

Björn Ole Sander

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Climate Change Specialist at International Rice Research Institute

Profile

Completed PhD in Chemistry in 2008 and currently working as Senior Scientist at the International Rice Research Institute (IRRI), Hanoi/Vietnam. Extensive experience in project management, and multi-stakeholder engagement. Profound knowledge in the area of climate change and climate-smart agriculture with an emphasis on GHG mitigation. Valuable networks across institutions in Thailand, Vietnam and the Philippines.

Professional Assets

- Excellent written and verbal communication skills effectively used in daily communication
 - Highly developed interpersonal skills with proven ability to work efficiently as part of a team
 - Strong organisational skills with proven ability to plan, implement and assess projects in the area of climate change mitigation
 - Technically proficient with the ability to think critically and creatively to determine appropriate resources for the resolution of problems
 - Highly flexible with the demonstrated aptitude to quickly understand new fields of work and find solid ground for decision making
 - Experienced in organizing and facilitating multi-stakeholder groups
 - Deep understanding of the challenges in implementing low-emissions options on the ground
 - Demonstrated ability to constructively work with public partners in Southeast Asia to effectively support national climate change action plans, incl. NDCs
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Qualifications

HiLogic Sdn Hhd, IRRI Philippines	PRINCE2 Project Management Certificate	2013
University of Kiel, Germany	PhD in Inorganic Chemistry	2008
Specialisation: Bioinorganic Chemistry and Spectroscopy		
Research Topic: Spectroscopic and Quantum-Chemical Studies of Biomimetic Copper Complexes for Modeling the Tyrosinase Reaction (Grade: Magna Cum Laude)		
University of Kiel, Germany	University Certificate in Business Administration	2008
Focus: Economics and Financing with knowledge of portfolio analysis, break-even-analysis, etc.		
University of Kiel, Germany	Diploma in Chemistry	2005
Research Topic: Synthesis and Spectroscopic Characterization of a Tyrosinase Model System		

Employment History

The International Rice Research Institute, Vietnam

2018 - present

Senior Scientist/ Country Representative to Vietnam

Leading the IRRI country office in Vietnam and climate change projects in the region

- Pro-actively initiating discussions on priorities with national and international partners in Vietnam
- Developing and implementing transformative programs on CSA with a wide range of stakeholders
- Guiding research activities on natural resource management but also socio-economic analyses
- Elaborating GHG mitigation strategies in different Asian countries to support national NDC targets
- Working with private sector partners in order to leverage investments in sustainable agricultural practices

The International Rice Research Institute, Philippines

2015 - 2018

Scientist II

Leading international projects on policy support for the implementation of LED options

- Facilitating policy dialogues on strategies to create enabling environments for mitigation in rice
- Arranging multi-stakeholder working groups to identify barriers of technology adoption
- Planning multi-country outscaling programs of climate-smart agriculture technologies
- Coordinating GIS-based suitability assessments of CSA practices in different countries with national partners
- Conducting feasibility assessments of LED practices to support NDC planning
- Supporting IRRI during transition to a new organizational structure

The International Rice Research Institute, Philippines

2014 - 2015

Consultant

Working in a project that assesses adaptation strategies for the Mekong Delta region

- Capacity building for GHG emission measurements and interpretation of results in Vietnam
- Supporting establishment of GHG analysis network of different research groups in Vietnam
- Initiating first activities of a policy support project together with project partners
- Organizing and facilitating a planning workshops with stakeholders of target countries for a policy support project
- Planning interdisciplinary research activities with different groups at IRRI and in-country
- Development and planning of flagship projects for the second phase of CCAFS

The International Rice Research Institute, Philippines

Collaborative Research Scientist

2009 - 2014

Worked in the Climate Change Research Group with responsibilities including:

- Working as a member of a multi-cultural team and collaboratively managing research problems
- Various research projects in the Philippines and Vietnam on GHG mitigation in rice production (e.g. started AWD activities in the vulnerable AMRIS region in collaboration with PhilRice, conducted first GHG measurements in Vietnam together with Hue University)
- Developing a CDM methodology for rice production in collaboration with Bayer Crop Science
- Capacity building (e.g. close collaboration with NARES, various trainings and seminars in the Philippines and Vietnam, established two GHG laboratories in Hue and Omon, respectively)

