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- Date of Birth: November 8, 1959; (Age: 57)

- Citizenship: USA

PROFESSIONAL SPECIALTIES AND ROLES: Research, teaching, institute/center administration, and public service

- **Administration and Program Leadership:** *More than 20 years of service as an administrator (university president/vice-chancellor of 2 universities and founding director of two cross-disciplinary, inter-college research centers with dedicated facilities, administrative staff and researchers), culminating in his nomination, selection and interview in Geneva, Switzerland (2006) as a finalist for the position of United Nations Undersecretary General/President of the United Nations University*
 - Leadership of interfaces and engagements with United Nations agencies such as UNESCO, UNDP and ISDR, as well as other global organizations such as the World Bank, OECD and Council for International Exchange of Scholars • Day-to-day supervision of several staff members, core and affiliated fellows, and consultants in 2 university-wide research institutes in two university systems • Strategic planning of technical activities, including research/program partnerships with major corporations, agencies and other institutes within and outside the United States, on various green economy, environmental, energy and related aspects of global sustainable development • Development of metrics for program evaluation • Budget planning • Engagement of sponsors at the local, national and international levels • Collaborative development, implementation and leadership of the management structures of 2 institutes/centers • Technical leadership as a past Chair of the Environmental Engineering Committee of the U.S. EPA Science Advisory Board, as well as leadership of various national and international initiatives and committees on energy, environment and disaster issues • Leadership at the level of President/Vice-Chancellor of 2 international universities and Chancellor/Science Board Chair of 2 additional planned international universities • Engagement and collaboration with Department Chairs, Deans and other senior university administrators internally, to integrate research with instruction and other academic activities • Current and previous roles in the private sector as the Chief Executive Officer/ President of three technical firms.
- **Research:** *About 28 years of research experience, covering the following environmental, energy, disaster and related specialties, within 40 projects, leading to more than 260 publications, service on editorial boards of 33 refereed journals and guest editorship of 29 special editions of international refereed journals*
 - Thermodynamics of contaminant interactions with soils and clean-up techniques • Leachability of chemical contaminants from materials and linkages to environmental and human health risk analyses • Dust generation processes of geomaterials and their physico-chemical control • Reliability modeling, micro-imaging and monitoring of long-term damage accumulation in waste containment materials and systems • Hazardous and radioactive waste management techniques • Excavation mechanics for underground space, energy facilities and nuclear waste disposal • The research results have been used by international, national and state agencies; corporations and community groups as shown in relevant sections of this resume.
- **Policy:** *About 23 years of contributions to public policy formulation at the local, regional, national and international levels, with service on 73 panels/ committee, 160 invited lectures in 15 countries, and chairing of 21 international conferences and workshops on the following issues with 25 commendation and recognition awards by international agencies, government organizations, professional groups and academic institutions*
 - Sustainable development and international energy/environmental policies • Integration of science and technology policies into national development plans and approaches to promotion of entrepreneurship by governments using innovative educational and research policies • Research and technical infrastructure development and maintenance • Global climate change advisory support to international agencies, national governments and corporations • Environmental impact assessment of construction projects, waste disposal systems and industrial and energy installations • Siting of waste management facilities • Natural hazards mitigation techniques • Options selection methodologies and implementation planning relevant to green economy.
- **Teaching and Educational Support:** *About 21 years experience in teaching at the postgraduate and undergraduate levels in 5 universities, and educational support for other organizations*
 - Developed and taught 17 regular academic courses in 5 universities and 13 short courses in 7 countries • Supervised 22 post-doctoral/visiting researchers, 5 doctoral students, 21 masters degree students and 10 undergraduate research interns • Led the creation of 2 cross-disciplinary doctoral degree programs in 2 universities • Served as Educational Testing Service, Development Committee member for AP Environmental Science, within a parent program covering about 750,000 students in 13,000 high schools in more than 60 countries.

A. EMPLOYMENT, HONORS AND EDUCATION

A.1 Employment History, Responsibilities and Job Accomplishments (in academe, government and the private sector) (some positions were/are held concurrently; specific details of duties and accomplishments, including dates, are itemized in sections B-E).

- ***President and Chief Executive Officer (11/2014 - present), Global Education and Infrastructure Services (GEISE) LLC, Charlotte, North Carolina, USA***

Duties and Responsibilities

- Provision of leadership on the development of collaboration projects on technical and management systems improvement for client organizations including corporations, public agencies and academic institutions.
- Representation of GEISE, LLC in high-level international forums on infrastructure implementation elements of sustainable development.
- Team-building and development of project proposals involving multi-sectorial and multi-disciplinary experts.
- Collaboration with the company's Board of Directors on the organization's mission, strategies and exploitation of business opportunities in the economic sectors of energy, finance, civil works/construction, manufacturing, materials processing, chemicals/pharmaceuticals, agriculture, health and environment.
- Leadership on staff training, budget-setting and monitoring, risk mitigation and community engagement to ensure the sustainability of business operations.
- Service as a public intellectual and convener of captains of industry to analyze and recommend policies that can improve economic development of counties and regions.
- Presentation of ideas, keynote speeches and panel reports to commissions, conferences, and agencies to improve systems and maximize GEISE's corporate social responsibility contributions.

- ***Vice-Chancellor (President) and Distinguished Professor of Environmental Engineering and Science (8/2013 - 10/2014), Botswana International University of Science and Technology (BIUST), Palapye, Botswana.***

Duties and Accomplishments:

- Provided administrative and technical leadership to administrators and staff at various levels, students and various categories of stakeholders to advance BIUST's mission of contributions to research and human capacity building at the national and international levels.
- Established collaborative agreements on research, instruction, professional activities and scholar exchanges with universities, institutes and international organizations such as Technion (Israel), Missouri University of Science and Technology (USA), South African Space Agency (SANSA) (South Africa) and Akita University (Japan).
- Led strategic plan development and implementation of new campus development and expansion of academic programmes at a research-focused university established by an Act of the Botswana Parliament.
- Led the development and implementation of fund-raising and revenue diversification processes and collaboration with industrial partners on entrepreneurship programs.
- Configured BIUST for service as a catalyst for sustainable economic development of Botswana, the Southern Africa region and other global regions.
- Led international forums such as the Steering Committee for the Implementation of the Africa Science Plans, and membership of activity teams of the Education Caucus of the United Nations Commission on Sustainable Development.
- Involved in research and publication of findings in the areas of environmental systems, geohazards, energy systems and sustainable development.
- Led on-campus and external efforts that led to the improvement of international ranking of the university by 600 places in 12 months (2014 Webometrics Rankings).

- ***Duke Energy Endowed Distinguished Professor of Environmental Engineering and Science (1/2001 - 6/2013), Professor of Earth Science (1/2001 - 6/2013), and Founding Director (9/2002 - 6/2009) Global Institute for Energy and Environmental Systems (GIEES), University of North Carolina, Charlotte, NC, USA (was on leave-of-absence from June, 2009 to June, 2011 to lead an educational initiative for Africa)***

Duties and Accomplishments:

- Engaged and led external and internal stakeholders of GIEES, including Institute Fellows, Faculty Associate and personnel of agencies at the regional, state and international levels, on collaborative programs covering fundamental and applied research, and policy implementation; development of technical reports and specifications, special events, thematic editions of refereed journals and other publications, including UNESCO's Encyclopedia of Life Support Systems (environmental monitoring section); and conference planning.
- Administered the processes of staff recruitment, facility planning, equipment acquisition and installation, and strategic program planning for GIEES as the Director who reported to the Vice-Chancellor for Research and Federal Relations of the University.

- Provided leadership to 10 core faculty associates of GIEES to win about \$10 million, excluding research funds won by additional 12 GIEES research associates, in external research grants from key agencies and corporations within 5 years of starting the Institute, resulting in several documented advances in environmental and energy policy development, scientific discoveries and technological innovation.
- Led and collaborated with core GIEES associates to publish 5 textbooks/edited books, 6 book chapters, 93 refereed journal articles and 27 conference papers/ reports in 7 years, based primarily on research sponsored by agencies such as the National Science Foundation, US Environmental Protection Agency, US Department of Energy, US Geological Survey, National Institute of Health and state/county environmental agencies.
- Organized two major international conferences in Charlotte, NC, USA and Abuja, Nigeria that involved public agencies, corporations and NGOs as collaborators, and more than 1000 participants from 50 countries, on environmental, energy, disasters and other sustainable development issues.
- Served as the co-convenor of energy research center directors in the United States to develop partnerships to address national and global energy issues in Washington, DC.
- Arranged for GIEES – associated faculty members to perform lecture technical assistance trips on the environmental and related infrastructure development issues, to Calabar (Nigeria), Helsinki (Finland), Accra (Ghana) and Xuzhou (China) ; and personally embarked on an invited lecture circuit to Tokyo (under the auspices of the Japanese Society for the Promotion of Science), Hong Kong (sponsored by Hong Kong University of Science and Technology), Seoul (sponsored by the Korean Society of Soil and Groundwater Environment), and Madrid (sponsored by Saint Louis University).
- Addressed members of the Parliament of Switzerland in Bern, Switzerland on energy and environmental issues as a member of the American Association for the Advancement of Science delegation; and made briefing visits to several US Congressional offices and energy interest groups in Washington, DC on technical and policy ramifications of proposed (2002) energy legislation.
- Provided leadership to GIEES staff to organize 6 public seminars from 2002 to 2006, featuring national policymakers, United Nations personnel and corporate leaders on various sustainable development issues
- Serves on the advisory boards of environmental research centers institutes of universities and non-profit organizations on environmental and energy issues in several countries.
- Performs personal research and led GIEES, ISEG and GADR delegations and research expeditions to Brazil, China, Japan, Slovenia, Finland and Nigeria on waste management and other environmental issues
- Managed and led strategic research and program partnerships with Duke Energy Corporation, and US Department of Energy's Idaho National Engineering and Environmental Laboratory, Idaho.
- Leads (in the role of president) program activities of two large professional organizations with programs in several countries and linkages with the United Nations and other national and international agencies.
- Initiated and provided oversight and technical leadership of collaborative programs of GIEES with universities and research centers in several countries, including the United States, China (Hong Kong and mainland), Korea, Japan Brazil, Nigeria and Finland.
- Managed the editing and production activities (in collaboration with GIEES staff) of 27 special editions of international refereed journals with GIEES Faculty Associates from the Colleges of Engineering, Arts and Sciences, and Management as co-editors.
- As a panelist/committee member, contributed several times to the research proposal screening and program evaluation processes of international and US national and regional agencies on environmental and sustainable development issues, including AGENDA 21 Sustainable development indexing program of the Brazilian State of Minas Gerais.
- As a two-term Chair of the Environmental Engineering Committee of the USEPA Science Advisory Board, led the analyses of several critical national and global environmental issues with policy and technical recommendations to the US government.
- Served as a member of the USEPA Research Strategies Committee to analyze both research issues and allotted budgets for submission to the US Congress.
- Led the planning and implementation efforts of the University of North Carolina to establish GIEES, including solicitation of support from internal administrators and faculty associates/fellows, university system administrators, federal and international agencies, regional program administrators and corporate collaborators
- Successfully established 3-18 month energy/environmental research internship program for 10 visiting researchers, program officers and industrial personnel from the US, China, Syria, Korea, Brazil and Nigeria under the sponsorship of the Fulbright program, national science agencies of their home countries, and their home institutions (some interns returned to their home institutions to lead centers).
- Successfully sought external funds for the operation of a GIEES graduate fellowship program which in combination with individual grant support of core faculty associates provided opportunities for 140 graduate and undergraduate students to engage in environmental/energy research.
- Has performed personal research, leading to advances in waste containment systems materials, quantitative models for estimation of contaminant leaching rates from materials, fundamentals, of polymer interactions with soils for

dust control, hydrogen production for fuel cells using plasma hydrolysis, environmental indexing, and electric transformer oil durability, within 6 grants from federal agencies and the private sector totaling US \$2,434,862 in 7 years, excluding awards won by other GIEES personnel.

- Provided campus-wide leadership on the authorship of a successful proposal for the establishment of the popular PhD program on Infrastructure and Environmental Systems (INES).
- **President (Vice Chancellor)** (5/2009 - 2/2010), African University of Science and Technology (AUST), Abuja, FCT Nigeria (Liaison Office in Washington, DC, USA); Through **leave-of-absence** from his regular position as Duke Energy Distinguished Professor of Environmental Engineering and Science of the University of North Carolina, Charlotte, USA

Duties and Accomplishments:

- Was responsible for the development and implementation of operational and strategic plans for AUST as Africa's premier continental institution on science and technology.
 - Engaged with stakeholders on African sustainable development in various economic sectors, including energy, environmental, health, civil infrastructure development, transportation, telecommunications, and information technology on framing of technical problems and programs for research, development and entrepreneurship.
 - Was responsible for administrative and technical leadership of AUST as the lead institution in the continental network of science and technology, research universities in Africa named the Nelson Mandela Institution.
 - Was responsible for the development of governance and academic policies and programs, including the recruitment of staff and students from a diversity of countries in Africa and beyond with various backgrounds language and cultural systems.
 - Was responsible for configuring partnership programs with renowned academic institutions, high-tech firms, technical and policy agencies, and nonprofit organizations within and outside Africa, on research, education, technology development, policy analysis and systems implementation.
 - Was responsible for fundraising using a variety of mechanisms, such as private sector engagement in mutually beneficial entrepreneurship programs, capital campaigns, and grant proposals to support the advancement of AUST.
- **Founding Director** (7/1995 - 12/2000), Center for Environmental Engineering, Science and Technology (CEEST), University (Distinguished) Professor (12/1997 - 12/2000), Professor (1998 - 2000), Department of Civil and Environmental Engineering, University of Massachusetts, Lowell, MA, USA.

Duties and Accomplishments:

- As the Founding Director of CEEST, coordinated the proposal development effort of all stakeholders to establish the cross-disciplinary, university-wide environmental center, and reported to the University's Vice-Chancellor for Research.
- Served as the lead administrator of the center, with duties that included facilities development, staff recruitment, strategic planning, engagement of external sponsors of programs, budgeting and financial management, proposal development and supervision of a personnel, comprising 12 faculty fellows, 7 research associates/visiting researchers from the US, China, Egypt, Brazil, Ghana, Nigeria, and India, 5 administrative staff members, and 12 graduate research students.
- Collaborated with UNESCO as the Thematic Editor on environmental monitoring of the UNESCO Encyclopedia of Life Support Systems, starting from 1999, with follow-up in North Carolina.
- Following selection for the first term, as Chair of USEPA Science Advisory Board Engineering Committee, developed and operated a library of about 10,000 environmental papers at CEEST, to support review activities.
- Successfully established collaborative research/program relationships between CEEST and DuPont Corporation (endowment, fellowships, research), Sandia National Laboratory (research/field demonstration), US National Research Council (exchange program with Russian Academy of Sciences), US Environmental Protection Agency (research, Science Advisory Board waste management activities), US Department of Agriculture (research/collaboration with University of Arkansas), US Information Service/Institute of International Education (sustainable development forum) and several other sponsors/collaborators.
- Led CEEST faculty fellows and research associates to develop 25 successful environmental project proposals in 3 years that produced innovative environmental policies, analytical methodologies on wastes, cleanup technologies, air pollution control, regional hydrology assessments and water treatment.
- Provided leadership to CEEST faculty fellows to produce 4 textbooks, 4 edited books and 70 papers from 1996 to 1998, on a variety of environmental, energy and related issues.
- Led the planning process in collaboration with deans and department chairs, for CEEST to host the 4th International Symposium on Environmental Geotechnology and Global Sustainable Development in Boston, MA (August 9-13, 1998), and provided logistical support for 1 CEEST Regional Student Environmental Conference, 9 analytical/environmental seminars and 3 international conferences in San Diego, USA (1996), Nanjing, China (1999) and Belo Horizonte, Brazil (2000).

- Served in various roles as panel chair, co-author or contributor to 14 national reports of the USEPA Science Advisory Board on various environmental issues, and hosted some working group meetings at CEEST.
- As a member of the National Advisory Council on Environmental Policy and Technology (Effluent Guidelines Committee), helped analyze contaminant emissions control strategies for industrial facilities and construction sites
- Led the drafting team on guidelines for a new doctoral degree program in engineering with allowance for specialization in environmental issues and supervised the first doctoral graduate from the program, from 1997 to 2000.
- Served as an ambassador of the center through delivery of keynote speeches, technical papers and seminars at agencies, institutions and conferences in several countries, and collaborative engagements with institutional representatives from Denmark, Madagascar, Nigeria, China, UNIDO, Russian Academy of Sciences and several North American universities.
- Under the sponsorship of the Canadian International Development Agency (CIDA) and the African Development Bank, led the study team on the environmental management capacity of 42 African countries.
- Co-developed 5 edited books/proceedings, co-authored 1 textbook, 4 book chapters, 4 journal articles and 7 conference papers all released in 2000.
- Served on the University's Provost Advisory Committee on Research, Research Committee of the Faculty Senate, Graduate Policy Advisory Committee and the University Research Focus Group as a contributor of mechanisms for provision of incentives and other support systems for research at the university.
- Served as the lead representative/signatory of the US Party on Agreement on Bilateral Scientific Collaboration on Environmental Issues of Northern and Arctic Regions signed with the Russian Academy of Sciences representatives in 1997.
- Developed and presented draft policies and technical support systems in consultation with Nigerian legislators, for the establishment of the National Oil Spill Detection and Response Agency which was later established after passage of the Relevant Act by Nigeria's Senate.

- **Professor** (5/2000 - 12/2000), *Intercampus Graduate School of Marine Sciences and Technology, University of Massachusetts System, MA, USA.*

Duties and Accomplishments

- Upon designation as a Professor of the UMASS System-wide Graduate School, participated in curriculum development, especially, formulation of environmental and earth science components of the program.
- Performed written analysis of the necessary industrial interface of the program and presented same at a marine science and technology stakeholder conference in North Dartmouth, Massachusetts.
- Won a research grant (US \$120,000) from the US National Oceanic and Atmospheric Administration (NOAA) through the Arctic Research Center in Alaska, to investigate global warming effects on contaminant spreading in permafrost; designed custom-equipment for related research: and embarked on study expedition to Alaskan sites and the coordination center.

- **DuPont Young Professor** (6/1996 - 6/1999) and **Associate Professor** (8/1995 - 9/1998), *Department of Civil and Environmental Engineering, University of Massachusetts, Lowell, MA, USA.*

Duties and Accomplishments

- Served on 10 US federal agency panels on research and allied professional programs in the areas of environmental policy, science and technology; and geoenvironmental engineering.
- Served on 2 US National Science Foundation (NSF) delegations to workshops in Taiwan and Puerto Rico, and US National Research Council research team to Russia, to study oil pollution in Siberia as "NRC Young Investigator", and helped NSF as co-leader of the working group on definition of the scope of the new field of geoenvironmental engineering in Norman.
- Reviewed scores of research manuscripts on various environmental issues as a member of the editorial boards of 5 journals and co-guest editor of one special edition of the ASCE Journal of Environmental Engineering released in 1998, and papers/books for 11 other publishers, conferences and journals.
- Served as the Chair of the Committee on Containment and Mitigation of Toxic Mine Waste of the American Society of Surface Mining and Reclamation, member of the EPA Science Advisory Board in Washington DC, chair of 2 international conferences, committee member of several professional societies and conferences, and faculty promotions/tenure evaluator for 9 universities in the US, Hong Kong, and Canada.
- Performed research and served as principal investigator/co-principal investigator on 18 externally funded projects valued at US \$1,997,762 covering environmental modeling, waste containment, waste recycling, contaminant leaching and groundwater vulnerability assessments.
- Co-authored 6 book chapters, 8 full journal articles, 5 journal editorials, 7 conference articles and 18 research reports/other publications.
- Developed and taught 4 graduate courses and supervised 2 doctoral and 11 masters degree students on thesis research.

- **President** (8/1993 - 6/1995), *Geoenvironmental Design and Research (GDR), Inc., Fairfax, Virginia, USA.*

Duties and Accomplishments

- Established GDR as the Founding President responsible for client solicitation on environmental analysis, waste management, environmental/disaster impact assessments and training; staff supervision; project proposal development and management; and project documentation and presentation.
- Served on 6 research panels convened by the US National Science Foundation, US Environmental Protection Agency (USEPA), Civil Engineering Research Foundation and US Federal Highway Administration.
- Engaged and won projects sponsored by the USEPA, General Electric Corporation, DuPont Corporation and several other organizations on a variety of environmental issues including environmental monitoring, electric power plant waste management and design of waste containment.
- Provided technical and analytical support to many environmental firms, regional and state agencies, such as Columbia Schmutz of Bern, Switzerland, ERM of Los Alamos, USA, North Carolina Department of Environment, Health and Natural Resources, and USEPA Region 6; and co-authored USEPA technical guidance document EPA 530-R-93-002 on measures and designs to control risks at contaminated structural sites.
- Presented a series of invited practice lectures at MIT, Lehigh University, Waterways Experiment Station, Syracuse University, Columbia University, Virginia Tech, University of Arizona, Old Dominion University, University of Nevada-Las Vegas and at several conferences and seminars within and outside the United States; co-authored 6 technical papers, including 3 journal articles; and co-edited a special publication on waste utilization.
- Contributed on contract, to training of senior executives of agencies in Central America, Africa and Southeast Asia on environmental impact assessment and mitigation, under the auspices of the US Agency for International Development; and presented a short course/workshop to USEPA scientists, engineers and program managers on waste containment technology in Denver, Colorado.

- **Associate Professorial Lecturer** (1/1993 - 5/1993), *Department of Civil, Mechanical and Environmental Engineering George Washington University, Washington, DC, USA.*

Duties and Accomplishments

- During this brief appointment which was held concurrently with other appointments, accomplishments included instruction on a graduate course on waste containment systems and professional advice to graduate students.

- **Senior Geoenvironmental Engineer** (9/1991 - 8/1993), *US Environmental Protection Agency (USEPA), Washington, DC, USA (Intergovernmental Personnel Act).*

Duties and Accomplishments

- Led the efforts of an analytical unit within the USEPA Office of Solid Waste and Emergency Response, assessed the risk posed by waste containment systems to the environment and public health at sensitive sites in the United States, and developed technical and regulatory control measures, some of which were published as national standards and guidance documents.
- Provided technical assistance to program officers of environmental agencies of other countries on technical standards and regulations through the USEPA Office of International Affairs, and contributed to the USEPA national groundwater forum, Resource Conservation and Recycling Act (RCRA) activities, and SUPERFUND waste management programs.
- Served as the primary author of USEPA's national analyses of regulatory impacts on waste containment systems, assessments of contaminated sediment containment in upland areas and waterways, and reclamation of contaminated land.
- As an American Association for the Advancement of Science Environmental Science and Engineering Fellow in the summer of 1991, analyzed the risks posed by seismic activity to waste containment systems in the United States; and upon selection as the Eisenhower-Randolph Fellow by the World Affairs Council/International Public Works Federation (1992/93), completed a waste management study expedition to the Niger Delta of Nigeria.
- Served as chair/moderator/panelist of 17 inter-agency working groups, research review panels and expert panels, including those convened by the US National Science Foundation, US National Institute of Standards and Technology, US Federal Highway Administration, and US National Research Council.
- Authored 3 journal articles, 6 USEPA technical guidance/resource documents and 4 conference papers on various regulatory and technical issues related to the environment.

- **Visiting Assistant Professor** (summer, 1990), *Civil Engineering, Purdue University, and West Lafayette, Indiana, USA.*

Duties and Accomplishments

- During the brief (summer) period, professional tasks completed included development and instruction of a course on soil mechanics, presentation of 4 seminars and development of research proposals.

- Performed research on utilization of electric power plant wastes in construction, and modeling of rock trenchers for electric power lines and utilities.
- **Assistant Professor** (8/1988 - 8/1993), *Civil and Environmental Engineering, University of Wisconsin, Platteville, Wisconsin; under an arrangement by U.S. EPA and the University of Wisconsin spent the 1991/1992 and 92/1993 academic years as a researcher and analyst at USEPA).*

Duties and Accomplishments

- Developed and taught 3 undergraduate courses, supervised 3 students on undergraduate research, served on 2 university committees and advised several students on their programs of study.
 - Co-authored 2 journal articles, 4 conference articles and 5 other significant publications. Also 3 seminars were presented at Los Alamos National Laboratory, American Association for the Advancement of Science, and Wisconsin Department of Transportation.
 - Performed research on contamination of soil by petroleum products, site characterization and rock fragmentation techniques, including the impact of blasting on the environment.
- **Resident Researcher** (Summer 1989), *Materials/Soils Research Center, Wisconsin Department of Transportation, Madison, Wisconsin, USA.*

Duties and Accomplishments

- During this brief (summer) appointment, the work completed included analysis of consolidation and environmental characteristics of Wisconsin peat soils, reconnaissance of highway construction sites, and soil testing.
- **Research Assistant** (8/1986 - 8/1988), *Spangler Geotechnical Laboratory, Ames Laboratory, U. S. Department of Energy/Iowa State University, Ames, Iowa, USA.*

Duties and Accomplishments

- Performed research on rock mass classification and machine excavation under the sponsorship of the US Bureau of Mines Allotment Grants G-1164119, G-1174119 and G-1184119.
 - Developed rock mechanics instrumentation for rapid determination of the impact strength of rocks in mechanical excavation for oil pipelines, utility trenches and communication cables.
- **Program Assistant** (12/1985 - 8/1986), *Federal Highway Administration (FHWA), Technology Transfer Center, Fargo, North Dakota, USA.*

Duties and Accomplishments

- Served as teaching assistant on courses delivered to students and external professionals on pavement design and civil engineering systems.
 - Worked on the dissemination of highway materials research information to practicing engineers and administrators in the Midwestern United States.
 - Analyzed the design and maintenance needs of earth roads under various climatic and geological conditions.
- **Research/Teaching Assistant** (12/1984 - 11/1985), *Department of Geology, North Dakota State University, Fargo, North Dakota, USA.*

Duties and Accomplishments

- Contributed to the laboratory sample preparation aspects of insect migration patterns between North and South America as affected by climatic change.
 - Assisted in laboratory instruction of an introductory mineralogy and petrology course, including grading of assignments and occasional presentations.
- **Soil Technician** (1/1984 - 12/1984), *Midwest Soil Testing Laboratory, Fargo, North Dakota, USA.*

Duties and Accomplishments

- Performed soil classification tests for construction of embankments, building foundations, waste disposal facilities, septic/wastewater disposal systems and other facilities.
- Performed site reconnaissance and sample retrieval, and developed draft reports under the supervision of laboratory/field managers.

A.2 Leadership Positions in National and International Scientific Organizations, Agencies and Institutions (31 entries)

- **Chairman**, Steering Committee, Africa Science Plans of the International Council for Science, Africa Regional Office (ICSU-ROA), Pretoria, South Africa (2011-2013).
- **Member**, Education Caucus, United Nations Commission on Sustainable Development (UNCSD), New York, USA (2012-Present).

- **President**, International Society of Environmental Geotechnology (ISEG), (a multidisciplinary professional organization of technical and policy experts who work on various aspects of sustainable development. Since 1990, ISEG has organized 11 conferences in collaboration with local institutions in Europe, North America, South America and Asia that have generated international research partnerships and regional development policy initiatives)(1998-2012).
- **President**, Global Alliance for Disaster Reduction (GADR) (a worldwide consortium of about 50 professional organizations, public agencies and academic institutions that are active in disaster prevention and management. GADR operates programs in partnership with national agencies and UN organizations) (2002-present).
- **Chair**, Environmental Engineering Committee and Member, Executive Committee (11/2001-11/2003) Member (11/1997-11/2003), Science Advisory Board (SAB), U. S. Environmental Protection Agency, Washington, DC, USA.
- **Member**, International Council for Science (ICSU) Regional Committee for Africa, appointed by the ICSU Executive Board, Paris, France (2/2011-12/2013).
- **Expert Panel Presenter and Energy/ Environmental Panel Member**, Review Program for the National Science, Technology and Innovation (STI) Policy of Nigeria, Lagos, Nigeria (May, 2011).
- **Member**, Steering Committee, United States Council of Energy Research and Education Leaders (CEREL), Washington DC, USA (2008-present).
- **Co-Chair**, Africa Science and Technology Committee, convened by ICSU, UNESCO and UNECA for the Development of RIO+20 preparatory report, Pretoria, South Africa (April, 2011).
- **Member**, Three person Delegation of UNESCO and ICSU to the African Ministerial Preparatory summit for Rio+20 summit Addis Ababa, Ethiopia (10/24 – 10/25, 2011).
- **Lead Scientist**, United States Collaboration Team for Project III sponsored by the Chinese Ministry of Education and State Administration of Foreign Expert Affairs on mining and environmental issues administered by the China University of Mining and Technology (CUMT), Xuzhou, China (4/2007-2009).
- **Technical Judge** (part-time), US Nuclear Regulatory Commission for the approval of nuclear power plants in the United States (12/2007-present).
- **International Advisory Board Member** of World Bank's Science and Technology Education at the Post-Basic (STEP-B) level (11/2007-2009).
- **Task Team Member**, International Council for Science (ICSU), Sustainable Energy in Africa Science Plan operated from South Africa (11/2007-2009).
- **Panelist**, Republic of Georgia National Science Foundation (GNSF), State Science Grants Competition, Tbilisi, Georgia (11/2007-12/2007).
- **Review Panelist**, Canadian Natural Sciences and Engineering Research Council (NSERC), Strategic Grants Program, Ottawa, Canada (11/2007-12/2007).
- **Reviewer**, Canadian Natural Sciences and Engineering Research Council (NSERC), Collaborative Research and Development Grants Program , Ottawa, Canada (11/26, 2005).
- **Member**, College Board Development Committee for AP Environmental Science (main program covers more than 750,000 students in 13,500 high schools in more than 60 countries) Educational Testing Service, Princeton, NJ (7/2001-2005).
- **Member**, National Association for Equal Opportunity in Higher Education (NAFEO), Historically Black College and University/Minority Institution Environmental Technology (HBCU/MI ET), Scientific Panel for US DOE Environmental Research Program, Howard University, Washington, DC (2002).
- **Leader**, Inter-agency (U.S. Environmental Protection Agency and U.S. Department of Energy) and DuPont Corporation Working Group on Documentation of Waste Containment System Performance Modeling Techniques (2002-2003).
- **Project Evaluator**, Environmental Biodiversity Program, Royal Museum for Central Africa, Tervuren, Belgium (February, 2003).
- **Member**, International Evaluation Panel convened by the Government of Switzerland for the Swiss Federal Institute for Snow and Avalanche Research (SLF), Research Department on Natural Hazards, Davos, Switzerland (November 11-14, 2001).
- **Member**, National Advisory Council on Environmental Policy and Technology (NACEPT, Effluent Guidelines Committee), (6/1998-2000).
- **Leader**, International Technical Delegation to the Ministry of Environment, Federal Republic of Nigeria, on Oil Spill Contingency Planning, Abuja, Nigeria (November 11, 1999).
- **Lead Representative** of the U. S. Party, Agreement on Bilateral Scientific Collaboration on Environmental Issues of Northern and Arctic Regions signed with Representatives of the Russian Academy of Sciences- sponsored Team (August 13, 1997).
- **Consultant**, Advisory Committee on Nuclear Waste (ACNW), U. S. Nuclear Regulatory Commission, Washington, DC (6/1993-6/1994).

- **Member**, Scientific Advisory Committee, Center for Hazardous Substances in Urban Environments, John Hopkins University, Baltimore, MD (2002).
- **Member**, Advisory Committee of the International Center for Ecological Engineering, University of Kalyani, Kalyani, India (February 20, 2003-present).
- **Advisory Board Member**, E.E. Just Environmental Leadership Institute, Kimball Union Academy, Meriden, NH (February 9, 2006 – 2008)
- **Visiting Professor**, Department of Geology, University of Calabar, Calabar, Nigeria (3/2000-present).
- **Concurrent (honorary) Professor**, Advanced Computational Engineering Institute for Earth Environment (ACEI), Nanjing University, Nanjing, China (7/1998-present).

