, Earth/Environment, Information, Nano, Space/Astronomy, basic and convergence sciences
- For Korean, International and overseas (USA, Canada)
- Cooperated with International organizations for women in STEM







대한여성과학기술인회

The Association of Korean Woman Scientists & Engineers



# 2021 여성과학자 Webinar

상반기

웨비나 페이지

## Bioscience 세부 프로그램

한국 10:00 미국 20:00 EST / 21:00 EDT / Webex

한국 2월 10일 / 미국 2월 9일



**이재선** 인하대학교

**분야** Cellular Senescence, Cancer Therapy  
**제목** Understanding of Therapy-Induced Premature Senescence in Tumor Microenvironment

한국 3월 10일 / 미국 3월 9일



**문성실** CDC

**분야** Virology and Vaccine  
**제목** Inactivated Rotavirus and Poliovirus Vaccines Co-administered with a Microneedle Patch Produce Robust Immune Response in Animal

한국 4월 14일 / 미국 4월 13일



**이혜옥** 가톨릭대학교

**분야** Single Cell Genetics  
**제목** Exploring Cancer with Single Cell RNA Sequencing

한국 5월 12일 / 미국 5월 11일



**강선정** NIH/NIMH

**분야** Biostatistics  
**제목** Collaborative Research on Mobile Technology

한국 6월 9일 / 미국 6월 8일



**서행란** 한국파스퇴르연구소

**분야** Drug Screening  
**제목** Identification of Hepatic Fibrosis Inhibitors through Morphometry Analysis of Hepatic Multicellular Spheroids Models

참가신청

## Ecoscience 세부 프로그램

한국 10:00 미국 20:00 EST / 21:00 EDT / Webex

한국 2월 24일 / 미국 2월 23일



**Lewis Ziska** Columbia University

**분야** Climate Change  
**제목** Climate Change and Public Health: Through a Botanical Lens

한국 4월 28일 / 미국 4월 27일



**박정미** 한국생명공학연구원

**분야** Molecular Plant-Microbe Interactions  
**제목** A Human Pathogenic Bacterium Shigella Proliferates in Plants through Adoption of Type III Effectors for Shigellosis

한국 6월 23일 / 미국 6월 22일



**한은진** Columbia University

**분야** Climate Change  
**제목** Advances in Climate Services for Agriculture: from Generation to Use of Climate Information

참가신청



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# 2021 여성과학자 Webinar

상반기

웨비나 페이지

## Data Science

세부 프로그램

🇰🇷 한국 10:00 🇺🇸 미국 20:00 EST / 21:00 EDT / Webex

한국 3월 24일 / 미국 3월 23일



**차미영** 한국과학기술원

분야 Applied Machine Learning

제목 Unveiling North Korea's Local Economic Development via Unsupervised Deep Learning on Satellite Imagery



**성희중** NIH/NIMH

분야 Bioinformatics

제목 Genomic Database for Everyone

참가신청

한국 5월 26일 / 미국 5월 25일

## Environment & Energy

세부 프로그램

🇰🇷 한국 10:30 🇨🇦 캐나다 20:30 EST / 21:30 EDT / Zoom

한국 2월 19일 / 캐나다 2월 18일



**김리나** 한국지질자원연구원

분야 자원처리

제목 Recovery of Valuable Metals and Hazardous Materials Cleanup by Extractive Metallurgical Processes

한국 4월 16일 / 캐나다 4월 15일



**정슬기** 한국기초과학지원연구원

분야 토양환경/오염물질정화

제목 Risk management of heavy metals: Stabilization of heavy metals in mine waste by basic oxygen furnace slag

한국 4월 16일 / 캐나다 4월 15일



**Dianne Lee** Queen's University

분야 Chemistry

제목 Self-assembled Monolayer of N-heterocyclic Carbenes Applied to Pathogen Biosensing

