Gender Summit 6 Asia Pacific 2015
Final Report

Better Science & Technology for Creative Economy: Enhancing Societal Impact through Gendered Innovations in Research, Development and Business
Seoul, Republic of Korea

Hosted by

- Korea Center for Women in Science, Engineering and Technology (WISET)
- Portia Ltd, UK (Portia)
- National Research Foundation of Korea (NRF)
- Korea Institute of S&T Evaluation and Planning (KISTEP)

With partners :

- Korea Federation of Women's Science & Technology Association (KOFWST)
- The Japan Science and Technology Agency (JST)
- National Natural Science Foundation of China (NSFC)
- The Japan Society for the Promotion of Science (JSPS)
- Association of Academies and Societies of Sciences in Asia (AASSA)

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1. Introduction

The Gender Summit mission

The Gender Summit is a platform for dialogue involving scientists, gender scholars, policy makers, and different stakeholder groups in science endeavours. The overarching mission of the Gender Summit is to make science better for all through evidence and consensus-based actions to:

- ✓ Eliminate gender bias in science knowledge making
- ✓ Advance gender equality in scientific practice
- ✓ Promote gender aware and responsive science and technology, and
- ✓ Ensure that research and innovation outcomes benefit women and men with equal efficacy, and produce sustainable socio-economic improvements for society.

These actions are needed because new research increasingly reports cases where important biological and psychosocial differences influence research results and produce different outcomes for women and men. One of the most pressing gender issues in scientific research concerns the traditional assumption that science is 'gender neutral', and that what works for men will work equally well for women, and vice versa. Historically, the majority of studies automatically adopted "male" as the norm when asking research questions, or when developing new technological solutions. The result is that science has more evidence for men than for women and this can lead to harmful and expensive consequences. For example, the exclusion of women in past toxicology research has created flaws in our understanding of adverse health effects due to exposure to toxic metals (especially arsenic, cadmium, mercury and lead), which affect women and men in significantly different ways and constitute serious public health problems worldwide.

Whilst gender bias in research has mostly disadvantaged women, sometimes it has also affected men (e.g. diagnosis and treatment of breast cancer and osteoporosis). Better understanding of when, why and how female-male characteristics determine research outcomes will produce better science, and open up new opportunities for technological innovations as well as markets for science knowledge.

Introducing the Gender Summit to the Asia Pacific

The Gender Summit 6 – Asia Pacific (GS6-AP) 2015 was designed to continue the dialogue begun in Europe in 2011 and 2012, and later expanded to other regions. In 2013, a partnership of research funders from USA, Canada and Mexico, led by the National Science Foundation, introduced the Gender Summit–North America, and in 2015, a partnership of research funding bodies in South Africa, led by the Human Sciences Research Council, introduced the Gender Summit –Africa. Individually and together, these events have started shaping national and regional agendas for action to address gender issues. They have also begun to create evidence-led collective commitment to improve development of scientific human capital; enhance quality of research and innovations; and transform institutional policies and practices in STEMM (science, technology, engineering, mathematics and medicine).

The GS6-AP attracted more than 500 participants from 32 countries. The 3-day event took place on 26-28 August in Seoul, Korea. Participants included: scientists, policy makers, gender scholars, as well as representatives of industry, government, and regional science associations. The GS6-AP programme included a diverse range of topics exploring how the emerging understanding of gender issues in STEMM can be integrated into research and innovation in the Asia Pacific region to create new and better knowledge and technologies that can answer with equal importance the needs of women and men.

The GS6-AP discussions examined the role of gendered approaches in every area of research and innovation process: ideas, methodology, funding, policy, systems, and evaluation, right through to marketing new science based products and services for public use.

As the first in the region, the GS6-AP event has opened the door to continued dialogue on how the Asia Pacific countries can use gender knowledge to enhance their global competitiveness and creativity through science and technology, and ensure fuller participation of women in their STEMM workforces. The GS6-AP has also started the process of building a community of experts and practitioners in the region needed to effectively propagate and collaborate in advancing gendered research and innovations in each country and throughout the region, and beyond.

GS6-Asia Pacific Organising Institutions and Partners

The lead partner responsible for introducing the Gender Summit platform to the Asia Pacific region was the Centre for Women in Science, Engineering and Technology (WISET). Co-organising institutions were Gender Summit founder Portia UK, Ltd., the National Research Foundation of Korea (NRF), the Korea Institute of S&T Evaluation and Planning (KISTEP).

Partners for programme planning and implementation were the Korea Federation of Women's Science and Technology Association (KFOWST); Japan Science and Technology Agency (JST) as well as Japan Society for the Promotion of Science (JSPS); National Natural Science Foundation of China (NSFC); and the Association of Academies and Societies of Sciences in Asia (AASSA).

GS6-AP Objectives

The objective of the Gender Summit 6 - Asia-Pacific 2015 was to set out an agenda for evidence-based, concerted and integrated actions by all participating stakeholders in STEMM to address common gender issues in science. More specifically GS6-AP focused on advancing better understanding of how to:

- ✓ Develop regional and national communities of experts across the government, industry, academic fields, and public citizenry to tackle scientific and social challenges through gendered innovations in research and development
- ✓ Promote a more creative research and innovation ecosystem through the inclusion of the gender dimension in research methods, funding policy, review process, and institutional structures
- ✓ Maximise opportunities for regional networking in research and human capital development through greater gender diversity
- ✓ Contribute to enhancing quality of life by connecting gender issues and the best available technology based on distinct characteristics of the Asia Pacific.

2. The Seoul Gender Summit Declaration

The issues discussed during the GS6-AP gave rise to a set of recommendations, presented as the Seoul Declaration to Advance Gendered Research, Innovation and Socio-economic Development in the Asia Pacific. They map the essential directions of action to advance gendered research and innovation in the Asia Pacific region, and provide a systematic and unifying framework from which a specific action plan can be constructed. The Declaration was drawn up in full recognition that national research and innovation systems across the Asia Pacific region have different characteristics and that this variety is an asset that each country needs to exploit to the full. The Declaration does not therefore seek to prescribe a series of actions that must be implemented by national science institutions, nor a prescription that should be followed in one particular way. The intention is rather to draw attention to essential areas where action is needed in order to pay most dividends for improving the quality of the outcomes of national research and innovation systems by spreading gender sensitive approaches to excellence and strengthening their effectiveness. ***The Seoul Gender Summit Declaration can be signed online at: http://bit.ly/1fWaWKJ***

Those signing the Seoul Gender Summit Declaration have agreed to:

1. COLLABORATE by creating national and regional alliances to enable continued dialogue on common gender problems in science, such as criteria of scientific excellence, which are of concern to policy makers, scientists, gender research experts, and stakeholders in science endeavours, including industry and citizens.

2. ASK, to ensure quality of research process, "whether, and in what sense, biological sex and gender differences are relevant in the objectives and methodology of the project". Evidence demonstrates that the assertion that science is gender neutral is not the case. For instance, when gender is not taken into account, research often results in different health and safety outcomes for women and men.

3. ESTABLISH research and innovation protocols, standards, regulatory regimes, as well as binding recommendations in areas where evidence already demonstrates the need to validate results to ensure safety and efficacy for both women and men. Examples include diagnostic biomarkers, stem cell medicine and assistive devices.

4. AGREE on accepted terminology, schema and models for representing and reporting the role and effects of biological sex and gender in scientific contexts, for instance when to use the term 'sex' and when to use 'gender' when explaining study results. There is considerable confusion in the research literature regarding terminology and this affects the potential for conducting systematic reviews and meta-analytic studies.

5. CREATE fresh opportunities for developing new markets for science knowledge by advancing gendered innovation ecosystems. Such systems can be constructed by exploiting connections between: 1) gender sensitive research; 2) the different interests and product needs of women and men; and 3) making better use of the available female scientific and creative capital. These may involve, for instance, speech recognition products or devices promoting healthy aging.

6. INVOLVE more women in innovation value chains - in idea creation, development, and implementation. Evidence shows that: 1) gender balance in a team improves its collective intelligence; 2) in 'crowd sourcing' innovation, women outside the formal innovation circles contribute better solutions than others; and 3) when experiments fail, women and men adopt different problems solving strategies.

7. IDENTIFY statistics, indicators, and methods for collecting sex-disaggregated data to enable better understanding of the current situation regarding gender equality in science at institutional, national, and regional level. Key measures include: 1) gender balance in participation in science education, in research and innovation, and in science-related academic, industry and related employment; 2) institutional gender equality polices; 3) progression stages in the career pathways of women and men; and 4) applications and success rates in access to research funding.

8. EDUCATE, starting with schools and including university students, researchers, mangers of research and science communicators about the importance of including gender perspectives in research and innovation. Common sources of resistance to change include implicit and explicit gender bias, and cultural gender stereotypes. Children as young as 9 months can distinguish gender roles and by the age of 2 years have constructed their own gender stereotypes, which reflect those of

the society they live in.

9. JUDGE the individual and scientific quality, and potential, of women and men using clear and fair assessment criteria, monitoring outcomes for signs of gender bias in order to improve the selection process. Evidence shows that bias in the evaluation of merit is common and favours the success of men: in recruitment to research teams and jobs; in career promotion; and in the award of research grants.

10. CREATE conditions for the gendered research and innovation principles to be implemented in practice through funding policies and programmes, encouraging cross-disciplinary and cross-sector collaboration, for example between universities, industry and Civil Society organisations.

Attached to the Declaration are a number of specific priority actions that key actors and stakeholders can implement in the short and medium terms. Whilst acknowledging that these do not necessarily represent priorities for all institutions and countries, there are examples of successful measures that can act as models for planning new interventions for many of these actions.

General Recommendation	1. Do not assume that the science knowledge and research methods and practices in their current use are free from gender bias.
For funding agencies	2. Promote the use of the methods for sex-gender analysis in research and innovation as a criterion of scientific excellence 3. Be explicit how sex-gender analysis should be integrated into study design and how proposals should incorporate the gender-dimension within knowledge making 4. Take measures to promote gender balance in decision-making of grant review panels and raise awareness of the effects of gender bias in peer-review panels and assessment processes. 5. Monitor the grant-award process and how decisions are made to ensure that female and male applicants have the same opportunities to succeed, and that there are no hidden reasons for gender differences in success rates. 6. Require that when grants are used to create research teams, the process gives due attention to achieving appropriate balance of women and men, reflecting the proportion of female and male researchers in the field or in the organisation.
For institutions	7. Be explicit about the processes and criteria used to assess individual merit when recruiting, promoting, and rewarding staff and take measures to prevent implicit gender bias from influencing decisions. 8. Promote gender-balancing efforts in key decision-making committees. 9. Ensure that employment and working conditions offer the same opportunities for personal and professional development to women and to men. 10. When recruiting new staff, ensure that there is appropriate gender balance in the candidate pool. 11. Integrate methods for sex and gender analysis in research and innovation in researcher training programmers. 12. Include gender-related issues in the evaluation of organisational competence. 13. Provide training in methods in sex and gender analysis should be integrated into all subjects across all basic and applied science curricula.

For publishers	14. Promote fuller participation of women on journal editorial boards. 15. Encourage authorship practices that provide accurate information about the specific contributions of each author and make these and other bibliometric information available disaggregated by sex. 16. Promote editorial policies that ask for clear explanation whether and what kind sex-gender analysis was included in study design and research process.
For researchers	17. When involved in committees making decisions about funding, hiring, tenure, or promotion, ensure that the process and outcomes are not influenced by explicit or implicit gender bias. 18. Challenge omissions of sex-gender analysis in curricula, research methodologies, and in research communications where there is a clear element of human benefit.
For regulatory agencies	19. Revise research and innovation regulations to incorporate the gender dimension (as well as ethnicity, age, and other relevant factors) in the recommended procedures.
For industry	20. Promote open and user led innovation and more fully engage women in the innovation process as a source of new ideas and solutions. 21. Explore opportunities to create innovation ecosystems that build on gender-informed science knowledge and the different needs of women and men

3. Central Themes of the GS6-AP Programme

The GS6-AP programme included many sessions and panels, with wide ranging presentations. The purpose of this section is to reinforce the intellectual continuity of the discussions and their underlying synergies and cohesion by presenting the central themes in the discussions. More detailed account of the topics organised by chronological order is provided in the section that follows. The central themes included:

- ✓ Creating conditions for change in the region, and globally
- ✓ Ensuring quality of research process, methods, and outcomes
- ✓ Creating fresh opportunities for developing new markets for science knowledge
- ✓ Increasing women's participation in research and innovation
- ✓ Gathering statistics to monitor progress towards gender equality in STEMM
- ✓ Awareness raising and education about gendered research and innovation.

I. CREATING CONDITIONS FOR CHANGE IN THE REGION, AND GLOBALLY

The GS6-AP showed that there are important political and scientific benefits in promoting gendered research and innovation. Included below are the keynotes and messages of support from high-level government officials and from representatives of industry and education who play decisive roles in making change possible.

The Minister for Science, ICT and Future Planning of Korea, Yanghee Choi, presented Korea's political vision how science can help deliver creative economy led by both women and men. Minister of Gender Equality and Family, Hee-Jung Kim, also spoke on the importance of including more women in STEMM fields.

Korean National Assembly member Sang-Kee Suh also gave his commitment and encouragement for better gender diversity in STEMM, and National Assembly members Moo-sung Kim, and Ui-Hwa Chung also sent their written congratulatory remarks. Their comments can be read in Appendix 2.

High-level political interest from outside Korea was demonstrated by the presence at the opening ceremony of the ambassadorial representatives of the UK, Philippines and Norwegian governments, as well as of the European Union.

Speech by Yanghee Choi, Minister, Ministry of Science, ICT and Future Planning, Republic of Korea

First of all, congratulations on the opening of the Gender Summit 6 – Asia Pacific 2015. My heartfelt gratitude to honourable lawmakers Sang-ki Suh and Seung-hui Yoo, and His Excellency Ambassador Charles Hay of the UK, and Ambassador Raul Hernandez of the Philippines, and President of AAAS Geraldine Richmond, Chairman of Elsevier Youngsuk "YS" Chi, for taking time out of busy schedule to be here today AAAS (American Association for the Advancement of Science). I would also like thank all the speakers, presenters and participants for travelling from near and far to share their valuable thoughts. Distinguished guests, the future is not something you arrive at, but it is something you create. Science and technology have always been the main drivers of industrialisation and economic development of the humankind, and their role as a source of new values and growth will continue.

However, we are faced with many challenges that demand our attention. First of all, population aging is

rapidly becoming a global phenomenon. The world has already entered the aging society in 2002, and the global fertility rate is expected to continue its decline. Not only that, current R&D efforts are falling short of achieving maximum productivity and excellence, failing to go beyond the known and familiar. To make the most of our limited human and natural resources and drive social development through science and technology, we need to retain and maximise the potential of talented women. We also need to take a hard look at the existing methods to make necessary changes for addressing the real issues and enhancing the research quality. In that sense, the theme and the location this Summit, which is being held for the first time in the Asia Pacific region, cannot be more apt and timely. The Asia-Pacific region accounts for about 40% of the world population and almost 60% of the global GDP. The number of women completing higher education has grown steadily since the 70s, and the increase rate is twice as high as it is for men. Considering the vast potential of many talented women in the region, the Gender Summit 6 being held here in Asia is especially meaningful and appropriate.

Distinguished guests, the share of women in science and engineering is growing steadily and the world now demands us to go beyond equality in numbers and move one step closer to achieving a truly gendered innovation. The first step towards creating a more balanced S&T ecosystem should be taken at the labs. Preventing bias or errors in scientific knowledge by considering gender dimensions in research and experiments can be a great example of that first step. Respected journals such as Nature and The Lancet require their authors to present male and female data separately when submitting their works. In EU's Horizon 2020 programme, gender balance in research is one of the most important criteria in the review and selection process. The Korean government as well, has announced the "3rd Basic Plan for Fostering and Supporting Women in Science and Technology" under the new vision of building creative economy led by both men and women.

While the 1st and 2nd Basic Plans were more focused on offering necessary support for women in science and technology, the 3rd Plan turned its aim towards creating a balanced science and technology ecosystem for all. The Korean government is strongly committed to ensuring equal opportunities for men and women. And we are making efforts to promote and sustain the careers of women in science, especially those who experience career breaks due to family reasons. Now, we are ready to step up our efforts to achieve gender balanced R&D innovation, and I believe the presentations and discussions at this Summit will give us many inspirational ideas for building our own gendered innovation programme.

Distinguished guests, a truly ground breaking change begins from R&D innovation, but it cannot be achieved by repeating the known and familiar. In that sense, this Summit is a great opportunity for us to take another look at these "known and familiar" methods and remove gender bias and errors from science knowledge making. Removing gender bias and preventing errors in scientific research is beneficial not only for women but the society at large. In particular, gender balanced R&D can open up opportunities for innovative companies that are looking to create new values and markets.

Once again, thank you for inviting me to speak at this important event today and I wish all of you a rewarding and productive meeting.

Yanghee Choi, Minister, Ministry of Science, ICT and Future Planning

Speech by Hee-Jung Kim, Minister, Ministry of Gender Equality & Family, Republic of Korea

Good evening!

I am delighted that Korea was given the honor of hosting the Gender Summit 6 Asia-Pacific, the first-ever in the region. Welcome to all of you!

For successfully organizing this momentous event, I would like to thank President of Center for WISET (Women in Science, Engineering and Technology), Heisook Lee, President of KISTEP (Korea Institute of S&T Evaluation and Planning), Youngah Park, and President of National Research Foundation of Korea, Min Kuen Chung.

Researchers and scientists, Honorable delegates, And distinguished guests,

The world today is an era of creative economy built on science, technology and ICT. Contemporary technologies that incorporate women's perspectives and demands, which had often been neglected, are now creating new social values.

It is a fact that men and women are different in biological design, and to some degree, in their lifestyles and experiences. In the past, however, scientific research and technology applications have not properly reflected these differences. And the resulting consequences have inhibited creation of enabling environment for diversity to thrive while increasing social cost.

In light of this insensitivity, the Gender Summit, convened in 2011, stirred up global conversations on gendered innovation in the science and technology fields. By applying different perspectives of men and women in science and technology, the summits have significantly contributed to enhancing economic and social values and the utility of S&T.

And we gathered here again believing that the scientific advancement can be even further developed by increasing the number of female S&T professionals, and by considering women as both participants and beneficiaries of technological innovations.

The Gender Summit 6 Asia-Pacific 2015 aims to address on improving gender diversity in the STEMM fields, and subsequent equality from the impacts of technological developments on men and women. In this respect, I am certain that the GS6 Asia-Pacific will be a crucial opportunity for taking gendered innovations up another level forward.

In 2012, the Republic of Korea has adopted the Gender Impact Analysis in central and local governments. Through this policy, gender discriminatory elements have been eliminated in government programmes and projects, benefiting both genders equally.

Take, for example, the age stipulation on receiving surviving spouse's compensation annuity. In case of death of a male worker due to occupational accident, his surviving wife was immediately entitled to survivors' compensation annuity, regardless of her age. But what if the survivor was male? Would they be entitled to the compensation immediately as well? In fact, if the surviving spouse is male, he had to wait until he reaches the age of 60 to receive the annuity. Why such difference?

When the law was legislated, women's social and financial status was far more vulnerable than men's. And therefore, this clause that stipulates age on men was to protect women who lack means to support themselves financially. There was this assumption that men are more capable of supporting themselves. But this is not the case any longer. Indeed, in December 2012, the age stipulation on men was eliminated through a gender impact analysis and assessment, and now men and women survivors are treated

equally.
Another case is found in the number of toilets in highway restrooms. Men's and women's rooms used to have the same number of toilets. Would you say that this is gender-equal or gender-sensitive? I think not. Even when equal number of toilets was installed, it takes longer for women to use the restroom due to physiological difference as well as difference in the way women dress.

A study shows that women need about 1.5 times longer amount of time on average. As if to prove this, it is not unusual to see long queues of women lined up outside the restroom, and all these irritated husbands standing around, waiting for their wives. Also, we see more women, than men, accompanied by children and obviously it will make it even longer for women. To resolve this issue, the relevant law was revised to expand the men-to-women ratio of toilets to a minimum of 1 to 1.5. As a result, the average wait time in highway restrooms for both men and women has decreased.

Though these improvements are not scientific or technological changes, I believe that they are very good examples of gendered innovations we can easily find in our daily lives.

Recently, our government R&D funding programme was also assessed according to the Gender Impact Analysis policy. Following this precedent, gender analysis will be an integral part of future projects in science, technology, and medical R&D. And in case research and experiment subjects are gender disaggregated, analyses on characteristics of and differences between genders will be reflected in research.