- Establishing, executing and evaluating field and greenhouse experiments on experimental stations and in farmers' fields
- Fund raising, concept development and reporting to public and private sector (investors include BMZ, BMBF, Bayer Crop Science, Japan. MAFF)
- Project planning and managing with international partners and various stakeholders
- Supervision of researchers, research assistants, students and technical staff

University of Kiel, Germany

Scientific Staff

2005 - 2009

Worked in the Institute of Inorganic Chemistry at the Christiana Albertina University of Kiel, Germany.

Experience included:

- Supervision of students in basic and advanced inorganic chemical lab courses
- Leading an educational analytic laboratory
- Hosting seminars and preparing exams

Student Assistant - Advanced Inorganic Chemical Lab Course

2004 - 2005

Student Assistant - Basic Inorganic Chemical Lab Course

2003

Supervisor of Students - Basic Organic and Inorganic Chemical Lab Courses

2002

Technical Skills

Instruments

Hands-on routine use of laboratory equipment to analyse GHG emissions

Training

IRRI	Defining Leadership, Module 1-3	2016
IRRI	Finance for Non-Finance Managers	2014
IRRI	PRINCE2 Project Management Course	2013
IRRI	Gender and Diversity Training	2013
IRRI	Media Skills Training	2013
IRRI	Creating Concept Notes	2011
IRRI	Basic Experimental Design and Data Analysis	2011
IRRI	Basic Rice Production Course	2011
IRRI	Research Data Management Course	2010
IRRI	Radiation Safety Course for Sealed Sources	2010
IRRI	Working and Living in the Philippines	2010
IRRI	Working in a Multicultural Organization	2010
InWEnt	Vorbereitung auf den Auslandseinsatz (Philippinen)	2009

Computer

Advanced skills using:

- Microsoft Word, Excel and PowerPoint, iWorks, EndNote, Mendeley
- DNDC, GHG calculation tools, molecular modelling (Gaussian)

Selected Publications

Faiz-ul Islam, S., de Neergaard, A., Sander, B.O., Stouman Jensen, L., Wassmann, R., van Groeningen, J.W. (2020) Reducing greenhouse gas emissions and grain arsenic and lead levels without compromising yield in organically produced rice, *Agr. Ecosys. Env.*, 295, DOI: 10.1016/j.agee.2020.106922

Tran Nhat Lam Duyen, Roberto F. Rañola, Bjoern Ole Sander, Reiner Wassmann, Nguyen Dinh Tien & Nong Nguyen Khanh Ngoc (2020): A comparative analysis of gender and youth issues in rice production in North, Central, and South Vietnam, *Climate and Development*, DOI: 10.1080/17565529.2020.1734771

Hellin, J.; Balié, J.; Fisher, E.; Kohli, A.; Connor, M.; Yadav, S.; Kumar, V.; Krupnik, T.J.; Sander, B.O.; Cobb, J.; Nelson, K.; Setiyono, T.; Puskur, R.; Chivenge, P.; Gummert, M. Trans-Disciplinary Responses to Climate Change: Lessons from Rice-Based Systems in Asia. *Climate* 2020, 8, 35.

Hung, N.V., Sander, B.O., Quilty, J. et al. An assessment of irrigated rice production energy efficiency and environmental footprint with in-field and off-field rice straw management practices. *Sci Rep* 9, 16887 (2019) doi:10.1038/s41598-019-53072-x

Bacud, E.S., Puskur, R., Tran N.L.D., Sander, B.O., Luis, J. (2019): Rural outmigration – feminization – agricultural production nexus: Case of Vietnam, *Migration and Development*, DOI: 10.1080/21632324.2019.1679962

