CONTRIBUTIONS OF FILIPINO WOMEN SCIENTISTS AND TECHNOLOGISTS TO NATIONAL DEVELOPMENT

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EXECUTIVE SUMMARY

Methods and Objectives

Survey conducted aimed to describe participation of women in scientific and technological (S&T) activities, highlight their contributions therein, determine factors which limit their progress and recommend measures to eliminate known obstacles. Methodology consisted of secondary data analysis and three component-survey: one for men and women in selected S & T institutions which altogether yielded 1068 women and 574 men; and another for a sample of 182 women Ss and Ts (with phase I data of 1068 women as sampling frame including women listed in Philippine Men of Science). First survey aimed to obtain general profile of women Ss and Ts and second survey to obtain perceptions, attitudes of women Ss representing various fields and occupying different position levels. A third component of the survey entailed interview (in group and individually) of men and women who head S & T institutions.

Respondents are generally young, with women younger than men due to late entry of women in S & T fields. Men's choice of science courses is usually between engineering and agriculture; that of women is usually in chemical, medical or social sciences.

Women taking up engineering mostly prefer chemical engineering, a laboratory/stationary type of field which could be reflective of women's reluctance to join the men in the more masculine jobs. Women's choice of medical courses is still confined to traditionally-female fields such as pharmacy and medical technology and which are usually the low-paid types.

In terms of position, men are more likely to occupy the highest positions than women; below that level, differences are minimal. Income level of both men and women Ss and Ts is low, but that of women is still lower, probably due to their lower-level positions.

Participation in S & T Activities

Generally, women participate in S & T activities as decision-makers, as supporters of decisions made or as implementors of decisions made by others. Men and women show increasing participation in national and international professional/scientific associations.

In science teaching, there are more women faculty members than men, especially in elementary and high school levels. College teaching is about equally divided but there are definitely more men than women in technical and engineering schools.

Women have equal access to S & T courses. They are gradually entering traditionally male-oriented courses.

Women's Contributions

Contributions of women Ss and Ts to national development are varied. Most salient of these are:

- a woman engineer was responsible for including S & T in the Philippine Development Plan
- women scientists are among those doing a major study concerning the safety operation of the first nuclear plant in the Philippines.
- a woman designed and pilot tested the Barangay Nutrition Scholars (BNS) scheme, a program which now fields an army of BNS who help in improving the health status of rural and urban communities.
- two women scientists received awards for their research work in health and nutrition, a great boost to their respective agencies' performance.
- women medical scientists have done a great deal in developing local sources of medicines and in improving diagnosis and treatment of diseases.

Women's Perceptions of Their Participation in S & T

Education and employment policies are generally supportive of women; the latter are even protective towards them. Majority of women Ss and Ts are of the opinion that they have equal chances with men in getting employed and getting promoted. Sex they think is not a factor in one's advancement.

About one fifth of the respondents claim that career opportunities including training and promotion are not as open to women as they are to men. Reasons are traced to a double standard culture that specifies gender — specific roles, the myth that women are not economic individuals, and the biological role of women wbich reduce their chances of advancement.

Women view themselves positively as practitioners in S & T. They think they can match men, that their male colleagues see them in like manner and that top management subscribes to the equal opportunity doctrine. There are, however, still a few who sense that top management is still discriminatory in some instances.

Generally, women would rather work with other women on such researches as in social, medical and natural sciences. When it comes to engineering research, they prefer collaborating with men. On the job, women are mostly not satisfied with their pay and have a poor opinion of their chances of improvement in their agency.

Measures Proposed

To encourage women Ss and Ts to participate more actively in S & T activities, men and women in top management presented some recommendations. Most important of these include appointing more women to policy or decision-making positions, increasing their training opportunities and implementation of policies designed to protect them. Particularly, five major institutions, (NSTA, MOLE, MECS, NCRFW and Media) are urged to be more vigilant in doing their share towards a better S & T field for the women.

