



# Profiles of students supported by the International Water Security Network



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**The International Water Security Network (IWSN)** is a collaborative research project led by the University of the West of England, in partnership with the University of Arizona and Monash South Africa. It seeks to improve global understanding of water security challenges around the world.

A key component of the project is the training of future professionals in water management for sustainability and security. We believe that offering studentships, support and prizes will encourage the brightest young minds to devote themselves to this critical area of work. This support includes: PhD, MSc and MPhil scholarships, funding for Post-Doctoral Research Associates, Student Prizes for the best undergraduate dissertations covering water issues, and funding students to undertake research overseas.

For more information visit our website: [www.watersecuritynetwork.org](http://www.watersecuritynetwork.org) or follow us on Twitter @water\_network

*The International Water Security Network project is funded by Lloyd's Register Foundation, a charitable foundation helping to protect life and property by supporting engineering-related education, public engagement and the application of research.*

*For more information, see: [www.lrfoundation.org.uk](http://www.lrfoundation.org.uk)*

# Maria Elena Adaauto Aguirre



Graduated with an MSc in Water Resources Engineering in 2017.

Studied at the Katholieke Universiteit Leuven & Vrije Universiteit Brussel Interuniversity Programme in Water Resource Engineering (IUPWARE).

## Research

With support from the International Water Security Network, Maria Elena had the opportunity to participate in a research project that studied food, water, and energy across a steep socioeconomic gradient in the Andes Cordillera.



## Career

After completing her Bachelor of Science degree in Physics at the National Major University of San Marcos, Maria Elena joined the Agua Andes team. As a member of this team, Maria Elena was able to pursue her Master's degree in Belgium. She was a senior researcher at Centro de Competencias del Agua until 2018, when she began work as a Statistical Programmer Analyst at the National Water Authority in Lima.

*"Through this experience of studying abroad, I have been able to discover new challenges and opportunities. I have also met many people that I admire and from whom I have learned a lot."*

*Maria Elena Adaauto Aguirre*

# Ana Melissa Aguirre Loreto



Graduated in Public Administration from University of Sonora in Hermosillo, Mexico in 2016.

Ana Melissa was one of three co-winners of the IWSN-University of Arizona Student Prize 2016, for their study of water use in households in Hermosillo.

## Research

Promoting water conservation at the household level in Hermosillo, Mexico.



## Abstract

Even though the majority of the participants were aware of the importance of water conservation, there is still a need to raise awareness on this topic so that it becomes a habit.

Increased water scarcity in this region is an impact of climate change; however, many participants do not know about climate change. For this reason, we have to inform society and develop a culture of climate change mitigation and adaptation that can be translated into public policy and action plans with clear strategies. Agua de Hermosillo should improve the way they read and measure water consumption at the household level and that every household should have a meter that works. This would allow a more efficient way to control water consumption.

## Career

After graduating, Ana Melissa took part in a water rights project in Sonora – her work focused on water rights in the Asuncion River Basin, near Caborca. During her studies Ana Melissa participated in an academic project called the "CAERE Municipio Virtual por la Sustentabilidad" and held the position of President of the project. She was a member of the 'Herminio Ahumada Ortiz Association - Citizens building a possible future' project. As well as the IWSN Prize, she also won the Annual Distinguished Student 2014-2015 and the Student Trajectory Prize 2015. She took courses on Urban Government Administration and Urban Development and Sustainability.



# Tamee Albrecht



PhD student in the School of Geography and Development and a graduate research associate at the Udall Center for Studies in Public Policy.

Tamee's PhD study is co-funded by IWSN.

## Research

Her research interests include transboundary water security, climate change adaptation, human-natural systems and geospatial decision-support.



## Abstract

Tamee will investigate water security in the transboundary region of the Himalayas in South Asia. In the mountain foothills, water security is threatened by increasing demand, rapid hydropower development, and climate change. The timing and amount of water available in streams and springs is affected by changing precipitation patterns, accelerated glacial melt and water diversions for hydropower and irrigation. The aim is to better understand the factors influencing water security in Himalayan mountain communities.

## Career

Tamee was selected as a Carson Scholar for 2017. She will receive \$5,000 to support her graduate research, and also engage in trainings and activities to build skills and develop science communication products specific to her research. Before arriving at the University of Arizona, Tamee worked as both a hydrologist and GIS specialist for private-sector companies and international NGOs. She also spent over a year in the Middle East working on water security issues with a cross-border NGO.

*"IWSN support has allowed me to get first-hand experience in Himalayan mountain communities in, which illuminated many important research questions."*

*Tamee Albrecht*

# Sam Allen



Graduated in 2017 with an MSc in Environmental Management.

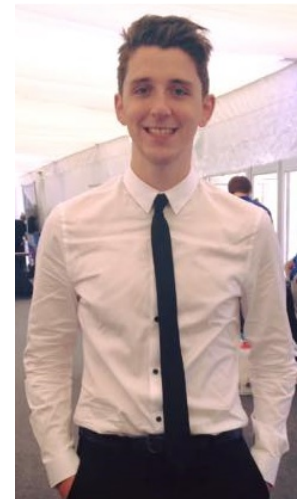
Sam received the IWSN Scholarship for MSc students following the 'water pathway'.

## Research

Sam researched the applicability of sustainable urban drainage (SUDS) principles to a large development site in Gloucestershire.

## Abstract

Ecotricity, a Stroud-based green energy firm, has purchased land adjacent junction 13 of the M5 motorway for development of an eco-village. Topographically and hydrologically the site is complex, with drainage a particular challenge. This research explored the likely impact of key SUDS principles in helping Ecotricity to address drainage issues through green infrastructure approaches.



## Career

Sam graduated from Plymouth University with a BSc in Geography.

*"I am grateful for the opportunity provided by the International Water Security Network as it has not only provided me with financial support for my studies, but also the chance to improve my career prospects."*

*Sam Allen*

# Maria Fernanda Baquerizo



Studying for a BSc (Hons) in Environmental Science.

Maria travelled to Ayacucho, Peru in 2019 to work with Centro de Competencias Del Agua, as part of the UWE Global Water Security Programme, supported by IWSN.

## Research

The seasonality and fragility of the high altitude bofedales (wetlands).

## Abstract

The bofedales have a unique biodiversity and are excellent in regulating and storing water from precipitation, glacial melt and groundwater. However, these fragile ecosystems are sensitive to climate change and human disturbances. Maria's trip coincided with the start of the dry season. She used a multi-parameter approach, measuring pH, conductivity, total dissolved solids and temperature. This made it easy to achieve highly reliable water quality data to determine if the bofedales of the Chillarazo basin are effective filters for providing good quality water for human consumption.



## Career

During her course at UWE, Maria Fernanda took part in research projects that involved the analysis of metals in soil by ICP-OES from the River Frome, and examining the concentration of nutrients and pesticides in a water catchment using HPLC, LC-MS and SEM analysis.

*"I gained in-depth understanding of the mechanism of rain and groundwater recharge in headwater basins for freshwater conservation. Working around the CCA team has provided me with valuable knowledge about how to target environmental problems without adversely affecting indigenous communities. This was an experience that will be useful for my future professional career."*

Maria Fernanda Baquerizo

# Hannah Barnikel



Graduated with a BA in Geography in 2018.

Hannah travelled to Centro de Competencias Del Agua, Peru in 2017 as part of the UWE Global Water Security Programme, co-funded by IWSN.

## Research

What are the obstacles preventing sustainable development within San Cristobal del Huamanga University, compared to those encountered by UWE?



## Abstract

Through in-depth questionnaires with 50 students at each university, this research investigated the issues San Cristobal del Huamanga University faces to become more sustainable, particularly regarding water resources, recycling and energy use; what obstacles the university faces and how they might be overcome; and what ideas and projects which have been implemented on UWE's Frenchay Campus could be transferred.

