



Left to Right: Joan Levy, Chair, Committee on Non-Governmental Organizations, Department of Public Information, United Nations; Paul Goa Zoumanigui, Counselor, Permanent Mission of Republic of Guinea; Paul Hoeffel, Head, NGO Section, Department of Public Information, United Nations; Cream Wright, Chief of the Education Section, United Nation's Children's Fund (UNICEF); and Sylvia Wilson Thomas, on behalf of EWeek "Introduce a Girl to Engineering" and the IEEE.

## **UNITED NATIONS BRIEFING**

### **Girls and Technology: New Educational Opportunities**

**Thursday, March 25, 2004**

#### **UNOFFICIAL TRANSCRIPT PROVIDED BY IEEE/USA**

**MR. HOFFEL:** Welcome to our NGO briefing. This morning we're going to be talking about girls and technology, new education opportunities. I'm Paul HOFFEL, chief of the NGO section

in the Department of Public Information. Part of our briefing is going to focus on girls, and in particular engineering. I would like to thank Pender McCarter from The Institute of Electrical and Electronic Engineers for his help in planning this briefing. We welcome several guests from the IEEE who joined us here this morning as well. Pender, where are you? Hi.

**MR. MCCARTER:** Hello, Paul.

**MR. HOEFFEL:** Pender, thank you very much. Access to computers, the Internet, and other technologies is considered a luxury in much of the developing world where millions of are without basic education. Yet, despite poor connectivity and scarce resources, a number of developing nations are making great strides in providing high-tech skills to young people; often teaming up with the United Nations' agencies and civil society partners to use information technologies to enhance existing education programs for children and, in particular, girls.

The Secretary General has stressed the importance of mainstreaming girls' education as reflected in the second millennium development goal that calls for achieving universal primary education. This requires aggressive promotion of gender equality in the classroom to empower women and to eliminate gender disparity in primary and secondary education at all levels by the year 2015.

There are some wonderful United Nations' agencies and examples of the work currently being undertaken to promote girls' technological skills. UNICEF has been working in countries like Guinea and the Sudan to use digital radio technology, and has sponsored Internet and learning forums between teachers and students from around the world. Working with United Nations agencies and governments, civil society organizations are actively promoting equal access for girls and women in scientific and technological arenas. There are innovative programs that promote educational and scientific literacy for girls, equal access for technological training at all levels, and that use the Internet to engage girls in technology. But despite access to new technologies in industrialized and developing countries alike, women and girls are severely underrepresented in the

engineering profession. Research shows that girls and young women lose interest in subjects and the fields of study leading to engineering careers long before they college.

We have a distinguished panel to discuss the roles of the United Nations and NGOs in promoting these joint initiatives. To my left is Cream Wright, chief of the education section of UNICEF. Mr. Wright will highlight recent efforts by UNICEF to mainstream girls' technological and scientific programs into the basic curriculum of schools in developing countries. To my right is Paul Goa Zoumanigui, Counselor at the Permanent Mission of the Republic of Guinea to the United Nations.

Mr. Zoumanigui will be giving us an update on what his country is doing to promote girls' technical and scientific educational capacity in the region. To my far left is Sylvia Thomas, a representative of The Institute of Electrical and Electronics Engineers. The IEEE is a leading NGO which works in some 175 countries around the world to advance technical, engineering, and computer skills for girls.

So we turn first to our United Nations' colleague, Mr. Cream Wright, chief of the education section at UNICEF. Prior to this assignment, Mr. Wright was director of the Human Resource Development Division of the Commonwealth Secretariat in London. He also served as special Adviser and head of the education department in this division from 1997.

From 1989 to 1997, he was managing director of Research, Educational, and Development Initiatives, an international consultancy firm based in Africa. He managed a wide range of technical assignments in areas such as policy analysis and research, community development, curriculum and project design, program management, and curriculum development. You'll also remember that Cream was moderator at one of the plenary panels at last September's DPI NGO conference panel on education. So we welcome you, Cream. The floor is yours.

**MR. WRIGHT:** Thank you, Paul. Good morning. It's a pleasure to be with you and to share some ideas with you on this very important issue of what I'll call...gender and technology, but

more specifically, girls and technology, and some of the educational opportunities, or some of the strategies that we... are currently using and that we need to embark on if we're to achieve our goals.

Let me take a moment just to sketch out a background about technology and development, which no doubt you'll all be familiar with, but to underscore the rationale behind some of the things that we're doing. Undoubtedly, technology is the primary driving force of progress. It's about more efficient production, greater adoption of natural resources for our own use, production of goods and services. But the other side of technology is that if you look at the history of technology, for almost every major technological advancement; there has been a new social or economic divide between those who have and control those new technologies and; those who have not and don't control those new technologies. So, I think as many of our colleagues would say, "technology is not a neutral force"...

But the issue is what are the divisions? I think it's significant to underscore that the United Nations, in fact, places access to the latest technology, information and communication technologies at a high level. The United Nations regards this as the third most important issue facing women. This is only after poverty and violence against women. So, the issue of access to technology is way up there in terms of issues affecting women.

But we use the term "technology" loosely, and very often we forget that there is a whole range of technologies. I think currently we focus on information and communication technologies. That is all well and good, but remember that in every society there are technologies that are used for production, for services, and so on.

As technology has advanced from the purely mechanical to petrochemical to electrical and now the electronic and even beyond that we ought to understand how these different technologies influence patterns of work, access to goods and services, and so on. It is against that kind of

background that we need to understand what are the disparities that are opened-up by new technologies?

When we look around the world, there are probably three main disparities. There's wealth Disparity. Technology, because it has so much to do with wealth creation, opens up a divide between wealth and poverty.

The second is: I'm not sure whether it's centers of power or it's geographic location. My colleagues tell me not to talk about geographic location, it's about centers of power.

Thirdly, perhaps most persistently, there is a very strong gender divide, whether it's in terms of access to technologies or benefiting from the jobs that are created through technology, or being beneficial users of technology. There is a strong gender divide. Many argue that a lot of this, of course, has to do with relationships in society, but it's anchored -- the problem is anchored and rooted in education. So it is no surprise that, as there are major disparities, gender disparities in education, so there are major gender disparities in access to technology and the use of technology and benefiting from technology.

