

An Interview with Youngah Park, President of the Korea Institute of S&T Evaluation and Planning (KISTEP)

# Women's Leadership at the Center of Asian Innovation

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Asia is now a locomotive of global growth, and innovation is a key to making economic growth sustainable. A pivotal role in promoting innovation will be played by the developed nations in Asia, such as South Korea and Japan. Dr. Youngah Park, president of the Korea Institute of Science & Technology Evaluation and Planning (KISTEP), a central science and technology (S&T) policy practicing organization in South Korea, is a distinguished leader in Asian innovation. She has also been internationally active in encouraging women scientists to make significant contributions to innovation. *Japan SPOTLIGHT* was honored to have an interview with her on the prospects for Asian innovation and the role of women scientists.

## Role & Mission of KISTEP

**JS:** As you are aware, innovation is a key in achieving economic growth. Could you please explain to us your institute's role and mission in achieving innovation?

**Park:** As you have said, innovation has always played an important role in the economic and social development of countries. It is not only the main source of economic growth, but also helps improve productivity as well as being the foundation of competitiveness and welfare.

KISTEP is a government-affiliated institution under the Ministry of Science, ICT and Future Planning (MSIP) specializing in S&T planning and evaluation. We provide the future vision, strategies and guidelines for the entire national R&D system. KISTEP has been contributing to the field of S&T policy and innovation since our establishment in 1999. We will celebrate our 16th anniversary in February.

Our motto is "KISTEP: Key to Creative Innovation". This motto represents our identity as a leading policy research institute in Korean R&D and innovation systems. We try to contribute to economic growth and public welfare through strategic S&T planning,



*Youngah Park, President of the Korea Institute of S&T Evaluation and Planning (KISTEP)*

optimal budget allocation and customized R&D evaluation.

**JS:** Your institute has a long history of promoting innovation. I believe that technology today has a growing impact upon not only the economy but also people's daily lives or happiness. In other words, technology seems to have a great impact on society. In this light, do you think foresight and planning activities of technology should have an assessment aspect on the new technology's social impact as well as on the economy?

**Park:** Our society and way of living have changed with technology development. In modern society, technology has a complex, long-term and broad impact upon people's lives. On the one hand, development of

new technology brings positive effects such as creating economic value and social stability. On the other hand, it can cause unexpected side effects like environmental pollution and ethical issues, regardless of the intent of the scientists and engineers.

The need for "technology assessment" stems from this double-sided aspect. Considering its importance, technology assessment is officially implemented in the S&T policy-making process along with



technology foresight and planning in Korea. By doing so, I think the results from technology assessment are reflected in the establishment of S&T policies which maximize positive effects and minimize negative aspects of the new technology from the early stage of the decision-making process. The Korean government initiated technology assessment for the first time in 2003 and since the beginning KISTEP has practically conducted the study with help from the general public as well as technology experts. Every year, two emerging technologies are selected for assessment. In 2014, unmanned vehicles such as drones or self-driving cars and super-tall skyscrapers were selected. An official report on the assessment will be published early this year.

### Pivotal Role of Asia in Global Innovation

**JS:** My next question deals with the potential of innovation in the world and particularly in Asia as we have to resolve many global challenges such as climate change and increasing income disparity among people and nations. I believe technology is the key to solving these challenges. In this light, how do you assess the potential of innovation in the world and particularly in Asia, as a center of global growth?

**Park:** Yes, you've raised a very important issue. Not only to resolve

global challenges but also to support economic and societal growth and to address income disparity, innovation is considered as an indispensable and essential strategy. I think, personally, that innovation is one of the most important ways for sustainable development.

Clayton Christensen, a professor at Harvard Business School, explains the pathways of innovation as "sustaining innovation" and "disruptive innovation". A sustaining innovation is an existing activity which evolves with better value. On the other hand, a disruptive innovation is an innovation that helps create a new market and value network and eventually disrupts an existing market, displacing an earlier technology. Improving the fuel efficiency of a gasoline-dependent car is a sustaining innovation, for example, and a car fueled by water is a disruptive innovation. To address global challenges such as climate change, both pathways of the sustaining innovation and disruptive innovation should be followed. As you mentioned, Asia *will* and *must* play an essential role in the global innovation arena.

