PERSONAL INFORMATION

Daniel Ddiba

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PROFILE SUMMARY

I am a civil and environmental engineer whose research focuses on sustainable sanitation and integrated natural resource management. My expertise spans areas such as the circular economy and bio-economy, faecal sludge management, sanitation planning, water/wastewater treatment, water resources management, solid waste management, environmental assessment & systems analysis and applied research. While I have been trained and gained experience in the engineering aspects of analysis, design and construction, I'm also an excellent communicator and people person and I'm at ease dealing with policy and planning issues.

WORK EXPERIENCE

January 2018 – To date

Co-lead of the working group on productive sanitation systems

Sustainable Sanitation Alliance, www.susana.org/en/working-groups/food-security-productive-sanitaion-systems

The aim of this international working group is to raise awareness for the reuse-oriented sustainable sanitation approach, its prospective contribution to global food security and to promote this approach on a large scale. The co-lead role involves coordination of the group's activities and knowledge management within the global SuSanA network.

September 2017 – To date

Research Associate

Stockholm Environment Institute, www.sei.org

At SEI, I am working on a portfolio of research projects with a focus on resource-oriented sustainable sanitation and waste management as well as integrated natural resource management. Among others, I am contributing to the development of the Resource Value Mapping (REVAMP) planning tool for estimating the potential of resource recovery from urban organic waste streams. I also engage in capacity development efforts for stakeholders in the urban water and sanitation sector.

November 2016 – August 2017

Independent Consultant

Based in Kampala, Uganda

My work focused on the water and sanitation sector. I also conducted environmental impact assessments, environmental audits and other assignments related to environmental systems and natural resource management. My projects included designing decentralized faecal sludge treatment plants and developing strategies for improving industrial wastewater management for clients such as the Water for People (Rwanda) and the National Water & Sewerage Corporation (Uganda).

July – October 2016

Consultant

Stockholm Environment Institute, www.sei-international.org/sustainable-sanitation

I worked with the SEI Initiative on Sanitation (SISS) team on the further development of a tool for mapping the quantities and value of resources that can be recovered from organic waste streams in cities. My assignments included mathematical modelling, reviews of literature on decision support tools in waste management, generating reports, policy briefs and other advocacy documents as well as contributing to the preparation of grant proposals for research funding.

February – June 2016

Research Intern

Stockholm Environment Institute, www.sei.org/sustainable-sanitation

Within the SEI Initiative on Sanitation, I developed a model that cities can use to estimate their potential for resource recovery from sanitary waste streams. The project involved literature reviews and modelling in MS Excel and resulted into a master's thesis for my MSc programme at KTH. I also drafted publications for further dissemination of key outcomes, including posts in high impact blog platforms, a discussion brief and a journal paper.

July 2015 – October 2015

Research Intern

Eawag/Urban Water Management, www.eawag.ch/en/department/sww/

This internship involved the development of a methodology for assessing appropriateness attributes of sanitation technologies and systems within the GRASP (Generation and Assessment of Sanitation Systems for Strategic Planning) project at the Swiss Federal Institute of Aquatic Science and Technology (Eawag). The assignment involved an extensive review of literature covering attributes of conventional and novel sanitation technologies and contributing to the development and testing of an attribute-based Decision Support model developed in *R* for the case of Arba Minch - a town in Ethiopia.

September 2013 – July 2014

Research Assistant, FaME & FAQ PROJECTS

Dep't of Civil & Environmental Engineering – Makerere University, www.cedat.mak.ac.ug

I was engaged on the the FaME (Faecal Management Enterprises) project which focused on testing the viability of dried faecal sludge (FS) as a fuel in a pilot brick kiln in Kampala, which could potentially be a driver for re-use oriented sanitation value chains and the FAQ (Faecal Sludge Quantification and Characterisation) project which aimed at developing a methodology for quantifying and characterizing faecal sludge on a city-wide scale and hence fill knowledge gaps in planning and designing appropriate FS treatment facilities.

EDUCATION AND TRAINING

January 2018 – December 2021 (Expected)

PhD Planning and Decision Analysis

KTH Royal institute of Technology, Stockholm, Sweden

My research is at the intersection of the bio-economy and circular economy and it explores the transition to resource-oriented sanitation and waste management systems in urban areas with case study cities in Kenya and Colombia

September 2014 – June 2016

MSc Environmental Engineering and Sustainable Infrastructure

KTH Royal institute of Technology, Stockholm, Sweden

MSc thesis involved developing a model for estimating the potential for resource recovery from productive sanitation systems in urban areas.