In fact, it's argued that the greatest obstacle to this barrier that girls and women face in terms of accessing and using technology is lack of education, more specifically, scientific and technological education. So in that regard, what should we be doing? Why is it being addressed? I mean, it's not purely an educational issue, but why is addressing the broadest social issues important? Many agencies, United Nations' agencies in particular, are focusing on how do we get the kind of education and training that is nondiscriminatory. This is really embedded in the millennium development goals, the issue of gender parity and gender equality.

Many of you know that the most recent report that came out on progress with the education for all that focused on gender, makes the point that, yes, some progress has been made towards gender parity, but it's felt that we're still way behind in terms of even recognizing and understanding what is entailed in terms of gender equality.

So why else are we trying to get numbers of girls in school fairly equal to the numbers of boys? We're a long way when we come to equality that has to do with access to quality education; access to education that is relevant, that empowers; and that has to do in part with access to technology.

So what do we do? In many ways we are, many United Nations' agencies, and I can give an example of what many agencies are doing, particularly UNIFEM, but also more broadly the United Nations. Many of you who are familiar with the Commission on the Status of Women would know some of the work that is being done in this area, and a lot of major international gatherings have discussed the whole issue.

Unfortunately, they are still focusing now on the digital divide, which perhaps is the most relevant, but many countries are still grappling with the issues of more basic technologies and how people can have access. So what do we do in the field of education? Well, in one sense, even in the whole business of just getting girls into school and getting access, we are tackling technological problems. We know, for instance, the problems that have to do with water sanitation in the household, in the home, and in the school is critical in decisions about whether or not girls get to school or not. Things to do with managing the school environment and who is involved in doing what. So broadly we use technology, one in terms of access; and Paul has mentioned some of the things that we do try to provide distance learning in some situations where communities are remote; where teachers need to be trained at a distance, so technology is used for that.

That means getting people used to that kind of technology. There are... three categories we will look at when we try to understand what we want girls to have access to technology for. Firstly, it is purely and simply a familiarization with technology. It is now undisputed that you can't talk about a good quality education which does not enable people to be familiar with modern ways of living, the modern gadgets, the equipment, the things that they do... In other words, being an intelligent consumer. That is a basic, and in fact is part of what is a basic quality education for all.

The second perhaps is how can we get girls into technology in order to develop certain competencies, not necessarily that they are going to get a job in that area but... in their homes, in their communities. Why should women not be more involved in using, not only using but in maintaining and managing technologies?

Many projects to do with water supply, to do with agriculture and so on, we know that women have traditionally worked in these areas, and they need to be empowered through technologies to handle this.

Also, thirdly, we need to ...more women, educate and train more girls and women in the area of technology for employment. This is science and technology, specifically technology for employment, in other words, girls should be introduced and then be allowed to freely choose these areas and be educated so that they can see the career opportunities and choose those areas.

But... more importantly, we need to educate and train girls and women for what I would call technological advancement. Who are the future researchers, technologists who are going to customize technology to their own social needs ... and there are very few women in the developing world engaged in these processes. So education and training for that level for performance in the system is also important. As we try to do these things, what are some of the barriers that we will face? Well, the age-old barriers, you know, social and cultural bias, traditional ways of thinking about the role of women and traditional issues of power. Very often when technology is introduced, and there are many examples of that, even in domains which were women dominated once technology is introduced, and we've seen that that concentrates power, concentrates wealth, men soon infiltrate that sector and take over, as the case may be so, we face that as an obstacle.

Also, in most of the developing world, the major obstacle we're grappling with is actually poor infrastructure, technological infrastructure. Roads, electricity supply, water supply systems, a lot of what we would like to do we cannot even begin to do because of poor infrastructure, and so governments in developing countries need to invest not just because these infrastructures are good

in themselves, but because of the other benefits that can improve in terms of trying to spread technological benefit.

A curious one, which is often cited as a barrier, is something referred to us as almost a fear of or an aversion to technology. I'm not sure that's a very controversial one, but we are told that in many developing countries women just don't want anything to do with technology; it's not for them, they keep away from them. I suspect there is something more behind that. But that is often cited as an issue of why women do not and are not involved in technologies, but perhaps the most critical one is actually poverty... In many countries, you can see women developing skills. In Kenya, you look at the informal sector, the Joapalias it's called, you see women developing skills but not having access to capital or having disposable income, disposable resources to invest in technologies. Because it can do two things, one if you don't get employment opportunities for women, what about self-employment, well, that brings up the problem of poverty and lack of resources. So, these are some of the barriers that we face, but specifically, we are working at it from the bottom up. We believe it starts with the early and childcare in early childhood. The basic things that you do in primary schools that make both boys and girls understand that rules are common; that tasks are common; that girls are not asked to clear up after events in the school while boys do other things; that subject choices are not gender biased in a way. And once you inculcate that in what is basic education for all and particularly emphasize in gender, then you begin to lay the foundation for free choice and for access to different areas of knowledge. Now let us remember that what are calling knowledge information, knowledge and technology is not static. Even now as we are talking about the digital divide, it's racing ahead, and we're constantly on a up game even though people talked to us about leapfrogging. But the best thing we can do is to empower young girls and women. That is why education is not just for us a passive issue of providing information and providing knowledge, but firing young girls with the imagination of what they can be, what they can become, and what role technology plays in that area.

So, (we have) the twin factors of grounding education in the local culture and local understanding, but also providing the kind of education that enables their imagination to soar to the highest levels, and that is what technology can do for us.

**MR. HOEFFEL:** Thank you very much Mr. Wright, I think it's clear to everyone here that there are many obstacles to getting girls into technology, but what the United Nations is focusing on, as Mr. Wright indicated, is taking out very concrete policies and approach strategies for ensuring that we address this problem. That's a big problem, and we are still behind on that.

