

Name	Charlotte de Fraiture
Nationality	Dutch
Present position	Vice Rector, Professor in Land and Water Development

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## EDUCATION

2003	- PhD Civil Engineering- Water Resources Management, University of Colorado, Boulder, USA.
2002	- MA Economics University of Colorado, Boulder, USA.
1990	- MSc Tropical Land and Water Management (Irrigation Engineering), Wageningen Agricultural University, the Netherlands
1984	- BSc Physical Geography, Utrecht State University, the Netherlands

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## EMPLOYMENT RECORD

2018- present	- Vice Rector (academic affairs)
2012- present	- Professor of Land and Water Development, Dept. of Water Science Engineering, UNESCO-IHE Delft, The Netherlands; affiliated with Wageningen University and Research, the Netherlands
2011 - 2012	- Principal researcher and project leader, International Water Management Institute (IWMI), Ouagadougou, Burkina Faso
2009 – 2010	- Principal researcher in Water Resources Management, project leader and Head of office, International Water Management Institute (IWMI), Accra, Ghana
2003 – 2009	- Senior researcher, head Global Change and Environment, and Theme Leader Water Basin Management, International Water Management Institute (IWMI), Colombo, Sri Lanka.
1997 – 2000	- Researcher in Irrigation, International Water Management Institute (IWMI), Colombo, Sri Lanka
1996 - 1997	- Associate Expert in irrigation, International Water Management Institute (IWMI), Cali, Colombia
1995	- Coordinator Irrigation Construction Unit, Mechi Hill Development Project, Ilam, Nepal
1992-1994	- District and regional irrigation engineer, Dhaulagiri Irrigation Development Project, Jomsom and Pokhara, Nepal
1990 and 1991	- Research assistant Wageningen Agricultural University, the Netherlands, field research Ile a Morphil Irrigation project, Senegal.

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## KEY QUALIFICATIONS

**22+ years experience in research** in: agricultural water management, global water supply and demand, water economics, water pricing, water and biofuels, irrigation management, irrigation performance, irrigation management transfer.

**15+ years experience in research project management:** project leader of research projects; head of office including personnel management and human resources, theme leader providing professional leadership in research theme.

**5 years experience in irrigation engineering and construction:** design, quality control and supervision of construction and rehabilitation works of village irrigation schemes. Progress reports, logistics and budget control.

## MAIN DISCIPLINE / SPECIALISATION

Agricultural water management, Irrigation engineering and management, Water economics.

Specific research interests:

- Small scale irrigation
- Irrigation performance and ecosystems services
- Water and food security
- Global water supply and demand, global water scarcity
- Energy and water; impact of biofuel policies on water use; Virtual water and trade

## EXPERIENCE in PROJECT MANAGEMENT, CONSULTANCY and EDUCATION

### Selected Projects

2017 - present	Co-author - “Nature based water infrastructures in Ethiopia and Kenya for #GlobalGoals (NaBWIG)”. Funded by Dutch Science Council (NWO)
2015 – present	Co-applicant – “Unravelling the potential of farmer led irrigation development in the BAGC, Mozambique”. Funded by Dutch Science Council (NWO)
2014 – 2018	Project director of “Capacity Development of Higher Education Institutes in Small-Scale Irrigation” funded by NUFFIC, the Netherlands
2014 – 2018	Project leader of project “Investing in land and water using climate finance mechanisms” in Ethiopia and Indonesia. Funded by Dutch Science Council (NWO)
2013 - 2016	Project leader of project “co-management of wetlands and irrigation in Lake Victoria basin” in Kenya. Funded by Dutch government.
2010 – 2016	Co-applicant and scientist of DRiP project – “Drip irrigation Realities in Perspective” in Morocco and Burkina Faso). Lead by Wageningen University. Funded by Dutch Science Council (NWO) and DFID
2014	Reformulation of the Multi-annual Water Development Plan (PPEA-II) Water and Food Security component for the Dutch Embassy in Benin
2009-2011	Project leader of Agricultural Water Solutions project, consortium led by IWMI consisting of IFPRI, FAO, SEI and IDE, on business models for investing in irrigated smallholder farming in Ethiopia, Zambia, Tanzania, Ghana, Burkina Faso and India; Funded by BMGF.
2009-2010	Project leader of Agricultural Water Management in challenging contexts project, in Ethiopia, Ghana, Burkina Faso, Nepal and Sri Lanka, funded by IFAD.
2004-2009	Lead scientist in the development of global water and food modelling tools and computation of scenarios for the Comprehensive Assessment of Water Management for Agriculture (CA). <ul style="list-style-type: none"> <li>• Development of global water and food supply and demand modelling tools and global scenarios on virtual water &amp; trade and biofuels.</li> <li>• Development of global water scarcity map</li> </ul>
2006	Contributing and lead author in the International Assessment of Agricultural Science and Technology (IAASTD)
1997-2001	Scientist developing irrigation performance indicators and their application to gauge the impact of Irrigation Management Transfer (IMT).