한국 6월 18일 / 캐나다 6월 17일



**Amy Kim** University of Alberta

분야 Civil & Environmental Engineering

제목 Multimodal Transportation Systems for Response, Resilience, and Adaptation

참가신청

# YWS Camp (Since 2012, every year)



- Designed to help next generation female scientists and engineers strengthen global competitiveness and learn global attitude for global outreach



Lecture



Research Presentation



Mentoring, Group Discussion

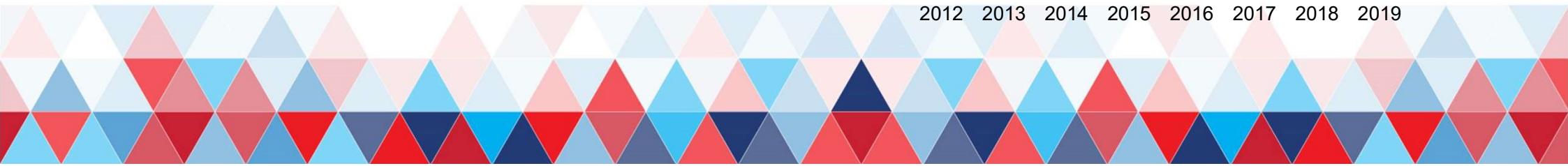
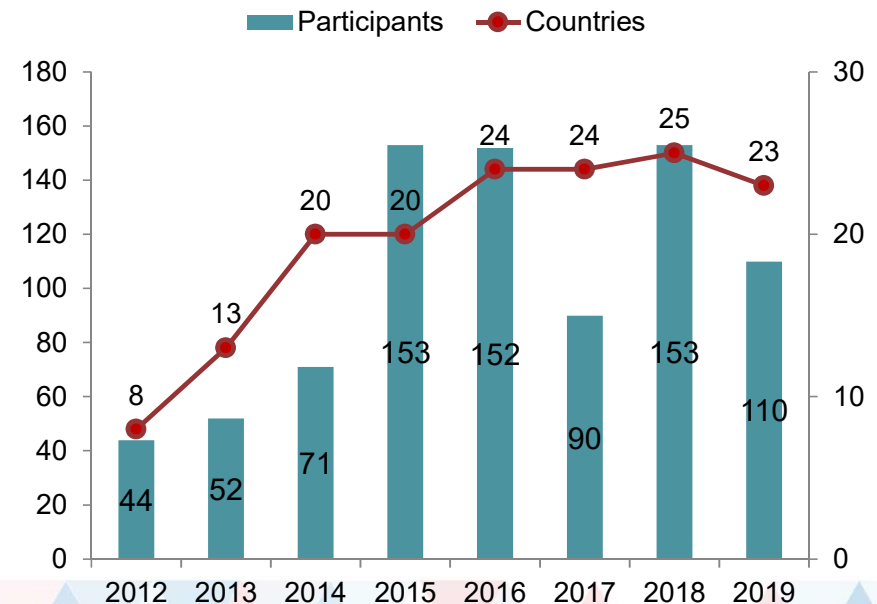


Cultural Exchange



Lab Tour

## • Chronicles



# YWS Camp (Since 2012, every year)



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## 2020 KWSE/APNN International Young Woman Scientist Camp & Smart Sister Workshop

YES (Young Engineers and Scientists), We are the Future of Asia!  
**Let's Lead the New Normal**