The Korean government will endeavor to create an environment in which work-life balance is attainable for women scientists and R&D professionals to reach their full potential. Further efforts will be exerted to prevent career disruption and to assist restart of women professionals in science and technology.

As a gender equality minister, I have been emphasizing the 4-R principles for women's career development: Recruit, Retention, Restart, and Representation. Following this path, we will continue to strive to help more women to enter and remain in science and technology fields without interruption. Any barriers to restarting will be removed for women who could not avoid discontinuing their career, so that these women can grow as successful professionals, representing the Korean S&T sector.

Honorable guests,

Gendered innovation is not for women only. It is for both men and women. Through diverse perspectives and life experiences of men and women, new knowledge is discovered and technological innovation is ignited, ultimately accelerating sustainable social and economic growth.

I hope and expect that the Gender Summit 6 Asia-Pacific 2015 will carry gender equality up to the next breakthrough phase in the fields of science and technology in Korea, Asia, and throughout the world.

The Ministry of Gender Equality and Family, too, will readily join our efforts in this work.

Once again, thank you to all who worked hard to make this meaningful summit possible and to all who joined us this week.

Summary of Keynote by Geraldine Richmond, President, American Association for the Advancement of Science (AAAS); Presidential Chair in Science & Professor of Chemistry, University of Oregon, USA

Prof Richmond presented on "*The Importance of Women Leading the Way in Research and Innovation.*" She said that Creating a workforce that embraces diversity of opinions and ideas is key to innovation, pointing to various benefits including higher retention rates in companies and better innovations in problem solving. She mentioned innovations that had disproportionately benefited men such as airbags, heart valves, and voice recognition software. She cited statistics highlighting the lack of gender diversity in STEMM leadership internationally. For example, women hold only 18% of full professorships in Europe, in India they make up only 3% of Vice Chancellors, in Chemistry in the US they make up just 6% of full professorships, and only 10% national academy elected members in the US are women.

She emphasised the importance of equality in education, hiring and promotion in STEMM as well as strong female role models for those starting their careers. As well as diversity in staff, she said creating an inclusive working environment where all opinions could be expressed was key. She also mentioned the work of her organisation, COACh which runs international programmes aimed at assisting in the success and impact of women in science and technology. *(Video: http://bit.ly/1OxErlc)*

Summary of Keynote by Youngsuk "YS" Chi, Chairman of Elsevier

Mr Chi spoke on the current state of women in STEM and shared Elsevier's use of concrete evidence to promote gender equality and diversity in the scientific community. Women make up less than 30% of the STEM workforce in both emerging and established scientific nations, partly because many women with degrees in science and engineering do not pursue professions in these fields after graduation. Men dominate global scientific outputs in terms of papers published, and female scientists receive fewer awards for their scholarly contributions than men across all scientific disciplines.

Elsevier is creating more opportunities to recognise female scientists and implementing policies for researchers to strengthen their support network. The Elsevier Foundation Awards for Early Career Women Scientists in the Developing World are given to five female early-career scientists for their outstanding scholarly contributions. In 2014, the Elsevier Foundation funded a book by the Association of Women in Science called the *Equitable Solutions for Retaining a Robust STEM Workforce*, which revealed that both women and men suffer from limited career development opportunities, lack of flexibility in the workplace, and organisational culture that was not "family friendly." The new Elsevier Family Support childcare grant, allows researchers to spend up to $500 on childcare in preparation for scientific conferences or events.He saw the next step as to leverage more Elsevier data to extract insights on gender's effect in the STEM community. Elsevier is working on a report that identifies the benefits of gender diversity in research, calculating male to female ratio for co-authored publications in Scopus, the world's largest abstract and citation database. This will help discover: the effect of female co-authors on a paper's quality; the effect of female co-authors on how interdisciplinary a paper is; and whether single-gender research teams pursue different topics teams with both men and women. *(Presentation:* http://bit.ly/1Ntc8CO *Video: http://bit.ly/1jqvwYE)*

In many respects implementation of the policy measures established in the European Union (EU) to advance gendered research and innovation have benefited from the Europe-wide structures and mechanisms that can be mobilised by policy makers. The European Commission's new framework programme for research and innovation, Horizon 2020, has transformed how gender issues are considered by requiring improvements on three fronts: number of women in scientific roles, incorporation of the gender dimension in research content, and recognition of gender as a crosscutting issue applicable across all fields. In the last few years, changes have also been made by research funders at national

level, in Norway, Sweden, Germany and Switzerland, for example. However, to ensure long-term success policy on gender in science has to be translated into structural changes in how STEMM institutions are functioning and how science knowledge is produced, applied and communicated. One important issue concerns training of evaluators, peer reviewers, and science editors on gender issues in science when research proposals or reports are assessed for funding or publication. Good policies need commitment to be properly implemented (**Britta Thomsen**).

Many speakers at the GS6-AP stressed that good policies and actions can be promoted in the Asia Pacific through international collaborations designed to share good institutional practices, as in the example of the Korean Institute of Science and Technology (KIST), which partnered with Vietnam to analyse Vietnam's S&T strengths, weaknesses, opportunities, and threats. The establishment of V-KIST could result in several benefits, such as import replacement and export increase; increased S&T manpower; and an upgraded national innovation system (**Eun Gyeong Yang)**. Vietnam has made remarkable progress in establishing gender equality, and V-KIST is envisioned to help develop Vietnam's economy and achieve gender equality, which could serve as a model for other countries, and involve not only governments but also NGOs.

II. ENSURING QUALITY OF RESEARCH PROCESS, METHODS, AND OUTCOMES

The GS6-AP discussions focused on the ways to improve the quality of research and innovation, with specific attention placed on improving systematic integration into study design of knowledge about important differences (and similarities) between women and men. Such gendered research and innovation (GRI) is important for the power, vitality, quality, and impact of research as it eliminates bias, stimulates inclusivity, and saves lives and money. However, systematic consideration of GRI is still lacking in research processes, and researchers, academics, policy makers, politicians, research funders and journalists lack awareness of its importance (**Simone Buitendijk**). A groundbreaking contribution to building the new understanding has been made by the Gendered Innovation project, which grew from a joint project by the European Commission and Stanford University. The starting point for researchers is to establish clarity about the meaning of "sex" and "gender", and how they should be represented and analysed as dimensions of research and innovation process, and communicated both within and outside science. The Gendered Innovations website offers systematic classification as well as multiple case studies demonstrating how to conduct sex-gender analysis (**Londa Schiebinger**).

During GS6-AP many good examples of research were presented showing that quality of outcomes can be negatively affected when the role of biological or psychosocial differences is not fully recognised and integrated into study design. One of these cases concerned research on pain where, traditionally, basic research has been done using only male rats and mice. The assumption has been that using female rodents would produce too much variation in the results. However, aggressive behaviour of male rodents can also cause quite a large variation. What was missed as a consequence of using specifically males is that the signalling pathways in pain are different between male and female rodents suggesting that analgesic interventions may also have to be different for males and females. (**Jeffery Mogil**).

Another example discussed came from research on the levels of protection needed for women and men as car drivers, and how ineffective different car models and seat designs are for protecting women in particular against car crash injuries. The available data shows clearly that the relative injury risk for females is always higher than for males, that is women are likely to suffer more in car accidents due to inappropriate design and poor provision of vehicle driver protection systems (**Astrid Linder**).

The role of standards in improving quality of research outcomes was raised in discussion about toxicity of nano materials. Most inhalation toxicology and most oral toxicology have gender differences. This understanding needs to be incorporated into the safety standards for nanoparticles research and

applications. The Working Party on Manufactured Nanomaterials at the OECD is working to devise protocols for experiments involving nanoparticles. However, a big challenge to this effort is lack of consistent data across countries, which in itself reinforces the need for standards (**Hyun-Min Park**).

III. Creating Fresh Opportunities for Developing New Markets for Science Knowledge

Innovation has to be accepted by society in order to be successful. There are several possible ways to create societal involvement in the discussions about technologies, and to share technological visions with scientific community, the public, and industry. Understanding how sex and gender impact on research results and on the efficacy of technological innovation offers important starting points for bringing about socioeconomic improvement through better quality of research that incorporates the gender perspective. The benefits are enhanced market potential of new products, as well as an enlarged pool of scientists and entrepreneurs (**Martina Schraudner**).

Investment in R&D as a percentage of GDP has risen by as much as 76% worldwide with much of the increase coming from the developing world where gender problems are prevalent. Gender gaps continue in access to, control over, and use of technologies and other innovations. We must understand the needs of women and the manner in which the technology will be developed and used. Women must be active participants in using and also in building technologies. Technologies must be appropriate to cultures and traditions (**Susheela Venkataraman**).

In the case of robotics technologies, the global market has grown by 11% since 2007, but the South Korean robotics industry has expanded by 22% since 2008. Robots already impact our lives in such areas as automobile production and medicine. In future, robots will display greater connectivity with other technologies such as cloud computing allowing for new everyday conveniences such as self-driving cars and personalised meal services. Women are key to the future of the robotics industry as both consumers and developers. They will be major beneficiaries of service robots in the future since women still do the majority of the housework and childrearing (**Kyungchul Shin)**.

Another area highlighted as an emerging opportunity for gender knowledge concerns creation of interventions to mitigate the consequences of natural disasters, in particular helping re-establish community life. This became apparent in the context of recovery from the recent strong earthquake in Japan (**Mikiko Ishikawa**), where women's experience produced better understanding of how to support community-based reconstruction carried out by community survivors, the municipal office, university volunteers, and other organisations, including women in all stages of the planning and implementation process.

IV. INCREASING WOMEN'S PARTICIPATION IN RESEARCH AND INNOVATION

Investing in improving gender diversity is both the right thing and the smart thing to do. There are three important steps in advancing gender balance and equality in STEMM fields: 1) know where we are, 2) know why we want to be somewhere else; and 3) find the way to get there. Norway has been at the forefront of efforts to achieve gender equality in science, for example through programmes such as those supported by the Center of Excellence, which involve women across decision making; influencing student admission policies by giving preferential points to women; giving special attention to female associate professors with potential to reach higher ranks; and provision of research fellowships only for women (**Curt Rice**).

In the Asia Pacific region, the need to improve women's participation in science is well recognised, especially in China, Korea and Japan. The national statistics for China show that female scientists make up 30% of China's total R&D staff and 30% of PhD students. The current science policy direction in China is to: 1) increase the number of women at graduate and PhD level; 2) promote overseas studies; 3) address the age limit for excellence grants for young researchers; 4) increase length of research period for female principal investigators (women scientists in China must retire much earlier than men); 5) increase the proportion of women in the review process; 6) increase the number of women in national high level science and technology awards; and 7) encourage women's greater involvement beyond research, i.e. in technology, engineering and business, specifically in patenting (**Jin Chen**).
In Japan, the deficit of women in science and technology is well recognised. Gender inequality has been addressed by the Japanese Government for more than 10 years, taking some policy measures including supporting better work-life balance; encouraging female secondary school students to pursue science and engineering (S&E) disciplines at university; and providing information on S&E careers to high school students, their parents and teachers (**Yuko Harayama**)

V. GATHERING STATISTICS TO MONITOR PROGRESS TOWARDS GENDER EQUALITY IN STEMM

"Knowing where we are" is essential to "knowing where we want to be," therefore gathering reliable statistics is an essential on-going task that countries in Asia Pacific region must prioritise if gender balance is to be improved at all levels and if best interventions are to be adopted. For example, only 9% of Indian national academy members are women. Programmes have been implemented to target women aged 30-50 and to provide them with opportunities to pursue research on problems of social relevance; take on internships; or become self-employed. The percentage of women in the Philippine and in Turkish academies of science was close to 20% but in other countries' levels were closer to 10%. Continuous efforts are needed on a long-term basis to overcome underrepresentation (**Krishan Lal)**.

In 2013, Korea ranked 6th worldwide in terms of the size of national investment in science and technology. It also ranked 6th on scientific competitiveness, and 1st in terms of investment in ICT fields. Gender demographic statistics show that there are more women than men in Korea but the country ranks 117 out of 142 in the World Economic Forum's Gender Equality Index. Women's participation in science related employment is low. In 2013, women composed 18.9% of the science workforce. In senior management roles, the proportion of females was 7.1%, and among CEOs it was 3.5% across private companies and 8.6% across public companies (**Sungwan Kim**).

The 3rd Masterplan for Fostering and Supporting Female Scientists and Engineers (2014-2018) recognises the role of women in S&T in Korea and aims to enhance S&T capability for the creative economy through gendered innovations. Quantitative goals and concrete steps have been laid down to implement several action plans to realise this vision, including: 1) encouraging talented women to pursue careers in S&T fields; 2) increasing their participation in R&D and reinforcing their global networks; 3) expanding high quality jobs by creating women-friendly working environments and promoting start-up businesses; 4) supporting women's easy return to work after career breaks; and 5) fostering female leadership in S&T (**Joon Sik Lee)**.

VI. AWARENESS RAISING AND EDUCATION ABOUT GENDERED RESEARCH AND INNOVATION

We need to consider the applicability of gendered innovations in each country and region, and close international cooperation is required for successful gendered innovations (**Hee Young Paik**).
Improving women's participation in STEMM requires a strategy of alliance that engages all key actors in science endeavours and involves systematic improvements to education, employment, as well as research and innovation. Progress will be achieved more quickly through multi-disciplinary cooperation and sharing of knowledge and experience that draws on the recommendations from Gender Summit events, as for example in the actions set out in the Gender Summit 3 Roadmap for North America and the principles of the Seoul Declaration. Funding agencies could initiate collaborations involving multiple universities from multiple regions, which could be helped by building on the resources of the Gender Summit community (**Gretchen Kalonji**).

GS6-AP participants agreed that gender equality should be an overarching goal of all the sustainable development goals (SDGs) adopted by the UN General Assembly in September 2015. The GS6-AP should undertake advocacy efforts targeting to UN Secretary General Ban Ki Moon in order to make use of "the most important network in the world." Just to have one of the 17 SDGs devoted to gender equality is not enough. Every SDG must have a gender dimension (**Yee Cheong Lee**).

4. Next Steps for the GS6-AP

1. The Japan Science and Technology Agency announced that they will host the next Gender Summit – Asia Pacific, scheduled for May 2017.
2. The Seoul Declaration will be communicated to relevant bodies: national, regional and global, e.g. the UN and OECD.
3. Plans of the Korean co-chairs to establish: A Society for Gender in Research and Innovation and a Journal of Gender and Research Innovation
4. The ten principles of the Seoul Declaration will provide the basis for a report showing how gender considerations should be mainstreamed across all 17 UN Sustainable Development Goals
5. Continue the process of crafting a community of experts and practitioners in gender research and innovation in the Asia Pacific region through the collaborative efforts of science associations, and together with the Gender Summits in Europe, North America, Africa and Latin America.

5. GS6-AP Session Summary Reports

The GS6-AP programme included plenary and parallel sessions, the key discussion points of which are summarised below. The majority of presentations are accessible on the Gender Summit website, www.gender-summit.com.

I. Plenary Panels

Pursuing Excellence in Research through Gendered Innovations
Co-Chairs: Myeong-Hee Yu and Londa Schiebinger

Rapporteur: Mi-Kyung Sung
Presentations: http://bit.ly/1NQ5DLU

Integrating sex-gender analysis in study design can be both conceptually and methodologically complex. Panellists presented specific examples showing how these methods can be applied in different research areas. They showed how fully harnessing the power of gender analysis enhances scientific knowledge production, application and communication with improved benefits of science endeavours in different regions of the world.

Londa Schiebinger John L. Hinds Professor of History of Science, Stanford University, USA; and Director of the EU/US Gendered Innovations in Science, Health & Medicine, Engineering, and Environment project	Professor Schiebinger explained what the Gendered Innovations project was about, which is currently funded by numerous sources including European Commission and the U.S. National Science Foundation. Many case studies including methods of sex and gender analysis have been developed through collaboration with experts in Europe, the U.S., Canada, and with an Asian group led by Professor Hee Young Paik. Professor Schiebinger explained how scientists define the concepts of "sex" and "gender", as well as what is "feminine" and "masculine". She described the three strategic approaches applied so far to achieve gender equality: 1) "Fix the Numbers of Women", i.e. focusing on increasing women's participation; 2) "Fix the Institutions", i.e. promoting gender equality in careers through structural change; and 3) "Fix the (Science) Knowledge". It is the latter, i.e. gender sensitive knowledge production that is the focus of the Gendered Innovations project. It means integrating "gender dimension" in research by incorporating sex and gender analysis into study design. She explained the benefits of "doing research right" by drawing attention to a recent article in *Annals of Internal Medicine* which showed that the net economic return of the Women's Health Initiative Oestrogen Plus Progesterone clinical trial was $37.1 billion ($140 per dollar invested). The next step in the Gendered Innovations project is to involve industry. A workshop on "GI application to industry" will be held at Stanford University in September 2015. *(Presentation: http://bit.ly/1UKSZN5)*
Jeffrey S. Mogil, Head of the Pain Genetics Lab, McGill University, Canada	Professor Mogil told how pain is more prevalent in women than men as shown in numerous scientific papers including the one presented in Behav Brain Sci in 1997. Epidemiology of chronic pain conditions by sex shows women suffer from chronic pain more often than men. Approximately 70% of chronic pain patients are women. Dr Mogil's group has shown clear sex differences in pain sensation through their studies (Nat Rev Neurosci 2010; Nat Rev Neurosci 2009). Most pain research has been performed in rats and mice. Unfortunately male rodents are used overwhelmingly more frequently than female rodents in basic science studies, not only for pain research but also for other biomedicine research. Many scientists believe sex differences are not important in scientific research, and some believe female rodents give more variation in study results, which Dr Mogil said was not

	true, citing that aggressive behavior of male rodents causes quite a large variations as well. Clinical trials of morphiDex failed to show better pain relief by this new drug compared to morphine (www.Paingeneticslab.com). Unfortunately, this study did not differentiate between males and females and researchers refused to open their protocol. Dr Mogil also explained mechanistic differences in pain sensitivity between males and females. His study showed microglia is not required for mechanical pain hypersensitivity in female mice while it is with male mice, meaning that analgesic drugs should be developed differently for males and females. He also mentioned that granting agencies should balance sex in cell and animal studies. *(Presentation: http://bit.ly/1OFDOD0)*
Astrid Linder, Research Director, Swedish National Road and Transport Research Institute	Dr Linder brought the relevance of considering gender in the context of 'occupant norm' in vehicle safety. She showed a drawing of human body norm where the female is simply a scaled down male body. She drew attention to female drivers suffering more serious crash injuries than males. In Europe, a high percentage of people require long-term care after car crashes. The most common car crashes involve rear impact, followed by frontal and side crash situations. Dr Linder explained how different car models and seat designs produce different levels of protection. Reports on car crash injuries show that the relative injury risk for females is always higher than the risk of males. Dr Linder led the development of the BioRID dummy model designed to minimise the effects of rear car crash impacts. However, even with whiplash protection systems incorporated in the cars, more females suffer whiplash injuries than males. She also spoke about the ADSEAT project (www.adseat.eu) designed to reduce the risk of crash injury by enhanced evaluation of the seat design. Real world data was used to select occupants protection systemsor females is always higherhresholds. Biological tests should be performed before finalizing seat design, however, this is not enough to minimise car crash injuries. Dr Linder emphasised that improved evaluation of safety performances is crucial to identifying and promoting best-designed systems in consumer testing programmes such as NCAP. Occupant diversity should also be addressed in the area of crash testing. *(Presentation: http://bit.ly/1UKSZN5)*
Hee Young Paik, Professor at the Department of Foods and Nutrition, Seoul National University; President, Korea Federation of Women's Science & Technology Associations (KOFWST)	Professor Paik described efforts to harmonise global and local perspectives in gendered innovations (GI) research based on her experience with the KOFWST GI research team. In 2013, Dr Heisook Lee, President of Korea Centre for Women in Science, Engineering and Technology (WISET), proposed looking into GI in Korea. Several pilot projects were started following the first research workshop and forum in December, 2013. Since then, many new cases have been developed and more than 30 papers and posters were presented at GS6-AP. Developments in 2014~2015 were started by the visit of Dr Pollitzer, and project members' participation in GS4. Two cases were subject to Expert Review and successfully included on the GI website hosted by Stanford University. Case studies of gender analysis were performed under the guidance of Dr Schiebinger. Prof Paik mentioned studies on dietary assessment where sex differences were not reported in many journal articles. Especially in her area, she found regional differences in gender inequality in areas such as household work, wages, and job opportunities. However, it has been a difficult path to find how to apply gender differences in research. Prof Paik briefly introduced two cases of dietary assessment and colorectal cancer developed by her team. For successful GI, we need to consider applicability of GI in each country and region especially for gender factors, and close international cooperation is required. *(Presentation: http://bit.ly/1J20N6p)*

