



Looking back at the Belgian development cooperation in the water sector in Morocco over the past 10 years

Updated in May 2020

Status of SDG6

A few charts on the status of water resources and on SDG6 in Morocco are in Figure 1 to Figure 4. More detailed and updated information can be found on the [Morocco's country snapshot](#) provided in the [UN-Water SDG6 data portal](#), and the WHO – UNICEF Joint Monitoring Program's [Morocco's country file](#).

Belgian and international ODA to water sector

Based on the database reporting the Belgian ODA, 88.000.000 EUR have been allocated to the water sector in Morocco between 2008 and 2019, which corresponds to 12% of the total Belgian ODA to water sector through bilateral aids (Figure 5), and to 14% of the total Belgian ODA to the country (Figure 6). Main contractors have been Enabel and ARES (Figure 7). Projects and programs have mainly been implemented in basic and large water infrastructures and agricultural water. The list of water program and projects are in Table 1. In addition to Belgium, Swiss and German development cooperation also currently have a presence in water sector in the country (Table 2).

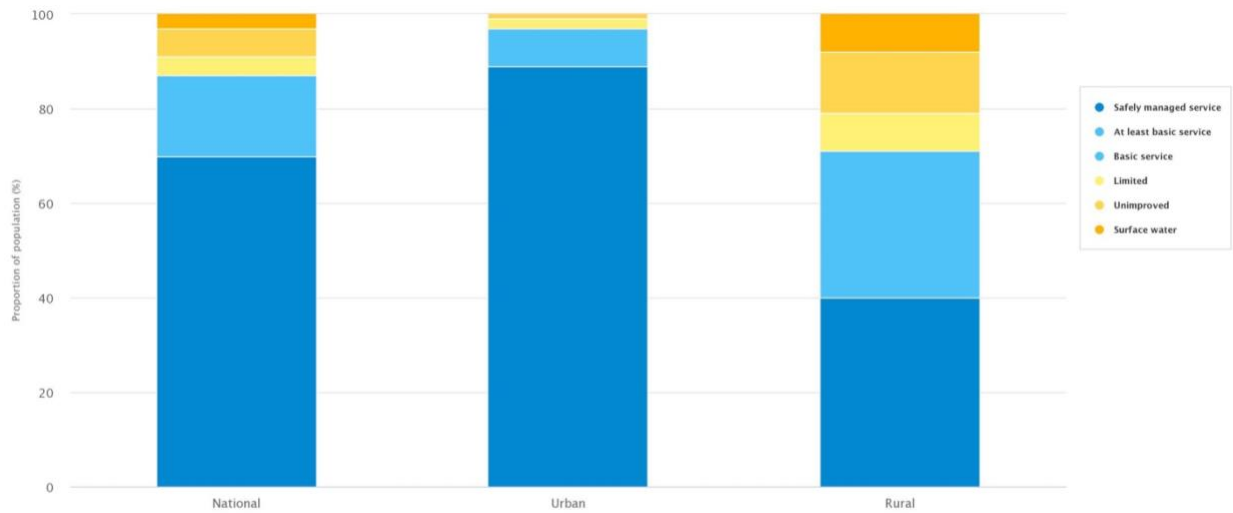
Belgian organisations with projects in Morocco over the course of the past 10 years

Nineteen Belgian organisations having expertise in water have reported having been active in Morocco between 2010 and 2019 (Table 3). One NGO, seven are from the private sector, three are public agencies, and eight are research institutions.

