Curriculum Vitae

STEFAN DIENER

Biologist PhD
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Date of birth: 9 January 1971
Nationality: Swiss
Languages: German - mother tongue, English - fluent, French – proficient, but rusty, Spanish – conversational, Swedish – very basic

Short profile

- Applied research on waste management in low and middle-income countries
- Bioconversion of organic waste by larvae of the black soldier fly, *Hermetia illucens*
- Project management on sustainable agriculture practices in East Africa
- Historical technical/practical background in electronics and mechanics
- Working experience in East Africa, Costa Rica, India, Indonesia, Moldova, and Ukraine

Professional activities

2021/03-	**Project Manager** at Swiss Federal Institute of Aquatic Science and Technology (Eawag), Department of Sanitation, Water and Solid Waste for Development (Sandec). Research on organic waste management using larvae of the black soldier fly, *Hermetia illucens*.
2017/10-2021/03	**Programme Officer** at Biovision Foundation in Zurich, Switzerland. Responsibility for the sector Plant Health with a focus on agroecological practices (intercropping, integrated pest management, erosion control).
2014/05-2017/09	**Project Manager** at Eawag, Department Sandec. Research on organic waste management with focus on an engineered system, using the black soldier fly. 15 months based at the Swedish Agricultural University SLU in Uppsala.
2012/11-2014/04	**Consultant** at Skat Consulting Ltd. in St. Gallen, Switzerland. Project management and backstopping in the area of water supply, sanitation and solid waste management for the Swiss Agency for Development and Cooperation (SDC), mostly in Ukraine and Moldova
2012/06-2012/10	**Private Consultant** for solid waste management with mandates for the Bill & Melinda Gates Foundation and the Swedish Agricultural University SLU
2010/09–2012/05	**Project officer** at Eawag, Department Sandec. Research on solid waste management and faecal sludge treatment in developing countries (Costa Rica, Senegal, Ghana, Uganda, Indonesia)

2006/06–2010/08	**PhD student** at Swiss Federal Institute of Technology (ETH), Zurich, Switzerland. "Valorisation of Organic Solid Waste using the Black Soldier Fly, *Hermetia illucens*, in Low and Middle-Income Countries". Supervisors: Prof. Jukka Jokela, Prof. Klement Tockner and Dr. Christian Zurbrügg. Including 16 month practical work in Costa Rica (TEC, Cartago and EARTH, Guácimo)
2005/07–2006/06	**Research Associate** at Eawag, Department Sandec. Development of guidelines for greywater management in developing countries
2005/05–2005/07	**Research Associate** at School of Life Sciences and Facility Management (ZHAW), Wädenswil, Switzerland. Planning and teaching of practical courses in aquatic ecology
2004/04–2004/08	**Project Manager** at International Water Management Institute (IWMI), Hyderabad, India. Application of a biotic index for rapid water quality assessment in the highly polluted Musi River in India
1993–2003	**Desktop publishing specialist**, McKinsey & Co, Erlenbach and Zurich
1990–1992	**Developer and repair specialist** of power supply equipment, Fabrimex AG, Erlenbach

Education

2006–2010	**PhD**, Swiss Federal Institute of Technology (ETH), Zurich
1997–2004	**MSc in Biology**, specialized in Ecology and Entomology, Swiss Federal Institute of Technology (ETH) and University of Zurich, Switzerland. MSc Thesis "Quantitative pollen requirements of selected oligolectic bee species". Supervisors Dr. Andreas Müller and Prof. Silvia Dorn
1994–1997	**High school for adults** (Kantonale Maturitätsschule für Erwachsene), Zurich
1986–1990	**Apprenticeship as Electronic Specialist** (Elektroniker), Cerberus AG, Männedorf

Publications

Peer reviewed publications

Gold, M., Cassar, C.M., Zurbrügg, C., Kreuzer, M., Boulos, S., **Diener, S.**, Mathys, A., 2020, Biowaste treatment with black soldier fly larvae - increasing performance through formulation of biowastes based on proteins and carbohydrates, *Waste Management,* 102: 319-329

Mertenat, A., **Diener, S.**, Zurbrügg, C., 2019, Black Soldier Fly Biowaste Treatment – Assessment of Global Warming Potential, *Waste Management,* 84: 173-81

Gold, M., Tomberlin, J.K., **Diener, S.**, Zurbrügg, C., Mathys, A., 2018, Decomposition of Biowaste Macronutrients, Microbes, and Chemicals in Black Soldier Fly Larval Treatment: A Review, *Waste Management,* 82: 302-318

Lohri, C.R., **Diener, S.**, Zabaleta, I., Mertenat, A., Zurbrügg, C., 2017, Treatment technologies for urban solid biowaste to create value products - A review with focus on low- and middle-income settings, *Reviews in Environmental Science and Bio/Technology*, 16(1), 81-130

Diener, S., Zurbrügg, C., Tockner, K., 2015, Bioaccumulation of heavy metals in the black soldier fly, *Hermetia illucens* and effects on its life cycle, *Journal of Insects as Food and Feed*, 1(4), 261-270

Lalander, C., Fidjeland, J., **Diener, S.**, Eriksson, S., Vinneras, B., 2014, High waste-to-biomass conversion and efficient Salmonella reduction using black soldier fly for waste recycling, *Agronomy for Sustainable Development*, 35(1), 261-271