Developing Science and Technology Policies to Promote Gender-Based Research and

Innovations **Chair: Se-Jung Oh** Rapporteur: Elizabeth Pollitzer ***Presentations: http://bit.ly/1QVoMul*** *Leading scientists joined important policymakers from funding agencies, research institutes and journal publishers to discuss measures promoting gender awareness in research and innovation. Panellists described their institutions' current policies and further proposed new ideas to enhance the focus on gender issues in research and journal publications.*	
Jin Chen, Assistant Dean, Tsinghua School of Economics and Management; Director of the Research Centre for Technological Innovation, Tsinghua, China	Professor Chen spoke on *"Female participation in Research and Innovation: Evidence in China."* He described women's participation in science in China using Zhejiang University as an example. He identified five key technology areas of recent innovation in China: "high-speed trains, high-speed computing, high voltage grid, high volume Internet and high yields of hybrid rice." He distinguished between "oriental" and "western" approaches to innovation: "fast learning and integration" in the former and "risk taking and making change" in the the latter. China's way, he said, was to "achieve harmony between man and nature, or even man over nature, and to concentrate forces on a major task" in which "women could be half of heaven." According to gender statistics presented, female scientists make up 30% of China's total R&D staff and 30% of PhD students. At Zhejiang University, 29% of graduate students, 30% of Master's students, and 27% of PhD students are women. He added that in general women achieve better grades but this does not help them advance in science careers. Statistics for research funding show a less positive picture, and projects funded by National Natural Sciences Foundation of China (NSFC) show large gender discrepancies across disciplines at graduate level. For example, whilst 32.3% of awards in medical sciences go to women, only 11.3% of those in chemistry do. There are further inequalities at Master's level, with only 9.3% of awards in chemistry and 17% in medical sciences going to women. Nevertheless, in 2013, 23% of the winners of the distinction award from the National Science Fund were women. The current science policy direction in China is to: 1) increase the number of women at graduate and PhD level; 2) promote overseas studies; 3) address the age limitation for excellence grants for young researchers; 4) increase length of research period for female principal investigators (a questioner from the audience pointed out that female scientists in China must retire much earlier than men); 5) increase the proportion of women in the review process; 6) increase the number of women in national high level science and technology awards; and 7) encourage women's greater involvement beyond research, i.e. in technology, engineering and business, specifically in patenting. (*Presentation: http://bit.ly/1K1p4xn*)
Sungwan Kim, Programme Manager at the National Research Foundation of Korea (NRF); lead researcher at Seoul National University College	Dr Kim presented R&D statistics for Korea and the *"NRF's Strategy on the Gender-Based Research,"* pointing to emerging recognition of the need to address gender issues in science knowledge making. He started by showing Korean commitment to invest in research and innovation. Korea's GDP has increased a thousand fold between 1954 and 2015 and much of this has been driven through R&D investment. In 2013, Korea ranked 6th worldwide in terms of the size of national investment in science and technology; also 6th with regard to science competitiveness, and 1st in terms of investment in ICT fields. The NRF cooperates with 75 organisations in 47 countries. Its research and innovation budget for 2015 is US$3,699 million, managed by 592 project managers (he did not detail how many

of Medicine and Seoul National University Hospital, Korea	women are involved in these roles) - only 4% work full-time. In 2014, the NRF recognised the evidence showing persistent sex-gender bias in preclinical and clinical studies, where male was used as the norm, and that it was important to consider diverse conditions impacting on research outcomes for females and males. The barrier to change according to him was the added cost of using both female and male animals. This was challenged by scientists in the audience who pointed out there was not empirical evidence to support this view. The NRF has allocated a budget for studies with female mouse models, and to monitoring "gender-based research." (*Presentation: http://bit.ly/1K7ZODx*)
Helena Hui Wang, Asia Editor, The Lancet	Dr Wang talked about the role The Lancet journal has taken in promoting sex/gender sensitive research in a talk entitled *"Taking Sex into Account in Medicine."* She showed that the journal's editorial policy requests that studies should enrol women and ethnic groups into clinical trials. She provided several examples of important gender sensitive studies recently reported in The Lancet. She referred to the fact that Astrid James, the journal's Deputy Editor in London, initiated a change in the journal's policy after participating in a session for science editors at the 1st Gender Summit-Europe, in 2011. Other examples of promoting mainstreaming of gender into global health were editorial comments on gender issues; studies reporting on issues concerning transgender and health; as well as men's health issues (e.g. obesity); articles on women research leaders worldwide and in the region, specifically China. *(Presentation: http://bit.ly/1KMskjr)*
Carlos Moedas, European Union Commissioner for Research, Science and Innovation	The Commissioner provided a video message on *"Gender Equality in Research: A Global Concern."* He stressed the importance given to gender equality in science issues in Europe and the commitment of the European Commission to improve the extent and the level of participation of women in research and innovation. *(Video: http://bit.ly/1KkxJMF)*
Myoung-Ock Ahn, President of the National Medical Center (NMC) of Korea	Dr Myoung-Ock Ahn spoke on "*Gender in Science Policy*," giving her personal perspective and experience as well as sharing her role and commitment to gender equality. She stressed the importance of "feminine values," contrasting these to "masculine values", for example "balance and equality" vs. "growth and conquest" or "solidarity and compromise" vs. "competition and conflict." She listed core feminine values as: equality, care, transparency, and "soft power and social capital." She presented gender demographic statistics for Korea showing that there are more women than men but in the World Economic Forum's Gender Equality Index, Korea is ranks 117 out of 142. She discussed data showing women's participation in science related employment: in 2013, women composed 18.9% of the science workforce. In senior management roles, the proportion of females was 7.1% and among CEOs it was 3.5% across private companies and 8.6% across public companies. She said the main issue regarding women's health was: lack of gender sensitivity and the fact that customised and individualised health approaches were not being applied to women. She felt that 'feminine' values such as confidence, communication, cooperation, collaboration, and creativity had helped her develop better a management strategy at NMC. Since taking the role of NMC President, she introduced a new Centre for Women's Health and Gendered Innovations, greatly improving gender balance among staff from 70:30 (male:female) to 50:50 in 2015. *(Presentation: http://bit.ly/1VWzQdm)*

Developing Policies and Partnerships to Improve Gender Diversity in STEMM

Chair: Sung-Mo "Steve" Kang, **Rapporteur**: Ofelia Domingo ***Presentations: http://bit.ly/1WeSb5N*** *In this session, leaders from academia and industry discussed possible policies and partnerships to improve gender diversity in STEMM fields, focusing on why it matters for innovations, research excellence, leadership and better performance in R&D and business.*	
Sung-Mo "Steve" Kang, President of Korea Advanced Institute of Science and Technology (KAIST)	Dr Kang spoke as session Chair on how gender inequality and male-centric culture are deeply entrenched in Korean science and technology (S&T). He pointed to three important statistics: 1) according to the World Economic Forum's 2014 Global Gender Gap Report, Korea ranked 117 out of 142 nations; 2) in the Human Development Report commissioned by the UN Development Programme, Korea ranked 15th among the nations, however, 3) in the gender related development index, Korea ranked 85th. He concluded that Korea, as with other countries in the Asia Pacific region, has yet to build a social system that ensures equality between genders. Dr Kang emphasised the importance of gender diversity in S&T, citing cases from drug testing, to vehicle safety, to voice recognition software where gender was neglected. Such failure to consider gender in research led to wastage, poor results, and inefficient costs. Kang mentioned ways to address these concerns including explicitly incorporating gender in research design and procedure and establishing a shared understanding of the importance of gender. Further, research outcomes are better if the talents of both men and women researchers are harnessed. KAIST has been implementing a human resources development policy to encourage more female participation and a work environment that supports women's maternal and domestic situations.
Curt Rice, Rector, Oslo and Arkershus University College of Applied Science, Norway	Prof Rice spoke on improving gender diversity in STEMM in two contexts: the social justice context where young women are impeded from entry and progress in these fields; and the social enhancement context wherein benefits of diversity are enjoyed in the workplace. He said investing in improving gender diversity was both the right thing and the smart thing to do. He discussed three important steps in improving gender diversity in STEMM fields: 1) know where we are, 2) know why we want to be somewhere else; and 3) find the way to get there. He mentioned the importance of actions upon understanding the problems and where equality was compromised. He cited examples from Norway and his university including the programmes of the Centre of Excellence where student admission policies giving preferential points to women, special attention is given to female associate professors with potential to reach higher ranks, and where certain research fellowships are provided only for women.
Joon Sik Lee, Chair, Committee of Engineering Education Innovations, Seoul National University, Korea	Prof Lee provided gender statistics for Korea with regard to male-female participation. The proportion of women employed in S&T fields is 18.9%. There was an increase from 16.2% in 2007 to 21.6% in 2013 in the proportion of women in natural sciences and engineering fields in universities. Within engineering itself, there is large variation with women making up 8.8% of those studying Mechanical Engineering, and 35.2% of those studying chemical engineering. He explained the goals of Korea's 3rd Masterplan for Fostering and Supporting Female Scientists and Engineers (2014-2018) and the crucial role assigned to the enhancement of the

	role of women in S&T, seen as a necessary condition for achieving Korea's goal to transition to the creative economy through gendered innovations. Quantitative goals and concrete steps were laid out to implement several action plans to realise this vision, including: 1) encouraging talented women to pursue career paths in S&T; 2) increasing women's participation in R&D and reinforcing their global networks; 3) expanding high quality jobs by creating women-friendly working environments and promoting start-up businesses; 4) supporting women's easy return to work after career breaks; and 5) fostering female leadership in S&T. Lee concluded that for successful gendered innovations and gender diversity, there must be cultural transition from a fixed idea on the traditional role of women. *(Presentation: http://bit.ly/1FAY6IQ Video: http://bit.ly/1KyswQ4))*
Chisato Miyaura, Vice-President, Tokyo University of Agriculture and Technology (TUAT), Japan	Prof Miyaura presented statistics and actions for Japan designed to improve gender diversity in STEMM Fields. The situation in Japan and Korea with regard to female share of employment and leadership positions is very much similar, with around 42% and 11% in the two categories respectively. From the statistics presented it was clear that Japan lags behind Europe in the number of female professors. In Europe, the overall figure is 20% and in Japan it is 14%. The Japanese government has introduced a variety of programmes to support activities for female researchers, in particular improving environments to help female researchers achieve a balance between work and major life events such as childbirth, childcare and nursing-care for family members. TUAT's programmes for female researchers and students in place since 2006 included trainings, career seminars, counselling services, research support, school fee discounts, nurseries on-campus, and opportunities to participate in workshops, symposia, and research presentations for industry-university collaboration. *(Presentation: http://bit.ly/1JZJqoo)*
Simone Buitendjik, Vice-Rector, Universiteit Leiden, Netherlands	Prof Buitendijk discussed the importance of considering sex and gender in research and innovation and how this has been addressed in the Gendered Innovations report, the new position paper from LERU (League of European Research Universities). She explained that gendered research and innovation (GRI) is important for the power, vitality, quality, and impact of research as it eliminates bias, stimulates inclusivity, and saves lives and money. However, systematic consideration of GRI is lacking in research processes and researchers, academics, policy makers, politicians, research funders and journalists lack awareness of its importance. Prof Buitendjik cited examples of where GRI is not seriously considered. Medical treatments for cardiovascular diseases, for instance, have been devised for men, and are not as suited to women. Women may suffer more in car accidents due to inappropriate vehicle care and design. Climate change affects women and children differently than men. Prof Buitendjik urged the need to integrate gender perspectives in all phases of the research process; avoid stereotyping and non-evidence assumptions; understand the roles of social science and the humanities in GRI; and collaborating with responsible agencies, funders, and others in various fields across disciplines. She recommended actions for universities, governments, funders, and journal publishers. *(Presentation: http://bit.ly/1VRhs5R)*
Yan Wang, Deputy Director General of the China Science	Dr Wang discussed the status of China's female R&D personnel and promotion policies. In China, gender difference is insignificant from primary to graduate education. In terms of R&D employment, the majority of females are either in universities (38.7%), research institutes (32.7%), and/or engaged in enterprises and

and Technology Exchange Center (CSTEC), Ministry of Science and Technology, China	businesses (20.7%). Female R&D personnel make up only 25% of the total female population employed. The majority of women in Chinese labour force (73%) are engaged in enterprises. Compared to other countries, China lacks R&D programmes with females as principal researchers. There are very few women in the Chinese Academy of Sciences and Chinese Academy of Engineers (5.3%) and female R&D achievements are very limited. There is a need for better career development. To strengthen the building of a female S&T team, the Ministry of Science and Technology and the All-China Women's Federation jointly issued policies promoting employment, education, and welfare of female R&D personnel. The priority areas are: 1) fully understand of the significance; 2) develop interest of female students in science; (education); 3) increase employment opportunities; (employment); 4) strengthen continued education and knowledge update; (development); 5) develop innovative female S&T talent; (employment, development); 6) promote involvement of women in S&T management and consulting; (development); 7) provide support during pregnancy and breastfeeding; (development); 8) increase incentives and guarantees (development); 9) strengthen statistics and evaluation; 10) foster social environment. *(Presentation: http://bit.ly/1KeCk2M)*
Lorraine Hariton, Senior Vice-President, Global Partnerships, New York Academy of Science (NYAS)	Ms Hariton spoke about public and private partnerships that enhance gender diversity in STEM. Women represent less than 30% of the world's science researchers. The NYAS has 20,000 active members across the world, and its Global STEM Alliance programme has 100 partners in 50 countries and regions. Its flagship programmes of the Junior Academy of the Global Stem Alliance and 1000 Girls 1000 Futures provide scholarships and mentoring services to universities, including 38 women's colleges in the USA. Ms. Hariton mentioned NYAS partnerships with the US government and international companies, stressing that: "mentorship is important; talent is universal, but opportunity is not." *(Presentation: http://bit.ly/1Qsr8Rb Video: http://bit.ly/1iPnvtB)*

Building Public Aspirations for Socio-Economic Improvement through Gender-Based Technologies

Chair: **Changmo Sung**
Rapporteur: Ofelia Domingo

Presentations: http://bit.ly/1QVpfN4

This session sought to improve socioeconomic conditions for women in the Asia-Pacific through the development and use of new technologies, as well as the utilisation of existing technologies in the region.

Martina Schraudner, Head of the Department of Gender and Diversity in Organisations, Technical University, Berlin	Prof Schraudner talked about developing leadership for socio-economic improvement through gendered innovations. She commented that the data from the European Commission's Special Eurobarometer (2005) study, which interviewed some 25,000 European citizens, indicated that not all women are interested in innovation, and that women are disinterested or hostile to innovation. This shows that although women participate in various stages of research and commercialisation, their influence ranges from low to medium. Prof Schraudner further explained the starting points for socioeconomic improvement as: quality research with a gender perspective; product's market potential; and the pool of scientists and entrepreneurs. She pointed out that an innovation has to be accepted by society to be successful. This is possible by creating avenues for discussion about technologies and sharing vision with the scientific community, the public, and industry. She concluded that developing leadership for socio-economic improvement entails a common understanding of science and a socially shared vision of the future, which include women's perspectives and interests. *(Presentation: http://bit.ly/1Q5Qkfy)*
Susheela Venkataraman, Principal Director, Office of Information Systems and Technology (OIST), Asian Development Bank	Dr Venkataraman made a video presentation titled "*Putting the Heart Back in Technology through Gendered Research*" discussing the importance of technology in reducing poverty, discrimination, and the gender gap. She said investment in R&D as a percentage of GDP has risen by as much as 76% worldwide with much of the increase coming from the developing world where gender issues are prevalent. Examples of how women benefit from technology include female entrepreneurs' use of social media in business transactions. However, the gender gap in access to technologies is evident in some countries. More men can access technologies than women and product development has been predominantly for men. Cultural norms surrounding technology use are issues in some Africa countries. On the other hand, some technologies, products, and systems are designed with women in mind, with gender perspectives integrated into the process. We must understand the needs of women and the manner in which the technology will be developed and used. Women must be active participants in using and also in building technologies. These must be appropriate to cultures and traditions. Gender gaps continue in access to, control over, and use of technologies and other innovations. Gender specialists, researchers, and policymakers can help tackle such gaps. *(Video: http://bit.ly/1O55jsw)*
Mikiko Ishikawa,	Prof Ishikawa shared experiences from the reconstruction planning after

Professor, Department of Integrated Science and Engineering for Sustainable Society, Chuo University, Japan	great East Japan earthquake. She talked about actions undertaken in the Iwanuma City, Miyagi-prefecture, where reconstruction was carried out through community-based actions involving earthquake survivors, the municipal office, the university volunteers, and other organisations. The reconstruction not only involved physical infrastructure, but also social, environmental, and cultural reconstruction. In all stages of community-based reconstruction efforts, Ishikawa highlighted women's active participation in the process. *(Presentation: http://bit.ly/1KeDoE0)*
Deok Soon Yim, Director, Korea-Ethiopia Innovation Centre, Science and Technology Policy Institute, Korea	Dr Yim described the objectives, framework, functions, operations, and stakeholders of STI-ODA. According to Dr Yim, gender matters in STI-ODA as women can participate in S&T knowledge creation, and are also key users of S&T knowledge. Women are often neglected in the STI-ODA system, but Dr Yim cited the LifeStraw Carbon STI-ODA programme in Kenya, which has directly benefited women by eliminating the need to boil water for treatment before drinking. The project was funded by a private company, Vestergaard, and was implemented in partnership with Kenya's Ministry of Public Health and Sanitation, in cooperation with several other ministries. Long-term socio-economic development can be realised through such, holistic approaches, she said. *(Presentation: http://bit.ly/1UGrBFn)*
Eun Gyeong Yang, Director, International Affairs Division, Korea Institute of Science and Technology (KIST)	Dr Yang talked about disseminating the KIST research and innovation impact evaluation model through the case involving collaboration with Vietnam. She explained the mission and role of KIST, which focuses on frontier and global-agenda research through large-scale, long-term, and interdisciplinary R&D projects. KIST R&D outputs contributed to Korea's economic development, and the KIST model has now been adopted in Vietnam. Yang's analysis of Vietnamese S&T's strengths, weaknesses, opportunities, and threats concluded that the establishment of V-KIST will result in import replacement and export increase; increased S&T manpower, and an upgraded National Innovation System. Vietnam has made remarkable progress in establishing gender equality, and V-KIST is envisioned to help develop Vietnam's economy and achieve gender equality. *(Presentation: http://bit.ly/1J23FQF)*

Developing Leadership Capacity for Gendered Innovations through Scientific, Technology and Policy Networks

Chair: Yee Cheong Lee
Rapporteur: Kirsty Taylor

Presentations: http://bit.ly/1Kwmeys

This session discussed methods to facilitate the adoption of gendered innovation policies by the scientific community, focusing on the use of associations and scientific societies, such as the Inter-Academy Partnership (IAP Global Network of Science Academies) and the Association of Academies and Societies of Sciences in Asia (AASSA).

