

CURRICULUM VITAE

Name: Hugh Julian Sealy
Profession: Environmental Scientist / Chemical Engineer
Date of Birth: May 7, 1962
Nationality: Barbadian / Canadian

Membership in Professional Societies & Developmental Organisations:

- Registered Professional Engineer in Barbados,
- Associate Member Institute of Chemical Engineers,
- Past-President of the Caribbean Water & Wastewater Association,
- Former Chairman of the Barbados Commission on Sustainable Development,
- Member of the Executive Board of the Clean Development Mechanism under the United Nations Framework Convention for Climate Change.

Key Qualifications:

Dr. Sealy is an Associate Professor in the Department of Public Health and Preventive Medicine in the School of Medicine at St. George's University in Grenada with over 5 years of experience of teaching graduate students, accessing funding, supervising and conducting research and performing community service. He is also the Energy and Sustainable Development Advisor to the Government of Grenada.

As a consultant with over 25 years of experience as a project manager, a professional engineer and an environmental scientist, he has managed numerous development projects, particularly in relation to energy, integrated solid waste management, water supply and wastewater treatment. He has conducted numerous environmental impact assessments (EIAs) and environmental studies throughout the Caribbean region.

Dr. Sealy has influenced policy and legislation related to sustainable development throughout the sub-region. He assisted in the development of the national sustainable development policy for Barbados (2004) and the national energy policies for Barbados (2007), St. Lucia (2009), Dominica (2009) and Grenada (2010). He has developed coastal water quality standards and legislation for Barbados and is currently working on geothermal legislation and regulations for Grenada. He has written a guidebook for the regional hotel industry to promote environmental health and hygiene. He has acted as a consultant to the Organisation of American States (OAS), the Pan American Health Organisation (PAHO), the Caribbean Environmental Health Institute (CEHI), the United Nations Development Programme (UNDP), the United Nations Industrial Development Organisation (UNIDO) and the United Nations Environment Programme (UNEP), along with numerous government and private sector clients throughout the Caribbean.

Dr. Sealy is the former Chairman of the National Commission for Sustainable Development for the Government of Barbados. He is also a Past-President of the Caribbean Water and Wastewater Association (CWWA). The CWWA is a regional NGO, which incorporates Caribbean professionals in the fields of water, wastewater and solid waste. In 2010, as community service, Dr. Sealy acted as the Chair of the Technical Committee for the 19th Annual CWWA Conference and Exhibition held in Grenada from Oct 4 – 8, 2010. Dr. Sealy was responsible for conducting a peer review of over 40 papers submitted by re-

gional and international engineers and scientists and for the general organisation of the conference. He is committed to the sustainable development of the region.

Dr. Sealy was the Director of Engineering at New Water Inc., a company established in Barbados to service the Caribbean region and promote the use of ZENON membrane filtration technology for water and wastewater treatment applications. He was the Caribbean Region Manager for a large Canadian consultancy firm (Stantec) and had oversight of several development projects throughout the region, including water supply studies in Grenada, hospital design in Tobago, solid waste management in the Bahamas and Belize and roads rehabilitation in Jamaica and Trinidad.

As a senior advisor on sustainable development to the Governments of Barbados and Grenada, and as a consultant who has worked extensively in the region, he has a thorough understanding of the functions and capacities of regional planning and regulatory institutions. This knowledge and experience ensures that project recommendations are compatible with local social, cultural and economic conditions.

Dr. Sealy is an experienced negotiator at international fora on sustainable development issues. He has represented Barbados and more recently Grenada at numerous conferences, including those under the auspices of the United Nations Commission on Sustainable Development (UNCSD) and the United Nations Framework Convention on Climate Change (UNFCCC). In January 2008 and again in December 2011, Dr. Sealy was elected as a Member of the Executive Board of the Clean Development Mechanism (CDM) under the UNFCCC.

The CDM is an international financial mechanism that expedites sustainable development projects in developing countries and assists developed countries in reaching their mitigation targets through the carbon market. Since 2005, the CDM has registered more than 4,000 projects in developing countries and the Executive Board regulates a market currently valued at over US\$ 30 billion. Dr. Sealy served as the full member for Latin America and the Caribbean from January 2008 to January 2011. From 2009 – 2011, he acted as the Chair and Vice-Chair of the Small Scale Working Group, which is a sub-committee of the Executive Board. In this capacity, he conceptualised and implemented new rules of eligibility for micro-scale CDM projects and a CDM Development Fund (currently worth ~ US\$3M) which will make the CDM more accessible to Lesser Developed Countries (LDCs) and Small Island Developing States (SIDS). In December 2011, at COP 17 in Durban South Africa, Dr. Sealy was re-elected to the Executive Board of the CDM to serve as the Member for SIDS.

In October 2008, Dr. Sealy was appointed as Energy and Sustainable Development Advisor to the Government of Grenada. In 2009, he was appointed as a Vice Chair of the Alliance of Small Island States (AOSIS) Climate Change Technical Negotiating Team. Dr. Sealy is the lead negotiator on carbon markets and the role of Nationally Appropriate Mitigation Actions (NAMA's).

Education:

- 1993 Ph.D., Environmental Science, University of Liverpool, U.K
- 1987 M.Sc., Environmental Pollution Science, Brunel University, U.K
- 1984 B.Eng., Chemical Engineering, McGill University, Canada

Previous Teaching Experience:

Lecturer in the M.Sc. Natural Resources Management Programme. University of the West Indies (UWI). As a lecturer at UWI from 1994 - 1996, he was responsible for developing and teaching a course on Aquatic Chemistry and Toxicology and assisted with the teaching of a course on Measurement and Monitoring of Marine Resources to Masters students in the UWI Marine Resources and Environmental Management Programme (MAREMP). He also developed and delivered an on-line course on Wastewater Treatment and Management in 2005 – 2006 as part of the M.Sc. programme under the Centre for Resource Management and Environmental Studies (CERMES) and gave several guest lectures on environmental health and sustainable development issues. He was also an external examiner and developed a business model to promote the use of consultancy services as part of UWI's community outreach programme.

Selective List of Publications, Reports & Presentations:

February, 2012: Panellist in a Webinar, organised by the International Energy Agency (IEA) and the Organisation for Economic Cooperation and Development (OECD). The topic of the Webinar was "*The Carbon Capture and Storage (CCS) Outcomes from Durban and the Next Steps Under the Clean Development Mechanism (CDM)*".

September, 2011: Dr. Sealy was requested by the UNFCCC Secretariat, to co-chair a workshop in Abu Dhabi entitled "*Technical workshop on modalities and procedures for carbon dioxide capture and storage in geological formations as clean development mechanism project activities*" UNFCCC Subsidiary Body for Scientific and Technological Advice

Sealy, H.J., 2010. "*An Integrated Solution to the Belle Drinking Water and West Coast Water Quality of Barbados. A Sewerless Sewage System.*" Proceedings of the 19th Annual Conference and Exhibition of the Caribbean Water and Wastewater Association. (Peer reviewed.)

Isada Consulting, 2010. Draft Grenada National Energy Policy. Prepared for the Organisation of American States and submitted to the Government of Grenada. (Lead consultant and author)

Isada Consulting, 2009. Draft Dominica National Energy Policy. Prepared for the Organisation of American States and submitted to the Government of the Commonwealth of Dominica. (Contributing consultant and author)

SGU & Isada Consulting, 2009. A Diagnostic Study of EIA Management in the OECS – Final Report. Prepared for the Organisation of Eastern Caribbean States. Funded by the Canadian International Development Agency (CIDA). (Lead consultant and author)

Sealy, H.J., 2009. "*Additionality – Why so many projects fail to get registered.*" UNFCCC CDM Regional Workshop, July 20th and 21st, 2009. St. George's University, Grenada. (Invited presenter)

Sealy, H.J. *et al.*, 2007. Alternative Fuels for Diesel Engine Vehicles: Final Report. Prepared for the Government of Barbados. (Lead author as chairman of the government-appointed committee)

Sealy, H.J., 2007. “*The Role of Hydrogen in the Economy of a Small Island Developing State.*” International Seminar on the Hydrogen Economy for Sustainable Development, 28 – 29 September, 2007, Reykjavik, Iceland. (Invited presenter)

Ministry of Energy and the Environment, 2006. Draft Barbados National Energy Policy. (Lead author and chairman of the drafting committee)

Sealy, H.J., 2005. “*Wastewater Reuse as a Component of a National Integrated Water Resources Management Programme for Barbados*” Proceedings of the 14th Annual Conference and Exhibition of the Caribbean Water and Wastewater Association. (Peer reviewed.)