We now turn to Paul Goa Zoumanigui to get a governmental prospective on the issue. Mr. Zoumanigui is currently a Counselor at the Permanent Mission of the Republic of Guinea to the United Nations. He has been in charge of political and humanitarian affairs, peacekeeping operations, and other issues at the mission since 1996.

He has represented Guinea at special sessions of the General Assembly and during 2002-2003 was a member of the delegation during its presidency of the Security Council -- to the Security Council and during its presidency there as well. He has also served as representative of republic to the executive board of UNICEF. So Counselor, the floor is yours.

**MR. ZOUMANIGUI:** Thank you very much Mr. Paul. Thank you to Mr. Wright who has facilitated my presentation, because I'll comment on what he has just said and what I am going to talk about, particularly on the general issue. But first of all let me express to you the regret of the ambassador who was supposed to be here, but because of the West African issues in the Security Council, he has not been able to attend this meeting...

Mr. Wright has spoken about the background consideration on girls education and technology. I think it's not necessary for me to come back on those issues. What I would like to do is highlight, and complement what he has said. I think if we take into account the international communities' commitment in the 1948 Universal Declaration of Human Rights, later reiterated in

the 1989 Convention on Right of the Child, we see that's all these issues where education in general has been taken in account.

If it comes to the girls and women issue... we had this World Summit on Children in 1990; we had the Quang-Chen Conference on Education for all in 1990, the Beijing Declaration Platform of Action in 1995, and we did the 23rd Special Session, of course, in 2000.

Mr. Paul mentioned millennium declaration and millennium scores. We do have the Dakar Forum on Education in 2000, and Mr. Wright just mentioned the information, communication and technologies conferences from Geneva, next to Tunisia. I think, having this in mind, we should see... the importance we start giving to... education, particularly for girls... Talking about... education in Guinea, I know most of you might not be familiar with my country. To give some background..., we were independent in 1958, and then the education system became public by the government, and emphasis and importance was given to the education of women. We had three ministries in charge of education.

The first one was the minister of pre-university degree, which deals with primary, secondary and high school. We had the second one, which was dealing with what we call the ministry of technical and professional degrees -- college degrees... I mean, which was dealing with the technical and professional college degrees. And then we... still have... the ministry of higher education and scientific research.

Between those ministries there were, what we call the services of Tele-education, as Mr. Wright was just mentioning -- from a distance. The educational system was public... From 1958-1984, there was no pre-school education... because of the experience of the country and our political orientation. Of course, we were not socialist, but we were forced to measure -- that is in certain ways.

The levels of school were... primary and secondary high school, technical and professional school, and then universities. But as Mr. Wright was saying... because of those

barriers and so many things there was not a possibility to have all the girls in school, and what we did was to create... the Center for the Advancement of Women. And then those girls who... were out of school were able to go to those schools to learn some work like sewing, dressmaking, household activities, and so on.

From that, I would now jump to 1984 because we did some complementary things. In 1984, the government which took power, it was a ministry government that maintained the three ministries, but what was the difference? There were private schools, and they were defense schools and emphasis was put again on the education of girls and women. With... partners, we adopted the reform program of the education sector... and there were some results, because the education budgets were higher. There were lots of improvements: more girls were enrolled and on technical and professional levels. High school, there were what we call "positive discrimination." What was positive discrimination? Attention was put on the advancement of...girls and women. Then, there were some exceptions to give them the advantage to go to either universities...[or] to go to the technical and professional school. And at those professional schools they were able to learn civil engineering, carpentry, even cooking, and so many things that were related to women as to men--but to give more chances to the women to really be involved in those fields.

At the university, the important thing is they were involved in all fields: economics, laws, medicine, pharmacology, civil engineering, and mechanical engineering... The grass-roots level was ready to inform the population that this was beneficial for all, and then there were the prizes given to certain families, which were able to put all their girls in school, for instance, sometimes to pay all the supplies for school, and so that gives some encouragement to the families.

Well, what was particular and what I will be stressing is the partnership between UNICEF and the government.

We created a school that is called NAFA. NAFA is a second-chance school. Girls who have not been registered, or those who have been out of school for 10 to 15 years, attend these

schools. They are involved in all fields, and today we have something like 6,000 people in those schools in ... what we call prefectures. In English, I think you call them counties. Among those 6,000 people, I will say that 85 percent are women and girls. And it is very helpful, they learn how to sew, they learn how to do household activities...

You can see that the women and girls who have had training, or who have finished their studies, are better than the men sometimes in dealing with their work.

What is the big problem we are facing? Those are the constraints, and Mr. Wright has mentioned some; those are the barriers, cultural barriers and so on, poverty. The parents cannot afford to pay the fees of school because of the private schools now, the fees for school for their kids, or to pay for the supplies for school benefits in the public schools. We are thinking about that and the international organization is helpful on those issues. One of the main concerns also is the effect of the conflict in our subregion. For those who know the location of Guinea, we are surrounded by all those bigger countries..., which have been in conflict, Sierra Leone, Liberia, Cote d'Ivoire, Guinea Bisau. And these have brought an influx of refugees in Guinea, and the schools are occupied by those refugees. What to do? It is a problem. Of course, I will be coming to the link between technology, girls, and women. With the level of technology we do have, it will be difficult. We are developing countries, and with some fewer developing countries, the technology we have, we just import. When we define the technology by the machinery and so on, of course, it means that we are importing.

How to adapt the knowledge of our girls and women to those technologies, and I will just quote what Mr. Wright has said that "it will depend on the different levels." I think he spoke about four levels, and I agree on those four levels. Those are the things we are dealing with on the education of our girls and women... The government is still willing to go ahead and honor its commitment, which means that we should try to involve more women and girls in education, particularly to adopt them to education int echnology, but where are the means to do it? Those are

the concerns we are and that is why it is a great opportunity for this kind of forum to launch an appeal, and we are very grateful to the international organizations and NGOs. They have been working with us to say that we need to work more with you in order to overcome the problem we are facing... I thank you.

**MR. HOEFFEL:** Thank you Counselor...

And thank you for this; it's very interesting to hear the history, the evolution of girls and women's education in Guinea over the decades. That was very helpful.