Yee Cheong Lee, Malaysian Chairman, Governing Council,	Mr Lee opened the Session as its Chair with a call for gender to be the overarching goal of all the sustainable development goals (SDGs) to be adopted by the UN General Assembly in September 2015, and suggested the GS6-AP Korean organiser's advocacy to UN Secretary General Ban Ki Moon in order to make use of "the most important network in the world." He said: "To me, just to have one of

International Science Technology and Innovation Centre for South-South Cooperation, UNESCO (ISTIC), Malaysia	the 17 SDGs devoted to gender equality, I think this is not enough… I would put it to you that every SDG must have a gender dimension. That means what I would like to suggest that gender is the overarching goal of all the sustainable development goals."
Britta Thomsen, Adjunct Professor, Copenhagen Business School; Politician and Former Member of European Parliament for Denmark	Prof Thomsen spoke on improving the gender dimension through networking. She outlined the diverse – but generally gender unequal – situation in STEM in EU member states, as well as the work of the EU Commission on gender equality. She emphasised the importance of the Helsinki Group, established in 1999 as part of the action plan to promote gender equality in European research and innovation. The group brings together representatives of EU states to strengthen dialogue and exchange best practices on measures and policies for the promotion of women in science and research at local, regional, national and European level. For example, in 2006 advanced gender legislation passed by the Spanish Government was shared with other members of the Helsinki Group so that the knowledge could spread to all of Europe. The group also gathered support from women's organisations in member states including Portia to ensure inclusion of gender as a criterion for success in the Horizon 2020 research programme, through the statement in its article 15 that "Horizon 2020 shall ensure the effective promotion of gender equality and gender dimension in research and innovation content. Particular attention shall be paid to ensuring gender balance, subject to the situation in the field, in evaluation panels and in bodies such as advisory groups and expert groups. The gender dimension shall be adequately integrated in research and innovation content in strategies, programmes and projects and followed through all stages of the research cycle." Thomsen called for new projects to explore the differences in the status of women in science – to answer why some of Europe's poorest countries have the highest proportion of women scientists. "I believe that cross country networking is the way forward to improve the role of women scientists," she said. *(Presentation: http://bit.ly/1geaRlG)*
Yuko Harayama, Permanent Executive Member of the Council for Science and Technology Policy of the Cabinet Office of Japan	Dr Yuko Harayama spoke on working together for Gendered Innovation. Her own relatively high position was an "exceptional case" in Japan where women's status in STEM is especially low, she said. While she saw that innovation can be gender neutral, the key element of human capital and the way to become a scientist or engineer was not neutral. Career path and labour market practices had to be addressed to encourage women to become principal investigators, programme officers and directors to ensure gender balance. The first step was to think why there is currently a deficit of women in the science and technology fields. Gender inequality has been addressed the Japanese Government for more than 10 years, taking some policy measures including supporting better work-life balance; encouraging secondary school girl students to pursue science & engineering (S&E) disciplines at university; and providing information on S&E careers to high school students, their parents and teachers. She said action should be taken by individuals, as well as seeing a need for institutional and political engagement in order to share good (& bad) practices across institutions and sectors both nationally and internationally. She said in this way, women working in STEM could go from exceptional to normal and from "accepting" to "having a choice" about choosing careers in STEM. *(Presentation: http://bit.ly/1OhNBRS)*

Gretchen Kalonji, Former Assistant Director-General for Natural Sciences at UNESCO	Ms Gretchen Kalonji spoke about international collaborations as a strategy for strengthening women's leadership based on her experience from UNESCO and academia. She asked whether better structured international research and educational collaborations could enhance women and girls' participation and professional development, while also strengthening the contributions of research to society. She observed that international science and engineering increasingly relies on large-scale international and interdisciplinary collaboration, as well as new highly nuanced leadership roles, which fit women's differential strengths and interests. Women are under-represented in science and engineering disciplines almost everywhere; though they show interest in science to serve social needs. She called for new curricula to integrate interdisciplinary, multinational projects into science and engineering in research universities to address grand challenges through research. Such task-based interdisciplinary work has improved women's retention rate in engineering and other STEM fields at US universities. She called for a comprehensive, multinational study on the prospects of international collaborations for attracting women to science and engineering, as more data was needed on the impacts on women's career trajectories of participating in such collaborations. Building on existing networks was necessary to integrate multinational research projects into curricula to enhance the diversity of the STI workforce and strengthen the impact of research. *(Presentation: http://bit.ly/1O55XGq)*
Krishan Lal, President of The Association of Academies and Societies of Sciences in Asia (AASSA) and Immediate Past President of The Indian National Science Academy	Dr Krishan Lal spoke on challenges in ensuring gender equality in science and technology in Asia Pacific. He spoke on how to ensure gender equality in S&T, especially at top levels. He focused in on AASSA External Review Terms of reference to suggest strategies to enhance participation of young scientists and women scientists in activities AASSA, one of the four Regional Networks of the InterAcademy Partnership (IAP) covering Asian and Australasian region with 34 Members from 30 countries with widely different level of economic development and S&T establishment. AASSA was undergoing a review of its activities by an external Panel, and pledged to act upon any recommendations on the gender point. He observed steadily increasing participation and high performance of female students in education – though more impediments are faced as one "moves up." "There is a need to remove all types of discrimination against the female fraction of our population and ensure that they realise their full potential under a secure, safe and healthy atmosphere," he said, acknowledging that the national academy level was the most "filtered." Only 9% of Indian national academy members were women, though programmes had been implemented for women aged 30-50 to pursue research on problems of social relevance, take internships or become self-employed. The percentage of women in Philippine and Turkish academies of sciences was close to 20% but other countries' levels were closer to 10% and that continuous efforts were needed on a long term basis to overcome such problems. *(Presentation: http://bit.ly/1J253mk)*
Jörg Müller, Senior Researcher, Internet Interdisciplinary Institute, Open University of Catalonia, Spain, and Coordinator	Dr Jörg Müller spoke on building sustainable and effective online collaborations for gender and science through the Internet portal financed by the EU Commission from 2014-2017. GenPORT is a gateway to European science and gender resources at h3p://www.genderportal.eu with 192 gender and science organisations among its community, covering natural and social sciences, as well as humanities. So far, it includes 486 resources, with 56 projects and 68 events to support the global movement of gender equality in science providing a central place to find and discuss evidence on gendered innovations. The site has finished BETA testing and will soon open to the public for community building among gender and science

GenPORT	experts. It aims to publish research synthesis and policy briefs and recommendations, for example for the implementation of gender equality in research institutions. The events and persons section allows people to upload materials and establish connections. Opportunities and challenges of networking included the very diverse European Research Area (ERA) – including the measures taken by different countries to support gender equality and the adoption of gender equality plans. GenPORT carried out a needs assessment on how to support women in STEM and though countries varied, a lack of political will and commitment was a concern across Europe. Another central challenge was language difference. A gender and science taxonomy was developed for a shared basic skeleton (in English) to describe the resources and situation in other countries, facilitating contact with people in those fields. *(Presentation: http://bit.ly/1XSouJp Video: http://bit.ly/1OWNF9M)*

II. Parallel Sessions

Mainstreaming Gender into Asia-Pacific's Research, Innovation and Development Goals for more effective and sustainable outcomes

Chair: Young Sook Yoo, Principal Research Scientist, Korea Institute of Science and Technology (KIST), Korea
Rapporteur: Henrietta Dale

Presentations: http://bit.ly/1Pm8Gsw

Representatives from 14 Asia-Pacific countries gave short snapshot descriptions of the gender and STEM circumstances in their countries research and innovation systems. Each country and region face different challenges in promoting gender-sensitive research and innovations, as well as greater gender balance in STEMM fields. Each also has different priorities for utilising gender-focused technologies to achieve sustainable socioeconomic development.

Jennifer Graves, Distinguished Professor, School of Life Science, La Trobe University, Australia
Azra Khanum, Fellow, Pakistan Academy of Sciences
Fahima Aziz, Former Vice Chancellor, Asian University for Women (AUW), Bangladesh
Chia-Li Wu, Emeritus Professor of Chemistry, Tamkang University, Chinese Taipei
Sumin Jeon, Scientist, Advanced Remanufacturing and Technology Centre (ARTC), A*star (Agency for Science, Technology and Research), Singapore
Chea Eliyan, Acting Head, Department of Environmental Science, Royal University of Phnom Penh, Cambodia
Mya Kay Thi Aung, Lecturer, Department of Chemistry, University of Yangon, Myanmar
Reiko Motohashi, Professor, Agriculture Department, Schizuoka University, Japan
Monika Raharti, Director, Center for Young Scientists (CYS) University, Indonesia
Mi-Ock Mun, General Manager, Center for Women in Science, Engineering and Technology (WISET), Korea
Enkhtaivan Gombosuren, Professor, Department of

The representations from: Australia, Bangladesh, Cambodia, China, Chinese Taipei, Indonesia, Japan, Kazakhstan, Korea, Mongolia, Myanmar, Pakistan, Philippines, Singapore combined to form an acutely insightful session highlighting the many shared (sometimes surprising) issues across the region but also the distinct different challenges identified.

The presentations also gave very interesting insights into why the gender equality in STEM was of concern in different nations, showing some of the many ways to frame the issue: the overarching theme of which is that what is good for women and gender equality in science is good for science, good for all of society and thus an important element of achieving development goals.

The exchange in the session gave participants a broad cross-section of methods of analysis of national circumstances which they can take to their own contexts, be they national or institutional, to begin or enhance their own analysis, the need for which came up repeatedly. It also gave participants the chance to learn about a broad cross sections of actions being taken and establish connections with peers pursing similar goals across the region.

The audience came away from the session with the knowledge that whilst issues persist across the region, collecting together all these national representatives active in the area gives reason for optimism, and multi-national collaboration will strengthen national impact.

Presenters repeatedly highlighted the disconnect between policy and action. Most countries have policies in place that support women's equal participation in STEM, and in the workforce more generally, but unless these are mandated action will not be taken. We must also understand the systems and bottlenecks stopping these policy aims being fully realised. Change is possible but general policy must be combined with will and specific action.

Prof Jennifer Graves's presentation was an excellent example of action being taken after learning from other regional contexts. The Science in *Australia Gender* Equity (*SAGE*) Steering *Committee*

Nutrition and Biotechnology, Mongolian University of Science and Technology, Mongolia **Liu Yun**, Professor, School of Management and Economics, Beijing Institute of Technology (BIT), China **Ofelia F. Domingo**, Chair, Gender and Development Technical Working Group, Philippine Council for Agriculture, Aquatic and Natural Resources **Irina Kim**, Senior Researcher, Department of Hereditary Diseases of the Skin, Kazakhstan Scientific Research Institute of Dermatology and Venereology	decided to replicate the Athena Swan programme from the UK. The strong message from her presentation is that good practices and knowledge exist and that exchanging with colleagues, finding it out and applying it is not that difficult. Presentations also covered how Gendered Innovations or the Gender Lens had been applied to varying contexts for social improvements and even been incorporated into national policy. Of particular note was the example of the re-opening of a joint damages case after examination from a gendered perspective revealed a prior masking of the harmful effects of a chemical poisoning of factory workers, particularly the female workers. The example given by Prof Chia-Li Wu showcased extremely well the interactions of biological and social factors, as well as highlighting the benefits of taking gender factors into account in analysis (and the severe detriments of not doing so), in a non-traditional scientific context. Some of the specific national contexts highlighted included military service, national concern over general economic trends, population characteristics shaped by conflict, low birth rates and geopolitical influences. The session gave a small insight into the myriad of factors to be considered. Role models repeatedly arose as an important part of the puzzle, especially in nations where representation of women (or men) was very low. Prof Reiko Motohashi highlighted in her talk the complex and vital problem of dual-careers. A topic that is particularly problematic for women as female scientists tend to marry other scientists were men marry outside the field, which brings with it a range of problems specific to science where mobility is such a critical issue. It was also very welcome to hear many of the speakers refer to intersectionality or “Gender +” as Monika Raharti referred to in her talk.

Gendered Innovations in Research

Co-chairs: Londa Schiebinger, and **Hee Young Paik**,
Rapporteurs: Suk Kyeong Lee and Yoon Ju Song

Presentations: http://bit.ly/1V713lj

This workshop provided opportunity for researchers to gain hands-on experience in applying gender analysis in science, engineering, and health research, well as in industrial application. Participants then joined a discussion group to further develop the methods of gender analysis in their research field.

Londa Schiebinger, John L. Hinds Professor of History of Science, Stanford University and Director of the EU/US Gendered Innovations in Science, Health & Medicine, Engineering, and Environment	Prof Schiebinger explained the principles and methods for Gendered Innovations in Research, providing more examples of gendered innovations following her presentation in Plenary Session 1. She cited case studies to illustrate how gender analysis leads to innovative science and technology via the Gendered Innovations homepage (http://genderedinnovations.stanford.edu). She emphasised that there are several sex and gender analysis methods, and each researcher's own scientific methods can be incorporated. She also mentioned that sex and gender analysis methods should be revised so that they can be used in different cultures, as gender is nested within culture. We also have to consider other intersecting factors, such as income, geography, and education. Prof Schiebinger talked about gender bias in machine learning, for example, Google's image search for the term "CEO" returns just 11% women, although women make up 27% of CEOs in the US. This bias occurs as advertisements often show highly paid jobs as men's rather than women's. In addition, Google refers to a person as 'he' by default as there are more male-related data sets in general, generating the expression based on the data without editing. Thus, this kind of automated process can promote gender inequality. Unconscious and unintentional gender bias should be remedied as present biases can amplify future gender inequality. To overcome gender bias in machine learning, it is necessary to design algorithms that optimise fairness instead of just capturing available data. Prof Schiebinger also cited a case study on public transportation in Madrid, Spain, to show how data collection can foster gendered innovations. The Spanish researchers did not follow traditional data collection methods but rather collected data on the purpose of taking public transportation, using the concept of "mobility of care". This gave them travel patterns that differed from those they had seen before, upon which new travel systems can be designed. A study published recently in Nature Climate Change also shows that indoor air-conditioning systems discriminate against women because they are calibrated to match the metabolic rate of a 40 year-old man. Rethinking standards and reference models is important for gendered innovations. *(Presentation: http://bit.ly/1UKTfM6)*
Won Ok Song, Professor, Michigan University, USA	Prof Song presented on the differential risk of metabolic syndrome (MetS) by sex in Korean adults. The components of MetS were WHR (waisr heap ratio), TG (high serum triglyceride), HDLC (high density lipoprotein cholesterol), BP (high blood pressure), FBG (fasting blood glucose) and individuals with three or more risk factors were diagnosed. She pointed out that two of the variables - WC, HDLC - have two different reference points in men and women. She also compared the

	prevalence of MetS across the globe and showed higher prevalence in women among some countries such as Iran, India, US (in Native Americans). In Korea, the overall prevalence of MetS was 31.3%, and prevalence in men did not increase by much after 50 years of age, though prevalence in women outnumbered that of men after 50 years old. The overall prevalence of MetS was slightly lower in women. However, by prevalence of individual components, elevated WC and low HDLC were most prevalent, and women also showed markedly higher prevalence. The combinations of MetS components differed by sex. The most frequent combination was WC, TG, HDLC in both men and women. But the second most frequent combination differed depending on sex. Risk factors of MetS such as alcohol, tobacco, physical activity and diet, gender-related behaviours should be considered when conducting studies in order to sort out these differences statistically. The diagnostic criteria for low HLDC and high WC differed between men and women, and this reference value had been set in Western countries, but was used across the globe. This indicates that the data for the Asian population is insufficient and the reference values should be checked. We need to re-establish the sex-specific diagnostic criteria in a different population or setting and investigate MetS pathogenesis based on sex and gender related risk factors. *(Presentation: http://bit.ly/1OF8JTb)*
Siyoung Cho, Chief scientist, AMOREPACIFIC Corporation R&D unit, Korea	Dr Siyoung Cho presented on the effect of sex and age on hippocampal gene expression under stress conditions, reporting that her team has studied “Hwa-Byung”, a depression frequently suffered by elderly Korean women after menopause. They hypothesised that low oestrogen levels in post-menopausal women increased the susceptibility to this disorder. The effects of sex and age on depression were evaluated using the “Learned Helplessness” model on mice. Dr Cho’s group also investigated the molecular mechanisms by which the decrease of oestrogen level impacts mood disorders by carrying out PCR array analysis of genes involved in synaptic functions using RNAs from male and female mice hippocampus under stressful conditions. They found that brain-derived neurotrophic factor (BDNF), synaptic plasticity-related genes, and serotonin transporters were regulated by stress or sex dependent manner. They suggested that low oestrogen in women contributes to mood disorders by a variety of mechanisms, including reductions in the levels of BDNF, facilitating glutamatergic transmission. *(Presentation: http://bit.ly/1MprIhk Video: http://bit.ly/1MMwng9)*
Sung-Young Rieh, Professor, Department of Architecture, University of Seoul, Korea	Prof Rieh evaluated urban public rental housing guidelines in terms of gender. Global trends of an aging population and urbanisation are related to public housing issues, as women have longer lifespans, lower earnings, and lower rates of car ownership than men. Using the scenario of Seoul, Prof Rieh rethought reference models in housing guidelines developed by men, which have not embedded women’s differentiated needs. Using a framework developed for gender analysis of Seoul and Urbanism, also adding architectural components, Seoul and National guidelines were evaluated

	through three aspects; 1) Perception of gender, 2) Safety issues, 3) Integration of community services. With regard to (1) perception of gender was stereotyped. In the guideline images, all women were wearing aprons. The master bedroom, dressing room etc. were shown as large and luxurious, but these traits are not applied to public housing designed for low-income residents. She suggested a flexible alpha room for single or poor households that can be a hobby/study room or a sublet. Terminology and visual representation should be gender neutral. With regard to (2) Safety issues the 'piloti' space (a kind of balcony supported by a structure) is often dark or isolated, but should be converted to activity area in public view. Restrooms should also be visible and accessible for safety reasons. She also commented that neighbourhood commercial buildings were located on secondary roads, which could be dangerous. With regard to (3) Scattered community facilities need to be integrated for everyday use. In conclusion, we need to consider better guidelines including universal design, flexibility, and accessibility to community facilities. Dr Rieh commented that as a woman, she is well placed to consider a woman-friendly city environment. However, this does not only address women's issues, as such research can benefit males too. *(Presentation: http://bit.ly/1h8P2EJ)*
Yaohui Zhao, Professor of Economics, Peking University, China	Prof Zhao commented that the worldwide problem of poverty of elderly women is partly because women live longer than men and generally receive lower pension than men. However, gender gaps in public pensions are larger in developing countries, and rapid economic growth during the past three decades has made gender gaps in public pensions a big problem in China. The female poverty rate is particularly high in urban areas, partly because good pensions are rare in urban areas in comparison to rural areas. Prof Zhao used data from China Health and Longitudinal Study (CHARLS) to reveal that women's shorter length of formal employment due to family care responsibilities is one main cause for their lower pensions. Furthermore, women are also forced to retire earlier than men by the Chinese government. Prof Zhao suggested that widows' pensions should be used to lower the poverty rate of elderly women. *(Presentation: http://bit.ly/1ivRypw Video: http://bit.ly/1M0pGRW)*
Shouraseni Sen Roy, Associate Professor, Department of Geography and Regional Studies, University of Miami, USA	Prof Sen Roy discussed an intriguing link between gender inequalities/inequities and impacts of climate change in the global south. The Intergovernmental Panel on Climate Change (IPCC) shows clear global warming trend, but climate change has not been uniform across the globe. Northern parts showed a steeper increase, but certain regions lacked weather stations to report these changes, and were more vulnerable and less ready to adapt to climate change according to the Climate Vulnerability Index. These regions, coined the 'Global South' by Dr Sen Roy, include South America, Africa, the Middle East, and Asia (except South Asia). The Global South showed the worst vulnerability and readiness levels. She then pointed out that these regions have patriarchal societies in which women's exposure may be further aggravated by poverty, since they do not

	hold high priority when it comes to the distribution of scarce resources. She also mapped the United Nation's Gender Development Index (GDI) and Gender Inequality Index (GII) next to vulnerability and readiness levels of the Climate Vulnerability Index, and found a similar trend. Higher levels of gender inequality usually met higher levels of vulnerability to climate change, meaning that the effects of climate change are not gender neutral. *(Presentation: http://bit.ly/1FCenmu)*

Advancing Gender Sensitive Innovation Ecosystems

Chair: Woo Il Lee,
Rapporteur: John Power

Presentations: http://bit.ly/1Kwkzc7

The Session considered gender as a driver of quality and sustainable technologies in the context Korea's policy goal to advance creative economy in the Asia-Pacific region. Practical realiSation of this policy can take advantage of: 1) new directions and opportunities for innovation that draw on scientific understanding of the significance of sex and gender differences; 2) improving the creative capacity of available human capital by more fully engaging the existing pool of highly educated women in the knowledge and commercial economies, as well as in the knowledge transfer sector; and 3) the trends towards more open, inclusive and user driven innovation practices, which facilitate more effective generation of innovation ideas and their transformation of into products.

Martina Schraudner, Head of the Department of Gender and Diversity in Organisations at the Technical University, Berlin	Prof Schraudner spoke about one of the key challenges facing gender-responsive innovation: women's lack of interest in technical innovation relative to their status as highly educated consumers and taxpayers. Dr Schraudner said that, compared to young men, women are more often followers of innovation than enthusiastic engagers, adding that: "People who are not interested, reluctant or anti-innovation are female, are older people. This is, I think, a kind of self-fulfilling prophecy." She set out to address this "valley of death," defined by a lack of innovation-relevant information related to women and a dearth of women in decision-making roles, by holding workshops to engage laypeople in efforts to solve everyday problems. Dr Schraudner and her team collaborated with a group of people with mobility restrictions to find solutions to the challenges they face daily. In the project, Fit65@home, the team worked with thalidomide survivors to develop a device to help people with limited mobility follow a specialised exercise regimen. "We wanted to understand what they need, what they are doing, what they are able to do," said Dr Schraudner. She said the project, the results of which were later applied to elderly people with mobility restrictions, was an example of how innovation can flourish through the collaboration of engineers and users with specific needs. "The engineers want to explain what is possible and what is not possible, and then want to go on with their technology, and I can understand this quite well. On the other hand, you have those kind of people who really need something, want something, and describe what their problems are," she said.

