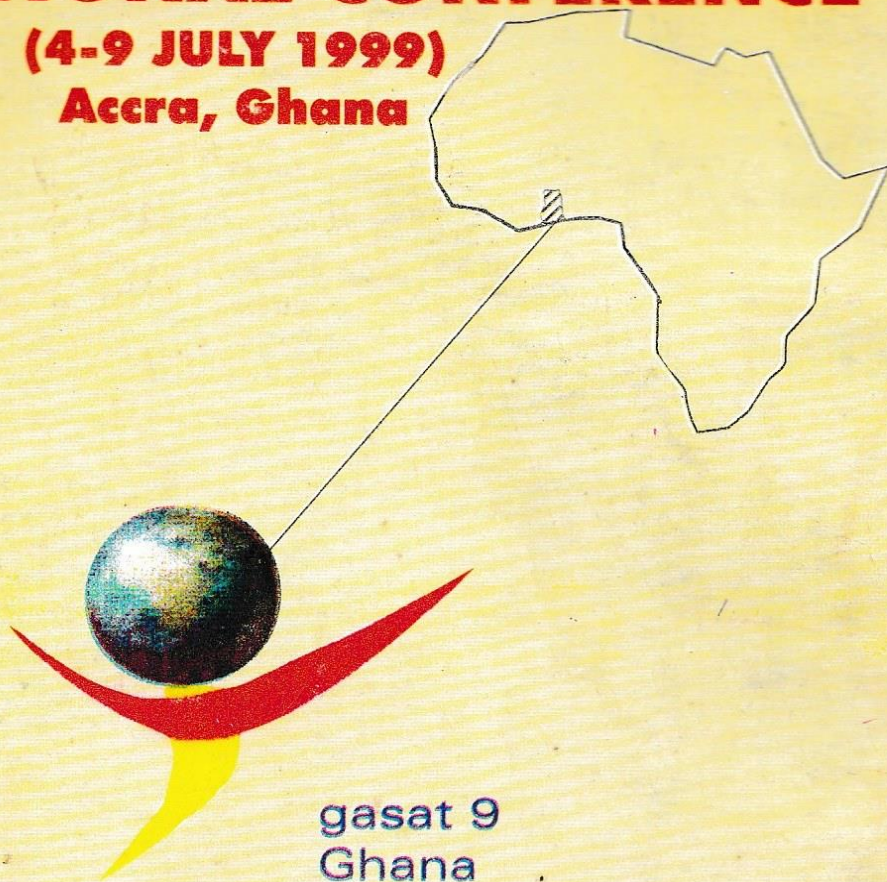


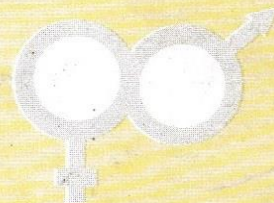
GASAT 9
INTERNATIONAL CONFERENCE
(4-9 JULY 1999)
Accra, Ghana



gasat 9
Ghana

PROGRAMME AND ABSTRACTS

*From Policy to Action in Gender, Science and Technology for
Sustainable Development in the 21st Century*



. PREFACE

GASAT-9: ACCRA, GHANA

PROGRAMME AND ABSTRACTS

Ghana is proud to host the ninth international conference of the Gender and Science and Technology Association, (GASAT-9), the first African country to do so.

The overall conference theme, *FROM POLICY TO ACTION IN GENDER, SCIENCE AND TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT IN THE 21ST CENTURY* enjoins us to dwell more on actions, strategies and outcomes. The abstracts received, therefore, have been organized in such a way as to generate more discussions towards action-oriented outcomes.

There was a large number of abstracts on the sub-theme *Education and Training* and these included quite a number that dealt with mathematics and engineering. There were fewer abstracts on information technology which was another sub-theme. We have therefore, subdivided the abstracts on *Education and Training* into two, one being specifically for topics covering mathematics, engineering, computer science and information technology. Abstracts had to have both gender implications and components of science and technology to be accepted.