A.3 Research Expeditions Participation (5 entries)

- Field Expeditionist to Environmental and River Incision Sites in Slovenia, under the auspices of the University of Ljubljana, Slovenia (August 2007).
- Environmental Reconnaissance Expeditionist to the Jiangsu Province of China, under the Auspices of the Jiangsu Association of Science and Technology (October 27-30, 2003).
- Field Expeditionist to Minas Gerais Region of Brazil on Environmental Characterization of Tropical Lateritic Soils, under the Auspices of Duke Energy Corporation (2001).
- Member, U.S. National Research Council/Russian Academy of Sciences Young Investigator Field Study Team to Khanty Mansisk Region of Siberia, Russia on Oil Pollution and Water Resources Investigations (July 5-24, 1996).
- Environmental Reconnaissance Expeditionist to the Niger Delta of Nigeria under the Auspices of the International Public Works Federation and the World Affairs Council (December 16, 1992- January 2, 1993).

A.4 Professional Honors and Awards (27 entries)

- Winner, 2015 Education Leadership Award by the Global Advisory Council of the 2015 World Education Congress, Mumbai, India, July 23-24, 2015.
- Winner, 2013 Nigerian National Order of Merit (NNOM) Prize (the highest prize that the Government of Nigeria awards to intellectual excellence) in engineering and technology presented by the President of Nigeria at a ceremony in Abuja, Nigeria, Dec 5, 2013.
- Finalist (nominated, screened and interviewed in Geneva, Switzerland for the position of United Nations Undersecretary General and Rector of the United Nations University (September 2008).
- Recipient of “Certificate of special Congressional Recognition” for “Outstanding and Invaluable Service to the Community” issued by the Office of Rep. Barbara Lee, Member of the US Congress, awarded in Raleigh, North Carolina (August 11, 2006)
- Certification by Eminence, as a Board Certified Member of the American Academy of Environmental Engineers (AAEE), Annapolis, MD (May 9, 2006).
- 2004-present “Honorary Professor” Designation by the China University of Mining and Technology (CUMT), Xuzhou City, PR China.
- Honorary Chancellor - Designate, West African University of Science and Technology (WAUSTECH) (in planning), Ita-Uruan, Akwa Ibom State, Nigeria (September 2012 - present)
- Awardee, 2003 U. S. Environmental Protection Agency’s Science Advisory Board (SAB) Recognition Awards, Ronald Reagan Building, Washington, DC (December 11, 2003).
- Fellow, African Scientific Institute (ASI), (February, 2011-present).
- 2003 Council for the International Exchange of Scholars (CIES), Washington, DC, Selectee for U. S. Team to Sao Paulo, San Salvador and Rio de Janeiro, Brazil (June 3-12, 2003).
- 2003, Board of Trustees, Akwa Ibom State Association of Nigeria, USA, Inc. Recognition Award for Distinguished Professional Accomplishments, Washington, DC (August 7, 2003).
- 2002 Honoree of the USEPA Science Advisory Board for “contributing directly to fourteen reports produced by the Environmental Engineering Committee, ranging over an amazing array of technical and engineering issues and cross-program science issues for the Agency”, cited by Administrator Christine Whitman at Award Ceremony, Ronald Reagan Building, Washington DC, (October 2, 2002).
- 2002 Nigerian Association of Geosciences and Mining Students Award for Distinguished Accomplishments in Geosciences, Silver Jubilee Event, Calabar, Nigeria, (May 18, 2002).
- 2001 SWISS FORUM Fellow selected by the American Association for the Advancement of Science (AAAS).
- Honorary Theme Editor, appointed by the United Nations Educational Scientific and Cultural Organization (UNESCO) for Section 6.38 on Environmental Monitoring, Encyclopedia of Life Support Systems (EOLSS) Project, Paris, France (1999-2003).
- 1999 Certificate of Recognition as an Honoree of the University of Massachusetts for the Massachusetts Performance Recognition Program, Boston, Massachusetts, USA (1999)

- 1999 University Medal for Distinguished Public Service, University of Massachusetts, Lowell, MA, awarded during Commencement Ceremonies (June 6, 1999).
- 1996 Young Investigator, National Research Council / National Academy of Sciences, Washington, DC.
- 1996 Healey Endowment Grantee of the University of Massachusetts System.
- 1993 Outstanding Young Alumnus Award of Iowa State University, presented in Ames, Iowa (June 5, 1993).
- 1992/93 Eisenhower - Jennings Randolph Award of the World Affairs Council International Public Works Federation, awarded to the winning nominee from all member countries to celebrate the international achievements of former U.S. President Dwight Eisenhower, presented in Boston (August 31, 1992).
- 1992 Innovative Radon Mitigation Design Competition Certificate of Recognition for his design, awarded by the Association of Energy Engineers and USEPA Office of Air and Radiation, Washington DC, 2002
- 1991 American Association for the Advancement of Science (AAAS)/U.S. Environmental Protection Agency (U.S.EPA) Environmental Science and Engineering Fellowship, notified (April 26, 1991). Nominated by the Earth and Environmental Science Division of Los Alamos National Laboratory for the 1991 Robert Oppenheimer Research Fellowship (January, 1991).
- Iowa State Mining and Mineral Resources Research Institute (ISMMRRI) Scholarship (1986-1988).
- American Society of Civil Engineers (ASCE) First Prize for Best Engineering Student Essay, ASCE Regional Conference in Minneapolis (April, 1984).
- Federal Government of Nigeria Post-Graduate Scholarship Award (1983-1984).
- Shell-British Petroleum Corporation Award for Excellence in Geology (April, 1978, 4-year scholarship).

A.5. Education

- Ph.D., Civil and Construction Engineering, Iowa State University, Ames, Iowa (May 19, 1989) (Specialization in geotechnical engineering and materials, and Minor in mineral resources)
- M.S., Civil and Environmental Engineering, North Dakota State University, Fargo, North Dakota (July 16, 1986)
- B.S., Civil and Environmental Engineering, North Dakota State University, Fargo, North Dakota (Nov. 26, 1985)
- (Also studied at Oklahoma State University, Stillwater, Oklahoma (1983)
- B.Sc., Geology (Hons), University of Calabar, Calabar, Nigeria (October 17, 1981)

B. PROFESSIONAL ACTIVITIES

B.1 Professional Association Participation (33 entries; in some cases, brief breaks in membership existed)

United Nations Association of the United States, UNA-USA (2005-present); American Public Health Association, APHA (2004-2010); International Society of Environmental Geotechnology, ISEG (1998-present); Global Alliance for Disaster Reduction, GADR (2002-present); International Association of Water Quality, IAWQ (1998-2000); American Society of Engineering Education (1998); American Society of Civil Engineers, ASCE (1984-85; 1989-Present); Association of Environmental Engineering and Science Professors, AEESP (1999-2000); Society for Risk Analysis, SRA (1997-2000); Clay Minerals Society, CMS (1997-2000); American Association for the Advancement of Science, AAAS (1990-Present); American Society of Materials, ASM (1995-2000); International Society of Soil Mechanics and Foundation Engineers, ISSMFE (1993-2000); International Association of Foundation Drilling, ADSC (1993-2000); American Association of Surface Mining and Reclamation, ASSMR (1992-1999); American Geophysical Union, AGU (1992-Present); International Society for Prevention of Natural Hazards (1992-2000); World Rock Boring Association, WRBA (1992-1994); New York Academy of Sciences (1991-1993); Hazardous Materials Control Resources Institute, HMCRI (1991-1995); American Chemical Society, ACS (1991-92; 1994-Present); International Association of Engineering Geology, IAEG (1990-1995); American Society for Testing and Materials, ASTM (1990-1995); American Underground Space Association, AUA (1990-1992); International Public Works Federation, IPWF (1990-1994); Transportation Research Board, TRB (1990-Present); National Technical Association, NTA (1990-1991); Society of Mining Engineers, SME (1989-1993); Society for International Development, SID (1989-1994); American Rock Mechanics Association/International Society for Rock Mechanics, ISRM (1989-1995); Association of Engineering Geologists, AEG (1983-84; 1991-1995); Geological Society of America, GSA (1983-84; 1990-93); Institute of Transportation Engineers, (1985-86; 1990-1994).

B.2 Professional Service

B.2.1 Service to United States Federal Agency Panels and Review Committees (41 entries)

- **Review Panelist**, NIWR-USGS National Competitive Grants Program, United States Geological survey, Reston, WA, USA, May, 2015.
- **Panelist**, United states General Accounting Office (GAO) Review Team for Effluent Guidelines and Pollutants Treatment Technology, Sept.-Oct., 2012.
- **Panelist**, United States National Research Council, Committee on Data for Science and Technology (US-CODATA), International Symposium on the Case for International Sharing of Scientific Data, Washington DC, USA (April 19,2011)

- **Review Panelist**, United States National Screening Committee, Fulbright International Science and Technology Awards, US Department of State, Washington DC, USA, held at United Nations Plaza, New York, USA (September 19, 2008)
- **Panelist**, Information Technology and Infrastructure Systems Career Panel, National Science Foundation, Arlington, Virginia (Oct. 12, 2005)
- **Core Group Member**, National Science Foundation Workshop on Construction and the Environment, Columbia, South Carolina, (January 13-14, 2005)
- **Co-Moderator**, Sessions on Storm water Infrastructure, Impact of Construction Phase, and Rationality and Global Ideas, National Science Foundation Workshop on Construction and the Environment, Columbia, South Carolina (January 13-14, 2005)
- **Review Panelist**, National Competitive Grants Program, U. S. Geological Survey and the National Institutes for Water Resources, (April, 2004).
- **Leader**, Working Group on Waste and Recycled Material Characterization and Applications, National Science Foundation Workshop on Emerging Geoenvironmental Technologies for Pollution Control and Remediation, Chicago, IL (September 18-19, 2003).
- **Review Panelist**, National Association of Equal Opportunity in Higher Education (NAFEO)/U. S. Department of Energy Research Panel, Washington, DC (September 15, 2003).
- **Review Panelist**, FY 2004 Science and Technology Budget Request of the U. S. Environmental Protection Agency (USEPA) under the auspices of the USEPA Science Advisory Board, Washington, DC (April 2003).
- **Member**, 2003 USEPA Science and Technology Budget Request Review Team of the Research Strategies Advisory Committee (RSAC), Science Advisory Board, USEPA (February 20-21, 2002).
- **Delegate** of the Science Advisory Board, U.S. Environmental Protection Agency (USEPA) to the Meeting of the National Environmental Justice Advisory Council, Atlanta, Georgia (May 23-26, 2000).
- **Representative** of the Environmental Engineering Committee (EEC) of the USEPA's Science Advisory Board at the Workshop on Diffusion and Adoption of Innovations in Environmental Protection Consultative Workshop, Washington, DC (June 28, 2000).
- **Peer Reviewer**, Division of Earth Sciences, National Science Foundation, Arlington, VA (January, 2000)
- **Member**, Review Panels and Technical Commentary Review Teams of the Science Advisory Board, Environmental Engineering Committee, U. S. Environmental Protection Agency on Quality Assurance (1998), Natural Hazards (1999), Waste Utilization (1999), Contaminant Leachability (1999), and PM 2.5 (1999).
- **Chair**, Subcommittee on Waste Research Strategy, Environmental Engineering Committee, Science Advisory Board, U. S. Environmental Protection Agency, Washington, DC (June 1997-January 1998).
- **Review Panelist**, Small Business Innovation Research (SBIR), National Center for Environmental Research and Quality Assurance, U. S. Environmental Protection Agency, Washington, DC (January 26-29)
- **Review Panelist**, Faculty Early Career Development Research, Bioengineering and Environmental Systems Division, National Science Foundation, Washington, DC (November, 1997).
- **Research Panelist**, Geo-Environmental, Geomechanical, Geotechnical and Geo-Environmental Systems Program (G3S), US National Science Foundation, Washington, DC (November, 1997).
- **Panelist**, Advanced Research, Advanced Technology and ATP Development, Texas Higher Education Coordinating Board, Austin, Texas (August 15-17, 1997).
- **External Reviewer**, University - USEPA Cooperative Research Performance, National Center for Environmental Research and Quality Assurance, U. S. Environmental Protection Agency, Washington, DC (June 1997).
- **External Reviewer**, Project Report on Evaluation of Subsurface Engineered Barriers for Waste Sites, National Center for Environmental Assessment, U. S. Environmental Protection Agency, Washington, DC (June 1997).
- **Reviewer**, Surface Impoundment Risk Analysis Review Sub-committee Member, Science Advisory Board, U. S. Environmental Protection Agency, Washington, DC (April 30-May 2, 1997, re-review 2001/2002).
- **Evaluation Team Member**, USEPA Science Advisory Board Team for Evaluation of the National Risk Management Research Laboratory, Cincinnati, OH (September 25-27, 1996).
- **Young Investigator Team Member**, U. S. National Research Council, Trip to Russia for Collaboration with Russian Scientists (Moscow and Siberia, Russia; July 5-22, 1996).
- **Member**, Risk Reduction Sub-Committee of the Science Advisory Board of the USEPA (June 1996–1997).
- **Peer Reviewer**, Radioactive Waste Management Program, Office for Central Europe and Eurasia, National Research Council, Washington, DC (February, 1996).
- **Co-Leader**, Containment System Performance Monitoring Workgroup, International Containment Technology Workshop, co - sponsored by the U. S. Environmental Protection Agency, U. S. Department of Energy, and DuPont Company (September 1995).
- **Invited Presenter** on Environmental Impact Assessment and Mitigation to Senior Executives from agencies in Central America, Africa, and Southeast Asia, organized by the U. S. Agency for International Development, Washington, DC (June 5-23, 1995).

- **Member**, U. S. Contingent to the U.S. Taiwan Geotechnical Engineering Collaborative Workshop, Taipei, Taiwan (January 9-11, 1995).
- **Member**, U. S. Contingent to the Workshop on Geoenvironmental Issues Facing the Americas, Sponsored by The National Science Foundation and the Puerto Rico Industrial Development Bank, Mayaguez, Puerto Rico (September 21-24, 1994).
- **Research Proposal Review Panelist**, Extramural Research Program (for universities and industry), Office of Exploratory Research, U. S. Environmental Protection Agency (coordinated by Versar, Inc.) (May-June 1994)
- **External Reviewer**, Division of International Programs (research for the East Asia and Pacific Program), National Science Foundation (May 1994).
- **Member**, Chartered Panel for Individual Investigator Awards Review, National Science Foundation (G3S Program) (February 3-4, 1994); and, Chartered Panel for National Young Investigator and Research Initiation Awards (March 29, 1994).
- **Chair**, National Science Foundation, Small Business Innovative Research (SBIR) Review Panel (Sept 23, 1993).
- **Subtask Group Leader** on Redevelopment of Industrial Sites and Remediated Land, U.S. EPA Science Advisory Board Project on Environmental Futures (1993).
- **Moderator**, Federal Highway Administration (FHWA) Symposium on Recovery and Effective Reuse of Discarded Materials and Byproducts for Construction of Highway Facilities, Denver, Colorado (October 19- 22, 1993).
- **Member**, Steering Committee, Initiative on High - Performance Geomechanical Materials and Systems, developed by the National Science Foundation, Federal Highway Administration and Civil Engineering Research Foundation (CERF) (1993-1994).
- **Member**, National Science Foundation Chartered Review Panel for Unsolicited Research Proposals, convened in August, 1993. NSF Program on Geomechanical, Geotechnical and Geoenvironmental Systems.
- **Member**, National Science Foundation Chartered Review Panel for research proposals for the National Young Investigator Program, Research Equipment Grants and Research Initiation Grants. NSF Program on Geomechanical, Geotechnical and Geoenvironmental Systems (April 1-2, 1993).
- **Reviewer**, National Science Foundation, Division of International Programs, proposal on waste containment research (March 1993).
- **Panelist**, National Science Foundation, Chartered Advisory Review Panel for the Geomechanical, Geotechnical and Geoenvironmental Program (G3S) (January 25-26, 1993).
- **Member**, 1993 National Science Foundation Chartered Review Panel on Individual Investigator Awards (IIA), January 1993).
- **Member**, Five - person Committee of Visitors for the review of the Geomechanical, Geotechnical and Geoenvironmental Programs of the National Science Foundation (NSF) (September 1992).
- **Review Panelist**, National Science Foundation (NSF) Chartered Advisory for FY 1993 Small Business Innovation Research proposals (September 1992).
- **Member**, U.S. Environmental Protection Agency, Hazardous Waste Planning Committee for the 1993-97 research plan period (May-June 1992).
- **Member**, National Research Council (NRC) Expert Task Group, Strategic Highway Research Program (SHRP) IDEA-ENVIRONMENT PROGRAM (December 1991).
- **Member**, U.S. Environmental Protection Agency Engineering Forum (November 1991).
- **Reviewer**, research proposal submitted to the India Cooperative Science Program of the National Science Foundation (August 1992).
- **Member**, Federal Highway Administration, Office of Research and Development Expert Panel on Recycled Materials in Highway Systems (September 1992).
- **Invited Panelist**, Workshop on "Research Needs in Automated Excavation and Material Handling," sponsored by the National Science Foundation, National Institute of Standards and Technology, and Federal Highway Administration; held at Gaithersburg, Maryland (April 28-30, 1993).

B.2.2 Service on Editorial Boards of Refereed Journals and Review Teams of Peer-Reviewed Publications. (62 entries)

- **Editor-in-Chief**, *Journal of Energy Engineering*, American Society of Civil Engineers (2006 - 2012).
- **Editorial Advisory Board Member**, *Energy and Environment Journal*, Multi-Science Publishing Company, Brentwood, Essex, United Kingdom (2005-present).
- **Editorial Board Member**, *International Journal of Green Energy*, Taylor and Francis Ltd., Basingstoke, Hants, United Kingdom (2005-present).
- **Editorial Board Member**, *Journal of Geotechnical and Geological Engineering*, Springer Science Publishing Co., Dordrecht, the Netherlands (2005-2010).
- **Associate Editor**, *Environmental Engineering Science*, Mary Ann Liebert, Inc., Publishers, (2005-2006).

- **Editorial Board Member**, *Applied Clay Science*, Elsevier Science Publishers, Oxford, England (2005- present)
- **Editorial Advisory Board Member**, *Land Contamination and Reclamation*, EPP Publications Ltd., London, England (2005-present).
- **Associate Editor**, *Journal of Engineering Research*, Sultan Qaboos University, Oman (2005-present)
- **Guest Editor** (assisted by Prof. David Young, US, Dr. Eddy Souffrant, US and Prof. Alan Rauch, US). *Journal of Environmental Systems*, special edition on Assessment of Sustainability Issues (2004-2006), Vol.32, No. 3, 2006.
- **Guest Editor** (assisted by Prof. Keith Schimmel and Prof. Okechukwu Ukaga of the US). *Energy and the Environment* (journal), special edition on Energy Policies and Consumption Patterns, Multi-Science Publishing Company, Ltd, Essex, United Kingdom, Vol. 18, No. 3+4, 2007.
- **Guest Editor** (assisted by Prof. Bian Zhengfu, PR China, Dr. S. Bae, Republic of Korea and Prof. Claudio Mahler, Brazil). *International Journal of Risk Assessment and Management*, special edition on Assessment and Mitigation of Environmental Hazards to Human Health (2007-2009), Vol.12, No.2, 2009.
- **Guest Editor** (assisted by Prof. Jy Wu, Prof. Asis Nasipuri and Prof. David Young of the US), *Journal of Environmental Monitoring*, special edition on Environmental Vulnerability (2005-2006), Vol.32, No.2 (2006)
- **Guest Editor** (assisted by Prof. Jy Wu, US and Dr. Edu Inam, Nigeria), *Journal of Environmental Systems*, special edition on Formal Education on Sustainability Issues 92007-present)
- **Guest Editor** (assisted by Prof. David McBride, US and Prof. K. Kim, Korea and Prof. Aniekan Edet, Nigeria), *Journal of Environmental Systems*, special edition on Environmental Impact Assessments (2005-2006), Vol.32, No.1, 2006.
- **Guest Editor** (assisted by Prof. Hideo Minato, Japan and Prof. Shi Bin, PR China), *International Journal of Soil and Sediment Contamination*, special edition on Barrier Systems and Materials for Contaminant Containment, (2006- 2008), Vol.17, No.4, 2008.
- **Guest Editor** (assisted by Prof. G. Mbamalu, US and Prof. P. Schwarz, US), *Journal of Environmental Management*, special edition on Sustainability of Industrial and Environmental Systems (2006-2009), Vol.90, No.12, September, 2009.
- **Guest Editor** (assisted by Dr. Ming Zhang, Japan), *ASCE Journal of Hydrologic Engineering*, special edition on Contaminant Geohydrology for Radioactive Waste Disposal (2006-2007), Vol.14, No.11,2007.
- **Guest Editor** (assisted by Dr. H. Zebulun, USA), *The Environmentalist Journal*, special edition on Treatment Processes for Contaminated Aqueous media (2006-2011), Vol.31, No.1,2011.
- **Guest Editor** (assisted by Prof. Ronald Neufeld of the U.S.). *Journal of Energy Engineering, ASCE*, special edition on Sustainable Energy Systems: Uses and Impacts (ASCE, Reston, Virginia, 2004-2006), Vol. 132, No. 3, December 2006.
- **Guest Editor** (assisted by Prof. Samuel Frimpong of the U.S.), *Journal of Energy Engineering, ASCE*, special edition on Design of Sustainable Energy Generation Systems (ASCE, Reston, Virginia; 2004-2006), Vol. 132, No., August 2006.
- **Guest Editor** (assisted by Dr. Osman Benchikh of France and Dr. Steven J. Piet of the U.S.), *International Journal of Global Energy Issues*, special edition on Innovations in Energy Systems (Inderscience Publishers, Olney, United Kingdom; 2004-2007), Vol. 28, No. 2/3, 2007.
- **Guest Editor**, *Environmental Monitoring and Assessment*, special edition on Particulate Contaminant Emissions from Geomaterials (Kluwer, Dordrecht, The Netherlands; 2005-2007), Vol. 130, No. 1-2, 2007.
- **Guest Editor** (assisted by Dr. Sunyoung Bae of Korea), *Journal of Hazardous Materials*, special edition on Generation and Control of Hazardous Dusts from Geologic Media (Elsevier Science Publishers, Amsterdam, The Netherlands; 2004-2006), Volume 132, No. 1, April 2006.
- **Guest Editor** (assisted by Dr. Jouko Saarela of Finland), *International Journal of Environment and Waste Management* special edition on Contaminant Fate and Remediation in Geoenvironmental Systems (Inderscience Publishers, Olney, United Kingdom; 2004-2006), Vol. 1, No. 1, 2006.
- **Guest Editor** (assisted by Prof. Samuel Frimpong of the United States), *International Journal of Geomechanics, ASCE*, special edition on Excavation Geomechanics (ASCE, Reston, VA; 2004-2008), Jan/Feb, 2008.
- **Guest Editor**, *Environmental Engineering Science*, combined special editions on Modeling of Contaminant Leachability from Cemented and Particulate Media, and Measurement of Contaminant Leachability, Mary Ann Liebert Publishers, Vol. 23, No.1, 2006.
- **Guest Editor** (assisted by Dr. Sunyoung Bae of Korea and Prof. Annand Puppala of India), *Journal of Materials in Civil Engineering, ASCE*, special edition on Geochemical Aspects of Stabilized Materials (ASCE, Reston, VA; 2004- 2007), Vol. 19, No. 1, January 2007.
- **Guest Editor** (assisted by Dr. Sunyoung Bae of Korea), *Journal of Materials in Civil Engineering, ASCE*, special edition on Stabilization of Geomedia using Cementitious Materials (ASCE, Reston, VA; 2004- 2006), Vol. \ 18, No.2, March/April 2006.

- **Guest Editor** (assisted by Dr. Steve J. Piet of the U.S. and Dr. Irene M.C. Lo of Hong Kong, China), *Practice Periodical of Hazardous, Toxic and Radioactive Waste Management*, special edition on Innovative Barrier Systems for Waste Containment, ASCE, Vol. 9, No. 4, 2005.
- **Associate Editor**, *Journal of Energy Engineering*, American Society of Civil Engineers (2004 - 2006).
- **Associate Editor**, *Journal of Materials in Civil Engineering*, American Society of Civil Engineers (2004- 2009).
- **Editorial Board Member**, *Mining Science and Technology*, Elsevier Inc., New York, USA (2006-present)
- **Scientific Advisory Board** (Editorial) Member, *Waste and Biomass Valorization*, Springer, Dordrecht, the Netherlands (2010-2012).
- **Editorial Board Member**, *Computerized Tomography: Theory and Applications*, sponsored by Institute of Geophysics, PR China; Nuctech Co. Ltd; and Tsinghua University, PR China (2006-present).
- **Editorial Board Member**, *International Journal of Global Energy Issues*, Inderscience Publishers, Olney, United Kingdom (2004-2010).
- **Chair, Editorial Advisory Board**, *African Science and Technology Digest*, Published by Tradenews International Publishing and Investment Ltd., Abuja, Nigeria.(April 2010-present).
- **Editorial Board Member**, *Environmental Geology: International Journal of Geosciences*, Springer Verlag Publishers Berlin, Germany (2004-2010).
- **Editorial Board Member**, *Environment, Development and Sustainability Journal*, Kluwer Academic Publishers, Dordrecht, the Netherlands (2004-2012).
- **Editorial Board Member**, *Environmental Impact Assessment Review*, Elsevier Inc., New York, USA (2004-2010).
- **Guest Editor and Developer** (assisted by Prof. T.C. De Brito Galvao of Brazil), *Journal of Environmental Engineering* of the American Society of Civil Engineers (ASCE) special edition on Waste Containment Barrier Materials (2001-2004), Vol. 130, No. 8, August 2004.
- **Guest Editor and Developer** (assisted by Prof. T.C. De Brito Galvao of Brazil), *Journal of Environmental Engineering* of the American Society of Civil Engineers (ASCE) special edition on Recycling of Waste Materials in Construction (2001-2003), Vol. 129, No. 10, October 2003.
- **Guest Editor and Developer** (assisted by Prof. T.C. De Brito Galvao of Brazil and Prof. D. Young of USA),
- *ASCE Natural Hazards Review* special edition on Natural Hazards and Civil Infrastructure Systems (2001- 2003), Vol. 4, No. 2, May 2003.
- **Guest Editor and Developer** (assisted by Prof. T.C. De Brito Galvao of Brazil and Dr. J. D. Bowen of USA), *Environmental Monitoring and Assessment* special edition on Innovative Technologies and Policies for Waste Management (Kluwer Academic Press, Dordrecht, The Netherlands; 2001-2003), Vol.84, Nos. 1-2, May 2003.
- **Guest Editor and Developer** (assisted by Prof. T.C. De Brito Galvao of Brazil and Dr. H. Hilger of USA), *Resource Conservation and Recycling* special edition on Utilization of Wastes (Elsevier Science Publishers, Amsterdam, The Netherlands; 2001-2003), Vol. 39, No. 1, August 2003.
- **Guest Editor and Developer** (assisted by Prof. T.C. De Brito Galvao of Brazil), *International Journal of Surface Mining and Reclamation* special edition on Mining and the Geoenvironment (A.A. Blakema Publishers, Rotterdam, the Netherlands; 2001-2002), Vol. 16, No. 4, December 2002.
- **Guest Editor and Developer** (assisted by Prof. T.C. De Brito Galvao of Brazil), *International Journal of Environmental Management and Health* special edition on *Environmental Management Techniques* for Sustainable Development (MCB University Press, West Yorkshire, England, published in collaboration with the United Nations Environment Programme (UNEP)), Vol. 12, No. 1, 2001, ISSN 0956- 6163.
- **Honorary Theme Editor** of Section 4.18 on Environmental Monitoring, *Encyclopedia of Life Support Systems (EOLSS)*, sponsored by United Nations Educational, Scientific and Cultural Organization (UNESCO) (1999-2006).
- **Co-editor** and Co-developer (assisted by Dr. David Betsill of Sandia National Laboratory) *Journal of Environmental Engineering*, American Society of Civil Engineers, special issue on Monitoring and Characterization Techniques for Contaminants in the Subsurface, Vol. 124, No. 6, June, 1998.
- **Associate Editor**, *Waste Management Journal*, published by Elsevier Science Publishers, Oxford, England (1999-2002).
- **Assistant Editor**, *Transactions of the Nigerian Society for Biological Conservation* (to deal with environmental engineering aspects), published by the Nigerian Society for Biological Conservation (1998-2000).
- **Associate Editor**, *Journal of Environmental Engineering*, American Society of Civil Engineers (1994- 2007).
- **Editorial Board Member**, *Waste Management and Research*, Academic Press, Copenhagen, Denmark (1994-2000).
- **Editorial Board Member**, *Journal of Infrastructure Systems*, American Society of Civil Engineers (1994-2004).
- **Associate Editor**, *International Journal of Environmental Issues in Minerals and Energy Industry*, published by A. A. Balkema, Rotterdam, the Netherlands (1992-1993).

- **Associate Editor**, Proceedings of the 1996 ASCE Conference on Non - Aqueous Phase Liquids in the Subsurface Subsurface Environment, Washington, DC, USA (November 10-14, 1996).
- **Editorial Board Member**, *CRC Reviews in Environmental Control*, published by CRC Press, Boca Raton, Florida, USA (1991-1993).
- **Editorial Board Member**, *Journal of Environmental Systems*, published by Baywood Publishing Company, Farmingdale, New York, USA (1991-Present).
- **Associate Editor**, Editorial Board Member, *International Journal of Surface Mining, Reclamation* (1991-1994).
- **Editorial Board Member**, *Journal of Soil Contamination*, published by CRC Press, Boca Raton, Florida, USA (1992 - 2006); the name of the journal was later changed to *International Journal of the Soil and Sediment Contamination*.
- **Editorial Board Member**, *Resources, Conservation and Recycling*, published by Elsevier Science Publishers, Amsterdam, The Netherlands (1992-2006).
- **Editorial Advisory Board Member**, *Environmental Monitoring and Assessment*, published by Kluwer Academic Publishers, Dordrecht, The Netherlands (1992-2005).

B.2.3 Reviews for Other Peer-reviewed and Refereed Publications (35 entries)

- **Reviewer**, Science, Technology and Innovation (STI) for the publication – STI Success Stories from Africa, developed by the International Council for Science (ICSU), Regional Office for Africa, Pretoria, South Africa, (June, 2008)
- **Book Reviewer**, Sustainable Development: Principles, Frameworks, and Case Studies, edited by O. Ukaga, C. Maser, and M. Reichenbach, published by Rutgers University Press, Piscataway, New Jersey, USA (July 2007)
- **Reviewer**, Water Environment Research (WER) (May, 2006)
- **Reviewer**, Applied Biochemistry and Biotechnology (May, 2006)
- **Reviewer**, Environmental Chemistry, CRO Publishing Co., Collingwood, Victoria, Australia (October, 2005)
- **Reviewer**, Journal of Environmental Engineering and Science, Canada (June, 2005)
- **Reviewer**, Waste Management, Elsevier Science Publishers, Oxford, England (May, 2005)
- **Reviewer**, International Journal of Risk Assessment and Management, Inderscience Publishers, zney, United Kingdom (February, 2005)
- **Reviewer**, International Journal of Environment and Pollution (IJEP) (April, 2004).
- **Reviewer**, Journal of Engineering Research, Muscat, Sultanate of Oman (February, 2004).
- **Reviewer**, Journal of Environmental Management (December, 2003).
- **Reviewer**, Journal of Hydroinformatics, Cardiff, United Kingdom (December, 2003).
- **Reviewer**, Chemosphere, Amsterdam, the Netherlands (May and August, 2003).
- **Reviewer**, Environmental Science and Technology, American Chemical Society, Washington, DC, USA (December and March 2003).
- **Reviewer**, Geotechnical Testing Journal, ASTM (April, 2003).
- **Reviewer**, Stochastic Environmental Research and Risk Assessment (April 2003).
- **Reviewer**, Science of the Total Environment, Elsevier Science Publishers, Amsterdam, the Netherlands March, 2003).
- **Reviewer**, Indian Journal of Pure and Applied Physics (June 2001).
- **Reviewer**, Water Research (Journal of the International Water Association) (December, 2001)
- **Reviewer**, Environmental Engineering Science (July 2000).
- **Reviewer**, Geotechnical Testing Journal, ASTM (January, 2000).
- **Reviewer**, Human and Ecological Risk Assessment: an International Journal (June, 2000).
- **Book Reviewer**, “Fluid Transport in Porous Media”, Prieur de Plessis (Ed), published by Computational Mechanics Publications, United Kingdom, 1997, ISBN 185312429X; reviewed for Environmental Monitoring and Assessment (international journal) (January, 1999).
- **Reviewer** for the 7th International Conference on Low-Volume Roads, May 23 - 27, 1999, for the Transportation Research Board (May, 1998).
- **Book Reviewer**, “Flow and Transport in Multiple Poroelastic Media,” by M. Bai and D. Elsworth, for American Society of Civil Engineers Press, Reston, VA, USA (April, 1998).
- **Reviewer** for the GeoCongress 98, Boston, Session that produced the Proceedings on Recycled Materials In Geotechnical Applications (April, 1998).
- Peer Reviewer of the document “Evaluation of Subsurface Engineered Barriers at Waste Sites” for the Office of Research and Development, U.S. Environmental Protection Agency, Washington, DC, USA (May, 1997).
- Referee, 19th Biennial Conference of the International Association of Water Quality, Vancouver, Canada (June 21-26, 1998).
- **Reviewer**, Environmental Science and Technology, Journal of the American Chemical Society (August and February, 2000; November, 1999 and September, 1997).

