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**GENDER, SCIENCE AND TECHNOLOGY IN RESGEST and APGEST PROGRAM
OF UNESCO OFFICE JAKARTA:
PAST, PRESENT AND FUTURE**

**Ms. Wati Hermawati
Program Coordinator RESGEST and APGEST, UNESCO Office, Jakarta
w.hermawati@unesco.org; wherma2002@yahoo.com**

Abstract

Science and Technology (S&T) have made substantial contribution to economic growth and well being to people. It has contributed to the eradication and amelioration of diseases and the improvement of health care worldwide. However, S&T also have differently affected the lives of men and women in various key sectors: environment, health, agriculture, energy, information, education, employment, and indigenous knowledge system. In addition, cultural attitudes and gender stereotyping are impediments to education leading more men than women in S&T careers and decision making, which increase inequality and inequity. In developing countries, women have been marginalized from the development of S&T. This gender inequality is the product of a failure to recognize women's knowledge and know how. In the context of promoting gender equality and equity in S&T at national as well as regional and international level, UNESCO Office Jakarta has conducted gender programs with focus on "Science and Technology for Women and Women for Science and Technology". UNESCO, in support of networks of women across the Asia-Pacific region has been seeking to build bridges to both engage more women in science and technology enterprise, and to bring the benefits of science and technology to women's empowerment in poor rural communities. UNESCO, with funding from the Gender Advisory Group of the United Nations Commissions of Science and Technology for Development (UNCSTD) initiated this program in 1996 with the formation of the Regional Secretariat for Gender Equity in Science and Technology (RESGEST) in collaboration with the Indonesian Institute of Sciences (LIPI). The parallel Asia Pacific Gender Equity in Science and Technology (APGEST) programme which originated in collaboration with UNDP from a formative meeting and Action Plan developed at Chennai in 1996, was built into this Secretariat in 2000. All of these experiences have been used to develop a regional data base and Manuals, now tested and put into training practice. Most importantly, RESGEST and APGEST produced a resilient network of committed individuals and institutions. APGEST is now moving towards next phase with a particular emphasis on helping empowered grassroots champions to empower others in quite practical terms to build village enterprise for poor women and allow them to gain access to the benefits of science and technology from which they are otherwise excluded. At other end, RESGEST has been seeking primarily to lobby for legislative and /or high level policy recognition of gender, science and technology activities including establishment of National Committee to promote gender equality and equity in science and technology.

A. Introduction : Why Gender, Science and Technology?

Because technology shapes human life and transforms cultures. Technology means know-how and know- why. It is aimed at reducing drudgery and to make life simpler.

(S. Raghuram, Manjulika Pais and Kavitha Paul, May 1997)

Because women are in the frontlines of the battle against poverty. They contribute to the economy, manage household and community resources, and yet continue to lack access to skills and technology. (APGEN)

Because the Science & Technology interventions have treated women primarily as recipients of knowledge and have underestimated their importance as generators of innovations and as agents of social and economic change and that the growing feminization of poverty can be attributed to the under-utilization of S&T especially in solving problems related to the role of women. (Chennai Declaration 1996)

Science and Technology (S&T) have made substantial contribution to economic growth and well being to people. It has contributed to the eradication and amelioration of diseases and the improvement of health care worldwide. However, S&T also have differently affected the lives of men and women in various key sectors: environment, health, agriculture, energy, information, education, employment, and indigenous knowledge system. In addition, cultural attitudes and gender stereotyping are impediments to education leading more men than women in S&T careers and decision making, which increase inequality and inequity.

Indeed, in most developing countries, women and girls constitute the poorest, least educated, most unhealthy, and most marginalized segment of the population. Of the world's 876 million people who are 15 years of age and older and who cannot read or write, nearly two-thirds are women according to UNESCO's estimates¹. Women in the Asia-Pacific region are also in the frontlines of the battle against poverty. They contribute to the economy, manage household and community resources, and yet continue to lack access to skills and technology. Policy and planning frameworks do not recognize their economic contributions. Their representation in political and economic decision-making are also remains low. This gender inequality is the product of a failure to recognize women's knowledge and know how. This situation is most evident across the Asia-Pacific region.