Academic water research in Morocco over the course of the past 10 years

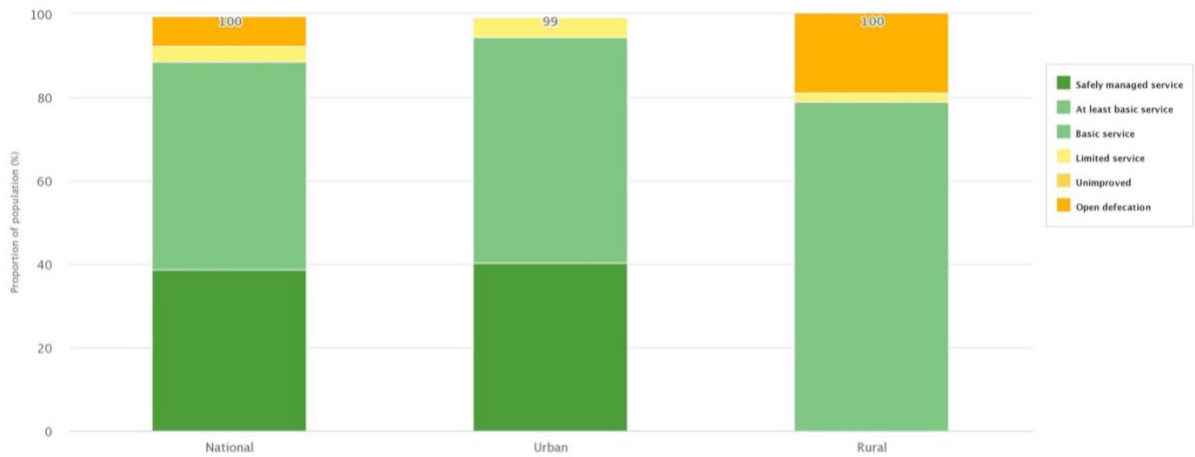
Five peer-reviewed papers have been published by research team including authors from Belgium and Morocco. Research domains are in the fields of irrigation, soil water retention and water activity (Table 4).

Figure 1. Proportion of population using drinking water services in Morocco, by service level and by location (SDG6.1.1, 2017).



Data source: WHO, UNICEF
Exported from UN-Water <https://www.sdg6data.org> on 02 May 2020

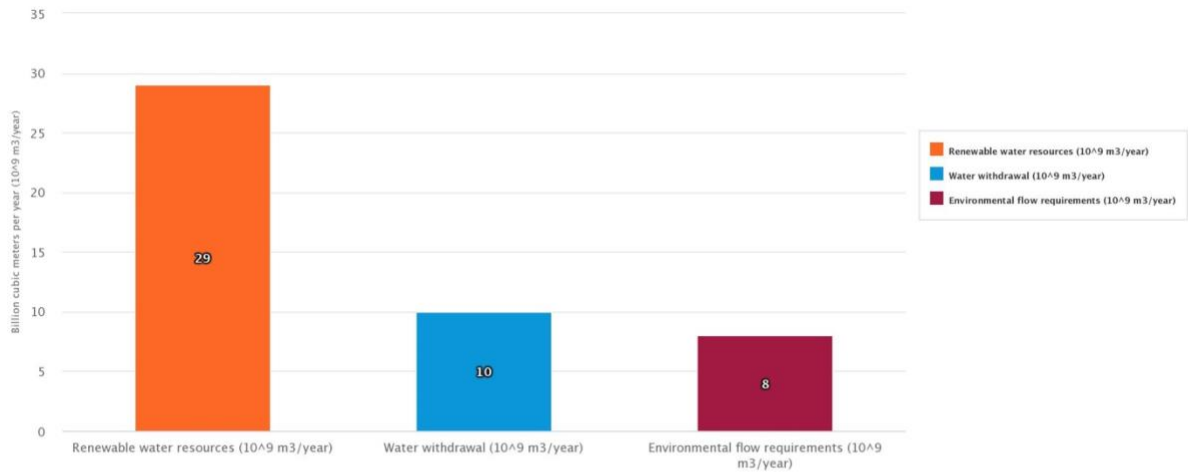
Figure 2. Proportion of population using sanitation services in Morocco, by service level and by location (SDG6.2.1a.; 2017).



Data source: WHO, UNICEF
Exported from UN-Water <https://www.sdg6data.org> on 02 May 2020