June – July 2013

Certificate, Global Village for Future Leaders of Business and Industry

Lehigh University, Pennsylvania, USA

August 2009 – June 2013

BSc Civil Engineering

Makerere University, Kampala, Uganda

BSc thesis focused on assessing the potential of utilising groundwater resources for irrigation to boost agriculture in the cattle corridor area of Uganda.

PERSONAL SKILLS

Languages

English (full professional proficiency) | Swedish (basic speaker) | Luganda, Lunyole & Lusoga (native)

Communication skills

- I am an effective communicator, orally and in writing. I have spoken before small and large audiences in both formal and social settings
- Teamwork and intercultural skills: I have worked on projects with teams in Africa, Europe, USA, Latin America and in the United Arab Emirates. I enjoy being part of diverse teams (in terms of age, gender, ethnicity and professional backgrounds) both at work and in social environments.

Job-related skills

- Modelling, planning, analysis & design for sanitation technologies & systems, solid waste treatment and management systems, stormwater/drainage systems, water/wastewater treatment processes, contaminated site remediation and conventional building structures as well as project economic analysis.
- Environmental systems analysis tools: Environmental Audits, Environmental Impact Assessment (EIA), Strategic Environmental Assessment (SEA), Life Cycle Assessment (LCA), Material Flow Analysis (MFA)/Substance Flow Analysis (SFA), Input/Output Analysis, Pollution risk assessment and Cost-Benefit Analysis (CBA).
- Capacity building: Training & facilitation in planning, organizational and work-related skills for both small and big groups.
- Applied Research: I am conversant with the scientific method and its application to applied/action research. I can conduct bench-scale, field and pilot experiments, surveys and data collection, laboratory analysis and data manipulation/analysis and also prepare high quality scientific publications.

Computer skills

I comfortably use a variety of engineering and research-related computer applications including; MS Office & MS Project, SimaPro, ArcGIS, R, AutoCAD, SWMM, EPANET, WEAP, Simba#, JASS, MSW-DST, CropWat and ClimWat among others. I am conversant with Windows, iOS and Android platforms.

SELECTED PROJECT EXPERIENCE

2018 – 2021 (Bolivia)

WASH Thinking Connected to Hydrology (Bolivia WATCH)

This Sida-funded program combines research with capacity development and policy engagement activities with the overarching aim of improving conditions in Bolivian watersheds by sustainably and resiliently managing water resources and sanitation systems to improve human health and wellbeing,

agricultural productivity, energy production and ecosystem function to improve livelihoods for all watershed residents.

2018 – 2020 (Sweden, Kenya, Colombia)

Urban waste into circular economy benefits (UrbanCircle)
Focusing on cities, this project which is funded by the Swedish Research Council Formas, is developing a way to integrate waste management and resource recovery into a circular economy. The project will visualise and highlight synergies between different waste and resource flows, particularly focusing on water, waste, food and energy so as to equip cities with tools to boost their resource efficiency, capitalise on waste and create novel governance structures, based on participatory planning and multi-stakeholder engagement.

2018 – 2019 (Sweden)

Resource-Oriented Sanitation in Emergencies (ROSE)
This project, funded by the Swedish Red Cross, aims to provide guidance for implementing a more systematic approach to ensure enhanced sustainability of sanitation provision in emergency camps, with emphasis on resource recovery and sustainable resource management.

2017 – 2020 (European Union)

Phosphorus efficiency in *Gallus gallus* and *Sus scrofa* (PEGaSus)
This project, funded within the European Research Area NETwork on Sustainable Animal Production (ERANet SusAn) aims at bridging the gaps in the phosphorus value chain within livestock production by identifying strategies for increasing the use efficiency of plant-derived phosphorus by monogastrics so as to reduce phosphorus supplements, reducing phosphorus losses and emissions from pig and chicken husbandry and increasing overall phosphorus recycling to contribute towards resource-efficient and economically competitive livestock production.

2015 – 2019 (Sweden, Burkina Faso, Kenya, Ghana, Ethiopia, Uganda)

The SEI Initiative on Sustainable Sanitation (SISS)
This Sida-funded project aims at injecting new momentum into sustainable sanitation provision across the world through a combination of research, knowledge management, capacity development, policy engagement and on-the-ground action.

