

STIMULATING LOCAL INNOVATION ON SANITATION FOR THE URBAN POOR

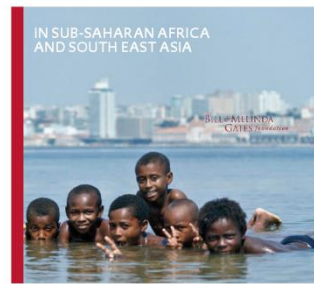
IN SUB-SAHARAN AFRICA
AND SOUTH EAST ASIA

BILL & MELINDA
GATES foundation



POST-GRADUATE RESEARCH AND EDUCATION PROJECT





PROJECT FRAMEWORK

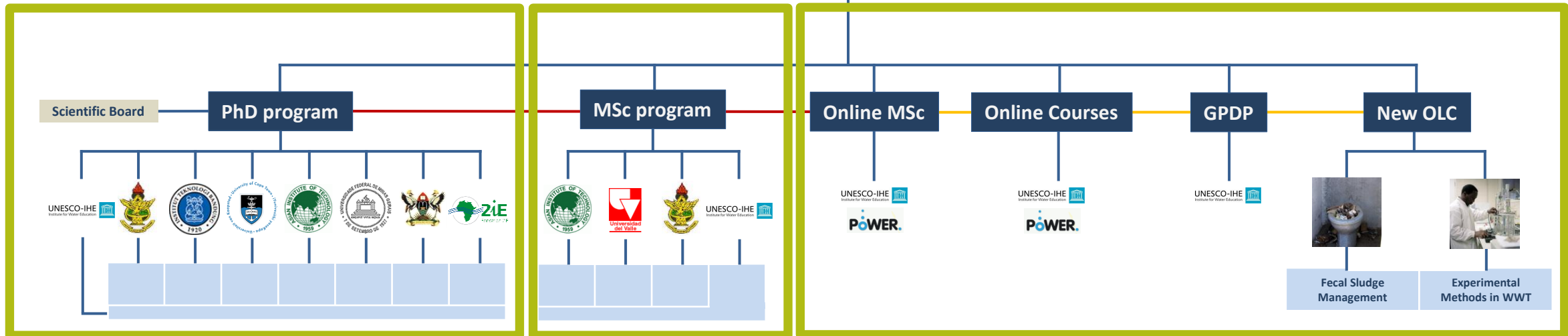


Project Assistant

RESEARCH

F2F EDUCATION

DISTANCE LEARNING



- Inputs**
- 20 PhD fellows
 - Professors
 - Mentors
 - External experts

- 60 MSc students
- Professors
- Mentors

- MSc students
- Professors
- Mentors

- 500 participants
- Mentors

- 15 participants
- Mentors

- OLC Leaders
- Contributors
- Video crew
- Producer

Outputs

- 20 PhD degrees
- 20 thesis
- 60 papers
- Experimental setups
- Innovations
- Patents

