

Building Partnerships through the Development of a Digital Geoscience Atlas for Senegal

A February 2005 proposal by

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There is a strong and rapidly growing relationship between Kansas State University (KSU) and the University Cheikh Anta Diop de Dakar (UCAD). We propose to enhance this partnership through a multi-year project advancing higher education with an emphasis on geospatial technology (including remote sensing and geographic information systems). Our efforts in partnership building involve the development of a Digital Geoscience Atlas for Senegal. Building these partnerships through advanced technical training and the development of a digital geoscience atlas for Senegal will provide numerous benefits to the faculty and students at both UCAD and KSU.

A Digital Geoscience Atlas is not a specific final product. Rather, it is an “umbrella” theme that builds Senegalese/UCAD capacity through technology transfer and advanced training. More specifically, the Digital Geoscience Atlas is a dynamic collaboration among UCAD and KSU scientists to advance the research and teaching of the faculty and students at UCAD in geospatial technology capabilities (global positioning systems, remote sensing, digital cartography, geographic information systems, scientific visualization, and environmental modeling) for applications in earth resource development, natural resource monitoring, and environmental management across Senegal. The “Digital Geoscience Atlas” theme of this proposal emphasizes expertise at Kansas State University that can be transferred to the Senegalese scientists at UCAD.

There are four key components in the advancement of geospatial technology applications: people, data, software, and hardware. This proposal for strengthening the partnership will build capacity at UCAD by emphasizing human resource development. In addition, the identified theme for the project will help UCAD and Senegal through efforts to create a national digital data access and support center, the Digital Geoscience Atlas. Our goals involve the need for state-of-the-art hardware and training using multiple software packages, since knowledge of different hardware and software systems greatly improves an individuals overall understanding of the technology and its applications.

In our meetings with a number of groups in Senegal in February, 2005, we identified a number of opportunities within which Kansas State University could participate. These opportunities include:

1. Hold an international conference on: Building African Capacity in Remote Sensing and GIS
2. Have a workshop involving West African nations on: The current status and plans for future use of RS and GIS in government agencies, universities, NGOs, etc.
3. Establish and enforce a national digital data standard for data sharing among the existing areas of excellence
4. Build additional data layers in the geosciences:
 - detailed surface geology (includes field data collection)
 - structural features
 - soil moisture
 - ground water
5. Address numerous natural resource and environmental management issues (e.g. water resources) using the power of RS, GIS, and environmental modeling
6. Establish a higher education partnership for training (in English) in geomatics/geospatial technology (GPS, remote sensing, and GIS)
 - Including applications in natural resources, environmental management, and geological applications
 - A shared curriculum between UCAD and KSU
 - Student and faculty exchange between UCAD and KSU
 - Potential to include a component for the advancement of women scientists
7. Work on scientific research problems
 - involving collaboration with UCAD scientists

In summary, the UCAD/KSU partnership will train and equip faculty and students from UCAD in geospatial technology (geographic information science, remote sensing, digital geologic mapping, and global positioning system) so that they can create, maintain, and add on to a Digital Geoscience Atlas of Senegal. In addition to building a Digital Geoscience Atlas, capacity will be advanced through the holding of national and international workshops and conferences. These meetings will greatly assist the effort to document the digital geoscience data that exist throughout the Country of Senegal and at international agencies and help those who have existing data resources gain confidence in the advantages of a Digital Geoscience Atlas for Senegal. The collaboration will assist UCAD in obtaining state-of-the-art hardware for use in applying geospatial technology to help solve important environmental problems and for addressing important scientific questions. In order for advanced training to occur, UCAD will need a laboratory dedicated to teaching geospatial technology so that the faculty can train the future leaders in this important technology for environmental management.