

CURRICULUM VITAE

Dr. Isaac Dennis Amoah
Global professor
University of Arizona Microcampus
NorthWest Agricultural and Forestry University
Yangling, China

Research Interest:

My research interest spans a range of topics in environmental microbiology, primarily interested in health-related water microbiology specifically. microbial health risk assessment associated with exposure to polluted water and wastewater. Other research interest includes One-health approach to understanding the development and dissemination of antimicrobial resistance, the role of microplastics in the dissemination antibiotic resistance genes and pathogens in the environment.

Education background:

2015 to 2018: PhD, Health Sciences (Environmental Health)
Durban University of Technology, South Africa

2012 to 2014: Master's degree, Parasitology
Kwame Nkrumah University of Science and Technology, Ghana

2007 to 2011: B.S., Biological Sciences
Kwame Nkrumah University of Science and Technology, Ghana

Work experience:

Global Professors: Environmental Science: University of Arizona (2022-present)
As part of UA Microcampus , responsible for teaching undergraduate Environmental Systems Biology and Environmental Microbiology (theoretical and experimental courses) at Northwest A &F University (Yangling, Shaanxi, China) .

Researcher: Durban University of Technology, South Africa (2021-2022)
Responsible for expanding the research field of health-related water microbiology, establishing a wastewater- based epidemiological framework for viral infections, obtaining research funding and mentoring students.

Postdoctoral fellow: Durban University of Technology, South Africa (2018-2021)
Responsible for graduate student mentoring, initiating new research projects in health-related water microbiology, establishing research collaborations and finding research funding to support new areas of research.

Achievements:

South African National Research Foundation (2022) as Y- level researcher (promising young researcher).

2019 Willie Graber Young Investigator Award from the International Water Association Professional Organization for Health -Related Water Microbiology

Received the "Best Published Researcher " award from Durban University of Technology in 2019 for outstanding performance in publishing papers as a postdoctoral fellow in 2018

Received the "Best Published PhD Student" award from Durban University of Technology in 2018 in recognition of his outstanding performance in publishing papers as a 2017 PhD student

2017, won the International Conference Travel Award issued by the International Water Association Health-related Water Microbiology Specialist Group

Research Projects:

Title: Advanced Molecular Methods for Detection and Quantification of SARS-CoV-2 in Wastewater and Sanitary Settings (2021-2022)

Funder: South African Water Research Council

Role: Drafting grant proposals, communicating with stakeholders and coordinating projects

Title: Wastewater - Based Epidemiological Detection of COVID-19 in Wastewater (2020-2021)

Funder: Umgeni Water (South Africa)

Role: Drafting grant proposals, communicating with stakeholders and coordinating projects

Title: Assessing fecal pathogen contamination and risk exposure in community bathing areas (CABs): a case study of informal settlements within the municipality of eThekweni, South Africa (2019-2021)

Funder: South African Water Research Council

Role: Collaborator; responsible for developing a risk assessment framework for shared sanitation facilities

Title: Antibiotic profile and distribution of antibiotic resistance associated with tuberculosis treatment regimens in African wastewater treatment plants (2019-2022)

Funder: Bill & Melinda Gates Foundation

Role: Collaborator; responsible for collecting samples from across Africa, reporting and engaging with stakeholders.

Title: Microplastics and nanoplastics as carriers of antibiotic resistance genes in aquatic environments (2019-2022)

Funder: Joint Program Initiative on Water Resources (JPI-WATER) - European Union and South African Water Resources Research Council.

Role: South Africa Program Coordinator

Title: Surveillance of Antibiotic Resistance Through African Sewage Analysis (2018-2019)

Funder: Center for Antibiotic Resistance Research (CARE), University of Gothenburg.

Role: Principal Investigator leading the project, which involves partner organizations from around 10 African countries, including South Africa.

Title: Development of a unified method for the detection and quantification of soil- borne worms in environmental samples (2015-2018)

Funder: Bill and Melinda Gates Foundation

Role: laboratory technician

Title: Combining decentralized wastewater treatment with agriculture (2015-2016)

Funder: South African Water Research Council

Role: Collaborator; responsible for identifying the risks associated with the reuse of wastewater from anaerobic baffled reactors for irrigation in informal settlements

Title: Combined health risks associated with reuse of urban and peri-urban agricultural wastewater in Kumasi, Ghana (2012-2013)

Funder: Norwegian Research Council.