We turn now to our NGO representative Sylvia Thomas, who is a representative of The Institute Of Electrical and Electronics Engineers, Inc. The IEEE recently organized "Introduce a Girl to Engineering Day" which spotlights the need for more women in engineering during National Engineers Week, which is held annually in February. The goal is to reach girls from kindergarten through the 12th grade with positive messages about math and science education and engineering careers. Ms. Thomas serves as the co-chair of the workforce and career policy committee of IEEE-USA. She also serves as a chairperson of the engineering workforce commission of the American Association of Engineering Societies. In other capacities, Ms. Thomas is actively involved with the National Society of Black Engineers, National Association of Minority Engineering Program Administrators, the National Action Council for Minorities in Engineering, and the Society of Women Engineers. So thank you, Ms. Thomas, the floor is yours.

**MS. THOMAS:** Thank you so much for having me here, and I would like to comment on the examples that have been cited before me. I think the words were used to launch an appeal. We would like to come today to offer you words of encouragement and enthusiasm in regards to science, technology, engineering and mathematics; and we will present some of the numbers in terms of the composition of the engineering discipline and then cite some examples that have begun to transcend, hopefully, some of the barriers that have been cited here today. Just to give

you some examples that can be implemented worldwide and once again transcend some of those barriers that we have heard about today.

So today we are asking for a call to action. We gather here today to talk about the how, what, and when of an educational evolution. How is it in today's world that over one-million children are deprived of an education? For a variety of reasons, we have not been successful in implementing some of the resources to change this reality, and how is it in the United States that 20 percent of our engineering workforce is unable to contribute to the infrastructure, the technological advancements and participate in research and development?

Even further, when will we begin to embrace the education of every child? What will it take -- if we think about the two components that are used in a court of law to prove a case, we think about opportunity and motive. We would like to motivate the young children of our world to pursue engineering and science and technology and mathematics. How do we go about presenting those opportunities and actually creating that motivation? These two key elements will provide equal education for both girls and boys, and if given the opportunity, we are positive both girls and boys will excel. According to the International Labor Organizations 2004 Global Employment Report, women in developing countries cannot afford not to work due to the other traditional duties that they are involved in. But the report also points out the challenge for these women in the country is not necessarily gaining employment, it's obtaining productive employment, where they can make contributions to their countries and change the lives of their children. We encourage all nations and all individuals to consider the possibility of facilitating international partnerships to increase technological literacy and status, particularly in developing countries. It's been often said, and I'm sure all of us are familiar with this statement, "our children are our future." But if we fail to provide the essentials for them taking hold of that future, such as the education, such as transcending and trying to make avenues through poverty, such as self-awareness showing that the girls and boys are aware of who they are. They are aware of their bodies, they are aware of their

surroundings, they are aware of the possibilities and the difference that they can make. When opportunity knocks for our children, will they be prepared to answer? And it is our responsibility to try and encourage them, and to give them some enthusiasm about entering the field of engineering, science, technology and mathematics. Something as simple as going into a village and putting in a water system, which Engineers Without Borders has done. They have done that in a village, and they have created an opportunity for the girls in that village, who traditionally would fetch the water in pails to the village. And they could not afford to go off to a formal education like the boys. But when the water system was put in, that created opportunity, and the girls were allowed to participate in that formal education. Financing the efforts is an ongoing demand. We all realize that and that's evident in the United Nations' effort and thrust for education for all. In an effort to include all children in an educational evolution, particularly girls, our nations must try to capitalize on some of the success of past programs and initiatives, such as those outlined in the BEST report by the Morella Commission on the Advancement of Women and Minorities in Science, Engineering and Technology. We applaud and support the efforts of the United Nations to attain education for all, and totally support the millennium goals, especially those of promoting gender equality and empowering women through the elimination of gender disparity in education at all levels. In furtherance of this goal, we would like to encourage that the United Nations explicitly support and embrace the increased access of girls and the expanded exposure of girls to science, technology, engineering and mathematics, specifically for their education in those areas, for career development as well as for professional contributions in those particular areas. We believe that the successful recruitment and retention, embracing young girls, and grabbing them by the hand and offering them some type of direction, some type of encouragement, even if it is a blip of what we see can be their possibilities. To offer that to them, we know that it can help improve the overall collective quality of life on our planet.

Global statistics and reports by the Engineering Workforce Commission once again say that women are severely underrepresented in the engineering profession. It's quoted at being around 11 percent in the United States in terms of that contribution even though women make up almost 50 percent of the population.

We have to try to change those numbers, and encourage more girls and young women to participate.

In order to encourage women and young girls, we suggest that there is a need to have opportunities. And I'll give some suggestions on programs that are creating those opportunities and expand networking through mentoring and also through precollege initiatives, which allow early-age expansion and exposure to science, technology, engineering and mathematics. We explicitly endorse the collaborative effort that the United Nations is promoting...-- where there are international partnerships that are formed and offer these opportunities to girls and young women. Over the past year, there have been several organizations that have actively worked to introduce girls and women to the science, technology, engineering and mathematics areas. Some examples, once again of creating this opportunity are exemplified in such programs as, "Introduce a Girl to Engineering Day," dubbed as Girl Day. Who wouldn't want to be a part of Girls' Day?

This National Engineers Week component is a centerpiece for over one-million girls annually since 2001. Every year the United States engineering community devotes a week to introducing our children, parents and teachers to engineering disciplines, to how engineers work, to what their day-to-day operation is, and how they contribute to our society and make a difference for every life on the planet. During Engineers Week, one day in particular, is dedicated to acquainting girls and young women with the possibilities and the rewards of an engineering career.

Enthusiastic successful volunteers, it could be any volunteer, once again tell the young girls about the rewards and show them what an engineer does and tell them: we all know that anyone can be an engineer.

We have to try and create those opportunities, and allow them and afford them the choice of pursuing engineering science, technology and mathematics.