- 2005, 2007, 2008 & 2009, 2011, 2013 Proposal development: Lead and/or contributing author of research proposals, funded by, among others, BMGF, IFAD, BMZ, OPEC, NWO and Wotro
- 1994 Evaluation mission and auditing of construction of mule trail, implemented by ILO (food for work program), Nepal
- 1991 Evaluation research of irrigated vegetable gardens for women groups in Senegal, implemented by Wageningen University and Dutch Government.

### Professional Experience

- 2015 – 2018 Head of Water Science Engineering Department at UNESCO-IHE
- 2015 - 2018 Vice president International Commission on Irrigation and Drainage (ICID)
- 2013 – present Academic responsibilities:  
\* Main promotor of 11 PhD candidates (9 ongoing).  
\* Opponent in 7 PhD defences.  
\* Supervision of 100+ MSc students (12 ongoing).  
\* Graduate Teaching and curriculum development.  
\* Chair of the Examination Board at UNESCO-IHE (2014-2017)  
\* Chair of the Program Committee of WSE MSc program (2017-2018)  
\* Professor responsible for the Double Degree MSc Programme IHE-Sri Wiyaya University (Indonesia)  
\* Lecturer in Tailor Made Trainings and Refresher courses in (among others) Kenya, Ethiopia and Indonesia;
- 2014 - present Member of the Steering Committee of the CGIAR Consortium Research Program (CRP) on Water Land and Ecosystems (WLE)
- 2012, 2014, 2017 Review of research proposals: Member of ITN Review Panel of European Union Horizon 2020 program; ERC proposal reviewer; member of review panel of Swedish Research Council; chair of review panel for NWO-Wotro (GCP call)
- 2014 Member of the Scientific Program Committee of the Stockholm Water Week
- 2013-2015 Editor of the journal Water Resources and Rural Development
- 2009 and 2013 Guest editor of two special issues of the Agricultural Water Management journal.
- 2005 - 2018 Regular reviewer of scientific manuscripts for, among others, journals Agricultural Water Management, WRR, IWJRM, WaRM, Irrigation Science, Irrigation & Drainage, Water International, Water Alternatives, GEC, Water Policies and others
- 2007-2014 Member international jury of Junior Stockholm Water Prize
- 2007- 2011 Principal researcher, International Water Management Institute (based in

- Burkina Faso, Ghana and Sri Lanka). Supervision of scientists, postdocs, interns and students
- 2010 Head of Office, West Africa office of the International Water Management Institute, Accra, Ghana. IWMI representative in Ghana., Personnel management of regional office (25 employees), Budgets control and administration, Liaison of hosted programs.
- 2007-2008 Theme leader in Basin Water Management, International Water Management Institute, Sri Lanka scientific leadership of the research theme, quality control of publications, proposal development, supervision of interns and students
- 2005-2007 Head of Global Change and Environment group at International Water Management Institute, Sri Lanka. scientific leadership, quality control and coordination of research projects
- 1996-2003 Researcher at International Water management Institute, Colombia and Sri Lanka
- 1992 – 1995 Irrigation engineer at several irrigation development projects in Nepal: Design of construction and rehabilitation of village irrigation schemes, feasibility studies and meetings with farmer groups; quality control, construction supervision, technical trainings, logistics, procurement and budgeting
- 1990 Teaching assistant, co-organizer irrigation design practice for MSc. students, Agricultural University Wageningen, The Netherlands.