## Career

Hannah volunteered with Wildlife Sense, a research and conservation organisation based in Kefalonia, Greece, in 2014. Her role was to study and protect the endangered sea turtles of Kefalonia and their ecosystems. This involved surveying all nesting beaches to identify, study, and protect the turtles' nests, monitor the population's health and behaviour, and identify threats.

*"It was an amazing experience that I think everyone should have."*

Hannah Barnikel

# Olivia Beale



Graduated with first class degree in Geography and Environmental Management (BSc Hons) in 2015.

Olivia travelled to Uganda in the summer of 2014 as part of the UWE-Africa Water Security Programme, co-funded by IWSN.

## Research

Olivia's final project was entitled: 'An investigation into the factors that affect water access in schools in Kanungu, Uganda.'



## Abstract

The study had a particular emphasis on what limits water access, how this affects the school and whether participants believe climate change is impacting their water situation. Key findings revealed that 83% of participants perceived seasonal variability to be the most significant barrier to accessing water. Participants from focus groups and questionnaires suggested the change in seasons was as a result of climate change and as a consequence of these changes, schools are adversely impacted.

## Career

Since graduating, Olivia has worked as a Sales Administrator and Renewable Energy Advisor at Travis Perkins Plc in Northampton.

*"Conducting research in Uganda was an extremely useful and thought-provoking experience."*

*Olivia Beale*

# Emma Bean



PhD student in the Department of Geography and Environmental Management.

Emma is a full time PhD student, funded by IWSN and UWE.

## Research

Emma's PhD research involves a detailed analysis of the nature of the public right to fish both in law and in practise in order to consider the place for the public right in the future regulation of fishing activities.



## Abstract

Emma is interested in the experience of the public right to fish by those that are involved in fisheries in order to understand the legal geography of the public fishery and how this affects fisheries management in the UK.

## Career

Before joining UWE, Emma spent eight years at Burges Salmon, working as a real estate solicitor. During this time, she dealt with complex land transactions, multiple portfolios for the Crown Estate Commissioners, work for the Nuclear Decommissioning Authority, and in the renewable energy sector. Following her career as a solicitor, Emma has been involved with a variety of research projects including a project looking at the legalities of bait collection and its regulation for the Pembrokeshire Marine Relevant Authorities Group, and an Historic England project with Plymouth University on the protection of underwater cultural heritage.

*"Thank you to IWSN for the opportunity to put the skills I developed in practice to use in seeking more ecologically sustainable ways of formulating marine laws."*

*Emma Bean*



# Bryher Bergin



Graduated with a BSc in Environmental Science.

Bryher travelled to Kisoro, Uganda in both 2018 and 2019 as part of the UWE Global Water Security Programme, supported by IWSN.

## Research

The detection of bacterial contamination in stored rainwater using fluorescent spectroscopy.

## Abstract

An insight into the potential risks of microbiological growth in rainwater harvesting systems under a range of possible conditions.



## Career

In 2015-16, Bryher worked as a Science Teacher in Kwakwani Secondary School in Guyana. She has also spent time in Borneo, building community projects and helping to restore areas of deforestation.

*"The UWE Global Water Security Programme in Kisoro, Uganda gave me the opportunity to experience the joys and struggles of life in rural Africa. I wanted to take part in a project that benefits people who are living without clean, safe water. Carrying out a scientific project in the field was both incredibly challenging and rewarding. I developed skills in data collection, lab practice and communication all while experiencing an incredible culture. This experience has given me the inspiration to pursue a career in field work."*  
Bryher Bergin

# Will Bickerton



Graduated with a BSc in Environmental Science.

Will travelled to Uganda in 2017 as part of the UWE Global Water Security Programme, co-funded by IWSN.

## Research

This research centred around measuring the impact and degree of how much mercury, derived from artisanal and small-scale gold mining in Bukuya, Mubende, is contaminating the environment.



## Abstract

Soil, water and crop samples were taken and analysed for mercury contamination in the Governmental Research Laboratory in Kampala. The mining area sampled was full of people who could potentially be at risk of toxic mercury pollution. In particular, water systems were at risk of contamination, and villagers may be unknowingly poisoning themselves from drinking what they assume to be clean water. In one case, the tests showed a borehole at a school had very high mercury contamination and was unfit for human consumption. The school has since dug another borehole. The results have led to greater information for the community about their potentially lethal water supply, the risks to their health, and how mercury-free mining would be preferable.

## Career

After graduating in 2019, Will worked as a fundraiser for FRANK Water.

*"A unique experience that I would not have access to if I was not a part of the Water Security Project. When on a project such as this, you become a lot more accepted into the community and not seen as just another traveller. You are given the opportunity to help make a difference to the country you're visiting."*  
Will Bickerton

# Jonathan Biggs



Graduated in 2017 with an MSc in Environmental Management.

Jonathan received the IWSN Scholarship for MSc students following the 'water pathway'.

## Research

Jonathan researched Chile's legal and institutional arrangements for water management and climate change adaptation.



## Abstract

The research uses a mix of semi-structured interviews and documentary analysis to evaluate institutional responses to climate change in Chile's water sector, considering the benefits and problems inherent in Chile's current legal and institutional arrangements. In doing so it provides insights into how Chile could improve water management to more effectively address the challenges of climate change. The study gives a more in-depth analysis of the challenges involved and adaptation responses under consideration in Chile's capital, Santiago, where almost 40% of Chile's population resides.

## Career

Since finishing his first degree in psychology, Jonathan has worked in research, teaching, social work and community development. He has spent much time volunteering for grassroots social change to bring about healthier relationships to ourselves, one another and our shared environment. In 2018, he began work as a Permitting Officer at the Environment Agency, before moving to a policy advisor role at DEFRA.

*"I am very grateful to the International Water Security Network for the support it provided."*

*Jonathan Biggs*

# Jasmine Blackford



Graduated with a BSc in Mathematics in 2020.

Jasmine was a research intern during summer 2020, working on projects linked to IWSN, funded by UWE.

## Research

Household Water Insecurity Experiences (HWISE) - Improving water security in developing countries.



## Abstract

The HWISE survey has been conducted at 30 sites in 24 countries, to assess household water insecurity. The focus of this research was to analyse data collected from a variety of sites, in countries including Uganda and Indonesia, with the aim of assessing the water security of households and identifying the indicators of water insecurity. In the process, an app was created that allows users to upload and analyse their data without the need for a high level of technical understanding.

## Career

After completing the internship, Jasmine secured a role as a Data Analyst within the insurance sector. The skills she developed with the internship were invaluable to her in this role.

*"It has been a great way to keep busy during the COVID-19 lockdown and I am grateful to the whole team I worked with for making it such a positive experience!"*

*Jasmine Blackford*



# Jessica Boulton



Graduated in 2018 with an MSc in Environmental Management.

Jessica has received the IWSN Scholarship for MSc Students following the 'water pathway'.

## Research

Jessica travelled to Uganda and Kenya in the summer of 2018 to conduct research on attitudes towards 'Pee Power' technology, which has been developed by the Bristol Bio-energy Centre.



## Abstract

This research focuses on the perceptions, opinions and experiences of local people to the 'Pee-Power' trials in Kisoro, Uganda and Nairobi, Kenya with a focus on women's safety. 'Pee-Power' converts urine into electricity, and has been implemented in an all-girls school in Kisoro and a mixed school in the Mathare Slum in Kenya. Through a set of pre and post installation surveys, the research gives an insight into perceptions of the technology.

## Career

As part of her BSc in Geography, Jessica completed a dissertation investigating the effects of human trampling on soils and drainage in sand dune eco-systems. The study involved sampling three soil parameters, counting the frequency of footfall to the investigated sites, and using a combination of statistical analysis to determine a relationship. She took a variety of human and physical geography modules ranging from Coasts and Rivers to Environmental Management in the Global South – the latter module was what inspired her to continue her studies at MSc level. After completing her MSc, she began a PGCE focusing on Geography teaching.