- **Reviewer** for Transportation Research Record, a Publication of the Transportation Research Board, National Research Council (September, 1997).
- **Book Reviewer**, John Wiley and Sons Publishing Company, New York, USA: Soil Mechanics and Foundations, by M. Budhu (June, 1997).
- **Reviewer**, Journal of Geotechnical and Geo-environmental Engineering, American Society of Civil Engineers (February and March, 2000; April, 1996).
- **Reviewer**, 1996 National Conference of the American Society for Surface Mining and Reclamation, Knoxville, Tennessee, USA (April, 1996).
- **Reviewer**, the Proceedings of the 6th International Conference on Permafrost, Beijing, China, July 5-9, 1993, requested by the International Permafrost Association Representative in Arlington, VA (1992).
- **Technical Document Peer Reviewer**, U.S. Army Corps of Engineers, under the auspices of the Civil Engineering Research Foundation, Washington, DC, USA (1992).

B.2.4 Contributions to Academic, National and International Professional Organizations and Activities (101 entries)

- Member, international Advisory Committee, 16th Waste Management Conference, GZO's 15, Ljubljana, Slovenia, August 26-27, 2015.
- Contributor, Republic of Botswana's National Development Plan 11 Preparatory Documentation, Gaborone, Botswana, August 1, 2014.
- Co-Leader, BIUST Council (Botswana) Delegation to Tel Aviv, Israel for infrastructure development financing for higher education, Tel Aviv, Israel, July 7-11, 2014.
- Panelist, Education and Training Strategic Plan (ETSSP) Development Program, Republic of Botswana, Gaborone, April 2-3, 2014.
- Member, international Education committee, 4th International Forum on Opto-electronic Sensor- based Monitoring in Geo-engineering (OSMO, 2012), Suzhou, P.R. China, October 11-13, 2012.
- Representative of Africa (selected by UNESCO and the International Council for Science (ICSU)) at the Roundtable Presentation of Science Messages from all Continents for Rio+20 United Nations Summit, UN Global Headquarters, New York, USA, March 20, 2012.
- Chair, International Scientific Advisory Committee, ECOTECH Climate Change Summit and Training Workshop, organized by International Council for Science (ICSU), UNESCO, International Society of Environmental Law, Abuja, Nigeria (Dec. 14- 16, 2011).
- Member, Academic Committee, third International Forum on Opto – Electronic Sensor - Based Monitoring in Geo-Engineering, PR China, China (Sept.29-30, 2010).
- Chair, National Stakeholders Workshop on Oil Spill Cleanup and Remediation Guidelines, organized by the National Oil Spill Detection and Response Agency of Nigeria (NOSDRA) and sponsored by the United Nations Development Program (UNDP), Abuja, Nigeria (August 23-24, 2010).
- Co-Chair and Member of the International Advisory Committee, eleventh International Symposium on Environmental Geotechnology and Global Sustainable Development, PR China (Aug. 15-18, 2010).
- Discussant, First ECOFAIR Issues and Challenges Forum, Abuja, Nigeria (July 20-21, 2010).
- Keynote Speaker, National Science and Technology Roundtable, Abuja, Nigeria (April 20, 2010).
- Panel Chair, Seminar on Knowledge on the Move: Research for Development in a Globalizing World (African Perspective), organized by the Netherlands Organization for Science (ICSU-ROA), and National Research Foundation of South Africa, Pretoria, South Africa (March, 15-16, 2010).
- Chairman, African Science and Technology Grand Challenges Workshop (ASTGCW), sponsored by the World Bank STEP- B Program, Directorate of Technical Collaboration in Africa, and Petroleum Technology Development Fund (PTDF), Abuja, Nigeria (Dec. 17-19, 2009).
- Co-Chair, Tenth International Symposium on Environmental Geotechnology and Sustainable Development, Bochum, Germany (Sept. 7-11, 2009).
- Special Guest and Keynote Speaker, 2009 World Environment Day Commemorative Symposium, Abuja, Nigeria (June 5, 2009).
- Panelist on Universities as Engines of Sustainable Societies at the conference on Higher Education in the Global Age, organized to mark the opening of New York University, Abu Dhabi, UAE, (Dec 6-7, 2009).
- Invited Panelist, Education Summit of the 2009 Ron Brown African Affairs Series, Black Congressional Caucus Week, Washington D.C. USA (Sept. 23, 2009).
- Keynote Speaker, third conference of Vice - Chancellors and Deans of Science, Engineering and Technology (COVIDSET 2009), Kampala, Uganda (November 23-25, 2009).
- Member, UNESCO Committee on Development of Guidance Document on Best Practices in Sustainable Urban Water Management, Paris, France (March, 2010-present).

- Member, International Advisory Committee, International Conference on Waste Engineering and Management, organized by the Hong Kong Institution of Engineers (HKIE) and Canadian Society for Civil Engineering (CSCE), Hong Kong, P.R. China (May 28-30, 2008).
- Co-Chair, International Conference on Waste Management, Environmental Geotechnology and Global Sustainable Development, Ljubljana, Slovenia, (August 28-30, 2007).
- Co-Chair, First International Conference on Environmental Research, Technology and Policy on Africa (ERTEP 2007), Accra, Ghana, (July 16-19, 2007).
- Honorary Chair, International Conference on Infrastructure Development and the Environment, (ICIDEN ABUJA 2006), Abuja, Nigeria, (Sept. 10-13, 2006).
- Honorary Chair, International Disaster Reduction Conference (IDRC Davos 2006), Davos, Switzerland, (August 26-Sept. 1, 2006).
- Member, International Advisory Board, International Symposium on Nanotechnology and Environmental Protection Hong Kong, China, (June 18-21, 2006).
- Convener, Forum on Environmental Sustainability: The Case of Nigeria, for Visiting Chair of Nigeria Senate Committee on Environment and Ecology, Charlotte, NC (March 29-31, 2006).
- Applied Research Program Reviewer, University of Cyprus, Nicosia, Cyprus (May 10, 2006).
- Advisory Board Member, E.E. Just Environmental Leadership Institute, Kimball Union Academy, Meriden, NH (Feb. 9, 2006 – 2008).
- Discovery Grant Program Reviewer, Natural Sciences and Engineering Research Council of Canada (NSERC), Ottawa, Canada (January 13, 2006).
- Member, International Scientific Committee, First Specialty Conference on Disaster Mitigation (SCDM-1) of the Canadian Society of Civil Engineering, Calgary, Canada (May 16-23, 2006).
- Panelist/Moderator, Sixth National Conference on Science, Policy and the Environment: Energy for a Sustainable and Secure Future, organized by the National Council for Science and the Environment, Washington, DC, USA (January 26-27, 2006).
- Member, Technical Committee, First International Workshop on Opto-electronic Sensor-based Monitoring in Geo-engineering (OSMG-2005), organized by the National Science Foundation of China, ISEG and the Geological Society of China, Nanjing, China (November 23-24, 2005).
- Member, Executive Committee, and Keynote Speaker, Tenth Anniversary Symposium on Soil and Groundwater Environment, organized by the Korean Society for Soil and Groundwater Environment, Seoul, South Korea (October 27-28, 2005).
- Signatory, Research Exchange Memorandum of Understanding between the Global Institute (UNC Charlotte) and Nakdong Environmental Research Institute, Keimyung University, Daegu, Korea (in Korea, October 28, 2005).
- Signatory, Research Collaboration Memorandum between the Global Institute (UNC Charlotte) and the Graduate School, University of Calabar, Calabar, Nigeria (in Charlotte, NC, USA August 1, 2005).
- Chair, International Conference on Energy, Environment and Disaster (INCEED 2005) under the auspices of UNESCO, GADR, ISEG and sixty other organizations, Charlotte, North Carolina, USA (July 23-27, 2005).
- Member, International Advisory Committee, International Conference on Safe Water: Safe Water and Health - Impact on Rural and Urban Communities, Johannesburg, South Africa, and (November 5-7, 2004).
- International Advisory Committee Member, 4th International Symposium on Geo-technics Related to the Environment, Wolverhampton, United Kingdom (June 28-July 1, 2004).
- Member, International Organizing Committee, and Plenary Speaker, 7th International Symposium on Environmental Geotechnology and Global Sustainable Development, Helsinki/Espoo, Finland (June 10-14, 2004).
- Panelist, Division for Physical and Engineering Sciences, Swiss National Science Foundation, Berne, Switzerland (June 1, 2004).
- Co-Chair, 8th International Symposium on Environmental Issues and Waste Management in Energy and Mineral Production, Antalya, Turkey (May 17-20, 2004).
- Moderator, Panel on Renewable Energy and Natural Resources, Summit on Partnering for Sustainability, Toronto, Canada (May 13-14, 2004).
- Co-Chair, Technical Committee, First International Conference on City and Industrial Safety, organized by the Chinese Academy of Sciences and other organizations, Nanjing, P.R. China (October 29-31, 2003).
- Member, International Steering Committee, SAFEWATER 2003 International Conference, Atlanta, GA, USA (October 31-November 1, 2003).
- Chair, Session on the Role of Brownfields in Municipal Infrastructure Renewal, Brownfields 2002: Investing in the Future National Conference, Charlotte, NC, USA (November 13-15, 2002).
- Co-Chair, 7th International Symposium on Environmental Issues in Mining and Energy Production, Cagliari, Sardinia, Italy (October 7-12, 2002).
- Member, Executive Program Committee and Keynote Speaker, 6th International Symposium on Environmental Geotechnology and Global Sustainable Development, Seoul, South Korea (July 2-5, 2002).

- Member, Scientific Advisory Board, 17th Annual International conference on Contaminated Soils, Sediments of Water, Amherst, MA (October 22-25, 2001).
- Co-Chair, International Symposium on Application of Natural Materials for Environmental Geotechnology, Sponsored by Committee III of the Japanese Society for the Promotion of Science, Tokyo, Japan (October 29- November 2, 2001).
- General Chair, World Congress on Disaster Reduction, organized by an Alliance of organizations led by The American Society of Civil Engineers, Washington, D.C., USA (2001/2002).
- Scientific Advisory Board Member, First International Congress on Petroleum Contaminated Soils, Sediments and Water, London, United Kingdom (August, 2001).
- Steering Committee Member, Marine Environmental Forum, Center for Marine Science and Technology, New Bedford, MA, USA (March 1, 2000).
- Scientific Advisory Board Member, Tenth Annual West Coast Conference on Contaminated Soils and Water, San Diego, California, USA (March 20-23, 2000).
- Panelist on Using the Disaster Recovery Period and Process to Build Local Sustainability, 25th Annual Hazards Research and Applications Workshop, Boulder, Colorado, USA (July 9-12, 2000).
- Co-Chair, Sixth International Symposium on Environmental Issues and Waste Management in Energy and Mineral Production, Calgary, Canada (May 30-June 2, 2000).
- Co - Chair, 5th International Symposium on Environmental Geo-technology and Global Sustainable Development, Belo Horizonte, Minas Gerais, Brazil (August 17-20, 2000).
- International Scientific Committee Member, International Conference on the Geo-environment, Muscat, Sultanate of Oman, (March 4-7, 2000).
- Co-Director, 16th Annual International Conference on Contaminated Soils, Sediment and Water, Amherst, MA, A.S.A.P. (October 16-19, 2000).
- Member, National Environmental Systems Policy Committee, appointed by the Board of Directors of the American Society of Civil Engineers, Reston, Virginia, USA (September 30, 1999-2002).
- Co-Chair, International Symposium on High Altitude and Sensitive Ecological Environmental Geo-technology, Nanjing, P.R. China, (August 24-27, 1999).
- International Advisory Committee Member, International Symposium on Coupled Phenomena in Civil, Mining and Petroleum Engineering, Sanya, Hainan Island, P.R. China (November 1-3, 1999).
- Co-Director and Scientific Advisory Board Member and Moderator, Session I on Waste Containment Systems, 15th Annual International Conference on Contaminated Soils and Water, Amherst, Massachusetts, USA (October 18- 21, 1999).
- Convener, Colloquium on Environmental Management for visiting environmental policy makers and educators from foreign countries, under the auspices of the United States Information Agency (USIA), Washington DC, USA and Boston Center for International Visitors, held in Lowell, MA, USA (October 14, 1998).
- Member, Environmental Business Council of New England (member of the International Committee and Innovative Technology Committee), Boston, USA (1998-2001).
- Chairman, 4th International Symposium on Environmental Geotechnology and Global Sustainable Development, Boston, USA (August 9-13, 1998).
- International Organizing Committee Member, 7th International Symposium on Mine Planning and Equipment Selection, Calgary, Canada (October 5-9, 1998).
- International Organizing Committee Member and Co-Chair of the Session on Geotechnical Stability IV, Fifth International Symposium on Environmental Issues and Waste Management in Energy and Mineral Production, Ankara, Turkey (May 18-20, 1998).
- International Organizing Committee Member, 6th International Symposium on Mine Planning and Equipment Selection, Ostrava, Czech Republic (September 3-9, 1997).
- Host and Colloquium Convener on “Environmental Control Capacity Building in Africa” for Scientists from Franco-phone African Countries under the Auspices of the Institute of International Education, and the U.S. Information Agency, held in Lowell, MA, USA (August 25-26, 1997).
- Host and Colloquium Convener on “Geoenvironmental Issues and Sustainable Development” for Visiting Russian Academy of Sciences Team under the Auspices of the U.S. National Research Council/National Academy of Sciences, Lowell, MA, USA (August 6-16, 1997).
- Expert Panelist on Waste Containment Systems and Chairman of Session 8 on Reactive, Low Permeability Materials, First International Containment Technology Conference and Exhibition, St. Petersburg, Florida (February 9-12, 1997).
- Initiator and Member, Working Group on Chemical Additives and Waste Byproducts (CAWB), CONMAT Program, Civil Engineering Research Foundation, Washington, DC, USA (August 1996-1997).
- Member, Steering Committee, and Moderator, Session on Remediation Technologies I, 1996 ASCE Specialty

- Conference on Non-Aqueous Phase Liquids in the Subsurface Environment, Washington, DC (November 10-14, 1996).
- International Organizing Committee Co-Chairman for the 3rd International Symposium on Environmental Geotechnology, San Diego, California, USA (June 10-12, 1996).
- Invited Participant, International Research Symposium on Engineering and Construction for Sustainable Development in the 21st Century, organized by the Civil Engineering Research Foundation, American Society of Civil Engineers Washington, DC, USA (February 4-8, 1996).
- Member, Committee on Emerging Materials in Civil Engineering, Materials Engineering Division, American Society of Civil Engineers, Reston, VA, USA (1995-1996).
- Moderator of Sessions 8A and 8B on Site Assessment, 1995 ASCE National Conference on Environmental Engineering, Pittsburgh, Pennsylvania, USA (July 23-26, 1995).
- International Organizing Committee Member for the 4th International Symposium on Mine Planning And Equipment Selection, Calgary, Alberta, Canada, (October 31-November 3, 1995).
- International Advisory Committee Member for the 3rd International Conference on Environmental Issues and Waste Management in Energy and Mineral Production, Perth, Australia, (August 29-September 1, 1994).
- Member, Selection Panel for the Walter Huber Civil Engineering Research Prizes and Research Initiation Awards, Civil Engineering Research Foundation Washington, DC, USA (February 1994).
- Member, Committee A2LO2 on Soil and Rock Properties, Transportation Research Board, Washington, D.C., USA (1994-1999).
- Member, Groundwater Quality Committee, Environmental Engineering Division, ASCE (1994-1998).
- Member, Environmental Geotechnics Committee of the American Society of Civil Engineers (ASCE) (1992- 1996).
- Designated Organizer and Session Co-Chair, Session on Geoenvironmental Engineering at the 8th International Conference on Computer Methods and Advances in Geomechanics (IACMAG'94), Morgantown, West Virginia, USA (May 22-28, 1994).
- Chairman, Committee on Containment and Mitigation of Toxic Mine Waste, Geotechnical Engineering Division of the American Society of Surface Mining and Reclamation, ASSMR (1993-1996).
- International Organizing Committee Member, Second International Conference on Environmental Issues and Management of Waste in Energy and Mineral Production, Calgary, Canada, (September 1-4, 1992).
- Chairman of the Session on Mine Site Closure/Reclamation II at the conference stated above.
- Coordinator, Sessions 2B and 2Q on Utilization of Waste Materials in Civil Engineering Construction at the 1992 American Society of Civil Engineers National Convention, New York City, USA (September 13-17, 1992), sponsored by the ASCE Materials Division.
- Chairperson, Sessions 4B,5B, and 8B on Waste Recycling at the National Conference and Exhibition Minimization and Recycling of Industrial Hazardous Waste, Arlington, Virginia, USA (September 23-24, 1992), sponsored by the Hazardous Material Control Resources Institute.
- Moderator, Session TS-4 on Engineering for Sustainable Development at the American Society of Mechanical Engineers ECOWORLD'92 Conference, Washington, D. C., USA (June 16, 1992).
- Chairperson, Session on Radiological and Mixed Waste at the Federal Environmental Restoration Conference and Exhibition, Vienna, Virginia, USA (April 15-17, 1992), sponsored by the Hazardous Material Control Resources Institute.
- Member, International Scientific Committee for the Fifth International Conference on Natural and Man-Made Hazards, Qingdao, China, (August 29-Sept. 3, 1993), sponsored by the International Society for the Prevention of Natural Hazards.
- Member, ASTM Committees D-34 on Waste Management (October, 1990-1995); D-18 on Soil and Rock (October, 1990-1995); and C-9 on Aggregates (January, 1991-1995).
- Member, American Society of Civil Engineers (ASCE) Rock Mechanics Committee (1991 - 1996; Construction Equipment and Techniques Committee (August, 1990-2000); and Soil Improvement Committee (September, 1992-1996).
- Member, Association of Engineering Geologists (AEG) Committee on Solid Wastes (1991).
- ASCE Materials Division Task Committee member on "Update Paper on Significance of Tests for Highway Materials (1992).
- Member, Project Advisory Committee (PAC), Virginia Water Resources Research Center, Blacksburg, Virginia, USA (1992).
- Member, ASCE Committee on Natural Disaster Reduction (1992-2001).
- Chair, Session 9E on Vapor Extraction Systems at the 1992 HMC SUPERFUND (13th) Annual National Conference, Washington, D. C.,USA (December 1-3, 1992).
- Invited Panelist, United States- Canada Workshop on Recent Accomplishments and Trends in Geomechanics in the 21st Century, University of Oklahoma, Norman, USA (October 21-23, 1992).
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B.2.5 Requested Educational/Faculty Reviews for U.S. and Foreign Institutions (15 entries)

- External Thesis Examiner, Birla Institute of Technology, Ranchi, India (November 8, 2006).
- External Thesis Examiner, Department of Civil Engineering / Center for Environmental Engineering Research, and Education (CEERE), University of Calgary, Calgary, Alberta, Canada (September – October, 2006)
- External Evaluator, Research Committee, University of Cyprus, Nicosia, Cyprus (May 10, 2006).
- Doctoral Dissertation Examiner, Dept. Of Civil and Environmental Engineering, University of Alberta, Edmonton, Canada (May – July, 2006).
- External Evaluator of Faculty for Promotion to Full Professor, Sultan Qaboos University, Sultanate of Oman (January, 2006).
- External Evaluator of Faculty for Promotion and Tenure, University of Georgia, Athens, Georgia USA (August, 2005; Hong Kong University of Science and Technology, Kowloon, Hong Kong, PR China (February, 2005); University of Texas at Arlington, Texas (February, 2005); University of Calgary, Calgary, Canada (November, 2004); United Arab Emirates University, Al-Ain, UAE (December, 2004); Spelman College, Atlanta, Georgia (September, 2004); University of Florida, Gainesville, Florida (August, 2004); University of Arizona, Tucson, Arizona (July, 2004); and University of Missouri-Columbia, Missouri (October, 2003).
- External Evaluator of Faculty for Promotion, University of Arizona, Tucson, Arizona, USA (August 2004).
- Doctoral Dissertation Committee Member on Uncertainty and Relative Importance of Hydraulic Properties, University of South Carolina, Columbia, SC (Spring 2003).
- Doctoral Dissertation Committee Member on Stochastic Analysis of Flow in Three-Dimensional, Heterogeneous, Anisotropic Aquifers, University of South Carolina, Columbia, SC (Spring 2003).
- Research Center Evaluator for the Centers and Institutes Evaluation Committee, University of Massachusetts Amherst, MA (February, 1999).
- External Thesis Examiner, University of Kalyani, Kalyani, West Bengal, India (1999).
- External Reviewer of faculty for Distinguished Professorship, Louisiana State University (1999); and External Tenure and/or Promotions Reviewer for University of Science and Technology, Ghana (1999), Utah State University (2001), Louisiana State University (2001), University of Alberta, Edmonton, Canada (2001), University of Science and Technology, Hong Kong (1997), Kansas State University, Manhattan (1998 and 1995), New Jersey Institute of Technology (1999 and 1998), Stevens Institute of Technology (1997), Howard University (1996), Iowa State University (1996) and Ohio State University (1994).
- Special Group Incentive Research Awards Program Expert Reviewer for the Office of Research and Sponsored Programs, Kansas State University, Manhattan, Kansas, U.S.A (July, 1998).
- External Examiner, Graduate Studies and Research, McGill University, Montreal, Canada (July, 1996).
- External Thesis Committee Member, Department of Civil and Environmental Engineering, Howard University, Washington, DC, U.S.A (1992-1994).
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B.2.6 Some Recent Consulting Activities/Technical Aid (20 entries)

- “Development of Technical Guidance Manual for Oil Spill and Oily Wastes Management in Nigeria” for the National Oil Spill Detection and Response Agency (NOSDRA) of Nigeria under the sponsorship of the United Nations Development Programme (UNDP), Abuja, Nigeria (November 2010 – March 2011).
- “Development of Environmental Management Codes and Plans for the Federal Capital Territory of Nigeria” For Abuja Environmental Protection Board (AEPB) of the United Nations Development Programme (UNDP), Abuja, Nigeria (October - December 2009).
- “Strategic Framework on Climatic Change and Development” upon invitation by the World Bank’s SFFCD Consultations Team, Washington DC, USA (2008).
- “National Integrated Solid Waste Management Program” for the Federal Ministry of Environment, Housing and Urban Development, Abuja, Nigeria (Sept 2006-present).
- “City of Lowell Acre Revitalization Project,” for the Coalition for a Better Acre (CBA), Lowell, Massachusetts, USA (July-December, 2000).
- “Contaminated Site Assessment for the Planned Facilities of the Lowell Regional Transit Authority (LRTA)” for LRTA, Lowell, Massachusetts, USA (June, 2000).
- “A Comparative Analysis of Final Cover System for the Willow Hill Road Landfill, Lee, Massachusetts,” for Environmental Resources Management (ERM-New England) (September, 1995).
- Listed Consultant of the United Nations Development Program (UNDP) on Waste Disposal (November, 1993).
- “An Assessment of the Potential Effectiveness of the Selected Remediation Measures for Contamination at The Midvale, Utah Mining Waste Site,” for the Hazardous Site Control Division, Office of Emergency and Remedial Response (SUPERFUND), U. S. EPA, Washington, D. C., USA (November, 1993).
- “ Evaluation of the Performance of Hazardous Waste Facilities During the 1993 Midwest Floods,” for the Office of Solid Waste, U. S. EPA, Washington, D. C., USA (1993-94).

- “Analysis of Weight – Volume Quantities and Moisture Requirements for Coal Combustion Wastes,” for The Investment Recovery Division, Potomac Electric Power Company, Washington, D.C., USA (September, 1993).
- Listed Consultant of the World Bank on Developing Country projects (1993).
- “Hazardous Waste Landfills in Seismic Areas,” for the Division of Solid Waste Management, North Carolina Department of Environment, Health and Natural Resources, Raleigh, NC, USA (1992).
- “Technical and Budgetary Requirements for Cleanup of Basement Heating Oil Spill at Bethesda, Maryland”, for an attorney in Rockville, Maryland (1992).
- “Maximum Safe Values of Chlorinated Hydrocarbons in Hazardous Waste Landfills,” for Colombia Schmutz Dorthe AG, a firm in Bern, Switzerland (1992).
- “Seismic Forces in Landfill Designs,” for Government Services Branch (Y.P. Singh), Law environmental Inc., Kennesaw, Georgia, USA (1992).
- “Alteration of Clay Structures by Organic Substances”, for Colombia Schmutz Dorthe AG, a firm in Bern, Switzerland (1992).
- “Ash in Landfill Liners”, for the Montgomery County Department of Environment, Rockville, MA, USA (1991).
- “Low - Level Radioactive Waste Landfills in Seismic Areas”, for ERM, Los Alamos, New Mexico (1992).
- “Landfill in Karst Terrains in Dryden, Texas”, USA [Potential Failure Modes and Degradation Mechanisms], for Oklahoma / Texas Section, U.S. Environmental Protection Agency, Region 6, Dallas, Texas, U.S.A (1992).

B.2.7 Contributions to Television and Newsprint Programs, and Non-Profit/Voluntary Activities (46 entries)

- Subject of cover page feature story in the magazine “*Science and Tech Digest*” Vol. 14, No. 1 of Nov.-Dec., 2014.
- Interviewee on the “*Eye*”, a personality and issues discussion program of the Botswana Television (BTV), Gaborone, July 18, 2014.
- Subject of cover page feature story in the magazine “*Business Leader*” of March 2014.
- Subject of the cover page feature story in the magazine “*Economic Insight*” of Sep-Oct, 2013
- Co-presenter of a Press Conference with Lt. General John Fisher-Botswana’s High Commissioner to Nigeria in International technical/economic collaboration, Botswana High Commission, Abuja, Nigeria, November 24, 2013.
- Subject of cover page feature story in the magazine “*Discovery Nigeria*” of December 2009/January 2010.
- Subject in the *African Parrot*, an Athens, Greece - based publication (March 2007 edition), page 16.
- Interviewee on “Sustainable development issues” for Mileage Magazine, a Pan-African Business Magazine (article by Mr. Udemé Ekpo, Oil, Gas and Energy Correspondent), Lagos, Nigeria, 15th Edition, 2005, pp. 27,28-30.
- Historical reference in the newsletter of the Advanced Computational Engineering Institute for Earth Environment, Nanjing University, Nanjing, China (2005 reprint of original 1999 edition, pp. 2 and 4).
- Interviewee on “Indoor pollution threatens developing countries”, an article by Mr. Tunde Akingbade, Columnist, the Environment Section of the *Daily Sun*, Monday Edition, July 26, 2004, page 29).
- Interviewee on “Mooresville Hydrail Initiative now on track”, an article in *Fuel Cell Works*, (March 2, 2005).
- Interviewee on energy / environment / disaster conference, *Local TechWire.com*, (June 30, 2005).
- *News Feature Subject in Frontiers*, a publication of the School of Engineering, University of Connecticut Storrs, USA (winter 2005 edition).
- Guest on one-hour *One-on-One* television program, Nigerian Television Authority (on sustainable development issues), Lagos, Nigeria (March 25, 2005).
- Interviewee for article on “Don advocates new national environment monitoring, research center”, published by Mr. Chinedu Uwaegbulam in *The Guardian Newspaper*, Lagos, Nigeria, (Monday, March 21, 2005).
- Contributor on “Duke Powers” balancing act: managing water levels proves to be a challenge for utility”, Opinion Section, *Charlotte Business Journal*, (Week of October 15, 2004).
- Subject in *Hazards Forum Newsletter*, No. 46, (spring, 2004).
- Subject in *IICRC Update*, on international waste management, the *Update* is the newsletter of the Ishikawa International Cooperation Research Center (IICRC), Kanazawa, Japan (No. 5, March, 2004).
- Subject in the China Academy of Safety Sciences and Technology Newsletter (page 1, 2004).
- Mention in *News and Notes*, the newsletter of Rockefeller University (Friday, October 11, 2002).
- Guest Commentator on Hydrogen Energy Research, *Creative Loafing*, Charlotte Newspaper (July 14, 2004 edition).
- Interviewee, *Kensetu Tsushim Shimbun (Construction Communication Newspaper)*, Tokyo, Japan, under the auspices of the Japanese Society for the Promotion of Science, Committee III (October 26, 2003).
- Guest on the North Carolina public television (UNC-TV) program: *North Carolina Now*, on energy and environmental issues, Raleigh, NC, USA (August 20, 2003).
- Guest on *Press Interview Session* organized by the Nigerian Television Authority (NTA), Uyo, Nigeria (July 23, 2003)

- Guest on the public television program: *Carolina Business Review*, to discuss environmental, energy and sustainable development issues, Charlotte, NC, USA (June 27, 2003).
- Briefer of U.S. Congressional staff members on energy and environmental issues following the development of the draft National Energy Policy, Washington DC, USA (April 14-15, 2003).
- Participant and Discussant on energy and environmental issues, *The Forum for Corporate Conscience*, Featuring Warren Buffet and chief executive officers of Fortune 500 corporations, Charlotte, NC, USA (March 14-16, 2003).
- Moderator and Discussant at the *Sustainable Development Forum* (taped for television broadcast) organized by The Echo Foundation and GIEES to honor Professor Jeffery Sachs of Columbia University, Charlotte, NC, USA (February 26, 2003).
- Television Panelist with U. S. Congressman Gerphardt of Missouri, Rev. Jesse Jackson, U. S. Congressman Rangel of New York and others, to address environmental issues during a “National Town Hall Meeting” organized by the Congressional Black Caucus and televised on C-SPAN, Washington, DC, USA (September 12, 2002).
- Contributor, Charlotte Community Science Forum activities, led by Sigma Xi Society, Discovery Place, Charlotte, NC, USA (January 2002-present).
- Invited Public Lecturer on “Professional Growth in a Diverse and Rapidly Evolving Global Arena” to Graduate Students and Associates of Carnegie-Mellon University and University of Pittsburg, Pittsburg, PA, USA (January 28, 2002).
- Evaluation Panelist, Duke Energy Scholarships program, Houston, Texas, USA (2001).
- Speaker and Panelist, Environmental Career Day, Roxbury Community College, Boston, Massachusetts, USA (May 3, 2000).
- Invited Lecturer on “Sampling at Brownfield Sites” at the Forum on Environmental J.O.B.S. In Lowell, Lowell, Massachusetts, USA (February 4, 2000).
- Speaker at Citizen’s Forum on Contaminated Sediments: the Lexington Project, Lexington, MA, USA (February 1, 1999).
- Speaker to Coalition for a Better Acre on technical aspects of environmental pollution management, Lowell, MA, USA (February 16, 1999).
- Brief Career Highlight Published in *Science*, Vol.280, pp.2143, under the Auspices of the American Association for the Advancement of Science to Commemorate the 17th Anniversary of the AAAS/USEPA Environmental Science and Engineering Fellowship (June 26, 1998).
- Expert Witness at the Tanner Street Transfer Station Hearing at Lowell City Hall, Lowell, MA, (January, 1998).
- Panelist on the televised Public Interest Science Panel on Options for Management of Contaminated Sediments, New Bedford, MA, USA (October 1997).
- Speaker to the New England Consortium on Hazardous Waste Worker Health and Safety on risks associated with chemicals in the environment, (December 8, 1998).
- Board of Governors Member, Sustainable Development in Africa Network (SUDAN), Uyo, Nigeria, 1998- Present).
- Chairman, Board of Directors, Self-Improvement and Reliance Organization (SIRO), Falls Church, VA, USA (1997-Present).
- Member, Board of Directors, American Leprosy Mission (ALM), Charleston, South Carolina, USA (1995-1997).
- International Patron, African Environmental Action Network, Lagos, Nigeria, (1995-1997).
- Vice-President, Africa’s Sustainable Development Council, Ouagadougou, Burkina Faso, (1998-Present).
- Member, Science and Technology Working Group, Constituency for Africa (CFA), Washington, DC, USA (1996-1999).