We believe that at the end of this Conference we should come up with programmes that work in increasing and sustaining participation of females in science, technology and mathematics. Some of the papers which give reports of strategies related to this have been put together as GROUP PRESENTATIONS. We believe that a forum like that will provide a more effective means of drawing up action plans for implementation. Papers have been put together for Group Presentations around two other issues we consider important; (i) Valuing Women's Work and (ii) Science and Indigenous Technologies dominated by women. Definite action plans are expected at the end of each Group Presentation.

At the end of this conference we are all expected to come up with definite action plans. It is our hope that in each forum of presentation, be it a plenary session, parallel paper presentation, workshops, group, poster or video presentation, participants will have the singular aim of contributing to action-oriented strategies to help us all achieve the aims of GASAT and those of this conference indicated by the theme.

Thank you.

Marian Ewurama Addy, Ph.D.
Professor of Biochemistry and
Chair, Academic Committee.

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Professor of Biochemistry,
University of Ghana, Legon,

&

Ebenezer Laing,
Emeritus Professor of Botany,
University of Ghana, Legon.

&

Paul McAdams,
Girls Education Unit,
Ghana Education Service, Accra.

&

Jonathan Adjimani,
Senior Lecturer in Biochemistry,
University of Ghana, Legon

MONDAY, JULY 5TH

- OPENING CEREMONY** : 8:30 - 10:30
- REFRESHMENT** : 10:30 - 11:00
- ADOPTION OF CONFERENCE PROGRAMME** : 11:00 - 11:15
- PLENARY SESSION ONE: EDUCATION AND TRAINING** : 11:15 - 12:00
- SPEAKER: Addae-Mensah, I.**
- TOPIC: Women in Science and Technology: Breaking the Myth.**
- CHAIR: Dr. Christina Amoako-Nuamah**
- PLENARY SESSION TWO:** : 12:00 - 12:30
- PERCEPTIONS OF INTERNATIONAL ORGANIZATIONS ON GENDER, SCIENCE & TECHNOLOGY ISSUES**
- SPEAKERS: UNESCO, AFCLIST, FEMSA**
- CHAIR: Jayshree Mehtah, GASAT Chair**
- LUNCH** : 12:30 - 14:00
- PARALLEL PAPER SESSIONS:** : 14:00 - 15:30
- GROUP A: EDUCATION AND TRAINING**
- CHAIR: Mary Anderson-Rowland.**
- SPEAKERS: Naugah, J.** Educational Initiatives and Interventions for a Gender-Friendly Science in Mauritius.
- Sullivan-Owomoyela, J.** Gender-sensitive curriculum implementation: Ghana's Linkages in the learning sequence.
- Parsons, S. and Quintanar, R.** Science and Literacy Inquiry Academy (SLIA): A university-school district collaboration focussed on the professional development of female minority teachers.

Ekpo, C.M. An assessment of women's participation in science and technology-based programmes: Akwa Ibom State experience.

Vasanth, A. A study of polytechnic education for girls in India.

Gaynor, S. A longitudinal study investigating pupils attitude to science.

GROUP B: MATHEMATICS, COMPUTER SCIENCE, ENGINEERING AND INFORMATION TECHNOLOGY.

CHAIR: **Irwin, L**

SPEAKERS: **Ogude, N.A.** Factors which determine success in male-dominated careers. Stories from women in technological careers in South Africa.

Baryeh, E.A, Obu, R.Y., Lamptey, D.L. and Baryeh, N.Y. Ghanaian women in engineering professions.

Ajayi, O.B. Onchocerciasis information dissemination - Participation level of females in three Ovia communities in Edo State, Nigeria.

Hansen, K.G. Girls in mathematics education, the gendering meaning of understanding and creativity in mathematics education

Koontz, T. Faces of the future: Primary teachers in a gender fair classroom.

GROUP C: WOMEN'S KNOWLEDGE, WOMEN'S WORK, THE WORKPLACE.

CHAIR: **Jophus Anamuah-Mensah**

SPEAKERS: **Ogbe, F.M.D.** Women's indigenous knowledge of plants used for pre-natal, post-natal and child care in Okpe Local Government Area of Delta State, Nigeria.

Bagilhole, B., Neal, R and Vaid, K. Through the upgrading of skills to empowerment: Career promotion of women in the Indian construction industry.