Another example is from The Institute of Electrical and Electronic Engineers Women in Engineering Committee. The Committee took “Introduce a Girl to Engineering” beyond the United States borders to India. And the women and engineers are provided this access and other access via virtual communities. And, in doing so, they knew that the girls that they met through these activities would see engineering as a new kind of opportunity, because some of the young who will hear about engineering, of course, will think about choice. Right, but we have to make that difference and create the mindset that an engineer can change the life of your family, can change your life where you can... make a difference to your community. The IEEE Women In Engineering Committee also plans to take this effort nationally and worldwide -- visiting country after country to make a difference... More information can be located at [www.ieee.org](http://www.ieee.org).

Other examples that we would like to share with you are the UNESCO's hands-on initiative, which brought together specialists to assess the teaching of science through research. The international Conference of Women Engineers and Scientists, which convenes women and scientists and engineers around the globe every three years, brings attention to the impact of technology and environmental issues on the lives of women and society. Many of these opportunities that have been created are also motivated by grass-roots programs and one of those, as I've already mentioned is: “Engineers Without Borders;” and also a program, “MentorNet.” It's a national effort that pairs engineering professionals with engineering students -- 80 percent of whom are women. So that's once again a great success, a great opportunity to gain some exposure for young girls and women. There are other national and international programs that are offered; so we should actually utilize all of these resources. In recognition of 2004 Engineers Week and on behalf of The Institute of Electrical and Electronics Engineers, we would offer the following statement for your consideration: "We the undersigned encourage all nations to seek the talent,

viewpoints and intellects of women in engineering and related mathematics and science fields. Encouragement, education and work opportunities for girls and women in the fields are imperative to generate and turn ideas into reality for the health, safety and welfare of all.” Please go to the following website [www.eweek.org](http://www.eweek.org) for information on some of the examples that we've stated here and to add your signature in support. We believe that all individuals, male and female, have potential to make contributions to a nation's vitality, well-being and competitiveness in the global community, when given the opportunity and provided the motive. We would like to join all of you to help provide the support and the opportunities and to improve all of our lives on the planet. I thank you so very much for having us here, and please be encouraged to pursue science, technology and engineering.

**MR. HOFFEL:** Thank you Sylvia; the challenge that NGOs are giving to the United Nations to really get concrete and specific about the different opportunities that we want to make available to girls and women is a welcome challenge.

We will now open the floor to your questions and comments. We'll start please... we'll take, if you identify yourself and your organization and use the microphone.

**MS. DONAVAN:** I am Carolyn Donovan, and I represent the American Association of University Women and the International Federation of University Women, and I would like to thank all of the panelists for their comments this morning. They have shown us how programs for educating girls must go beyond basic literacy and primary school. Girls' education must be sustainable. It must give girls more complex skills and access to cutting-edge technology. But my organization, the American Association of University Women, has concerns that reflect concerns contained in the CEDAR Convention Article 10 on education. Are government and school officials putting into place laws and policies that mitigate stereotyped female and male roles? Are curricula being written, which will be in tune with the learning styles of girls?. Both of these will

affect retention rates in programs. Girls need these changes so that their gains are sustainable gains. Could you tell us what is being done?

**MR. HOEFFEL:** Good, I suppose everyone would like to respond to that. Who would like to take it first?

**MR. ZOUMANIGUI:** Thank you, on the matter of policy. Can I respond to the second bit of the question about curriculum being geared towards the way girls learn. Well, what we are promoting at UNICEF in many countries, well over a 100 countries now, is a concept on a packaged idea of what is good quality in education. I want to refer to this separately as either child-friendly or girl-friendly schools, which is to say not only the teaching methodology but the whole school environment is one that is conducive to girls and their needs and their preferences and the teacher-pupil ratio is one that takes that into account. And the whole school environment, the way the school is managed, takes into account the different needs of girls and boys, but does not allow the school to become, for instance, a location in which girls are bullied or a location in which girls are, for instance, given basic chores to do because they are girls in the school environment, but the whole climate of the school -- one which is welcoming to girls. As regards the pedagogy itself that you don't have, for instance, selective teaching in which teachers tend to pay more attention to boys particularly in science lessons; so a lot of intricate work is being done under this umbrella of girl-friendly schools or child-friendly schools in which gender is a very critical issue. The other matter of policy is a wider question and perhaps some of my colleagues would like to comment on that.

**MS. DONAVAN:** I can't necessarily speak to the issues of policy, but in terms of the environment, that is, I guess probing into schools, especially technical colleges and technical high schools that are geared toward the specialties of math and science. I know in my teaching profession that I not only encourage women who are outside of the technical programs, but I also encourage the males who are in the technical programs to offer some suggestions, or to explain to

their female or girl counterparts how exciting the field of technology and engineering and math and science can be. So in terms of creating or changing that environment and changing how girls and young women think of the technical fields, I can definitely say that it needs to be an all inclusive effort.

**MR. HOEFFEL:** Okay, yes, the lady here.

**MS. SARKIN:** Hello, my name is Safiyya Sarkin, I'm from the Al-Khobei Benevolent Foundation and, I want to thank everybody concerned. Since our organization has schools around the world, and we are very geared with education for children and some of the children did speak here at the United Nations, and they were the youngest to ever speak at the United Nations.

One of my questions or two questions: once certain countries like Saudi Arabia and Iraq have promoted education in the technological and science and math field, if you wanted any other kind of education you have to leave the country and they promoted it for women a lot.

Now I want to pose this to Mr. Zoumanigui, how do you get governments to do exactly what Saudi Arabia and Iraq have done; will they concentrate their education level on technology, science and math to gear these people from medicine, accounting and engineering, which is across the board in these countries. The second question that I wanted to pose, how do you get funding for something like this when you have WTO, World Bank, and IMF that really favor certain developed nations. So how does one become the recipient of such funds in need, or is it going to be a case of nepotism, can you please answer that for me?

**MR. ZOUMANIGUI:** Thank you very much for your question, I will start with your first question when you refer to Saudi Arabia where it puts special emphasis on math and science you mean on technical colleges and so on. We do the same but not in the same circumstances and not probably in the same context... We do have the ministry... which deals with... technical and professional education, which already... identifies those who have... the option to do better in scientific and mathematics for instance. And, then, they guide them to go to the professional and

technical colleges. Now I have never dealt with education, of course, I cannot go through the details. But my own experience, when I was in school, and when they go to those colleges, there are the counselors and advisers in school who take care of them, to say, okay, we can develop them in this field, mathematics or science or chemistry... Now the problem that I am facing in answering your question is that – and give you more of an idea of what's the level of our development?

Beginning to do like Saudi Arabia. Do we have the same funding like Saudi Arabia? Now come to your second question. No, I would say no. But with our means, how do we intend to do better for girls and women without excluding them for their future in science and technology, than previously with -- as I told you from 1958 to 1984, the government was planning... education. You don't go to school where you want, but you go to school where the government wants to put you through your competency, in order to have a correct job, not be trained and without having a job. Now when they do mathematics, it's true that when they finish mathematics in the case of my country, they have to go to teach because we do not have a lot of... those organizations where... mathematics is more... used.

No, we do not have a laboratory, probably like Saudi Arabia. Then to train people, yes, the object is really to give them the knowledge, the know-how.

But after their study, what are they going to do? Then you need the market employment for them. I don't know if I have answered your first question?

The second question comes to the funding; yes we do have the partners. We have UNICEF; we have UNESCO; and today at the university we have created a gender... departments, dealing with all these issues arising now. In funding, yes, bilaterally with our partners, multilaterally with some of the partners, particularly UNICEF, UNESCO, of course, World Bank, as you said or WTO, yes. But I'm not sure in my country they are more involved in education.

They are involved in the partnership at the global level as a package for the nation, for the country in the development issue to say okay, you, your social development, these are the packages

in the economic development, these are the package to go with the World Bank to go to specific towards education; this is the point, no. I know for instance, we been working with CEDA, with Canada, and to have some program like you have mentioned...

MR. WRIGHT: Just a brief response to that. I think your question about Saudi Arabia and Iraq, I'm not sure how current the information is, but your question on Saudi Arabia and Iraq illustrates the issues of how a country becomes technologically developed.

I mean, there is indigenous technology, which develops from within a country that is part of the culture that grows with it; if you are wealthy enough and have the oil, of course, you can buy all the technology you need. And you can also pay for the training of all the technological human resources that you need. Some countries deliberately focus on this. Even some developing countries that do not have oil wells, create a ministry, an arm of the education ministry that focuses on science and technology. I think the issue there really is a matter of government policy. As long as the policy is clear in what we want to do. But there are also imbalances that are created when the culture itself is not fully a part of the technological state or advances. So even in some developing countries, you will get examples either of misused technology or technology that is not in sync with the social development and the environment generally that it's placed in. The second part of your question, and that by the way ties in with the earlier question about policy, what policies governments enact? The second part of your question about external assistance; I think there is a whole variety of external assistance. The whole point of having international declarations to which all countries subscribe is that there will be, we hope, through the United Nations system, through appropriate monitoring, there will be fair equitable disbursement of external assistance. But, of course, this is a matter for sovereign governments and these agencies. There are agencies that work as a matter of policy in the poorest countries rather than in richer countries. My own agency is one of those that almost as a matter of policy will work in the poorest countries, and in the most deprived, among the most deprived communities.

There are other agencies that wisely support the idea of dealing with poverty issues, are more concerned with efficiency, and will put resources where they are expected to show returns, appropriate returns. I would say very often there is a mistaken view that questions the lack of resources. But the major question, the more important question, is the use of resources.

I can give you a whole list of many; many developing countries that are now sitting on millions of dollars that they cannot spend because policies are not in place, strategies are not in place, and so on and so forth. So it's a complicated issue in that sense.

**MR. HOEFFEL:** Thank you Paul.

**QUESTIONER:** (ROTARY REPRESENTATIVE):

While we are talking about websites, I'll give you one. I guess, as far as Rotary is concerned, outside of our health issues that we address, and including polio around the world and so on and so forth, our investment without any question is in the field of education and scholarships. You can find that information on this at [Rotary.org/foundation/programs](http://Rotary.org/foundation/programs).

We are shipping all kinds of materials; my own district, my own club, which is involved with child-friendly schools. And we're shipping books; desks, and we're shipping all kinds of water and sanitation to various schools, too.

Now, most importantly, we're very concerned about the computer situation, and we're shipping computers, until just recently to Turkey and Madagascar.

Now, the digital divide is something that we are tremendously interested in, and I want to ask Mr. Wright whether you are also involved with the UNESCO community media centers that are being developed, in rural Africa, the CMCs. Because we are particularly interested in this development, and hope to be able to support some of this.

**MR. WRIGHT:** Thank you, we are not directly involved in that, such as UNICEF, but I would like to know of it, and we will support your effort, and we think it is a good idea to do so, but it's one of the ways. The main thing about computers is countries having clear policies about

what they want do with computers, with technology. There is the risk of the glitz factor. I was somewhere in the Caribbean and a minister was saying to me, "We've put computers into 50 schools last week." I just asked what are they for, and he was really taken aback, you know, "What do you mean what are they for?" I said, "What are they for?" So, having a policy, I mean a country like Botswana, for instance, has a policy that by the time a child completes nine years of schooling i.e., middle school, or they should have gained certain competencies in the four basic areas of computing. So every junior secondary school has facilities, teachers, equipment.

They are not saying they are training professionals; they are just saying you can't finish nine years of schooling and not know how to do word processing or spreadsheets, or whatever, and that's a policy... But there is still a lot of confusion out there about why computers.

Well, the centers are useful in that they can just open up the possibilities. Using teacher resource centers as a place for putting computers is also another approach. So there are many approaches out there, and we will support you; the more the merrier. Sometimes there have been bizarre examples of people just putting computers there and seeing what people do ...

**MR. KOREA:** My name is Lawrence Korea; I am from an association of Franciscans International. I was really edified with the speakers today and the efforts that are being made for development of women and especially for girls' education and especially of the technology improvements and improvements in the digital divide. I think when we are talking about some of those things, those are very good norms for some of the developing countries, with all these programs we are reaching so far to the upper middle-class people even in the developing and those least developed countries. But when I come down to the very poor sector of the very poor countries, there are certain other problems.

They are reaching nowhere to what we are talking about. So my question is what do we do, for example, in terms of the parents who are uneducated and have no idea of what we are talking about? They become one of the real obstacles of the children going into any kind of

education; leave alone the technical, technical education. So are there any programs to offer to them, make them aware that it is important for their children and much more importantly their girl children to go for education and the other aspects. Also to make sure that they feel education is important. I am really afraid that many of these programs may end up in only helping those who already are helped. But how do we help people who are not really helped? Thank you.

**MR. WRIGHT:** I would just like to make a couple of comments in regards to that. I mean, our suggesting that there could be some international partnerships that go into some of those areas, some of those villages and just create an environment of introducing some type of literacy, and just familiarizing the villages and families in the village, just the differences that some type of education can make, and just identifying with what issues are and what the boundaries are for them. And just once again familiarizing them as the first step with what the opportunity can bring, so creating some type of international partnerships that bring literacy to those areas, I think will help a great deal. From there, branch out to something more specific, but we first have to create the mind set that... education will make a difference and what that difference will be, and we have to do that on a one on one.

**MR. ZOUMANIGUI:** Yes, I agree with you on what you have said, that is all we have been talking about recently – literacy programs -- looked at the grass-roots level. In the case of my country, for instance, I will say, yes, helping the middle class we do have a problem already. Let's say we have a..... in my country, even if I could not mention that in my presentation but again the problem is... the supply of electricity. Sometimes we do have the electricity just for six hours a day. Even those who have a computer, how are they going to use it? How can those who have computers gain access to the Internet and so on? Well that's a part of what you were saying. Now going to grass-roots level to those illiterate people, what to do? In my country we have an experience, which we are trying to develop and which is, again in collaboration with UNICEF, which is what we call school and environments, to see... what we can overcome, to teach that to

the children and the parents. And we do have the partnership with international partners. But at the national level we do have the partnership with the civic society, the NGOs, parent associations and so on, to meet from time to time, to put the concerns on the table and to see practically how to solve this at the grass-roots level. The results of those meetings are brought to the government and to say this is what we would like done, and then the government, according to its policy; that means they have to start thinking about doing what they can.

**MR. HOEFFEL:** I'm afraid we've run out of time. A lot of people have to get out to meetings at noon. So what we could do is take the series of three questions here, these three here.

**MS. WALSH:** Thank you, my name is Michaela Walsh, I'm with Manhattan Bell College and also the Global Student Leadership. My question is primarily addressed to Mr. Wright. I thank you all very much. I think many of the questions today have a certain theme that is running through them with regard to the individual education of girls. But Mr. Wright, your closing remark referred to the grounding in local culture for girls. My question is that, are we not coming into a conflict given all the issues that you've raised as problems with regard to succeeding the technological education of women. Is there not somewhat of a conflict if we are going to ground all this education in an environment where family and tradition play almost a negative influence on the idea of really fundamental change in the role of young women in the cultures in which they are living? I think that my concern is how do we jump start that individual change of a cultural attitude that these young girls have to go through.

My experience is that it's a very, very deep-seated cultural change. I am curious as to how you are suggesting we address that, given the political environment that we are living in these days?

**MR. HOEFFEL:** Thank you. Yes, and then we will take these, these two.

**MS. NEWNEM:** Hi, my name is Rose Newnem, and I'm with the Unitarian Universalist International United Nations' office. And I have a question about the current situations in

Afghanistan and Iraq which seemed to offer many challenges to girls' educations, but also new opportunities. And I am wondering if the panelists can speak to how the international community can help foster girls' education in those countries, specifically the use of technology to help girls in regions that are remote either geographically or kind of culturally problematic to set up girls' schools?

**MS. FREEBURG:** Thank you. I am Emily Freeburg, and I represent the Lutheran World Federation. I'm also the chair of a group called the NGO Committee on Youth, and I was part of the youth topic at the World Summit on Information Society and I really, really, need to say something because I feel like I -- a young person's kind of voice is missing from the discussion. Also that the angle of youth empowerment as a part of education has also been a bit overlooked because youth NGOs and young peoples' organizations can really play a lot and do a lot for themselves.

So I would encourage groups like the IEEE to have young women on your board. I know we're dealing with different age groups, and maybe you do. I'm quite curious to see how that's going. And then, also to the NGOs in the room, which a lot of young people are, are mobilizing around in the process that is leading up to an event that will be talking about global development and simply getting out the voices of the young people about global hope. We are getting out the voices of the young people.

To support those efforts and to encourage youth in your networks to be part of those, those efforts because there is a... youth caucus WSIS, you can find it through Google, or whatever. That's another way to keep this going and... keep young people keyed into the international discussions so they... a part of the creation... of the decision making of them, instead of just kind of being educated. Thank you.

**MR. HOEFFEL:** Thank you, I will take one, one final argument.

**MS. DAVIS:** My name is Joan Davis. I'm with the New York Grey Panthers, and my question grows out of Mr. Wright's comments about [how] there's a lot of money sitting on access. One question I have is how can the NGOs assist in having that money be made available for its proper use? The other thing I have is the understanding that economics is changing very much and it seems that the political, the economic philosophy, is more prosperity, is based on fewer jobs being created. And, in this country, the United States, a lot of jobs are lost all the time and how that affects your work is exceedingly curious to me. Also, how much is spent on the military? So the first question I guess is the most immediate the others are going to be here for a long while, thank you.

**MR. HOEFFEL:** Thank you. These are excellent questions. They do seem to focusing on the issue of how to overcome traditional attitudes towards girls in education, how to help countries in conflict to setup programs, and the issue of youth empowerment, and of course how NGOs can help these programs get funded and used to have the policies that can absorb these funds.

So we will let each of the speakers address the questions that they wish and before closing.