Sealy, H.J. & Hutchinson, N., 2005. Integrated Approaches to Flood Management in the Caribbean. Final Report. Prepared for the Global Water Partnership Caribbean (GWPC). (Contributing author as Director of Engineering, New Water Inc.)

UNEP & CEHI, 2004. A Directory of Environmentally Sound Technologies for the Integrated Management of Solid, Liquid and Hazardous Waste for SIDS in the Caribbean Region. (Contributing author as Director of Engineering, New Water Inc.)

UWI & New Water Inc., 2004. “*Public Consultation on the List of Prohibited Concentrations.*” Public Consultation on the Marine Pollution Control Act (2004), Barbados. (Lead author and presenter of the Regulations and List of Prohibited Concentrations)

Sealy, H.J., Metcalfe, K. and Nuttall, N., 2003 “*Opportunities for Sectoral Synergy in Public Sector Waste Management*”. UNDESA SIDS Waste Management Experts Meeting, Havana, Cuba. (Lead author and invited presenter)

Sealy, H.J., 2002. “*The LBSMP – Implementation Challenges.*” UNEP Workshop on Nutrient Removal Technology, Trinidad & Tobago. (Invited presenter)

Sealy, H.J., 2001. “*Inspection of Wastewater Treatment Plants: A Guide for the Central Board of Health, Ministry of Health of the Government of Antigua & Barbuda*”. Funded by PAHO.

PAHO, 2000. “Health & Hygiene in Hospitality: A Guide.” (Lead consultant and author). 5,000 copies of this manual have been published and distributed throughout the Caribbean.

Employment Record:

October 2008 – Present: Energy and Sustainable Development Advisor: Government of Grenada.

Dr. Sealy was responsible for developing Grenada’s national energy policy, which was approved by the Cabinet of Grenada in March 2011. Dr. Sealy now has responsibility for implementing this policy and the 2010 – 2020 Sustainable Energy Action Plan. Key elements of the ten-year Action Plan include the enactment and enforcement of energy efficiency legislation, the construction of two (10 MW each) geothermal plants on mainland Grenada, a 1.1 MW wind farm in Carriacou and solar PV units throughout the tri-island State. Nationally Appropriate Mitigation Actions (NAMAs) will be developed and registered.

January 2008-Present: Associate Professor: Department of Public Health & Preventive Medicine, School of Medicine, St. George's University, Grenada. Dr. Sealy is responsible for the delivery of course material as part of the Master's of Public Health (MPH) programme. He is also a Research Fellow in the Windward Islands Research and Education Foundation (WINDREF) and is responsible for coordinating the Renewable Energy and Energy Efficiency (REEF) Initiative, which is a joint-venture between the Government of Grenada and WINDREF to promote renewable energy and energy efficiency projects throughout the Eastern Caribbean, with an emphasis on research on the impacts of these projects on public health.

April 2006 – Present: – Private Consultant

Consultant for the Caribbean Solar Finance Programme (2011) to determine the potential for solar and biogas technologies in small and medium enterprises in Grenada. Client: UNIDO

Consultant for the preparation of Sustainable Energy Policies for Dominica & Grenada. Client: OAS.