# Natasha Bradshaw



PhD student in the Department of Geography and Environmental Management.

Natasha is a part-time PhD student, funded by IWSN.

## Research

Natasha's research will look at enabling better governance of the coastal and marine environment, and enhancing stewardship through collaborative stakeholder engagement mechanisms.



## Abstract

The coastal and marine environment provides valuable resources to people, but sustainable management is challenging because legislation and institutional responsibilities are complex and approaches to public participation inconsistent. This PhD will explore whether the coastal environment requires stronger integration through the provision of a better governance mechanism(s). The research seeks to identify, explore and compare collaborative stakeholder engagement mechanisms at different scales and recommend how to enhance stewardship.

## Career

Natasha has over twenty years of experience in marine and coastal governance. She has worked for WWF-UK, and undertaken consultancy work for the Department for International Development (DFID), the British Council and the World Bank on coastal management and public interpretation projects in the Black Sea countries.

*"I am grateful to the Lloyd's Register Foundation for supporting this research which aims to inform future government policy, including socio-legal recommendations to enable better coastal and marine governance."*

Natasha Bradshaw

# Jenna Brown



PhD student in the Department of Geography and Environmental Management.

Jenna is a full-time PhD student, funded by IWSN.

## Research

Her research interests are resource security and environmental policy, reflected in her exploration of shale gas development in the UK and the water-energy-carbon nexus.



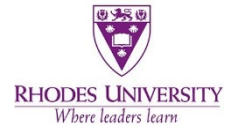
## Abstract

Her research investigates the rationale and influences to the decision-making process for the allocation and management of environmental resources with respect to the water-energy-carbon nexus of shale gas development. She aims to develop a model that analyses the cumulative impact upon water resources for shale gas development scenarios in England in the mitigation of water stress.

## Career

Jenna began her academic studies at UWE reading a bachelor's degree in Physical Geography and Environmental Management, specialising in Global Resource Management and Environmental Impact Assessment. This was followed by reading a master's degree in Environmental Consultancy, specifically with reference to Environmental Policy and Energy Management, awarded with a Distinction.

# Michelle Browne



PhD student in the Department of Economics and Economic History, Environmental and Natural Resource Economics, Rhodes University.

## Research

Michelle's research interests focus on the society-economic-environment interface with specific attention to ecological infrastructure, climate change adaptation and water resources.



## Abstract

Evaluating the outcomes of wetland restoration is critical to improve practice and justify further investment in wetland restoration. While the benefits - particularly those related to water supply and water quality - of restoring wetland ecosystems in South Africa are frequently cited, their quantification and valuation is less common. The aim of the PhD research is to provide a method for the economic valuation of the outcomes of wetland rehabilitation in South Africa, thereby addressing a specific gap in the knowledge base identified in the literature. However, 'value' means different things to different people and encompasses a multitude of dimensions (i.e. not only the economic sense of value). While exploring the economic value of wetland rehabilitation, the research also considers the role of conventional economic approaches in the evaluation of ecosystem restoration.

## Career

Michelle is a scientist at the Institute of Natural Resources (INR), within the Adaptation and Resilience theme, and has been involved in multiple projects exploring the society-economic-environment interface. Projects include, for example, exploring climate change vulnerability particularly from a business and livelihoods sustainability perspective and assessing the economics of investing in ecological infrastructure (cost-benefit analysis, cost-effectiveness analysis, statistical analysis and financing mechanisms). Michelle has additional experience in assessing and monitoring environmental issues particularly those related to water resources and in the design and management river health databases.

*"Water-energy interconnections are an important, but understudied, aspect of environmental security."*

*Jenna Brown*

# Rosaria Buchanan



Studying for an MSc in Environmental Management.

Rosaria has received the IWSN Scholarship for MSc students following the 'water pathway'.

## Research

As Rosaria is undertaking the programme on a part-time basis, a definitive research question is yet to be determined. It is anticipated that her focus will be around research on automated (in-situ) water quality monitoring, with a focus on the impacts of pesticides or salts on receiving water bodies.



## Career

Since completing her BSc (Hons) degree in Geography and Environmental Management, Rosaria has worked within the highways sector occupying various roles. She is currently an Environmental Advisor for highways within the south west of England. This primarily involves undertaking non-statutory Environmental Impact Assessment (EIA) on highways maintenance and improvement schemes, as well as overseeing and leading on the design of environmental designated funds schemes, which may include biodiversity and cultural heritage improvement/restoration schemes.

*"I am excited for the opportunity to undertake research which is of importance to me, as well as to have support from the International Water Security Network."*

*Rosaria Buchanan*

# Molly Byrne



Graduated with a BSc in Geography and

Environmental Management.

Molly travelled to Kenya in 2015 as part of the UWE-Africa Water Security Programme, co-funded by IWSN. She was awarded the 2016 IWSN-UWE Student Prize.

## Research

Working with the Kenya Rainwater Association, Molly conducted an investigation into the ability of rainwater harvesting to reduce water scarcity for rural residences in Kenya.



## Abstract

The study involved 42 Kenyan households who had adopted RWH. Collected water samples were subject to substrate technology to calculate the E-coli and Total Coliform bacteria levels and household respondents were questioned on their mode of tank maintenance. The results revealed that RWH is often failing to produce water of a safe drinking quality. The range of maintenance regimes collected throughout the study may also reflect the effect of donor dependency, with participants being untrained in how to maintain this technology.

## Career

In 2013, Molly volunteered with Think Pacific, working on education, health and other issues on Moturiki island, Fiji. While studying, she worked with first year UWE students as a peer-assisted learning tutor. After graduating, she became Programme Manager at the charity The Converging World.

*"Not only did I collect my dissertation data, but I gained valuable experience of working in the field...a unique and amazing experience."*

*Molly Byrne*



# Albert Cabral



Graduated with a MEng in Aerospace Engineering.

Albert travelled to South Africa in 2016, co-funded by IWSN & Project Zulu.

## Research

Working with LIMA Rural Development Foundation, Albert designed, planned and developed a drip-feed water irrigation system for continuous feed to crops in farm areas suffering from water shortages.



## Abstract

During the project, Albert worked with a team including fellow student Sabhya Gurung to develop ideas and build small prototypes to test and record the data. After discussing different solutions, a gravity solution with no need for electricity was chosen. This was important as power-cuts are common in this region. This solution can provide the farmer with constant 'feed'.

## Career

Prior to his week at LIMA, Albert volunteered at Siyawela Primary School in the Madadeni township in the Kwa-Zulu Natal province - a region prone to extremely dry seasons. The aim was to design and plan a rainwater harvesting system. Albert has also been a classroom assistant with Kumon Educational UK, a Peer Assisted Learning Leader at UWE, an Officer Cadet with the RAF Air Cadets, and a ball boy at the London Olympics. In June 2017, Albert became a Technology Project Engineer Intern at GKN Aerospace.

*"The summer in South Africa has been brilliant! I picked up a lot of skills - team-work, communication, being resourceful and using resources effectively – as well as those related to Engineering. Moreover, I was even able to pick up a bit of Afrikaans and Zulu."*

*Albert Cabral*

# Ana Luisa Calvo Acosta



Master's Degree in BioTrade and Sustainable Development at Pontifical Catholic University of Peru.

## Research

With a focus on the nexus, Ana Luisa is conducting an analysis of the alpaca colour fibre value chain with an ecosystem approach in the community of Pichccahuasi (Huaytará Huancavelica)

## Abstract

The objective of the research is to identify the environmental, social and economic limitations in the production chain of alpaca colour fibre in Pichccahuasi. This community is extremely poor and vulnerable to climatic events (scarcity of water resources, degradation of pastures, etc.), and its important productive activity is the raising of alpacas and the sale of natural fibre. After the analysis, guidelines for a sustainable business model that considers the conservation of the natural resource will emerge.