The challenge of gender equality and equity is also lie in the fact that more than half of the world's population is women and girls. More over, they have unequal access and participation in S&T as well as control over resources and access to the benefits of S&T in the world. This fact reveals in every walk of life and in the boards, committees and

¹ UNESCO Statistical Yearbook, 1999

council where policy decisions are made, women encounter a glass ceiling when they reach the levels at which influence and authority are wielded.

Dr. Koichiro Matsuura, Director General of UNESCO stated: ..'that until women are fully represented at the leadership level of public, professional and economic life, we cannot say that they enjoy full and equal rights'². It is therefore, gender equality and equity should not be seen narrowly as a 'women's' issue, for it is an issue that raises fundamental questions about the nature of our social relationships. It is an issue that requires men and women to work together in search of solutions that are both practical and based on principle. Increasingly, those solutions will be neither acceptable nor sustainable if the equal rights, dignity and worth of men and women are not respected. It is therefore, the challenge is to build societies where women and men can reach their full human potential and participating equality in the development, sharing its wealth and benefits on the basis of parity to achieve better live in the future.

Within this context and to promote gender equality and equity in S&T at national as well as regional and international level, UNESCO Office Jakarta put a strategy and commitment to women's empowerment and gender equality and equity in science and technology. As a Regional Science Bureau for Asia and the Pacific, in 1996, UNESCO office Jakarta in cooperation with the Indonesian Institute of Sciences, established Gender Equality and Equity in Science and Technology (GEST) programs with focus on "Science and Technology for Women and Women for Science and Technology". Through GEST program, UNESCO in support of networks of women across the Asia-Pacific region has been seeking to build bridges to both engage more women in science and technology enterprise, and to bring the benefits of science and technology to women's empowerment in poor rural communities.

This paper will enable you to gain an overview of gender program particularly concerning the Regional Secretariat for Gender Equity in Science and Technology for Southeast Asia and the Pacific (RESGEST) and an Asia-Pacific Gender Equity in Science and Technology (APGEST) programs. Both programs based at UNESCO Office Jakarta. In conducting GEST activities, UNESCO Office Jakarta cooperates with Gender Equity in Science and Technology (GEST) stakeholders in each participating countries.

B. Science and Technology for Women and Women for Science and Technology

UNESCO, with funding from the Gender Advisory Group of the United Nations Commissions of Science and Technology for Development (UNCSTD) initiated this program in 1996 with the formation of the Regional Secretariat for Gender Equity in Science and Technology (RESGEST) in collaboration with the Indonesian Institute of Sciences (LIPI). The parallel Asia Pacific Gender Equity in Science and Technology (APGEST) programme which originated in collaboration with UNDP from a formative meeting and Action Plan developed at Chennai in 1996 was built into this Secretariat in 2000. In essence the contribution of the two parallel programs can be described as:

² UNESCO – Mainstreaming: the needs of women, Paris, 2002

- for RESGEST program, prime objective is ‘*women for science and technology*’ – to enhance opportunity for women in S&T.
- For APGEST program, prime objective is ‘*Science and Technology for women*’ – build the bridge between the modern sector and women in local communities.

Broadly, the division of labor between APGEST and RESGEST is that APGEST will focus on Gender Science and Technology (GST) and poverty reduction/economic empowerment, and interventions to benefit the women of poor rural communities. Whereas RESGEST will look at the broader picture of women’s participation in S&T for national sustainable development at all levels.

C. Regional Secretariat for Gender Equity in Science and Technology (RESGEST) in Southeast Asia and the Pacific

The history of RESGEST was started when UNESCO and the Indonesian Institute of Sciences (LIPI) response to the 1995 Report and Declaration of Intent of the United Nations Commission on S&T for Development (UNCSTD) and the UNESCO World Science Report in 1996. The Indonesian Institute of Sciences (LIPI) and UNESCO office Jakarta share concerns and commitment to continue promoting gender equality and equity in S&T through enhanced cooperation in the region.