November **4 - 6, 2020**

ON/OFF Hybrid Lotte City Hotel, Daejeon



### Keynote Speakers

**Dr. Jane Goodall** The Jane Goodall Institute  
**Dr. Meeyoung Cha** KAIST

Nov. 4-5

### Online Program

Cultural Experience  
Research Presentation  
Online Mentoring  
Online Lab Tour

Nov. 6

### Hybrid Program

Opening  
Keynote Speech  
Awards  
Smart Sister Workshop

# Smart Sister Program (Since 2013, year around)

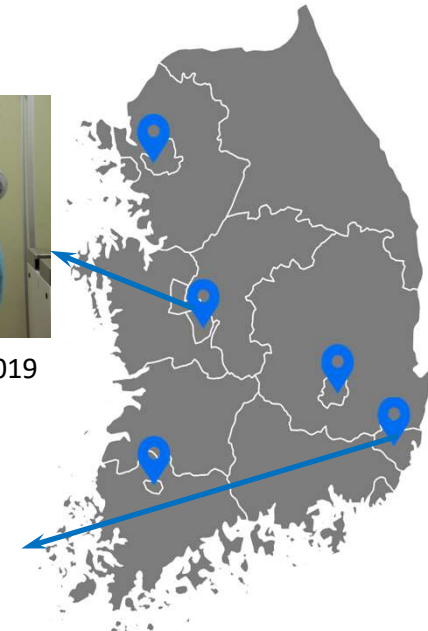
- For systematic foundation of networking and academic exchanges between Korean and international women scientists & engineers living in Korea
- Composed of mentoring sessions, field trips to research institute and invited lectures
- As of 2019, from 5 regions 194 participants from 24 countries



▲ Lab Tour, Daejeon, 2019



▲ Korean Cultural Experience, Busan, 2019



# Korea-ASEAN Women in STEM Forum(1/2)

## ● 2019 Korea-ASEAN Women in STEM Forum

(in conjunctions with 2019 ROK-ASEAN commemorative summit)

### ■ Purpose

- To highlight critical challenges for women in STEM and discuss international collaborative policies activities for women between Korea and ASEAN countries

■ **Theme:** Empowering women in STEM networks for the sustainable betterment of Asian economy

■ **Date & Venue:** November 21, 2019 at BEXCO, Busan, Korea

■ **Co-host:** KWSE & WISSET (Center for Women In Science, Engineering and Technology)

■ **Sponsor:** Ministry of Science and ICT

■ **Participation:** 150 persons from 12 countries

■ **Achievements:**

**2019 ROK-ASEAN commemorative summit**

**communiqué includes**



# Korea-ASEAN Women in STEM Forum(2/2)

## ● 2019 Korea-ASEAN Women in STEM Forum

### ■ Invited Speech

Speaker	Title
Ayako INAGAKI (Asian Development Bank)	Women in STEM in Asia

### ■ Panel Discussion: What can we do to strengthen international cooperation among Korea and ASEAN countries?

• Chair: Jung Sun KIM (Dongseo University, Korea)

Country	Korea	Malaysia	Myanmar	Thailand	Vietnam
Panel	Hyun-Ok KIM	Wai Yie LEONG	Htay WIN	Supatcha CHAIMATANAN	Le Thi Khanh VAN



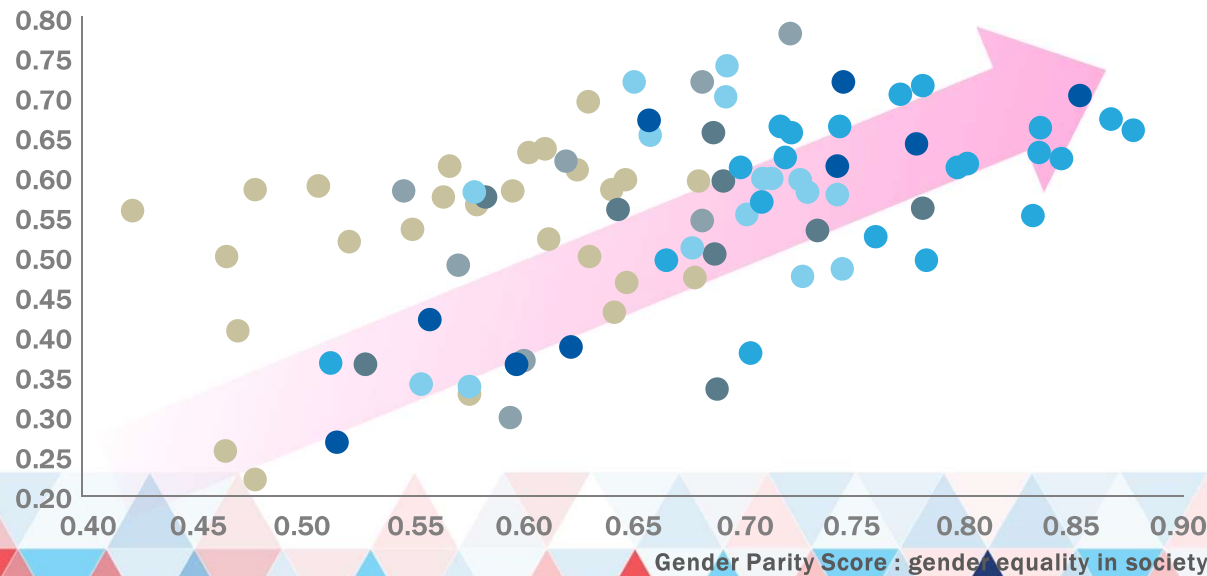
# For a better future, women's participation is essential