I. INTRODUCTION

A. Background

With the close of the Women's Decade, the situation of women in the Philippines is undergoing a close study. Women's roles and status in the fields of education, health employment, Law politics, culture and other are monitored and evaluated with the national development plans as well as the goals of the Decade as reference points. Results of such studies enable policy makers to determine areas where women lag behind men or areas where their contributions and potentials remain to be officially recognized, duly credited or constructively utilized. Such studies also provide solid basis in the formulation of policy recommendations for women's further integration in the mainstream of development.

The National Commission on the Role of Filipino Women is the national machinery created to "review, evaluate and recommend measures including priorities to ensure the full integration of women for economic, social and cultural development and to ensure further equality between men and women." To accomplish this mission, NCRFW consolidates information from studies, programs and other activities done for women and undertakes researches to provide empirical support to policies that could redound to the improvement of their status and roles.

B. Rationale

Information available at the NCRFW indicates that women are very much into science and technology. For instance, data from the National Research Council of the Philippines point out that the percentage of women scientists increased from 21% in 1975 to 45% in 1983 in the fields of medicine, biology, chemistry, pharmacy, agriculture and social science. Newly registered female engineers numbered 1,394 in 1983 alone according to Professional Regulation Commission's figures. Women occupy middle management and technical positions in government science and technology institutions. Even professional and scientific organizations enlist women as members as well as officers.

However, a much closer scrutiny of the woman's status in the field of science and technology (S & T) would give rise to a lot of questions. Why are they confined to middle management or second line positions? Does it mean they have inferior management and

technical skills? What prevents them from entering these so-called masculine courses? Are they not properly motivated or sufficiently encouraged? Why do very few come out in the open? Do they experience or perceive discriminatory practices against their sex? What is the science and technology system's role in this?

The proponent strongly believes that given a more supportive atmosphere, the potential contributions of women scientists and technologists could be fully realized. In the absence of sufficient data and information to enable policy makers to formulate positive action, this research was conducted as part of the series of studies on women in various fields undertaken by NCRFW to enable it to identify opportunities for women especially in male-dominated fields.

C. Objectives

1. To describe the participation of women in scientific and technological activities;
2. To highlight the contributions of women scientists and technologists to national development;
3. To explore factors that enhance/deter women's fuller participation in science and technology activities;
4. To determine how the government may encourage a more active participation of women in science and technology (S & T) activites.

II. METHODOLOGY

This research study was jointly undertaken by the National Commission on the Role of Filipino Women (NCFRW) and the National Science and Technology Authority (NSTA) through the Science Promotion Institute (SPI) with financial assistance from UNESCO.

A. Data Collection

Data for this study were obtained from both primary and secondary sources. Secondary data were obtained from lists of graduates from five Metro Manila universities, S & T associations, NCRFW and NSTA materials, personnel roster of S & T agencies and other sources (Please see Appendix for details).

Primary data collection was divided into two phases — phase I and phase II.

Phase I. A questionnaire consisting of 5 parts (personal data, education, employment, awards, researches and publications) was administered to S & T personnel who are graduates of S & T courses and are actually doing S & T work in selected government and private institutions. This is intended to provide a profile of workers in the S & T field, some perceptions of their work and their major achievements in their career.

Together with those from secondary sources, data from this phase were used as basis in answering the first objective and partially the second, and in determining the respondents for the second phase.

Phase II. Data gathering for this phase was divided into two components. For the first component, a predetermined number of women respondents in Phase I was obtained. In addition, women scientists who are included in the latest edition of Philippine Men of Science* were considered. To this group was distributed a self-administered questionnaire with personal follow-up interview, especially where data were not sufficiently provided by the respondent. This part intended to draw women scientists and technologists' attitudes towards and perceptions of the S & T community as far as their participation in its various activities is concerned.

The second component consisted of a group discussion of project directors and project leaders of various research and development projects and supervising groups of scientists and technologists. It also included personal interviews of heads of S & T agencies. This portion aimed to elicit middle and top level management's attitudes towards women Ss and Ts, their perceived roadblocks to their full participation in the S & T community and possible remedies to overcome these roadblocks.

*The Philippine Men of Science is an annual publication compiled and published by the Scientific Clearinghouse and Documentation Services Division of the Science Promotion Institute. The publication contains bio-bibliographies of living scientists and technologists who have excelled in their careers as well as their scientific and technical contributions in shaping the quality of science in the Philippines.