C. RESEARCH

C.1 Grants and Contracts (more than \$7 million total support in 14 years) (38 entries) (was on leave of absence from 2009 to 2011 to lead one university (AUST) and plan another university (WAUSTECH) in Africa.

- Research on the application of visual-computing grid to environmental problems and economic development planning (in collaboration with UNC Charlotte Center for Visualization and UNC Asheville) Agency: US Environmental Protection Agency; (2005-2006); Role: Co-Principal Investigator.
- Strategic research and associated technical activities on radiation transport, contaminant leaching, excavation mechanics, dust control science, etc: and development of special editions of refereed journals; Agency: Duke Energy Corporation: (2003-2006); Role: Principal Investigator.
- A quantitative framework for long term performance assessment of waste management infrastructure using hazard analysis method; Agency: U. S. National Science Foundation; (2003-2006); Role: Principal Investigator.
- **Induced compaction effects on the long term performance factors of capillary barriers**; Agency: U.S. Department of Energy, Idaho National Engineering and Environmental Laboratory, Idaho Falls, ID; (2003- 2004); Role: Co- Principal Investigator.

- Collaborative strategic research and allied activities on energy and the environment; Agency: Duke Energy Corporation; (2001-2002); Role: Principal Investigator.
- **Endowment as Duke Energy Distinguished Professor of Environmental Engineering and Science;** Agency: Duke Energy Corporation, Charlotte; (2001 – present): supports research performed as PI and associated activities.
- **Modeling of contaminant leaching from wastes in the vadose zone;** Agency: Committee on Federated Centers and Institutes (CFCI), University of Massachusetts, Lowell, MA; Role: Principal Investigator.
- Sorption - desorption cycling and potential contaminant spreading in the Arctic permafrost due to temperature changes; Agency: National Oceanic and Atmospheric Administration; (2000-2001); Role: Principal Investigator.
- **Scaling of barrier textural effects on source terms for contaminant transport modeling;** Agency: U.S. Army Cold Regions Research and Engineering Laboratory; US Department of Defense (1997- 2000); Role: Principal Investigator.
- **Modeling and experimental investigation of heavy metal leachability from boiler aggregate bituminous concrete;** Agency: Federal Highway Administration/Massachusetts Highway Department ;(1999-2001); Role: Principal Investigator
- **Modeling of contaminant release and transport in the vadose zone;** Agency: DuPont Engineering; (1998-1999); Role: Principal Investigator.
- Development of a preliminary methodology for assessing gamma ray attenuation through ground covers for radioactive waste sites; Agency: UMASS Committee on Federated Centers and Institutes; (1999-2000); Role: Principal Investigator.
- Textural analysis for quantification of contaminant flow channels in high pressure diaphragm jet-grouted sands; Agency: Sandia National Laboratories; (1997-1999); Role: Principal Investigator.
- Preliminary assessment of data on barrier-related contaminant transport parameters for modeling of the long-term performance of waste containment systems; Agency: DuPont Environmental Remediation Services; (1997-1998); Role: Principal Investigator.
- **Earth vision 2000 environmental modeling;** Agency: U.S. Environmental Protection Agency/Ohio State University; (1998); Role: Co-Principal Investigator.
- **Assessment of non-point source lead attenuation by acid sulfate soils along roadways in Massachusetts;** Agency: Council for Teaching, Learning and Research, University of Massachusetts Lowell; (1997-1998); Role: Co- Investigator.
- University Titled Professorship awarded by the University of Massachusetts, Lowell;
- **DuPont Young Professorship of Environmental Science and Engineering;** Agency: DuPont Central Research (1996-1999); Role: Titled Professorship.
- **Equipment fabrication and support for tests on heavy metal attenuation barriers;** Agency: DuPont Environmental Remediation Services; (1997-1998); Role: Principal Investigator.
- **Research workshop/symposium on waste containment;** Agency: DuPont Environmental Remediation Services; (1997-1998); Role: Principal Investigator.
- **The durability of additive - amended barrier materials: application of advanced analytical methods;** Agency: DuPont Corporate Remediation Group; (1997-1998); Status: active; Role: Principal Investigator.
- **Research collaboration with Russian Academy of Sciences scientists;** Agency: U.S. National Research Council /National Academy of Sciences; (1997); Role: Principal Investigator.
- **Integrated spatial modeling of groundwater vulnerability to pesticide contamination;** Agency: U.S. Department of Agriculture / University of Arkansas; (1996-1998); Role: Co-Principal Investigator.
- Textural and heavy metal adsorption characteristics of additive-amended slurry wall materials; Agency: DuPont Corporate Remediation Group; (1996-1997); Role: Principal Investigator.
- **Waste utilization research;** Agency: American Reclamation Corporation, Charleston, MA; (1996-1997); Role: Principal Investigator.
- **Reuse of contaminated soils in constructed facilities ;** Agency : Massachusetts Department of Environmental Protection; (1996-1997); Role: Principal Investigator.
- Quantitative estimation of contaminant release from construction materials in full-scale pavements; Agency: Joseph P. Healey Endowment; (1996-1997); Role: Principal Investigator.
- **Sorption of inorganic chemical substances by geomaterials and additives (new title by sponsors);** Agency: DuPont Chemicals Corporate Remediation Group; (1996-1997); Role: Co-Principal Investigator.
- Cost -effective post - construction integrity verification monitoring and testing techniques for subsurface barrier Containment facilities; Agency: DuPont Chemicals, Corporate Remediation Group; (1994); Role: Principal Investigator.
- Analysis of contaminant leaching characteristics and performance of class F fly ash in constructed facilities; Agency: Potomac Electric Power Company, Washington, D. C.; (1994); Role: Principal Investigator.

- **Flood hazards to waste disposal facilities;** Agency: Office of Solid Waste, U. S. Environmental Protection Agency, Washington, D. C.; (1993-1994); Role: Principal Investigator.
- **Geotechnical systems for structures on contaminated sites;** Agency: Corrective Action Branch, U.S. Environmental Protection Agency, Washington, DC; (1992-1993); Role: Principal Investigator (in- house)
- **The geotechnics of slurry walls for pollutant migration control ;** Agency : Corrective Action Branch, U.S. Environmental Protection Agency, Washington, DC (1st phase)(1991-92);Role: Principal Investigator (in-House)
- **Analysis of the effectiveness of non-conventional covers;** Agency: Corrective Action Branch, U. S. Environmental Protection Agency, Washington, DC; (first phase) (1992-1993). Role: Principal Investigator (with technical support by SAIC, Falls Church, Virginia)
- **Hazardous waste facilities in seismic zones;** Agency: Corrective Action Branch, U. S. Environmental Protection Agency, Washington, DC (sponsored as an expansion of my 1991 AAAS/U.S.E.PA Environmental Science and Engineering Fellowship analysis); (first phase) (1991-1992); Role: Principal Investigator (in-House).
- **Indexing of long term effectiveness of waste containment systems for a regulatory impact analysis;** Agency: Corrective Action Branch, U. S. Environmental Protection Agency, Washington, DC; (1992-1993); Role: Principal Investigator (in house) (with Mr. G. Tommasoni of U.S. EPA as a collaborator).
- **Effects of hydrocarbon contamination on the geotechnical characteristics of clayey soils;** Agency: University of Wisconsin - Platteville, Pioneer Undergraduate Research Award ; (1991 - 1991); Role : Research Advisor and collaborator with my student: Mr. J. Von Ruden).
- **Development of a preliminary rock mass classification scheme for near-surface excavation;** Agency: University of Wisconsin-Platteville, Scholarly Activity Improvement Fund; (1990-1990); Role: Principal Investigator).

C.2 Academic and Professional Publications (261 total publications)

C.2.1 Books

- Textbook and Reference Books (2 entries)
- 2. *Geoenvironmental Engineering: principles and applications*, by Lakshmi N. Reddi and **Hilary I. Inyang**, Marcell Dekker Publishing Co., New York, USA. ISBN 0-8247-0045-7 (April, 2000), 494 pages.
- 1. *Investment of Exploration in 53 African Countries*, by Bala Mohammed and **Hilary .I. Inyang**, Trop- Savan Publications, Abuja, Nigeria, ISBN 987 30925-09 (2009), 238 pages.
- Edited Books and Conference Proceedings (numbered in reverse chronology) (13 entries)
- 1.013 *Proceedings of the 11th International Symposium on Environmental Geotechnology and Global Sustainable Development*, Beijing, PR China (August, 2010).
- 1.012. *Proceeding of the International Conference on Infrastructure Development and the Environment (ICIDEN- Abuja 2006)* (2006).
- 1.011. *Barrier Systems for Contaminant Containment and Environmental Treatment*, by Calvin C. Chien, **Hilary I. Inyang** and Lorne G. Everett, C.R.C. Press/Taylor and Francis Group, Boca Raton, Florida, USA. ISBN 0-849 3-4040-3 (2005), 408 pages.
- 1.010. *Building Professional Capacity on Natural Hazards and Emergency Management*, by Walter Hays, **Hilary I. Inyang** and Badaoui Rouhban. UNESCO and Global Alliance for Disaster Reduction (2005), in CD-ROM format.
- 1.009. Bridging the Gaps for Global Sustainable Development. *Journal of Abstracts of Presentations at the International Conference on Energy, Environment and Disasters*, Charlotte, USA, July 24-30, by **Hilary I. Inyang**, Gustavo Borel Menezes, Babatunde A. Fodeke, and Cheryl Lane Braden, University of North Carolina, Charlotte, USA, (2005), 179 pages.
- 1.008. *Environmental Geotechnology: Proceedings of the 7th International Symposium on Environmental Geotechnology* Jouko Saarela, **Hilary I. Inyang**, Katerzyna Kreft-Burman, Marjut Partanen - Hertell, Tapani Salonen, Mikko Leppanen and Jorma Havukainen. Finnish Environmental Institute, Helsinki, Finland (2004), 1319 pages.
- 1.007. *Utilization of Waste Materials in Civil Engineering Construction* by **Hilary I. Inyang** and Kenneth Bergesson, American Society of Civil Engineers Press, New York, ISBN 0-87262-907-4 (1992), 347 pages.
- 1.006. *Remediation in Rock Masses*, by **Hilary I. Inyang** and Clifford J. Bruell, American Society of Civil Engineers, New York, USA ISBN 0-7844-0015-6 (2000), 250 pages.
- 1.005. *Bioremediation of Contaminated Soils*, by Donald L. Wise, Debra J. Trantolo, Edward J. Cichon, **Hilary I. Inyang**, and Ulrich Stottmeister. Marcell Dekker Publishing Company, New York, USA ISBN 0-8247-0333- 2 (2000), 903 pages.
- 1.004. *Proceedings of the 5th International Symposium on Environmental Geotechnology and Global Sustainable Development*, Belo Horizonte, Brazil, by Cassia de Brito Galvao and **Hilary I. Inyang**, (in CD-ROM) (2000).

- 1.003. *Proceedings of the 4th International Symposium on Environmental Geotechnology and Global Sustainable Development*, Boston, Massachusetts, USA (2 volumes) by **Hilary I. Inyang** and Vincent O. Ogunro (2000), 1614 ages.
- 1.002. *Remediation Engineering of Contaminated Soils*, by Donald L. Wise, Debra J. Trantolo, Edward J. Cichon, **Hilary I. Inyang** and Ulrich Stottmeister. Marcell Dekker Publishing Company, New York, ISBN 0- 8247- 0332-4, (2000), 996 pages.
- 1.001. *Environmental Geo - technology: Proc. of the Third International Symp.* by Hasi -Yang Fang and **Hilary I. Inyang**, Technomic Publishing Company, Lancaster, PA, USA ISBN 1-56676-462-9, (1996), 998 pages.

C.2.2 Book Chapters (numbered in reverse chronology; 14 entries)

- 2.014. Gaddam, R., **Inyang, H. I.**, Ogunro V.O., Janardhanam, R. and Udoeyo, F.F. 2009. Strength and leaching patterns of heavy metals from ash amended flowable fill monoliths, in Yanful, E.K (editor), *Appropriate Technologies for Environmental Protection in the Developing World*, Springer Science and Business Media, 2009, pp. 291-304.
- 2.013. **Inyang, H. I.** and Piet, S. J. 2005 (with contributions by J.H Clarke, J.B. Gladden, H. K. Moo – Young, P.W. Jayawickrama, W. B. Johnson, R.E. Melchers, M.L. Mercer, V. Rajaram, P.R. Wachsmuth. Damage and System Performance Prediction: Chapter I in *Barrier Systems for Environmental Contaminant and Treatment* edited by Calvin C. Chien, **Hilary I. Inyang** and Lorne G. Everett, pp. 1-69, CRC/Taylor and Francis, Publishers, Boca Raton, Florida.
- 2.012. Benson, C. H. and Dwyer, S. F. 2005 (with contributions by D.W. Blowes, D.A. Carson, P.W. Deming, J.C. Evans, W. Gee, **H.I. Inyang**, S.A. Jefferis, M.R. Matsumoto, G.B. Menezes, S. J. Morrison, S.D. Warner and J.A. Wilkens) Material Stability and Applications: Chapter III in *Barrier Systems for Environmental Contaminant Containment and Treatment* edited by Calvin C. Chien, **Hilary I. Inyang** and Lorne G. Everett, pp. 143-207, CRC Taylor and Francis Publishers
- 2.011. Galvao, T.C., Daniels, J.L. and **Inyang, H. I.** 2002. Contaminated site characterization and monitoring. *United Nations Encyclopedia of Life Support Systems, Section 6.38 on Environmental Monitoring*, published in the web (by subscription).
- 2.010. **Inyang, H. I.**, and Daniels, J.L. and Chien, C.C. 2000. Methods of analysis of contaminant migration in barrier materials. In *Remediation of Hazardous / Waste Contaminated Soils, 2nd Edition*, Edited by D.L. Wise et al., Marcell Dekker Publishing Co., New York, pp. 63-82.
- 2.009. Bai, M., **Inyang, H. I.**, Chien, C.C., and Bruell, C. 2000. Factors for assessing flow and transport in fractured porous media. ASCE Special Publication on *Remediation in Rock Masses*, pp. 12-27.
- 2.008. Bruell, C.J. and **Inyang, H. I.** 2000. The fundamentals of remediation in rock masses. ASCE Special publication on *Remediation in Rock Masses*, pp. 1-11.
- 2.007. Bai, M., Mo, H., **Inyang, H. I.**, Abousleiman, Y. and Roegiers, J.C. 2000. Analysis of capture zone and pump and-treat method in fractured rocks. ASCE Special Publication on *Remediation in Rock Masses*, pp. 42-55.
- 2.006. **Inyang, H. I.**, Daniels, J.L. and Ogunro, V.O. 1998. Engineering controls for risk reduction at Brownfield sites. *Geotechnical Special Publication No. 82*, ASCE, pp. 229-252.
- 2.005. **Inyang, H. I.**, Iskandar, A., Parikh, J.M. 1998. Physico - chemical interactions in waste containment barriers. *Encyclopedia of Environmental Analysis and Remediation, Vol. 2*. John Wiley and Sons, pp. 1158-1165.
- 2.004. **Inyang, H. I.**, Fang, H.Y., Iskandar, A. and Choquette, M.R. 1998. Chemical and mineralogical analyses of clayey barrier materials. *Encyclopedia of Environmental Analysis and Remediation, Vol. 8*. John Wiley and Sons, pp. 5131-5141.
- 2.003. **Inyang, H. I.**, and Committee. 1996. Performance monitoring and evaluation. Chapter 12 of *Assessment of Barrier Containment Technologies*, editors: Rumer, R.R., and Mitchell, J.K., Text prepared under the auspices of U.S. Dept. of Energy, U.S. Environmental Protection Agency, and DuPont Company, pp. 355-400.
- 2.002. Evans, C.E., Allan, M., Day, S. R., Filz, G. M., **Inyang, H. I.**, Jefferis, S., Kukacka, L.E., Martinenghi, L., Mitchell, R. and Potter, K. 1996. Soil-and cement-based vertical barriers with focus on materials. Chapter 2 of *Assessment of Barrier Containment Technologies*, editors: Rumer, R.R., and Mitchell, J.K., Text prepared under the auspices of U.S. Dept. of Energy, U.S. EPA, and DuPont Company, pp. 5- 43.
- 2.001. **Inyang, H. I.** and Tumay, M.T. 1995. Containment systems for contaminants in the subsurface. A chapter in the *Encyclopedia of Environmental Control Technology*, Gulf Publishing Company, pp. 175- 215.

C.2.3 Refereed Journals and Peer - Reviewed Proceedings (numbered 3.130 – 3.001) in reverse chronology (totaling 130 publications plus 3 articles in review)

- **Inyang, H. I.** and Zebulun, H. 2016. Using desiccation of EDS-CM amended clayey soils as an index of potential dust suppression. *Journal of Bioscience and Bioengineering* (in review).
- **Inyang, H. I.**, Work, D., Pando, G., Mbamalu, G. and Santana H. 2016. Comparison of porosity estimates for contaminant barrier grout from CT-imaging, optical microscopy and sample saturation. *Journal of Materials Engineering, ASCE* (in review).

- Zebulun, H.O., Isikhuemhen, O.S. and **Inyang, H. I.** 2016. Use of white rot fungus-Pleurotus ostreatus, as a biodegrader of naphthalene in contaminated soil. *Journal of Hazardous, Toxic and Radioactive Wastes, ASCE*, (In press)
- 3.130. **Inyang, H. I.**, Bae, S. and Onwuwoma, A. 2016. The Elovich equation as a predictor of lead and cadmium sorption rates on barrier minerals. *Soil and Tillage Research*, Vol. 155, pp. 124-132.
- 3.129. **Inyang, H. I.**, Bae, S., and Pando, M. A. 2016. Contaminant dust suppression materials: a cost-effectiveness estimation methodology. *Measurement (Elsevier Journal)* (In press)
- 3.128. Kaanagbara, L. L., **Inyang, H. I.**, Wu, J., Lukic, V.P., and Young, D. 2016. Implication of crystallites nucleation in petroleum-based transformer oil in electric power system. *Proceedings of the 8th Asia-Pacific Power and Energy Engineering Conference (APPEEC 2016)*, Suzhou, China (Editor: Sun, Y., CRC Press), pp. 177-185.
- 3.127. Inam, E., Udoh, I. I., Ite, K. E. and **Inyang, H. I.** 2014. Chemical and radiological health risks assessment of radionuclides in water resources in Akwa –Ibom State, Nigeria. *Proceedings of the IASTED International conference on Water Resources and Environmental Management*, Gaborone, Botswana, Sept 1-3, pp.6-13.
- 3.126. Zebulun, H. O., **Inyang, H. I.**, and Hilger, H. 2013. Molecular and biological techniques used in landfill investigations: a mini-review. *Biotechnology and Molecular Biology Reviews*, Vol. 8, No.2, pp. 35-42.
- 3.125. Jiang, H., Wang, B., **Inyang, H. I.**, Liu, J., Gu, K. and Shi, B. 2013. Role of expansive soil and topography on slope failure and its counter measures, Yun County, China. *Engineering Geology*, Vol. 152, pp. 155-161.
- 3.124. **Inyang, H. I.**, Bae, S., Lee, J. Y., and Park, K. Y. 2012. Desiccation of contaminant barrier materials amended with aqueous carboxymethyl cellulose solution. *Journal of Material Cycles and Waste Management*. Vol. 14, No. 1, pp. 19-26.
- 3.123. Menezes, G.B. and **Inyang, H. I.** 2012. Linking HAZUS-MH risk analyses methodology to contaminant release models. *Natural Hazards Review, ASCE*, Vol.13, No.1, pp 1-8.
- 3.122. Liu, J., Shi, B., Gu, K., Jiang, H. and **Inyang, H. I.** 2012. Effect of polyurethane on the stability of sand–clay mixtures. *Bulletin of Engineering Geology and the Environment*, Vol. 71, No. 3, pp. 537-544
- 3.121. Kim, H-j. , Choi, S. W. , Lee, C. S. , Wielage, B. , Bae, S. , Obare, S. and **Inyang, H. I.** 2011. Oxidation of No.12, pp.827-833.
- 3.120. Zebulun, H.O., Isikhuemes, O.S. and **Inyang, H. I.** 2011. Decontamination of anthracene - polluted soil through white rot fungus - induced biodegradation. *The Environmentalist*, Vol. 31, No.1, pp.11 - 19.3.119.
- 3.119. Chen, S.E., Boyanjian, D.M. and **Inyang, H. I.** 2011. SLSE damage detection technique for foundation strengthening using plates. *Geotechnical and Geological Engineering*, Vol.29, No.3, pp.237-248.
- 3.118. Ige, O.O., Ogunsanwo, O. and **Inyang, H. I.** 2011. Characterization of terrain and biotite gneiss-derived lateritic soils of Ilorin, Nigeria, for use in landfill barrier. *Global Journal of Geological Sciences*, Vol.9, No.1, pp.1-9.
- 3.117. Tang, C.S., Shi, B., Liu, C., Gao, L. and **Inyang, H. I.** 2011. Experimental investigation of the desiccation cracking behavior of soil layers during drying. *Journal of Materials Engineering, ASCE*, Vol.23, No.6, pp. 873-875.
- 3.116. **Inyang, H. I.**, Bae, S. and Fodor, A. 2010. Polymer solution - clay interaction effects on contaminant barrier material integrity: part II-damage parameters. *Environmental Engineering Science*, Vol.27, No. 8, pp.623 - 632.
- 3.115. Kaanagbara, L., **Inyang, H. I.**, Wu, J. and Hilger, H. 2010. Aromatic and aliphatic hydrocarbon balance in electric transformer oils. *Fuel*, Vol. 89, pp. 3114-3118.
- 3.114. Udoeyo, F.F., Brooks, R., **Inyang, H. I.** and Bae, S. 2010. Imo lateritic soil as absorbent for heavy metals. *International Journal of Research and Reviews in Applied Sciences*, Vol.4, No.1, pp.1-6.
- 3.113. Bian, Z., **Inyang, H. I.**, Daniels, J.L., Otto, F. and Struthers, S. 2010. Environmental issues from coal mining and their solutions. *Mining Science and Technology*, Vol. 20, pp.215-223.
- 3.112. **Inyang, H. I.**, Fodor, A., Bae, S. and Mbamalu, G. 2009. Polymer solution-clay interaction effects on contaminant barrier material integrity Part I: Solution characteristics. *Environmental Engineering Science*, Vol. 26, No.10, pp.1541-1550.
- 3.111. **Inyang, H. I.**, Wachsmuth, P.R. and Menezes, G.B. 2009. Georadiological barrier gamma attenuation model for waste containment part I: model formulation. *Journal of Environmental Engineering, ASCE*, Vol. 135, No.4, pp. 225-233. Integrated method of RS and GPR for monitoring the changes in the soil moisture and groundwater environment due to underground coal mining. *Environmental Geology*, Vol.57, pp.131-142.
- 3.109. Choi, S.W., Park, S.W., Lee, C.S., Kim, H.J., Bae, S. and **Inyang, H. I.** 2009. Patterns of VOC and BTEX concentration in ambient air around industrial sources in Daegu, Korea. *Journal of Environmental Science and Health, Part A*, Vol. 44, pp.99-107.
- 3.108. **Inyang, H. I.**, Daniels, J.L., Mbamalu, G.E. and Zebulun, H.O. 2009. Deviation parameter of specific surface as an indicator of textural changes in contaminant barrier mixtures. *Proceedings of the Tenth International Conference on Waste Management*, Slovenia, pp.1-14.
- 3.107. Hu, J., Shi, B., **Inyang, H. I.**, Chen, J. and Sui, Z. 2009. Patterns of subsidence in the lower Yangtze Delta of China: the case of the Suzhou-Wuxi-Changzou Region. *Environmental Monitoring and Assessment*, Vol.153,
- 3.106. Fang, H-Y. and **Inyang, H. I.** 2009. Municipal solid waste minimization and control techniques. *Proceedings of the Eleventh International Symposium on Environmental Geotechnology and Sustainable Development*, Beijing, P.R. China, pp.122 -143.

- 3.105. Menezes, G.B. and **Inyang, H. I.** 2009. GIS-based contaminant transport model for heterogeneous hydrogeological settings. *Journal of Environmental Informatics*, Vol.14, No.1, pp.11-24.
- 3.104. Menezes, G. B. and **Inyang, H. I.** 2008. Contaminant sorbent aggregation index based on cadmium sorption capacity. *International Journal of Soil and Sediment Contamination*, Vol.17, pp 363-380.
- 3.103. **Inyang, H. I.**, Hourani, M. S., Menezes, G. B., Young, D. T., Ogunro, V. O., Bin, S. and Work, D. 2008. Stereological analysis of aggregate distribution in contaminant barrier concrete. *International Journal of Soil and Sediment Contamination*, Vol 17, pp 425-436.
- 3.102. Bojun, W., Bin, S. and **Inyang, H. I.** 2008. GIS - based quantitative analysis of the orientation distribution of soil grains using standard deviational ellipse. *International Journal of Soil and Sediment Contamination*, Vol 17. pp 437-447.
- 3.101. Frimpong, S., Hu, Y. and **Inyang, H. I.** 2008. Dynamic modeling of hydraulic shovel excavators for geomaterials. *International Journal of Geomechanics*, ASCE, Vol. 8, No. 1, pp 20-29.
- 3.100. Kim, H.J., Choi, S-W. and **Inyang H. I.** 2008. Catalytic oxidation of toluene in contaminant emission control Systems using MN-CE/ γ -AL₂O₃. *Environmental Technology*, Vol.29, pp.559-569.
- 3.099. Punthutaecha, K., Puppala, A.J., Vanapalli, S.K. and Inyang, **H. I.** 2007. Closure to "Volume change behavior of expansive soils stabilized with recycled ashes and fibers" (by same authors in same journal: March/April 2006, vol.18, no.2, pp.295-306). *Journal of Materials in Civil Engineering*, ASCE, Vol.19, No.7, pp.616-617.
- 3.098. Kaanagbara, L.L. and **Inyang, H. I.** 2007. Modeling oil degradation in electric transformers under typical loads. *International Journal of Global Energy Issues*, Vol. 28, No. 2/3, pp. 325-343.
- 3.097. Kaanagbara, L. L. and **Inyang, H. I.** 2007. Hydrogen production for powering civil and industrial systems: a review. *International Journal of Global Energy Issues*, Vol. 28, No. 2/3, pp. 215-224.
- 3.096. **Inyang, H. I.** 2007. Technical and policy mechanisms for implementation of renewable energy systems in developing countries. Compendium on the 5th United Nations University and GIST Joint Programme Workshop on Sound Management of Hazardous Chemicals and Sustainable Energy, Gwangju, South Korea, pp. 76-88.
- 3.095. **Inyang, H. I.**, Rossi, L., Graham-Eagle, J., Pennell, S. and Menezes, G. B. 2007. Modeling smectite utilization in earthen barriers of buried radioactive wastes. *International Journal of Geomechanics and Geoengineering*, Vol. 2, No. 2, pp. 87-95.
- 3.094. De Brito Galvão, **Inyang, H. I.**, Menezes, G.B., and Bae, S. 2007. Clay charge reversal effects on aqueous polymer sorption on lateritic soils. *Chemosphere*, Vol. 66, pp. 638-643.
- 3.093. **Inyang, H. I.** and Kaanagbara, L. L. 2007. Estimation of electric transformer service life from oil degradation kinetics. *Journal of Energy Engineering, ASCE*, Vol. 133, No.1, pp. 19-25.
- 3.092. Ogunro, V. O., Long, J. M., **Inyang, H. I.**, Wu, J. S. and Janardhanam, R. 2007. Combined load and leachant pH effects on contaminant leaching from fly ash. *International Journal of Environment and Waste Management*, Vol. 1, No 2/3, pp. 249-268.
- 3.091. **Inyang, H. I.**, Bae, S., Mbamalu, G. and Park, S. W. 2007. Aqueous polymer effects on volumetric swelling of clay minerals. *Journal of Materials in Civil Engineering, ASCE*, Vol. 19, No. 1, pp. 84-90.
- 3.090. Udoeyo, F. **Inyang, H. I.**, Young, D.T. and Oparadu, E.E. 2006. Potential of wood waste ash as an additive in concrete. *Journal of Materials in Civil Engineering, ASCE*, Vol. 18, No. 4, pp. 605-611.
- 3.089. Chaffin, J. H., Bobbio, S. M., Inyang, **H. I.** and Kaanagbara, L. L. 2006. Hydrogen production using plasma electrolysis. *Journal of Energy Engineering, ASCE*, Vol. 132, No. 3, pp. 104-108.
- 3.088. Bae, S., **Inyang, H. I.**, De Brito Galvao, T. C. and Mbamalu, G. E. 2006. Soil desiccation rate integration Into empirical dust emission models for polymer suppressant evaluation. *Journal of Hazardous Materials*, Vol.132, pp.111-117.
- 3.087. Gaddam, R., **Inyang, H. I.**, Young, D. T. and Umoh, E. S. 2006. An economic model for ash use in flowable fill with integration of logistics and contaminant loading factors. *International Journal of Environment and Waste Management*, Vol. 1, No. 1, pp. 20-38.
- 3.086. Ayoola, M. G., **Inyang, H. I.** and Ogunro, V. O. 2006. Estimation of freeboard requirements against overtopping of surface impoundments under seismic action. *Environmental Geology*, Vol. 49, pp.1195-1207.
- 3.085. Park, S-W, Kim, S-K, Kim, J-B, Choi, S-W, **Inyang, H. I.** and Tokunaga, S. 2006. Particle surface hydrophobicity and the dechlorination of chloro - compounds by iron sulfides. *Journal of Air, Water and Soil*, Vol.6, No.1-2, pp.97-110.
- 3.084. **Inyang, H. I.**, Work, D. and Puppala, A. 2006. Porosity fluctuations in desiccating samples of groutstabilized soil. *Journal of Materials in Civil Engineering, ASCE*, Vol. 18, No. 2, pp.267-271.
- 3.083. Bae, S. and **Inyang, H. I.** 2006. Confirmation of aqueous polymer sorption in contaminant barrier clay using thermogravimetric analysis. *Journal of Materials in Civil Engineering, ASCE*, Vol. 18, No.2, pp.307-310.
- 3.082. Punthutaecha, K., Puppala, A., Vanapalli, S. and **Inyang, H. I.** 2006. Volume change characteristics of expansive soils stabilized with recycled ashes. *Journal of Materials in Civil Engineering, ASCE*, Vol.18, No.2, pp. 295-306.
- 3.081. **Inyang, H. I.** and Gaddam, R. 2006. Quantification of scale and monolith surface exposure effects on contaminant leaching from flowable fill. *Environmental Engineering Science*, Vol. 23, No. 1, pp.24-39.