Hence, UNESCO office Jakarta and LIPI organized two workshops – January and March in 1996 on the issue with the assistance of Canadian CIDA and SEAGEP. Two significant contributions to the region emanated from these workshops. One is the introduction and speedy progress of gender mainstreaming in the APEC activities through its Industrial S&T and Human Resource Development Committees and Small and Medium sized Enterprises (SME) Policy Level Group. The Women Leaders Network (WLN) formed for APEC in 1997. The other one is an agreement between LIPI and UNESCO Jakarta to jointly host the Regional Secretariat for Gender, Science and Technology in Southeast Asia and the Pacific, in Jakarta. Later on the acronym was known as RESGEST (Regional Secretariat for Gender Equity in S&T).

The idea was proposed to the UNCSTD Gender Advisory Board (GAB) in May 1997 and functioning in March 2000 after the United Nations Commission on Science and Technology for Development (UNCSTD) provided financial assistance.

National Focal Point

At present, RESGEST have maintained networking with 14 National Focal Points in Southeast Asia and the Pacific, namely: Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Vietnam, Australia, Democratic People’s Republic of Korea, People’s Republic of China, Republic of Korea, Papua New Guinea and two GEST National Committees – the Philippines and Indonesia. The function of RESGEST is to serve as the Regional Secretariat of the Gender Advisory Board (GAB) of UNCSTD in:

- Promoting the establishment of national committees or their equivalent in gender, S&T in the Southeast Asia- Pacific

- Promoting regional co-operation through networking between national committees on Gender, S&T
- Facilitating and promoting the regional exchange of information and experiences
- Promoting regional co-operation in studies on the differential impact of the rapid progress of S&T and their application to the development on women and men in a variety of sectors affecting the majority of women, especially in low-income groups.

Several activities conducted at national as well as regional level, such as gender mainstreaming training for policy makers, advocacy, maintaining network and develop database on women in S&T. RESGEST also has main aim in mainstreaming Gender in Science and Technology at the national level. It is therefore, GEST National committee proposed to establish in each member countries.

GEST National Committee

The function of GEST National Committee are: (a) to identify/set priority for action at national level; (b) identify responsible institution for each action to ensure sustainability and institutionalization of the action; (c) monitor progress at national level; (d) enhance regional cooperation through networking, exchange of information and best practices with other organizations or network; (d) maintain productive interaction with the Regional Secretariat for Gender, Science and Technology in Southeast Asia and the Pacific. It is also proposed that the Chairperson of the National Committee is the Minister or Secretary or a Senior Official representing the Minister of Science and Technology or the Minister of Education if there is no Minister of Science and Technology.

Two National Committees have been established in the **Philippines** and **Indonesia**. In the Philippines, GEST national committee established through a Memorandum Order No. 67 signed by President Gloria M. Arroyo, which directing the Secretary of the Department of Science and Technology to coordinate and oversee the implementation of a comprehensive and responsive Philippines platform of action on Gender, Science and Technology. The GEST National Committee resides at the Department of Science and Technology (DOST) of the Philippines.

Whereas in Indonesia, GEST national committee established through a Ministerial Act No. 61M/Kp/VII/03 dated July 17, 2003. The Indonesian GEST National Committee resides at the Ministry of Research and Technology and the chair of this National committee is Deputy Minister of Research and Technology.

Both GEST National Committees have performed their activities particularly on gender mainstreaming in S&T at the national level.

Other National Committees are in the process of being established namely Cambodia, China, Myanmar and Vietnam. The establishment of GEST National Committee in these

countries is in the process of further discussion among the institutions and decision-makers related to GST in each country.

☑ **GST Database and Studies**

GST data base is being updated for all member countries. The GST data collected by NFPs consist of S&T data on human resources, policies and projects or activities. RESGEST also completed two studies in 2004. First **“Study on the Guidelines on Gender Mainstreaming in Science and Technology”** The study was intent to provide GEST stakeholders in the development and application of science and technology with a number of practical questions associated with:

- Gender mainstreaming in their respective work
- Monitoring and evaluation of their progress in achieving gender equality and justice in science and technology
- Gender differential impact of science and technology

The Guidelines consists of the Scope, Target Groups and Institutions. The scope consist of various stages of S&T such as education, R&D, policy formulation and planning, gender studies, data collection and reporting. Whereas the target groups of the Guidelines involve of various S&T profession, such as teachers and lecturers, principal investigators, researchers, scientists, policy and decision makers, government officers, statisticians and S&T reporters. Target institutions including educational institutions, R&D institution, councils, advisory bodies, planning institutions and scientific professions.