- 60 MSc degrees
- 60 thesis
- 20 papers
- The Best Thesis Award

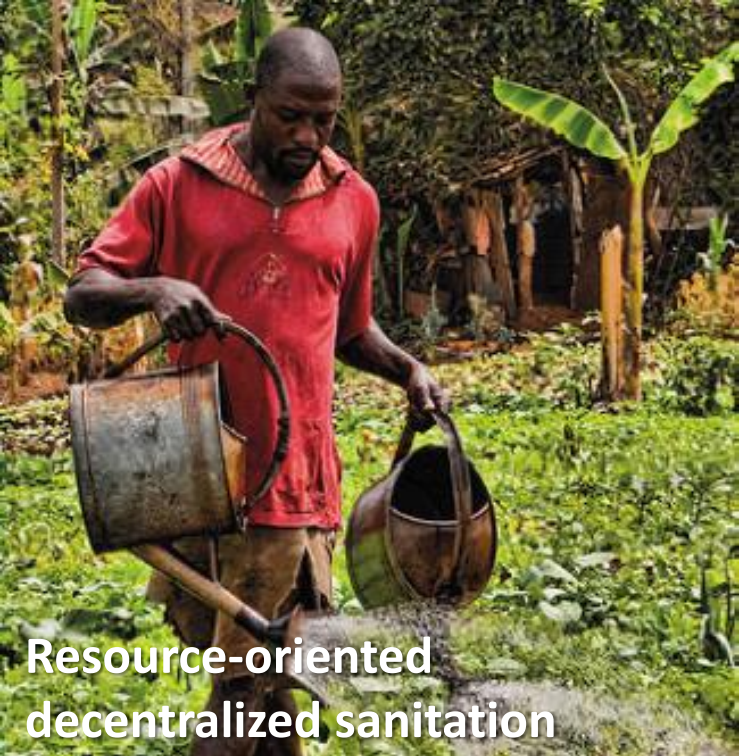
OL Hybrid MSc in SE

500 OLC certificates

Professional Program
15 GDPD Diplomas

- 2 new OLC
- 3 books
- Video materials
- Presentations
- 100 FSM OLC Certificates
- 5 Partners trained in OLC

5 RESEARCH THEMES



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IN SUB-SAHARAN AFRICA AND SOUTH EAST ASIA



POST-GRADUATE RESEARCH AND EDUCATION PROJECT



MSc, PhD and PosDoc fellows of the project so far

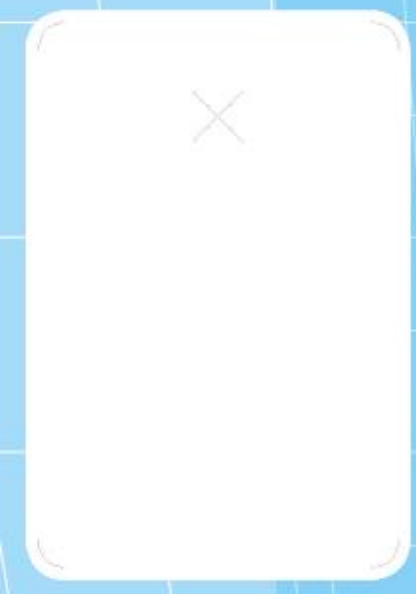
 Ashish Shrestha Nepal Impact of climate change on urban flooding in Sukhumvit area of Bangkok	 Adane Sewhunegne Molla Ghana The potential of subsurface filtration for the treatment of vermicid effluent generated by the biotill toilet	 Zeeshan Bilal Pakistan Reducing membrane bioreactors (MBRs) footprint and aeration costs by supplying pressurized air: Evaluating an innovative pressurized air delivery system introduced by Owivo	 Ahumaza Andrew Uganda Faecal sludge management in flood-prone areas	 Seneshaw Abate Kebede Ethiopia Development of urban permeable sewer optimal byproduct design	 Dennis Hanjalika Malambo Zambia Smoothing faecal sludge with lactacid in emergency situations	 Happiness Ngawanomoseka Nobela South Africa On-site faecal sludge treatment in raised latrines for emergency situations	 Yonas Gebretsadik Hagos Ethiopia Modelling the co-treatment of faecal sludge and domestic wastewater in anaerobic digester (FDSSA)	 Bernice Asamoah Ghana Design of graywater treatment system for communal toilet facilities in urban slums	 Grover Hector Mamani Casilla Bolivia Die-off of pathogens in household size anaerobic digesters (India)
 Angela Andrea Salinas Villafañe Bolivia Simultaneous denitrification and methanogenesis: Escherichia coli continuous flow assessment in a UASB system	 MJoelya Paul Mwachumu Tanzania Development of conceptual framework for decision support system for emergency sanitation	 Justina Ndinela Mwallalio Haihambo Namibia Flood prone sanitation systems	 Audax Rweyamamu Tanzania Evaluation of microwave system for sludge stabilization in emergency situations	 Herath Mudiyaselage Udaya Kant Ha Herath Sri Lanka Sri Lanka Management and operation of on-site wastewater treatment system - an analysis of success factors	 Aparva Sahu India Die-off of pathogens in household size anaerobic digesters (India)	 Frael Keneni Bedassa Ethiopia Feasibility of different innovative and sanitation systems in public places of Addis Ababa, Ethiopia	 Charles Mpho Makgatha South Africa Faecal sludge treatment by means of bio-pretating/household size anaerobic digester concept	 Baguma Godfrey Peterson Uganda Pathogen removal in a low-cost Anaerobic-DIS reactor	 Happymore Mbiza Zimbabwe Benchmarking activated sludge systems efficiency in tropical climates: A case of the Crowborough wastewater treatment plant in Harare (Zimbabwe) and the Tungkrui wastewater treatment plant in Bangkok (Thailand)