**MR. WRIGHT:** Quite a few exciting questions there. I'll try to run through some of them pretty quickly. The business of being grounded in culture is an important one. I think all I was trying to say: there is the challenge to the curriculum that in one sense you don't want to educate people who then become culturally alienated from their own societies. That was a problem in most countries just after independence that they will say, these people don't belong here, once they become educated they are part of us. You want them to understand and appreciate their culture, but not to be bound by the negative elements of cultures. I mean I have sons of friends of mine who say, when they're in New York they do high fives and when they go back to Nigeria or somewhere they do push ups, which means they pay obeisance to their elders. They take it as part of the culture, that's what they do. In other words we're just saying, know who you are, where you're from, but also know who you can be, and who you can become. And know what to drop from your

own culture in order to advance. Afghanistan, Iraq -- Afghanistan more so, Iraq less so because Iraq is very problematic at the moment, but Afghanistan potentially could be one of the most amazing success tales in terms of turning around the country.

We have worked with partners and with the provisional government to get 4.2 million children back into school in the shortest period of time. We still only have 30-something percent girls, but the main credit for that goes to the Afghans themselves. They have really seen this as one way out of all the problems they've had and we've merely been supportive of this.

So it's difficult to say what makes it happen and that's a long debate we can have later. But just to say that it's possible to have spectacular results even in some of the worst climates for education. Iraq, less so, but progress is being made. It's still problematic, as you all know, because of what's going on.

Youth empowerment-- sorry, in seven minutes you can't say everything but you probably know that we have in UNICEF -- what we call a "Voice of Youth," which is a web-based-network where we really do almost nothing but listen to young people and rely on young people to discuss amongst themselves on critical issues, and try to link them up with policy makers. So we're very much conscious and aware of the fact that youth empowerment is very important only to listen to what young people want. The flow of funds, critical thing that I was talking about, there is something called absorption capacity. I mean you might want to give \$200 million to, I don't know, for Guinea Bisau or Pakistan tomorrow, but can they spend all of that money sensibly in this period of time?

That's the whole business of governments and NGOs working with them as partners need to create policies, structures, strategies through which these funds can be channeled. It's unwise to say, just put money into it. In other words, it's not just a question of throwing money at the problems. You often hear it is money; it's money.

HIV-AIDS, one of the most critical problem areas we're facing; all the governments said money, we need my money. I wouldn't like to tell you the amount that the World Bank has in 40-something countries, millions of dollars sitting in the Ministries of Finance because nobody has a clear idea how to spend it. They are not just going to give it away because you distribute pamphlets about condoms or something, you know; they must see a very structured way of doing this.

We're only now working with governments, working with NGOs to see what are the programs that are worth spending this amount, what are the things that have shown a "business" for change?

It's not that -- just developing countries, this country; the United States has spent millions on trying to get children not to start smoking, millions on youth's sexual behavior. On evaluation after over a decade, a lot of that money has been wasted, it's not happened. You can afford to do it, but many poor countries cannot afford to do that and make those costly mistakes. But, hopefully, we'll learn from those mistakes and then we go on. As you say the question of the economic climate and job creation, that's probably for another seminar, not our discussion.

**MR. ZOUMANIGUI:** I'll just speak on the question of local culture, and those are the barriers. Of course, what's going to be done about that, I'll just speak about the experience of my country. In the partnership, what we try in my country today; it is really to let people be aware about the necessity of education. That it is not against them but it is for them, it is for their benefit. Most of them are joining movement today. I think it is making people aware, but it will not change in one day. But we're in the process and there are some improvements already. But it is through the partnership at the grass-roots level, NGOs, civil society, or those concerned people to – bring them in to work with them. Regarding the association of the youth, NGOs and so on, in my country what we do, there are some organizations in the schools and with the youth elsewhere, ...the government tried to create an organization to bring them together to discuss their concerns and

speaking out about their concerns. Today, we have put in place the Parliament of the Children. They meet and they discuss... among themselves, and they say what is their concern at the national level. And they go to the National Parliament, they expose it, and it brings the National Parliament to think about it, what are their concerns and to see what solution can be found.

**MS. THOMAS:** Just a couple of words. In regards to youth, we definitely encourage the interaction of youth. I mean particularly the examples that I mentioned here and as well as in our precollege initiatives, as well as initiatives to Girl and Engineering Day. A lot of that is supported and through comments that have come from youth. In terms of what their needs are and what they are looking to accomplish in terms of opportunities besides the examples that I cited here today, there are other national organizations such as WE PAN, Women In Engineering, and the National Society of Professional Engineers. All of those have programs and opportunities that are available and ready to take abroad. Just a general comment in terms of -- and I keep talking about mindset, in terms of identifying with women and girls in just developing countries and finding out what's important and what's at the heart of what they value. And family, and tradition of course is there, but actually filtering that and bringing about a change: if I value my family and I value tradition, how can I contribute to that and make a difference in where we can have some esteem in terms of our family, in terms of our tradition. In pursuing science, technology, engineering and math, I mean it's about a mindset, because you don't necessarily have to become an engineer. You can become a lawyer, a doctor; you can become a homemaker, and make a difference in terms of the organization of your home. It's just that analytical mindset that is presented in the discipline behind the technology.

**MR. HOEFFEL:** Well, we've gone over because this has been an excellent discussion. I thank you very much for your comments. Those are very good. We thank our panelists and before we pass it over, Joan has to make some quick announcements. Thank you very much to you all.

**JOAN LEVY (Council on NGOs):** Thank you, Paul. I just want to add my thank you to this wonderful panel, and really the wheels are spinning. I have one important announcement to make. Our own David Roth is sitting there. The NGO committee on the family is having a seminar this afternoon from 1:15 p.m. to 2:45 p.m. -- it's going to be in Bahai Center, which is on East 48th Street, right off First Avenue. In the Center it's room 120 on the main level. Okay, thank you, and thank you again.

(Whereupon, the PROCEEDINGS were adjourned)

Contact: **Chris McManes**  
IEEE - USA Senior Public Relations Coordinator  
Phone: + 1 202 785 0017, ext. 8356  
E-Mail: [c.mcmanes@ieee.org](mailto:c.mcmanes@ieee.org)