

BENJAMIN BANNEKER INSTITUTE FOR SCIENCE & TECHNOLOGY

**Network of Networks Roundtable
B-340 Rayburn House Office Building
Washington, DC 20515
June 3, 2008**

Conference Proceedings

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INTRODUCTION

The Network of Networks is a project of the Benjamin Banneker Institute for Science and Technology which was formed under congressional mandate in 2003 to serve as a catalyst in pursuit of increased African American participation in science, technology, engineering and mathematics (STEM) fields. The Network of Networks is one of the six programmatic elements of the Decade of Blacks in Science, a ten-year campaign to promote outreach activities at the local level, declared in 2007. The community of interest coalesced and galvanized by the activities of the Banneker Institute is characterized by a strong collaborative spirit, and the purpose of the Network of Networks is to nurture, support and facilitate that spirit of collaboration. Through the Network of Networks, Black science membership organizations will work with educators to increase the quality of science and math education available in educationally disadvantaged K-12 classrooms. In addition, it will mobilize Black scientists to add their voices, their unique perspectives, and their creativity to the national conversation surrounding important science policy issues like national competitiveness, alternative energy, and global warming. Envisioned is providing expert testimony at congressional hearings, TV and radio talk show appearances, BLOGS, and production of articles, white papers, and issue briefs, and other high profile, policy-oriented activities. We expect that these activities will enhance the stature of Black scientists

while at the same time provide encouraging examples to young African Americans considering careers in science. The purpose of the Network of Networks Roundtable was to engage with stakeholders in the design of the framework of the Network.

MEETING PROCEEDINGS

Overview

The meeting was moderated by Mr. David K. Owens, Executive Vice President of Edison Electric Institute, who not only conducted the meeting, but also provided inspiration for an exciting and engaging session. Vice Admiral Adam Robinson, Surgeon General of the Navy and recipient of the 2007 Benjamin Banneker Legacy Award, was present at the event and spoke on the opportunities that the military provides. Vice Admiral emphasized that all levels of education are important and that he feels a responsibility for the future of America. Dr. John Brooks Slaughter, President and CEO of the National Action Council for Minorities in Engineering (NACME), was the convener of the event, and despite being unable to be physically present, he was there in spirit. Mr. Owens read Dr. Slaughter's welcome address to the Roundtable participants at the start of the meeting.

Participants introduced themselves giving their organizational affiliation and area of STEM expertise. It became clear after the first few introductions that the room was full to capacity with brilliant and accomplished individuals who were eager to begin the planning process.

Congressman James E. Clyburn, Majority Whip of the United States House of Representatives, then gave an incredible keynote address. Congressman Clyburn emphasized the current state of

the nation relative to its production of STEM graduates and professionals. Congressman Clyburn inspired the room with stories of his personal engagement with students he taught in South Carolina. He pointed out that, with opportunity and support many of these students have made great contributions to this world. The stories about the incredible accomplishments of these students that may have otherwise slipped through the cracks of the education systems, laid the foundation for the intensity of effort that made this planning session the excellent success that it was. Congressman Clyburn applauded those individuals who dedicated their lives to creating and developing opportunities for others. He concluded with a commitment to do everything he can to go beyond “sloganary” programs to create a mechanism to assist our mission.

Claudia Pharis, President of the Benjamin Banneker Institute for Science and Technology, gave a demonstration of network theory, emphasizing the power and potential of an effective Network of Networks. Following this visual demonstration, Ms. Pharis outlined how the meeting was to proceed with a brief discussion of the upcoming third annual Benjamin Banneker Legacy Awards Gala to be held on November 21st in Washington, D.C. Mr. Owens then allowed the participants time to select a discussion leader, scribe and reporter per discussion table. The next two hours were filled with lively dialogue on how to shape the Network of Networks to be a successful, sustainable endeavor.

There were seven discussion groups. Each group followed the same discussion format. After the two hour period of discussion and debate, the reporters in turn presented their group’s consensus on the discussion document. Participants’ vision for what the Network of Networks could accomplish went considerably beyond what was originally envisioned by the Banneker Institute.