EDUCATION HIGHLIGHTS (1)



 Eric Ntamukunzi Rwanda Kinetic and modelling of conventional septic systems treating black water	 Charles Gisima Wemamba Tanzania Flood modelling for pollution hazard assessment in poor sanitation in Hamam B in Dar Es Salaam City - Tanzania	 Lakachew Yihunie Alemneh Ethiopia Assessment of the robustness of the biotill toilet technology for the treatment of black water	 Solomon Nueray Noi-Adzeman Ghana Microbial risk and indicators of environmental sanitation: Case of Asoke Submetro, Kumasi
 Ellis Lloyd Andrew Tembo Malawi Self-sustaining hanging bed system (DHS) as low-cost treatment system for diluted wastewater for secondary water reuse for isolated communities in Asia	 Thomas Lugeliyamu Balhazar Tanzania Climate compatible wetland based sanitation for sustainable cities in humid Africa	 Isaac S-Lase Kuwomu Ghana Improving the contaminant removal performance of the biotill toilet system using the filtration mechanism	 Juan Martin Velez Garcia Colombia Evaluation of performance of high-rate Anaerobic Pond (H-RAP) for primary treatment of landfill leachate under tropical conditions

 Awa Ndyae Senegal Senegal Low-cost wastewater collection and treatment	 Saroj Kumar Chapagain Nepal Resource-oriented decentralized sanitation
 Eric Ankwil Ofosu Ghana Faecal sludge management	 Babu Mohammed Uganda Smart sanitation provision for slums in formal settlements