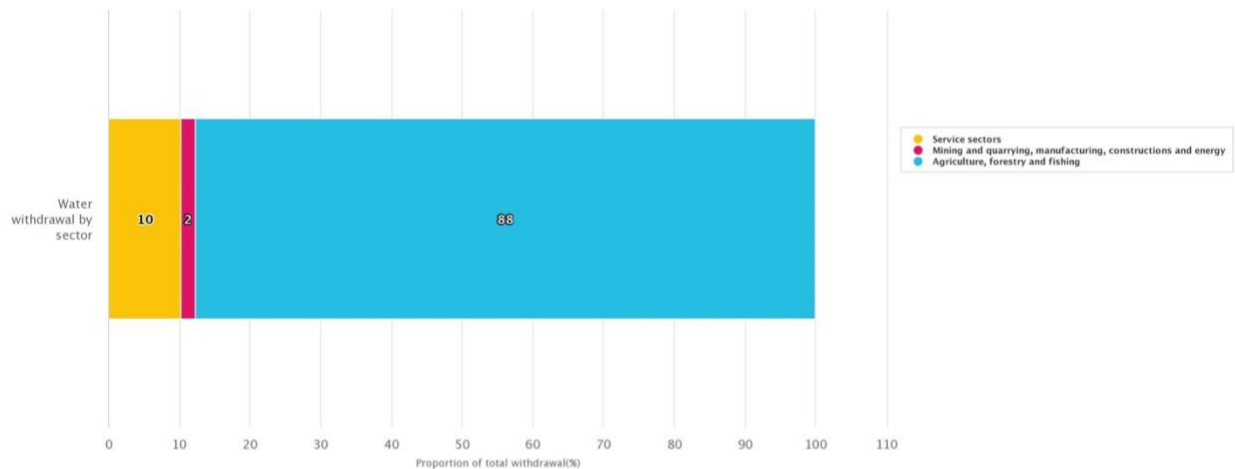
Figure 3. Water resources and withdrawal in Morocco, per capita and by source.

- Long-term average annual precipitation in depth: 346 (mm/year) (2017)
- Renewable water resources: 811 m³ per capita (2017)
- Water withdrawal: 313 m³ per capita (2010)
- Environmental flow requirements: 28 % of the renewable water resources (2017)



Data source: FAO
Exported from UN-Water <https://www.sdg6data.org> on 02 May 2020

Figure 4. Water withdrawal by sector in Burundi, as a percentage of total water withdrawal (2010).



Data source: FAO
Exported from UN-Water <https://www.sdg6data.org> on 02 May 2020

Figure 5. Total Belgian ODA to water per sub-sectors, with the ODA to Morocco highlighted in blue.

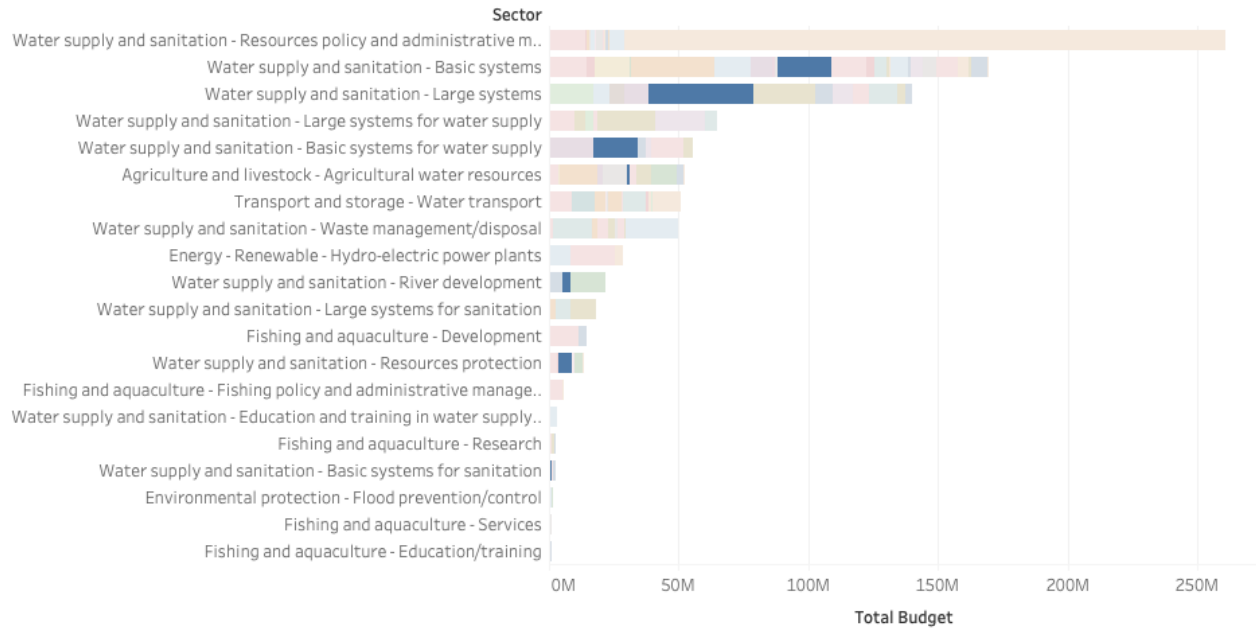


Figure 6. ODA to water (blue) in comparison to other sectors (grey) in Morocco. The size of the circle is proportional to the budget.

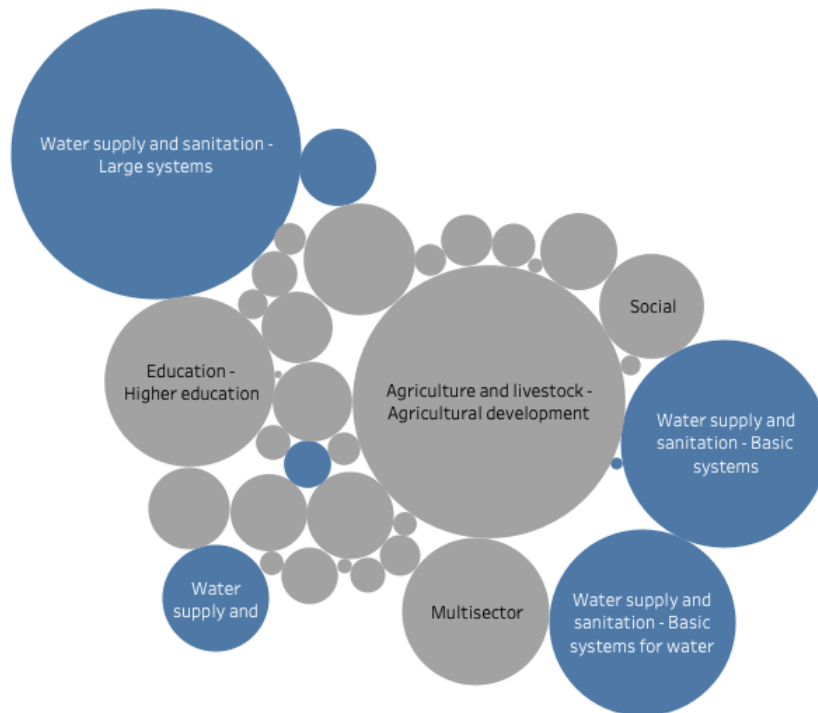


Figure 7. Contractors per water sector

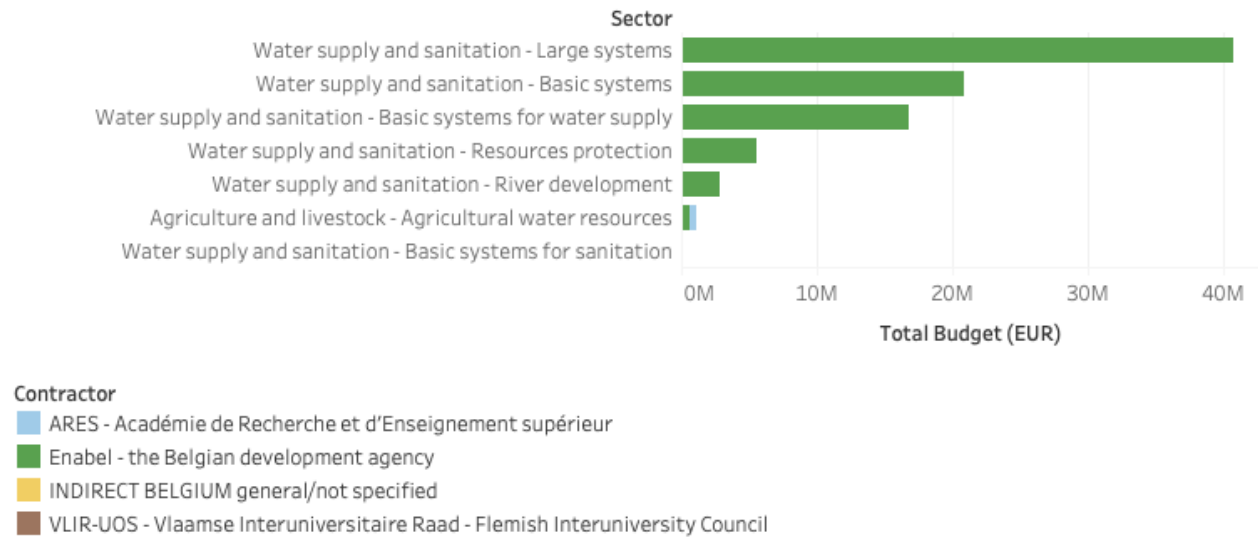


Table 1. List of water projects funded by Belgian ODA.Typology: **B01**-Core support to NGOs, other private bodies, PPPs and research institutes; **C01**-Project-type interventions.

Contractor	Type	Title	Effective Start Dt	Effective End Dt	Budget
ARES - Académie de Recherche et d'Enseignement supérieur	B01	Ontwikkeling van instrumenten voor het beheer van de watervoorraden voor de landbouw	01-09-2011		409367
Enabel - the Belgian development agency	C01	Projet d'assainissement liquide des villes de Tinghir et de Zagora	13-02-2009	22-12-2013	14500000
	C01	Project voor bodemsanering en bodembehoud in de geïrrigeerde gebieden met een kleine en middelgrote waterbouw in de provincie Tiznit - (PMH Tiznit - 2e fase)	23-03-2004	31-07-2009	676341
	C01	Programma van drinkwatervoorziening op het platteland, regio Sous-Massa-Draa - Tafilalet	17-12-2007	17-12-2013	16820616
	C01	Project ter verwerving van machines voor de overheidsopdrachten voor de bouw van kleine en middelgrote dammen in de regio Souss-Massa-Draa	22-11-2007	18-12-2010	2868603
	C01	Steun aan het nationale programma van waterzuivering	04-01-2012	02-12-2018	23000000
	C01	Assainissement liquide de la ville de Ouarzazate	28-04-2002	09-09-2007	7191635
	C01	Versterking van de drinkwatervoorziening van 6 kleine centra, regio Ouarzazate	12-03-2004	31-12-2008	1828321
	C01	Bevoorrading in drinkwater van Tlat Lakhass en de omliggende gemeenten (ONEP) + formulering	25-03-2002	31-12-2007	7296101
	C01	Steun aan het programma ter verbetering van de milieu-omstandigheden van landelijke scholen (Marokko)	13-01-2011	03-12-2017	5000000
	C01	Assainissement liquide de la municipalité de Tarfaya (ONEP) + formulation	20-03-2003	31-12-2008	1371570
	C01	Project ter bestrijding van de impact van droogte, Provincie Ouarzazate	23-03-2003	05-01-2008	1308715
	C01	Institutionele en operationele ondersteuning aan Agences de Bassins Hydrauliques	15-05-2013	17-04-2019	5500000
INDIRECT BELGIUM general/not specified	C01	Approvisionnement de l'eau potable et sanitation	31-12-2001		
	C01	Gestion solidaire et démocratique de l'eau	31-12-2001		
VLIR-UOS - Vlaamse Interuniversitaire Raad - Flemish Interuniversity Council	B01	Projet de coopération universitaire - Initiative Sud 2011 - Mise en place de réseaux pour la conservation et la gestion durable des zones humides temporaires méditerranéennes au Maroc			70030

Table 2. Development cooperation on water as reported by national development agencies.
Three options are provided: absent, minor presence (X), major presence (XX).

	BE	CH	DE	EU	FR	NL	US
Benin		X	X			XX	X
Burkina Faso	X	XX	X				
Burundi	XX		XX				
DR Congo	XX	X	X		X	X	XX
Guinea	X	X			X		
Mali	X	X	XX			XX	X
Morocco	X	X	XX		X		
Mozambique	XX	XX	XX		X	XX	X
Niger	X	XX			X	X	X
Palestine	X	X	X		X	X	X
Rwanda						X	X
Senegal	X	X			X	X	X
Tanzania	XX	X	X		X	X	X
Uganda		XX	XX		X		XX

Sources

BE Importance based on ENABEL projects (budget and number) - Morocco has a large track record in water, but ENABEL does not have projects since 2016

CH Countries in which projects of the Swiss Global Water Programme are reported (major presence based on heat map in the report)

NL <https://openaid.nl/sectors/140/?tab=countries> (major presence based on overall budget to water)

DE Based on GIZ project database - https://www.giz.de/projektdaten/index.action?request_locale=en_GB#?region=3&countries=NE (major presence in the water sector defined as water and sanitation projects > 10 mio Euro)

FR <https://www.afd.fr/fr/page-thematique-axe/eau-et-assainissement> (no clear difference in country presence)

Table 3. Belgian organizations in the water sector that reported having had projects in Morocco over the course of the past 10 years.

Source: [Water Nexus database of water Actors](#). Might not be a comprehensive list.

Sector	Acronym	Name	Website	Keywords	Description
Government-recognised NGO	DBA	Défi Belgique Afrique	https://ongdba.org/	Agriculture Familiale -ECMS -Projets Sud -Sensibilisation	DBA est une ONG qui souhaite encourager et accompagner les citoyens de Belgique, en particulier les jeunes dans une prise de conscience des enjeux du monde contemporain. Nos projets se basent sur deux principaux axes : 1) L'éducation à la citoyenneté mondiale et solidaire 2) L'agriculture familiale. La problématique de l'eau est une de nos principales préoccupations pour les projets SUD.
Private sector organisation	GIM - Smart Geo Insights	G.I.M. - Geographic Information Management	www.gim.be/en	Imagerie Satellitaire-Modèles Numériques De Terrain-Cartographies Spécifiques-Analyses Spatiales 2D Et 3D-Analyses De L'Évolution Temporelle Et Monitoring	Nous intervenons sur de multiples projets liés à l'eau mais le plus souvent en appui de sociétés spécialisées en leur fournissant des données topographiques et des images satellites et en traitant celles-ci pour réaliser des cartes spécifiques où d'autres analyses spatiales en 2D et 3D qui sont ensuite utilisées en planification et dimensionnement de réseaux (adduction, égoûtage, etc), pour créer des plans d'irrigation, pour réaliser des études d'impact, pour localiser et dimensionner des barrages, etc.
	Eloy	Eloy Water	www.elaywater.com	Prefabricated Solutions-Ready-To-Use Solutions-Water Treatment	/
		Metaphora		Strategy- Strategic Plans	/
	IS	ISpatial	www.ispatial.com	Information System-Sig-Geodatamanagement-Data Capture-Data Collection	/
	Hydro-rdi	Hydro-R&D International	www.hydro-rdi.eu	/	/
		Sotrad Water	www.sotradwater.be	Treatment- Pumps- Ultra Filtering- Stockage- Solar-	/
	SHER	SHER Ingénieurs-Conseils s.a.	www.sher.be	Impact Research- Water Treatment- Alimentation- Potable Water- Irrigation- Hydroelectricity	Water research office

Sector	Acronym	Name	Website	Keywords	Description
Public agency	SPW - DEE	Service Public de Wallonie, Département Environnement et Eau		International Cooperation- Public Administration	/
	SWDE	Société wallonne des eaux	www.swde.be		/
	VLIR-UOS	Vlaamse Interuniversitaire Raad - Universitaire Ontwikkelingssamenwerking	www.vliuos.be	Higher Education- Outreach	/
Research institute or team; Knowledge center	VUB	Vrije Universiteit Brussel	http://www.hydr.vub.ac.be/	Groundwater-Hydrogeology- Sustainable Water Management-Groundwater Modelling	/
	UOC - Uliège	Unité Océanographie Chimique - Université de Liège	www.co2.ulg.ac.be	Emission- Greenhouse Gasses-Co2-Ch4- Rivers- Lakes	Nos recherches portent sur les émissions de gaz à effet de serre par les rivières et les lacs
	VUB	Vrije Universiteit Brussel	www.hydr.vub.ac.be	Modelling	/
	Aquapole	Aquapole ULiege	www.aquapole.ulg.ac.be	Hydrology- Hydrogeology- Modelling- Quality- Integrated Management	/
	LOCI	University of Louvain (UCLouvain) Faculty of Architecture, Architectural Engineering and Urban Planning	www.uclouvain.be/en/faculties/loci	Urban Metabolism- Green Infrastructure Planning- Blue Infrastructure Planning- Ecosystem Services- Circular Economy	Studying water inflows and outflows as key flows in the urban metabolism approach, alongside other key resource flows
	Uliege - UEE - HGE	ULiege, Urban and Environmental Engineering Research Unit, Hydrogeology and Environmental Geology	www.uee.uliege.be/cms/c_3680052/en/ueenew-hydrogeologie-et-geologie-de-l-environnement	Groundwater- Groundwater Quantity- Groundwater Quality- Hydrogeology- Groundwater Vulnerability	/