Diener, S., Semiyaga, S., Niwagaba, C.B., Murray Muspratt, A., Gning, J.B., Mbéguéré, M., Ennin, J.E., Zurbrugg, C., Strande, L., 2014, A value proposition: resource recovery from faecal sludge - can it be the driver for improved sanitation?, *Resources, Conservation & Recycling* 88(0): 32-38

Lalander, C, **Diener, S.**, Magri, M.S., Zurbrugg, C., Lindström, A., Vinneras, B., 2013, Faecal sludge management with the larvae of the black soldier fly (*Hermetia illucens*) - From a hygiene aspect, *Science of the Total Environment*, 458-460:312-318

Diener, S., Studt Solano, N.M., Roa Gutiérrez, F., Zurbrügg, C., Tockner, K., 2011, Biological treatment of municipal organic waste using black soldier fly larvae, *Waste and Biomass Valorization,* 2(4): 357-363

Diener, S., Zurbrügg, C., Tockner, K., 2009, Conversion of organic material by black soldier fly larvae – Establishing optimal feeding rates. *Waste Management and Research*, 27: 603–610

Müller, A., **Diener, S.**, Schnyder, S., Stutz, K., Sedivy, C., Dorn, S., 2006, Quantitative pollen requirements of solitary bees: Implications for bee conservation and the evolution of bee-flower relationships, *Biological Conservation*, 130(4): 604–615

Book chapters, reports and other publications

Dortmans B.M.A., **Diener S.**, Verstappen B.M., Zurbrügg C., 2017, Black Soldier Fly Biowaste Processing - A Step by Step Guide, Swiss Federal Institute of Aquatic Science and Technology (Eawag), Dübendorf, Switzerland

Diener, S., 2014, Super Truck Trump – Faecal Sludge Trucks, A card game with sludge trucks from around the world, skat Consulting & Eawag

Vögeli, Y., Lohri, C.R., Gallardo, A., **Diener, S.**, Zurbrügg, C., 2014, Anaerobic Digestion of Biowaste in Developing Countries: Practical Information and Case Studies. Swiss Federal Institute of Aquatic Science and Technology (Eawag), Dübendorf, Switzerland

Zurbrügg, C., Rothenberger, S., Vögeli, Y., **Diener, S.**, 2007, Organic solid waste management in a framework of Millennium Development Goals and Clean Development Mechanism, In: Diaz, L.F., Eggerth, L.L., Savage, G.M. (Ed.), Management of Solid Wastes in Developing Countries, CISA, Padova, Italy, pp 430

Morel, A., **Diener, S.**, 2006, Greywater Management in Low and Middle-Income Countries, Review of different treatment systems for household or neighbourhoods. Swiss Federal Institute of Aquatic Science and Technology (Eawag), Dübendorf, Switzerland, pp 96

Reviewer experience

Journals: Waste Management & Research; Water Science & Technology; Journal of Insect Science; Resources, Conservation & Recycling; Journal of Insects as Food and Feed; WaterLines;

Research proposals: Netherlands Organisation for Scientific Research; Bill & Melinda Gates Foundation; The Royal Society; Tiroler Forschungsförderung; Danida Fellowship Centre

Competitive research funding

2021-2023	Innosuisse, 2 year R&D project "Boosting insect waste processing (BIWAP)", CHF 300,000
2017	AusAid, 1 year business development project "Larvae from Waste for Aquaculture Feed", CHF 180,000 (AUD 250,000)
2014-2017	ECO-INNOVERA, 3 year research and development project "Safe Protein from Unused Waste", CHF 628,000 (524,000 EUR)
2006–2010	Velux Foundation funding 4 year PhD study "From Waste to Value – Using Black Soldier Flies as ecological engineers in low and middle-income countries", CHF 270,000 (USD 240,000)

Presentations

Presentations at conferences

2021 November 9-15, ICRC Agro/Livestock Workshop, **Oral presentations** "Processing biowaste and producing animal feed with fly larvae" and "Sustainable use of insects to improve food production: experience from smallholder farms"

2019 November 16, Biovision-Symposium – Wissen schafft Nahrung, **Oral presentation** on key partnership principles

2018 November 17, Biovision-Symposium – Der Aufbruch hat begonnen, **Oral presentation** on plant-insect interactions «Forscher im Dialog»

2016 October 9-16, 2nd International Symposium on Organic Waste Bioconversion and Applications by Microbes and Insects, Wuhan, China. **Oral presentation: "**Beyond the biology - The enabling environment for a black soldier fly waste treatment system"

2015 Oct. 5.-9, 15th International Waste management and Landfill Symposium, Cagliari, Sardinia, Italy. **Oral presentation**: "Opportunities and constraints for medium-scale organic waste treatment with fly larvae composting"

2011 Feb. 13-15, WasteSafe 2011, 2nd International Conference on solid Waste Management in Developing Countries, Khulna, Bangladesh. **Oral presentation**: "Black Soldier Fly Larvae for Organic Waste Treatment – Prospects and Constraints"

2009 Oct. 5–9, 12th International Waste Management and Landfill Symposium, Cagliari, Sardinia, Italy. **Oral presentation**: "Are larvae of the black soldier fly – *Hermetia illucens* – a financially viable option for organic waste management in Costa Rica?"