In order to embrace the participants vision yet keep within the construct of the Institute's overall work program, the results of the report-out session have been organized into the following three categories: Teacher-Scientist Partnership; National Policy; and The Banneker Institute Work Program.

The Teacher – Scientist Partnership and National Policy categories are consistent with the two goals of the Network of Networks as originally proposed: put working scientists in the classrooms of under-resourced schools to support beleaguered teachers; and galvanize the participation of Black scientists in the national science policy debate. The third category captures those aspects of the discussion which, while they may not be directly related to the first two, are nonetheless crucial to the overall goal of the Banneker Institute: increasing the number of African Americans involved in STEM fields. It could yet happen that these would be folded into the Network of Networks, but for the purposes of initial Network implementation, we would like to focus on the simplest possible design that accomplishes its primary objectives. Other concerns that fall into this last category will not be neglected, but will be addressed under other aspects of the Decade of Blacks in Science.

What follows is synopsis of the main concepts emerging from the report out session.

Scientist - Teacher Collaboration

Program Pilot: There was widespread agreement that the Banneker Institute needs to conduct a pilot of the proposed program. This pilot would follow a test on the basic design, perhaps with members of the planning group. There was discussion of whether the pilot should take place in

one or more sites simultaneously to be able to identify and remedy barriers to the implementation. There was no consensus regarding where the pilot should take place or what the specifications would be for the pilot location. A standardized model should be created with standard operating procedures before further steps are taken. Participants strongly urged that the Institute research existing programs with similar objectives and build on what already exists.

Meetings around the country: The outreach for the Network of Networks Roundtable held in Washington, D.C. was national, and participants were attracted from as far away as Texas, but most participants were from the Northeast Corridor. Because of the need for input from other areas, there was a general agreement that additional Network of Networks Roundtables should be held across the country. This could result in additional meetings in the Southern, Midwestern, and Western regions of the United States. This was seen as a method to refine the design, promote participation, and populate the database. In addition to the Roundtables held in other regions, the concept of an annual or biennial Network of Networks national conference was considered.

Who should the Network service? A reoccurring theme was that the first school districts to be served should be those that lacked in STEM teachers, or where those teaching STEM classes were not adequately prepared for such tasks. There was talk about opening the Network of Networks up beyond public school districts to include private and religious schools, those who are home-schooled, and juvenile detention facilities as well. It was suggested that the elementary school level was the most important place to start using STEM professionals to support teachers in the classroom.

Volunteer selection: The volunteer selection, screening, and training aspect of the proposal gained a significant amount of feedback from the attendees. Creating membership criteria for those who want to participate in the Network of Networks was discussed. No clear consensus emerged, but it was felt that such criteria and mechanisms to enforce them would be necessary for quality control. It became clear that volunteer screening would be a necessary part of the Network of Networks. This screening would include both criminal background checks and validation of skill sets. There will be a training process for the volunteers as well, to ensure their effectiveness in a K-12 setting and to accommodate such variations in delivery methods as might occur across school systems (such as, across urban, suburban, and rural systems.)

Volunteer options, incentives, and privacy: The Institute was cautioned to take a close look at the system from the perspective of the volunteers. In addition to the volunteer selection and training, it will be necessary to have varying levels of time commitment that the volunteers would be able to select for themselves: every week, once a month, or annually, for example, depending on the arrangement between the STEM teacher and STEM professionals. Questions were raised about what the benefits/incentives would be for both the volunteers and the school systems to participate. No consensus was reached.

Website: The Network of Networks is essentially a web-based collaborative space. A significant portion of the discussion was about what the main functions of this space should be. In addition to the area on the website that would include teacher-scientist matching, other suggestions included a “Company Corner Spotlight” as well as a “Best Practices Corner”. A pre-release feedback section on the website was requested by many of the participants to allow both school system members

and STEM professionals to review and comment on its design for this crucial aspect of the Network of Networks.