According to the United Nations, the population of Asia was about 60% of the world population in 2014 and will be about 54% in 2050. This means that Asia is one of the biggest markets in the world; a large population also means potential power or latent strength for innovation. A recent result from the Programme for International Student Assessment (PISA) by the OECD projects a bright light on the potential of Asia. Korea, Japan, China and Singapore are ranked high in this assessment; therefore, I believe the contribution of Asia to global innovation will grow in the near future.

In this regard, KISTEP is preparing the first Asian Innovation Forum on Aug. 25 and 26 this year in Seoul. This meeting is expected to be an open forum to discuss topics such as innovation strategies and policies and the role of Asian countries involved in innovation.

### Role of Science Diplomacy in Promoting Innovation

**JS:** As global challenges will need global solutions, we believe it is important to promote international cooperation and understanding between science and technology experts in order to realize innovation potential throughout the world. In that respect, as you mentioned, the OECD, the Science and Technology in Society (STS) forum, and other international gatherings should play a key role. I'd like to hear what you think about science diplomacy or the role of international organizations such as the OECD in this regard.

**Park:** Science diplomacy is becoming more and more important these days. There are many challenges such as climate change, energy exhaustion and environmental pollution which have an influence beyond current boundaries – there are no boundaries these days. As global society has shifted its focus to soft power, science diplomacy is becoming important, especially in dealing with global issues. These comprehensive challenges are even intimidating to the continuity of human life and call for immediate action.

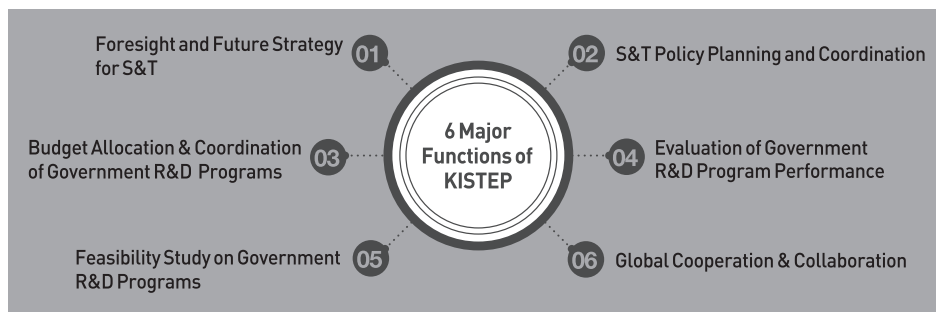
Ban Ki Moon, the United Nations secretary general, said “There is no ‘Plan B’ because we do not have ‘Planet B’”, emphasizing the cooperative response to global challenges. Many of these threats have been posed by the emergence of new technologies, and most risks could be reduced or mitigated by science and technology and vice versa. Thus, the role and responsibility of scientists are more important than ever and the collective intelligence of scientists is imperative to cope with these global challenges. This is the most important mission from the perspective of diplomacy as well.

It is evident that a country that responds well to global challenge will act as a leader on the international stage in the future. In this context, international organizations should perform a pivotal role in gathering experts and stakeholders together. The STS forum, held every year in Kyoto, is a good example. I was very impressed when I attended the forum for the first time last October and had great discussions with the participants. This forum aims to provide an opportunity for researchers, policy makers, business leaders and media leaders from all over the world to meet and discuss the latest issues stemming from science and technology. I think it provides a very good platform for sharing information on S&T.

## Role of Women Scientists in Innovation

**JS:** Regarding your career, having been a chair of a number of international groups of women scientists in recent years, what do you think about women’s contributions to science and innovation?