Role: Microbiologist.

Academic contribution

Student supervision: 6 doctoral students, 7 master students, 2 undergraduate students.

Journal Review Editor: Frontiers in Environmental Science (Wastewater Section)

Journal reviewers: 12 journals

International Research Program Reviewer: Czech Science Foundation and the Confederation of Advanced Research Training in Africa (CARTA)

Professor Reviewer: Soleimani University - Kurdistan - Iraq

Guest Editor (MDPI Special Issue): Emerging Pollutants and Wastewater Treatment Technologies

Publications

Mtewa, HN, Amoah, ID, Kumari, S. , Bux , F. , and Reddy, P. , 2022 . Molecular monitoring of tuberculosis-causing mycobacteria in wastewater. Heliyon , p.e08910

Mtetwa, HN , Amoah, ID , Kumari, S. , Bux , F. , Reddy, P. (2022) . Source and fate of Mycobacterium tuberculosis complex in wastewater and possible routes of transmission . BMC Public Health 22(1) , pp.1-18

Ramlal , PS, Lin, J., Buckley, CA, Stenström , TA, and Amoah, ID (2022) . Health Risk Assessment Associated with Shared Sanitation Facilities: A Case Study of a Community Bathing Area in Durban, South Africa . Environmental Monitoring and Assessment 194:166 <https://doi.org/10.1007/s10661-022-09815-x>

Mthethwa, NP , Amoah, ID , Reddy, P. , Bux , F. , Kumari, S. (2022) . Development and evaluation of molecular-based protocols for the detection and quantification of protozoan parasites in wastewater . Experimental Parasitology p.108216 .

Mtetwa, HN , Amoah, ID , Kumari, S. , Bux and Reddy, P. (2021) . Wastewater- based antibiotic resistance genetic surveillance associated with tuberculosis treatment regimens in KwaZulu-Natal , South Africa . Antibiotics 10(11) , p . 1362

Arnold Landry, FK, Gideon Aghaindum , A., Amoah, ID, Thérèse Nadège , OA and Pierre, TN, 2021 . Evaluation of some disinfectants on the effect of some disinfectants isolated from wastewater and faecal sludge in Efficiency of viability of Hymenolepis nana eggs: importance of some abiotic variables . Water Science and Technology . wst2021367 . <https://doi.org/10.2166/wst.2021.367>

Ramlal , PS, Lin, J., Buckley, CA, Stenström , TA, Amoah, ID, Okpeku , M., Kanzi, A. and Ramsuran , V., 2021. 16S rRNA -based microbial metagenomic analysis of exposed surfaces Shared sanitary facilities . Ecological Genetics and Genomics , 21 , p.100095 .

Amoah, ID , Abunama , T. , Awolusi , OO , Pillay, L. , Pillay, K. , Kumari, S. and Bux , F. , 2021 . Impact of Selected Wastewater Characteristics on SARS-CoV-2 Viral Load Estimation in wastewater . Environmental Studies , p.111877 .

Amoah, ID , Mthethwa, NP , Pillay, L. , Deepnarian , N. , Awolusi , O. , Pillay, K. , Kumari, S. , Bux , F. (2021) . RT-LAMP : A Cheaper, Simpler , and Faster Alternative for Detection of SARS-CoV-2 in Wastewater . Food and Environmental Virology [oi.org/10.1007/s12560-021-09489-7](https://doi.org/10.1007/s12560-021-09489-7) .

Mthethwa, NP , Amoah, ID , Reddy, P. , Bux , F. , Kumari, S. (2021) . A review of the application of next-generation sequencing methods to the analysis of protozoan parasites in water : current methods, challenges and prospects . Journal of Microbiological Methods p.106269 .