- Women's participation in society and work is proportional to GDP across 95 countries. (McKinsey report, 2016)



Gender Parity Score : gender equality in society





# For a better future, women's participation is essential



대한여성과학기술인회  
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- Women's participation in society and work is proportional to GDP across 95 countries. (McKinsey report, 2016)

" The 4<sup>th</sup> industrial revolution is the era of advanced creativity in women "

- by Klaus Schwab(WEF), 2016

" To empower all women and girls is a necessary foundation for a peaceful, prosperous and sustainable world "

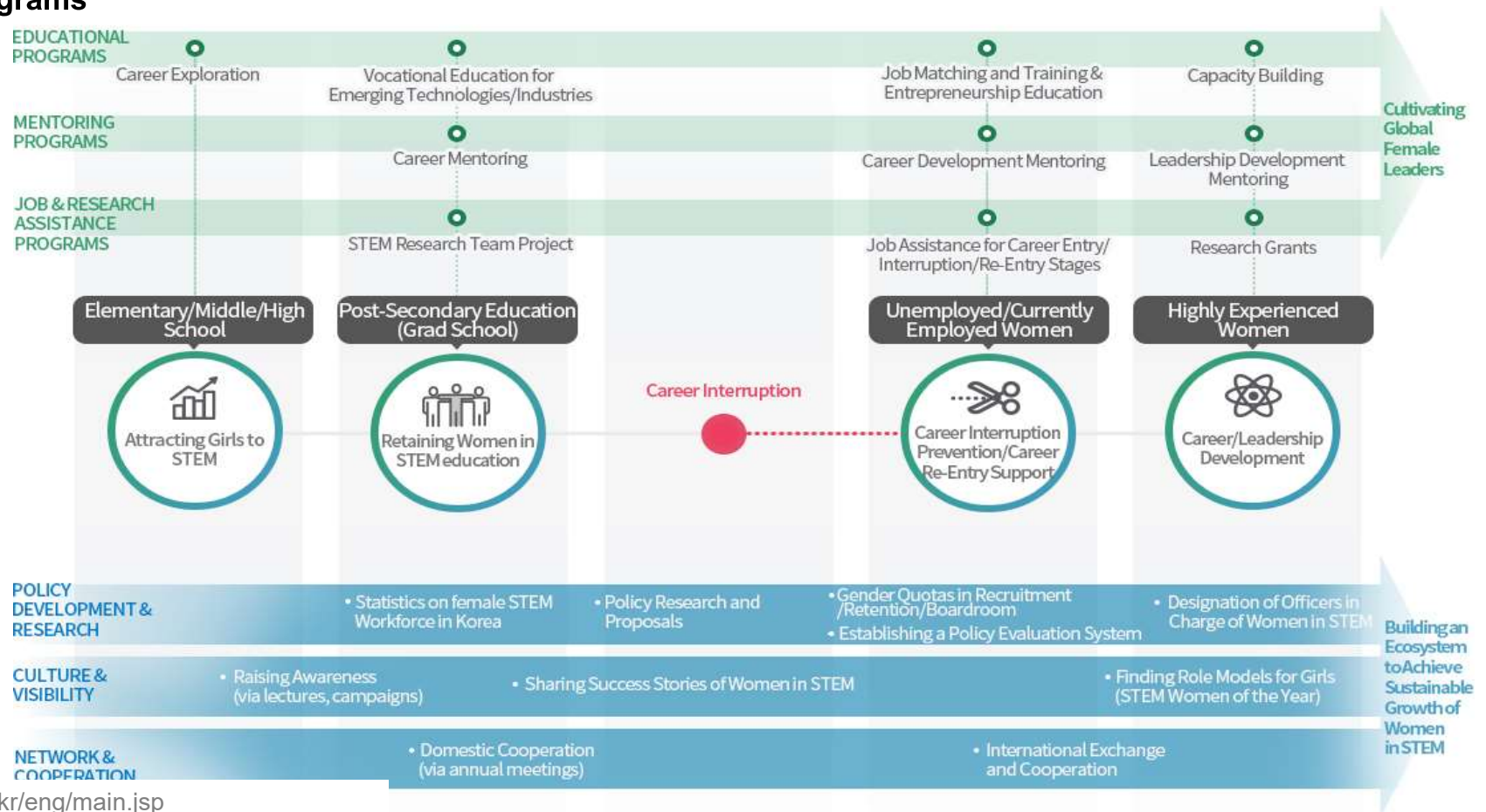
- UN, 2017

Gender Parity Score : gender equality in society

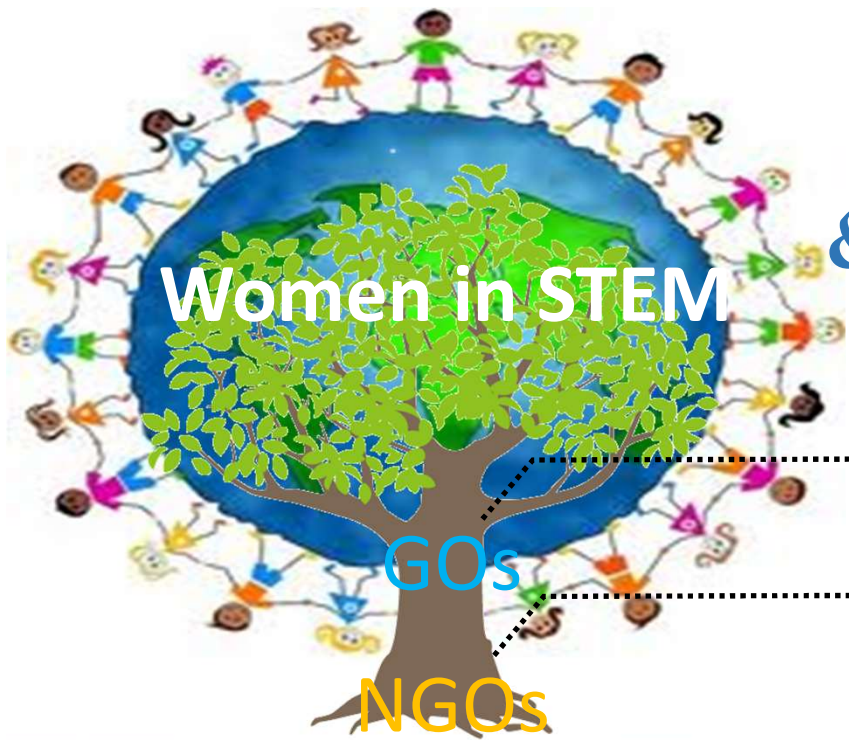
# Government-funded Organization for Women Scientists & Engineers in Korea

- Korea Foundation for **Women in Science, Engineering and Technology**

- **WISSET Programs**



# Suggestions for the future



## Needs for Cooperation between NGOs and GOs & Activating Global Platform

Establishing and Implementing policies for a balanced development of human resources in STEM in country

Supporting domestic and international projects  
Gathering the voices of women in STEM research sites to convey into making policy