Promoting the Network: Roundtable participants recognized a much broader range of interest and therefore possible participation in the Network of Networks than was originally envisioned. The opinion was even voiced that it should be used to launch a movement to increase scientific awareness in American culture at large. Suggestions regarding promotion of the Network of Networks included using the internet, newsletters, conferences, ‘wikis’ and ‘blogs’, parent groups, policy groups, and celebrities. There was also consensus on engagement at the highest levels of leadership in all relevant organizations to elevate the stature of the Network as well as to validate and sustain its operation.

Populating the database: Discussion of ways to promote the Network of Networks provided a foundation for suggested approaches to populating the database. Roundtable participants themselves were identified as an important source. Specific existing databases that were mentioned included but were not limited to the National Society of Blacks in Engineering (NSBE), Fraternities and Sororities, Army, Navy, Air Force, Aviation/ Aerospace and Project Kaleidoscope (PKAL).

Universities and Educational Organizations: These were identified as essential resources for the Network. Faculty are themselves STEM professionals and potential Network volunteers, as are graduate students and alumni networks. Likewise, relationships with education organizations should be formed including, but not limited to, the American Federation of Teachers, the National Education Association, and the National Science Teachers Association.

Partnering with other ethnicities: One of the reporters from the discussion groups mentioned the potential problems that may occur from referring strictly to African-Americans. There was a concern that a push-back effect may occur from some school systems. The possibility was opened up that we would partner with other ethnic groups working to accomplish the same goal.

Funding: The Banneker Institute would assume responsibility for funding the Network of Networks. Many science membership organizations are not-for-profit and would be unable to take on these endeavors without additional funding. The National Institutes of Health (NIH) was consistently mentioned as a possible source of funding. Counties and states were also identified as potential funding sources, especially for teachers and classroom activities.

Sustainability: Sustainability was the most frequently uttered word at the Roundtable. Sustainability will become one of the most important considerations in Network design.

National Policy

School finance equity: This issue has been debated for many years without conclusion. Setbacks at the national level led school finance equity activists to shift their focus to the States. Equity and adequacy in the education system is a part of the root cause of the low STEM performance of African Americans and was of great concern to participants as mathematics and science achievement levels are particularly affected by inadequate funding. Given the significance of this issue to our mission, participants agreed that it should be added to our agenda, and that national strategies should be sought to reduce funding disparities.

Science Literacy: Participants expressed concern about the low level of STEM literacy among the U.S. population at large. This concern was placed in the context of national competitiveness. It was felt that making STEM issues more prominent on the national agenda and infusing STEM awareness throughout American culture at all levels (beginning at birth!) would solve the national competitiveness problem, render the population more scientifically literate, and increase the level of participation in STEM fields. This discussion was largely normative. Specific solutions were not discussed.

Green Jobs: Mr. Owens held the room spellbound with his synopsis of the circumstances surrounding the nation's response to climate change, pointing out that we are in the midst of a significant transformation. He spoke about our gasoline-fueled transportation system and the need for more widespread use of mass transit and hybrid electric vehicles. Currently we do not have the technology to deal with the entire range of green house gases effects, but investments made in related technologies will explode in the near term. Currently there are 4.6 million green jobs with a predicted expansion to 90 million within 15 years. The consensus was that this transformation period will bring tremendous opportunities. The Network of Networks should help shape national policy in a manner that will ensure that this massive job creation process is an equitable one, and that there are qualified candidates across the entire spectrum of our society positioned to take advantage of these opportunities.

National Academy of Sciences: A representative of the National Academies reported a Committee of the NAS has launched a congressionally-mandated inquiry into the status of minorities in STEM

fields toward the production of a report to Congress within the year. Roundtable participants were invited to provide input into this process. Contact information for all attendees will be shared with the Committee Chair so that all may be informed of Committee meetings and opportunities to comment.