- 3.080. **Inyang, H. I.** and Ogunro, V. O. 2006. Chemodynamics of contaminant leaching from particulate and monolithic media under load. *Environmental Engineering Science*, Vol. 23, No. 1, pp. 140-152.
- 3.079. Ogunro, V. O., Long, J. and **Inyang, H. I.** 2006. Modeling leaching surface evolution in stressed particulate media. *Environmental Engineering Science*, Vol. 23, No. 1, pp. 168-183.
- 3.078. **Inyang, H. I.** and Hourani, M. S. 2006. Distribution deviation of large aggregates from uniformity in waste containment concrete. I: quantitative model formulation. *Journal of Materials in Civil Engineering, ASCE*, Vol. 18, No. 1, pp. 61-72.
- 3.077. Hourani, M. S. and **Inyang, H. I.** 2006. Distribution deviation of large aggregates from uniformity in waste containment concrete. II: experimental results and quality assurance. *Journal of Materials in Civil Engineering, ASCE*, Vol. 18, No. 1, pp. 73-80.
- 3.076. **Inyang, H. I.**, Wachsmuth, P., Menezes, G. B. and Piet, S. J. 2005. Simplified design of georadiological barriers for contaminated sites. *Periodical of Hazardous, Toxic and Radioactive Waste Management, ASCE*, Vol. 9, No. 4, pp. 253-262.
- 3.075. Liu, Z., Shi, B., **Inyang, H. I.** and Cai, Y. 2005. Magnification effects on the interpretation of SEM images of expansive soils. *Engineering Geology*, Vol. 78, pp. 89-94.
- 3.074. Piet, S. J., Breckenridge, R. P., Jacobson, J. J., White, G. J. and **Inyang, H. I.** 2005. Design principles and concepts for enhancing long – term cap performance and confidence. *Practice Periodical of Hazardous, Toxic and Radioactive Waste Management, ASCE*, Vol. 9, No. 4, pp. 210-222.
- 3.073. **Inyang, H. I.** 2005. Response to “Models are not the answer to improved landfilling”. *Environmental Science and Technology*, January 15, pp. 31A-32A.
- 3.072. Ogunro, V. O., Podgorney, R., Inyang, **H. I.**, Piet, S. and Ayoola, M. G. 2005. Drainage layer fouling as a consideration in capillary barrier design. *Practice Periodical of Hazardous, Toxic and Radioactive Waste Management, ASCE*, Vol. 9, No. 4, pp. 273-280.
- 3.071. Ayoola, M. G., **Inyang, H. I.** and Ogunro, V. O. 2005. Analyses of seismic damage to interfaces in waste containment systems: a review. *Practice Periodical of Hazardous, Toxic and Radioactive Waste Management*, Vol. 9 No. 4, pp. 292-304.
- 3.070. Rossi, L., **Inyang, H. I.**, Graham - Eagle, J. and Pennell, S. 2005. Closure to “A model of coupled heat and moisture transport in an annular clay barrier”. *Journal of Environmental Engineering, ASCE*, Vol. 131, No. 11, pp. 1515-1616.
- 3.069. **Inyang, H. I.** and Bae, S. 2005. Polyacrylamide sorption opportunity on interlayer and external pore surfaces of contaminant barrier clays. *Chemosphere*, Vol. 58, pp.19-34.
- 3.068. **Inyang, H. I.** 2004. Model validation and verification: the source of continuing problems in definitions (a rejoinder) *Journal of Environmental Engineering, ASCE*, Vol. 127, No. 6, pp. 489-490.2
- 3.067. **Inyang, H. I.** 2004. Modeling of long term performance of waste containment systems. *Environmental Science and Technology*. Vol. 38, No. 17, pp. A.312-A.318.
- 3.066. **Inyang, H. I.** 2004. A thermodynamic framework for analysis of waste containment barrier materials. *Journal of Environmental Engineering, ASCE*, Vol. 130, No. 8, pp. 836-846.
- 3.065. **Inyang, H. I.** and Bae, S. 2004. Estimation of PEO polymer train and loop densities on contaminant barrier materials. *Journal of Environmental Engineering, ASCE*, Vol. 130, No. 8, pp. 896-905.
- 3.064. **Inyang, H. I.** 2004. Linkages of waste management options to environmental and human health risks. Proceedings of the *International Symposium of the 21st Century Program*, Vol. 2, Hayakawa, K., Kizu, R and Kamata, N. (editors), Kanazawa University, Kanazawa, Japan, pp. 121-128.
- 3.063. Rossi, L., **Inyang, H. I.**, Graham - Eagle, J. and Pennell, S. 2004. A model of coupled heat and moisture transport in annular clay barrier. *Journal of Environmental Engineering, ASCE*, Vol. 130, No 8, pp. 855-862.
- 3.062. Daniels, J. L., **Inyang, H. I.** and Brochu, M. 2004. Specific surface area of barrier mixtures at various outgas temperatures. *Journal of Environmental Engineering, ASCE*, Vol. 130, No. 8, pp. 867-872.
- 3.061. Daniels, J. L., **Inyang, H. I.** and Chien, C. C. 2004. Verification of contaminant sorption by soil – bentonite barrier materials using SEM / EDXS. *Journal of Environmental Engineering, ASCE*, Vol. 130, No. 8, pp. 910-916.
- 3.060. Ogunro, V. O., **Inyang, H. I.**, Hooper, F., Young, D. and Oturkar, A. 2004. Gradation control of bottom ash aggregate in superpave bituminous mixtures. *Journal of Materials in Civil Engineering, ASCE*, Vol. 16, No. 6, pp. 604-613.
- 3.059. Daniels, J. L. and Inyang, **H. I.** 2004. Contaminant barrier material textural response to interaction with aqueous polymers. *Journal of Materials in Civil Engineering, ASCE*, Vol. 16, No. 3, pp. 265-275.
- 3.058. **Inyang, H. I.** 2003. Framework for recycling of wastes in construction. *Journal of Environmental Engineering, ASCE*, Vol. 129, No. 10, pp. 887-898.
- 3.057. **Inyang, H. I.**, Ogunro, V. O. and Hooper, F. 2003. Simplified calculation of maximum allowable contaminant concentration in waste – amended construction materials. *Resources Conservation and Recycling*, Vol. 39, pp. 19-32.
- 3.056. **Inyang, H. I.**, Fisher, G. F. and Mbamalu, G. E. 2003. A quantitative methodology for indexing environmental sensitivity and pollution potential. *Environmental Monitoring and Assessment*, Vol. 84, pp.159-173.

- 3.055. **Inyang, H. I.** 2003. Visualization of data within an environmental risk management framework (editorial). *Journal of Environmental Engineering*, ASCE, Vol., pp. 301-302.
- 3.054. Ogunro, V. O. and **Inyang, H. I.** 2003. Relating batch and column diffusion coefficients for leachable contaminants and particulate waste materials. *Journal of Environmental Engineering*, ASCE, Vol. 129, No. 10, pp. 930-942.
- 3.053. Meegoda, J. N., Ezeldin, A. S., Fang, H-Y., and **Inyang, H. I.** 2003. Waste immobilization technologies. Practice *Periodical of Hazardous, Toxic and Radioactive Waste Management*, Vol. 7, No. 1, pp. 46-58.
- 3.052. **Inyang, H. I.** 2002. Developments in drag bit cutting of rocks for energy infrastructure. *International Journal of Surface Mining, Reclamation and the Environment*, Vol. 16, No. 4, pp. 248-260.
- 3.051. Daniels, J. L., **Inyang, H. I.** and Iskandar, I. 2003. Durability of Boston Blue Clay in waste containment applications. *Journal of Materials in Civil Engineering*, ASCE, Vol. 15, No. 2, pp. 144-152.
- 3.050. De Brito Galvao, T. C. and **Inyang, H. I.** 2002. Contaminated soils monitoring. *UNESCO, Encyclopedia of Life Support Systems*.
- 3.049. **Inyang, H. I.** 2002. Sustainable extraction and use of geomaterials. Proceedings of the 6th *International Symposium on Environmental Geotechnology and Global Sustainable Development*, Seoul, Korea, pp. 25-33.
- 3.048. **Inyang, H. I.** and Bae, S. 2002. Aqueous polyvinyl alcohol loss from desiccating sodium montmorillonite: implications in dust control during mining operations. Proceedings of the 7th *International Conference on Environmental Issues and Waste Management in Energy and Mineral Production*, Cagliari, Italy, pp. 347-352.
- 3.047. Bae, S., **Inyang, H. I.** and De Brito Galvao, T. C. 2002. Physico - chemical interactions between kaolinite with polyethylene oxide polymer solutions. Proceedings of the 6th *International Symposium on Environmental Geotechnology and Global Sustainable Development*, Seoul, Korea, pp. 243-254.
- 3.046. Daniels, J. L., **Inyang, H. I.** and Kurup, P. 2002. The influence of dissolved polymers on the properties of earthen barriers used in waste containment applications. Proceedings of the 6th *International Symposium on Environmental Geotechnology and Global Sustainable Development*, Seoul, Korea, pp. 363-370.
- 3.045. Bae, S. and **Inyang, H. I.** 2001. Effects of various polyethylenimine solutions on desiccation of Na-Montmorillonite. *International Journal of Soil and Sediment Contamination*, Vol. 10, No.6, pp. 675-685.
- 3.044. Daniels, J. L., **Inyang, H. I.** and Fang, H. Y. 2001. Theoretical relationships for scaling freezing -induced damage in barrier systems under laboratory and field conditions. Proceedings of the *Symposium on Application of Natural Materials for Environmental Geotechnology*, Tokyo, Japan, pp.
- 3.043. Daniels, J. L., Chien, C. C., Ogunro, V. O. and **Inyang, H. I.** 2000. A comparative analysis of contaminant migration models using barrier material data. *International Journal of Soil and Sediment Contamination*, Vol. 9, No. 5, pp. 487-501.
- 3.042. **Inyang, H. I.**, and Fisher, G. 2000. Spatial indexing of environmental sensitivity for selection of industrial sites. Proceedings of the 6th *International Conference on Environmental Issues and Management of Waste in Energy and Mineral Production*, Calgary, Canada, pp. 683-687.
- 3.041. Chen, J., Anandarajah, A. and **Inyang, H. I.** 2000. Pore fluid properties and compressibility of kaolinite. *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, Vol. 126, No. 9, pp. 798-807.
- 3.040. Shu, Z., O'Meara, D. J., Bai, M. and Roegiers, J. C., **Inyang, H. I.** 2000. Comparison of time-space and conventional finite-difference methods for reservoir modeling. *Proceedings of the 4th International Symposium on Environmental Geotech. and Global Sustainable Development*, Danvers, MA, pp. 875-883.
- 3.039. Chen, J., **Inyang, H. I.**, Gabr, M. A., and Shi, B. 2000. Phase conversion in surfactant solutions and soil clogging during remediation of organically contaminated soils. Proceedings of the 4th *International Symposium on Environmental Geotech. and Global Sustainable Development*, Danvers, MA, pp. 1226- 1235.
- 3.038. Bai, M., **Inyang, H. I.**, Meng, F., Abousleiman, Y., and Roegiers, J. C. 2000. Statistical modeling of particle migration in gravel - packs. Proceedings of the 4th *International Symposium on Environmental Geotechnology and Global Sustainable Development*, Danvers, MA, pp. 593-602.
- 3.037. Hu, Z., Bai, M., Roegiers, J. C., and **Inyang, H. I.** 2000. Modeling selective plugging process by induced precipitation for enhancing oil recovery. Proceedings of the 4th *International Symposium on the Environmental Geotechnology and Global Sustainable Development*, Danvers, MA, pp. 309-317.
- 3.036. **Inyang, H. I.**, Shu, Z., Bai, M. and Roegiers, J. C. 2000. Prediction of pollutant migration in landfill sites. Proceedings of the 4th *International Symposium on Environmental Geotechnology and Global Sustainable Development*, Danvers, MA, pp. 1487-1495.
- 3.035. Shi, B., **Inyang, H. I.**, and Chen, J. 2000. Microstructural analysis techniques for barrier materials in waste containment systems. Proceedings of the 4th *International Symposium on Environmental Geo-technology and Global Sustainable /Development*, Danvers, MA, pp. 1207-1215.
- 3.034. Shi B., Murakami, Y., Wu, Z., Chen, J. and **Inyang, H. I.** 1999. Monitoring internal failure evolution in soils using computerized x-ray tomography (CT). *Engineering Geology*, Vol. 54, No. 3-4, pp. 321- 328.
- 3.033. Lin, H.S., Scott, H. D., Steele, K.F., and **Inyang, H. I.** 1999. Agricultural chemicals in alluvial aquifer of a typical country of the Arkansas Delta. *Environmental Monitoring and Assessment*, Vol. 58, pp. 151-172

- 3.032. Shi, B., Wu, Z., **Inyang, H. I.**, Chen, J. and Wang, B. 1999. Preparation of soil specimens for SEM analysis using freeze – cut – drying. *Bulletin of the International Association of Engineering Geology and Environment*, Vol. 58, pp. 1-7.
- 3.031. Daniels, J. L., **Inyang, H. I.**, Howe, G. S., and Ogunro, V. O. 1999 Innovative use of triaxial cell permeameters for measuring the earthen barrier resistance to freeze - thaw degradation under field conditions. *Proceedings of the International Symposium on High Altitude and Sensitive Ecological Environmental Geotechnology*, Nanjing, P.R. China, pp. 326-333.
- 3.030. **Inyang, H. I.** 1998. Geomaterial dislodgement aspects of rock chipping modeling. In *Proceedings of the 7th International Symposium on Mine Planning and Equipment Selection*, R.K. Singhal, Ed., A.A. Balkema, Rotterdam, Netherlands, pp. 207-212.
- 3.029. Bai, M., Elsworth, D., **Inyang, H. I.**, and Roegiers, J. C. 1997. Modeling contaminant migration with linear sorption in strongly heterogeneous media. *Journal of Environmental Engineering*, ASCE, Vol.123, No. 11, pp. 1116-1124.
- 3.028. Coletta, T. F., Bruell, C. J., Ryan, D.K. and **Inyang, H. I.** 1997. Citation - enhanced removal of lead from kaolinite by electrokinetics. *Journal of Environmental Engineering*, ASCE, Vol. 123, No. 12, pp. 1227-1233.
- 3.027. Kaya, A., Fang, H. Y., and **Inyang, H. I.** 1997. Dielectric constant and electrical conductivity of contaminated fine-grained soils and barrier materials. *Proceedings of the International Containment Technology Conference and Exhibition*, St. Petersburg, Florida, pp. 1095-1101.
- 3.026. Fang, H. Y., Daniels, J. L., and **Inyang, H. I.** 1997. Enviro – geotechnical considerations in waste containment system design and analysis. *Proceedings of the International Containment Technology Conference and Exhibition*, St. Petersburg, Florida, pp. 414-420.
- 3.025. Fang, H. Y., Daniels, J. L. and **Inyang, H. I.** 1997. Physico - chemical determinants of hard soil and soft rock characteristics. *Proceedings of Rock Mechanics and Environmental Geotechnology*, Chongqing, P.R. China, pp. 1-7.
- 3.024. Bai, M., Roegiers, J. C., and **Inyang, H. I.** 1996. Contaminant transport in non-isothermal fractured media. *Journal of Environmental Engineering*, ASCE, Vol. 122, No. 5, pp. 416-423.
- 3.023. Fleming, L. N., Abinteh, H., and **Inyang, H. I.** 1996. Leachant pH effects on the leachability of metals from ash. *Journal of Soil Contamination*, Vol. 5, No. 1, pp. 53-59.
- 3.022. Coletta, T. F., Bruell, C. J., Ryan, D. K., and **Inyang, H. I.** 1996. Electrokinetics and ionic solutions to remove lead from kaolin clay. *Environmental Geotechnology: Proceedings of the 3rd International Symposium on Environmental Geotechnology*, San Diego, CA, Vol. I, pp. 786-792.
- 3.021. **Inyang, H. I.** 1995. Mechanisms of clayey barrier deterioration. *Proceedings of Workshop on Hydro-Thermo-Mechanics of Engineered Clay Barriers and Geological Barriers*, McGill Univ., Montreal, Canada, p. 22.
- 3.020. Fleming, L. N. and **Inyang, H. I.** 1995. The permeability of clay-modified fly-ash under thermal gradient. *Journal of Materials Engineering*, ASCE, Vol. 7, No. 3, pp.178-182.
- 3.019. **Inyang, H. I.** 1994. A Weibull-based reliability analysis of waste containment systems. *Proceedings of the 1st International Congress on Environmental Geotechnics*, Alberta, Canada, pp. 273-278.
- 3.018. **Inyang, H. I.** 1994. A computational scheme for estimating the cutting rate of Ladder-type excavators in hard rock. *Proceedings of the 8th International Conference on Computer Methods and Advances in Geomechanics*, Morgantown, West Virginia, pp. 2583-2588.
- 3.017. Kargbo, D. M., Fanning, D. S., **Inyang, H. I.** and Duell, R. W. 1993. The environmental significance of acid sulphate clays as waste covers. *Environmental Geology*, Vol. 22, pp. 218-226.
- 3.016. Wright, F. G., **Inyang, H. I.**, and Myers, V. B. 1993. Risk reduction through regulatory control of waste disposal facility siting. *Journal of Environmental Systems*, Vol. 22, No. 1, pp. 27-35.
- 3.015. **Inyang, H. I.**, and Pitt, J. M. 1993. The Rock Fracture Hammer for indexing the impact strength of rocks in mechanical excavation. *International Journal of Rock Mechanics, Mineral Science and Geomechanical Abstracts*, Vol. 30 (7), pp. 707-710.
- 3.014. Bakhtar, K., Summers, D. A. and **Inyang, H. I.** 1993. A note on physical modeling approach for assessment of excavation techniques. *Proceedings of the 1993 International High-Level Radioactive Waste Management Conference*, Las Vegas, Nevada, pp. 293-299.
- 3.013. Taha, R. A., **Inyang, H. I.** and Saylak, D. 1992. The use of flue gas desulfurization gypsum in the embankment construction. *International Journal of Environmental Issues in Minerals and Energy Industry* Vol. 1, No. 2, pp. 79-82.
- 3.012. **Inyang, H. I.** 1992. Aspects of landfill design for stability in seismic zones. *Journal of Environmental Systems*, Vol. 21, No. 3, pp. 223-235.
- 3.011. **Inyang, H. I.** And Fish, K. 1992. Dynamic elasticity and strength anisotropy of some surficial rocks. *International Journal of Surface Mining and Reclamation*, Vol. 1, No. 2, pp. 65-71.
- 3.010. **Inyang, H. I.**, Von Ruden, J. and Giles, A. 1992. Hydrocarbon vaporization from soil into a controlled atmosphere. *International Journal of Environmental Issues in Mineral and Energy Industry*, Vol. 1, No.1, pp. 21-25.

- 3.009. **Inyang, H. I.** 1992. Application potential of dynamic compaction to contaminant migration control. Proceedings of the *13th Annual National Conference and Exhibition*, Washington, D. C., pp. 625- 630.
- 3.008. **Inyang, H. I.**, Myers, V. B. and Bartenfelder, D. C. 1992. Surface structures as stabilization options at RCRA Corrective Action sites. Proceedings of *Waste Management Conference*, Utah State University, Logan Utah, pp. 1-12.
- 3.007. **Inyang, H. I.** 1992. Energy – related waste materials in geotechnical systems: durability and environmental considerations. Proceedings of the *Second International Conference on Environmental Issues and Management in Energy and Mineral Production*, Calgary, Canada, pp. 1165-1173.
- 3.006. **Inyang, H. I.** 1991. Development of a preliminary rock mass classification scheme for near-surface excavation. *International Journal of Surface Mining and Reclamation*, Vol. 5, pp. 65-74.
- 3.005. **Inyang, H. I.** and Pitt, J. M. 1991. Elastic to plastic impact transition in rock deformation. *International Journal of Surface Mining and Reclamation*, Vol. 5, pp. 143-149.
- 3.004. **Inyang, H. I.** 1991. Relationships among engineering characteristics of peaty soils. Proceedings of the 27th *Engineering Geology and Geotechnical Engineering Symposium*, held at Utah State University, Logan Utah, pp. 6.1-6.13.
- 3.003. **Inyang, H. I.** 1990. Drag bit cutting: a conception of rock deformation processes that correspond to observed force - distance plots. Proceedings of the 2nd *International Symposium in Mine Planning and Equipment Selection in Surface Mining*, Calgary, Canada, pp. 373-378.
- 3.002. **Inyang, H. I.** And Pitt, J. M. 1990. Optimization of impact bit spacing using ultrasonic wave transit time measurements. Proceedings of the *31st U. S. Symposium on Rock Mechanics*, Golden, Colorado, pp. 519- 526.
- 3.001. **Inyang, H. I.** and Pitt, J. M. 1990. Standardization of a percussive drill for measurement of compressive strength of rocks. Proceedings of the *31st U. S. Symposium on Rock Mechanics*, Golden, Colorado, pp. 489- 496.

C.2.4 Other Significant Publications, including Journal Editorials and Technical Reports (Numbered 4.102 – 4.001 in reverse chronology totaling 102 publications)

- 4.102 **Inyang, H. I.** 2013. Coastal marine systems: propagation and management of hazards and wealth. Book of Extended Abstracts. International Conference on Oceanography, Calabar, Nigeria, pp. 2-8.
- 4.101 **Inyang, H. I.** 2013. Leachability of contaminants from exposed waste and their necessary control measures in the humid tropics. Published Full Text of the Mosobalaje Oyanwoye Endowed Lectured, University of Ilorin, Nigeria. 37 pages.
- 4.100 **Inyang, H. I.** 2012. Production and access to scientific data in Africa: a framework for improving the contribution of research institutions. Proceedings of the U.S. National Research Council Symposium on International Sharing of Scientific Data, held in April 18-19, 2011, National Academy Press, Washington D.C., pp. 115-117.
- 4.099. **Inyang, H. I.** 2011. Decommissioning of diesel - fueled electric power generators in developing countries (editorial) (in press).
- 4.098. **Inyang, H. I.** 2011. Perils of neglect of science in development programs. *Industry and Technology Review*, vol. 2, No. 1, pp. 33-35.
- 4.097. **Inyang, H. I.** 2011. Challenges of mobilizing the diaspora for African development. *African Science and Technology Digest*, vol. 10, No. 7, pp. 13-16.
- 4.096. **Inyang, H. I.** 2011. National Technical Guidance Manual for Oil, Soil and Oily Wastes Management in Nigeria (NOSDRA TECH NO.3, 2011), sponsored by the United Nations Development Program. UNDP) 64 pages.
- 4.095. **Inyang, H. I.** 2011, where have all the rivers gone? (Editorial) *The Environmentalist*, Vol.31, No.1, pp1-2.
- 4.094. **Inyang, H. I.** 2010. Sustainability, higher education and national development. Full Text of a Public Lecture at University of Uyo, Nigeria, published by that University's Office of International Program, 53 pages.
- 4.093. **Inyang, H. I.** 2010. A compendium of funding opportunities for development programs and Projects in Africa. Compiled under the Auspices of United Infrastructure Systems, Abuja, Nigeria, 15 pages.
- 4.092. **Inyang, H. I.** 2010. Environmental Management Framework for the Federal Capital Territory (FCT) of Nigeria: Review and strategic recommendations. Developed under the Auspices of the United Nations Development Programme (UNDP), 58 pages.
- 4.091. **Inyang, H. I.** 2010. Configuration of electronic sensing systems for contaminant transport predictions. Proceedings of the Third International Forum on Opto - electronic Sensor - based Monitoring in Geo- engineering, Suzhou, P.R.China, pp. 29-35.
- 4.090. **Inyang, H. I.** 2010. Configuring universities for greater contribution to regional sustainable development. Published Summary Remarks of Contributions to Panel at the Conference on Higher Education in Global Age, Abu Dhabi. *Daily Champion Newspaper*, Wednesday, January 13, pp. 34.
- 4.089. **Inyang, H. I.** 2010. Promotion of sustainable oil and gas operations in Africa (editorial). *Journal of Energy Engineering*, ASCE, Vol. 136, No. 3, pp. 67.
- 4.088. **Inyang, H. I.** 2009. Building science, technology and Innovation (STI) partnerships. Written Contribution to World Bank Global Forum on STI Capacity, Washington D.C. USA, 12 pages.
- 4.087. **Inyang, H. I.** 2009. Impacts of natural disasters on energy systems. *Journal of Energy Engineering*, ASCE, Vol.135, No. 2, pp. 25-26.

- 4.086. **Inyang, H. I.** 2009. Materials extraction and use within the framework of global sustainable development. *Journal of Energy Engineering, ASCE*, Vol.135, No.1, pp. 1-2.
- 4.085. **Inyang, H. I.**, Akpna, V.P. and Obasi, S. 2009. Summary report on agricultural challenges. African Science and Technology Challenges Workshop, Abuja, Nigeria, pp. 23-25.
- 4.084. **Inyang, H. I.**, Asuquo, B. and Hassan, S.M. 2009. Summary report on education, governance and policy challenges. African Science and Technology Challenges Workshop, Abuja, Nigeria, pp. 26-28.
- 4.083. **Inyang, H. I.** and Sefia, T.O.P. 2009. Summary report on energy challenges. African Science and Technology Challenges, Workshop, Abuja, Nigeria, pp. 29-31.
- 4.082. **Inyang, H. I.** Aniebonam, M. and Fonkam, M. 2009. Summary report on information communication and telecommunications challenges. African Science and Technology Challenges Workshop, Abuja, Nigeria, pp. 34- 26.
- 4.081. **Inyang, H. I.** 2009. Preliminary impact assessment report/ inception report of the proposed upgrade of the Abuja Central Park and Botanical Garden. A UIS Ltd Project Report submitted to Jardin (Nig.) Ltd., Abuja, Nigeria, 46 pages.
- 4.080. Schwarz, P. M., **Inyang, H. I.** and Mbamalu, G. 2009. Sustaining sustainability: approaches and contexts (editorial). *Journal of Environmental Management*, Vol. 90, No.12, pp 3687-3689
- 4.079. **Inyang, H. I.** 2008. Tracking the durability of geomaterials as contaminant barriers in waste containment Systems (editorial). *International Journal of Soil and Sediment Contamination* Vol.17, pp.314- 315.
- 4.078. **Inyang, H. I.** 2008. Aligning universities for excellence in sustainable development research and education. Full Text of Distinguished Guest Lecture presented at the University of Lagos, Nigeria, published by the School of Post-Graduate Studies, University of Lagos, 39 pages.
- 4.077. **Inyang, H. I.** 2008. Geomaterial excavation in surficial environments (editorial). *International Journal of Geomechanics, ASCE*, Vol.8, No.1, pp.1.
- 4.076. **Inyang, H. I.** and Ogunro, V. O. 2007. A quantitative framework for long - term performance assessment of waste management infrastructure using hazard analysis method. A Final Report of Research Performed under Award No. 0219798 Granted by the National Science Foundation, 94 pages.
- 4.075. **Inyang, H. I.** 2007. Technical and policy mechanisms for implementation of renewable energy systems in developing countries. Proceedings of the Fifth United Nations University and GIST Joint Program Workshop on Sound Management of Hazardous Chemicals and Sustainable Energy, Gwangju, R. of Korea, pp1-13.
- 4.074. Bae, S. and **Inyang, H. I.** 2007. GIS-based environmental sensitivity analysis for economic development. Proceedings of the Fifth United nations University and GIST Joint Program Workshop on Sound Management of Hazardous Chemicals and Sustainable Energy, Gwangju, R. of Korea, pp. 14-15.
- 4.073. **Inyang, H. I.**, Benchikh, O. and Piet, S. J. 2007. Requirements for accelerated transformation of energy systems in civil and industrial infrastructure (editorial). *International Journal of Global Energy Issues*, Vol. 28, No. 2/3, pp. 135-137.
- 4.072. **Inyang, H. I.** 2007. Priming ethanol production infrastructure for increased energy market share in developing countries (editorial). *Journal of Energy and Environment*, Vol. 18, No. 3 & 4, pp. 361-362.
- 4.071. **Inyang, H. I.** and Bae, S. 2007. The aerogeochemistry of cities (editorial). *Environmental Monitoring and Assessment*, Vol. 130, pp. 1-2.
- 4.070. **Inyang, H. I.** and Bae, S., and Puppala, A. 2007. Application of advances in materials chemistry and Mineralogy in soil stabilization (editorial). *Journal of Materials in Civil Engineering, ASCE*, Vol. 19, No.1, pp. 1-1.
- 4.069. **Inyang, H. I.** 2006. Scalable environmental monitoring systems: the spread of technologies to come (editorial). *Journal of Environmental Systems*, Vol.32, No. 1, pp1
- 4.068. **Inyang, H. I.** 2006. Dependence of observation – based conclusions on the thermodynamics and kinetics of environmental processed (editorial). *Journal of Environmental Systems*, Vol. 32, No. 2, pp 91-92.
- 4.067. **Inyang, H. I.** 2006. Tailoring tertiary education to address global sustainable development (editorial). *Journal of Environmental Systems*, Vol. 32, No. 3, pp. 199-200.
- 4.066. **Inyang, H. I.** 2006. Strategic directions of the ASCE Journal of Energy Engineering (editorial). *Journal of Energy Engineering, ASCE*, Vol.132, No.2, pp. 43.
- 4.065. **Inyang, H. I.** and Neufeld, R. D. 2006. Scaling sustainable energy options in terms of accessibility, availability and acceptability of options (editorial). *Journal of Energy Engineering, ASCE*, Vol. 132, No.3, pp. 89-90.
- 4.064. **Inyang, H. I.** and Frimpong, S. 2006. Energy deployment manifestations on environmental sustainability (editorial). *Journal of Energy Engineering, ASCE*, Vol. 133, No. 1, pp. 1-2.
- 4.063. **Inyang, H. I.** and Bae, S. 2006. Impacts of dust on environment systems and human health (editorial). *Journal of Hazardous Materials*, Vol. 132, pp. V-VI.
- 4.062. **Inyang, H. I.** and Saarela, J. 2006. Deployment of innovative technologies for environmental assessments and management (editorial). *International Journal of Environment and Waste Management*, Vol.1, No. 1, pp. 1-3.
- 4.061. **Inyang, H. I.** 2006. Policy implications of models of contaminant emissions from materials (editorial). *Environmental Engineering Science*, Vol. 23, No. 1, pp. 138-139.
- 4.060. **Inyang, H. I.** and Bae, S. 2006. Cohesion, adhesion and durability of stabilized materials editorial). *Journal of*

- Materials in Civil Engineering, ASCE, Vol. 18, No. 2, pp.133-134.
- 4.059. **Inyang, H. I.** 2006. Simulation of service conditions and extrapolation of laboratory leaching data to field scenarios (editorial). *Environmental Engineering Science*, Vol. 23, No. 1, pp. 1-3.
 - 4.058. **Inyang, H. I.** 2006. Four - Year (2002 - 2006) Performance Report of the Global Institute for Energy and Environmental Systems (GIEES), University of North Carolina at Charlotte, 65 pages.
 - 4.057. **Inyang, H. I.** 2006. Design, analysis and management of landfills. Technical Document, 61 pages.
 - 4.056. **Inyang, H. I.** 2005. Contaminant leachability from ash utilized in geosystems. *Proceedings of International Symposium on Soil and Groundwater Environment*, Seoul, Korea, pp. 5-21.
 - 4.055. **Inyang, H. I.** and Telang, A. A. 2004. A tool for estimation of the performance of ladder – type excavators in rock for energy and civil infrastructure (TEPLER). A Computer Program and Manual, 35 pages.
 - 4.054. **Inyang, H. I.** 2004. The convergence of global sustainable development issues. *Proceedings of the 7th International Symposium on Environmental Geotechnology and Global Sustainable Development*, Helsinki and Espoo, Finland, pp.x1-x3.
 - 4.053. **Inyang, H. I.,** Ogunro, V.O., Saarela, J. 2005. Matching geomaterials specifications to spatially variable environmental stresses in developing countries (editorial). *Management of Environmental Quality*, Volume 16, No. 6, pp. 1477-7835.
 - 4.052. **Inyang, H. I.,** Piet, S. J., Breckenridge, R. and Lo, I. M. C. 2005. Improvement of approaches to waste containment system development, management and evaluation (editorial). *Practice Periodical of Hazardous, Toxic and Radioactive Waste Management*, Vol. 9, No. 4, pp. 207-209.
 - 4.051. **Inyang, H. I.** 2004. The global ecosystem: environmental and socioeconomic challenges and opportunities (editorial). *Journal of Environmental Engineering, ASCE*, Vol.130, No. 9, pp. 923-924.
 - 4.050. **Inyang, H. I.** 2004. Geochemical and health policy dimensions of the controversy about fluorides in water resources (editorial). *Journal of Environmental Engineering, ASCE*, Vol. 130, No. 2, pp. 113-114.
 - 4.049. **Inyang, H. I.** and de Brito Galvao, T. C. 2004. The application of innovative materials in waste containment barriers (editorial). *Journal of Environmental Engineering, ASCE*, Vol. 130, No. 8, pp. 834- 835.
 - 4.048. **Inyang, H. I.,** de Brito Galvao, T. C. And Young, D. T. 2003. Integrating hazards control into sustainable Development plans (editorial). *Natural Hazards Review, ASCE*, Vol. 4, No. 2, pp. 57-58.
 - 4.047. **Inyang, H. I.** 2003. On models, modeling and modelers in the environmental arena (editorial). *Journal of Environmental Engineering, ASCE*, Vol. 129, No. 6, pp. 489-490.
 - 4.046. **Inyang, H. I.,** de Brito Galvao, T. C. and Hilger, H. 2003. Waste recycling within the context of industrial ecology (editorial). *Resources Conservation and Recycling*, Vol. 39, No. 1, pp. 1-2.
 - 4.045. **Inyang, H. I.,** de Brito Galvao, T. C. and Bowen, J. D. 2003. Environmental monitoring technology Development needs in developing countries (editorial). *Environmental Monitoring and Assessment*, Vol. 84, No. 1- 2, pp. 1-3.
 - 4.044. **Inyang, H. I.** and de Brito Galvao, T. C. 2003. Persistent research issues in risk assessment of wastes in full-scale systems (editorial). *Journal of Environmental Engineering, ASCE*, Vol. 129, No. 10, pp. 855- 886.
 - 4.043. **Inyang, H. I.** and Pati, S. K. 2003. Software for estimation of barrier material characteristics, using mixture rules (SEBMIX). A Computer Program and Manual, 66 pages.
 - 4.042. **Inyang, H. I.,** Kadam, P. R., Wachsmuth, P. and Shah, M. 2003. Simulation of gamma rays generation and transport in soils (SIGARA). A Computer Program and Manuel, 56 pages.
 - 4.041. **Inyang, H. I.** and de Brito Galvao, T. C. 2002. Adaptation of mining sciences and technology to the solution of Geoenvironmental problems (editorial). *International Journal of Surface Mining, Reclamation and the Environment*, Vol. 16, No. 4, pp. 245-247.
 - 4.040. **Inyang, H. I.** 2000. The coalescence of environmental and natural disaster impacts (editorial). *Journal of Environmental Engineering, ASCE*, Vol. 26, No. 6, pp. 481.
 - 4.039. **Inyang, H. I.** and Reddi, L. N. 2000. The scope and utility of geoenvironmental engineering (editorial). *Journal of Environmental Engineering, ASCE*, Vol. 126, No. 2, pp. 93.
 - 4.038. **Inyang, H. I.** 1999. Enviro- telecommunication and visualization systems: critical developments (editorial). *Journal of Environmental Engineering, ASCE*, Vol. 125, No. 12, pp. 1091.
 - 4.037. **Inyang, H. I.** 1999. Emergence of transboundary environmental problems (editorial). *Journal of Environmental Engineering, ASCE*, Vol. 125, No. 11, pp. 995.
 - 4.036. **Inyang, H. I.** 1999. Balancing prescriptive and performance - based design specifications for waste containment systems (editorial). *Journal of Environmental Engineering, ASCE*, Vol. 125, No. 6, pp. 491.
 - 4.035. **Inyang, H. I.** 1999. Review of Fluid Transport in Porous Media. Prieur de Plessis (Ed.) *Computational Mechanics Publishers*, UK. *Environmental Monitoring and Assessment*, Vol. 57, pp. 111-112.
 - 4.034. **Inyang, H. I.,** Asante - Duah, K., and Ogunro, V. O. 1999. Reuse of contaminated soils in constructed facilities. Technical Report of an Analysis Sponsored by the Massachusetts Department of Environmental Protection, Boston, MA, 114 pages.
 - 4.033. **Inyang, H. I.,** Daniels, J. L., Parikh, J. M. and Howe, G. S. 1998. Characterization of contaminant barrier materials. CEEST/007R-98. Research Report Submitted to DuPont Company, Wilmington, DE. 44 pages.