Schneider, P., Sander, B.O., Wassmann, R., Asch, F. 2019. Potential and versatility of WEAP software (Water Evaluation and Planning System) for impact assessments of Alternate Wetting and Drying in irrigated rice Agricultural Water Management, <https://doi.org/10.1016/j.agwat.2019.03.030>

Escobar Carbonari D, Grosjean G, Läderach P, Nghia TD, Sander BO, McKinley J, Sebastian L and Tapasco J (2019) Reviewing Vietnam's Nationally Determined Contribution: A New Perspective Using the Marginal Cost of Abatement. *Front. Sustain. Food Syst.* 3:14. doi: 10.3389/fsufs.2019.00014

R.Wassmann, J.Villanueva, M.Khounthavong, B.O.Okumu, T.B.T.Vo, B.O.Sander. 2019. Adaptation, mitigation and food security: Multi-criteria ranking system for climate-smart agriculture technologies illustrated for rainfed rice in Laos, *Global Food Security*, 23, 33-40, <https://doi.org/10.1016/j.gfs.2019.02.003>

R. Wassmann, R. Pasco, J. Zerrudo, D. M. Ngo, T. B. T. Vo & B. O. Sander (2019): Introducing a new tool for greenhouse gas calculation tailored for cropland: rationale, operational framework and potential application, *Carbon Management*, DOI: 10.1080/17583004.2018.1553436

Tran, NLD, Roberto, FR, Sander, BO, Wassmann, R, Nguyen, DT, Nong, Nguyen KN. 2019. Determinants of adoption of climate-smart agriculture technologies in rice production in Vietnam, *J. Climate Change Strategies and Management*, doi: 10.1108/IJCCSM-01-2019-0003

Justin Allen, Ryan Romasanta, Kristine S. Pascual, Mai Van Trinh, Tran Van Thach, Nguyen Van Hung, Bjoern Ole Sander, Pauline Chivenge, 2019. Rice straw management effects on greenhouse gas emissions and mitigation options. In Gummert M., Hung N., Pauline C., Douwaith B. (editors), 2019. Sustainable rice straw management, Springer

Justin McKinley, Catharine Adaro, Pieter Rutsaert, Valerien O. Pede, and Bjoern Ole Sander, 2019, Gendered Perceptions, Impacts and Coping strategies in Response to Climate Change: Evidence from Mekong Delta, Vietnam. In Thelma Paris, Maria Fay Rola-Rubzen (Eds.) Gender dimension of climate change research in agriculture (Case studies in Southeast Asia). Wageningen, the Netherlands

Tran Nhat Lam Duyen, Bjoern Ole Sander, and Reiner Wassmann, 2019, Gender and Climate-Smart Agriculture: A Case Study in Tra Hat Village, Bac Lieu Province, Vietnam. In Thelma Paris, Maria Fay Rola-Rubzen (Eds.) Gender dimension of climate change research in agriculture (Case studies in Southeast Asia). Wageningen, the Netherlands

Allen JM, Sander BO. 2019. The Diverse Benefits of Alternate Wetting and Drying (AWD). Los Baños, Philippines: International Rice Research Institute (IRRI). Available online at: www.ccafs.cgiar.org

Yen BT, Wassmann R, Sander BO. **2019**. Methane Emission Factors for Rice Production in the Mekong River Delta. CCAFS Info Note. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CAAFS).

Rebugio, L.L., S.S.L. Ila, B.M. Burgos, C.N.G. Rogel, R. Wassman, and B.O. Sander. *Strategic Policy Response to Climate Change in the Philippines Vol. 2: Exploring How Climate Change Policies are Translated into Local Actions in the Agriculture Sector*. **2018**. Laguna, Philippines: Southeast Asian Regional Center for Graduate Study and Research in Agriculture and International Rice Research Institute.