Response to Congressman Clyburn: The Congressman expressed an interest in establishing a mechanism through which he might be able to remain engaged with the Network of Networks process and assist in the pursuit of its mission. We will be sure to follow up with the Congressman to map out a strategy for accomplishing this.

National Policy Alliance: There exists a collaboration of Black leadership organizations called the National Policy Alliance. It was suggested that the Network of Networks might consider working with this group on their shared agendas.

Additions to The Banneker Institute Work Program

Out of school options: Because the Network is a school-based, in-class initiative, suggestions for after school, weekend and summer programs were incorporated into the ongoing work program of the Banneker Institute. Out of school options were proposed to accommodate STEM professionals who may not be able to volunteer during the school hours but may still be interested in participating in the program. This program expansion would allow for the engagement of a larger number of STEM professionals, as well as for the creation of activity options like informal study, field trips, competitions, game programming, and visits to STEM workplaces.

Externships: Externships allow teachers to visit STEM workplaces. This is posited as a way to engage teachers in the initiatives beyond the classroom level. Also it gives the teacher an opportunity to be further involved in STEM, especially if he or she is teaching out-of-field.

Student Motivation: The participants identified student motivation as a reason why there are so few STEM graduates in the U.S. While there was not a consensus decision on how to increase motivation and engagement, it is an issue that was mentioned many times during the meeting and will be further addressed.

“Kid-Friendly” Area: It was important for the participants that there be a ‘kid-friendly’ area on the website or a “Youth Corner.” This area would allow students to look for homework help, play educational games, get information about STEM and locate and apply for internships or other job opportunities. There was general agreement that it is important to provide opportunities for the participation of students in the operations of the Network as a way of increasing engagement.

Tutoring and Mentoring: Mentoring, online and otherwise, was frequently mentioned as an important tool for helping students in under-resourced classrooms. Positive role models were also mentioned as necessary to increase the number of African Americans interested and involved in STEM. Participants recommended that the scope of the Network of Networks be expanded to include such activities. Linkages with E-tutoring and e-mentoring were identified as possible approaches because these are web based delivery systems with built-in quality control mechanisms.

Competitions: Competitions and science fairs were recommended as mechanisms to allow students to engage in hands-on activities and projects. As Network of Networks volunteers, STEM professionals would be asked to serve as judges for these activities.

Parental Outreach and Community Involvement: Parental outreach and community involvement were regarded as integral components of the mission of the Network of Networks. As you can see, we have subsumed them under the mission of the Banneker Institute. The challenge presented was to help and support parents in demanding better education for their children as well as in promoting science literacy in the community.

Leadership Engagement and Media Campaign: One of the seven programmatic elements of The Decade of Blacks in Science is a media campaign. The recommendations of the participants for media related activities will be taken up under this programmatic element. A core feature of this campaign is the production and dissemination of a series of celebrity-hosted public service announcements showcasing the work of African American scientists. Most of the activities of the Decade of Blacks in Science occur at the local level. These activities will provide venues across the nation for the engagement of elected officials. Recommendation regarding the engagement of public officials, then, will be incorporated into the ongoing work of the Banneker Institute.

Research Collaboration: There was interest in having the Network of Networks provide links to a space where scientists can engage with each other in research collaborations and other scientific pursuits of mutual interest. This was seen as an opportunity to spur creativity and innovation and would be a great addition to the functionality of the Network of Networks!

CONCLUSION/ FOLLOW-UP

The Network of Networks was deemed a viable mechanism for increasing the quality of STEM education available in under-resourced classrooms. Initial follow-up from the Network of Networks Roundtable will occur as follows:

- A self-selecting sub-committee of the Banneker Institutes Advisory Committee will be formed to oversee the development and implementation of the Network of Networks. Anyone who attended the Roundtable who wishes to serve should contact the Banneker Institute at info@thebannekerinstitute.org;
- The Institute will research existing mechanisms related to the Network of Networks to inform and improve upon design;
- A bench model of the Network of Networks interface will be constructed and set up for testing at the annual Benjamin Banneker Legacy Awards Gala in November;
- The Banneker Institute will initiate more focused outreach to the education industry to expand the conversation about the Network of Networks;