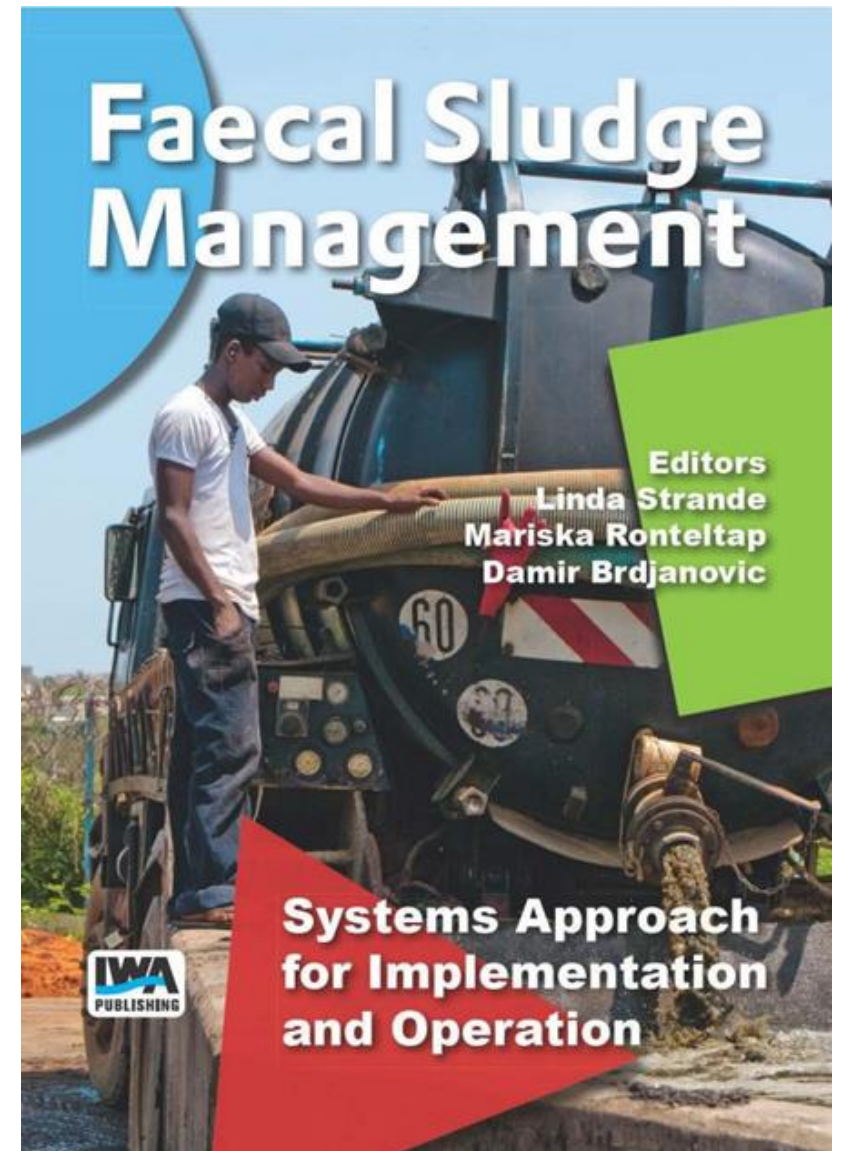
 Samuel Norvoko Ghana Towards an improved planning and design model for public provision toilet testing selected African dry informal settlements	 Mutal Kipyegon Peter Ghana Optimizing biogas production by co-digestion of human excreta and domestic organic waste in dumy in formal settlement	 Eugene Appiah-Effah Ghana Co-composting of dry toilet sludge from low-income areas of Ghana: case of a mobile drum composter	 Moumouni Disfarou Ali Niger Performance optimization of two-stage high-rate anaerobic reactor coupled with wet-dry sand filter and bio-maturation pond for domestic wastewater treatment in a warm climate: The case of Ouagadougou	 Peter Owusu Ankwil Ghana Assessment and optimization of vermi technology for the treatment of on-site blackwater: A case of the biotill toilet technology	 Dyah Wulandari Putri Indonesia Development strategy of domestic wastewater in structure for urban estuary, river and swamp communities application in Indonesia (Case study: Palembang city)	 Elias Sete Manjare Mozambique Behavior evaluation of rural low-cost constructed wetlands for treatment of domestic wastewater and septic tank effluent	 Thanh Hung Anh Thailand Optimized conveyance model of faecal sludge management in urban informal settlement	 Peter Mawoo Kenya Novel conceptual technologies for excreta and wastewater management in emergency conditions	 Joy Nyawira Riungu Kenya Biogas toilet based sanitation solution for the informal urban slum settlements: Enhanced sludge valorization
 Kobina Mensah Afful Ghana Odour control from on-site sanitation facilities in urban poor areas: study of Ayigya	 Buyi Tom Uganda Development of innovative on-site faecal sludge technologies for high water table slum areas in Kampala	 Adugna Amare Tirunah Ethiopia Conceptualized graywater treatment by vermi filtration for urban poor	 Sophia Pan USA Testing beyond basic sanitation: low-income households in Cape Town	 Thye Yoke Pean Singapore Development and application of a product development framework for emergency excreta disposal	 Daniel Filipe Cristelo Dias South Africa Combined solution of UASB reactor, polishing ponds and rock filter for wastewater treatment and reuse in developing countries	 Kraikuluck Fukaeuw Thailand Faecal sludge treatment using wastewater hydrothermal carbonization	 Anne Nakagiri Uganda Enhancing the performance and increasing the lifespan of latrines: processes and implications	 Fiona Zakaria Indonesia Pretreating faecal sludge management in emergency setting	 Tatchai Pussayanavin Thailand An integrated line to model design and operation of Solar SPTIC Tanks



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EDUCATION HIGHLIGHTS (2)