Second study is **“Joint Comparative study on Gender Dimension of Policies Related to the Development and Application of Science and Technology for Sustainable Development”**

This study conducted in cooperation with the country members of Science Council of Asia (SCA) and APGEST member countries. The scope of the study is on the regional overview on: (1) Policies related to the development and application of S&T from a gender perspective; (2) The mechanisms for the integration of gender perspective in policies related to the development and application of S&T; (3) The mechanisms for the monitoring and evaluation of the implementation of such policies from a gender perspective. Through this study, ones can identify to what extent the existing mechanism promotes the integration of gender perspective in policies and facilitate the monitoring and evaluation of their implementation from a gender perspective. The study also identify a number of strategic actions to ensure the integration of gender perspective in policies related to the development and application of S&T for sustainable development and the appropriate use of the findings and gender studies for policy formulation.

In order to ensure sustainability of the network, RESGEST website is being updated and integrated into other gender program of UNESCO office Jakarta, and NFPs are strongly suggested to provide data and information related to GEST activities in their respective

country. The website should aim to be set up links with other relevant sites, for example under UNDP, UNIFEM, etc. to highlight the gender aspects in science and technology developments, especially those applicable for women in the rural sector.

D. Asia-Pacific Gender Equity in Science and Technology (APGEST) Program

United Nations Development Program (UNDP) funds an Asia-Pacific Gender Equality Network (APGEN) that builds an achievement on gender equity in S&T by building on the Chennai Declaration (1996) to support the work of “putting scientific and technological innovations at the service of communities, particularly poor women” and of “making science and technology gender-sensitive in order to contribute to sustainable and equitable development”³. As a result, UNDP in collaboration with UNESCO took an initiative built a program and implement a survey relating to how the use of S&T could enhance women’s economic empowerment. Under this program, APGEST was initiated. APGEST has three main activities:

- ☑ Scanning of policy and institutional reforms, programs and projects as well as institutions and networks addressing gender issues in the science, engineering and technology sectors related to human development and poverty alleviation. This project, Assessment of Resources, Best Practices and Gaps in Gender, Science and Technology in the Asia-Pacific Region, was conducted across 11 countries in the Asia and Pacific region on the five technology areas: biotechnology, green health, information technology, renewable energy, and water.
- ☑ APGEST also provided technical assistance to two pilot projects in Thailand and the Philippines, i.e., “Green Health Technology for Women’s Empowerment and Sustainable Development,” implemented by the Chulabhorn Research Institute, Bangkok, Thailand, and “Nutritional and Functional Foods For Women’s Empowerment And Sustainable Development” implemented by APPROTECH Asia in the Philippines.
- ☑ Dissemination of results and application of lessons across the region. An APGEST website has been built for dissemination of communication and exchange of information among all APGEST stakeholders and gender-sensitive scientists and technologists. The website is hosting all APGEST materials and documents : <http://www.unesco.or.id/apgest>

To speed up the progress of gender equality and equity in science and technology, a GEST training manual was published in 2003 and now the manual is in the process of implementation in several countries, including Indonesia, Samoa and the Philippines. GEST training manual among others provide leaders in the field of GEST with practical suggestion for customized GEST training and capacity building, and ideas for use in

³ UNDP, Regional Bureau for Asia and the Pacific, Science and Technology for Poverty Alleviation and Women’s Empowerment, New York, 1998

policy and project planning to empower women and achieve gender equality and equity in S&T.

The first phase of APGEST focused on scanning policy and institutional reforms through the Asia Pacific region – resources, best practices and gaps – and disseminating the results. APGEST’s strategy was to search for best practice in social and technical innovation to engage poor and rural women in technological production and enterprise; and not only to learn from this, but to connect it to wider application through diffusion of information, and more importantly, through concrete networks of actors – an exercise in praxis, putting theory and practice to work together at grass roots levels.

The project focused on five technology areas: biotechnology, renewable energy, water, green health and information technology in China, India, Nepal, Indonesia, the Republic of Korea, Mongolia, Philippines, Vietnam, Fiji, Kiribati and Samoa. Technical assistance was provided to two pilot projects in Thailand and the Philippines. **‘Scanning’** across 11 countries produced **364 best practice** cases, identified **642 GEST** resource people and **408 gender sensitive institutions** engaged in technology transfer and dissemination of S&T policy. All of this experience has been used to develop a regional data base and Manuals, now tested, and put into training practice. Most importantly, APGEST produced a resilient network of committed individuals and institutions – champions.