- 4.032. **Inyang, H. I.**, Bruell, C.J., Parikh, J. M. and Daniels, J. L. 1998. Batch sorption of heavy metals on additive-amended barrier materials. CEEST/008R-98. Research Report Submitted to DuPont Co., Wilmington, DE. 203 pages.
- 4.331. **Inyang, H. I.**, and Betsill, J. D. 1998. Hierarchy of monitoring techniques for subsurface contaminants and containment systems (editorial). *Journal of Environmental Engineering, ASCE*, Vol. 124, No. 6, pp. 488.
- 4.030. **Inyang, H. I.** 1998. Appraisal of some evolving environmental issues relevant to underground space development (editorial). *Journal of Environmental Engineering, ASCE*, Vol. 124, No. 3, pp. 197.
- 4.029. **Inyang, H. I.**, Daniels, J. L. and Parikh, J. M. 1998. Attenuation of heavy metals in densified columns of barrier materials. CEEST/009R-98. Research Report Submitted to DuPont Company, Wilmington, DE. 43 pages.
- 4.028. **Inyang, H. I.**, Asante-Duah, K., Lin, H., Fisher, G., Greenwood, A., Boccia, J., Grinstein, G., Cvek, U., Gee, A. and Aeosta, J. 1998. Earth vision 2000 Environmental Modeling Handbook.
- 4.027. Iskandar, I. K. and **Inyang, H. I.** 1998. Environmental remediation of metal contaminated sites. Abstract for Proceedings of the International Conference on Hazardous Waste Sources, Effects and Management, Cairo, Egypt.
- 4.026. Daniels, J. L., Work, D. V., Fang, H. Y., and **Inyang, H. I.** 1998. Remediation of contaminated sites by solar-electromagnetic wave process. Proceedings of the 5th Annual Northeast Student Environmental Conference, Lowell, MA, pp. 31-43.
- 4.025. **Inyang, H. I.** 1998. Global dimensions of African environmental deterioration. *Whydah:Magazine of the African Academy of Sciences*, Vol. 7, No. 122, pp. 5-6.
- 4.024. Coletta, T. F., Bruell, C. J., Ryan, D. K., and **Inyang, H. I.** 1996. The use of electrokinetics, natural and synthetic flushing solutions in the removal of lead from Koalin clay. Proceedings of the 4th Annual Northeast Regional Student Environmental Conference, Lowell, MA, pp.71-77.
- 4.023. **Inyang, H. I.** 1998. Geoenvironmental issues and sustainable development. A Project Report on Research Interaction and Colloquium Sponsored by the U.S. National Research Council/National Academy of Sciences, Washington, DC, 8 pages.
- 4.022. **Inyang, H. I.**, Sam, P., Moeller, W. B. and Ogunro, V. 1997. Analysis and recommendations for improving environmental assessment capacity for development projects in Africa. A Project Report developed by CEEST/AERCG for the African Development Bank, Abidjan, Ivory Coast, 75 pages.
- 4.021. **Inyang, H. I.** 1996. Geoenvironmental aspects of water pollution in Nizhnevartovsk, Siberia, Russia. A Report to the National Research Council/National Academy of Sciences, Washington, DC, 17 pages.
- 4.020. Woolard, C., Wernstedt, K., Kaplan, D., **Inyang, H. I.** and Gremillion, P. 1996. Trip Report for the Program on Urban Water Quality in Russia. National Research Council, Washington, DC, 44 pages.
- 4.019. **Inyang, H. I.** 1996. Environmental risk reduction option screening/prioritization methodology. Draft Section Report. Risk Reduction Options Sub-committee, Science Advisory Board, U.S. environmental Protection Agency, Washington, DC, 11 pages.
- 4.018. **Inyang, H. I.** 1996. Sorption of inorganic chemical substances by geomaterials and additives. Project Report CEEST/001R-96 submitted to DuPont Corporate Remediation, Wilmington, DE. 59 pages.
- 4.017. **Inyang, H. I.** 1995. Waste storage chamber excavation: excavator bit – rock interaction. Proceedings of the U.S./Taiwan Geotechnical Engineering Collaborative Workshop, Taipei, Taiwan, pp. 28-38.
- 4.016. **Inyang, H. I.** 1995. Contaminant generation processes and barrier system deterioration rate modeling. Proceedings of the U.S./Taiwan Geotechnical Engineering Collaborative Workshop, Taipei, Taiwan, pp. 262-270.
- 4.015. **Inyang, H. I.** 1994. Geotechnics for controlling pollution associated with regional infrastructure improvement. Proc. Of the Workshop on Geoenvironmental Issues Facing the Americas, Mayaguez, Puerto Rico, pp. 83-92.
- 4.014. **Inyang, H. I.** 1994. Analysis of potential performance of PEPCO ash in constructed facilities. Technical Report, submitted to the Potomac Electric Power Company (PEPCO), Washington, D. C., 120 pages.
- 4.013. **Inyang, H. I.** 1994. Mitigation of flood hazards to waste treatment, storage and disposal facilities in flood-prone areas. Technical Guidance and Resource Document, Office of Solid Waste, U. S. Environmental Protection Agency, Washington, D. C., 94 pages.
- 4.012. **Inyang, H. I.** 1994. Cost - effective post construction integrity verification monitoring and testing techniques for subsurface barrier containment facilities. Technical Analysis Document, DuPont Chemicals, Wilmington, Delaware, 78 pages.
- 4.011. **Inyang, H. I.** 1993. An assessment of the potential effectiveness of the selected remediation measures for contamination at the Midvale, Utah Mining Waste Site. Technical Document, Office of Emergency and Remedial Response, U. S. Environmental Protection Agency, Washington, D. C., 23 pages.
- 4.010. **Inyang, H. I.** 1993. Environmental issues pertinent to waste materials in construction. Proceedings of Abstract of the Conference on Materials and the Global Environment, American Society of Materials (ASM), Alexandria, Virginia.
- 4.009. **Inyang, H. I.** and Myers, V. B. 1993. Geotechnical systems for structures on contaminated sites. Technical Guidance Manual, EPA 530-R-93-002. Office of Solid Waste, U. S. Environmental Protection Agency, Washington, D. C. 145 pages.

- 4.008. **Inyang, H. I.** and Tomassoni, G. 1992. Indexing of long - term effectiveness of waste containment systems for a regulatory impact analysis. Technical Resource Manual. Corrective Action Programs Branch, Office of Solid Waste, U. S. Environmental Protection Agency, Washington, D. C. 29 pages.
- 4.007. **Inyang, H. I.** and Ugarte, A. E. 1992. Strategy options & technical considerations for disposal of contaminated dredged sediments: a synthesis. Technical Review Document, Corrective Action Programs Branch, Office of Solid Waste, U. S. Environmental Protection Agency, Washington, D.C. 48 pages.
- 4.006. **Inyang, H. I.** 1992. Design and analysis of slurry walls for waste containment. Draft Technical Guidance Document, Office of Solid Waste, U. S. Environmental Protection Agency, Washington, D.C. 38 pages.
- 4.005. **Inyang, H. I.** 1991. Hazardous waste facilities in seismic zones. AAAS/U.S.E.P.A Environmental Science and Engineering Fellowship Report. American Association for the Advancement of Science (AAAS), Washington, D.C., 81 pages.
- 4.004. **Inyang, H. I.** 1991. Blasting in an urban environment. Int. Public Works Review, Vol. 1, No. 3, pp. 35- 41.
- 4.003. **Inyang, H. I.** 1989. Engineering characteristics of Wisconsin peat soils. Research Report/Design Manual of the Soils Unit, Materials Research Center, Wisconsin Depart. of Transportation, Madison, Wisconsin. 89 pages.
- 4.002. **Inyang, H. I.** and Pitt, J. M. 1988. Predictions and improvement in rock trenchability II. Research Report of the Iowa State Mining and Mineral Resources Research Institute. USBM Grant G1164119, pp. 41-62.
- 4.001. **Inyang, H. I.** and Pitt, J. M. 1987. Predictions and improvement in rock trenchability I. Research Report of the Iowa State Mining and Mineral Resources Research Institute. USBM Grant G1164119, pp. 57-64.

C.3 Invited Lectures, Televised Presentations at Seminars, Workshops and Other Events (listed in reverse chronology, totaling 185 lectures, and noting that some presentations had accompanying manuscripts)

- 5.185 **Inyang, H. I.** Configuration of sustainable development systems with coverage of climate change adaptation: state-level elements.
- July 27, 2016. Keynote Technical Lecture at the First Akwa Ibom State Climate Change and Clean Energy Mega-Summit/Expo 2016, organized by the Ministry of Environment and Natural Resources, Uyo, Akwa Ibom State, Nigeria.
- 5.184 **Inyang, H. I.** Configuration of systems to manage and remediate damages caused by oil spills in Nigeria.
- June 3, 2016. Keynote Lecture at 2016 IECL World Environmental Forum on Conservation of Africa's Biodiversity held at the Nigerian Institute of International Affairs, Victoria Island, Lagos, Nigeria.
- 5.183 **Inyang, H. I.** Science and Technology, - keys to sustainable development of Africa-The Israeli Experience.
- November 6, 2014. 6th Annual Lecture of the Centre for African-Israeli Development (CAID) Abuja, Nigeria.
- 5.182 **Inyang, H. I.** Palapye emerging infrastructure investment opportunities-BIUST Investment partner.
- October 10, 2014. Guest Speech at the Central Business District (CBD) Executives Conferences, Gaborone, Botswana.
- 5.181 **Inyang, H. I.** STEM education: observations and recommendations.
- August 20, 2014. A Keynote Address at the 55th Annual Conference of the Science Teachers Association of Nigeria (STAN), Asaba, Nigeria.
- 5.180 **Inyang, H. I.** Broadband for sustainable development.
- May 17, 2014. Guest Keynote Speech at the World Communications and Information Society Day (WITSD) Selibe-Phikwe, Botswana.
- 5.179 **Inyang, H. I.** Contaminant leachability processes.
- April 28, 2014. Session Lecture at the ISEG Conference on Soil and Groundwater Environment, Seoul, South Korea.
- 5.178 **Inyang, H. I.** Towards improvement of science and technology systems in Africa.
- April 10, 2014. Plenary Session Lecture, Conference of the International Association of Science Parks, Gaborone, Botswana.
- 5.177 **Inyang, H. I.** Sustainable energy science plans and follow-up activities in Africa.
- April 8, 2013. Invited Presentation, Global-Regional Integration Workshop on Sustainable Energy hosted by the Mexican Academy of Sciences, Mexico City, Mexico.
- 5.176 **Inyang, H. I.** Emerging energy challenges in Africa: Formulation of adaptation systems; and readiness of the countries as well as perspective on the continent.
- March 13, 2013. Invited Lecture at the Technical Workshop of the 14th International Council for Science Regional Committee for Africa (ICSU-ROA), Pemba, Mozambique.
- 5.175 **Inyang, H. I.** Environmental risk assessment
- December 13, 2012. Invited Public Lecture, University of Lagos, Lagos, Nigeria.
- 5.174 **Inyang, H. I.** Fundamentals of human exposure assessment for contaminants.
- November 24, 2012. Presented to Faculty and Students at Keimyung University, Daegu, South Korea.
- 5.173 **Inyang, H. I.** Environmental impacts of natural disasters.

- Nov. 23, 2012. Session Lecture at the International Symposium on Strategies for Environmental Bio—Industry of the Future, hosted by Chonbuk National University, Iksan, Jeonbuk, South Korea.
- 5.172 **Inyang, H. I.** Contaminated site remediation processes and technologies.
- November 20, 2012. Presented to Faculty and Postgraduate students of the University of Seoul. , Seoul, South Korea
- 5.171 **Inyang, H. I.** Pre-fracturing of rocks for improvements of excavation rates.
- October 15, 2012. Special Research Lecture at the Geomechanics Research Institute, China University of Mining and Technology (CUMT), Xuzhou, China.
- 5.170 **Inyang, H. I.** Design and networked monitoring systems for gamma radiation emissions from radiologically contaminated sites.
- October 11, 2012. Invited Lecture at 4th International Forum on Opto-Electric Sensor-based Monitoring in Geo-Engineering (4th OSMG) hosted by Nanjing University High-Tech Institute, Xuzhou, China.
- 5.169 **Inyang, H. I.** Selecting an appropriate energy mix for Nigeria’s sustainable development: policy and technical requirements.
- July 25, 2012. A Keynote Lecture at the Public Presentation Ceremony of the ‘Book “Fundamentals of Energy and Environmental Journalism” at the University of Lagos, Lagos, Nigeria.
- 5.168 **Inyang, H. I.** Leachability of contaminants from exposed wastes and their necessary control measured in the humid tropics.
- July 25, 2012. The Mosobalaje Oyawoye Faculty of Science Endowed Lecture Series, University of Ilorin, Ilorin, Nigeria.
- 5.167 **Inyang, H. I.** The necessary regulatory, policy and technical framework for enhancement of Nigeria’s environmental security.
- June 29, 2012. A Keynote Lecture to the Senate of the Federal Republic of Nigeria at its Retreat, Uyo, Nigeria.
- 5.166 **Inyang, H. I.** Mechanism of energy efficiency improvements at various jurisdictional levels.
- June 21, 2012. A session Presentation at the International Conference on Technology Transfer and Renewable Energy (ICTTRE), Reduit, Mauritius.
- 5.165 **Inyang, H. I.** Climate change and its potential impacts on African ecological systems.
- May 17, 2012. An Invited Public Seminar Presentation at the American University of Nigeria, Yolo, Nigeria.
- 5.164 **Inyang, H. I.** Beyond contaminant concentration measurements: use of data in contaminant migration analyses and environmental risk assessment.
- January 3, 2012. An invited Lecture at the University of Uyo, Uyo, Nigeria
- 5.163. **Inyang, H. I.** Zonation of climate change-induced hazards in Africa and configuration of adaptation systems.
- December 14, 2011. A Keynote Lecture at the Africa Climate Change ECOTECH Summit and Training Workshop, Abuja, Nigeria.
- 5.162. **Inyang, H. I.** Peace and security: the dynamics and paradigms for Africa
- November 30, 2011. A Session Opening Lecture at the Colloquium on Peace, Security and Governance, organized by the Security Institute for Governance and Leadership in Africa, Stellenbosch University, Cape Town, South Africa.
- 5.161 **Inyang, H. I.** Impacts of energy production and utilization systems on the environment.
- August 4, 2011. An invited Lecture at the Joint Symposium of the Mauritius Research Council (MRC), and Small Island Renewable Energy Knowledge and Technology Transfer Network (DIREKT), Eben City, Mauritius.
- 5.160. **Inyang, H. I.** Professional posturing for opportunities in a globalizing world.
- July 22, 2011. Awards Night Guest Lecture of the League of AKWA Ibom Professionals, Abuja, Nigeria.
- 5.159. **Inyang, H. I.** African collaboration and the way forward: using science and technology to drive sustainable development.
- July 19, 2011. Invited Lecture at the 2nd ICSU Consultative Forum, organized by the Department of Science and Technology - Republic of South Africa, National Research Council of South Africa, and the International Research Council for Science, Regional Office for African, (ICSU-ROA), Pretoria, South Africa.
- 5.158. **Inyang, H. I.** An appraisal of persistent and emerging issues in African sustainable development.
- May 30, 2011. Keynote Lecture at the Plenary Session of the RIO+ 20 Preparatory Regional Workshop, organized by ICSU-ROA and UNESCO, Pretoria, South Africa
- 5.157. **Inyang, H. I.** The necessary transformation from brown to green economy in Africa.
- May 30, 2011. Session Lecture at the RIO+ 20 Preparatory Regional Workshop, organized by ICSU-ROA and UNESCO, Pretoria, South Africa
- 5.156 **Inyang, H. I.** Production and access to Scientific data in Africa
- April 18, 2011. An Invited Presentation at the International Symposium on the Case for International Sharing of Scientific Data organized by the U.S. National Academy of Sciences (NAS) Board on International scientific Organizations, and the U.S. Committee on Data for Science and Technology (USCODATA), Washington D.C., USA.

- 5.155. **Inyang, H. I.** Toward an escape from poverty and deprivation.
- February 11, 2011. The Dave Omokaro Memorial Lecture presented at the Inaugural Forum on Education, Research and Community Development, Calabar, Nigeria.
- 5.144. **Inyang, H. I.** An assessment of the impacts of global climate change on water resources, food production and human health in Nigeria.
- December 17, 2010. An Invited Lecture at the National Climate Change Conference of the Environmental Management Associations of Nigeria, Abuja, Nigeria.
- 5.143. **Inyang, H. I.** Challenges of mobilizing the diaspora for African development.
- December 8, 2010. An invited lecture at the Annual Ministerial Retreat of the Directorate of Technical Cooperation in Africa (DTCA), Ministry of Foreign affairs, Federal Republic of Nigeria, Abuja, Nigeria.
- 5.142. **Inyang, H. I.** Environmental pollution of the Niger Delta: problems and solutions.
- November 25, 2010. Keynote Lecture presented at the Summit on Niger Delta Environment, Economic Development and Human Rights, Port Harcourt, Nigeria
- 5.141. **Inyang, H. I.** Environmental codes and standards of practice for telecommunication systems
- November 9, 2010. An Invited Lecture at the Annual General Meeting (AGM) and conference of the Environment Division, Nigerian Society of Engineers, Abuja, FCT.
- 5.140. **Inyang, H. I.** Structuring and use of science-based decision support systems in African development programs.
- October 27, 2010. An Invited Presentation at the 22nd international CODATA conference on Scientific Data and Sustainable Development, Stellenbosch, Cape Town, South Africa.
- 5.139. **Inyang, H. I.** The perils of neglect of science in economic development programs.
- October 14, 2010. A Keynote Speech at the First High Level Roundtable on Science, Technology and Innovation, National Press Center, Abuja, Nigeria.
- 5.138. **Inyang, H. I.** Appropriate guidelines for investors and guarantors of integrated solid waste management systems in Nigeria.
- December 15, 2010. An Invited Presentation at the Stakeholders Forum on Public-Private Sector Partnership on Waste management, Calabar, Nigeria.
- 5.137. **Inyang, H. I.** sustainability, higher education and national development.
- October 7 2010. A public Lecture at the Invitation of the Office of International Programs, university of Uyo, Uyo, Nigeria,
- 5.136. **Inyang, H. I.** Configuration of electronic sensing systems for contaminant transport predictions.
- September, 2010. A Keynote Lecture presented at the 3rd International Forum on Opto-Electronic Sensor-based Monitoring in Egoengineering, Suzhou, and P.R. China.
- 5.135. **Inyang, H. I.** Impacts of soil erosion on surface water quality in Africa.
- September 7, 2010. An Invited Lecture at the Africa Water Resources Management Conference (IASTED-WRM 2010), organized by the International Association of Science and Technology for Development, Gaborone, Sotswana.
- 5.134. **Inyang, H. I.** Research and educational requirements for sustainable waste management systems.
- May 19, 2010. Plenary Lecture Presented by Proxy at the 3rd International Conference on Engineering for waste and biomass valorization, Beijing, P.R. China.
- 5.133. **Inyang, H. I.** Sustainable urban waste management need and recommended support systems in Sub- Saharan Africa.
- March 29, 2010. A presentation at the UNESCO Workshop on promoting Best Practice in sustainable urban water management, Paris, France.
- 5.130. **Inyang, H. I.** Configuration of educational systems to support African sustainable development.
- September 23, 2009. An Invited presentation at the Educational summit of the 2009. Ron Brown African Affairs Series, US Congressional Caucus Week, Washington, D.C., USA.
- 5.131. **Inyang, H. I.** Technical requirements for waste containment and utilization in Africa.
- July 9, 2009. A Keynote Lecture at the International Conference on Wastes and Biomass Residues Valorizations in developing countries, Ouagadougou, Burkina Faso.
- 5.130. **Inyang, H. I.** Climate change impacts and mitigation strategies: the case of Nigeria.
- June 5, 2009. The 2009 World Environment Day Keynote Lecture, Abuja, Nigeria.
- 5.129. **Inyang, H. I.** Integration of scientific knowledge into public policies in Africa
- May 25, 2009. A Plenary lecture at the Africa Regional Conference of the International council of Associations for science Education, Abuja, Nigeria.
- 5.128. **Inyang, H. I.** Remediation mechanisms
- February 19, 2009. An Invited Lecture to Students and Faculty members of Spelman College, Atlanta, GA, USA.
- 5.127. **Inyang, H. I.** Aligning universities for excellence in sustainable development research and education.
- July 24, 2008. Distinguished Guest Lecture, School of postgraduate studies, University of Lagos, Lagos, Nigeria.

- 5.126. **Inyang, H. I.** The necessary framework for regulatory acts to support policies and technical systems for mitigation of Nigeria's environmental hazards toward attainment of Vision 2020.
- July 15, 2008. An Invited Address Presented to Senate of the Federal Republic of Nigeria, Committee on Environment and Ecology, Abuja, Nigeria.
- 5.125. **Inyang, H. I.** Global energy circumstances that many impact upon US Energy systems and research opportunities.
- June 12, 2008. Plenary Session Presentations at the Inaugural Conference of the council of Energy Research and Education Leaders (CEREL), University of California, CA, USA.
- 5.124. **Inyang, H. I.** Linking solid waste problems to environmental and human health risk in Africa.
- March 26, 2008. A Program presentation at the consultative Forum of the United Nations University /GIST/GIEES Joint Initiative on / Solid Waste and Wastewater management in Africa (UNU-ISWWMA), UNU Institute for Natural Resources in Africa, Legon, Accra, Ghana.
- 5.123. **Inyang, H. I.** Technical and policy mechanisms for implementation of renewable energy systems in Developing countries
- October 31, 2007. An Invited Presentation during the 5th United Nations University and GIST, Korea Joint Programme Workshop on Sound Management of Hazardous Chemicals and Sustainable Energy, Gwangju, Republic of Korea
- 5.122. **Inyang, H. I.** The mechanics of dust generation and suppression using aqueous polymers
- October 29, 2007. An Invited Lecture to Faculty and Students of Myongji University, Myongji, Republic of Korea
- 5.121. **Inyang, H. I.** Coal mining and its environmental impacts in the United States
- October 24, 2007. Thematic Opening Presentation to Begin the China Project III Collaboration involving the US, China and Germany, Xuzhou, Jiangsu Province, China
- 5.120. **Inyang, H. I.** Durability of geomaterials as barriers for contaminants in the subsurface
- October 22, 2007. Keynote Lecture at the Opening of the International Symposium on Geo-Environmental Engineering for Sustainable Development (GeoEnv. 2007), Xuzhou, China (Oct. 22-24)
- 5.119. **Inyang, H. I.** The challenges of global sustainable development
- August 29, 2007. A Keynote Lecture presented at the Opening Plenary Session of the International Conference on Environmental Geotechnology and Global Sustainable Development, Ljubljana, Slovenia
- 5.118. **Inyang, H. I.** Requirements for market expansion for renewable energy systems
- February 27, 2007. A Thematic Lecture presented at the Economist Conference-Second International Energy Summit on Tilting the Global Balance, Athens, Greece
- 5.117. **Inyang, H. I.** A vision for collaborative research programs on energy and the environment
- February 1, 2007. A Lecture presented to Administrators, Faculty and Students of the University of Connecticut, Storrs, CT
- 5.116. **Inyang, H. I.** Physico-chemical interactions of polyacrylamide (PAM) solutions with soils in dust control
- February 1, 2007. A Lecture Presented to Faculty and Students of the College of Engineering and Center for Environmental Science and Engineering, University of Connecticut, Storrs, CT
- 5.115. **Inyang, H. I.** Controls on the performance of waste containment barrier materials
- October 2, 2006. A Seminar Presented to Faculty and Students of the Center for Environmental Engineering, Research and Education, University of Calgary, Calgary, Canada
- 5.114. **Inyang, H. I.** Knowledge-based Systems for Global Sustainable Development
- September 11, 2006. ISEG Presidential Address at the Opening Ceremony of the International Conference on Infrastructure Development and the Environment (ICIDEN ABUJA 2006), Abuja, Nigeria
- 5.113. **Inyang, H. I.** My vision and medium - term (2007 - 2012) strategy for increasing United Nations University's contributions to global sustainable development and peace
- September 1, 2006. A Presentation made to Senior Administrators of the United Nations, Geneva, Switzerland
- 5.112. **Inyang, H. I.** Global Consultations and Technical Collaboration for Disaster Mitigation
- August 27, 2006. Plenary Session GADR Presidential Speech at the International Disaster Reduction Conference (IDRC Davos 2006), Davos, Switzerland
- 5.111. **Inyang, H. I.** The browning of Greenfields: infrastructure development and the health of nations
- June 5, 2006. The Professional Night Lecture presented under the auspices of the Educational Testing Service, Advanced Placement Program, Clemson, South Carolina
- 5.110. **Inyang, H. I.** Physico-chemical interactions of polyacrylamide with soils in dust control.
- May 18, 2006. A Seminar presented to Students and Faculty of the Pratt School of Engineering, Duke University, Durham, North Carolina
- 5.109. **Inyang, H. I.** Design and analysis of waste containment systems.
- April 25, 2006. Plenary Lecture at the International Symposium for the Treatment of Solid Waste, Rio de Janeiro, Brazil.
- 5.108. **Inyang, H. I.** Contaminant leachability from energy (power plant) wastes.