## Career

Ana Luisa is a geography engineer by profession, with work experience in both the public and private sectors. She worked as a sustainability consultant for micro, small and medium enterprises of the tourism, agriculture and manufacturing sectors as part of the international project CompiteMAS Peru, during which plans were developed to help the companies become more competitive and sustainable. She has undertaken internships in Israel, Chile and Colombia. She has also volunteered with Peru Champs, which engages in education and leadership activities for children, and with Conservation International, as a volunteer in environmental education.

# Rhys Chellew



Graduated with an MSc in Environmental Management.

Rhys received the IWSN Scholarship for MSc students following the ‘water pathway’.

## Research

Using data from Bristol Water, Rhys is investigating the relationship between domestic water use and affluence, as an element of forecasting future water use.



## Abstract

The study is based on water use data Bristol Water has provided, aggregated into 478 District Metering Areas – DMAs, and the Office of National Statistics data on affluence of different political administrative areas (Lower Super Output Areas – LSOAs). Using Geographic Information Systems, this data is combined and explored with regard to relationships between water use and affluence.

## Career

Since graduating with a BSc in Geography and Environmental Management in 2010, Rhys has worked in education, teaching Geography and English as a foreign language across Europe and Asia. He has held various positions at Kings Education.

*“The IWSN funding made my study possible, which has been a simply amazing opportunity for me.”*

*Rhys Chellew*

# Machaya Chomba



Completed his PhD in 2018. He was based at the Water Research Node, Monash South Africa and registered at University of Kwazulu-Natal.

Machaya has received funding for his studies from IWSN.

## Research

His research focuses on examining social relationships among water users involved in collaborating in water resources governance in a river basin context.



## Abstract

The research aims to examine relational attributes such as trust and reciprocity and their influence on collaborative action among water users in achieving water security in river basins. The research is qualitative in nature and focuses on the floodplain on the Kafue River in Zambia as a case study. In exploring this relationship, the research draws on literature from social exchange theory, water security and adaptive governance. The research seeks to contribute towards the conceptualization and design of collaborative arrangements among multiple actors in river basin contexts.

## Career

Machaya completed his undergraduate studies at Copperbelt University in Zambia, and his master’s degree in Integrated Water Management at Monash South Africa. Upon the successful completion of his studies in autumn 2018, he joined the World Wide Fund for Nature (WWF) Zambia as the Barotse Landscape Manager for a Program on the Upper Zambezi Catchment.

*“Through the IWSN scholarship, I have been able to realise my dream of pursuing my studies at Doctorate level. The opportunity has also allowed me to engage with other scholars within the network examining similar issues in different contexts.”*

*Machaya Chomba*

# Harry Chrispin



Graduated with a BA in Geography.

Harry travelled to Uganda in the summer of 2015 as part of the UWE-Africa Water Security Programme, co-funded by IWSN.

## Research

Harry's placement with Joint Effort to Save the Environment (JESE) focused on water, sanitation and hygiene (WASH) issues. His final year project looked at the role of primary schools in improving handwashing practice in Western Uganda.



## Abstract

The research assessed the extent of current hand washing in the local district and how this can affect attendance within schools. The key focus of the research was on the availability and functionality of hand washing facilities as well as the essential availability of clean water. The results were then compared to the schools' attendance and performance records, in order to assess whether the availability of water and facilities can have an effect on student attendance or even performance.

## Career

The positive experiences from his time in Uganda inspired Harry to take up a work placement as an event organiser with Bristol Fairtrade Network. He is currently working as an Energy and Environment Intern at Hilton Hotels Worldwide.

*"Working in Uganda was a fantastic opportunity, and I relished every moment. I truly believe that this experience has changed my professional abilities and personal ambitions, unparalleled to any previous experience."*

Harry Chrispin

# Janine Clark



Udall Center  
for Studies in Public Policy

Graduated with a BSc degree with a focus on Urban and Regional Development

Janine was one of two students who received the 2015 IWSN-University of Arizona Student Prize.

## Research

Janine's Honours thesis project looked at water and sustainability in the Southwest US.

## Abstract

Janine won the Student Prize for a research project examining Southwest regional water laws, economics, water politics, demographic trends, and environmental impacts. She interviewed water-supply and management experts, planners, researchers, and stakeholders, asking these key players about their vision to ensure sustainable water supplies in the Southwest.



## Career

During her studies, Janine worked as a student coordinator and trip leader for Outdoor Adventures. She studied sustaining agriculture on the Hopi reservation in northern Arizona as part of developing a curriculum for U.S. Department of Agriculture professionals. She participated in research to understand Hopi water rights and resources, and the cultural heritage of the tribe's agricultural practices. She also served as an Honors Civic Engagement Team Intern for the Iskashitaa Refugee Network.

*"Through a career in Urban Planning and Policy, I'd like to work to develop policies that guide development and growth in ways that not only reflect stewardship towards the environment, but also promote spaces that cultivate health and sense of place for a city's residents."*

Janine Clark



# Sophia Cockell



Graduated with a BA in Geography.

Sophia travelled to Centro de Competencias Del Agua, Peru in 2017 as part of the UWE Global Water Security Programme, co-funded by IWSN.

## Research

Sophia focused on looking at the perceptions of climate change across rural and urban areas in Peru, and comparing this to urban and rural areas in England.

## Abstract

Surveys and interviews were conducted with residents in two villages - Pilpichaca, in the region of Huancavelica, and Puncata in Quispillacta – on climate change and sustainability. Most participants understood climate change to refer to the fact that seasonal weather was becoming more extreme. Few had heard the term ‘sustainability’, and while the village did not have recycling facilities, a few participants said they did recycle – for example, by reusing bottles. One woman said she took glass and tins to Ica to sell. Both villages faced water challenges – a river runs through Pilpichaca but residents cannot use it for drinking as it is reserved for irrigation in Ica. In Puncata, the villagers may soon have to pay a water tariff as the government seeks to formalise water rights.

*“I am so glad I went and it was a once in a lifetime experience. It involved both learning and fun!”*

*Sophia Cockell*

# Rebecca Collins



Graduated with an MSc in Environmental Management.

Rebecca received the IWSN Scholarship for MSc students following the ‘water pathway’.

## Research

Rebecca is conducting GIS analysis of metaldehyde remediation techniques in Staffordshire.

## Abstract

This research aims to identify suitable locations for landscape measure to be implemented such as infiltration ditches, buzzer strips and swales as mitigation against metaldehyde and other pesticide contamination of the watercourse by using GIS to generate a risk map of the Blithe catchment.



## Career

Rebecca gained a First in Geography and Education Studies. During this degree, she did an internship at a construction company as an environmental assistant, where she assessed the environmental impact of their business and carried out biodiversity development within the company. Combined with the modules studied, this experience led her to decide that working in the environmental sector was her ambition. During her MSc, she undertook a work placement at South Staffordshire Water.

*“I am grateful to the IWSN, not only for the financial support but for the academic support, and the opportunities to network and share ideas and knowledge with others within the field, providing me with a platform to help fulfil my ambition of a career I will honour, and be proud of, for the rest of my life.”*

*Rebecca Collins*

# Ángel Coronel Higuera



Studying on the Master's Program in Social Sciences, concentrating on Public Affairs Theory and Analysis, at El Colegio de Sonora, in Hermosillo, Mexico.

## Research

Ángel's research is entitled: 'National management or local management? A comparison of the institutional framework for water management in the hydric region Alto Noroeste (Mexico), and the Mendoza province (Argentina).'