APGEST achievements include:

- ☑ 2000 copies of a book on ‘Assessment of resources, best practices and gaps in GEST in Asia-Pacific Region; and 2000copies of a book on ‘Poverty Alleviation and Women’s Empowerment- Good Practices’ as well as the 11 country reports of APGEST.
- ☑ Network. A resilient network of committed individuals and institutions was formed as a result of this project.
- ☑ Database on policy, program and GEST resource persons, institutions/universities related to GEST.
- ☑ Website (<http://www.unesco.or.id/apgest>).
- ☑ 2000 copies of Asia Pacific Gender Mainstreaming Training Manual. The manual has been tested in Samoa, Indonesia and the Philippines.

We are looking towards the continuation of APGEST now and in the stage of mobilizing new funding – with a particular emphasis on building these networks of practitioners, women engaged in technical enterprise development at village levels, and helping them to take this best practice and apply it elsewhere. The Next step of APGEST will focus on helping empowered grassroots champions to empower others in quite practical terms to build village enterprise for poor women and thus allow them to gain access to the benefits of science and technology from which they are otherwise excluded. Twinning and other sustained interaction arrangements between village communities are envisaged as mechanisms of knowledge transfer. As a result, the project on Innovative Grass Roots Technology for rural areas is being implemented in India, Indonesia, Vietnam, and Thailand.

E. Planning For Future Activities of RESGEST and APGEST

The GEST project (both Regional Secretariat and APGEST) in the region is based on the recognition that it is women who have faced and continue to face discrimination and barriers in participating in the science and technology arena as well as benefiting from science and technology application. Thus, RESGEST and APGEST has aimed to empower women both through and in science and technology.

(1) Frameworks:

- Priority focus: Penetrate the ‘darkness’ surrounding ‘patriarchal’ decision-making and dependency concerning S&T and globalisation
- Build political platform in LDCs (and ACs) for Donor attention to S&T in general and GEST in particular
- Lobby/awareness raising in UN agencies through CCA/UNDAF interventions at country level

(2) Priority Actions that follow:

- DECISIONS:
 - Women into S&T leadership roles
 - Awareness raising on GEST in political leadership circles and governance
 - GEST data breakdown in all LDC government data, eg: science, education: reinforce UIS standards
 - Build National Committees through ALL RESGEST Member States to introduce GEST as a ‘lens’ for all policy considerations
- PUBLIC SUPPORT AND AWARENESS (basis for political support):
 - Build networks of women S&T champions for mutual empowerment
 - Train women in science communication and public presentation
 - Target specific Action Research on identifying, developing and socializing ‘wise practice’ on practical empowerment of women in S&T in context of globalization to form a ‘concrete platform of example’ showing what GEST can achieve.
- BUILDING GEST PROCESS:

- Develop nation-wide university fora to evaluate and promote GEST and access for girls and women
 - Promote government policies for enhancing access to S&T education for girls
 - Build network of mature women scientists to communicate to young girls in school contexts the excitement of science
- USING GEST FOR POVERTY ALLEVIATION:
 - Promote APGEST Agenda – S&T for empowerment of poor and rural women
 - Build ‘model’ Tertiary Education innovations in field-practice oriented S&T education on community-oriented S&T study and application
 - Lobby national scientific institutes and academies to promote S&T for addressing the MDGs at community levels

A Final Note

Through GEST program UNESCO office Jakarta is seeking to ground ideas and policy frameworks and development assistance interventions in working practice, to help champions to emerge and be supported to take on the task of bridging women’s empowerment with the technical and scientific activities and bringing those benefits to grass roots levels, so women can be culturally and productively empowered and connected into global technological, economic and cultural frameworks. A key task for Asian regions is to meet this challenge – bringing science, technology and enterprise to empower women and girls and create gender equality and equity in all spheres of live.

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 Wati Hermawati
 Program Coordinator RESGEST and APGEST
 UNESCO Office, Jakarta.