- February 28, 2006. Guest Lecture presented to Faculty Members and Students of the Energy and Environmental Studies Doctoral Program of North Carolina A&T State University, Greensboro, North Carolina.
- 5.107. **Inyang, H. I.** Thermodynamics of contaminant barrier materials
- December 2, 2005. Guest Lecture presented to the Faculty and Students of the Department of Civil and Materials Engineering, University of Illinois-Chicago, Illinois.
- 5.106. **Inyang, H. I.** The opportunity and challenges of global sustainable development
- October 28, 2005. Guest Lecture presented to Administrators, Faculty and Students at the Invitation of the Environmental Graduate Program, Hong Kong University of Science and Technology, Clear Bay, Hong Kong.
- 5.105. **Inyang, H. I.** Contaminant leachability from utilized wastes in geosystems
- October 27, 2005. 10th Anniversary Keynote Lecture presented during the Opening Ceremony of the international Symposium on Soil and Groundwater Environment organized by the Korean Society of Soil and Groundwater Environment, Seoul, Korea.
- 5.104. **Inyang, H. I.** Economy, environment and community health in developing countries
- July 29, 2005. Lead Presentation at the International Conference on Energy, Environment and Disasters (INCEED 2005), Charlotte, North Carolina, U.S.A.
- 5.103. **Inyang, H. I.** Tailoring university education to address global sustainable development
- July 28, 2005. Presentation at the International Conference on Energy, Environment and Disasters (INCEED 2005), Charlotte, North Carolina, U.S.A.
- 5.102. **Inyang, H. I.** Sharing intellectual and material resources for global sustainability
- July 25, 2005. Chairman's Opening Address at the International Conference on Energy, Environment and Disasters (INCEED 2005), Charlotte, North Carolina, U.S.A.
- 5.101. **Inyang, H. I.** Global trends, emerging business issues, and environmental health and safety
- June 29, 2005. Invited Presentation to Senior Environmental Managers of Major U.S. Corporations during their Global Environmental Management Initiative (GEMI) Meeting, Charlotte, North Carolina, U.S.A.
- 5.100. **Inyang, H. I.** Principles of physico-chemical stabilization methods of wastes in the subsurface
- May 2, 2005. Guest Lecture Presented to Chemistry Students of Davidson College, Davidson, North Carolina, U.S.A.
- 5.099. **Inyang, H. I.** Human health implications of environmental quality in Africa
- April 8, 2005. Lecture Presented at the Invitation of the Organizers of Conference on Health in Africa and its Diaspora, UNC Charlotte, Charlotte, North Carolina, U.S.A.
- 5.098. **Inyang, H. I.** To increase public awareness about environmental health risks and their mitigation measures
- March 18, 2005. An Address and Charge to Nigerian Energy and Environmental Journalists at the Launching of the Nigerian Society of Energy and Environmental Journalists, Abuja, FCT, Nigeria.
- 5.097. **Inyang, H. I.** Fundamentals of environmental monitoring and human exposure assessment
- March 15, 2005. All - University Annual Distinguished Lecture Organized by the Graduate School of The University of Calabar, Nigeria.
- 5.096. **Inyang, H. I.** Development, environmental quality and public health in the Niger Delta
- March 14, 2005. A Public Lecture Presented at the Invitation of the Center for Wetlands and Waste Management Studies, University of Uyo, Nigeria.
- 5.095. **Inyang, H. I.** Linking economic development and environmental quality to your health
- March 10, 2005. A Public Lecture Presented in Lagos, Nigeria.
- 5.094. **Inyang, H. I.** Environmental quality aspects of global sustainable development
- January 27, 2005. The Dean Rusk Public Lecture Sponsored by the Dean Rusk International Studies Program, Davidson College, Davidson, North Carolina.
- 5.093. **Inyang, H. I.** The utility and configuration of advanced monitoring systems in environmental and energy applications
- December 9, 2004. Invited Lecture Presented to Engineers, Faculty and Students at Saint Louis University, Madrid, Spain.
- 5.092. **Inyang, H. I.** Thermodynamics of fine materials in environmental applications.
- November 19, 2004. The Charles C. Jones Invited Lecture Organized by Thayer School of Engineering, Dartmouth College, Hanover, New Hampshire, U.S.A.
- 5.091. **Inyang, H. I.** Global health and the browning of greenfields
- November 11, 2004. An Invited Lecture Organized by the Sierra Club, Rock Hill, South Carolina.
- 5.090. **Inyang, H. I.** Chemical stabilization methods for contaminants in the subsurface
- October 29, 2004. Lecture Presented to Faculty Members and Students of the Department of Civil Engineering, University of Hong Kong, Hong Kong, and PR China.
- 5.089. **Inyang, H. I.** Dust stabilization with polymers
- October 28, 2004. Lecture Presented to Students at Nanjing University, Nanjing, and PR China.
- 5.088. **Inyang, H. I.** Some thoughts and vision on the environmental and bioengineering programs of The National Science Foundation

- October 15, 2004. Presentation made to NSF Program Officers at the Invitation of the Directorate of Engineering, Arlington, Virginia.
- 5.087. **Inyang, H. I.** Predictions and improvements in waste storage systems
- October 10, 2004. A Keynote Lecture Presented at the 36th Mid–Atlantic Industrial and Hazardous Waste Conference, University of Connecticut, Storrs, Connecticut.
- 5.086. **Inyang, H. I.** Design, analysis and monitoring of barrier systems for waste containment.
- September 2, 2004. An Invited Lecture Presented to Graduate Students and Faculty of Universidade de Federal do Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil.
- 5.085. **Inyang, H. I.** Sustainable energy policies and technologies.
- August 31, 2004. An Invited Lecture Presented to Energy Industry Professionals and Students under the Auspices of Companhia Energetica de Minas Gerais (CEMIG) and Universidade Federal de Minas Gerais, Belo Horizonte, Brazil.
- 5.084. **Inyang, H. I.** Immobilization technologies for contaminants in the subsurface.
- June 30, 2004. A Special Lecture Presented at the 4th International Symposium on Geotechnics Related to the Environment, Wolverhampton, United Kingdom.
- 5.083. **Inyang, H. I.** Waste containment systems: advances in performance enhancement and monitoring approaches.
- June 10, 2004. A Lead Lecture Presented at the 7th International Symposium on Environmental Geotechnology and Global Sustainable Development, Helsinki, Finland.
- 5.082. **Inyang, H. I.** The convergence of global sustainable development issues.
- June 8, 2004. ISEG Presidential Address at the Opening Ceremony of the 7th International Symposium on Environmental Geotechnology and Global Sustainable Development, Helsinki, Finland.
- 5.081. **Inyang, H. I.** Public health infrastructure support systems for sustainable development of Akwa Ibom State of Nigeria.
- May 29, 2004. Keynote Address at the Launching Ceremony of the Nka Uforo Iban Akwa Ibom State, USA, Inc., Washington, DC.
- 5.080. **Inyang, H. I.** Requirements for the intensification of alternative energy use.
- May 13, 2004. Moderator’s Opening Presentation at the Panel on Renewable Energy and Natural Resources, Summit on Partnering for Sustainability, organized by the Canadian Institute for Environmental Law and Policy, Toronto, Canada.
- 5.079. **Inyang, H. I.** Catalysts and constraints for sustainable development of Akwa Ibom State of Nigeria.
- May 8, 2004. Plenary Presentation, First World Ibom Peoples Political and Economic Summit, Houston, Texas.
- 5.078. **Inyang, H. I.** Internalizing external intellectual support systems for national economic development.
- May 1, 2004. Plenary Presentation, Educational Conference on “Bridging the Gap”, Organized by the Association of Nigerian Engineers in Minnesota in collaboration with GIEES, St. Paul, Minnesota, U.S.A.
- 5.077. **Inyang, H. I.** Integration of disaster mitigation techniques into national environmental control systems.
- March 27, 2004. A Presentation at the 6th Annual Conference of the Global Disaster Information Network, U.S. Department of State, Washington, DC, U.S.A.
- 5.076. **Inyang, H. I.** Linkages of waste management options to environmental and human health risks.
- March 1, 2004. Keynote Lecture at the Invitation of the 21st Century Center of Excellence of Kanazawa University, and Ishikawa International Cooperation and Research Center (IICRC), Kanazawa, Japan.
- 5.075. **Inyang, H. I.** Demerits of centralized infrastructure management systems in developing countries.
- February 14, 2004. Keynote Speech at a Dinner Organized by the Genius of Nigeria Organization as Part of its Sustainable Development Program, Charlotte, North Carolina, U.S.A.
- 5.074. **Inyang, H. I.** Sustainable development and global health.
- November 29, 2003. Keynote Speech at the Grand Opening Ceremony of Choice Medical Associates, East Hartford, Connecticut, U.S.A.
- 5.073. **Inyang, H. I.** Dust generation mechanics and the role of polymer molecular interactions in dust control.
- November 3, 2003. Invited Lecture Presented to Faculty Members and Students at the University of Hong Kong, Pokfulam Road, and Hong Kong.
- 5.072. **Inyang, H. I.** Thermodynamic foundations for contaminant barrier performance analysis within an environmental risk assessment framework.
- November 3, 2003. Guest Lecture Presented to Faculty Members and Graduate Students at the Invitation of the Environmental Graduate Program, Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong.
- 5.071. **Inyang, H. I.** Fundamental mechanisms of soil decontamination systems.
- November 1, 2003. A Commemorative Lecture for 1999 Designation of H. I. Inyang as Concurrent Professor (Honorary) of the Advanced Computational Engineering Institute of the Earth Environment (ACEI), Nanjing University, Nanjing, PR China.

- 5.070. **Inyang, H. I.** Development of innovative monitoring techniques for enhancement of the security of municipal and industrial infrastructure.
- October 29, 2003. A Keynote Lecture Presented at the invitation of the Chinese Geophysical Society, Chinese Academy of Sciences and Chinese National Center of Safety, Science and Technology at the Opening Ceremony of the First International Conference on City and Industrial Security, Nanjing, PR China.
- 5.069. **Inyang, H. I.** Evolution of geoenvironmental engineering as an instrument of global sustainable development.
- October 26, 2003. Guest Lecture to Faculty Members and Students of the China University of Mining and Technology, Xuzhou City, Jiangsu Province, PR China.
- 5.068. **Inyang, H. I.** Contaminant leachability from waste and natural materials in full-scale constructed facilities.
- October 22, 2003. A Guest Lecture Presented to Members of the Japanese Society for the Promotion of Science (JSPS) at the Invitation of its Committee III, Tokyo, Japan.
- 5.067. **Inyang, H. I.** Educational requirements and professional posture for success as ethnic minorities in a rapidly changing world.
- September 13, 2003. Keynote Speech at the 2nd Annual Fundraising and Scholarship Event of the Northern New Jersey Chapter of Akwa Ibom State Association, U.S.A.
- 5.066. **Inyang, H. I.** Environment and public health risks in Nigeria and their prospective control measures.
- July 27, 2003. Presented to Government Offices, Corporate Personnel, Professors and Students at the Center for Wetland and Waste Management Studies, University of Uyo, Nigeria.
- 5.065. **Inyang, H. I.** The path to global sustainable development: the distribution of environmental risk factors.
- May 29, 2003. Presented to Belo Horizonte City and Minas Gerais (Brazil) State Officials, University Students and Faculty Members at Universidade Federal de Minas Gerais, Belo Horizonte, Brazil.
- 5.064. **Inyang, H. I.** Some elements of geohydrological research.
- November 25, 2002. Presented to Researchers, Students and NSF Hydrology Program Leadership at the University of South Carolina, Columbia, USA.
- 5.063. **Inyang, H. I.** Energy and global sustainable development.
- November 20, 2002. Presented to Corporate Officials, Sponsored Research Program Leaders from Various Universities at the 2002 Duke Energy Distinguished Scholars symposium, Charlotte, NC, USA.
- 5.062. **Inyang, H. I.** Potential use of Duke Energy power plant ash as flowable fill for pipeline and utility trenches.
- September 6, 2002. Presented with Mr. R. Gaddam (graduate student) to Duke Energy Program Managers, Charlotte, NC, U.S.A.
- 5.061. **Inyang, H. I.** Toward the estimation of the long term performance of contaminant barrier systems.
- July 29, 2002. An Invited Seminar Presented to Program Officers, Engineers and Scientists at the Idaho National Engineering and Environmental Laboratory (INEEL) of the U.S. Department of Energy, Idaho Falls, Idaho, U.S.A.
- 5.060. **Inyang, H. I.** Sustainable extraction and use of geomaterials.
- July 5, 2002. Keynote Presentation (by video) at the 6th International Symposium on Environmental Geotechnology and Global Sustainable Development, Seoul, South Korea.
- 5.059. **Inyang, H. I.** China's and global sustainable development: the role of the International Society of Environmental Geotechnology (ISEG).
- June 14, 2002. A Message to the Leadership and Participants of the First Symposium on Environmental Geotechnology, Tongji University, Shanghai, PR China.
- 5.058. **Inyang, H. I.** The Global Alliance for Disaster Reduction as an instrument for advancing sustainable development.
- April 10, 2002. An Address Presented at the Executive Briefing and Strategic Planning Forum of the Global Alliance for Disaster Reduction (GADR), Discovery Place, Charlotte, NC.
- 5.057. **Inyang, H. I.** Source terms for estimation of contaminant release from waste storage systems: the 10,000- year question.
- February 14, 2002. A Taped/Televised Lecture of the Spotlight on Research Seminar Series sponsored by the Cameron Center of the University of North Carolina Charlotte.
- 5.056. **Inyang, H. I.** A quantitative framework for estimating the long term performance of waste storage facilities.
- January 28, 2002. A Presentation Hosted by the Department of Engineering and Public Policy, Carnegie-Mellon University, Pittsburgh, PA, U.S.A.
- 5.055. **Inyang, H. I.** Industrialization and the erosion of tradition.
- January 28, 2002. An ALCOA Endowed Lecture Presented to Faculty, Students and the General Public at Carnegie-Mellon University, Pittsburgh, PA as Part of the Catalysts for Change Invited Lecture Series.
- 5.054. **Inyang, H. I.** Energy and the environment: technical challenges.
- June 20, 2001. A SWISS FORUM Presentation Made to Members of the Swiss Parliament, Swiss Scientific Academies and Others under the Auspices of the American Association for the Advancement of Science and the Swiss Government, Bern, Switzerland.
- 5.053. **Inyang, H. I.** Energy in the 21st century: politics and policies.

- April 19, 2001. A Keynote Lecture Presented During Earth Day Celebrations to Students and Faculty members of Spelman College, Atlanta, GA, U.S.A.
- 5.052. **Inyang, H. I.** Design, construction, monitoring and performance assessment of landfills
- August 20, 2000. A Short Course Presented to Registrants from the United States, Nigeria, Japan and several South American Countries; presented in Belo Horizonte, Minas Gerais, Brazil.
- 5.051. **Inyang, H. I.** Thermodynamics of Na^+ - Ca^{++} cation exchange in contaminant barrier clay under constant and cyclical temperatures.
- May 15, 2000. An Invited Presentation to Faculty and Students, Columbia University, New York.
 - February 28, 2000. An Invited Presentation to Faculty and Students, Temple University, Philadelphia, Pennsylvania, U.S.A.
- 5.050. **Inyang, H. I.** Quantitative scaling of cation exchange in clay barrier materials.
- February 25, 2000. An Invited Presentation to Faculty and Students, Northeastern University, Boston, Massachusetts, U.S.A.
- 5.049. **Inyang, H. I.** Design and analysis of landfills and an approach to environmental impact assessment; and Fundamentals of contaminated site cleanup.
- October 29, 1999. Guest Lecture Presented to the Nigerian Environmental Society, University of Uyo, Nigeria.
- 5.048. **Inyang, H. I.** Geoenvironmental problems in the United States: an assessment of control measures.
- August 24, 1999. Special Presentation in Conjunction with the Award of Concurrent Professorship of Nanjing University at Nanjing, Peoples Republic of China.
- 5.047. **Inyang, H. I.** Hydrogeological, geochemical and geotechnical factors pertinent to the design and analysis of waste management landfills.
- August 4, 1999. Invited Lecture Presented to Shell Petroleum Development Corporation, (SPDC), and Warri, Nigeria.
- 5.046. **Inyang, H. I.** An introduction to siting, design, construction, monitoring and maintenance of landfills for wastes.
- July 28, 1999. Invited Presentation to Faculty and Students of the Departments of Geology, Chemistry, Mathematics and Geography, University of Calabar, Nigeria.
- 5.045. **Inyang, H. I.** An approach to estimation of the long-term performance of waste containment systems
- June 14, 1999. An Invited Presentation made to Personnel of the Office of Solid Waste, U.S. Environmental Protection Agency at Arlington, Virginia, U.S.A.
- 5.044. **Inyang, H. I.** Engineering techniques for pollution control and human health protection at Brownfields and other contaminated sites.
- February 16, 1999. An Invited Lecture Presented to the Forum on Environmental Justice on Brownfield Sites in Lowell, Sponsored by the Coalition for a Better Acre, Lowell, MA.
- 5.043. **Inyang, H. I.** Environmental technology implementation: issues in local and developing communities.
- February 1, 1999. Presented at the Lexington Project Forum, organized by Montague Associates, Lexington, MA.
- 5.042. **Inyang, H. I.** Chemicals in the geoenvironment: assessment of risk control schemes.
- December 8, 1998. Invited Luncheon Presentation to the Advisory Board of the New England Consortium on Hazardous Waste Worker Health and Safety, Lowell, MA.
- 5.041. **Inyang, H. I.** The role of environmental geotechnology: challenges and perspectives for the next century.
- November 12, 1998. Presented at the Launching Meeting of Organizational Activities for the International Environmental Geotechnology Conference, Belo Horizonte, Brazil.
- 5.040. **Inyang, H. I.** Infrastructure development as a driver for technical programs on contaminated site management.
- October 21, 1998. A Luncheon Speech/Presentation at the 14th Annual Conference on Contaminated Soils, University of Massachusetts, Amherst, MA.
- 5.309. **Inyang, H. I.** Sustainable infrastructure development in economically disadvantaged regions.
- October 21, 1998. An Invited Presentation at the Session on Global Infrastructure, National Convention of the American Society of Civil Engineers, Boston, MA, U.S.A.
- 5.038. **Inyang, H. I.** Modeling fluid flow through petroleum waste-containing concrete slabs (phase I).
- November 12, 1996. A Presentation at the Session on Engineered Contaminated Soils (GT), 1996 ASCE Annual Convention and Exposition, Washington, DC, U.S.A.
- 5.037. **Inyang, H. I.** Plastics as construction materials in geotechnical and environmental applications.
- October 24, 1996. Sponsored as the Guest Speaker at the Meeting of the Board of Trustees of the Plastic Institute of America, University of Massachusetts, Lowell, MA, U.S.A.
- 5.036. **Inyang, H. I.** Global dimensions of African environmental deterioration.
- September 11, 1996. Presented Under the Auspices of the Science and Technology Forum of the Constituency for Africa as Part of the Ronald H. Brown African Affairs Series, Washington, DC, U.S.A.
- 5.035. **Inyang, H. I.** Coupling of waste containment system deterioration processes with contaminant transport.

- February 20, 1996. Presented Under the Auspices of the Amoco Foundation, to the Department of Civil and Construction Engineering of Iowa State University, Ames, Iowa, U.S.A.
- 5.034. **Inyang, H. I.** The role of engineering in international sustainable development.
- February 17, 1996. Sponsored by Amoco Foundation as the Guest Speaker at the 1996 National Society of Black Engineers (NSBE) Meeting, held at Iowa State University, Ames, Iowa, U.S.A.
- 5.033. **Inyang, H. I.** Adaptability of environmental technologies to various African settings.
- November 6, 1995. Presented during the Session on Africa at the 1995 Hazardous Waste Conference and Exhibition (SUPERFUND 95), Washington, D.C, U.S.A.
- 5.032. **Inyang, H. I.** Chemical interactions in geomaterials: texture evolution.
- October 10, 1995. Presented as part of the Analytical Environmental Seminar Series, University of Massachusetts Lowell, MA, U.S.A.
- 5.031. **Inyang, H. I.** The state of the environmental control technology in Africa.
- September 24, 1995. Presented to Scientists, Technologists, and Educators at the Science and Technology Forum, organized by the Science and Technology Workgroup of the Constituency for Africa, Washington, D.C, U.S.A.
- 5.030. **Inyang, H. I.** Soil and cement - based vertical barriers: current recommendations for materials selection and mix proportioning.
- August 30, 1995. Presented at the International Containment Technology Workshop, organized by the U.S. Environmental Protection Agency, U.S. Department of Energy, and DuPont Company, Baltimore, Maryland, U.S.A.
- 5.029. **Inyang, H. I.** Relating barrier damage accumulation to contaminant transport.
- August 30, 1995. Presented at the International Containment Technology Workshop, organized by the U.S. Environmental Protection Agency, U.S. Department of Energy, and DuPont Company, Baltimore, Maryland, U.S.A.
- 5.028. **Inyang, H. I.** Recycling of power plant waste materials.
- May 24, 1994. Presented to Visiting Engineers and Program Managers from the People's Republic of China, under the auspices of the Virginia Center for Innovative Technology, Herndon, Virginia, U.S.A.
- 5.027. **Inyang, H. I.** Waste containment technology.
- June 8, 1994. Presented to U.S. EPA Scientists, Engineers and Program Managers upon the Invitation of the Superfund Program (U. S. EPA) in Denver, Colorado, U.S.A.
- 5.026. **Inyang, H. I.** Deterioration and flow channel creation in waste containment system components.
- April 11, 1994. Presented to Faculty and Students of the Department of Civil Engineering, Lehigh University, Bethlehem, Pennsylvania, U.S.A.
- 5.025. **Inyang, H. I.** Deterioration processes in waste containment systems.
- April 7, 1994. Presented to Geoscientists and Engineers of Geotrans, Inc., Sterling, Virginia, U.S.A.
- 5.024. **Inyang, H. I.** Long term performance of waste containment systems.
- March 24, 1994. Presented to Program Managers and Engineers of the Waterways Experiment Station, U. S. Army Corps of Engineers, Vicksburg, Mississippi, U.S.A.
- 5.023. **Inyang, H. I.** Waste containment systems: design, operation and fundamental aspects of their performance.
- February 16, 1994. Presented to Engineers and Program Officers of the Office of Solid Waste, upon the invitation of the Corrective Action Program, U. S. Environmental Protection Agency; presented in Crystal City, Virginia, U.S.A.
 - February 9, 1994. Presented as a Goldberg and Zoino Lecture to faculty and students of the Department of Civil Engineering, Massachusetts Institute of Technology (MIT), Cambridge, Massachusetts, U.S.A.
- 5.022. **Inyang, H. I.** Flow channel enlargement by cation exchange during interactions between contaminants and clayey soil barriers.
- February 14, 1994. Presented to the Department of Civil Engineering, Wayne State University, and Detroit, Michigan, U.S.A.
- 5.021. **Inyang, H. I.** Analysis and research elements of geoenvironmental engineering.
- November 5, 1993. Presented to Faculty and Students of the College of Engineering, Syracuse University, and Syracuse, New York, U.S.A.
 - November 4, 1993. Presented to Faculty and Students of the Department of Mining Engineering, Henry Krumb School of Mines, Columbia University, New York, U.S.A.
- 5.020. **Inyang, H. I.** Seismic design of landfills: geotechnical evaluation.
- October 27, 1993. Presented to County Engineers and Other Professionals under the Sponsorship of the Virginia Department of Environmental Quality, presented in Herndon, Virginia, U.S.A.
- 5.019. **Inyang, H. I., Dendrou, S. and Reeves, D.** Environmental aspects of base closure.
- October 14, 1993. Presented to the U. S. Army Environmental Center, Aberdeen Proving Ground, Maryland, U.S.A.
- 5.018. **Inyang, H. I.** Analysis of slurry walls for waste containment.

- October 12, 1993. Presented to Faculty and Students of the Charles Edward Via, Jr. Department of Civil Engineering, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, U.S.A.
- 5.017. **Inyang, H. I.** Geotechnical containment systems for wastes: design configurations and performance requirements.
- September 21, 1993. Presented to Faculty and Graduate Students of the Department of Civil Engineering and Engineering Mechanics, University of Arizona, Tucson, Arizona, U.S.A.
- 5.016. **Inyang, H. I.** Waste management problems in a developing country: a case history of Nigeria.
- September 20, 1993. Presented as the 1993 Eisenhower-Jennings Randolph Fellowship Lecture, sponsored by the International Public Works Federation at the International Public Works Congress, Phoenix, Arizona, U.S.A.
- 5.015. **Inyang, H. I.** Evolution of environmental geotechnology, and necessary curriculum changes and research.
- April 16, 1993. Presented to Faculty and Students of the Department of Civil and Environmental Engineering, Old Dominion University, Norfolk, Virginia, U.S.A.
- 5.014. **Inyang, H. I.** Contaminated site remediation and waste containment.
- March 26, 1993. Presented to Faculty and Students of the Department of Civil Engineering, Lehigh University, Bethlehem, Pennsylvania, as Part of Their Seminar Series.
- 5.013. **Inyang, H. I.** The frontiers of geo-environmental research and needs.
- March 22, 1993. Presented to Faculty and Students of the Department of Civil Engineering, University of Nevada, Las Vegas, Nevada, U.S.A
- 5.012. **Inyang, H. I.** Waste management techniques: treatment and disposal aspects.
- January 6, 1993. Presented to Public Works Officials and University Researchers at Uyo, Nigeria, under the Auspices of the International Public Works Federation as the 1992 Eisenhower-Jennings Randolph Fellow. Lecture hosted by The Ministry of Works, Akwa Ibom State, Uyo, Nigeria.
- 5.011. **Inyang, H. I.** An overview of the geo-environmental engineering field and the interactions among relevant technical areas.
- July 27, 1992. Presented to Civil Engineering Faculty and Graduate Students at Temple University, Philadelphia, Pennsylvania, U.S.A.
- 5.010. **Inyang, H. I.** and Dendrou, S. A new GIS – based approach for integration of hydrologic data, leachate production and contaminant migration for the design of containment facilities at CAR and other sites.
- July 9, 1992. Presented to Personnel of the Corrective Action Branch, Office of Solid Waste of the U. S. Environmental Protection Agency in Washington, D. C, U.S.A.
- 5.009. **Inyang, H. I.** Waste containment using slurry walls and liners: physic - chemical interactions between contaminants and containment geomaterials.
- April 23, 1992. Presented to the Faculty and Students of the Department of Civil, Mechanical and Environmental Engineering of the George Washington University, Washington, D. C, U.S.A.
- 5.008. **Inyang, H. I.** Stabilization using coverage by surface structures at RCRA Corrective Action Sites.
- February 26, 1992. Presented to U. S. Environmental Protection Agency Engineers, Policy Makers and External Personnel at Colorado Springs, Colorado under the Auspices of U. S. EPA's Corrective Action Branch.
- 5.007. **Inyang, H. I.** Selection and design of slurry walls as barriers to control pollutant migration.
- February 26, 1992. Presented on the Same Occasion as Above.
- 5.006. **Inyang, H. I.** Waste treatment, storage and disposal facilities in seismic zones.
- August 8, 1991. Presented to Environmental Scientists and other Personnel at the U. S. Environmental Protection Agency Headquarters in Washington, D. C., under the auspices of the American Association for the Advancement of Science (AAAS), Washington, DC (fellowship program).
- 5.005. **Inyang, H. I.** Effects of chemical interactions between clay liners and pollutants in geotechnical containments.
- November 16, 1990. Presented to Research Scientists at Los Alamos National Laboratory, Los Alamos, New Mexico, and U.S.A under the Auspices of the Environmental Science Research Group of the Laboratory.
 - July 16, 1990. Presented to Civil Engineering Faculty and Graduate Students at Purdue University, West Lafayette, Indiana, Arranged by the Department of Geotechnical Engineering, School of Engineering.
- 5.004. **Inyang, H. I.** Fragmentation of rocks by impact action: theoretical analysis and practical applications.
- November 15, 1990. Presented to Earth Scientists and Engineers at Los Alamos National Laboratory, Los Alamos, New Mexico, and U.S.A under the Auspices of the Earth Science Research Group.
 - July 10, 1990. Presented to Civil Engineering Faculty and Graduate Students at Purdue University, West Lafayette, Indiana, U.S.A Arranged by the Department of Geotechnical Engineering, School of Engineering.
- 5.003. **Inyang, H. I.** The problem of rock mass classification.
- July 23, 1990. Presented to Engineering Faculty and Graduate Students at Purdue University, West Lafayette, Indiana, U.S.A.
- 5.002. **Inyang, H. I.** Tropical lateritic soils in flexible highway pavements.

- July 20, 1990. Presented to Engineering Faculty and Graduate Students at Purdue University, West Lafayette, Indiana, U.S.A.
- 5.001. **Inyang, H. I.** Estimation of consolidation parameters of Wisconsin peat soils.
- October 12, 1989. Presented to Geotechnical Engineers from the Federal Highway Administration (FHWA) Region 5 on Invitation by the Materials Center of the Wisconsin Department of Transportation, Madison, WI, USA.

D. INSTRUCTION AND RELATED ACTIVITIES

D.1 Teaching

D.1.1 Teaching of Regular Courses (17 courses)

- Ecological Economics (co-taught) (University of North Carolina at Charlotte, Fall 2012) (graduate)
- Senior Design Projects (University of North Carolina at Charlotte, Fall 2012) (Undergraduate)
- Quantitative Environmental Risk Assessment, (University of North Carolina at Charlotte, spring 2011, spring 2007) (graduate)
- Advanced Waste Containment Systems: (University of North Carolina Charlotte, fall 2004 and spring 2003) (graduate).
- Design and Analysis of Waste Containment Systems: (University of North Carolina Charlotte 2013, 2012, 2001, 2002; University of Massachusetts Lowell, 1995, 1996, 1997, 1998, 1999, 2000; University of Massachusetts Dartmouth by teleconferencing, 1995). (graduate)
- Disaster Reduction Engineering (University of North Carolina Charlotte, 2002) (Graduate)
- Advanced and Innovative Concepts in Waste Containment (Univ. of Massachusetts Lowell, 1997). (Graduate)
- Fundamentals of Contaminated Site Treatment Techniques (University of North Carolina Charlotte, 2013, 2001; University of Massachusetts Lowell 1997, 1999). (Graduate)
- Design and Analysis of Geotechnical Containments for Waste Disposal (The George Washington University, 1993). (Graduate)
- Environmental Engineering Geology (Univ. of Massachusetts Lowell, 1996). (Graduate)
- Physico - Chemical Interactions in Earthen Barriers (Univ. of Massachusetts Lowell, 1996, 1998). (Graduate)
- Transportation Engineering (University of Wisconsin, Platteville, 1989). (Undergraduate)
- Introduction to Geotechnical Engineering (Purdue University, West Lafayette, Indiana, 1990). (Undergraduate)
- Soil Mechanics (University of Wisconsin - Platteville, 1990). (Undergraduate)
- Highway Engineering (University of Wisconsin - Platteville, 1989). (Undergraduate)
- Route Layout and Photogrammetry (University of Wisconsin, Platteville, 1988, 1989). (Undergraduate)

D.1.2 Teaching of Short Courses (20 entries)

- Design and Analysis of Impact Mitigation Systems for Global Climate Change, sponsored by the Joint Planning Committee, ECOTECH Climate Summit and Training Workshop, Abuja, Nigeria, Dec. 16, 2011
- Environmental Risk Assessment of Contaminated Sites, presented as part of 2010 Geoenvironmental Lecture series at Nanjing University, Nanjing, PR China, September 2010
- Framework for environmental management in States and Cities, taught to environmental policy makers and technical personnel of Area Councils of the Federal Capital Territory of Nigeria under the sponsorship of the United Nations Development Programme (UNDP), December 8, 2009.
- Design Analysis and Management of Landfills, taught to trainees under the auspices of the Ninth International Symposium on Environmental Geotechnology, Hong Kong, China, June 2, 2008.
- *Design, Analysis and Management of Landfills*, sponsored by Slovenian mining companies in collaboration with the University of Ljubljana, Slovenia, held in Ljubljana, Slovenia, August 27, 2007
- *Design, Analysis and Management of Landfills*, sponsored by Canadian aid agencies and public health environmental organizations of Ghana, held in Accra, Ghana, August 16, 2007
- *Design and Analysis of Solid Waste Landfills and Effluent Impoundments*, sponsored by International Society of Environmental Technology (ISEG) held in Abuja, Nigeria, September 14, 2006
- *Environmental Impacts Analysis and Auditing Techniques*, sponsored by International Society of Environmental Technology (ISEG) held in Abuja, Nigeria, September 10, 2006
- *Environmental Monitoring, Geostatistics and GIS Techniques*, sponsored by International Society of Environmental Technology (ISEG) held in Abuja, Nigeria, September 14, 2006
- Fundamentals of Contaminated Site Remediation Techniques, sponsored by International Society of Environmental Technology (ISEG) held in Abuja, Nigeria, September 11, 2006
- Issues in Sustainable Development (Ethics, options selection, economy of scale, globalization), Deployment of
- *Technical Systems and Management of Growth*, sponsored by International Society of Environmental Technology (ISEG) held in Abuja, Nigeria, September 13, 2006

- *Human Risk Exposure Analyses for Waste Management*, sponsored by the Japanese Society for Geopollution Control, held in Tokyo, Japan, October 30, 2005
- *Waste Containment Systems*, taught at the China University of Mining and Technology, Xuzhou, PR China, October 25, 2004
- *Fundamentals of Health Risk (Exposure) Assessment for Contaminated Sites*, taught at China University of Mining and Technology, Xuzhou, PR China, October 23, 2004
- *Monitoring Systems for Contaminants in the Subsurface*, taught at the China University of Mining and Technology, Xuzhou, PR China, October 22, 2004
- *Contaminated Site Remediation Techniques*, taught at China University of Mining and Technology, Xuzhou, PR China, October 22, 2004; also taught under the auspices of the Japanese Society for Depollution Control in Tokyo, Japan, October 18, 2004
- *Design and Analysis of Waste Containment Systems*, taught during the 7th International Symposium on Environmental Geotechnology and Global Sustainable Development, Helsinki University of Technology, Espoo, Finland, June 9, 2004 (also taught in Belo Horizonte, Brazil on August 20, 2000).

D.2 Other Activities Related to Research Supervision and Instructional Functions

D.2.1 Program Development

- Primary organizer and author of proposal to plan a new doctoral program on Infrastructure and Environmental Systems (INES) established at the University of North Carolina Charlotte in the Fall semester of 2004.
- Collaborator with UMASS-Lowell College of Education and Ohio State University (lead) to develop a project on instruction of high school students in environmental modeling under the sponsorship of the U.S. National Science Foundation (1997-1998).
- Taught a course on Picture-Tel which broadcast lectures from UMASS-Lowell to students at UMASS- Dartmouth in the fall semester of 1995.
- Developed, acquired and organized laboratory materials (rocks, slides, maps) from all over the United States for a cross - disciplinary course on Environmental Engineering Geology, taught in the Fall Semester, 1996 at the University of Massachusetts, Lowell.