**Park:** As a female physicist, I have been involved in promoting women’s activities in science. For example, I established the Women’s Committee of the Korean Physical Society in 2005 following a conference in Beijing on Asian women in physics. In 2006, I established the Working Group on Women in Physics at the Association of Asia Pacific Physical Societies, and I was chair of the



2008 International Conference on Women in Physics held in Seoul.

Recently, I have become more involved in the issue of “gendered innovation”, which refers to “the innovative changes achieved through efforts to eliminate gender biases in individual, cultural, science and engineering areas”. Gendered innovation expands the concept of women’s contributions to science and innovation in a way that not only affects how we look at the expanding role of women scientists, but also as a way of scientific discovery, market creation and a new way of innovation.

The key role given to innovation in moving forward towards a smart and sustainable society means that we should make full use of human capital involving both men and women. In this regard, KISTEP is preparing Gender Summit 6 Asia-Pacific 2015 on Aug. 27 and 28 in Seoul. This meeting is expected to be an open forum to discuss the role of Asia-Pacific countries in gendered innovation. This will be the first step to establish leaders in gendered innovation.

**JS:** What do you think are the impediments preventing women from achieving a more active contribution to innovation, particularly in Asia as compared to Europe and the United States?

**Park:** In the past, many people regarded gender solely as a social and political agenda. If you look at slogans such as “Give women the right to vote” or “More women at work”, you will understand that such slogans insist on social equality.

Compared to those days (about 30-40 years ago), initiatives to promote gender equality have been well developed, mostly with helping women to pursue scientific careers. Although women’s participation in science has increased a great deal, there remain barriers impeding opportunities to participate in economic activities or R&D. The reasons for these impediments stem from unconscious gender bias, gender inequality, male-oriented working environments, and absence of women leaders in decision-making positions throughout the S&T systems. These are all contributing factors.

Gender diversity needs to be expanded in workplaces and

laboratories. In order to promote innovation as a whole, women's participation in R&D must be expanded.

**JS: I hear that APEC will be taking an initiative in promoting women's entrepreneur leadership. Entrepreneur leadership and innovation seem to have something in common so what do you think about this initiative?**

**Park:** Yes, I agree with you. APEC is very important in the KISTEP program as well. We should highlight the role of women scientists in the APEC context. After all, APEC is a good venue for addressing the importance of innovation in the Asia-Pacific area.

**JS: You have been in Japan many times and have many female scientist friends here. So what do you think about the potential contribution of Japanese women scientists to global innovation?**

**Park:** Over the years I have met many Japanese women scientists including physicists, and I have found much potential in them. Last October I read an article in *Times Higher Education* reporting that Japanese women account for only 10% of researchers in Japan, but they account for 60% of Japanese researchers working abroad. This disparity represents a high contrast in the figures. The article went on to say that Japan's "male-dominated, aggressive" society is likely to be responsible for the female scientists' departure and that the social norms in Japan make women feel unable to assert themselves among Japanese male researchers. Once abroad, however, the

women feel free of this "minority complex" and are able to deal more assertively with their colleagues.

This is a very interesting observation to me as I had a related experience a few years ago in Japan when I attended a physicists' conference. We had a thorough discussion but a prominent male physicist made a mistake in mentioning that there were sufficient female physicists in Japan when statistics reveal only 10%. This discrepancy shows that we need more discussion of the gender issue in Asia. This example also shows the importance of understanding individual culture; not only must we think about equal opportunity, but also how the individual environment of a specific country and its social norms make a big difference.

I also read that Japanese universities are trying to increase female enrollment by attracting high school girls and their parents to science-themed fairs, workshops, campus tours and lab visits. But I think Japanese universities need more female faculty members; mechanical engineering is one department I think could attract more female students.

I think this is a very promising global trend and there should be continuing efforts to promote participation of women in S&T and in innovation. This will be a valuable asset for S&T competitiveness in Japan, in Asia and in the world.

As an Asian scientist, I think Korea and Japan have a very similar culture. I hope that by cooperating we could move forward with gendered innovation and women's participation in all areas including S&T.

**JS: Thank you for your encouraging words for Japanese women scientists. I hope that job opportunities increase for women scientists as soon as possible. How do you think women scientists may be further involved in promoting innovation in the future?**

**Park:** Recently, highlighting women in science in regard to the issue of gender came into the spotlight because this area provides an excellent opportunity for handling our socio-economic changes. The steady decline of the birthrate and the continued aging of the population spark issues in the declining workforce and growth potential of the world economy. The demand is thus on the rise for active participation of women in the world economy as well as in strengthening innovation.

As our society is transformed into a knowledge-based economy, diverse experiences and learning will be key to innovation. In this context, increasing women's participation and gender diversity is the potential solution to innovation. In addition to this, gender is a new way of scientific discovery. If we consider the gender dimension in





scientific experiments, this could give us new scientific implications. And considering gender in the innovation process is a brilliant way of market creation. According to Greenfield Online, women account for 85% of all consumer purchases in the US.

Now, gender has emerged as a significant agenda topic in the STI fields and industries. World leading R&D funding agencies, such as the European Research Council and the US National Science Foundation, are considering gender dimension in their project selection process. In the case of medical research, it is assumed that the results from projects ignoring the gender differences of patients could be potentially misleading. Inclusion of sex or gender data could increase the robustness and integrity of research.

Moreover, industries are also paying attention to gender concepts in developing their consumer products. For example, Volvo's women's research team developed a concept car for women. This project was initiated by the simple motive that women have a different physical makeup and taste from men. As a result, the outcome of the project, Volvo S40, was ranked No. 1 in the US car market for women in 2011.

### **JS: Do you think there is any difference between Asian women scientists and US or European women scientists with regard to the social impediments they could face in actively contributing to innovation?**

**Park:** The Global Gender Gap Report is published annually by the World Economic Forum and provides an index for each country and region. Point zero means "no equality" in those countries and point one means "complete equality" in the countries. If you look at the index, you can see that most of the European and North American countries have a high score but Asian and African countries do not.

For example, compared to most of the European and North American countries, Korea's record is not so bright. Korea ranks below average (124th) on the economic participation and opportunity sub-index and 103rd on the Educational Attainment sub-index. Korea is one of the 10 lowest-performing countries in wage equality for similar work indicators, a slight decrease from last year. This decrease is offset by improvements in the scores for estimated earned income and legislators, senior officials and managers indicators.

Also, there is a big difference between female and male percentages in total R&D personnel. This could be due to cultural or social norms, lack of legislation, regulation or policy emphasis. In Korea, in order to improve the overall environment for women's participation in science, efforts have been made such as legislating the "Act on Fostering and Supporting Women Scientists and Technicians". But we definitely need to do more.

## **Future Plans & Activities**

### **JS: Finally, could you briefly tell us about KISTEP's future plans and activities?**

**Park:** This year is very exciting for us because we will host two international events: Gender Summit 6 Asia-Pacific 2015 and the 1st Asian Innovation Forum in Seoul. The Gender Summits are a series of conferences held across the globe under the theme "Quality Research and Innovation through Equality". They were established in 2011 in Europe and have convened four times since. The purpose of the summits is to support and advance the excellence and effectiveness of research and innovation at all levels through the inclusion of gender.

I believe that Asian and African countries need to have more discussions on gender issues than European and North American countries in order to encourage equality and innovation. This is why our institute, KISTEP, decided to host Gender Summit 6 in the Asia-Pacific region. I would like to take this opportunity to ask for active participation in the Gender Summit 6 which will be co-hosted by KISTEP, the Center for Women in Science, Engineering and Technology (WISET) and the National Research Foundation of Korea. I would like to clarify that the event is not just for Korea but aims at including countries throughout the Asia-Pacific region, especially Japan.

I am concerned that even though we invest a significant amount of time and money in S&T and innovation, we are still behind in gendered innovation compared with the EU and the US. I would like to encourage researchers throughout the Asia-Pacific region to take advantage of Gender Summit 6 to strengthen international networks and enhance innovative capacity.

We are also organizing the first Asian forum to foster innovative cooperation among Asian countries. Please mark your calendars for Aug. 25-26 for the upcoming 1st Asian Innovation Forum which will be staged under the main theme of "Towards a Better Asia: Seeking New Possibilities of Innovation".

Both of these forums will be held at the Ambassador Hotel in Seoul, and I hope they will provide insightful opportunities to share your innovation experiences and discover new development strategies for your countries.

**JS**

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