	Dr Schraudner said that one enthusiastic female workshop participant with no engineering background, demonstrated how women could be encouraged to think more about innovation. "People are interested to work with us in our workshops and think about their future," she said. (*Presentation: http://bit.ly/1Qc9ekY*)
Kyungchul Shin, CEO, Yujin Robot Co, Korea	Dr Shin presented on the future of the robotics industry that also touched on women's participation. "In the very near future, most of the people here will (have) contact with a robot, and have a robot or play with a robot," he said. Already rapid growth of the robotics market in recent years is just a foreshadowing of the market's future potential. Korea, in particular, has shown great promise. While the global market has grown by 11% since 2007, the Korean robotics industry has expanded 22% since 2008, an even shorter time span. Dr Shin outlined a myriad of ways in which robots already impact our lives, such as in automobile production and medicine. In future, robots will feature greater connectivity with other technologies such as cloud computing, Prof Shin said, allowing for new everyday conveniences such as self-driving cars and personalised meal services. "Robots will innovate our daily life," Dr Shin said. Women are key to the future of the robotics industry as both consumers and developers, according to Dr Shin. He said that women would be major beneficiaries of service robots in the future since they still do the majority of the housework and childrearing around the world. Such machines will clean the home or teach children. Dr Shin said that women engineers are at the forefront of developments in the industry, listing, among others, Cynthia Breazeal, the creator of family robot Jibo, and Melonee Wise, CEO of Fetch Robotics, an industrial robot maker. Dr Shin said that women make up about 30-35% of his company's workforce, mostly working in research. An audience member asked whether women are being utilised in traditionally male-dominated roles such as engineering. "In Korea, there are not so many female engineers, so that is why we are not hiring female engineers," Dr Shin said. "But now, for the young generations, there are many women engineers so we are trying to hire women engineers if they have the required capabilities. "Another audience member suggested future ethics committees that will decide regulations for robotics should be diversely filled. Dr Shin said it is for the government to decide who should fill such boards. (*Presentation: http://bit.ly/1OPgnHy*)
Hyolin Kim, Director of the User Experience, Automotive R&D Division, Hyundai Motor Group, Korea	Ms Kim explained how physical differences between men and women lead to distinct driving experiences, leading carmakers to consider sex in their designs. According to Ms Kim, the female driving experience has influenced auto design for almost as long as motor vehicles have been around. She noted that Bertha Benz, wife of Karl Benz, inventor of the car, gave early feedback on user experience, as the first person to drive a long distance, 106km, in 1888. From this journey, Ms. Kim said, Benz listed several areas for improvement: stronger brakes, more power and easier handling. "I'd say these three things are the top three features even these days," said Ms. Kim. She pointed out that women's influence on the auto industry has grown exponentially since the days of Benz.

	In South Korea, she said, the number of female drivers has increased almost 10-fold in the last 14 years, while the number of male drivers has only doubled. In the U.S., meanwhile, female drivers outnumbered men on the road for the first time in 2005, Ms. Kim noted. Yet, Ms. Kim said, tests show that women are much more likely to experience discomfort while driving than men due to differences in strength, size, cognition and behaviour. Most significantly, men and women have different seating positions. "When we design interior space and layouts, we need to very carefully deign and consider the difference in seating postures," Ms. Kim said. In consideration of the fact that women are physically weaker, the boot on Hyundai cars fully opens and closes electronically, in another example of gender-sensitive design. More crucial still is how sex relates to car safety. Women are more vulnerable to death or injury in collisions because of their smaller size and posture. For this reason, certain design elements -- such as headrest and seatbelt adjustability -- need to account for sex differences. Ms. Kim said the introduction of female crash test dummies in the U.S. has led to a significant decline in female crash deaths. Ms Kim said some of Hyundai's safety features are especially geared toward women. Women tend to multitask more than men, she said, meaning they particularly benefit from a lane departure warning system (LDWS) and auto emergency braking (AEB). "Technology is evolving and heading more and more where our users want it to go," she said. "So we need to continue to study deeply into human and users' needs and make products useful for users -- this means both men and women." Again touching on the theme of gender diversity in hiring, an audience member asked Ms Kim whether gender is a factor in choosing her team. "I don't have any preference in terms of gender for my team," said Ms. Kim. "As long as the candidate has the right skills."
Hyun-Min Park, Vice President, Korea Research Institute of Standards and Science	Prof Park presented on how potentially hazardous substances can have profoundly different effects on men and women. Prof Park said research has shown that 2-bromopropane, a cleaning solvent used in the electronics industry, has distinct effects on the reproductive systems of men and women. In one study, after 10 months of exposure, men developed aplastic anemia, a condition where the body does not produce enough blood cells, or azoospermia, which refers to a lack of mobile sperm. Women, meanwhile, suffered ovary atrophy. In both sexes, body weight decreased significantly. Meanwhile, in experiments with rats, males and females demonstrated different susceptibility to accumulation of nano silver in their organs. Over a 90-day period, female rats were more susceptible to liver toxicity and experienced three times more accumulation in their kidneys than males. Park observed that in both male and female rats, nano silver accumulated in the brain and was not flushed out of the body. However, compared to the male testis, which did not clear out nano silver, the female ovaries effectively removed the foreign substance. "This means most inhalation toxicology and most oral toxicology have gender differences," said Dr Park. An audience member asked if findings

	regarding sex and gender differences are being incorporated into safety standards for nanoparticles, noting that, in European projects are failing to make such distinctions. Dr Park replied that the Working Party on Manufactured Nano materials at the OECD is working to devise protocols for experiments involving nanoparticles. However, a big challenge to this effort is a lack of consistent data across countries. The questioner raised the need for greater study of toxicity as it relates to gender, noting that rats have different metabolisms than humans. *(Presentation: http://bit.ly/1K9F6Ft)*
Chang Won Park, director of the Division of Clinical Diagnostics Business at Macrogen Inc	Dr Chang Won Park spoke about the future prospects for genetic sequencing and how it can be used to anticipate diseases that mainly or exclusively affect one sex. Dr Park said that the emergence of Next Generation Sequencing in 2004 has expanded the uses of sequencing to include the diagnosis and prediction of certain diseases, "transforming clinical testing practices completely. "On one square millimeter, previously, just hundreds of millions of clusters could be sequenced," said Dr Park. "By right now, the density has reached beyond billions of clusters on a square millimeter. So the density is beyond our understanding." Big reductions in cost and technological advances have even opened the door to personalised medicine, Dr Park said. "Personalised medicine could be said to provide the right drug to the right patient at the right time, with the right dose," he said. With biomarker information, a doctor can better determine the best course of treatment. For instance, genetic testing can indicate a patient's metabolic rate, helping the doctor more accurately decide dosage. "Many, many drugs have been prescribed indiscriminately to patients with the same disease, in the hope that one size can fit all people," said Dr Park, noting that different people often react differently to the same drugs. Such personalised medicine is "intrinsically gender orientated." For example, detectable genetic mutations can indicate a high risk of certain cancers in women. Women who carry the BRCA1 and BRCA2 genes are 65% and 45%, respectively, more likely to develop breast cancer by age 70. By screening for these genes, women can take pre-emptive action, such as mastectomy, to reduce the risk of developing cancer. "We have sequencing capacity for 18,000 human genomes per year," said Dr Park. "We are going to keep on trying to develop a very good, affordable and accurate genetic test on the basis on these facilities and our efforts to enhance genetic testing overall." *(Presentation: http://bit.ly/1K9FaVF)*
Elizabeth Pollitzer, Director, Portia Ltd., UK	Dr Pollitzer argued that the distinct characteristics of women are not sufficiently acknowledged in various innovative fields. Dr Pollitzer noted that men and women have different metabolisms, affecting how patients respond to drugs and how to observe the course of a disease. Vaccines affect men and women in different ways, leading to uneven efficacy when gender differences are not taken into account. Research shows widely different immune responses to the yellow fever vaccine, for instance. "They measured the expression of the genes two to 10 days after the injection. In women, over 500 genes were expressed," Dr

	Pollitzer said. “In men, only 64.” This necessitates different dosages for the sexes, she said. “Women have a much bigger immune response to vaccines than men and, hence, really women need less vaccine, and the whole vaccine strategy needs to be redesigned,” Dr Pollitzer said. Another area that requires gender sensitivity is treatment for pain relief, an issue of increasing relevance because of the growing prevalence of age-related conditions that cause chronic pain. “We really need to develop not only different kinds of pain killers for women and men, but also recognise that there are different kinds and degrees of pain” she said. Touching on the subject of the earlier presentation of Hyolin Kim, Dr Pollitzer also addressed specific vulnerabilities of women in car collision scenarios. Dr Pollitzer said current safety features such as seat belts and airbags are less effective for women. One reason for this is the paucity of gender-sensitive information, according to Dr Pollitzer. Like the previous speaker Dr Martina Schraudner, she referred to this situation as the “valley of death.” As an example of this, Dr Pollitzer noted that all of the 200,000 crash test dummies developed by General Motors, which also supplies test dummies to other carmakers, are based on men. “Everybody is using the same faulty technology,” she said. She further noted that cancer from radiation exposure is more common in women, while safety standards for radiation exposure are based on male physiology. Meanwhile, she said, medical professionals consistently underestimate the amount of radiation they expose their patients to. In conclusion, Dr Pollitzer said that gendered innovation would lead to better outcomes for men and women. “If we have the knowledge and we have already pre-existing markets, we can do this routine innovation by just making improvements,” she said. *(Presentation: http://bit.ly/1KN9sRx)*

III. Conferences

Introducing the Gender Dimension to STEMM Higher Education

Chair: Myongsook Susan Oh

Presentations: http://bit.ly/1LJzTSB

This session featured perspectives on gender diversity and gendered innovation in engineering culture in Europe and Korea, as well as presentations on gender in computing and in distance learning in Uganda.

Myongsook Susan Oh, Professor , Chemical Engineering, Hongik University, Korea	Participation of women in higher education in Korea has been rising since 1980. Women are a majority all fields except Engineering (20.9%) and Social Sciences (48.8%). Greater efforts are needed to remove gender bias and cultural obstacles hindering recruitment of women to Engineering in Korea.
Athina Frantzana, Postgraduate Researcher, EPCC, University of Edinburgh, UK	Analysis of women's participation in High Power Computing showed that at non-specialist, large HPV conferences the percentage of women attending is between 10-17%, but the more specialist the topic is the fewer women attend.
Siyeon Lee, Professor, Gwangju Institute of Science and Technology, Korea	Analysis of STEM curricula in Korea showed that gender sensitive courses are rare. To be effective both men and women must be sensitised to gender issues. The GiST programme uses course modules trying to achieve this. Male participation has been 50-90%.
Ruth Nsibirano, Lecturer, School of Women and Gender Studies, Makerere University, Uganda	In Uganda introduction of gender awareness lessons helped teachers to understand male and female students' experience (e.g. gender roles, poverty), expectations, stereotypes and fears.
Sungsine Pak, Professor, School of Architecture, Interior Design and Coastal Engineering, Kunsan National University, Korea	In Korea, the W-programmes started in 2006 by WISET target women students pursuing engineering education. Women are organised into teams and conduct research projects for one week in an open laboratory. The aim is to provide them with insights into careers in Engineering. Participation in the programme showed to improve likelihood of the participants to choose Engineering as a mjor topic to study, and retain them in related field.
Jong Tae Youn, Professor, Department of Graphic Arts and Information Engineering, Pukyong National University, Korea	In Korea, the proportion of women in universities at different levels of STEMM ranges from 18% at undergraduate level, 13% at master level, 10% at PhD and only 2% as professors. A questionnaire-based study looked into individual, domestic, university, and cultural factors that influenced women's decision to continue as Engineering majors. Introduction of computer simulation in training showed positive impacts on change rate from Engineering to another field.
DeBonne N. Wishart, Associate Professor, International Center for Water Resources Management, Central State University, USA	In the USA, low participation of under-represented minorities in science and engineering is a major problem. Fewer women and graduating with doctoral degrees in Earth and Environmental areas, and there is low retention of female students. Strategies to increase gender diversity include demonstrating relevance of EES fields; faculty development; and targeted support actions such as mentoring.
Anders Karlsson, VP, Academic Relations, Elsevier,	There is a global gender gap in PhDs. Women continue to be underrepresented in top academic jobs. Elsevier has put in place a number of mechanisms to help address these issues, e.g. the New Scholar programme, Innovative Libraries, Publishers without Borders, Professional Visibility grants.

Improving Diversity of STEMM Talents: K-12 Programmes

Presentations: http://bit.ly/1MFMJXZ

This session explored how to build the foundations for a gender diverse pipeline of talents in science, technology, engineering, mathematics and medicine (STEMM) right from kindergarten to the first 12 years of education (K-12). To attract more female talent into STEMM fields, a variety of challenges has ot be overcome such as gender stereotypes established at an early age; the attitudes of mothers toward their daughters' selection of courses in STEM fields, school curricula, and gender differentiated learning experiences in school science laboratories and summer science schools targeting girls.

Donna Ginther, Director, Center for Science Technology & Economic Policy, Institute for Policy & Social Research, University of Kansas, USA **Hatsumi Mori**, Professor, Institute for Solid State Physics, University of Tokyo, Japan **Yuko Hayashi**, Graduate School of Innovation and Technology Management, Yamaguchi University, Japan **Soonja Kim**, Professor, Electronics Engineering, Kyungpook National University; Head, WISET, Dae-Kyung-Kangwon Regional Center, Korea **Ju Young Lee**, Professor, Computer Science Engineering, Duksung Women's University, Korea **Sun Young Jang**, Professor, Department of Mathematics, University of Ulsan, Korea	Evidence shows that that stereotype threat, gender norms, competition, teachers' bias, and parental attitudes towards math affect girls' mathematical achievements. Research shows that K-12 mathematics coursework is critically important to pursuing a degree in math-intensive GEEMP fields. Differences must be addressed at K-12. Early intervention (elementary school) is needed. The Japan Physical Society has only 6% female members. It will take 180 years to reach 30% at the current progress rate. Following the Korean example of physics summer camp science schools were set up for girls in Japan. Girls are involved in experiments to boost confidence and awareness of career opportunities in science. A survey carried out in Japan tested the impact of mothers' attitudes on their daughters choice of STEM courses. There were differences between mothers with STEM background and without on perception on their daughters' options and preferences, and which course they should apply to. For daughters, mothers preferred science, pharmaceutical, health areas and for sons engineering, science, and medicine. WISET leads on two educational programmes for girls, in Korea. One is the Girls' Engineering Week, which provides hands on experience of engineering project for school-girls. The aim is to nurture talented women engineers. The other is the Fusion Software Engineering scheme, which target software development. In both programmes, girls are mentored by female undergraduates. In Korea, a novel approach to science education for students involves visits to ancient palaces as a stimulating environment in which to demonstrate scientific and engineering principles, and encourage self-learning and working in groups, with positive overall effects. WISET also reported on work conducted by its regional agency in Ulsan, which delivers a range of measures to improve the number of girls choosing to study science and engineering at university. This includes holding science camp and a marine & ship camp for high school girls. Another action aims to attract public awareness of science.

IV. 11th AASSA Regional Workshop on Gender Issues in Science Research and Education

The 11th AASSA regional workshop on Gender Issues in Science Research and Education was organized by the Korean Academy of Science and Technology (KAST) and the Association of Academies and Societies of Sciences in Asia (AASSA) as the fourth of a series of AASSA activities for the advancement of women in science. The previous workshops of Women in Science, Women in Science, Education and Research, and Women in Science and Technology were held in Baku, Azerbaijan (2012) in New Delhi, India (2013), and Izmir, Turkey (2014), respectively. Eighteen lectures were presented from 13 countries: Australia, Bangladesh, Israel, Kenya, Malaysia, Mongolia, Nepal, Pakistan, the Philippines, Sri Lanka, Turkey, the United States and Korea. The workshop summarized on-going problems for women in science and technology, and agreeing on eight core recommendations based on discussions over the last four years, aiming to serve as the focus of future efforts for the empowerment of women in science and technology in Asia and elsewhere. Below are the summaries of the presentations.

Plenary Lecture **Chair**: Yoo Hang Kim, Executive Director, AASSA	
Myung Ja Kim, Fellow Emeritus, KAST; President, Green Korea 21 Forum; former Minister of Environment, Korea	Prof. Kim spoke on promoting gendered innovations for R&D, R & Business Development and R & Social Development. She illustrated famous female scientists and female Nobel laureates, as well as global female leaders with science backgrounds. The global gender gap index and gender gaps in wages, senior management, and full-time employment were presented. She explained the emerging trend of 'gendered innovations' in science R&D that is introducing gender analysis in R&D process in order to obtain innovative results. She also explained the US Research for All Act.
Status of Women in STEM **Co-Chairs:** Khairul Anuar Bin Abdullah, Treasurer, AASSA and Hong-Hee Kim, Fellow, KAST, Korea	
Doe Sun Na, workshop co-chair; Vice-President, KAST, Korea	Prof. Doe Sun Na spoke on women in science and technology in Asia, pointing out that since Asians account for around 60% of world population it is crucial to utilize women's talents in Asian countries. Yet, the percentage of women in science research in Asia is lower than other regions of the world. She covered the previous AASSA Regional Workshops and introduced the report Women in Science and Technology in Asia.
Zabta Khan Shinwari, Secretary General, Pakistan Academy of Sciences (PAS)	Dr. Shinwari reported that the Gender Parity Index (GPI) of Pakistan was above only that of Yemen. For example, 50% of female medical/dental graduates never work after graduation; their education is focused more on improving marriage prospects. Many qualified women drop out of science careers and are not represented on the boards of STEM companies. Priority is given to raising a family, causing difficulty in maintaining S&T careers at the same time. A lack of women mentors also resulted in low self-confidence of women scientists.
Nadira Karunaweera, Professor, University of Colombo;	Prof. Karunaweera spoke on women in research and development in Sri Lanka. In all disciplines except for engineering, women constitute more than one third of the R&D workforce. The percentage of women was the highest in the medical field and the lowest in engineering. In the higher education institutions, there are many more women at the lower grades such as in lecturer roles than at the professorial or

General Secretary, National Academy of Sciences, Sri Lanka	managerial level.
Yu-Kyoung Oh, Professor, Seoul National University; Fellow, KAST, Korea	Prof. Oh presented analysis of survey results from 10 Asian countries; Australia, Bangladesh, India, Korea, Malaysia, Nepal, Pakistan, Philippines, Sri Lanka, and Turkey. She summarized data on women scientists, policy initiatives, family-friendly policies, and supporting practices. AASSA countries need more efforts in women's empowerment and pointed out the necessity of statistically meaningful and quantitative data-based analysis.

Empowering and Leadership **Co-Chairs:** Nadira D. Karunaweera, General Secretary, National Academy of Science, Sri Lanka and Yu-Kyoung Oh, Fellow, KAST, Korea	
So-Yeop Han, Professor, Ewha Womans University, Korea; Vice President, KOFWST	Prof. Han discussed many innovative programs of the Korea Federation of Women's Science and Technology Associations (KOFWST). She introduced the aim, history, member organizations and major activities of KOFWST, including an annual conference, support programs for member associations, forums, international workshops and fellowship award programs.
Jennifer Graves, Distinguished Professor, School of Life Science, La Trobe University; Fellow, Australian Academy of Science (AAS)	Prof. Graves presented on strategies to improve the gender balance of Australian Academy of Science fellows, of whom less than 4% were women in 1999. This number has now risen to 11% thanks of work. The most successful strategy, instituted two years ago, has been to appoint a very high level committee chaired by the two Vice-Presidents to search for and receive advice about qualified women candidates for Fellowship. The committee finds suitable nominators and seconders for each female candidate, and tracks the nomination process. The process immediately enlarged the pool of female candidates. In 2014 and 2015, around half of the 20 new Fellows have been women.
Nurit Yirmiya, Chair, National Committee for the Advancement of Women in Science and Technology, Ministry of Science, Technology and Space, Israel	Dr. Yirmiya said that in Israeli Academia, women make up about 50% of the PhD graduates and lecturers but only 27% of associate professors and 16% of full professors. Professor Carmi's Committee, established in 2011, analyzed the status of women in universities and made recommendations to improve the situation. In Israel, one condition for obtaining a faculty position is post-doctoral experience abroad, which poses specific cultural, social and economic difficulties for women. She suggested financial support for women-specialized post-doctoral fellowship and proactive recruitment of women for academic positions.
Jackie Olang, Programmes Director, Network of African Science Academies (NASAC)	Ms. Olang addressed the cultivation of women's leadership in sciences, citing cases from African Academies of Sciences. She presented an overview of NASAC established in 2001 as a network for African science academies to provide authoritative science advice for policy development in Africa. Its Women for Science Working Group works to make academies appreciate the contribution of women scientists and encourage girls to pursue scientific careers. She concluded that academies must invite women scientists to participate in their work.