## Abstract

In this study, the researcher will compare the institutional framework for water management in two countries (Mexico and Argentina) with the objective of studying the implementation of the integrated water resources management model in both watersheds.

## Career

Ángel has been a reporter on politics, a public communications' advisor for a Sonora State senator, and a philosophy professor at COBACH High School.

*"It is a privilege to be able to conduct this research to expand my academic outlook, and to contribute to science through my study."*  
Ángel Coronel Higuera

# Rory Cox



Graduated with a first class MSc in Environmental Management.

Rory received the IWSN Scholarship for MSc students following the 'water pathway'.

## Research

Rory's research looked at pro-poor solutions to South Africa's priority water research questions.

## Abstract

The research aimed to ascertain which 'pro-poor' methods are favoured by water sector specialists in addressing the country's water resources issues. In order to achieve this, a range of water sector specialists were engaged with through focus groups and interviews. A number of common themes that are crucial to the success of 'pro poor' water policy and practice emerged through this process. It is hoped that the research will contribute useful recommendations for the future policy direction of government, civil society groups, and NGOs.

## Career

Having graduated with a degree in Theology from Durham in 2013, studying for an MSc in Environmental Management represented a change of direction. Alongside studying, Rory ran a small apple pressing business in Bristol and worked part time for an organic farm. After graduating, he moved to Hong Kong to work for a charity that helps to rehabilitate drug addicts. It is his intention to combine his interest in environmental issues with other social concerns.

*"I am very grateful for the support of the IWSN and Lloyd's Register Foundation, which gave me the exciting and challenging opportunity of carrying out my research in South Africa."*  
Rory Cox

# Tom Curson



Graduated from the MSc Environmental Consultancy course in 2015.

Tom received funding from IWSN for his placement at Thames Water, which allowed him to collect data for his dissertation.

## Research

His research was entitled: 'An investigation into the treatment and management methods for removing levels of metaldehyde from raw water – and how this applies to a small scale catchment.'



## Abstract

The research found that the Ampney Brook catchment does have a number of incidences where samples of drinking water were tested and the results showed metaldehyde levels that exceeded the drinking water standard. It also found that water companies are primarily focussing their aim on catchment management to reduce the risk that metaldehyde poses in raw water.

## Career

Tom works as a Governance Officer at BMT Defence Services Ltd.

*"I have found that the skills I developed throughout my placement, studies and dissertation have proved to be transferable to my role at BMT. The fact that I had experience working with a number of stakeholders in industry was key to me being offered the position here at BMT. I am extremely grateful for the support I received from the IWSN during my time at UWE."*

Tom Curson

# Alex Davies



Graduated with a BEng in Civil and Environmental Engineering in 2018.

Alexander travelled to the Diocese of Kisoro, Uganda in the summer of 2017 as part of the UWE Global Water Security Programme, co-funded by IWSN. He was awarded the 2018 IWSN-UWE Student Prize.

## Research

Alexander was investigating the structural integrity of ferro-cement rainwater harvesting tanks. This involved visual inspections, hourly strain readings across an entire day, creating concrete samples for testing. He also spent time talking to community members



involved in the construction or use of the tanks, to gain an understanding of local people's perception of this particular tank design.

## Career

Alexander's final year project won the IWSN-UWE Student Prize. Reviewers praised the "maturity" of his "excellent" work. During his studies, Alexander was Vice-President of the UWE Civil Engineering Society.

*"A trip like this is a fantastic experience and one that would be very difficult to get elsewhere. It was a steep learning curve in how to conduct field research in a foreign country, and to produce primary data to a reliable standard."*

Alex Davies



# Liam Davies



Graduated with a BA (Hons) in Geography in 2014.

Liam travelled to Uganda in the summer of 2013 as part of the UWE-Africa Water Security Programme, co-funded by IWSN.

## Research

Liam's dissertation asked: 'How does the access to water impact the local human population of Kanungu District?'



## Abstract

The key findings were that 84% of people access water from improved sources but the remaining respondents used sources much more open to contamination. Despite the high access to improved sources, potable water was perceived to have been consumed regularly by only 67% and water related diseases of diarrhoea and typhoid affect 77% of households. A relationship was found between being affected by disease and the type of source used. Sources are commonly communal with 15% having above 50 households dependent upon them. Seasonal variability affected 30% of the respondents significantly. The burden falls unequally, as children are the common collectors of water. The majority of respondents chose their source due to its close proximity, instead of cleanliness.

## Career

Liam returned to work with Volunteer Uganda in the summer of 2014. Since January 2016, he has worked at Wall Street English in Ho Chi Minh City, Vietnam.

*"It was a great opportunity to conduct research for my dissertation, and gain knowledge of the society and issues which exist within Kanungu."*

*Liam Davies*

# Jozef Denby



Graduated with a BEng in Civil and Environmental Engineering in 2018.

Josef travelled to Diocese of Kisoro, Uganda in the summer of 2017 as part of the UWE Global Water Security Programme, co-funded by IWSN.

## Research

This research looked at the structural integrity of ferro-cement rainwater harvesting tanks.



## Abstract

Effective water capture and storage during the wet seasons is imperative for use during the following dry seasons as drinking water by large communities. This is usually achieved via a limited number of gravity fed pipeline schemes or more commonly rainwater harvesting tanks connected to buildings roofs. Many tanks are now built as ferro-cement due to their high strength and resilience compared to cheaper plastic tanks. However, some have developed cracks in their outer layer of concrete. The aim was to discover why they were cracking and were these cracks deep enough to cause leakage of the water stored within.

## Career

During his studies, Jozef was President of the UWE Civil Engineering Society.

*"This was a good life experience that will enhance my job prospects."*

*Jozef Denby*

# Elsah Nomsa Dhliwayo



Graduated with an MPhil in Integrated Water Management.

A recipient of a Water Security Scholarship.

## Research

Elsah's research interests include how water is governed and managed by water service providers and local communities. Her research topic is: "Exploring the use of social media in improving communication between water service providers and the local community as a method of developing resilience in dealing with water provision services."



## Abstract

The research is focused on how communication between water service providers and the communities they serve can be improved through social media. It will draw conclusions on how such improvements to communication between these two stakeholders can then be used as a means to improve water service provision.

## Career

Prior to starting her MPhil, Elsah completed an Honours degree in Child and Youth Development at Monash South Africa.

*"I am so grateful to the International Water Security Network for the scholarship I have been awarded because it has given me an opportunity to pursue a master's degree.*

*This is a dream come true."*

*Elsah Nomsa Dhliwayo*

# Daniele Di Fiore



Graduated in 2016 with an MSc in Environmental Management.

Daniele received the IWSN Scholarship for MSc students following the 'water pathway'.

## Research

Daniele's research is about freshwater and citizen science: 'Evaluating River Resilience: the Anglers' Riverfly Monitoring Initiative.'



## Abstract

The research aims to evaluate the Anglers' Riverfly Monitoring Initiative (ARMI) method. This will be assessed through the investigation of spatial and temporal variability of data collected by volunteers within the Severn and Thames catchments. Related water quality data from government agencies will be used to analyse how the ARMI method compares with them.

## Career

Daniele holds an MSc cum laude in Conservation and Management of Natural Resources and a BSc cum laude in Natural Sciences. Prior to starting his MSc at UWE, he gained experience working in a variety of roles related to conservation biology and the environmental sector. As he was completing his MSc in 2016, Daniele was recruited by Artesia Consulting, who provide services in the water sector to support a sustainable future for our water resources.

*"Without the IWSN scholarship, I could not have started this amazing new career."*

*Daniele Di Fiore*

# Gillian Donaldson-Selby



Part-time PhD student in the Department of Geography and Environmental Management.

Gillian's PhD study is co-funded by IWSN.

## Research

Understanding and evaluating peatland degradation and restoration dynamics through hydrological monitoring and modelling.

## Abstract

Approximately 35% of Scottish peatlands show evidence of erosion, many of which contribute water to more than one catchment. Approximately 70% of all drinking water in the United Kingdom is derived from peat-dominated upland catchments. Peatland erosion gives rise to reservoir sedimentation, dissolved carbon and carbon particulates in water supplies, and potentially exacerbates flooding. Gillian's research will investigate the effectivity of restoration in an eroded upland peatland, focusing on examining and understanding hydrological dynamics and potential trajectories.



## Career

After graduating, Gillian worked as a self-employed environmental consultant in South Africa before accepting a position at the James Hutton Institute in Aberdeen, Scotland.

*"I am grateful to the IWSN for their support, without which this study would not be possible."*

Linda Downsborough

# Hlengiwe Dube



Studying for an MPhil in Integrated Water Management.

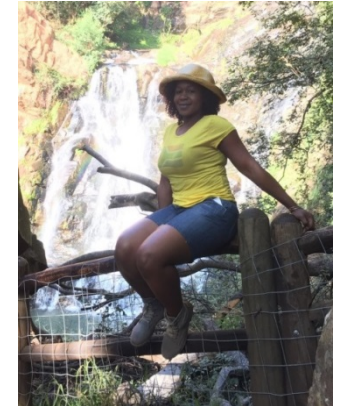
A recipient of a Water Security Scholarship.

## Research

Her research is looking at: 'National Interests, Hegemonic Power and the Securitization of Water Resources.'

## Abstract

The gesture of engaging stakeholders in the management of water shows collaborative governance. Collaboration is a specific approach to governance that broadly involves responsibility and power sharing between state and non-state actors. The governance of water in the uMngeni is characterized by interconnected and overlapping power struggles. The aim of this research is therefore to examine how power among different stakeholders is used to determine, (re)negotiate and sustain decisions about how water is distributed and utilised in the uMngeni; in the context of the ongoing drought.



## Career

Thirteen years before joining MSA, Hlengiwe worked as a civil servant in Zimbabwe. She graduated from the University of Zimbabwe (UZ) with a Bachelor of Arts Degree in Economic History and Archaeology. Seven years after this she completed a Bachelor of Social Sciences (BSocSc) in International Relations and Management and a BSocSc Honours in International Relations at MSA.

*"Although the courses in IWRM are intense and challenging, I really enjoy them."*

Hlengiwe Dube



## Jerit Dube



Studying for an MPhil in Integrated Water Management.

Jerit's studies are being supported by IWSN.

### Research

Exploring the role of diversity in flood management through green infrastructure practices in informal settlements in South Africa.

### Abstract

There is an assumption that diversity (institutional and response) and green infrastructure are the core concepts that form the basis of enhancing adaptive capacity to flood risk in informal settlements. This research will explore how the lack of diversity affects the management of floods and jeopardizes the opportunity of enhancing adaptive capacity to flood risks in informal settlements.



### Career

Through her current research at Monash South Africa, Jerit looks forward to enhancing her research skills and gaining professional experience in the field of environmental science and water resource management. Once she finishes her MPhil, she would like to pursue a PhD in Water Resources Management. Her long-term ambition is to develop a career path where she can utilize her skills and knowledge efficiently for professional growth.

*"The IWSN has provided me with a great opportunity to pursue my MPhil and develop my research skills, as well as enriching me with new perspectives."*

*Jerit Dube*

## Dylan Earee



Graduated with a BEng (Hons) Civil & Environmental Engineering.

Dylan travelled to Kisoro, Uganda in 2019 as part of the UWE Global Water Security Programme, supported by IWSN.

### Research

Inspecting rainwater harvesting tanks, and building and testing filters made with locally available materials in Uganda.

### Abstract

Investigating the reduction in bacteria from rainwater harvesting tanks in rural Africa before and after installing different types of filters.



### Career

In 2014, Dylan spent a month working on a variety of sustainable and meaningful projects in Cambodia, as part of a charity expedition organised by Camps International. This included farming, building classrooms, digging irrigation schemes, painting a school, building a house and teaching English to local school children.

*"It was a privilege to be given the opportunity to take part in the UWE Global Water Security Programme. I was able to apply the skills I learnt during my degree to benefit the local communities in Uganda, and gain invaluable experience that I will never forget."*

*Dylan Earee*

## Grace Elliott



Graduated with a BSc (Hons) Geography and Environmental Management.

Grace travelled to Uganda in the summer of 2013 as part of the UWE-Africa Water Security Programme, co-funded by IWSN. She was joint-winner of the 2014 IWSN-UWE Student Prize for best water-related undergraduate final year project.

### Research

An investigation into the water quality and treatment habits within households in Kanungu, Western Uganda.



### Abstract

This study focused on the water treatment habits and the presence of *E-coli* in local water supplies in the rural district of Kanungu, south-western Uganda. The Multidimensional Poverty Index tool and the Traffic Light Approach were utilised in this study enabling a holistic assessment of the socio-economic status (SES) of households in the district. Thirty water samples were tested for *E-coli* and 551 households were respondents to a multiple-choice survey. Findings revealed two thirds of water supplies contained *E-coli* and the predominant method of treatment in Kanungu is boiling. Results also indicate a relationship between households SES and water quality and treatment habits within the district.

### Career

Grace works as an admin assistant at International Trade and Development (Itad) in Hove.

*"Without the support of IWSN and Lloyd's Register Foundation, my trip to Uganda would not have been possible."*  
Grace Elliott

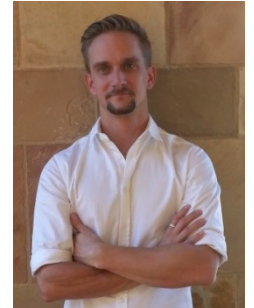
## Jan Janosch Förster



Janosch is a PhD candidate at the School of Social and Political Sciences at Monash University, Melbourne. He conducts his PhD studies in cooperation with the Water Research Node at Monash South Africa affiliated with the IWSN.

### Research

His research interests include the application of social theory to water governance studies, natural resource governance, the impacts of climate change and nexus approaches to water governance.



### Abstract

His PhD investigation is a qualitative comparative case-based analysis of water access through institutional mechanisms of water governance. Using social theories and theories of power, Janosch tries to get a fine-grained understanding of local people's resources and capabilities to pursue a certain livelihood and how that links to water access through local institutions of (collaborative) water governance. He compares empirical results from a case study in the Northwest Province and a case study from the Western Cape Province in South Africa.

### Career

Janosch studied Political Sciences at the Free University in Berlin and a Masters in Integrated Water Management at the International Water Centre (IWC) at the University of Queensland in Brisbane, Australia. Previously, he worked for the Heinrich-Boell-Foundation, the think tank of the Green Party in Germany.

*"This research endeavour has been the most amazing experience of my life so far. To jump into the deep end of the research sea (and re-emerge!), and work with commercial farmers, rural communities, political decision-makers and others, has been amazingly fruitful and has shifted the way I look at the world. Thanks IWSN for your support!"*  
Jan Janosch Förster

# Maria Alejandra Gallardo Urrea

Graduated in Public Administration from University of Sonora in Hermosillo Sonora México in 2016.



Maria was one of three co-winners of the IWSN-University of Arizona Student Prize 2016, for their study of water use in Hermosillo.

## Research

Promoting water conservation at the household level in Hermosillo, Mexico.

## Abstract

Even though the majority of the participants were aware of the importance of water conservation, there is still a need to raise awareness on this topic so that it becomes a habit. Increased water scarcity in this region is an impact of climate change; however, many participants do not know about climate change. For this reason, we have to inform society and develop a culture of climate change mitigation and adaptation that can be translated into public policy and action plans with clear strategies. Agua de Hermosillo should improve the way they read and measure water consumption at the household level and that every household should have a meter that works. This would allow a more efficient way to control water consumption.