Guino, C. Argéntina: an analysis of the participation of women in research projects from public universities and granted with federal funds.

Togobo, M. and Andam, A.B. Women's pride of place in the building industry in Ghana.

El Hussien, D.M. Health hazards among Sudanese women workers in the industrial sector.

GROUP D: *POLICY - MAINSTREAMING GENDER INTO SCIENCE AND TECHNOLOGY.*

CHAIR: **Mr. E. Barnes, Chief Director, MEST**

SPEAKERS: **Harding J. and Johnson J.** Mainstreaming gender into policies and programmes: a case study.

Sugraga C. and Ladage, S. Indian student's views about science and scientists

Okeke, E. and Ighoroje, A.D.A. Daughter-Mother Interaction: A forum for education.

Wachira, F.N. Policies and interventions to increase and sustain participation of girls and women in science, mathematics and technology (SMT) education.

Simpson, B. Characteristics of, and policy implications implicit in the attitudes, values and abilities found in female science students entering college from 1968 - 1996.

Chandrasekhar, K. Utilization of technology for creation of jobs and sustainable development.

GROUP E: *THE ENVIRONMENT, NATURAL RESOURCES AND WASTE MANAGEMENT.*

CHAIR: **Victoria Dzogbefia.**

SPEAKERS: **Ngila, J.C.** A versatile environmental pollution monitor: gender-sensitive technology.

Ochei, U.M. The Family (mother) in drug abuse prevention.

Dampsey, P.T.M. Pesticides and gender relations.

Nkadi, O. Participation of university women in waste management: Problems and prospects.

Dumbah, R. Women in land management: The Ugandan experience.

HOME GROUP MEETINGS WITH TEA/COFFEE : 15:30 - 16:30

REGIONAL MEETINGS : 16:30 - 18:30

RECEPTION : 19:30- 21:30

TUESDAY, JULY 6TH

PLENARY SESSION THREE: THE WORKPLACE: : 8:30 - 9:15

SPEAKER: Tebello Nyokong

TOPIC: Facing the challenges of an academic career in the sciences: A woman's perspective.

CHAIR: Prof. F.T. Sai

PLENARY SESSION FOUR: INFORMATION TECHNOLOGY : 9:15 - 10:30

SPEAKER: Irwin, L.

TOPIC: Computer Perceptions, Attitudes and Access: Prerequisite Foundations for Gender Equity in Technology in Developing User Societies.

CHAIR: Rajagopalan, P.

TEA/COFFEE BREAK : 10:30 - 11:00

GROUP PRESENTATIONS/WORKSHOPS : 11:00 - 12:30

INCREASING AND SUSTAINING GIRLS' PARTICIPATION IN SCIENCE, TECHNOLOGY AND MATHEMATICS.

CHAIR: Eunice Okeke

SPEAKERS: Walker, E., Superfesky, M and Chester, A. Health Science and Technology Academy: Gender differences in math and science interest.

Dahms, M. Reforming engineering education - the CuWaT-project.

Nyamali, A.I. Encouraging female participation in

mathematics education in Nigeria by a "Challenge and Reward" policy.

Njoku, Z.A. Enhancing girls' acquisition of science process skills in co-educational schools: An experiment with sex grouping for practical chemistry.

Anderson-Rowland, M.R. A comprehensive approach to the recruitment and retention of women in engineering.

WORKSHOP ON COMMUNICATING IN SCIENCE : **Jacob, E. S.**

FEMSA WORKSHOP — Rm 1

Rm 3

Coordinated by **Ffou, R.E.** The impact of the Cameroon FEMSA school centres in promoting girl's interest in science, mathematics and technology.

VIDEO PRESENTATION: — Rm 2

MacKinnon, P. Images of girls and women in science and technology. "The production of the unscientific female"

LUNCH : 12:30 - 14:00

GROUP PRESENTATIONS/WORKSHOPS : 14:00 - 15:30

INCREASING AND SUSTAINING GIRLS' PARTICIPATION IN SCIENCE, TECHNOLOGY AND MATHEMATICS. (Recommendations and Outcome).

CHAIR: **Eunice Okeke**

AFCLIST FORUM:

SPEAKERS: **Erinosho, S.** Towards an accessible and friendly science education for all: AFCLIST and Gender.

Mbano, N. Change of school culture can improve the performance of pupils: Experience of a cognitive acceleration intervention.

Nassor, S.M. A community intervention to improve girls participation in science and mathematics.

Nchesi, A. Impact on girls of a "Hands-on-minds-on" school science club.

Reddy, V. Women in research: Experiences of black South African women scientists.

PRESENTATION BY THE GIRLS' EDUCATION UNIT, GHANA EDUCATION SERVICE.
Coordinated by **McAdams, P.**

VIDEO PRESENTATION. The Kinnard College Statistical Festival

HOME GROUP MEETINGS WITH TEA/COFFEE : 15:30 - 16:30

POSTER PRESENTATIONS : 16:30 - 18:00

Awortwi, S Science, Technology and Mathematics Education (STME) Clinic for Girls.

FEMSA Interventions and other activities covering
Sensitization and Awareness Building
Motivational Activities
Teacher Capacity Building
Materials Development.

Janet Ofori. Water Development Projects and Women's Health.

Odetola, A. A. Parquentina nigrescence, a potential source of useful phytochemicals

Habibullah, S. N. Survey of Kinnard Graduates

VIDEO PRESENTATION:

Quaisie, G. UNESCO special project on scientific, technological and vocational education for girls in Africa.: Advocacy video on the participation of girls in science and technology vocational education and training in Africa.

GETTING TO KNOW THE INTERNET

Coordinated by **Ampah Sintim-Misa, M and Addy, M.E**

GASAT GENERAL MEETING : 20:00 - 22:00

WEDNESDAY, JULY 7TH**GROUP PRESENTATIONS**

8:30 - 10:30

SCIENCE AND INDIGENOUS TECHNOLOGIES DOMINATED BY WOMEN

CHAIR: **Abigail Andah.**SPEAKERS: **Dede, A.P.O.** Microbiological analysis of a locally-fermented food condiment - an exclusive activity of women in South Western Nigeria.**Awharitoma, O.A.** Parasites of economically-important snails: Limicolaria sp. and Tympanotonus sp. (Periwinkle) processed by women.**Oronsaye, C.** The effect of change of environment on the shell morph of the shell fish Tympanotonus fuscatus fuscatus.**Amuah-Awuah, W.K.A.** Traditional processing technologies in food production: Contribution of molds, yeasts and bacteria species.**Nerquaye-Tetteh, G.** The "chorkor" smoker - an improved artisanal fish smoker

FEMSA FORUM

O'Connor, J.P. Core Ingredients of Girl-Friendly Teaching Methodologies in S.M.T. as seen from the perspective of career women scientists.*WORKSHOP ON COMMUNICATING IN SCIENCE*: **Jacob, E. S.****GETTING TO KNOW THE INTERNET****PARALLEL PAPER SESSIONS**

: 10:30 - 12:00

GROUP C: WOMEN'S KNOWLEDGE, WOMEN'S WORK, THE WORKPLACE.CHAIR: **Karnala Chandrasekhar.**SPEAKERS: **Nwuba, L.A.** The role of women in livestock and crop production for sustainable development**Oluwemimo, A.** Women, diseases and nature's remedy.

Rugumamu, C.M.S. Indigenous household crop storage technology in rural Tanzania.

Kioko, E. and Ratna, S.K. Facilitating the access of women to natural resources, technology and income generation: the sericulture model.

Nchesi, A. Has there been the valuing of women's knowledge and skills?: Lessons from the past and what should be done now.

GROUP E: THE ENVIRONMENT, NATURAL RESOURCES AND WASTE MANAGEMENT.

CHAIR: **Vasantha, A.**

SPEAKERS: **Kadiri, M.O.** The impact of energy crisis in Nigeria on women.

Oduro, I.N. and Oduro, W. The role of women in domestic wildlife product.

Okojie, O.H., Wagbatsoma, V.A, Ogbeide, O and Isah, B.C. Prevalence of hypertension within an occupational group (market women) in Benin City, Nigeria.

Ishengoma, A.K.W. Community-based solid waste management in Dar-es-Salam city with a gender perspective.

Alufohai, G.O. The rural woman in the marketing of food crops: a case study of cassava in Isoko North and South Local Government Areas of Delta State, Nigeria.

TOURS (TO SEE IMPROVEMENTS IN INDIGENOUS TECHNOLOGIES DOMINATED BY WOMEN) : 12:00- 17:00

RECEPTION : 19:30 - 22:00

THURSDAY, JULY 8TH

I. **GROUP PRESENTATIONS/WORKSHOPS** : **8:30 - 10:30**

VALUING WOMEN'S WORK

CHAIR: **Kirsten Groenback Hansen.**

SPEAKERS: **Omoifo, C.N.** Valuing women's knowledge and skills: Implications for science and technology in the next millennium

Chawanje, C.M. Exposing girls to indigenous/traditional and modern technology.

Sobotie, C., Andam, A.B and Brenya, R. Women's role in the preservation of energy resources.

Alumanah, J.N. Women's work in the Developing Countries under-represented and under-remunerated.

Entsua-Mensah. M. and Akrofi, J. Traditional knowledge of Ghanaian women in processing of fish.

Osuji, R.U. Linkages between women activities and environmental sustainability in Nigeria.

WORKSHOP ON COMMUNICATING IN SCIENCE : **Jacob, E. S.**

FEMSA WORKSHOPS:

- (i) Developing Low-Cost Teaching Materials for Ghana Schools. The Ghana National FEMSA TEAM. Coordinated by **Quaisie, G.**
- (ii) The use of a school income-generating project in developing a girl-friendly science curriculum in secondary schools in Tanzania. Coordinated by **Masanja, V.**

ROUND TABLE:

Utilisation de produits locaux dans l'enseignement de la chimie. Coordinated by **Dioum, M.D.**

GETTING TO KNOW THE INTERNET

TEA/COFFEE BREAK : **10:30 - 11:00**

I. GASAT BOARD MEETING : 11:00 - 13:00

II. PARALLEL PAPER SESSIONS

GROUP A: EDUCATION AND TRAINING

CHAIR: **Aba Andam.**

SPEAKERS: **Sobotie, C, Andam, A.B. and Brenya, R.** Professional upward mobility for women scientists in the teaching career: A case study from Ghana.

Yashini, A.P. The problems facing girls in learning SMT subjects and the solutions proposed by the FEMSA Zambia National Seminar.

Matthews, B. Using collaborative group work to tackle racism and sexism: making science interesting in co-educational secondary schools.

Ogunsola-Bandele, M. F. And Olokun, G.M. The effects of gender on students preferences in Chemistry.

Salgado, P.P. Gender perspective in cooperative and competitive learning process.

Hossain, M and Hossain, S. Ways and means to make primary science teaching-learning gender friendly in Bangladesh.

Eshun, V. Promoting gender equity in African, Universities: The case of UCEW.

GROUP B: MATHEMATICS, COMPUTER SCIENCE, ENGINEERING AND INFORMATION TECHNOLOGY.

CHAIR: **Chris Ameyaw-Akumfi.**

SPEAKERS: **Doron, R.** How to encourage women to become practical engineers and technicians in technological domains.

Bilesanwi-Awoderu, J.B. Attitudinal dispositions of Nigerian women professionals towards new information technology.

Rajagopalan, P. Women in information technology: Participation and challenges.

Ampah Sintim-Misa M. The African Information Society-Gender Working Group

Jane Mulemwa. The impact of the carpentry workshops on the learning of Mathematics and Science in Primary Schools in Uganda

Hyttinen, L. Students', teachers' and employees' beliefs on technical trades in industry and on their suitability for women.

Hjorth, A and Lonroth, I. EU Project Socrates Comenius 3.1

GROUP C: WOMEN'S KNOWLEDGE, WOMEN'S WORK, THE WORKPLACE.

CHAIR: **Robina Dumbah.**

SPEAKERS: **Dzogbefia, V.P., Aborbor, M. and Asmah, T.** Protection of the environment through biotechnology: conversion of agricultural wastes into food.

Andam, A.B., Siann, G., Quaisie, G. and Prah, M. Awareness creation for the management of water resources: Impact of the Paula Project.

Alutu, A.N.G. The influence of the changing nature of women's work on attitude to exclusive breast-feeding on infants in Edo State, Nigeria.

Adiepena, N.A. Development of an improved meat smoking technology among pig farmers.

Mbendo, J.R. Empowerment of women through appropriate technology and training: a case of Mombasa, Kenya.

Anamuah-Mensah J. and Allotey A. G. Ethnamathematical ideas of market women: implications for the education of the girls child.

Guobadia, E. E. Gender and parasitic diseases: The significance in National Development.

GROUP D: POLICY - MAINSTREAMING GENDER INTO SCIENCE AND TECHNOLOGY.

CHAIR: **Prof. W. S. Alhassan.**

SPEAKERS: **Addy, M.E. and *Danso-Manu, M.** Development of professional attitudes in female scientists: a case study.

Eichie, F.E. Mainstreaming gender into science and technology policy: initiatives and outcomes - a Nigerian perspective.

Chiboka, A.O. To have and to hold: The Nigerian approach to her women in science, technology and mathematics.

Duyilemi A.N. Female participation in the JETS programme of Nigeria: an index of enhancing scientific and technological literacy among the youth.

Kishore, L. Catch them young: Attracting girls to technology.

Ifeka, N. Putting gender on the agenda.

D'Ujanga, F.M. FAWE-Uganda's interventions in female education.

Dutt, S. The Indian child: Problems and perspectives.

GROUP E: THE ENVIRONMENT, NATURAL RESOURCES AND WASTE MANAGEMENT.

CHAIR: **Costancia Rugumamu.**

SPEAKERS: **Chadza, C.M. and Katunda, M.E** The impact of cultural practices on the participation of girls and boys in science and technology.

Ukpore, B.A. Environmental factors and adaptation of females and males to technology in the home.

Idaewor, P.R. Traffic-generated environmental pollution: implication on the health of women trading at busy traffic nodes.

Ahonkai, I. Hazards of health around us - Cosmetics in the Nigerian market.

Erakpoweri, S. Staple food production in Africa: The role of women.

Ikhuoria, E.U. and Eichie, F.E. Use of agricultural waste as heavy metals adsorbent from the environment.

Alidjennath E. A. Activites GLOBE au Benin et implication des filles.

LUNCH : 12:30 - 14:00

DISCUSSIONS AND RECOMMENDATIONS FOR ACTION : 14:00 - 16:00

CHAIR: **Laing, E.**

CO-CHAIR: **New GASAT Chair**

HOME GROUP MEETINGS WITH TEA/COFFEE	:	16:00 - 17:00
RECOMMENDATIONS FOR ACTION (CONTINUATION)	:	17:00 - 18:00
CONFERENCE DINNER	:	19:30 - 23:30

FRIDAY, JULY 9TH

DISCUSSION AND ACCEPTANCE OF ACTION PLANS	:	9:00 - 10:30
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CHAIR: **New GASAT Chair**

CO-CHAIR: **Laing, E**

TEA/COFFEE BREAK	:	10:30 - 11:00
CLOSING CEREMONY	:	11:00 - 12:30
LUNCH	:	12:30 - 14:00

DEPARTURE

AN ASSESSMENT OF WOMEN'S PARTICIPATION IN SCIENCE AND TECHNOLOGY BASED PROGRAMMES: AKWA IBOM STATE EXPERIENCE

Comfort M. Ekpo,
P.O. Box 2538, Uyo, Akwa Ibom State,
Nigeria.

ABSTRACT

The major goal of successive regimes in Nigeria for two decades now has been that of broadening opportunities for education of both sexes. Nationally, the baseline data on mass literacy in Nigeria projects Akwa Ibom State as the third educationally advanced state with a total of 78.13% literate adults.

This study reviews the extent of women participation in Science and Technology based programmes in Akwa Ibom State. It assesses the extent of the gender disparity in enrolment, performance and completion of Science and Technology based programmes as offered by the three existing tertiary Institutions viz - The University of Uyo, Akwa Ibom State Polytechnic and College of Education.

It is observed that considerable progress has been made in facilitating women access to education in the last two decades but the percentage of women in Science and Technology related programme would appear to be unsatisfactory.