Inspiring and Mentoring **Co-Chairs:** Jennifer Graves, Australian Academy of Science and So-Yeop Hahn, Vice President, KOFWST, Korea	
Azra Khanum, Fellow, Pakistan Academy of Sciences (PAS)	Prof. Khanum spoke on enhancement of science education and mentoring programs for young females. She explained that Pakistan's demography is experiencing a rare youth bulge, but 28% of youth are uneducated with low life skills. Moreover girls have much fewer education opportunities from grade school through to degree college. Among 15-24 year-olds, 36.6% of females, compared to 20.6% males, are illiterate. Concerted and continued efforts of the government, politicians, NGOs, and academies are essential to overcome these problems. Developing mentoring programs for young females from early on and teaching parents the importance of girl's education can help.
Shamima K. Choudhury, Professor, University of Dhaka, Bangladesh	Prof. Choudhury spoke on 'Inspiring women in science through mentoring.' She emphasized the need of mentor-mentee program to offer sustained relationships, often in a career-oriented setting, between an experienced and trusted person who gives advice (the mentor) to another less-experienced person (the mentee). She introduced several national events for popularizing science as well as 'Young Women Scientists Mentor-Mentee Workshop' held in 2012. She also reported the increase of the S&T Ministry funding from 20 million (2009) taka to 75 million (2014) for giving fellowships to MS, MPhil, and PhD students: 400 in 2009 to 1,450 in 2014 of which 40-50% were women.
Anjana Singh, Professor, Tribhuvan University; Academician, Nepal Academy of Science and Technology (NAST)	Prof. Singh reported on the necessity of higher education revamping in Nepal. covering the management of higher education in Nepal. The Ministry of Education and the University Grants Commission should ensure quality education. However, Ministry of Education´s expertise, so far, has been in primary and secondary education not on higher education. The ministry lacks academic strength and is unable to manage higher education. She concluded that the poor quality of education could be the reason why poor nations such as Nepal cannot make economic progress.
Erdenebileg Tudev, Specialist, Mongolian Academy of Sciences (MAS)	Dr. Tudev spoke on 'The intervention study on the gender issues in science research and education,' which included discussion on the challenges in the organizational, social and political aspect. The literacy rate in Mongolia is 98% and women account for 4.6% of the 64 members in the Mongolian Academy of Sciences.

Policies and Best Practices **Co-chairs:** Zabta Khan Shinwari , Secretary General, Pakistan Academy of Science and Sung-Jin Kim, Fellow, KAST, Korea	
Khairul Anuar Bin Abdullah, Vice-Chancellor, MAHSA University, Malaysia; Treasurer, AASSA; Senior Fellow, Academy of Sciences Malaysia (ASM)	Prof. Abdullah delivered a lecture titled 'Women in science, technology and innovation: The journey ahead'. In Malaysia women account more than half of university students in science fields and 49% of the researchers. However, retention of women in STEM careers is problematic. The Malaysian government is serious about empowering women scientists. All institutions are required to provide sex disaggregated data, which would help establishing policies for women's empowerment. He emphasized that the policies to eliminate gender disparity in recruitment, retention, and promotion of women in STEM must be innovated.
Asuncion K. Raymundo,	Prof. Raymundo discussed the status of women in different stages of education in STEM fields. In the Philippines, more than 50% of students in S&T are women

Professor, University of the Philippines, Los Baños; Academician, National Academy of Science and Technology, Philippines (NAST PHL)	and science department professors and researchers are also more than 50% women. However, there is gender disparity in upper levels such as management of government committees or presidents of colleges and universities, etc. For example, female NAST Academician and National scientists comprised 24% and 34%, respectively, of the total membership in each category. She suggested constraints on women to reach to the 'zenith' of their science professions may include competing demands of work and family.
Robert Gasior, Associate Program Officer, the U.S. National Academy of Sciences	Mr. Gasior presented gender related data analyzed from the PEER (partnership for enhanced engagement in research) program. PEER is funded by the US agency for international development (USAID) and implemented by US National Academy Science. Applications for PEER programs were analyzed by gender, geographic regions, and countries. He explained the future goals of the PEER program such as establishing a comprehensive database.
Haseena Khan, Professor, University of Dhaka; Associate Secretary, Bangladesh Academy of Sciences (BAS)	Prof. Khan introduced current government agenda of Bangladesh such as Vision-2021, which emphasizes participation of women is S&T. Women's empowerment and bringing women in the mainstream of development is one of the priority agenda for Bangladesh. There are still many obstacles that inhibit young women from pursing a life-long career in science. She suggested that some initiatives such as mentoring programs should be provided by the government.
Ahmet Nuri Yurdusev, Professor, Middle East Technical University; Vice-President , Turkish Academy of Sciences	Prof. Yurdusev presented on women's studies and feminist approaches in social sciences: promises unfulfilled. He examined the contributions of women's studies and feminist approaches (WS & FA) to social sciences particularly focusing on International Politics (IP). The contribution of WS & FA has been significant at the empirical level so that gender has been accepted as an element/factor in IP.

6. Appendixes

Appendix 1

Descriptions of Organising Institutions and Partners

Organising Institutions

Center for Women in Science, Engineering and Technology (WISET), Korea

In 2011, WISET was commissioned by Ministry of Science, Education and Technology of the Republic of Korea, the Korea Advanced Institute of Women in SET (WISET) to create conditions under which women can play a central role in science and technology sectors. The aim of WISET is to establish a total support system for Women Scientists and Engineers by creating a sustainable eco-system through domestic and foreign integration, cooperation, exchange, and solidarity; by reinforcing the status as a total support center toward fostering and utilizing women scientists and engineers; and by building a global network hub for women scientists and engineers. To realise these visions, WISET has provided five core projects: Supporting an innovation system in science and engineering and policy study on women scientists and engineers; Developing expansive support measures through analysis on legislative operational output,

policy outcomes, and related domestic and international policy studies; Nurturing a self-sustainable ecosystem by introducing and systemizing a lifecycle tailored mentoring system; Establishing an interdisciplinary cross-matched network among different generations to foster female resources in SET; Fostering and systemizing the utilisation of a core workforce of women scientists and engineers. WISET will become the world's leading organisation in creating value of women scientists and engineers to contribute to the growth of 'Science and Technology Based Economy'.

Portia, Ltd., UK

Portia Ltd, designs and implements effective strategies for gender equality in science, engineering and technology. Work is organised around four key elements: evidence, dialogue, consensus and actions. Using this methodology, Portia creates effective strategies that promote gender equality in: science knowledge making, its applications and communication; science and engineering disciplines; education; research and innovation; and the commercialisation of technical knowledge. The evidence — recent empirical studies, critical reviews, evaluated examples of good practice — starts the process and frames the content of the dialogue, the consensus and the actions. A demonstration of how this works in practice is provided by the genSET project where a panel of science leaders considered evidence from more than 120 research studies to establish a consensus on recommendations for action targeting science institutions. The Gender Summit began in 2011 as part of Portia's genSET project, in partnership with the European Science Foundation. It has since evolved into an influential, high-level platform that brings together scientists from diverse fields, policy makers in science-related areas, gender scholars and the R&D industry.

National Research Foundation of Korea

The NRF is working to elevate Korea to a superpower of knowledge and brainpower by promoting development focused on research through close cooperation with world-class research funding agencies. We are also making efforts to become a global leader in research funding that will contribute to the advancement of Korea by presenting a new mission and vision for the future.

Korea Institute of S&T Evaluation and Planning

As a government affiliated research institute under the MSIP (Ministry of Science, and ICT and Future Planning), KISTEP has been the leading institute in providing future vision and strategies. KISTEP promotes technology innovation by encompassing all aspects of Korea's national R&D system, including S&T planning, budget allocation and coordination, and R&D evaluation. Over 300 researchers with diverse expertise have dedicated themselves to brightening the future of Korea. KISTEP continues to contribute to setting the course and devising strategies for Korea's national science and technology development.

Partners

The Japan Science and Technology Agency

The Japan Science and Technology Agency (JST) is one of the core institutions responsible for the implementation of science and technology policy in Japan, including the government's Science and Technology Basic Plan. From knowledge creation—the wellspring of innovation—to ensuring that the fruits of research are shared with society and Japan's citizens, JST undertakes its mission in a comprehensive manner. JST also works to provide a sound infrastructure of science and technology information and raise awareness and understanding of science and technology-related issues in Japan.

National Natural Science Foundation of China

The National Natural Science Foundation of China (NSFC) is an institution directly under the jurisdiction of the State Council established in 1986 to administrate the National Natural Science Fund. In accordance with the Government's guiding principles, policies and plans for the development of science

and technology, NSFC is responsible to direct, coordinate and make effective use of the National Natural Science Fund to support basic research, stimulate free exploration, identify and foster scientific talents, as well as to promote progress in science and technology and the harmonious development of the society and economy in China.

The Japan Society for the Promotion of Science

The Japan Society for the Promotion of Science (JSPS) is an independent administrative institution, established by way of a national law for the purpose of contributing to the advancement of science in all fields of the natural and social sciences and the humanities. JSPS plays a pivotal role in the administration of a wide spectrum of Japan's scientific and academic programmes. While working within the broad framework of government policies established to promote scientific advancement, JSPS carries out its programmes in a manner flexible to the needs of the participating scientists.

Korea Federation of Women's Science & Technology Association

The Korea Federation of Women's Science and Technology Associations (KOFWST) began in 2003 with four member organisations for the purposes of fostering alliances between women's science and technology organisations to achieve; 1) enhanced status of women in science and technology 2) quality improvement and equal employment of women in science and technology, and 3) enhance national capacity of science and technology. KOFWST has a reliable federation leading Korea's science and technology fields not only for women scientists and engineers but also working to apply developments of science and technology for everyday lives of people. This splendid achievement of KOFWST is the outcome of cooperative efforts of all member organisations, as well as dedicated leaderships played by former presidents, executives, board members and many others who diligently worked together. I would like to extend my gratitude to all the hard works and great contributions of everyone involved.

Association of Academies and Societies of Sciences in Asia

The Association of Academies and Societies of Sciences in Asia (AASSA) launched on January 1, 2012, as a consequence of the merger of AASA (The Associations of Academies of Sciences in Asia) and FASAS (The Federation of Asian Scientific Academies and Societies) is a non-profit international organisation with science and technology interests. It is made up of 34 scientific and technological academies and science societies in Asia and Australasia.

Appendix 2

National Assembly Members' Congratulatory Messages

Spoken Message from Sang-Kee Suh, Member of the National Assembly, Korea

Good morning Ladies and Gentleman, honourable invited speakers and distinguished participants,

My name is Sang-Kee Suh, I am a member of the National Assembly of Korea.

I would foremost like to express my gratitude to the host institutions, WISET, KISTEP and NRF, for carrying out the necessary preparations that made this important event possible. Also, please accept my warm welcome and thanksgiving to all speakers who are visiting Korea from afar to participate in this event.

Today we have special guests from the National Assembly, Seung-hee Yoo. In particular, my deepest gratitude goes to Minister Yanghee Choi of Science, ICT and Future Planning his unfailing support he provided for this event. In the current times, women's participation in the economy and society, together with the consolidation of diversity, has become key to enhancing national competitiveness. Women account for half the entire population, and their overall level of education is steadily improving. Leaving women outside the mainstream society would be the single largest waste of human resources.

This Gender Summit is held under the theme of "Better Science & Technology for Creative Economy." Indeed, women's impact on every part of society and science and technology is no exception. The debates on how we can bring women into the centre stage in science and technology is a pressing issue for realizing the new development strategy for Korea.

I believe that by focusing our scientific and technological capacity and promoting the participation of women in these fields; we can make substantial advances in prioritises research areas and open up newly emerging markets. It is through these measures, we can realise the philosophy of a creative economy.

At the National Assembly of Korea, we will work hard as legislators so that more discussions would be held on the value of "science and technology, where everyone is equal" and the needs of everyone are respected. In addition to this, we will try to provide systematic support to achieve these values.

Once again, I take this opportunity to express my deepest gratitude and sincerest congratulations to those who have worked hard to hold the event. I wish everyone here today much happiness at home and work.

Thank you
Sang-Kee Suh, member of the National Assembly of Korea

Written remarks: Moo-sung Kim, Saenuri Party Chief Representative of the National Assembly, Korea

I sincerely congratulate the opening of Asia-pacific gender summit 2015. Gender innovation is a new source of power to realise the creative economy. Research and development covering the insights of both women and men will be a driving force to empower the competitiveness of science and technology as well as creating new added values.
I hope today to become an opportunity of another take-off to minimise the gender deficits and maximise the gender innovation in all areas.
The national assembly will also have more interests in gender innovation to provide legislative supports. Once again, congratulations on the opening of Asia-pacific gender summit 2015.

Thank you.
Moo-sung Kim, Saenuri Party Chief Representative of the National Assembly, Korea

Written remarks: Ui-Hwa Chung, Speaker of the National Assembly, Korea

Dear Korea Centre for Women in Science Engineering and Technology,

Congratulations on the opening of the Gender Summit 6 Asia Pacific 2015 and hanks to all VIPs and participants. Through the Gender Summit more exchange in the scientific and technological fields will be generated in the Asia Pacific region, and our global leadership can reach greater heights.

Thank You.
Ui-Hwa Chung, Speaker of the National Assembly, Korea

Appendix 3

List of Poster Presentations

A PDF book of poster presentations can be downloaded here: http://bit.ly/1ONn3rR

	Title	Presenter
1	Consideration of gender in the development of FFQ: association between red and processed meat intake and cardiovascular disease mortality	Minji Kang
2	Consideration of gender in the dietary assessment: a meta-analysis of red and processed meat and colorectal cancer	Jung Eun Lee
3	Factors related to dietary supplement use were different by gender: Using the 4th Korean National Health and Nutrition Examination Survey (2007-2009)	YoonJu Song
4	Gender analysis in development and validation of food frequency questionnaire: a systematic review	Jae Eun Shim
5	Gender deficiency, analysis, and innovation for respirator and air dilution sensory test	Ahjeong Son Kyung-Suk Cho
6	Gender difference in the relationship between serum vitamin D and hypertension in the Korean population	Jihye Kim
7	Gender difference on the association between fried food consumption and hypertension in Korean adults	Jihye Kim
8	Gender differences in acupuncture effectiveness in animal models of Parkinson's disease	Sook Hyun Lee Sabina Lim
9	Gender differences in the symptoms of functional gastrointestinal disorders in Korean fire fighters	Yong Sung Kim
10	Gender Differences in Trust Behaviour on Interacting with Advanced Driver Assistant System	Ji Hyoun Lim
11	Gender-specific prevalence of normal weight obesity among Korean adults	Hyojee Joung Chang Yang Min
12	High fat diet affects differently on stress responses according to sex in rat	Yong Sung Kim
13	Manual acupuncture stimulation on GB34 induces pain only in female, not male; an fMRI pilot study in healthy volunteers	Sujung Yeo Sabina Lim
14	Questioning Gender-Based Design with Women to Improve Building and Urban Safety	Sungsine Pak
15	Relationship between body mass index and the risk of early gastric cancer and dysplasia depending on gender	Nayoung Kim
16	Sex- and gender-specific disparities in colorectal cancer risk	Sung-Eun Kim Mi-Kyung Sung
17	Study on Electrical Safety Case Analysis and Prevention and Consequent Improvement of the Gender Perspective on the Human Body	Yoo-Kyung Ki Mihye Jang
18	Who Will Let You Know the Sex of the Cells You Are Using?	Mi-Na Park Suk Kyeong Lee
19	Age disparities in trajectories of depressive symptoms among Korea Women	Jina Jun
20	Association of the subjective stress level, health-related habits, and	Miae Doo

	obesity by gender	
21	Difference in Gender of Pulmonary Function and Air trapping on High Resolution Computed Tomography Images in Patients with Chronic Obstructive Pulmonary Disease	Grace Hyun Kim
22	Different association between dietary Carbohydrate and Metabolic syndrome risk by Sex	YoonJu Song
23	Environmentally Friendly Syntheses of Biological Active Azaheterocycles	Valentina Yu
24	Gender difference in medical service utilization of people with comorbidity of chronic heart disease and depression	Jihee Choi
25	Gender difference in the association between risky health behaviours and depressive symptoms	Eunja Park
26	Gender Difference of Attitude and Willingness towards Kidney Donation and Sale among Chinese Medical Students	Fangmin Ge
27	Gender Differences in Car Accident	Mee Hye Oh
28	Gender Issues in Chemical Risk Assessment and Safety Testing Strategy	Jinhee Choi
29	Gender Issues in the Drinking Water Quality Standards for Disinfection By-Products in Korea	Jihyang Kweon
30	Gender-Sensitive Depression Indicators for Suicide Among Korean Depressed Women in their 20s: Happy Healthy 20s Application Study	Chiyoung Cha
31	Gender-sex Differences in Exposure and Its Risk of Environmental Organic Pollutants	Yoon-Seok Chang
32	How Gender Affects Teamwork in Engineering Class Projects	Myongsook Oh
33	Influence of Heredity, Environment and Mother's Health on Distribution and Clininc Course of Ichthyosiformal Dermatoses in Southern Kazakhstan	Irina Kim
34	Sex-Gender related Differences in Gastrointestinal Reflux Disease	Young Sun Kim
35	Sex/Gender Differences in Gene Expression Profiles Associated with Cardiovascular disease.	Jinyoung Park
36	Study on Improvement in the method of Classification between Pathological and Normal Voices: Analyzing the Gender	JiYeoun Lee
37	Repeated water avoidance stress altered mucosal mast cell, cytokines and visceromotor response in male and female Wistar rat	Nayoung Kim
38	Activities of the Society of Japanese Women Scientists	Shinae Kizaka-Kondoh
39	Increased high school female student recruitment at a “leading STEM university” later leads to increasing number of female STEM faculty	Shinae Kizaka-Kondoh
40	Beyond dichotomous sex/gender analysis: Analyzing the perceptions of unisex toilets among different sexes/genders	Yen-Wen Peng
41	Comparison of Psychological Attributes of Male and Female Engineering Students towards College Life	Malshick Shin
42	Clinical Features of Obstetric and Gynecologic Patients among North Korea Refugees Living in South Korea	Jeong Min Eom
43	Duct Tape for Leaky Pipelines: Mentoring’s Effects on Women and STEM in the US and South Korea	Yun Kyung Cho
44	Effects of income and subjective perception of poverty on depressive symptoms among the elderly in South Korea: A consideration of gender disparity	Gum Ryeong Park

45	Elimination of Gender Quota in Recruiting Civil Servants in Taiwan	Chiali Wu
46	Women on the Move: Gender Dimension of Chinese Academic Brain Gain at the High End	Yutao Sun
47	Have the gender equality policies filled the gender gaps in the fields of science and technology in Japan?	Miwa Yokoyama
48	How to support gendered innovations from the government level?	Li-Ling Tsai
49	Analysis of the status of national R&D policy and intellectual properties from the perspective of gendered innovations in Korea	Mi Ock Mun
50	Initiatives taken by the Quebec Research Funding Agency-Nature and Technologies to facilitate and promote women's careers in STEM	Maryse Lassonde
51	JSAP's continued engagement in promotion on "Women in Physics"	Nahoko Kasai
52	Lecture tours by female professors promote physics in disadvantaged regions	Ling-An Wu
53	Looking Back on the Special Grant for Gender and Science/Technology Research in Taiwan since 2007	Wen-Ling Hong
54	Promotion of Female Researcher Activity in Japan	Mitsuhiro Abiko
55	Recent Activities of Gender Equality Promotion in the Physical Society of Japan	Akiko Itakura
56	Sex differences in colitis development in mice	Dong-Mi Shin
57	Study of gender parity condition in the Republic of Kazakhstan	Kim Svetlana
58	Symposium Report Organised by the Gender Equality Promotion Committee in the Physical Society of Japan? Various Career Paths from Physics?	Yutaka Shikano
59	Gender Representation in the Russian Academic Journals and its Changes through the Past Decades	Olga Krasnyak
60	Following Filipina Physicists	Gay Jane Perez
61	The Study on the Change of Awareness and Improvement of Educational Research Environment Related in Gender Innovation In Engineering Education	Bock-Hee Park

Appendix 4

Links to Presentation PDF Books

Plenary Panel One*: http://bit.ly/1NQ5DLU*
Plenary Panel Two: *http://bit.ly/1QVoMul*
Plenary Panel Three: *http://bit.ly/1WeSb5N*
Plenary Panel Four: *http://bit.ly/1QVpfN4*
Plenary Panel Five: *http://bit.ly/1Kwmeys*
Parallel Session One: *http://bit.ly/1Pm8Gsw*
Parallel Session Two: *http://bit.ly/1V713lj*
Parallel Session Three: *http://bit.ly/1Kwkzc7*
Gender Summit Overview: *http://bit.ly/1Pm6TUq*
Poster Sessions: *http://bit.ly/1ONn3rR*
Conference One: *http://bit.ly/1LJzTSB*
Conference Two: *http://bit.ly/1MFMJXZ*