- The Banneker Institute will begin the planning process for 4 additional regional roundtables on the Network of Networks to be held in the Spring of 2009;
- Financing for the Network of Networks will be incorporated into The Banneker Institute's fund raising strategy;
- Banneker Institute staff will meet with the staff of Congressman Clyburn to implement the policy collaboration mechanism the Congressman envisions;
- PSA's highlighting the lives and achievements of outstanding Black Scientists will be developed and distributed to media outlets.

The 2008 Benjamin Banneker Legacy Awards Gala will take place in Washington, D.C. on November 21, 2008. This year's theme is "Alignment Accountability Leadership". The awards ceremony this year will honor Black science membership organizations for their contributions to increasing the number of African Americans involved in STEM fields. Nominations are now open and interested parties are invited to visit www.thebannekerinstitute.org to nominate worthy organizations and to find out more about the Benjamin Banneker Institute for Science and Technology, the Network of Networks, or the Benjamin Banneker Legacy Awards Gala.

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Issue Categorization

Network of Networks- Teacher/ STEM Partnership

- Selecting volunteers with background and skill set check. Must be at least a graduate student with enrollment and transcript requirements.
- Volunteer training: delivery system, on-line training module, resources
- Standardized model
- Company Corner spotlight on the website
- Best practices corner on the website
- Benefits and incentives
- Additional Network of Network meeting across the country for design input in the Midwest, South and West
- Feedback section on the website
- Commitment levels (E.g.; time commitment)
- Address privacy issues
- Open Network to private and religious schools in addition to those that are home-schooled and in the juvenile justice system.
- Membership criteria
- Pilot program has to be designed
- Target locations without adequate STEM teachers
- Engage superintendents
- Tap into universities
- Promote the Network via the web, newsletters, conferences, wikis and blogs, parent groups, PTA, policy groups
- Research existing programs
- Target leadership
- Effectiveness
- Existing databases that can be pulled into the Network, Aviation/Aerospace, PKAL, Fraternities and Sororities, Army, Navy, Air Force, NSBE, etc.
- Highlight participating orgs in promotion activities
- Populating database
- Partner with other ethnic groups
- Resources from counties and states
- Alumni connections

- Emphasize elementary school
- Broaden outreach (e.g. Federal agencies)
- Sustainability
- Check out NIH and Essence Cares Mentoring Network
- AFT, NEA, NSTA etc relationship to build demand
- Attaching Network of Networks big names to increase credibility
- Query people in the room Re: Network of Network participants
- Establish campus liaisons
- Referrals from other members
- Prisons

Network of Networks – National Policy

- School finance equity
- Incentives for volunteers
- OpEd pieces
- Respond to Congressman Clyburn’s requests
- National Academy of Sciences report to Congress request
- Infuse science awareness and education into American culture at all levels thus making the public become scientifically literate
- National Policy Alliance
- “Green” jobs
- Stressing national problem of not being able to compete on an international level.

The Bancker Institute Work Program

- Teacher certification
- Student motivation
- Baseline- track performance of community
- Role Models
- Mentoring
- Informal Study, field trips, competitions, game programming, visiting STEM workplaces
- Network of websites
- Kid-friendly section of website
- Look for and capture “movement” dynamics
- Post internship opportunities on the website
- Parental Outreach
- After school, weekend and summer programs
- Externships, bringing teachers into STEM facilities
- Judging competitions
- Media campaign engaging elected officials and celebrities
- PSA series showcasing scientists
- E-tutoring and e-mentoring
- 2009 Gala honoring school districts?

- Creation of independent local science centers
- Long-term plan
- Add webcasts and debate forums online
- Engage in leadership development
- Creation of STEM schools
- Collaboration on other projects between organizations
- Monthly meeting and/or national conference
- Research collaboration between scientists