D.2.2 Supervision and Hosting of Post-doctoral Research Associates and Visiting Researchers (22 entries)

- Dr. Hye Jin Kim (Visiting Scholar, 2007-2008 at GIEES, UNC Charlotte) Research on dust stabilization using exopolysaccharides (Visiting from Keimyung University, Daegu, Republic of Korea).
- Prof. Zhengfu Bian (Visiting Scholar, 2007 - 2007 at GIEES, UNC Charlotte): Research on mitigation of geoenvironmental hazards in mining (Visiting from Institute of Land Resources, China University of Mining and Technology, Suzhou, Jiangsu, China).
- Prof. Sungwoo Choi (Visiting Scholar, 2006 - 2007 at GIEES, UNC Charlotte): Research on dechlorination of chlorocompounds using iron sulfides (Visiting from Keimyung University, Daegu, Republic of Korea).
- Miss Hye Jung Kang (Visiting Engineer, 2006 - 2007 at GIEES, UNC Charlotte): Research and internship on wastewater treatment technologies (Visiting from Daegu Metropolitan City Government, Daegu, Republic of Korea).
- Prof. Godwin Mbamalu (Visiting Senior Research Fellow, 2003-2008 at GIEES, UNC Charlotte): research on contaminant-soil interactions (Visiting from Benedict College, Columbia, SC).
- Dr. Sang-Won Park (Visiting Research Fellow, 2004-2005 at GIEES, UNC Charlotte): Research on modeling of contaminant sorption on mesoporous materials (Visiting from Keimyung University, aegu, Korea).
- Dr. Sung Kuk Kim (Visiting Research Fellow, 2004 - 2005 at GIEES, UNC Charlotte): Research on testing of contaminant sorption on mesoporous materials (Visiting from Keimyung University, Daegu, Dr. Felix Udoeyo (Visiting Research Fellow, 2003-2004 at GIEES, UNC Charlotte): Research on contaminant leachability from wood ash-amended concrete (Visiting from University of Uyo, Nigeria).
- Dr. Jim Akhere (Senior Fellow, 2002 -2005 at GIEES, UNC Charlotte): Analysis of sustainable development issues.
- Dr. Walter Hays (Senior Fellow, 2002 -2006 at GIEES, UNC Charlotte): Analysis and implementation of disaster mitigation techniques.
- Prof. Shi Bin (Visiting Professor, 2003 at GIEES, UNC Charlotte): Research on monitoring technologies for internal failures in materials and systems (visiting from Nanjing University, Nanjing, PR China).
- Dr. Sunyoung Bae, (Post - doctoral Research Associate, 2001-2007 at UNC Charlotte): Research on physico-chemical interactions of aqueous-phase dust control polymers with soils.
- Prof. T. Cassia De Brito Galvao of Universidad Federal de Minas Gerais, Belo Horizonte, Brazil, (Visiting Associate Professor, 2001-2002 at UNC Charlotte): Research on heavy metal sorption on lateritic soils.
- Prof. Ahmed Al - Oumar of Al Baath University, Syria, (Visiting Fulbright Fellow, 2001 - 2002 at (UNC Charlotte): Research on GIS applications in water resources management.

- Dr. Hangsheng Lin of the University of Arkansas, Fayetteville, (Post-doctoral Research Associate, 1996 – 1998 at Univ. of Massachusetts-Lowell): Research on spatio-temporal/GIS modeling.
- Dr. Abidin Kaya (Post – doctoral Research Associate, 1996 - 1997): Research on physico - Chemical interactions in contaminated soils.
- Dr. H.Y. Fang of Lehigh University, Bethlehem, PA (Distinguished Research Professor, 1996 - 2000 at University of Massachusetts-Lowell): Research on physico-chemical interactions in soils and waste utilization.
- Dr. Kofi Asante-Duah (Visiting Research Assistant Professor, 1997-1999 at Univ. of Massachusetts- Lowell): Research on environmental risk analysis and geohydrology.
- Dr. J. Chen (Visiting Assistant Professor, 1997 at Univ. of Massachusetts-Lowell): Research on physico- chemical interactions of contaminants with soils.
- Dr. Vincent Ogunro (Post-doctoral Research Associate, 1997-1999, Research Assistant Professor, 1999- 2000 at University of Massachusetts - Lowell): Research on reliability of waste containment systems and contaminant leachability from wastes.
- Dr. Alex Iskandar of the Cold Regions Research and Engineering Laboratory, Hanover, NH(Distinguished Research Professor, 1997-2000 at Univ. of Massachusetts-Lowell): Research on waste containment systems and contaminant sorption-desorption hysteresis under low temperatures.
- Dr. Bin Shi of Nanjing University, Nanjing, PR China (Visiting Associate Professor, 1997 at Univ. of Massachusetts-Lowell): Research on computer based imaging of waste containment barrier material textures.

D.2.3 Thesis Research Supervision (20 entries at the doctoral and masters levels)

- Humphrey Zebulun (Doctoral research in Infrastructure and Environmental Systems, 2005 – 2009 at UNC Charlotte): Biokinetic processes of extracellular polysaccharides (EPS) stabilization of surface soils against dust generation.
- Gustavo Borel Menezes (Doctoral research in Infrastructure and Environmental Systems, 2004 - 2007 at UNC Charlotte): Regionalized impact assessment methodology (RIAM) for contaminant release from waste containment systems under HAZUS scenarios (graduated from UNC Charlotte).
- Life Kaanagbara (Doctoral research in Infrastructure and Environmental Systems, 2003-2005): Physico- chemical aging of electric transformer oils (graduated from UNC Charlotte).
- Emem Umoh (M.S. Civil Engineering, 2003-2006 at UNC Charlotte): Physico-chemical interactions of cassava starch (*manihot esculenta*) with lateritic soils in dust suppression applications (graduated from UNC Charlotte).
- Sunyoung Bae (Doctoral research in Environmental Chemistry, 1999-2001): Fundamental interactions of polymer solutions with clayey soils (graduated from University of Massachusetts-Lowell).
- John Daniels (Doctoral research in Engineering, 1998-2000): Physico-chemical interactions in earthen barriers (graduated from University of Massachusetts-Lowell).
- Paul Wachsmuth (M.S. Civil Engineering (Environmental), 2001-2003): Thesis on “Optimization of earthen barriers for radiologically contaminated sites” (graduated from UNC Charlotte).
- May Hourani (M.S. Civil Engineering (Environmental), 2002 - 2003): Thesis on “Quantification of distribution deviations of large aggregates from uniformity in cemented matrices” (graduated from UNC Charlotte).
- Gustavo Borel Menezes (M.S. Civil Engineering (Geoenvironmental), 2001 - 2004): Thesis research on mixture rules for particulate geomaterials (graduated from UNC Charlotte).
- Rajender Gaddam (M. S. Civil Engineering (Environmental), 2001 - 2003): Modeling and scaling of contaminant leaching from waste piles under constant infiltration (graduated from UNC Charlotte).
- Ananth Uday Nag Challa (M.S. Civil Engineering (Environmental), 2001-2002): Quantification of the aqueous polymer impregnation effects on the significant soil parameters in dust control (withdrew from graduate school).
- John Daniels (graduated with M.S. in Dec. 1997); (DuPont Graduate Fellow, 1996-97): Attenuation of heavy metals in barrier systems (graduated from the Univ. of Massachusetts-Lowell).
- Jaydeep Parikh (graduated with M.S. in Dec. 1997) ;(DuPont Graduate Fellow, 1996 -97) (First Prize Winner of J.B. Francis College of Engineering Graduate Research Competition): Batch adsorption of heavy metals by soils and additives (graduated from the Univ. of Massachusetts-Lowell).
- Terry Burton (M.S.) (DuPont Graduate Fellow, 1996-97; graduated in 2000): Contaminant transport under coupled energy conditions (graduated from the Univ. of Massachusetts-Lowell).
- Ola Lawal (graduated with M.S. In 2001): Contaminant leachability from discrete particles under Dynamic conditions (graduated from the Univ. of Massachusetts-Lowell).
- Anna Fodor (graduated with M.S. in 2000): (Winner, J.B. Francis College of Engineering Undergraduate Research Award and Society of Mechanical Engineers National Solid Waste Management Scholarship, 1996-97): Physico-chemical interactions between polymers and clayey soils (graduated from the Univ. of Massachusetts-Lowell).
- Manav Shah (graduated with M.S. in 2001): Modeling of gamma ray attenuation in additive - amended low level radioactive waste barriers (graduated from the Univ. of Massachusetts-Lowell).

- David Work (graduated with M.S. in 1999): Dessication of grouted barriers under controlled temperature and relative humidity (graduated from the Univ. of Massachusetts-Lowell).
- Adrianna Onwawoma (graduated with M.S. in 1999): Sorption-desorption hysteresis of heavy metals on clay (graduated from the Univ. of Massachusetts-Lowell).
- Amit Oturkar (graduated with M.S. in 2000): Contaminant leaching from aggregates in packed columns (graduated from the Univ. of Massachusetts-Lowell).

D.2.4 Service on Thesis Committees of Other Students (7 entries)

- Theresa Isibor, ED.D, College of Education, UNC Charlotte (2009)
- Zixian Wang, Ph.D, Infrastructure and Environmental systems, UNC Charlotte (2008)
- Gautham Das, Ph.D., Infrastructure and Environmental Systems, UNC Charlotte (2007)
- Mutiu Ayoola, Ph.D., Infrastructure and Environmental Systems, UNC Charlotte (2006)
- Ted Coletta, Ph.D., Environmental Chemistry, University of Massachusetts-Lowell (1997).
- Mahmood Khwaja, M.S., Civil and Environmental Engineering, University of Massachusetts- Lowell(1996).
- Harrison Abinteh, M.S. Civil Engineering, Howard University, Washington, DC (1994).

D.2.5 Supervision of M.S. (Non-thesis) Projects and Independent Studies (10 entries)

- Unwana Ebiwok (M.S., Civil Engineering, 2005-2009 at UNC Charlotte). Project on “contaminant leachability from ash under batch and flow-through conditions”.
- Supervision of Independent Study on “Contaminant sorption on lateritic soils” by Emem Umoh (M.S., Civil Engineering graduate student at UNC Charlotte, 2004).
- Parinita Kadam (M.S., Computer Science, graduated in summer, 2003 at UNC Charlotte). Computer software development project on “Simulation of gamma rays generation and transport in soils”
- Abhihit A. Telang (M.S., Computer Science, graduated in summer, 2003 at UNC Charlotte). Computer software development project on “A tool for estimation of the performance of ladder-type excavators in rock for energy and civil infrastructure”
- Sunil K. Pati (M.S., Information Technology and Computer Science, graduated in summer, 2003 at UNC Charlotte). Software development project on “Estimation of barrier materials characteristics using mixture rules”
- Supervision of Independent Study on “Aging mechanisms of transformer oils” by Life Kaanagbara, Civil Engineering Graduate Student at UNC Charlotte, spring 2003
- Supervision of Independent Study on “Coal combustion technologies” by Kevin Woods, Engineering/Public Policy Graduate Student at UNC Charlotte, Spring, 2003
- Supervision of Independent Study on the environment by Juan Morales, Civil Engineering Graduate Student at UNC Charlotte, Spring, 2003
- Michael Choquette (M.S., Civil and Environmental Engineering, graduated from University of Massachusetts-Lowell in 1996). Project on standard and advanced techniques for analyzing physico- chemical parameters that control waste containment barrier performance.
- Mary Waygan (M.S., Civil and Environmental Engineering, graduated from University of Massachusetts- Lowell in 1997). Project on lateritic soils as landfill liner materials.

D.2.6 Supervision of Student Research Interns and Visiting Student Scholars (all projects involved authorship of internship research reports; 10 entries)

- Alex Angelelli, high school student research intern, presently an engineering student at Virginia Tech., on “leaching of substances from materials” (summer, 2005)
- David Metais, visiting undergraduate research intern from IUT Egletons, University of Limoges, France, on “index properties and plasticity of soils” (summer, 2005)
- Emem Inyang, visiting undergraduate research intern from Edinboro University of Pennsylvania, Edinboro, Pennsylvania, on “energy needs and investments in various infrastructural sectors” (Summer, 2005)
- Rizk al Rouhban, visiting (exchange) undergraduate research intern from American University, Beirut, Lebanon, on “modeling of rock excavation by trenching machines” (summer, 2005)
- Michelle Flowers, undergraduate research intern from UNC Charlotte Engineering Technology Program, on “sorption of heavy metals by polymer-amended soils” (August, 2003 – May, 2004).
- Walter Onurah, undergraduate research intern from UNC Charlotte Mechanical Engineering Program, on “excavation mechanics of geomaterials” (September, 2003 – May, 2004)
- Jamie Ferguson, undergraduate research intern from Davidson College, Davidson, NC, USA (Chemistry major) on “monitoring of dust generation and transport” (Summer 2005)
- Ken Fish, undergraduate research intern at Univ. of Wisconsin-Platteville on “ultrasonic monitoring of rocks” (1989).
- John Von Ruden, undergraduate research intern at Univ. of Wisconsin-Platteville on “soil contamination” (1989).

- Anthony Giles, undergraduate research intern at the Univ. of Wisconsin – Platteville on hydrocarbon vaporization from soils (1990).

E. UNIVERSITY AND COMMUNITY SERVICE ACTIVITIES

E.1. University Committee Service

- Member, Faculty Hearing Committee of University of North Carolina at Charlotte (2007-2013).
- Member, Interdisciplinary Task Force (ITF) created by the Provost to develop recommendations for strengthening interdisciplinary programs at UNC Charlotte (2004-2005).
- Member, Civil Engineering Tenure and Promotions Committee, UNC Charlotte (2004 – 2011).
- Member, Civil Engineering Strategic Planning Committee, UNC Charlotte (2004 – 2008).
- Member, Graduate Council, (2001-2002), Univ. of North Carolina-Charlotte.
- Team Member for Permission-to-Establish Proposal for the Ph.D. Program in Infrastructure and Environmental Systems, Univ. of North Carolina-Charlotte (2001-2003).
- Member, Provost Advisory Committee on Research, Univ. of Massachusetts-Lowell (1999).
- Member, Research Committee, Faculty Senate (1997-2000) University of Massachusetts Lowell.
- Member, Subcommittee on By-Laws, Committee on Federated Centers and Institutes, Univ. Of Massachusetts-Lowell (fall, 1997).
- Rapporteur and Member, Committee for Development of D.Eng. Operational Guidelines, Department of Civil and Environmental Engineering, Univ. of Massachusetts-Lowell (Fall, 1997-Spring, 1998).
- Member, College of Engineering Workload Committee (Departmental representative), 1996.
- Member, Graduate Policy Advisory Committee (GPAC) of the Univ. of Massachusetts-Lowell (1996- 1997, 1997-1998).
- Member, University of Massachusetts Lowell Research Focus Group (1999).
- Member, Inter - Campus Committee of the University of Massachusetts System for the Graduate School of Marine Sciences and Technology of the University of Massachusetts System; member of the Working Group on Policies (1998-2000).
- Successfully attracted external and internal resources to develop physical facilities for the cross-departmental Center for Environmental Engineering, Science and Technology (CEEST) at the Univ. of Massachusetts-Lowell.

E.2. Organization and Presentation of Public Lectures and Seminars at Home Institution

- Guest Lecture/ INES Seminar Presenter on “Critical Thinking as a Catalyst for Technological Productivity” UNC Charlotte, September 30, 2008.
- Guest Lecture/ INES Doctoral Class, on “Key Concepts in Risk and Reliability of Engineered Systems” UNC Charlotte, April 7, 2009.
- Presenter, American society of Civil Engineers (Southern Branch) and Student Chapter, Spring Meeting, At Cone Building, UNC Charlotte, April 19, 2007.
- Co-Host, Duke Energy Lecture, featuring Mr. Daniel R. DiMicco, Chief Executive Officer, Nucor Corporation, under the auspices of UNC Charlotte College of Engineering, GIEES and Duke Energy Corporation, at UNC Charlotte, April 13, 2004.
- Host, Kappe Lecture of the American Society of Civil Engineers on the Environment, featuring Dr. Cecil Lue-Hing, NAE, President, Lue-Hing and Associates, Chicago, under the auspices of Duke Energy Corporation, and American Society of Civil Engineers, at UNC Charlotte, September 16, 2003.
- Co - Host, GIEES - Transportation Center - Duke Energy Seminar featuring Mr. Robert E. Skinner, Jr., Executive Director, Transportation Research Board, U.S. National Research Council, Washington, DC, at UNC Charlotte, July 7, 2003.
- Host, Sustainable Development Forum, featuring Prof. Jeffrey Sachs, Director, Earth Institute, Columbia University, New York, under the auspices of the Echo Foundation, and Duke Energy Corporation at UNC Charlotte, February 26, 2003.
- Organizer and Host, 2002 Research and Program Exhibition, Partnership Development, and Outreach forum of the Global Institute for Energy and Environmental Systems, UNC Charlotte, December 16, 2002.
- Host, Duke Energy Distinguished Seminar, featuring Dr. Paul Portney, President of Resources for the Future, under the auspices of Duke Energy Corporation, at UNC Charlotte, November 19, 2002.

F. BRIEF SUMMARY OF CONTRIBUTIONS TO RESEARCH AND PRACTICE IN HIS SPECIALTIES

He has been active in international education, and science and technology initiatives. He was the Founding President (Vice Chancellor) of the African University of Science and Technology (AUST), Abuja, Nigeria (on leave-of-absence from the University of North Carolina, USA) and also served as the Vice Chancellor (President, 2013-2014) of the Botswana International University of Science and Technology (BIUST), Palapye, Botswana. He served as the Chair of the Implementation Committee of the Africa Science Plans under the auspices of the International

Council for Science (ICSU-ROA), UNESCO, and United Nations Economic Commission for Africa (UNECA). He Co-Chaired the Committee of Experts to develop Africa's recommendations for the 2012 RIO+20 United Nations Summit which he presented to the United Nations Headquarters in Washington DC in March, 2012. Previously (2006-2007), he led the successful project sponsored by the Canadian Agency for International Development and the African Development Bank to review and develop the framework for improvement of the environmental management capacities of 42 African countries.

Prof. Inyang has helped establish research institutes with complementary programs in Brazil, Japan, Korea, China, India, Canada, United Arab Emirates, Nigeria, Ghana, South Africa, Botswana and several other countries. Since 1999, he has been a Concurrent Professor of Nanjing University, China. Also, he is an Honorary Professor of China University of Mining and Technology, having been selected for the position in 2004. He served the Princeton-based Educational Testing Service as a Development Committee member for the AP Environmental Science within a parent program that covered about 750,000 students in 13,000 high schools in 60 countries. Prior to his position at the University of North Carolina-Charlotte, he was the Dupont Professor (1996-1998) and University (Distinguished) Professor (1997-2000) at the University of Massachusetts where he helped establish the university system-wide Graduate School of Marine Science and Technology while serving as the Founding Director (1995-2000) of the Lowell-based Center for Environmental Engineering, Science and Technology (CEST). He went from industry to that position after previous teaching and research roles at Purdue University, West Lafayette, USA; George Washington University, Washington Dc, USA; and the University of Wisconsin-Platteville, USA where he started his academic career about 27 years ago as an assistant Professor of Civil and Environmental Engineering.

In the private sector, he was the President of the analytical firm-Geoenvironmental Design and Research (GDR) Inc of Fairfax, Virginia, USA which performed technical services for Dupont De Mours Company, General Electric Corporation, Duke Energy Corporation and several private and public agencies in the areas of environmental systems and materials management. Prof. Inyang also founded and led United Infrastructure Systems (UIS) Inc. as the Board Chair since 2006. UIS has been active professionally in Africa where it has implemented projects on environmental management framework development and implementation of oil spill control systems under the sponsorship of the United Nations Development Programme (UNDP).

Prof. Inyang has led/performed research expeditions to several regions worldwide, including Jiangsu Province of China on mining subsidence and erosion; Khanty-Mansyest Region of Siberia, Russia on oil spills; Slovenia on underground mining; Niger Delta of Nigeria on oil spills and solid waste management; Minas Gerais Region of Brazil on laterite soil dusting; and Alaskan northern areas (USA) on permafrost degradation due to global climate change. He is a prolific developer of analytical frameworks, quantitative models and field-relevant data that have been used by agencies, researchers, private firms and students worldwide. While contributing to policy development, his main research focus has been on contaminant leaching and dusting from materials (which lead to human health and environmental problems); containment systems and materials for contaminant barriers; geohazards mitigation; and energy systems.

He has authored/co-authored more than 260 research articles, book chapters, federal design manuals and the textbook, *Geoenvironmental Engineering: principles and applications*, published by Marcel Dekker (ISBN: 0-8247-0045-7). He was the Editor-in-Chief of the *Journal of Energy Engineering* of the American Society of Civil Engineers (ASCE), an associate editor/editorial board member of 33 refereed international journals and contributing editor of three books, including the *United Nations Encyclopedia of Life Support Systems (Environmental Monitoring Section)*. In addition, as a Guest Editor, he has developed 29 special editions of refereed international journals. Prof. Inyang has served on more than 100 technical and policy panels of governments and professional societies, and has given more than 180 invited speeches and presentations on a variety of technical and policy issues at many institutions and agencies in several countries, including the Goldberg-Zoino Lecture at MIT (1994), the AMOCO Foundation Lecture at Iowa State university (1996), the ALCOA Endowed Lecture at Carnegie-Mellon University (2002), and addresses at the Parliament of Switzerland in Bern (2001) and the Nigerian Senate (2012). He has chaired/co-chaired international conferences in Korea, Japan, Turkey, the United States, Brazil, Finland, Canada, Slovenia, Ghana, China, South Africa, Botswana and Nigeria. Prof. Inyang holds a Ph.D. with a double major in Geotechnical Engineering and Materials, and a minor in Mineral Resources from Iowa State University, Ames, Iowa; an M.S. and B.S. in Civil Engineering from North Dakota State University, Fargo, North Dakota, USA; and a B.Sc. (Honors) in Geology from the University of Calabar, Nigeria.

He has served as principal investigator, co-principal investigator and implementation leader on 50 projects. His research has been sponsored by several international and US agencies, including the United Nations Development Programme, Canadian Agency for International Development, Switzerland, US National Research Council US National Oceanic and Atmospheric Administration, US National Science Foundation, US Department of Energy, US Department of Defense, US Federal Highway Administration, International Public Works Federation, DuPont Corporation, Sandia National Laboratory and Duke Energy Corporation. For his research contributions to advances in geoenvironmental science and engineering, professional practice in many countries, and public policies on energy and environmental issues, he has received several professional honors, including selection as a Fellow of the Geological Society of London, the 1999 Chancellor's Medal for Distinguished Public Service of the University of Massachusetts, Lowell; 2001 Swiss Forum Fellow selection by the American Association for the Advancement of Science ; the 1996

US National Research Council Young Investigator Selection; 1992 Eisenhower-Jennings Randolph Award of the International Public Works Federation/World Affairs Institute that was instituted to honor the international achievements of former U.S. President Dwight D. Eisenhower; the 1991 American Association for the Advancement of Science/USEPA Environmental Science and Engineering Fellowship; and election (by eminence) as a Board-Certified Member (BCEEM) of the American Academy of Environmental Engineers (2006). On October 2, 2002, he was honored in Washington, DC at a ceremony organized by the US Government to honor 10 environmental scientists for technical contributions to the United States through the USEPA. He is the winner of the 2013 Nigerian National Order of Merit, NNOM (Academic Prize) for Engineering and Technology; and the 2015 Education Leadership Award given by the Global Advisory Council of World Education Congress, Mumbai, India.

Summary of Prof. Inyang's Major Research and Allied Professional Contributions in Specific Disciplines

• **Environmental Systems:** His research has been targeted at mechanisms and modeling of contaminant generation from materials through leaching and dusting, and the development of innovative materials and systems for treating and containing contaminants, especially in the subsurface. His models and data on contaminant leachability from contaminated soils and wastes under various stress conditions, have improved environmental impact assessments of the use of high-volume wastes as non-traditional construction materials in many countries. Waste recycling is particularly essential in countries and regions where disposal sites and non-sensitive sources of traditional aggregates are limited. He has extended his contaminant generation research to cover transport in seasonally frozen terrains and Arctic permafrost using global warming scenarios, under the sponsorship of the United States National Oceanic and Atmospheric Administration (NOAA). He has formulated mitigation and adaptation policies and technical systems for management of the impacts of global climate change within the context of sustainable development.

He is a leader in research that has unraveled mechanisms of soil desiccation and consequent dust generation from exposed ground surfaces globally, and their intercontinental transport into sensitive ecological environments. Through his research, he has established fundamental principles and effectiveness estimation methods for the use of aqueous polymers to stabilize dust emissions at their sources, using representative soils from dry climatic regions in Brazil, United States and Nigeria. He has developed physico-chemical models of interactions between aqueous polymers (including those that he extracted from the common cassava plant) with dust generating soils to control emissions. His investigations sponsored by DuPont Corporation and others have shed light on sorption mechanisms between contaminants and barrier materials in both loose and compacted states, producing results that have been used by DuPont, General Electric and other organizations on waste containment projects. With collaborators sponsored by the Korea Industrial Foundation, Korea, he has developed useful models of interactions between metal oxide catalysts and volatile organic compounds (VOCs) that have been useful in controlling contaminant emissions during industrial combustion processes. He has also developed quantitative frameworks for incorporating deterioration processes into long-term (100-10,000 years) performance models for waste containment systems. These frameworks have been used by regulatory agencies (e.g.: the U.S. EPA) and environmental firms in many countries. A few examples are the Willow Hill Road Landfill, Lee, MA (1995), and operations by Colombia Schmutz Dorth AG, Bern, Switzerland (1992).

A particularly important technical contribution was his development of the Georad Barrier concept and system and the associated computer software-GRYBCAM in 2005, which he and his graduate students published as a quantitative scheme for selecting barrier thicknesses and materials that can adequately reduce gamma radiation intensity that reaches people aboveground, in areas that are residually contaminated by low-level radioactive materials. That contribution also has applications in the disposal of normally occurring radioactive materials (NORM) in oil production operations. From 1991 to 1993, he developed design configurations for foundation systems that can reduce occupant exposure to residual contaminants at Brownfield sites (published by the U.S. EPA as technical guidance document EPA 530-R-93-02). With application of his system to the control of radon gas entry into buildings, he won a Certificate of Recognition at the 1992 Innovative Radon Mitigation Design Competition, organized by the U.S. Association of Energy Engineers and U.S. EPA Office of Air and Radiation in Washington DC, USA. He has led many national expert groups and expeditions on environmental monitoring and waste containment systems, exemplified by his role from 1999 to 2003 as Thematic Editor/Leader of the Environmental Monitoring Section of the United Nations Encyclopedia of Life Support Systems.

Under the auspices of the United Nations Development Programme (UNDP), he led the development of the environmental management framework for Abuja, Nigeria's capital city. In another UNDP-sponsored project, he authored Nigeria's National Technical Guidance Manual for Remediation of Oil-contaminated sites and reviewed site remediation proposals for cleanup of identified sites. When placed in the context of impacts of oil pollution in the Niger Delta of Nigeria which has driven conflicts that have destabilized global oil supplies and caused loss of lives in the region for several years, his contribution of mitigative solutions are quite significant.

• **Energy Systems:** His research in this area has focused on interwoven issues in energy/environmental policies, renewable energy and energy facilities development. He has proposed indices for energy system sustainability assessments and analyzed the relationships between energy investments in industrialization programs and other measures of sustainable development. He has configured systems for sustainable design and operations of energy infrastructure, including control of the emissions that contribute to global warming. He had the opportunity to be involved in research expeditions to oilfields in the Niger Delta (Nigeria) and Siberia (Russia) to perform site

reconnaissance and develop mitigation measures for oil spill control (the latter under the auspices of the U.S. National Research Council's Young Investigator Program in 1996).

Through collaborative research with his colleagues on the search for efficient and sustainable fuels, plasma electrolysis was found to be a potentially efficient method for generation and collection of hydrogen gas for use as fuel. His pilot-scale research on degradation processes of electric power transformer oils has led to the discovery of exsolution products that can compromise the efficiency of electric power transmission by transformers. His research on rock fragmentation techniques which has focused on interactions between rocks and cutting bits, has laid the foundation for the prediction of rock excavation rates and development of energy-efficient techniques for excavation of waste storage chambers and utility trenches for energy and communications lifelines in rock. The rock excavation rate estimation methodology has been developed into a computer software-TEPLER-2004. This was preceded in 1992 by his development of the impact-rebound principles (published in several papers) for use in dynamic fracture of rock by trenching machines to save energy and project time. His use of energy budget at the rock-bit interface to theoretically determine the required machine energy exertion capacity provided a methodology for estimating cutting rates by machines more fundamentally than the correlative methods that mostly preceded his investigations. This research has found applications in underground space excavation for energy, mining, burial of communication cables, burial of oil and gas pipelines, and tunneling worldwide. Since 2008, he has contributed as a Technical Judge (part-time) of the U.S. Nuclear Regulatory Commission, and has also served from 2005 to 2011 as the Editor-in-Chief of the Journal of Energy Engineering of the American Society of Civil Engineers.

• **Geohazards Mitigation:** His research contributions in this area have focused on geohazards zonation, analysis of damages to waste containment systems by earthquakes, and monitoring systems for facility functional failures. From 1991 to 1993, he led the national effort in the United States as a Senior Geoenvironmental Engineer at U.S. Environmental Protection Agency in Washington DC, USA, on the analyses of risks to thousands of waste containment systems in sensitive environments. In 1993, he performed assessments of the performance of hazardous waste facilities impacted by the 1993 Midwest Floods, which the U.S. EPA Office of Solid Waste disseminated to its engineers in various regions for use in risk management. Among the agencies and firms that used his analyses are USEPA's SUPERFUND program at the Midvale, Utah Mining Waste Site (1993), the North Carolina Department of Environment, Health and Natural Resources for technical guidance and regulatory activities (1992), Law Environmental, Inc. at its Kennesaw, GA operations (1992), ERM, Inc., Los Alamos, NM for low-level radioactive waste landfills in seismic areas (1992) and the USEPA, Region 6, Dallas, TX for performance assessment of a landfill in Karst terrains in Dryden, TX.

For damages at the scale of material specimens, he has developed and published stereological techniques for identifying cracks, fissures and other discontinuities in materials. This has found applications in waste storage system barrier improvement, concrete durability assessments and confirmation of crack statistics for fluid flow modeling. Sandia National Laboratories of the U.S. Department of Energy sponsored and used his techniques and data to support their performance assessments of buried grout concrete at an Air Force Base in the US East Coast. Through collaboration with researchers at Nanjing University led by Prof. Shi Bin, the results of this work have been applied to construction projects in China. Inyang led the expert group on performance technology within the task group convened by the U.S. Dept. of Energy, U.S. Environmental Protection Agency, and DuPont Corporation to author a book on these issues for use in practice. He is a co-contributing editor of the second book (ISBN 0-8493-4040-3) sponsored by the same organizations in 2005.

Under the sponsorship of the U.S. National Science Foundation (2002 – 2005), Prof. Inyang developed quantitative schemes for coupling geohazard-induced damages of constructed facilities with sub-surface contaminant transport models which his team has re-configured for increased precision, for application in earthquake-prone areas. This multi-component model which has been computerized has been applied to seismic areas in California and will enable more accurate assessment of the environmental damages after their occurrence of earthquakes and other transient events. Internationally, his analyses and field studies during expeditions with researchers of Nanjing University and China University of Mining and Technology (CUMT) in China have produced analytical models for assessment of land subsidence due to mining and groundwater extraction, under the sponsorship of the China National Science Foundation. Upon invitation by the Federal Government of Nigeria in 1999, he developed a technical framework for the establishment of the Nigerian National Oil Spill Detection and Response Agency (NOSDRA) through a legislative Act in 2003.