Appendix 5

Media Coverage

Media Name	Type	No of items	Summary of coverage
EBN - Economic Business News	Online news service	2	For different research for men and women, the Gender Summit opens
KBS - Korea Broadcast System	Radio and TV Channels	2	Gender Summit held: "Renounce gender biases in science"
Korea IT Times	Korean/English news website, printed magazine	2	Gender Summit 6 – Asia Pacific 2015 Opens at the Plaza in Seoul: Create a Balanced STEM Ecosystem
YTN – Yonhap Television News	National TV News Channel	1	Asia Pacific Gender Summit closing: Seoul Declaration adopted
YTN Science	National TV News Channel	1	Women are injured more in car accidents, [crash test] dummies are all male
KyungHyang Newspaper	Newspaper	1	Car accident experiments, and women's diagnosis … based on the male body
GyoSoo Newspaper	Academic Newspaper	2	"Seoul Declaration" adopted at the closing of the gender summit
News 1	News Website	3	Science Minister attended/congratulated Gender Summit Asia Pacific Opening ceremony
News Way	News Website	1	Asia Pacific Region's first Gender Summit held
NewShi News	News Wire	11	Gender Summit Asia Pacific 2015, opening, congratulations from ministers, Closing, Seoul Declaration adopted – research should not include gender biases
Donga Science	Science News Website	4	Gender Summit Asia Pacific 2015: Gendered Innovations should be integrated and extended in innovations; women more vulnerable to radiation exposure than men; article on diseases where gendered innovations may help research
Donga Newspaper	Printed Newspaper and Website	2	Gender Summit Asia Pacific 2015 looks at "sexism" in scientific methods; Interview with Pollitzer: experiments conducted with male rats
Digital Times	Printed Newspaper and Website	2	"Essay": the value created by gendered innovations;
Money Today	News Website	3	Asia Pacific Gender Summit held; Development of a Gendered Innovations Index "Everyone out! Seatbelts dangerous for pregnant women?"
Next Media	News Website	1	Announcement of Gender Summit opening
IT Today	News Website	1	Science Ministry opens the Asia Pacific Region Gender Summit 2015
Aju Business	News Website	1	Gender Summit held to eliminate gender bias in science and technology research
Women's Newspaper	Printed Daily Newspaper	5	Science and Technology: "Gendered Innovation" is the key to economic development / Key to Gender sensitive economy …
Joongang Daily	Daily National Newspaper and	3	National Agendas should be set to eliminate gender disparities

	website		
Joongang Sunday	Sunday National Newspaper and website	4	General coverage and of specific research evidence, opinion column
Yonhap News	National News Wire Service	18	Gender Summit Asia Pacific 2015 looks at “Sexism” in scientific research instruments; press conference coverage
E-Daily	Website	1	Asia Pacific’s first Gender Summit held
Economic Review	Website	1	Asia Pacific’s first Gender Summit held
E-Today	Website	2	Photo: Asia Pacific’s first Gender Summit opens
Electronics Newspaper	Newspaper and Website	2	Eliminating gender bias for better technology discussed at Gender Summit Asia Pacific
Policy Briefing	Website	1	Gender Summit Asia Pacific opens
ZD Net Korea	Website	4	Why are car accidents more dangerous for women than men? Differences between male and female mice in pain experiments …
Plus Korea	Website	1	Adoption of Seoul Declaration at Asia Pacific Region Gender Summit
Korea NGO Newspaper	Newspaper and Website	1	Partnership formed on gendered innovations
Korea Daily	Newspaper and Website	1	Event announcement
The HanKyoreh	Newspaper and Website	1	Event announcement
Herald Business	Newspaper and Website	3	Gender Discrimination that threatens women in science; The first Asia-Pacific region , gender Summit 2015 held
International Innovation Magazine	Website and print Magazine	1	Feature on Seoul Declaration
Elsevier Connect	Online newsletter to science community	1	Comment piece on why gender in science matters

Appendix 6

Summit Programmes

Wednesday, 26 August

Conference 1 *The Rome Declaration on Responsible Research and Innovation in Europe (2014) offers some advice to organizations related to science, technology, engineering, mathematics and medicine (STEMM) on institutional changes to foster awareness, know-how, expertise and competence of scientific research and innovation. These include adapting curricula and developing trainings. This session will feature several perspectives on gender diversity and gendered innovation in engineering culture in Europe and Korea, as well as presentations on gender performance in high performance computing and on gender differences in distance learning at universities in Uganda.*	
Myong Sook Susan Oh Professor, Chemical Engineering at Hongik University; Head, Women in Science, Engineering and Technology (WISET) Seoul Regional Center, Korea	*Motivating Female Students in Engineering Classrooms through Social Relevance of Engineering Solutions*
Athina Frantzana, Postgraduate Researcher, EPCC/Physics and Astronomy, University of Edinburgh, UK	Gender Inequality in High Performance Computing A Numerical Approach
Siyeon Lee, Professor, Gwangju Institute of Science and Technology, Korea	*A STEAM Course Proposal to Complement the Current Gender-Sensitive Curricula in College STEM Education in Korea*
Ruth Nsibirano, Lecturer, School of Women and Gender Studies, Makerere University, Uganda	*Gender in Distance Education: Implications and Lessons to Learn for Teaching and Learning, a Case of Youth Program at Makerere University*
Sungsine Pak, Professor, School of Architecture, Interior Design and Coastal Engineering, Kunsan National University, Korea	*The Effect of W-Programs on Women Engineers' Employment & Duration of their Career*

Jong Tae Youn, Professor, Graphic Arts and Information Engineering, Pukyong National University, Korea	*Factors Causing Women Students to Drop Out of Engineering*
Jong Tae Youn, Professor, Graphic Arts and Information Engineering, Pukyong National University, Korea	*Factors Causing Women Students to Drop Out of Engineering*
DeBonne N. Wishart, International Center for Water Resources Management, Central State University, Wilberforce, Ohio, USA	*Challenges to Gender Diversity in the Earth and Environmental Science Disciplines*
Anders Karlsson, Vice President, Academic Relations, Elsevier on behalf of the Elsevier Foundation	*Fighting STEM Attrition through Family Friendly Policy Interventions*
`Conference 2 The Rome Declaration on Responsible Research and Innovation in Europe states that "Early and continuous engagement of all Stakeholders is essential for sustainable, desirable and acceptable innovation"- this has to start early as various stereotypes are often formed about science being a "male" sphere start from childhood. This session will explore how to build the foundations for a gender diverse pipeline of talents in science, technology, engineering, mathematics and medicine (STEMM) right from kindergarten to the first 12 years of education (K-12). To attract more female talent into STEMM fields, we have to challenge gender stereotypes from an early age. This can include examining the attitudes mothers have toward their daughters' selection of courses in STEM fields, school curricula, and gender differentiated learning experiences in school science laboratories and seasonal science schools.	
Donna Ginther, Director, Center for Science Technology & Economic Policy, Institute for Policy & Social Research, University of Kansas, USA	*Where are the Bottlenecks in STEM Majors & Careers in the US?*
Hatsumi Mori, Professor, Institute for Solid State Physics, University of Tokyo, Japan	*Development of the Next Generation - Summer and Spring Science Schools for Junior and High School Girl Students*

Yuko Hayashi, Professor, Graduate School of Innovation and Technology Management, Yamaguchi University, Japan	*A Survey on the impact of mothers in course selection of Science, Technology Engineering and Mathematics (STEM) on their daughters*
Soonja Kim, Professor, Electronics Engineering, Kyungpook National University; Head, Women in Science, Engineering and Technology Dae-Kyung-Kangwon Regional Center, Korea	*Fusion education program between engineering and software development for pre-engineering girls students from WISET Daegu branch*
Ju Young Lee, Professor, Computer Science Engineering, Duksung Women's University, Seoul, Korea	*The Development and Implementation of the Experience-Based Learning Program through Field Trips to Ancient Palaces*
Sun Young Jang, Professor, Department of Mathematics, University of Ulsan, Korea	*How far does the impact of one movement go*

Workshop: 11th AASSA Regional Workshop on Gender Issues in Science Research and Education

Moderator
Yoo Hang Kim, Executive Director, The Association of Academies and Societies of Sciences in Asia (AASSA)

Three AASSA Regional Workshops on "Women in Science and Engineering" have been held so far: the 1st was in Baku, Azerbaijan in 2012; the 2nd in New Delhi, India in 2013, and the 3rd in Izmir, Turkey in 2014. Local Academies were the host organizations. The outcomes of these workshops are: first, the establishment of the "Special Committee for Women in Science and Engineering" in AASSA, and second, the writing of a report titled "Women in Science and Technology in Asia". The final report will be published and distributed on 26th of August, 2015. This year's workshop is the 11th international workshop by the Association of Academies and Societies of Sciences in Asia (AASSA), and the Korean Academy of Science and Technology (KAST) is the host organization.

Doe Sun Na, Co-chair, Organizing Committee / Professor Emeritus, University of Ulsan; Vice President, Korean Academy of Science and Technology (KAST), Korea	*Opening Remarks*

Sung Hyun Park, President, Korean Academy of Science and Technology (KAST); Professor Emeritus, Seoul National University (SNU), Korea	*Welcoming Remarks*
Krishan Lal, President, The Association of Academies and Societies of Sciences in Asia (AASSA); Immediate Past President, The Indian National Science Academy, India	*Welcoming Remarks*
Session 1: Keynote Speech **Chair** **Yoo Hang Kim**, Executive Director, The Association of Academies and Societies of Sciences in Asia (AASSA)	
Myung Ja Kim, Fellow Emeritus, The Korean Academy of Science and Technology (KAST); Chair, Board of the Center for Women in Science, Engineering and Technology (WISET); Chair, Green Korea 21 Forum; Former Minister, Ministry of Environment, Korea	*How Can We Promote Gendered Innovations for R&D, R&Business Development and R&Social Development?*
Session 2: Status of Women in Science, Technology, Engineering and Medicine **Co-chairs** **Khairul Anuar Bin Abdullah**, Vice Chancellor, MAHSA University, Malaysia; Treasurer, The Association of Academies and Societies of Sciences in Asia (AASSA); Academy of Sciences Malaysia (ASM), Malaysia **Hong-Hee Kim**, Fellow, Korean Academy of Science and Technology (KAST), Korea	
Doe Sun Na, Co-chair, Organizing Committee / Professor Emeritus, University of Ulsan; Vice President, Korean Academy of Science and	*Women in Science and Technology in Asia*

Technology (KAST),	
Zabta Khan Shinwari, Secretary General, Pakistan Academy of Sciences (PAS), Pakistan	*The Gender Gap in Science and Technology in Pakistan*
Nadira D. Karunaweera, General Secretary, University of Colombo, National Academy of Sciences Sri Lanka (NASSL), Sri Lanka	*Women in Research and Development in Sri Lanka*
Yu-Kyoung Oh, Fellow, Seoul National University, Korean Academy of Science and Technology (KAST), Korea	*Status of Women in Science and Engineering in AASSA Countries*
Session 3: Empowering and Leadership **Co-chairs** **Nadira D. Karunaweera**, General Secretary, University of Colombo, National Academy of Sciences Sri Lanka (NASSL), Sri Lanka **Yu-Kyoung Oh**, Fellow, Seoul National University, Korean Academy of Science and Technology (KAST), Korea	
So-Yeop Han, Vice President, KOFWST; Profssor, Ewha Womans University, Korea	*Women Inspiring Innovation through The Korea Federation of Women's Science and Technology Associations (KOFWST)*
Jennifer Graves, Distinguished Professor, School of Life Science, La Trobe University, Melbourne and Fellow, Australian Academy of Science (AAS), Australia	*Improving the Gender Balance of Fellows Elected to Science Academies*
Rohini M. Godbole, Professor, Indian Institute of Science Indian National Science Academy (INSA), India	*Trained Scientific Woman Power; What Fraction are We Losing and Why?*
Nurit Yirmiya, Chief Scientist, Ministry of Science, Technology and Space, Israel	*Women in Israeli Academia - Now IS the Time for a Change*
Jackie Olang, Programmes Director, Network of African Science Academies	*Cultivation of Women Scientists in Leadership: The Case of African Academies of Sciences*

(NASAC), Kenya	
Session 4: Inspiring and Mentoring **Co-chairs** **Jennifer Graves**, Distinguished Professor, School of Life Science, La Trobe University, Melbourne and Fellow, Australian Academy of Science (AAS), Australia **So-Yeop Han**, Vice President, KOFWST; Profssor, Ewha Womans University, Korea	
So-Yeop Han, Vice President, KOFWST; Profssor, Ewha Womans University, Korea	*Women Inspiring Innovation through The Korea Federation of Women's Science and Technology Associations (KOFWST)*
Azra Khanum, Fellow, Pakistan Academy of Sciences (PAS), Pakistan	*Enhancement of Science Education and Mentoring Programs for Young Females*
Shamima K Choudhury, Professor, University of Dhaka, Bangladesh	*Inspiring Women in Science through Mentoring*
Nurit Yirmiya, Chief Scientist, Ministry of Science, Technology and Space, Israel	*Women in Israeli Academia - Now IS the Time for a Change*
Jackie Olang, Programmes Director, Network of African Science Academies (NASAC), Kenya	*Cultivation of Women Scientists in Leadership: The Case of African Academies of Sciences*
Anjana Singh, Professor, Tribhuvan University, Nepal Academy of Science and Technology (NAST), Nepal	*Higher Education Revamping Necessity in Nepal*
Erdenebileg Tudev, Specialist, Mongolian Academy of Sciences (MAS), Mongolia	*The Intervention Study on the Gender Issues in Science Research and Education*
Session 5: Policies and Best Practices **Co-chairs** **Zabta Khan Shinwari**, Secretary General, Pakistan Academy of Sciences (PAS), Pakistan **Sung-Jin Kim**, Fellow, KAST, Korea	
Khairul Anuar Bin Abdullah, Vice Chancellor, MAHSA University, Malaysia; Treasurer, The Association of Academies	*Women in Science, Technology and Innovation (STI): The Journey Ahead*

and Societies of Sciences in Asia (AASSA); Academy of Sciences Malaysia (ASM), Malaysia	
Asuncion K. Raymundo, Academician, University of the Philippines Los Baños, National Academy of Science and Technology (NAST PHL), Philippines	*Retention and Success of Women Scientists: the Case of the University of the Philippines Los Baños*
Robert Gasior, Associate Program Officer, National Academy of Sciences (NAS), USA	*Women Researchers from LMICs in the PEER Competitive Grants Program*
Haseena Khan, Professor, University of Dhaka, Bangladesh Academy of Sciences (BAS), Bangladesh	*How to Encourage Young Women Pursue a Science and Technology Career in Bangladesh?*
Ahmet Nuri Yurdusev, Vice-President, Middle East Technical University, Turkish Academy of Sciences (TUBA), Turkey	*Women Studies and Feminist Approaches in Social Sciences: Promises Unfulfilled?*

Session 6: Group Discussion

Co-chairs

Azra Khanum, Fellow, Pakistan Academy of Sciences (PAS), Pakistan
Doe Sun Na, Co-chair, Organizing Committee / Professor Emeritus, University of Ulsan; Vice President, Korean Academy of Science and Technology (KAST), Korea

Workshop: Gendered Innovations in Science, Engineering, Technology & Industry
Organised by the Korean Federation of Women's Science and Technology Societies (KOFWST)

This private Research Workshop `is designed to provide an opportunity for members of the KOFWST Gendered Innovations Research Forum to present their work and receive feedback from experts in gendered innovations research methods as well as from other researchers of the field. The workshop will be focused on, but not limited to, cases in Engineering, Technology, and Industry. This is a closed workshop among experts and researchers who are actively pursuing gendered innovations methods in their research. The workshop will promote the capacity of the participants not only to improve their own work but also to broaden their perspectives in order to become more competent researchers and engineers.

Chair

<table>
<tr><td colspan="2">Hee Young Paik, President, Korean Federation of Women's Science & Technology Associations (KOFWST);
Professor, Department of Nutrition, Seoul National University (SNU), Korea

Rapporteurs
Kyoung-Suk Cho, Professor, Environmental Science and Engineering, Ewha Womans University, Korea
Ahjeong Son, Professor, Environmental Science and Engineering, Ewha Womans University, Korea

Poster Viewing
Moderator
Kyoung-Suk Cho, Professor, Environmental Science and Engineering, Ewha Womans University, Korea</td></tr>
<tr><td colspan="2">Workshop Session 1

Moderator
Mi-Kyung Sung, Professor, Department of Food and Nutrition, Sookmyung Women's University, Korea</td></tr>
<tr><td>Londa Schiebinger, John L. Hinds Professor of History of Science, Stanford University, USA; Director, EU/US Gendered Innovations in Science, Health & Medicine, Engineering, and Environment Project, EU/USA</td><td>Gendered Innovations: Methods and Applications</td></tr>
<tr><td>Nam-Soon Kim, Research Fellow, Director of Health Service and Policy Research Department, Korea Institute for Health and Social Affairs (KIHASA), Korea</td><td>Findings from the 2013 Korean Women Health Statistic Report: Today's Evidence and Tomorrow's Issues</td></tr>
<tr><td>Nayoung Kim, Professor, Seoul National University College of Medicine, Korea</td><td>The effect of repeated Water Avoidance Stress on Visceromotor response and mucosal mast cells in the male and female Wistar rat</td></tr>
<tr><td>Young Sun Kim, Associate Professor, Healthcare System Gangnam Center, Seoul National University</td><td>Sex & Gender related Differences in Gastroeosphageal reflux disease</td></tr>
</table>

Hospital, Korea	
YoonJu Song, Assistant Professor, Catholic University of Korea, Korea	*Different Association between Dietary Carbohydrate and Metabolic Syndrome Risk by Sex*
JiHyang Kweon, Professor, Department of Environmental Engineering and Director of Engineering Education Research Center, Konkuk University, Korea	*Gender Issues in the Drinking Water Standard for Disinfection By-Products in Korea*
Workshop Session 2 **Moderator** **Suk Kyeong Lee**, Professor, Department of Medical Life Science, College of Medicine, Catholic University of Korea	
Martina Schraudner, Head, Department of Gender and Diversity in Organizations, Technical University Berlin; Head of the Fraunhofer Center for responsible research and innovation, Fraunhofer Gesellschaft, Germany	Gendered Innovations as a Part of Research Agendas: How Does It Work?
Myongsook Susan Oh, Professor, Chemical Engineering at Hongik University; Head, Women in Science, Engineering and Technology (WISET) Seoul Regional Center, Korea	*How Gender Affects Teamwork in Engineering Class Projects*
Mee Hye Oh, Head of department, Smart Materials R&D Center, Korean Automotive Technology Institute (KATECH), Korea	*Gender Difference in Car Accidents*
GunHui Chung, Assistant Professor, Civil Engineering, Hoseo University, Korea	*Gender Equality in Disaster Management in South Korea*
JiYeoun Lee, Assistant Professor, Biomedical Engineering, Jungwon	*Study on Improvement in the Method of Classification between Pathological and Normal Voices: Analyzing the Gender*

University, Korea	
Yoon-Seok Chang, Dean, School of Environmental Science and Engineering, Postech; Member, The Korean Academy of Science and Technology, Korea	*Gender-sex differences in exposure and its risk of environmental organic pollutants*
Jinhee Choi, Professor, Environmental Engineering, Seoul National University, Korea	*Gender Issues in Chemical risk Assessment and Safety Testing Strategy*
Open Discussion and Summary **Discussants** **Won Ok Song**, Professor, Michigan University, USA **Astrid Linder,** Research Director, Traffic Safety, Swedish National Road and Transport Research Institute (VTI), Sweden	
Welcome Reception *Opening Remarks* **Min Keun Chung,** President, National Research Foundation of Korea (NRF), Korea *Congratulatory Remarks* **Yanghee Choi**, Minister, Ministry of Science, ICT and future Planning, Korea **Sang Kee Suh**, Member, National Assembly, Korea	

Thursday, 27 August

Opening Ceremony

Opening Remarks
Min Keun Chung, President, National Research Foundation of Korea (NRF), Korea

Congratulatory Remarks
Yanghee Choi, Minister, Ministry of Science, ICT and future Planning, Korea
Sang Kee Suh, Member, National Assembly, Korea

Keynote Speeches

Geraldine Richmond, President, American Association for the Advancement of Science (AAAS); Presidential Chair in Science and Professor of Chemistry, University of Oregon, USA	*The Importance of Women Leading the Way in Research and Innovation*
Youngsuk "YS" Chi, Chairman, Elsevier	*Using evidence to spark progress in gender diversity*

Plenary Panel 1: Pursuing Excellence in Research through Gendered Innovations

Integrating sex-gender analysis in study design can be both conceptually and methodologically complex. Panellists will present specific examples showing how these methods can be applied in different research areas. They will show how fully harnessing the power of gender analysis can enhance scientific knowledge production, application and communication improves the benefits of science endeavors in different regions of the world.