Sub-consultant for a review of the 2009 draft St. Lucia Energy Policy. Private Client – St. Lucia

Consultant for an Environmental Impact Assessment of a proposed 1,500 condominiums complex in St. Lucy, Barbados. Private Client – Barbados

Consultant for the preparation of a waste chemical management programme for Barbados; Private Client – Barbados

Consultant for an Environmental Impact Statement for use of tyre-derived-fuel in a cement kiln; Private Client – Barbados

Consultant for an Environmental and Social Impact Assessment of a Multi-purpose Sugar Processing Facility; Government of Barbados

Environmental Scoping Study and Preliminary Engineering Analysis of the sewerage system proposed for a commercial development; Private Client – St. Vincent & the Grenadines

Redesign of the wastewater treatment system for the Portvale Sugar Factory; Government of Barbados

Consultant for a Strategic Environmental Assessment of the National Energy Policy; Government of Barbados

Consultant for the preparation of a National Energy Policy; Government of Barbados

Consultant for a Prevalence Study to determine the cause of ill-health amongst students and staff at a secondary school; Government of Barbados

Consultant for case studies on Integrated Flood Management in Barbados, Guyana and Trinidad & Tobago; Global Water Partnership – Caribbean

2004 – 2006: New Water Inc. / Director of Engineering

Responsible for the services provided by New Water Inc including the marketing of ZENON membrane filtration technology for water and wastewater treatment throughout the Caribbean.

2000-2003: Stantec Consulting International Ltd. / Caribbean Region Manager

Barbados Water Authority: Project Principal for an Environmental Assessment to determine the least cost alternative to protect a limestone aquifer (the Belle), which provides approximately 40% of Barbados' drinking water.

Consultant for an Environmental Impact Assessment of a proposed 18-hole golf course at Lancaster, St. James, Private Client, Barbados.

Consultant for the solid and liquid waste management component of a Gullies Ecosystem Study; Government of Barbados

Sub-consultant for an environmental impact assessment for the reform and expansion of the Port of Bridgetown; Government of Barbados

Pan American Health Organisation (PAHO): Consultant for the development of a Wastewater Treatment Plant Inspection Manual for the Environmental Health Department of the Government of Antigua & Barbuda.

Project Director for the Implementation Assistance Project for the Marine Pollution Control Act. This included the development of national effluent discharge and ambient water quality standards. Government of Barbados:

Project Principal for a Distribution Network Assessment and Project Prioritization Study for the Water and Sewerage Company (WASCO) in St. Lucia. Project Report to be used by the Caribbean Development Bank and the World Bank to determine funding allocations to WASCO for the period 2000 – 2003. WASCO, Government of St. Lucia

Project Coordinator for a US\$35 million design/build proposal for a new wastewater treatment and disposal facility for the city of Port of Spain, Trinidad and Tobago. WASA, Government of Trinidad & Tobago:

1998 - 2001 Private Consultant:

Consultant for an Environmental Impact Assessment as a requirement for planning permission to construct a concrete block manufacturing plant in Barbados. Client: Robar Technologies Inc.

Sub-consultant for an environmental impact assessment for the reform and expansion of the Port of Bridgetown. Client: Government of Barbados.

Consultant for the development of a Wastewater Treatment Plant Inspection Manual for the Environmental Health Department of the Government of Antigua & Barbuda. Client: PAHO.

Consultant for an environmental impact assessment as a requirement for planning permission to extend an existing limestone quarry and to develop a new limestone quarry in Barbados. Client: C.O. Williams Construction Ltd.

Consultant for the design of a remediation plan for a hydrocarbon-contaminated site in Barbados. The objective being the conversion of approximately 1 hectare of land previously contaminated by an oil refinery and terminal into land suitable for hotel and commercial development. Client: Mango Bay Resorts Ltd.

Consultant for an Institutional Strengthening Study of the Department of Environmental Health Services, Government of the Commonwealth of the Bahamas. Client: PAHO.

Consultant to the Pan American Health Organisation (PAHO); provision of assistance in an assessment of on-site disposal practices of wastewater in St. Vincent and the Grenadines and assistance in the development of training programmes. Client: PAHO. St. Vincent & the Grenadines.

Lead consultant on an environmental impact assessment of a proposed 7500m³/day sea water reverse osmosis (SWRO) plant for the Sandy Lane Resort complex in Barbados. Client: Sandy Lane Hotel.

Lead consultant on an environmental impact assessment of proposed chemical usage on 45 holes of golf at the Sandy Lane Resort complex in Barbados. Client: Sandy Lane Hotel.

Co-consultant on a report to the Inter-American Development Bank, requesting additional funding for the South Coast Sewerage Project. Client: Government of Barbados.