## Career

After graduating, Maria took part in a water rights project in Sonora – her work focused on water rights in the Mayo River Basin. Maria participated in, and was treasurer of, the project ‘Caere Municipio Virtual por la Sustentabilidad’, and was also a member of Herminio Ahumada Ortiz Association ‘Citizens Building a Possible Future’. She has one diploma in Government and Municipal Administration in Sonora and another in Municipality, Development and Sustainability.

# Zephyr Giddings

Studying for an MSc in Environmental Consultancy.



## Research

Zephyr is interested in research relating to many aspects of water, including river flooding management, water body quality, and providing potable water in developing countries.

## Abstract

Possessing an understanding of the principles of the Earth’s systems enables us to address human interaction with these systems. There is no doubt that we are living in the Anthropocene where environmental degradation is still occurring, and on a significant scale. Consulting fundamentally helps to reduce these degradations while increasing transparency and still maintaining the rate of development within the economy. In order to be a good consultant it is imperative you have a good mixture of practical sense and research skills.



## Career

Zephyr completed a degree in Environmental Science in 2019. Her undergraduate research project delved into the analysis of dissolved organic matter fluorescence properties, after being spiked with increased levels of nutrients, which helps to understand the impacts of intense agricultural practices on nearby water bodies.

*“Research has always been my passion, particularly due to the nature of collecting your own qualitative or quantitative data, and how its analysis could lead to positive changes - a key priority to anyone who cares for the environment.”*

*Zephyr Giddings*



# Domenica González

Studying for a Master's in Natural Resources at the Pontifical Catholic University of Chile.



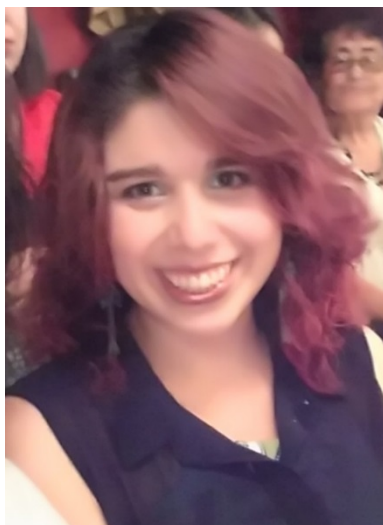
Domenica is being supervised by IWSN partner Prof. Francisco Meza.

## Research

Domenica's interest is focused on the relationship between vegetation and climatic variables of the environment, in addition to the effect of climate change on it.

## Abstract

The coexistence of sister species of the genus *Myrceugenia* and their segregation in the small-scale hydrological gradient, determines traits of evasion and tolerance to drought. This research will use remote sensing data to explore the linkages between water demand and the productivity of major horticultural crops in central Chile.



*"In the future I would like to contribute with research that will help elucidate the effects of climate change on the country and how the vegetation, both native and crops, would respond to them. I am also interested in the generation of projects and mitigation measures that could be implemented."*

*Domenica González*

# Sabhya Gurung

Graduated with a BEng (Hons) in Mechanical Engineering.



Sabhya travelled to South Africa in 2016, co-funded by IWSN & Project Zulu.

## Research

Working with LIMA Rural Development Foundation, Sabhya designed, planned and developed a drip-feed water irrigation system for continuous feed to crops in farm areas suffering from water shortages.

## Abstract

Working with fellow student Albert Cabral, Sabhya helped a local farmer in the Limpopo province to design and install the first working gravity drip irrigation system within the local area. Flood irrigation was being used by the farmer which was not water efficient. By tapping water straight from the canal and using the slope as a gravity system, a gravity drip irrigation system was installed without the need of a pump.



## Career

During his time in South Africa, Sabhya also worked on another water project in a township school in Madadeni, Newcastle. This involved site surveying and designing a rainwater harvesting system for the Siyawela Primary School.

*"Not only did I get the opportunity to volunteer for a good cause, I also gained new life experiences throughout my time in South Africa. I am grateful for the support from IWSN, UWE and LIMA for giving me this amazing opportunity."*  
*Sabhya Gurung*

# Cameron Halpin



Graduated with a BEng (Hons) in Mechanical Engineering in 2015.

Cameron travelled to Uganda in the summer of 2015 as part of the UWE-Africa Water Security Programme, co-funded by IWSN.

## Research

A study of micro hydropower in the region of Rwenzori, Uganda.



## Abstract

The Rwenzori Eco Gardens and the surrounding parts of the Rwenzori region have enormous potential for generating hydroelectricity. The high pressure heads of the mountains provides the opportunity to minimise environmental impact through the use of micro 'run of the river system' designs.

## Career

Cameron has interned for Carillion and worked with Engineers Without Borders on a number of 'engineering and development' (sustainable water and energy systems) projects in the UK and overseas.

*"Engineers have much to contribute to solving water security problems around the world."*

*Cameron Halpin*

# Edward Hammond



Studying for a BSc in Environmental Science.

Edward travelled to Kisoro, Uganda in 2019 as part of the UWE Global Water Security Programme, supported by IWSN.

## Research

Assessing water scarcity and poverty in a representative district of Uganda (Kisoro).

## Abstract

Investigating access to clean water by sampling fifty rainwater harvesting tanks and testing the samples for total and faecal bacterial content and bacterial species known to be harmful to health, specifically *E. coli* and enterococci bacteria. The rural villages often rely on rainwater harvesting tanks for drinking water as the communities cannot afford other improved water supplies and are often far from freshwater sources. Thus, it is essential that the tanks are properly maintained, both to maximise their output and provide a consistent supply of clean drinking water. This was combined with a pilot survey from the rural village of Gitovu to gain an insight into social perceptions of rainwater harvesting.



## Career

During his time at UWE Bristol, Edward took part in a research project which involved HPLC, LC-MS and SEM analysis of water quality in a Bristol water catchment area. Following this trip, Edward is going to specialise in clean water access in his final year by using the field data for his dissertation.

*"I gained a real insight into the practical work involved in international research. This opportunity gives students an idea of the rewarding nature of working in the field in rural Africa."*

*Edward Hammond*

# Carly Herndon



Graduated with a BSc in Environmental Science.

Janine was one of two students who received the 2015 IWSN-University of Arizona Student Prize.

## Research

Carly's focus was on environmental sciences, education and the community.

## Abstract

Carly's IWSN water security project was designed to educate Tucson-area 6th-grade youth on water conservation and sustainable water management practices for the desert southwest. She organised an innovative and creative series of group projects using quantitative calculations of agriculture, industry and urban sector water use to stimulate students to think about water conservation in the southwest, around the world, and even extra-terrestrially.



## Career

Aside from her studies, Carly worked at Biosphere 2 (B2) as an undergraduate researcher collecting rainforest leaf data at the complex, and also as a B2 Representative at Mansfield Middle School, where she teaches a weekly Environmental Science lesson to two sixth grade classes.

*"It is very important to educate our youth on the subjects of water conservation and security."*

*Carly Herndon*

# Hannah Ingram



Studying for a BSc in Environmental Science.

Hannah travelled to Kisoro, Uganda in 2019 as part of the UWE Global Water Security Programme, supported by IWSN.

## Research

Potential bacterial contamination in rainwater harvesting tanks, assessed using fluorescent spectroscopy.

## Abstract

Exterior and interior inspections of rainwater harvesting tanks are important for understanding the conditions in which rainwater is stored. Fluorescent spectroscopy conducted on water samples taken directly from the tanks indicated potential bacterial activity in the collected rainwater and this research also incorporated the microbial analysis of tank samples. Testing for E. coli and enterobacteria can help to identify the risks of poor tank conditions and the dangers of the direct consumption of water stored in these tanks. With this research, rainwater harvesting as a method to alleviate water scarcity is better understood and monitored.