Co-chairs
Myeong-Hee Yu, Principal Research Scientist, Korea Institute of Science and Technology (KIST);
Vice-President of The Korean Federation of Science and Technology Societies (KOFST);
Adviser of Korean Federation of Women's Science and Technology Associations (KOFWST), Korea
Londa Schiebinger, John L. Hinds Professor of History of Science, Stanford University, USA;
Director, EU/US Gendered Innovations in Science, Health & Medicine, Engineering, and Environment Project, EU/USA

Moderator
Myeong-Hee Yu, Principal Research Scientist, Korea Institute of Science and Technology (KIST);
Vice-President of The Korean Federation of Science and Technology Societies (KOFST);
Adviser of Korean Federation of Women's Science and Technology Associations

(KOFWST), Korea **Rapporteur** **Mi-Kyung Sung**, Professor, Department of Food and Nutrition, Sookmyung Women's University, Korea	
Londa Schiebinger, John L. Hinds Professor of History of Science, Stanford University, USA; Director, EU/US Gendered Innovations in Science, Health & Medicine, Engineering, and Environment Project, EU/USA	*Gendered Innovations in Science, Medicine, Engineering, and Environment: Case Studies and Policies*
Astrid Linder, Research Director, Traffic Safety, Swedish National Road and Transport Research Institute (VTI), Sweden	*Occupant norm in vehicle safety*
Jeffrey S. Mogil, Head of the Pain Genetics Lab, McGill University, Canada	*Sex Differences in the Genetic and Cellular Mediation of Pain*
Hee Young Paik, President, Korean Federation of Women's Science & Technology Associations (KOFWST); Professor, Department of Nutrition, Seoul National University (SNU), Korea	*Harmonization of Global and Local Perspectives in Gendered Innovations Research*
Plenary Panel 2: Developing Science Policies to Promote Gender-Based Innovations In this session, leading scientists will join important policymakers from funding agencies, research institutes and journal publishers to discuss possible measures to promote gender awareness in research and innovations. They will describe their institutions' current policies and further propose new ideas to enhance the focus on gender issues in research and journal publications. **Chair** **Se-Jung Oh**, Professor, Department of Physics and Astronomy; Director, Center for Strongly Correlated Materials Research (CSCMR), Seoul National University (SNU), Korea **Rapporteur** **Elizabeth Pollitzer**, Director, Portia Ltd, UK	
Jin Chen, Assistant Dean,	*Female Participation in Research and Innovation:*

Tsinghua School Economics and Management; Director, Tsinghua University's Research Center for Technological Innovation, China	*Evidence in China*
Sungwan Kim, Program Manager, ICT & Convergence Research Division, National Research Foundation (NRF); Professor, Department of Biomedical Engineering, Seoul National University (SNU), Korea	*NRF's R&D Policy for Gendered Innovation: NRF's Strategy on the Gender- Based Research*
Helena Hui Wang, Asia Editor, The Lancet	*Taking sex/gender into account in medicine*
Commissioner Carlos Moedas, EU Commissioner for Research, Science and Innovation, European Union	*Gender Equality in Research: A Global Concern* [VIDEO – introduced by Ju Young Kim, Policy Officer, Science, Technology and Innovation, Delegation of the European Union to the Republic of Korea]
Myoung-Ock Ahn, President, National Medical Center, Korea	*Gender in Science Policy*

Parallel Session 1

Mainstreaming Gender into Asia-Pacific's Research, Innovation and Development Goals for more effective and sustainable outcomes

This Parallel Session will highlight the different circumstances of national research an innovation systems in countries and regions in the Asia-Pacific. The aim is to share experiences and resources prompting multi-national collaborations on advancing Gendered Innovation in the region, and with the rest of the world. Around 15 experts from across the Asia-Pacific region will give a snapshot of their own country or region's perspective on mainstreaming gender into their national research, innovation and development goals. Both gendered innovations and equal gender representation in STEMM research will be discussed by delegates from Bangladesh, Cambodia, China, Malaysia, Japan, Korea, India, and elsewhere. The Asia-Pacific is a large, dynamic and complex region spanning from Mongolia to New Zealand, and the capacity and potential to advance Gendered Innovation differs from country to country. Differences in cultures, women's status, stages of development, as well as R&D investment levels make for a rich tapestry of situations. Therefore, it is important to consider the differing potential and needs rather than address the region as a whole. Each country and region will face different challenges in promoting gender-sensitive research and innovations, as well as greater gender balance in STEMM fields. Each will also have different priorities for utilizing gender focused technologies to achieve sustainable socioeconomic development. But there are also shared and universal gender concerns where by collaborating together, we can learn from each other and make better use of available resources.

Chair **Young Sook Yoo**, Principal Research Scientist, Korea Institute of Science and Technology (KIST), Korea **Rapporteur** **Henrietta Dale**, Operations Manager, Portia, UK	
Jennifer Graves, Distinguished Professor, School of Life Science, La Trobe University, Melbourne; Fellow, Australian Academy of Science (AAS), Australia	*Science in Australia Gender Initiative (Sage)*
Azra Khanum, Fellow, Pakistan Academy of Sciences (PAS), Pakistan	*Status of Gender Diversity in STEMM Fields in Pakistan*
Fahima Aziz, Former Vice Chancellor, Asian University for Women (AUW), Bangladesh	*Gender Inequality in STEM Education in Bangladesh*
Chia-Li Wu, Emeritus Professor, Chemistry, Tamkang University; President, The Society of Taiwan Women in Science and Technology, Chinese Taipei	*Gender status in STEMM: efforts and outcomes of gender mainstreaming in STEMM in Taiwan*
Sumin Jeon, Scientist, Planning and Operation Management, Advanced Remanufacturing and Technology Centre (ARTC), A*STAR (Agency for Science, Technology and Research), Singapore Institute of Manufacturing Technology, Singapore	*Snapshot of Women in Science, Engineering in Singapore*
Chea Eliyan, Acting Head, Department of Environmental Science, Royal University of Phnom Penh, Cambodia	*Gender Diversity in STEMM: A Preliminary Study in the Royal University of Phnom Penh*
Mya Kay Thi Aung, Lecturer, Department of Chemistry, University of Yangon, Myanmar	*Participation of Myanmar Females in Science and Arts: Gender Impact of Science and Arts at University of Yangon*
Reiko Motohashi, Professor, Agriculture Department, Schizuoka University, Japan	*The 3rd Large-Scale Survey of Actual Conditions of Gender Equality in Scientific and Technology Professions*

Monika Raharti, Director, Center for Young Scientists (CYS) and Researcher & Lecturer, Surya University, Indonesia	*Gender Mainstreaming in Research and Innovation: A Case of Infrastructure Development in Indonesia*
Mi-Ock Mun, General Manager, Korea Center for Women in Science, Engineering and Technology (WISET), Korea	*Women's engagement, changes and further leap in the fields of science, engineering and technology for better world: Korea's policy and strategy*
Enkhtaivan Gombosuren, Professor, Department of Nutrition and Biotechnology, Mongolian University of Science and Technology, Mongolia	*Growth and Development of Mongolian Female Researchers*
Liu Yun, Professor, School of Management and Economics, Beijing Institute of Technology (BIT), China	*Development Situation, Issues and Policy Suggestions for Chinese Female Researchers*
Ofelia F. Domingo, Chair, Gender and Development Technical Working Group, Philippine Council for Agriculture, Aquatic, Natural Resources Research and Development, Department of Science and Technology, Philippines	*Status and Outcomes of Mainstreaming Gender into Agriculture and Aquatic Research and Development Projects in the Philippines*
Irina Kim, Senior Researcher, Department of Hereditary Diseases of the Skin, Kazakh Scientific Research Institute of Dermatology and Venereology, Kazakhstan	*Gender Equality and Gender Investigations in Kazakhstan: Some Regional Features of Gender Approach to Researches in Medicine*

Parallel Session 2
Workshop on Gendered Innovations in Research

This workshop provides opportunity for researchers to gain hands-on experience in applying gender analysis in science, engineering, and health research, well as in industrial application. Lectures from global experts will open up the workshop followed by presentations of case studies from various fields. Participants will then join a discussion group to further develop the methods of gender analysis in their research field. If they wish, participants will also have a chance to present their work after discussion to get feedback from experts and fellow participants.
* To facilitate discussion, the workshops will be limited to 40 participants. Prior registration is required.

Co-chairs
Londa Schiebinger, John L. Hinds Professor of History of Science, Stanford University, USA;
Director, EU/US Gendered Innovations in Science, Health & Medicine, Engineering, and Environment Project, EU/USA
Hee Young Paik, President, Korean Federation of Women's Science & Technology Associations (KOFWST);
Professor, Department of Nutrition, Seoul National University (SNU), Korea

Rapporteur
Suk Kyeong Lee, Professor, Department of Medical Life Science, College of Medicine, Catholic University of Korea
Yoon Ju Song, Assistance Professor, Catholic University of Korea

Londa Schiebinger, John L. Hinds Professor, History of Science, Stanford University, USA; Director, EU/US Gendered Innovations in Science, Health & Medicine, Engineering, and Environment Project, EU/USA	*Gendered Innovations in Research: Principles and Methods*
Won Ok Song, Professor, Michigan State University, USA	*Metabolic Syndrome Risk Differentiated by Sex in Korean Adults*
Siyoung Cho, Chief Scientist, AMOREPACIFIC Corporation R&D Unit, Korea	*Effect of Sex and Age on Hippocampal Gene Expression under Stress Conditions*
Sun-Young Rieh, Professor, Department of Architecture, University of Seoul, Korea	*Gender Analysis of Urban Public Rental Housing Guidelines in Korea*
Yaohui Zhao, Yangtze River Scholar Professor of Economics, Peking University, China	*Gender Pension Gaps in China*
Shouraseni Sen Roy, Associate Professor, Department of Geography and Regional Studies, University of Miami, USA	*Linking Gender Inequalities/Inequities with Impacts of Climate Change in the Global South*
• *Open Discussion and Summary*	

Discussants
Curt Rice, Rector, Oslo and Akershus University College of Applied Sciences;
Head, the Committee on Gender Balance and Diversity in Research (KIF), Norway

Jeffrey S. Mogil, Head of the Pain Genetics Lab, McGill University, Canada
Simone Buitendijk, Vice-Rector, Leiden University, Netherlands;
Chair, League of European Research Universities (LERU), Gender Equality Group, Europe

Parallel Session 3
Advancing Gender Sensitive Innovation Ecosystems

The Session will consider the role of gender as a driver of quality and sustainable technologies in the context Korea's policy goal to advance creative economy in the Asia-Pacific region. Practical realization of this policy can take advantage of: 1) new directions and opportunities for innovation that draw on scientific understanding of the significance of sex and gender differences; 2) improving the creative capacity of available human capital by more fully engaging the existing pool of highly educated women in the knowledge and commercial economies, as well as in the knowledge transfer sector; and 3) the trends towards more open, inclusive and user driven innovation practices, which facilitate more effective generation of innovation ideas and their transformation of into products. The underlying drivers for integrating gender are the added value and social benefit of R&D; women's growing control over consumer budget (estimated at $20 trillion annually worldwide in 2012); opportunities to target women's need in fields as varied as biomarkers, human-machine interactions, pharmaceuticals, the auto industry and IT. In the area of biomarkers, a market that is expected to reach $25.79 billion by 2016, considering sex and gender differences from the molecular to the population levels can help develop new diagnostic and therapeutic approaches to benefit both men and women, and transform health economics. There is also evidence that addressing the role of gender in human robot interaction can assist development and acceptance of robotics technologies. Research shows that men and women respond differently to 'male' and 'female' robots. This could enhance opportunities for advancing robotics in: logistics; medicine; healthcare; as well as professional and domestic services.

Chair
Woo Il Lee, Vice President, Seoul National University;
Professor, Department of Mechanical Engineering, Seoul National University (SNU), Korea

Rapporteur
John Power, Foreign Correspondent, The Christian Science Monitor, The Daily Mail and The Diplomat.

Martina Schraudner, Head, Department of Gender and Diversity in Organizations, Technical University Berlin; Director, Responsible Research and Innovation Unit, Fraunhofer Gesellschaft, Germany	*Integrating Gender Aspects in User Driven Innovation Practices*

Kyungchul Shin, President, Yujin Robot Co. Ltd, Korea	*Home Service Robots Innovate Typical Gender Role*
Hyolin Kim, Director, USER Experience TFT, Research and Development Division, Hyundai Motor Company, Korea	*User experience in automobiles considering gender differences*
Hyun-Min Park, Vice President, Korea Research Institute of Standards and Science, Korea	*Gender related toxic response to chemicals and nanomaterials*
Chang Won Park, Director (Principal Researcher), Division of Clinical Diagnostics Business, Macrogen Inc., Korea	*Gender Innovation in Clinical Genetic Tests*
Elizabeth Pollitzer, Director, Portia Ltd, UK	*Improving efficacy, potential, and sustainability of innvation, for women(and men)*
Gala Dinner • *Congratulatory Remarks* **Hee-Jung Kim**, Minister, Ministry of Gender Equality & Family, Korea • *Dinner speech* **Youngah Park**, President, Korea Institute of S&T Evaluation and Planning (KISTEP), Korea	

Friday, 28 August

Plenary Panel 3: Developing Policies & Partnerships to Improve Gender Diversity in STEMM

In this session, leaders from academia and industry will discuss possible policies and partnerships to improve gender diversity in STEMM fields, focusing on why it matters for innovations, research excellence, leadership and better performance in R&D and Business

Chair
Sung-Mo "Steve" Kang, President, KAIST (Korea Advanced Institute of Science and Technology), Korea

Rapporteur
Ofelia F. Domingo, Chair, Gender and Development Technical Working Group, Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development, Department of Science and Technology, Philippines

Curt Rice, Rector, Oslo and Akershus University College of Applied Sciences; Head, the Committee on Gender Balance and Diversity in Research (KIF), Norway	*(E)quality in science*
Joon Sik Lee, Chair, Committee of Engineering Education Innovations, Seoul National University (SNU), Korea	*Review of Korean Government Policies for Promoting Gender Diversity in Science and Technology Society*
Chisato Miyaura, Vice President, Tokyo University of Agriculture and Technology (TUAT), Japan	*Japanese actions to improve Gender Diversity in STEMM Fields*
Simone Buitendijk, Vice-Rector, Leiden University, Netherlands; Chair, League of European Research Universities (LERU), Gender Equality Group, Europe	*Gendered Research and Innovation (GRI): integrating sex and gender analysis in the research process*
Yan Wang, Deputy Director General, China Science and Technology Exchange Center (CSTEC), Ministry of Science and Technology (MOST), China	*The Status of China's Female R&D Personnel and Promotion Policies*

Lorraine Hariton, Senior Vice President, Global Partnerships, The New York Academy of Sciences, USA	*Public and Private Partnerships that Enhance Gender Diversity in STEM*

Gender Summits Overview : Collective Commitment and Action for Global Impact

The Gender Summit was established in Europe in 2011 as a platform for dialogue where scientists, policy makers and gender scholars could jointly examine new research evidence showing when, why and how gender issues impact on research and innovation outcomes. The aim was to use this platform to create multi-stakeholder consensus on where improvements were needed and who should take action. Since then, the Gender Summit evolved into four regional platforms: Europe, North America, Asia Pacific and Africa and in the process has created new communities of experts and practitioners who understand the needs of their own institutions, countries and regions and are committed to advancing women's participation in science and technology and to integration of sex-gender considerations in research and innovation. This session will explore the new role that the Gender Summit can now play, namely to facilitate the creation of a global alliance linking these communities and promote multi-national collaborations to achieve global impact. The key output from GS6-Asia Pacific will be the Seoul Declaration. Its aim will be to act as a Call-to-Action for the region. This session will provide participants with the opportunity to comment on the proposed content and to provide advice how the Declaration can be best deployed to establish multi-stakeholder commitment to achieving lasting change.

Chair
Simone Buitendijk, Vice-Rector, Leiden University, Netherlands
Chair, League of European Research Universities (LERU), Gender Equality Group, Europe

Elizabeth Pollitzer, Director, Portia Ltd, UK	*Global impact through regional focus*
Heisook Lee, President, Korea Center for Women in Science, Engineering and Technology (WISET), Korea	*Better Science & Technology through Gendered Innovations in Asia Pacific*
Miyoko O. Watanabe, Senior Director, Japan Science and Technology Agency (JST); Director, Office for Diversity and Inclusion at Japan Science and Technology Agency, Japan	*Toward Gender Summit Asia-Pacific 2017 in Japan*
Simone Buitendijk, Vice-Rector, Leiden University, Netherlands Chair, League of European Research Universities (LERU), Gender Equality Group, Europe	*Canada Gender Summit*

Plenary Panel 4: Building Public Aspirations for Socioeconomic Improvement through Gender-Based Technologies

This session seeks to improve socioeconomic conditions for women in the Asia- Pacific region through technology, such as by increasing income and welfare, and building stronger institutions. The development and use of new technologies, as well as the utilization of existing technologies, will be explored in terms of gendered innovations along with related case examples. The session also aims to introduce and propagate the value, process and performance of Korea's creative economy in the Asia-Pacific region.

Chair
Changmo Sung, President, Green Technology Center (GTC), Korea

Rapporteur
Ofelia F. Domingo, Chair, Gender and Development Technical Working Group, Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development, Department of Science and Technology, Philippines

Martina Schraudner, Head, Department of Gender and Diversity in Organizations, Technical University Berlin; Director, Responsible Research and Innovation Unit, Fraunhofer Gesellschaft, Germany	*Developing Leadership for Socio-economic Improvement through Gendered Innovations*
Susheela Venkataraman, Principal Director, Office of Information Systems and Technology (OIST), Asian Development	*Putting the Heart back in Technology - through Gendered Research [VIDEO]* Bank (ADB)
Mikiko Ishikawa, Professor of Environmental Design, Department of Integrated Science and Engineering for Sustainable Society, Chuo University, Japan	*Development of community-based town planning through gendered innovations*
Deok Soon Yim, Director, Korea-Ethiopia Innovation Center, Science and Technology Policy Institute, Korea	*Science, Technology and Innovation ODA and Gender Issue*
Eun Gyeong Yang, Director, International Affairs Division, Korea Institute of Science and Technology (KIST), Korea	*Disseminating the KIST Model: A Case of V-KIST*

Plenary Panel 5: Developing Leadership Capacity for Gendered Innovations through Scientific, Technology and Policy Networks

This session will discuss methods to facilitate the adoption of gendered innovation policies by the scientific community, focusing on the use of associations such as GenderSTE, scientific societies, the InterAcademy Partnership (IAP Global Network of Science Academies), the Association of Academies and Societies of Sciences in Asia (AASSA), etc. Korea

Chair
Yee Cheong Lee, Malaysian Chairman, Governing Council, International Science Technology and Innovation Centre for South-South Cooperation under the auspices of UNESCO (ISTIC), Malaysia

Rapporteur
Emanuel Yi Pastreich, Professor, Kyung Hee University; Director, The Asia Institute, Korea

Britta Thomsen, Adjunct Professor, Copenhagen Business School (CBS), Politician and Former Member of European Parliament, Denmark	*How to improve the gender dimension through networking*
Yuko Harayama, Executive Member, Council for Science and Technology Policy, Cabinet Office of Japan, Japan	*Working together for gendered innovation*
Gretchen Kalonji, Former Assistant Director-General for Natural Sciences, UNESCO	*International Collaborations as a Strategy for Strengthening Leadership Roles of Women: Experience from UNESCO and Academia*
Krishan Lal, President, The Association of Academies and Societies of Sciences in Asia (AASSA); Immediate Past President, The Indian National Science Academy, India	*Challenges in Ensuring Gender Equality in Science and Technology in the Asia Pacific Region*
Jörg Müller, Senior Researcher, Internet Interdisciplinary Institute, Open University of Catalonia, Spain; Coordinator, GenPORT, Europe	*GenPORT - Your gateway to gender and science resources*
Closing Ceremony: Adoption of the Seoul Declaration	

A final copy of the programme book is available here:
http://www.gender-summit.com/Gender_Summit_Program_Book.pdf

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