Amoah, ID , Pillay, L. , Deepnarian , N. , Awolusi , O. , Pillay, K. , Ramlal , P. , Kumari, S. , Bux , F. (2021) . Detection of SARS-CoV-2 RNA on touched surfaces in shared sanitation facilities . International Journal of Health and Environmental Health.236 :113807

Marques, FR , Magri , ME , Amoah, ID , Paulo, PL (2021) . Development of a semiquantitative method for assessing microbial health risks associated with wastewater reuse : a case study at the household level . Environmental challenges . 4:100182

Govender, R. , Amoah, ID , Adegoke, AA Singh, G. , Kumari, S. , Swalaha , FM , Bux , F. , Stenström , TA (2021) . Identification , antibiotic resistance and virulence analysis of Aeromonas and Pseudomonas in wastewater and surface water . Environmental Monitoring and Assessment , 193(5) , pp.1-16 .

Pillay, L. , Amoah, ID , Deepnarain , N. , Pillay, K. , Awolusi , OO , Kumari, S. and Bux , F. (2021) . Monitoring changes in COVID-19 infection using wastewater -based epidemiology : A South African perspective . Integrative Environmental Science , p.147273 .

Govender, R. , Amoah, ID , Kumari, S. , Bux , F. and Stenström , TA (2020). Detection of multidrug- resistant environmental isolates of Acinetobacter and Stenotrophomonas maltophilia : a possible threat to community - acquired infections ? Journal of Environmental Science and Health , Part A , pp.1-13

Amoah, ID , Kumari, S. , Reddy, P. , Stenström , TA and Bux , F. (2020). Impact of informal settlements and wastewater treatment plants on contamination of surface water with parasitic eggs and risks associated with exposure . Journal of Environmental Monitoring and Assessment . EMAS-D-20-01029 .

Amoah, ID , Kumari, S. and Bux , F. (2020) . Coronaviruses in wastewater treatment: sources, fate and potential risks . Environment International , 105962 .

Mammo , FK , Amoah, ID , Gani , KM , Pillay, L. , Ratha , SK , Bux , F. , and Kumari, S. (2020) . Microplastics in the environment : interactions with microbial and chemical pollutants . Total Environmental Science , 140518 .

Deepnarain , N. , Nasr, M. , Amoah, ID , Enitan- Folami , AM , Reddy, P. , Stenström , TA , Kumari, S. and Bux , F. (2020). Effects of sludge bulking on the receiving environment using quantitative microbial risk assessment (QMRA) -based comprehensive wastewater treatment plant management . Journal of Environmental Management , 267 , p.110660 .

Amoah, ID , G. Singh , K. Troell , P. Reddy , TA Stenström and F. Bux (2020) . A comparative evaluation of roundworm DNA extraction procedures . Egg. Journal of Wormology 94 .

Clack, K. , Pietruschka , B. , Amoah, ID , Muchaonyerwa , P. , Odindo , OA , Palomo , M. , Buckley, C. , Ngwane, Z., and Mladenov , N. (2019). Coliform transfer to duckweed harvested from anaerobic baffled reactor effluent . Bioresources Technical Report 8 (2019) : 100314 .

Ramlal , PS , Stenström , TA , Munien , S. , Amoah, ID , Buckley, CA and Sershen (2019) . Association between shared sanitation facilities and diarrheal and soil- borne helminth infections : a review of analyzes . Journal of Water, Sanitation and Hygiene for Development . doi : 10.2166/washdev.2019.180 .

Adegoke, AA, Amoah, ID, Stenström , TA, Verbyla , ME, Mihelcic , J. (2018) Epidemiological evidence and health risks associated with agricultural reuse of partially treated and untreated wastewater : a review . Frontiers in Public Health 6 , Doi : 10.3389/fpubh.2018.00337 . man.2017.12.003

Amoah, ID , Seidu , R. , Reddy, P. and Stenström , TA (2018). Removal of soil - borne parasite eggs at selected centralized and decentralized sewage treatment plants in South Africa and Lesotho : Health effects of direct and indirect exposure to sewage . Environmental Science and Pollution Studies . 17:1-13 . DOI.org/10.1007/s11356-018-1503-7

Amoah, ID , Seidu , R. , Reddy, P. and Stenström , TA (2018). Concentrations of soil- borne parasite eggs in sludge from South Africa and Senegal : Probability estimates of infection risks associated with agricultural applications . Journal of Environmental Management . 206:1020-1027 . DOI.org/10.1016/j.jevm _

Amoah, ID , Reddy, P. and Stenström , TA (2017). The effect of reagents used during the detection and quantification of *Ascaris suum* in environmental samples on egg viability (2017) . Journal of Water Science and Technology . 76(9):2389-2400.–201 .

Amoah, ID , Adegoke, AA and Stenström , TA (2018). Soil- borne helminth infections associated with wastewater and sludge reuse : a review of current evidence . Tropical Medicine and International Health . Doi : 10.1111/tmi.13076

Amoah, ID , Singh, G. , Stenström , TA , and Reddy, P. (2017). Detection and quantification of soil- borne helminth eggs in environmental samples : a review of the current state of the art and future prospects . Tropical Journal . 169, 187
<http://dx.doi.org/10.1016/j.actatropica.2017.02.014>

Amoah, ID , Seidu , R. , Abubakari , A. , Stenstrom , TA, and Abaidoo , RC , (2016). Effects of wastewater irrigation on soil- borne helminth infection among growers in Kumasi, Ghana . PLOS Neglected Tropical Diseases . 10(12): e0005161.doi: 10.1371/journal.pntd.0005161

Singh, G. , Vajpayee, P. , Rani, N. , Amoah, ID , Stenstrom , TA , Shanker, R. (2016) . Exploring the potential reservoir of non-specific TEM beta -lactamase (blaTEM) genes in the Ganges region of India : a risk assessment approach to predict health hazards . Hazardous Materials Journal . 314:121-128

Seidu , R. , Abubakari , A. , Amoah, ID , Heistad, A. , Larbi, JA , Stenström , TA, and Abaidoo , RC , (2015). Probabilistic assessment of the impact of *Escherichia coli* O157:H7 infection risk and disease burden on lettuce irrigated with wastewater from Kumasi, Ghana . Journal of Water and Health . 13(1) : 217-229 .

Abubakari , A. , Amoah, ID , Essiaw-Quayson , G. , Larbi, JA , Seidu , R. and Abaidoo , RC (2015). Pathogenic Escherichia coli in ready-to-eat salad products from suppliers in Kumasi, Ghana . African Journal of Microbiological Research . 9(21):1440-1445

Seidu , R. , Sjølander , I. , Abubakari , A. , Amoah, ID , Larbi, JA and Stenström , TA , (2013). Mortality of simulated Escherichia coli and roundworms in wastewater- irrigated vegetables: implications for reducing microbial health risks associated with cessation of irrigation . Water science and technology . 68(5):1013-21

Book

Isaac Dennis Amoah (2023): Empowering Postgraduate Success: Navigating the Masters and PhD Journey . Amazon. available at <https://www.amazon.com/dp/B0BVVD383BT>

Book chapters

Tetteh, EK , Rathilal , S. , Opoku, MA , Amoah, ID and Chollom , MN, 2021 . Molecular imprinting technology : a new approach to antimicrobial materials . In Advanced Antimicrobial Materials and Applications (pp . 393-421). Springer, Singapore .

Sithebe , A. , Singh, G. , Amoah, ID and Stenstrom , TA (2016). Comparative Microbiological Assessment of the Isipingo and Palmiet Rivers in KwaZulu-Natal Province to Elucidate Health Risks . Pages 2-6 . _ In : Microbes in Focus: Recent Advances in Understanding Beneficial and Harmful Microbes (Editor : A. Méndez-Vilas) Brown Walker Press , 2016 . ISBN-10 : 1627346120 , ISBN-13 : 9781627346122

Conference / Seminar Presentation

Dludla , W, Amoah, ID, Kumari, S, Stenström , T. A and Bux , F. Prevalence of carbapenemase-producing genes in Escherichia coli in wastewater treatment plant effluent . WISA, 2022

Mtetwa, H. , Amoah, ID , Kumari, S. Bux , F., and Reddy, P. Molecular detection of antibiotic resistance genes in Mycobacterium tuberculosis in wastewater - WISA , 2020

Reddy, P. , Mtetwa, H. , Amoah, ID , Kumari, S. and Bux , F. Detection of antibiotic resistance genes associated with Mycobacterium tuberculosis from wastewater treatment plants . 6th World One Health Assembly , 30 October - 3 November 2020 _

Reddy, P. , Mtetwa, HN , Amoah, ID , Kumari, S and Bux , F (2020) . Detection of antibiotic resistance genes associated with Mycobacterium tuberculosis from wastewater treatment plants . Poster presentation at the 2020 World Health Congress Virtual Session . From October 30 to November 3 , 2020 . _

Amoah, ID, Carl-Fredrik Flach , Stenström , TA Carbapenem - resistant Escherichia coli in treated wastewater from selected African cities . 20th International Symposium on Health - Related Water Microbiology . September 15-20 , 2019 , Vienna , Austria _

Zikalala , T. , Amoah, ID , Stenström , TA , and Buckley, C. (2019). Inactivation of roundworm eggs was determined using lyase . Fifth Annual Fecal Sludge Management (FSM5) Conference . Cape Town, South Africa . February 18-22 , 2019 _ _ _ _

Amoah, ID , Reddy, P. and Stenström , TA (2017). Microbial reduction efficiency at a decentralized wastewater treatment plant in Lesotho: implications for health risks of wastewater reuse . Oral presentation at the 8th International Young Water Professionals (IYWP) Conference in 2017 . Cape Town, South Africa . December 10-13 , 2017 _ _

Amoah, ID and Stenström , TA (2017) . Small -Scale Domestic Wastewater Treatment : Health Risk Implications for Operations and Wastewater Reuse . 3rd Brazilian Conference on Constructed Wetlands . Don Bosco Catholic University (UCDB) . Campo Grande . Brazil . May 23-26 , 2017 _ _

Amoah, ID , Reddy, P. and Stenström , TA (2017). Decentralized treatment of domestic wastewater : health risk implications for wastewater reuse . Oral presentation at the 19th International Symposium on Health-Related Water Microbiology /UNC Water Microbiology Conference, Chapel Hill, NC . America . May 15-19 , 2017 _ _ _ _

Amoah, ID , Reddy, P. , Niang, S. and Stenström , TA (2017). Methods for the detection and quantification of soil- borne worm eggs in fecal sludge . Oral presentation at the 4th Conference on Fecal Sludge Management (FSM4) . Chennai, India . February 18-23 , 2017 _ _

AmoahID _ and Stenström , TA (2016) . Epidemiological link between exposure and risk of soil- borne helminth infection : a case for appropriate egg detection methods in the Gates Project . Oral presentation at the 2016 SASM Biennial Conference , Coastlands , Umhlanga . South Africa . January 17-20 , 2016 _ _

Amoah, ID and Stenström , TA (2016) . Effects of irrigation type and vegetable type on Escherichia coli contamination of vegetables irrigated with wastewater from the DEWATS wastewater treatment plant . 2016 South African Water Institute Conference and Exhibition , Durban International Convention Centre, Durban . South Africa . May 15-19 , 2016 _ _

Stenström , TA and Amoah, ID (2015) . The role of sanitation security programming in domestic wastewater recycling and reuse in South Africa . WISA Water Reuse Workshop . Johannesburg, South Africa . September 28-29 , 2015 _ _

Amoah, ID , Seidu , R. , Abubakari , A. , Heistad, A. , Larbi, JA Stenström , TA and Abaidoo , RC (2015) . Ascaris infection risk associated with wastewater use in urban agriculture in Kumasi , Ghana . 18th International Symposium on Health - Related Water Microbiology . Lisbon, Portugal . September 13-19 , 2015 _ _

References

Professor Thor Axel Stenström
Emeritus Research Professor

Institute of Water and Wastewater Technology
Durban University of Technology
Durban, South Africa
Tel : +46 705160811
Email : thors@dut.ac.za

Professor Poovendhree Reddy
Department for Community Health Research
Durban University of Technology
Durban, South Africa
Tel : +27 31 373 2808
Email : PoovieR@dut.ac.za

Professor Razak Seidu
Research Leader: Water and Environmental Engineering Group
Norwegian University of Science and Technology
Ålesund, Norway
Tel : +47 70161507
Email : rase@ntnu.no