Rebugio, L.L., S.S.L. Ila, B.M. Burgos, C.N.G. Rogel, B.O. Sander, and R. Wassman. **2018**. *Strategic Policy Response to Climate Change in the Philippines Vol. 1: Portfolio of Climate Change Policies in Agriculture*. Laguna, Philippines: Southeast Asian Regional Center for Graduate Study and Research in Agriculture and International Rice Research Institute

Sander, B.O., Samson, M., Sanchez, P.B., Valencia, K.P., Demafelix, E.A.M., Buresh, R.J. **(2018)** Contribution of fallow periods between rice crops to seasonal GHG emissions: effect of water and tillage management, *Soil Sci. Plant Nutr.* 64, 2, DOI: 10.1080/00380768.2018.14409

Tariq, A., de Neergaard, A., Stoumann Jensen, L., Sander, B.O. , Trinh, M.V., Vu, Q.D., Wassmann, R., de Tourdonnet, S. **(2018)** Co-design and assessment of mitigation practices in rice production systems: A case study in northern Vietnam, *Agric Syst*, 167, 72-82, DOI: 10.1016/j.agsy.2018.08.012

Tariq, A., Stoumann Jensen, L., Sander, B.O. , de Tourdonnet, S., Ambus, P.L., Thanh, P.H., , Trinh, M.V., de Neergaard, A. **(2018)** Paddy soil drainage influences residue carbon contribution to methane emissions, *J Environ Manage.*, 225, 168-176, DOI: 10.1016/j.jenvman.2018.07.080

Wassmann R, Alberto M.C, Tirol-Padre A, Hoang NT, Romasanta R, Centeno CA, Sander BO **(2018)** Increasing sensitivity of methane emission measurements in rice through deployment of 'closed chambers' at nighttime. *PLoS ONE* 13(2):e0191352. <https://doi.org/10.1371/journal.pone.0191352>

Romasanta, R., Gaijre, Y., Wassman, R., Quilty J. , Nguyen V.H. , Castalone A.G., Balingbing C. ,Sandro J., Correa, T., .Sander, B.O. **(2017)** How does burning of rice straw affect CH₄ and N₂O emissions? A comparative experiment of different on-field straw management practices, *Agric. Ecosyst Environ.* 239, doi: 10.1016/j.agee.2016.12.042

Sander, B.O., Wassmann, R., Palao, L., Nelson, A. **(2017)** Climate-based Suitability Assessment for Alternate Wetting and Drying Water Management in the Philippines: A Novel Approach for Mapping Methane Mitigation Potential in Rice Production, *Carbon Management*, doi: 10.1080/17583004.2017.1362945

Vo, T.T.B., Wassmann, R., Padre, A., Phung, C.V., Macdonald, B., Sander, B.O., **(2018)** Methane Emission from Rice cultivation in Different Agro-ecological Zones of the Mekong River Delta: Seasonal Patterns and Emission Factors for Baseline Water Management, *Soil Sci. Plant Nutr.*, doi: 10.1080/00380768.2017.1413926

Farnworth, C.R., Hà, T.T., Sander, B.O., Wollenberg, E., de Haan, N.C., McGuire, S. **(2017)**: Incorporating gender into low-emission development: a case study from Vietnam, *Gender, Technology and Development*, doi: 10.1080/09718524.2017.1385314

Tariq, A., Quynh, D.V., Stoumann Jensen, L., De Tourdonnet, S., Sander, B.O., Wassmann, R., Trinh, M.V., De Neergaard, A. **(2017)** Mitigating CH₄ and N₂O emissions from intensive rice production systems in northern Vietnam: Efficiency of drainage patterns in combination with rice residue incorporation, *Agric. Ecosyst. Environ.*, doi: 10.1016/j.agee.2017.08.011

Tirol-Padre A., Minh, N.D., Hoa, T.D., Nghia, H.T., An, L.V., Wassmann, R., Sander, B.O. **(2017)** Measuring GHG Emissions from Rice Production in Quang Nam Province (Central Vietnam): Emission Factors for Different Landscapes and Water Management Practices In: Ribbe, L., Nauditt, A. (Eds.) *Land Use and Climate Change Interaction in Central Vietnam – LUCi*, Springer, Heidelberg, 266p doi: 10.1007/978-981-10-2624-9