Sub-consultant on an EIA for the expansion of the Ocean Terrace Inn in St. Kitts. Client: OTI. St. Kitts & Nevis.

Lead Consultant for the preparation of "Health & Hygiene in the Hospitality Sector. A Guide" with advice on appropriate environmental health practices for the hotel sector in the Caribbean. Approximately 5,000 copies of this guidebook have been published and are being distributed by Caribbean Action for Sustainable Tourism (CAST). Client: PAHO.

Sub-consultant on an EIA for a 4 IMGD brackish water reverse osmosis desalination plant. Client: Barbados Water Authority.

Sub-consultant on an Environmental Evaluation of a proposal to construct a single sugar factory with co-generation (utilising 120 tonnes/day of MSW as fuel) to replace the existing three sugar factories in Barbados. Client: Barbados Agricultural Management Company.

Sub-consultant on a six-month site remediation study to determine the extent of hydrocarbon contamination around an oil refinery in Barbados. Client: Government of Barbados

1994 -1997 Government of Barbados/Project Director for South Coast & West Coast Sewerage Projects and the Integrated Solid Waste Management Programme.

Member of the Cabinet-appointed National Commission on Sustainable Development, which advised the Government of Barbados on sustainable development issues

Member of the Cabinet-appointed National Negotiating Committee to advise the Government of Barbados on the construction of a new petroleum products terminal facility to service the country's fuel requirements for the next twenty years.

While with the Government of Barbados, Dr. Sealy was responsible for three on-going national projects with a combined capital value of approximately US\$250 million. These included:

Integrated Solid Waste Management Programme: This project consisted of a US\$2.5 million Feasibility and Final Design Study, and a US\$25 million Capital Works Programme. The objectives of the study were to develop a comprehensive twenty-five year solid waste management plan for Barbados.

Construction of a sewerage system along the South Coast of Barbados. The system consisted of 44km. of sewers, 4 lift stations, a 9.7 ML/day primary treatment plant, with ozone odour control and a 1.1 km. marine outfall. Five kms of sewers were laid using 'no-dig' technology. The US\$80 million project was funded by the Inter-American Development Bank (IDB), the European Investment Bank, (EIB), and the Government of Barbados. The project included a two year Operational Assistance Programme to the national agency with responsibility for operating the system and a comprehensive Environmental Monitoring Programme of the reefs and nearshore waters along the entire south coast of the island.

Master Plan and Final Designs - West Coast Sewerage Project: This US\$3.2 million study includes an Environmental Impact Assessment of the design alternatives, evaluation of wastewater re-use, treatment and disposal options, an Institutional Strengthening Study, and preparation of Final Designs for the preferred option. Extensive oceanographic investigations, water quality data collection, and statistical analy-

sis of 'baseline' water quality with computer modelling of the flux of pollutants into the nearshore along the west coast of the island were conducted. The capital cost of the programme is estimated at US\$154 million.

1994- 1996 Adjunct Lecturer at the UWI, Cavehill Campus, Barbados

1989 - 1993 University of Liverpool/Research Associate. Researched the use of hydrogels as carrier agents for agrochemicals. Developed a laboratory protocol for the analysis of PCBs in fish muscle.

1984 - 1986 Intel (Bdos) Ltd./ Environmental Engineer. Responsible for the general safety of staff (1100 employees), the general public and protection of the environment.

Awards:

Recipient of a Barbados Scholarship – 1980

Recipient of a Commonwealth Scholarship – 1986

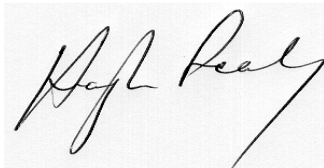
Languages	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent

References:

Professor Wayne Hunte, Pro Vice Chancellor, University of the West Indies, Cave Hill Campus, Barbados.

Dr. Leonard Nurse, Centre for Resource Management and Environmental Sciences (CERMES), University of the West Indies, Cave Hill Campus, Barbados.

I, the undersigned, certify that to the best of my knowledge and belief, these biodata correctly describe me, my qualifications and my experience.



Date: January 9th, 2012