**LANGUAGE PROFICIENCY**

<i>Language</i>	<i>Reading</i>	<i>Speaking</i>	<i>Writing</i>
Dutch	Mother tongue	Mother tongue	Mother tongue
English	Excellent	Excellent	Excellent
French	Very good	Good	Moderate

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## PUBLICATIONS

Google scholar profile: <http://scholar.google.com/citations?user=o54X5poAAAAJ&hl=nl>

More than 75 peer reviewed publications and over 60 other publications, H=31, 4427 citations (October 2018, Google Scholar)

### *5 most cited peer reviewed publications (Google Scholar, October 2018)*

1. De Fraiture, C.; Y, Liao, M, Giordano. 2008. Biofuels and agricultural water use: blue impacts of green energy. *Water Policy* 10(S1): 67-81
2. Molden, DJ, R Sakthivadivel, CJ Perry, C de Fraiture, WH Kloezen. 1998. *Indicators for comparing performance of irrigated agricultural systems*. IIMI research report 20 (26p.) IWMI Sri Lanka
3. Lundqvist, J. C de Fraiture, D. Molden. 2008. *Saving water: From Field to Fork- Curbing losses and wastage in the food chain*. SIWI Policy Brief. Swedish International Water Institute: Stockholm
4. De Fraiture, C.; D. Wichelns. 2010. Satisfying future water demands for agriculture. *Agricultural Water Management* 97(4): 502-511
5. De Fraiture, C., X. Cai, U. Amarasinghe, M. Rosegrant and D. Molden. 2004. *Does cereal trade save water? The impact of virtual water trade on global water use*. IWMI-CA Research Report, IWMI Sri Lanka

### *5 most recent peer reviewed journal papers & book chapters (October 2018):*

1. Duker, T. Tadesse, T. Soentoro, C. de Fraiture, J Kemerink. 2018. The implications of ignoring smallholder agriculture in climate-financed forestry projects: evidence from REDD+. *Climate Policy* (2018): 1-11
2. A. Purwanto, J. Susnik, FX. Suryadi, C. de Fraiture. 2018. Determining strategies for water, energy, and food-related sectors in local economic development. *Sustainable Production and Consumption* 16: 162-175.
3. Saowanit Prabnakorn, Shreedhar Maskey, F.X. Suryadi, Charlotte de Fraiture (submitted). Rice yield in response to climate trends and drought index in the Mun River Basin, Thailand. *Science of the Total Environment* 621: 108-119
4. Gong, Y., Hao Li, Moon Parks, Charlotte de Fraiture. 2018. The Role of Bonding and Bridging Social Capital for the Intensity of Farmers' Climate Change Adaptation in Upper Mekong River Basin Area. *Climatic Change* 149(1): 75-89
5. Eiman Fadul Bashir, Charlotte de Fraiture, Ilyas Masih. 2018. Risks of uncertain water supply in Spate irrigation: A case study from Sudan. *Irrigation and Drainage* (in press)

**PhD. Thesis** The use of entropy optimization principles in parameter estimation. Applications to global water demand modelling. Dept. of Civil Engineering & Water Resources Management. University of Colorado, Boulder, USA (2003)

**MA. Thesis** The impact of volumetric water pricing on agricultural water use and farmer profit. A multi-scale modelling framework. Dept. of Economics at University of Colorado, Boulder, USA (2002)

**MSc. Thesis** Participatory irrigation design of a village irrigation scheme in Senegal. Tropical Land and Water Management, Wageningen Agricultural University, the Netherlands (1990)

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## CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any willful misstatement described herein may lead to my disqualification or dismissal, if engaged.

Signature:

