

Coalition of Geospatial Organizations

February 16, 2011

The Honorable John P. Holdren, PhD.
Assistant to the President for Science and Technology
Director, Office of Science and Technology Policy
Executive Office of the President
725 17th Street, Room 5228
Washington, DC 20502

Dear Dr. Holdren:

I am writing to you on behalf of the Coalition of Geospatial Organizations (COGO), a coalition of 15 national professional and advisory organizations representing more than 35,000 individual producers and users of geospatial data and technology. The purpose of this letter is to share with you concerns that COGO has with the September 2010 PCAST report entitled "*Prepare and Inspire: K-12 Education in Science, Technology, Engineering, and Math (STEM) for America's Future*".

The members of our coalition feel strongly that the report defines STEM fields far too narrowly. The document asserts that STEM education includes only the subjects of mathematics, biology, chemistry and physics, along with the critical subjects of computer science, engineering and geology. Excluded from this list are the social, behavioral, and economic sciences, especially those core social science disciplines like geography, that have long been the catalysts for education and research in the *geospatial sciences*, which is currently ranked as one of the three top American employment fields by the U.S. Department of Labor.

The following points highlight what we see as the critical significance of including the social, behavioral and economic sciences in K-12 STEM education:

- In the White House memorandum "Developing Effective Place-Based Policies for the FY 2011 Budget" (8/11/09), guidance was provided to Federal departments for budget submissions that placed heavy emphasis on "place-based" policies and programs. The term "place-based" is synonymous with geography and geospatial. Knowledge of geospatial concepts is necessary for the implementation of effective policies and programs.
- The U.S. Department of Labor, Employment and Training Administration published "New and Emerging Occupations" (March 2006) highlighting 12 high-growth industries, one being geospatial technologies. Geospatial technologies are described as being economically critical, projected to add substantial numbers of new jobs, and are being transformed by technology and innovations. In order to provide a workforce competent in geospatial technologies, STEM education must include instruction in geospatial relevant disciplines.
- The Department of Labor, in collaboration with the geospatial technology community, adopted the Geospatial Technology Competency Model (June 2010) that identifies the knowledge and skill areas (KSAs) required for success in each of the many allied fields that rely on geospatial technologies and employ geospatial professionals. Among the core academic competencies is geography. The inclusion of this and other core academic competencies in this model necessitates that these skills be learned in K-12 curriculums.
- The Directorate of Education and Human Resources at the National Science Foundation (NSF) includes social and behavioral sciences as STEM disciplines. NSF's Social, Behavioral and Economic Sciences Directorate, which houses the Geography and Spatial Sciences program, in addition to 28 other social science based programs provided \$7 million in funding in the past 2 years for *GIScience and Technology-based* research.
- The National Geospatial Technology Center for Excellence funded in part by NSF is a collaborative effort between colleges, universities and industry to expand the geospatial workforce. While the program focuses on college curricula, it is critical that K-12 students learn the basic geographic skills that form the foundation of higher-level learning in the geospatial sciences. It is also important that we expose K-12 students to the geosciences to better inform them of future education and employment opportunities in the field.
- The PCAST Report quotes President Obama: "We must educate our children to compete in an age where knowledge is capital, and the marketplace is global." Students must be trained to think spatially and globally

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in order to meet this objective. These skills come from K-12 education in geography and the social, behavioral and economic sciences.

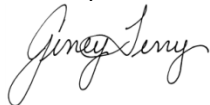
- The “Troubling Signs” section of the PCAST Report emphasizes the development of education methods to improve comprehension of STEM concepts. Geographic Information Systems, as a geospatial technology, is an integrative technology that can teach K-12 students how to apply STEM theories to real world problem solving.

All of these points highlight the significance of social, behavioral and economic sciences to geospatial technologies in both academic and workplace environments. Geospatial technologies are a high-growth career field representing significant job opportunities. As it is clearly a goal of enhanced STEM education to graduate K-12 students who are college and career-ready, it would be a critical shortcoming to exclude the foundations of geospatial learning in STEM curricula at the K-12 level.

We reiterate our position that a broader perspective of which disciplines constitutes a STEM education in the United States be adopted, and that the value of the social, behavioral and economic sciences is recognized as critical for the development of a workforce prepared for careers in geospatial technologies.

COGO stands willing to provide assistance to the Administration to clarify the importance of the geospatial science and technology in STEM education and in the Reauthorization of the ESEA.

Sincerely,



Geney Terry, GISP, MGIS
Chair, Coalition of Geospatial Organizations

cc: COGO Member Organizations

American Congress on Surveying and Mapping (ACSM)
American Society for Photogrammetry and Remote Sensing (ASPRS)
Association of American Geographers (AAG)
Cartography and Geographic Information Society (CaGIS)
Geographic Information Systems Certification Institute (GISCI)
International Association of Assessing Officers (IAAO)
Management Association for Private Photogrammetric Surveyors (MAPPS)
National States Geographic Information Council (NSGIC)
United States Geospatial Intelligence Foundation (USGIF)
University Consortium for Geographic Information Science (UCGIS)
Urban Regional Information Systems Association (URISA)