Sector	Acronym	Name	Website	Keywords	Description
Research institute or team; Knowledge center	ULiège - EED	Water, Environment & Development lab - Department of environmental sciences and management - University of Liège		Integrated Water Resources Management- Irrigation- Decision Support Tools- Remote Sensing- Food Security	/
	UCLouvain-ELI-GERU	UCLouvain, Earth and Life Institute	https://uclouvain.be/en/research-institutes/eli/eli	Agro-Hydrology-Erosion And Land Conservation- Remote Sensing And Hydrogeophysics-Irrigation / Drainage -Soil Water Plant Relationships-Integrated Water Resources Management	ELI pioneers fundamental and applied research to understand the basic processes of the Earth & Life system. The Institute designs research-based solutions at different scales to meet the major challenges associated with the sustainable development of the Earth and Life System. ELI promotes and stimulates interdisciplinary interactions between scientists of complementary expertise that aims to understand the processes controlling the dynamics of the Earth and Life systems at spatial scales deriving from molecules to organisms populations up to global cycles, and time scales from sub-daily to millions of years; to identify drivers of change through quantitative monitoring of indicators and application of hierarchical models; and to innovate in technical management and regulation, both in natural and industrial processes and systems, including renewable resource development and agricultural policy.

Table 4. Peer-reviewed, academic publications on water co-published with researchers from Belgium and Morocco between 2010 and 2019.
Belgian authors are in bold font.

Authors	Belgian Insitutions	Title	Year	Journal	DOI
Khlosi M., Cornelis W.M., Douaik A., Van Genuchten M.Th., Gabriels D.	Ghent University, Gent, Belgium. *Department of soil management *Department of environment *Department of soil management	Performance evaluation of models that describe the soil water retention curve between saturation and oven dryness.	2008	Vadose Zone Journal	https://doi.org/10.2136/vzj2007.0099
Fetouani S., Sbaa M., Vanclooster M., Bendra B.	Université Catholique de Louvain, Louvain-la-Neuve, Belgique. *School of Biology *Earth and life institute	Assessing ground water quality in the irrigated plain of Triffa (north-east Morocco).	2008	Agricultural Water Management	https://doi.org/10.1016/j.agwat.2007.09.009
Lahlali R., Bajji M., Serrhini M.N., Jijakli M.H.	Université de Liège, Gembloux Agro-Bio Tech, Unité de Phytopathologie, Gembloux, Belgique.	Modelling the effect of temperature, Water activity and solute on the in vitro growth of the biocontrol yeast <i>Pichia anomala</i> strain K [Modélisation de l'effet de la température, L'activité de l'eau et des solutés sur la croissance in vitro de l'agent du biocontrôle <i>Pichia anomala</i> (souche K)].	2008	Biotechnology, Agronomy and Society and Environment	https://doi.org/NA
Lahlali R., Serrhini M.N., Friel D., Jijakli M.H.		Predictive modelling of temperature and water activity (solute) on the in vitro radial growth of <i>Botrytis cinerea</i> Pers.	2007	International Journal of Food Microbiology	https://doi.org/10.1016/j.ijfoodmicro.2006.11.004
Lahlali R., Serrhini M.N., Friel D., Jijakli M.H.		In vitro effects of water activity, temperature and solutes on the growth rate of <i>P. italicum</i> Wehmer and <i>P. digitatum</i> Sacc.	2006	Journal of Applied Microbiology	https://doi.org/10.1111/j.1365-2672.2006.02953.x

