

EXPANDING THE GLOBAL ALLIANCE FOR DIVERSIFYING THE SCIENCE & ENGINEERING WORKFORCE

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Abstract —This paper will explore the Global Alliance's progress in reaching its goals and future action steps for the organization. The Global Alliance for Diversifying the Science and Engineering Workforce is a collaborative initiative of the American Association for the Advancement of Science (AAAS); WEPAN; and the Association of Women in Science (AWIS). The Global Alliance is committed to increasing the participation of women in the SMET workforce worldwide. It has forged new alliances with international partners in Europe and Africa and hosted numerous events in Europe and the United States to generate awareness and dialogue on these issues and is currently undertaking a project in Africa sponsored by the Engineering Information Foundation. It has also worked towards consolidating international research and gender disaggregated data with the development and launching of its online bibliography of journal articles, papers, and conference proceedings. The paper will encourage dialogue on what has been done and what needs to be done to continue advancing these goals.

Index terms — diversity, gender, international, workforce development

OVERVIEW

The Global Alliance for Diversifying the Science and Engineering Workforce is a collaborative initiative of the American Association for the Advancement of Science (AAAS); Women in Engineering Programs & Advocates Network (WEPAN); and the Association of Women in Science (AWIS). The Global Alliance is committed to increasing the participation of women in the SMET workforce worldwide and supporting other diverse social groups including: ethnicity, age, discipline, languages, and cultures. Its primary objectives are twofold: (1) to establish worldwide collaborations with higher education institutions, corporations and government, and (2) to facilitate the development of long-term, sustainable infrastructures in

science and engineering for a diversified workforce. Its strategies for accomplishing these goals are to:

- Develop networks of organizations working to diversify the SMET workforce;
- Identify and disseminate the latest best practice information;
- Develop common standards for data collection and conducting research on diversity in the SMET;
- Showcase women scientists and engineers;
- Build technical human capital in developing nations by providing cooperative educational opportunities in sustainable development issues such as water/land use;
- Develop and provide training and seminars on mentoring curriculum to improve recruitment and retention of diverse groups in the workforce.

PAST ACCOMPLISHMENTS

Beginning as WEPAN's International Initiative, the Global Alliance was established in 1992 to encourage the public and private sectors to create programs to enhance the participation of women in engineering and science professions. The vision was to formalize an international alliance with ongoing networking, sharing of lessons learned, technical assistance in implementing best practices to move toward a diversified and balanced global workforce.

In 1996, WEPAN continued its international efforts by participating in a panel presentation at the World Congress of Engineering Educators held by the UN Education, Science, and Culture Organization (UNESCO). The Global Alliance, in 1998, held an international working session in London to begin defining its strategies and build collaborations. In addition, the 1998 WEPAN Conference theme was international, "Creating a Global Engineering Community through Partnerships."

In 1999, the Global Alliance launched its website www.globalalliancesmet.org. Further progress also was made at a working session held in Lyngby, Denmark at the Danish Technical University. Later in October 1999, it was invited to host a forum, "Women & Minorities in Trade &

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Technology," in conjunction with the World Trade Organization ministerial conference held in Seattle, WA.

GLOBAL ALLIANCE IN 2000

To accomplish its primary goal of increasing the participation of women and other diverse groups in the science and engineering workforce, the Global Alliance made significant strides in establishing networks and building collaborations with organizations in Europe, Africa, South America, and North America in 2000. It also hosted several events and working sessions. Frequent web site additions and marketing have drawn over 1000 visitors to the site in just the past six months.

Sponsors of the Global Alliance are the US Department of Energy, AT&T Laboratories, the German Association of Engineers, the American Association for the Advancement of Science, and the Dow Chemical Company. The newest sponsor, the Engineering Information Foundation awarded the Global Alliance, through the University of Washington, a grant to develop networks with key counterpart organizations and individuals in Africa. Beginning in January 2001, the Global Alliance begins a two-year pilot project to support networks of women scientists and engineers Egypt, Mali, and Nigeria.

GLOBAL ALLIANCE ACTIVITIES

Below is a sampling of the Global Alliance's activities in 2000.

■ Identify and disseminate international best practices and proven reforms:

- ✓ *Co-hosted the International Forum on Women in Engineering and Science at the first World Engineer's Convention in Hannover, Germany, June 21, 2000* – Thirty-six speakers from over twelve countries shared best practices information from their nations and specific organizations.
- ✓ *Co-hosted the Building and Sustaining Infrastructure for Gender-Empowered Partnerships in the Technological fields (IGEPT 2000) in Stockholm, Sweden, August 2000* – Representatives from major corporations, government agencies, and academic institutions in the US and Sweden came together to share best practices of their organizations and discuss potential for future collaborations. *Follow-up conference scheduled for November 2001.*
- ✓ *Wrote and published Woman's Needs*, an informational brochure highlighting women and technology issues during the United Nation's Beijing +5 Review Conference. In addition, it featured prominent women who, with their involvement in the technological professions, have made a significant impact in their regions.

■ Major Global Alliance meetings, events, and networking opportunities:

- ✓ *February 2001. San Francisco, CA.* Hosted "Call to Action: Advancing the Participation of Women in Science, Engineering, and Technology in a Global Context" at the AAAS annual conference.
- ✓ *June 2000. New York, NY.* Hosted a "Forum on Women in Science and Technology" at the United Nations' Beijing +5 Conference on Women.
- ✓ *June 2000. Hannover, Germany.* Co-hosted an international forum, "Women in Engineering and Science" at the World Engineers Convention.
- ✓ *August 2000. Stockholm, Sweden.* Co-hosted the Building and Sustaining Infrastructure for Gender-Empowered Partnerships in the Technological fields (IGEPT 2000)

■ Identify and recruit key individuals and develop networks and partnerships:

- ✓ *Organizations from over 30 countries have committed to becoming members*

Formal working agreements with the German Association of Engineers, Association of Professional Women Engineers of Nigeria, Association of Female Engineers of Mali.