2013 – 2014 (Uganda, Ghana, Senegal)

Faecal Management Enterprises (FaME)
This ERA-NET SPLASH funded project focused on developing solutions for faecal sludge management that provide a financial driver to enhance service at every step in the value chain, by creating scalable reuse-oriented faecal sludge value chains that capture and create value from faecal sludge end-products.

SELECTED PUBLICATIONS

Peer reviewed journal articles

Ddiba, D., Andersson, K., Rosemarin, A., Schulte-Herbrüggen, H. & Dickin, S. Towards more sustainable urban waste management and sanitation systems: a decision-support tool for estimating resource recovery potential. *Submitted to Waste Management.*

Strande, L., Schöbitz, L., Bischoff, F., **Ddiba, D.**, Okello, F., Englund, M., Ward, B. J., & Niwagaba, C. B. (2018). Methods to reliably estimate faecal sludge quantities and qualities for the design of treatment technologies and management solutions. *Journal of Environmental Management*, *223*, 898–907. doi:10.1016/J.JENVMAN.2018.06.100

Oster, M., Reyer, H., Ball, E., Fornara, D., McKillen, J., Sørensen, K. K. U., Poulsen, H. D. H., Andersson, K., **Ddiba, D.**, Rosemarin, A., Arata, L., Sckokai, P., Magowan, E., & Wimmers, K. (2018). Bridging gaps in the agricultural phosphorus cycle from an animal husbandry perspective - The case of pigs and poultry. *Sustainability*, *10*(6), 1825. doi:10.3390/su10061825

Gold, M., **Ddiba, D.**, Seck, A., Sekigongo, P., Diene, A., Diaw, S., Niang, S., Niwagaba, C., & Strande, L. (2017). Faecal sludge as a solid industrial fuel: a pilot-scale study. *Journal of Water Sanitation and Hygiene for Development*, *7*(2), 243–251. doi:10.2166/washdev.2017.089

Peer reviewed conference papers

Andersson, K. & **Ddiba, D.** (2017). Estimating and visualizing the value of urban waste recovery – The Resource Value Mapping (REVAMP) Tool. In proceedings of the 2nd IWA International Resource Recovery Conference (IWARR2019), 5 – 9 August 2017, New York, USA.

Niwagaba, B. C., **Ddiba, D.,** Sekigongo, P., Gold, M. & Strande, L. (2015). Faecal sludge as fuel in industrial kilns for brick production. In proceedings of the 3rd International Conference on Faecal Sludge Management (FSM3), 18 – 23 January 2015, Hanoi, Vietnam.

Briefs

Ddiba, D., Andersson, K. & Ogol, T. (2018). *UrbanCircle: turning urban waste into circular economy benefits.* Stockholm Environment Institute (SEI) Project Brief. Stockholm, Sweden.

Schulte-Herbrüggen, H., **Ddiba, D.,** Bhattacharya, P., Kimanzu, N., Andersson, K., Dickin, S., Schulte-Herbrüggen, B. (2017). *Linking water–sanitation–agricultural sectors for food and nutrition security.* Swedish International Agricultural Network Initiative (SIANI) Discussion Brief. Stockholm, Sweden.

Spuhler, D., Adams, M., **Ddiba, D.** and Tempel, A. (2016). SuSanA's Contribution to Agenda 2030 for sustainable development: Position paper of Working Group 1 on Capacity Development. Sustainable Sanitation Alliance (SuSanA).

Ddiba, D., Andersson, K. & Rosemarin, A. (2016). *Resource Value Mapping (REVAMP): A tool for evaluating the resource recovery potential of urban waste streams.* Stockholm Environment Institute (SEI) Discussion Brief. Stockholm, Sweden.

Others

Ddiba, D. (2018). Money from waste? Revamp your view on sanitation. Post on the *World Bank Water Blog*. www.blogs.worldbank.org/water/money-waste-revamp-your-view-sanitation

Ddiba, D., Andersson, K. & Rosemarin, A. (2016). Do you know the value of your city's sewage? Blog post on *Smart Cities Dive*. www.smartcitiesdive.com/ex/sustainablecitiescollective/do-you-know-value-your-citys-sewage/1237383/