Wollenberg, E., Richards, M., Smith, P., Havlík, P., Obersteiner, M., Tubiello, F., Herold, M., Gerber, P., Carter, S., Dickie, A., Neufeldt, H., Sander, B.O., Sommer, R., Amonette, J., Cardwell, K., Falcucci, A., Golan, E., Herrero, M., Hohenstein, W., Opio, C., Roman-Cuesta, R., Rufino, M.C., Thornton, P., Verchot, L., West, P., Baedeker, T., Sadler, M., Vermeulen, S., Campbell, B. (2016) Reducing Emissions from Agriculture by 2030: An Aspirational Target, *Global Change Biology*, doi: 10.1111/gcb.13340

Hung, N.V., Balingbing, C., Quilty, J., Sander, B.O., Demont, M., Gummert, M. (2016) Processing Rice Straw and Husks as Co-Products In: Sasaki T. (Ed.) Achieving Sustainable Cultivation of Rice, London: Burleigh Dodds Science Publishing, 438p, doi: 10.19103/AS.2016.0003.18

Tariq, A., Stoumann Jensen, L., De Tourdonnet, S., Sander, B.O., De Neergaard, A. (2016) Early drainage of paddy soils: Greenhouse gas mitigation following organic amendments, *Geoderma*, doi: 10.1016/j.geoderma.2016.08.022

Butterbach-Bahl, K., Sander, B.O., Pelster, D., Diaz Pines, E. (2016) Quantifying greenhouse gas emissions from soils and manure management In: Rosenstock T.S. et al. (Eds.) Methods for Measuring Greenhouse Gas Balances and Evaluating Mitigation Options in Smallholder Agriculture, 71-96, DOI 10.1007/978-3-319-29794-1_4

Nelson A, Wassmann R, Sander BO, Palao LK (2015) Climate-Determined Suitability of the Water Saving Technology "Alternate Wetting and Drying" in Rice Systems: A Scalable Methodology demonstrated for a Province in the Philippines. *PLoS ONE* 10(12): e0145268. doi:10.1371/journal.pone.0145268

Sander, B.O., Wassmann, R., Siopongco, J.D.L.C. (2016). Water-saving techniques: potential, adoption and empirical evidence for mitigating greenhouse gas emissions from rice production. In: Hoanh, C.T., Smakhtin, V., Johnston, T. (Eds). Climate change and agricultural water management in developing countries. CABI Climate Change Series, pp. 193-207

Sander, B.O., Samson, M., Buresh, R.J. (2014) Methane and Nitrous Oxide Emissions from Flooded Rice Fields as Affected by Water and Straw Management between Rice Crops, *Geoderma*, 235-236, 355-362.

Sander, B.O., Wassmann, R. (2014) Common Practices for Manual Greenhouse Gas Sampling in Rice Production: A Literature Study on Sampling Modalities of the Closed Chamber Method. *Greenhouse Gas Measurement and Management*, 4, 1, 1-13. DOI: 10.1080/20430779.2014.892807

Siopongco, J.D.L.C., Wassmann, R. and Sander, B.O. (2013) Alternate wetting and drying in Philippine rice production: feasibility study for a Clean Development Mechanism, *IRRI Technical Bulletin No. 17*, Los Baños (Philippines): International Rice Research Institute. 14 p.

Minamikawa, K., Yagi, K., Tokida, T., Sander, B.O. and Wassmann, R. (2012) Appropriate frequency and time of day to measure methane emissions from an irrigated rice paddy in Japan using the manual closed chamber method. *Greenhouse Gas Measurement and Management*, 2(2-3), 118-128

Sander, O., Henss, A., Naether, C., Wuertele, C., Holthausen, M.C., Schindler, S., Tuczek, F. (2008) Aromatic Hydroxylation in a Copper Bis(imine) Complex Mediated by a μ - η^2 : η^2 Peroxo Dicopper Core: A Mechanistic Scenario. *Chem. Eur. J.*, 14, 9714.

Additional Information

Nationality: German

Languages: German (native speaker), English (business fluent), basic skills in French and Tagalog