Current Board members are:

Mr. Arnold Allemang, Executive Senior Vice President, Operations, The Dow Chemical Company

Dr. Helen C. Davies, Past President, Association for Women in Science

Dr. Monique Frize, P. Eng., O.C., Chairholder, NSERC/Nortel Joint Chair for Women in Science and Engineering (Ontario)

Dr. Hans Peter Jensen, President, Danmarks Tekniske Universitet

Dr. Shirley Malcom, Head, Human Resources & Education Directorate, AAAS

Ms. Susan Staffin Metz, President, WEPAN

Dr. Dennis Schuetzle, Director of Research & Development, Ford Motor Company

Dr. Judi W. Wakhungu, Immediate Past Director, African Technology Policy Studies Network

Dr. William Wulf, President, National Academy of Engineering

Ms. Doreen Yochum, Chief Administration Officer & Vice President, AT&T Labs

■ On-going web site expansion

- ✓ Comprehensive searchable annotated bibliography with 250+ records and online access to many publications
- ✓ Profiles of prominent women scientists, engineers, and government officials including:
Dr. Rita Colwell (Director of NSF)

Dr. Helga Ebeling, Head, Women in Education & Research Department, Federal Ministry of Education and Research, Germany

Ms. Carly Fiorina (Chairman and CEO of Hewlett Packard)

Dr. Nancy J. Lane OBE, D. Phil., Sc.D., LL.D. (Hon), D.Sc. (Hon), F.I. Biol., Project Director of the University's Initiative for Women in Science, Cambridge University

Dr. Shirley Malcom (Director of Education and Human Resources, AAAS)

Mrs. Ola Sulymán, President of the Association of Professional Women Engineers of Nigeria (APWEN)

- ✓ Descriptions of current special projects
- ✓ Online access to full-length reports on Global Alliance events
- ✓ Calendar of related events
- ✓ Updated list of testimonials from top-level executives and government officials of the value of diversity to business and society
- ✓ Expanded section of links to related organizations (100+) around the world

■ Global Alliance working sessions with related organizations

- ✓ *Feb. 2000: Washington, DC.* Working session in conjunction with the annual AAAS conference
- ✓ *August 2000: Washington, DC.* Working session with representatives of Global Alliance Executive Council

ACTIVITIES IN 2001

Similar activities are already planned for the second half of 2001.

- November 2001. Washington, DC. Host of the Building and Sustaining Infrastructure for Gender-Empowered Partnerships in the Technological fields II (*IGEPT 2001*) – Research in progress on corporate and higher education best practices in diversifying the workforce
- *Africa project* funded by the Engineering Information Foundation (2001-2002) – comprehensive networking, research, and information dissemination project to support women in science and engineering professions in Egypt, Mali, and Nigeria. The grant was awarded for a proposal to conduct a pilot study to promote the participation of women students and professionals in science and engineering in Mali, Egypt, and Nigeria. The project, directed by the University of Washington and AAAS, will begin in these three countries with plans to expand to other African nations.
- Host of next “International Forum: Women in Engineering and Science” at the 2004 World Engineers’ Convention in Shanghai, China.

AUTHORS AND PRESENTERS

Suzanne G. Brainard is Associate Professor (affiliate) in Technical Communication and Women Studies and Executive Director of the Center for Workforce Development, University of Washington. She is immediate Past-President of WEPAN and Executive Director of WEPAN Consulting Services. She currently serves on several boards and committees including the National Academy of Engineering Committee on Diversifying the Engineering Workforce, and is the Vice Chair of the Committee on Equal Opportunities in Science and Engineering. She is an AAAS Fellow. She received her Ph.D. from Ohio State University in Educational & Developmental Psychology.

Yolanda S. George is Deputy Director and Program Director of Education and Human Resources at AAAS. Her responsibilities include conceptualizing and implementing multi-year projects to increase participation of under-represented groups in SMET. She directs a number of projects including Science Linkages in the Community and Science Education Reform for All. Ms. George has authored or co-authored over 35 papers, pamphlets, and manuals. She has received several service awards including those from Lawrence Livermore Laboratory and University of California - Berkeley. She received her B.S. and M.S. in biology from Xavier University and Clark University in Georgia, respectively.

Shirley M. Malcom is Head of the Directorate for Education and Human Resources Programs of AAAS. She has been nationally recognized for her efforts to improve educational opportunities for under-represented groups and promote broader public understanding of science and technology. Dr. Malcom is author of numerous publications on equity and education, and serves on a number of advisory committees relating to the evaluation of educational reform. She is a former member of the National Science Board. She received her Ph.D. in ecology from Pennsylvania State University, M.S. in zoology from University of California, Los Angeles, and B.S. with distinction in zoology from University of Washington.

Priti N. Mody is Assistant Director of the Global Alliance for Diversifying the Science and Engineering Workforce, Center for Workforce Development at University of Washington. Her responsibilities include overseeing funded projects, writing and editing proposals, fundraising, conducting research projects on institutional best practices in diversity, writing reports, and working with international and national organizations. She received her Master of Public Administration and Master of Arts in International Studies degrees from the University of Washington and her B.A. in Political Science and East Asian Studies at Washington University in St. Louis.