*"My overall experience in Kisoro was amazing. I better understand how precarious water is and want to continue research into global water quality and sanitation. I feel very grateful for the opportunity the UWE Global Water Security Programme has given me."*

*Hannah Ingram*



## Ann Sneha Jose



Studying for a BSc in Biomedical Science.

Ann travelled to the National Association of Professional Environmentalists in Uganda in 2017 as part of the UWE Global Water Security Programme, co-funded by IWSN.

### Research

Ann investigated the health impacts of artisanal gold mining in Bukuya, Uganda.

### Abstract

The use of mercury in artisanal gold mining is negatively affecting health in Bukuya. Interviewing miners and examining their health, and that of the people in the surrounding village, helped identify specific health issues and possible solutions. The problem is that mercury poisoning is not being diagnosed in hospitals - only the symptoms are being treated, and there is no treatment for mercury poisoning itself. No tablets are provided in pharmacies, and miners do not know they have mercury poisoning. Some are losing fingernails due to the toxicity of handling mercury with their hands, without wearing gloves. One of the solutions is educating people about the signs and symptoms of mercury poisoning, and developing better ways of assessing mercury exposure in hospitals.



### Career

Ann has been a research student linked to University of Bristol, and a healthcare assistant at North Bristol NHS Trust. In 2012, a bursary from The Nuffield Foundation allowed her to do research on the project: 'Investigation of the genotype-correlation in patients with SRNS using NGS'. While at UWE, she has been a Peer Assisted Learning Leader.

## Jared Joseph-White



Graduated in 2016 with a BA (Hons) degree in Geography.

Jared travelled to Uganda in the summer of 2014 as part of the UWE-Africa Water Security Programme, co-funded by IWSN.

### Research

Economic Water Scarcity and Sanitation: A Case Study of Schools in Kanungu, Rural Western Uganda.

### Abstract

This research focused on the implications of economic water scarcity on schools in the rural district of Kanungu in south-western Uganda. A ground level approach involving 30 schools and 146 focus group respondents; 27 water samples; and 30 questionnaires were undertaken. Findings revealed 85 per cent of water samples were contaminated, highlighting the questionable claim of Uganda's trajectory to achieving MDG 7C - to halve the proportion of people without sustainable access to safe drinking water and basic sanitation - by 2015.



### Career

Jared was one of the founder members, and leader, of the UWE Geography Society. After graduating, he was Ultra Low Emissions Project Manager at Co-wheels Car Club, before joining Bristol City Council as a Property and Asset Management Officer. He began an MSc in International Development at University of Bristol in September 2016, and, in 2017, will lead a team of volunteers with Raleigh ICS to Nepal.

*"My trip to Uganda has been the greatest experience of my life, and much is owed to the University and IWSN for providing the opportunity."*  
Jared Joseph-White

# Saúl Justo Morales



Completed a Masters in Integrated Water Management at El Colegio de Sonora in 2018.

Saúl received support to pay the tuition fees for his last semester, and to write a professional report on the topic of the Assessment of Institutional Capacity of the Watershed Council of the Rivers Yaqui and Matape.

## Research

Saúl's thesis is titled: *La capacidad institucional del Consejo de Cuenca de los ríos Yaquí y Mátape* (The institutional capacity of the Basin Council of the Yaqui and Matape rivers).



## Abstract

In Mexico, Integrated Water Resources Management (IWRM) and social participation in watershed management has made significant advances at the highest policy levels (legislation and design). However, at the local level institutional capacity is still very weak and social participation is rather simulated. In other words, the process has been mainly top-down and very centralized.

## Career

Before entering the postgraduate program, Saúl worked in several roles in the public sector, mainly at CONAGUA, the National Water Commission of Mexico. From 1997, his work included responsibility for the plans, programs and information systems of the watershed councils. On becoming head of department, he gained responsibility for monitoring citizen demands and presidential commitments. From 2010-2015, he was head of a hydraulic planning project, a position gained via the Regional Water Program, in accordance with the National Water Policy. The aim was to achieve the sustainable development of the basins, with the participation of the state government, municipalities and wider society. When he finishes his studies, Saúl plans to work in the mining industry, where he can apply his new water management skills and knowledge.

# Jakub Kaczmarek



Studying for a BSc in Geography.

Jakub travelled to Kisoro, Uganda in 2019 as part of the UWE Global Water Security Programme, supported by IWSN.

## Research

Surveying the condition and location of rainwater harvesting tanks in the region around Kisoro. This also involved creating a data collection sheet for any user to fill out about each asset, which would then be used to populate the parent database.

## Career

Jakub worked for one year as a Geographic Information Systems (GIS) Officer within the Transport and Highways Department of Bristol City Council. At UWE Bristol, he has been a Student Ambassador, a Senior Peer Assisted Learning Leader, and President of the Geographical Society.



*"I am grateful for being able to go to Uganda, put my skills into practice and meet some likeminded people. It was valuable to be able to experience the local life as that was essential to holistically undertake the research and be aware that the work we were doing would be impacting them in a positive way. This trip has changed the way I approach real-life problems but also widened my perspective on life in general. It was a trip of a lifetime and I would go back in a blink of an eye."*

*Jakub Kaczmarek*

## Joseph Kamfwa



Studying for an MPhil in Integrated Water Management.

Joseph's studies are being supported by IWSN.

### Research

An investigation of water utilization in post-harvest handling processes of traditional vegetables: A case study of post-harvest losses in nightshade (*Solanum nigrum*) and mustard (*Brassica nigra* L) vegetables.

### Abstract

This study is motivated by the idea that reducing post-harvest losses can save scarce resources, by making more food available without increasing the pressure on natural resources, such as water. The selected value chains are short, with little processing involved by the resource-strained, small-scale producers, making water use essential in sustaining shelf life, and mitigating losses of fresh produce in order to realize income and food security.

### Career

Joseph is aiming to be water management leader in both his country and the region as a whole. He wants to be able to professionally apply the depth of knowledge and skills acquired from his research to different aspects of water resources management.

*"This opportunity from IWSN is providing me with the practical tools and skills for developing and managing the implementation of innovative solutions to water challenges and allowing me to recognize and appreciate the political, social, economic and environmental impacts on water resources management."*  
Joseph Kamfwa



## Katriece Kearns



Graduated, with distinction, in 2018 with an MSc in Environmental Management

Katriece received the IWSN Scholarship for MSc students following the 'water pathway'.

### Research

Her research interests lie in the management of water resources, especially anthropogenic influences upon freshwater such as river water quality and extraction. Her Masters research, conducted in association with Natural Resources Wales, focused on quantifying the influence of package treatment plants on phosphorous levels in freshwater environments.

Her undergraduate dissertation studied the influence of catchment and riparian land use on water quality within Bristol channels. She is keen to further my research around the theory of 'virtual water', and also apply GIS and remote sensing applications into my research where possible.

### Career

In 2019, Katriece started work as a Graduate Environmental Consultant at OHES Environmental Consultancy. She had previously conducted a short project as a GIS Technician for The Donkey Sanctuary in Devon. In June 2017, she was awarded 'Best Final Year Project (Geography) Prize' by UWE Bristol, 'for performing at a consistently excellent standard across all modules taken' and in achieving the highest grade - out of over 100 other students - of 82% in her dissertation.





# Lauren Kelly



Studying for an MSc in Sustainable Development and Practice.

## Research

Lauren's research interests include household water security in sub-Saharan Africa, especially in water-scarce regions (rural/urban) in Kenya, Tanzania and Uganda. In particular, she is interested in the issues surrounding the resilience and sustainability of household water-sharing and its correlation with food security, intercommunal relationships and gender equality.



## Career

Lauren has taken part in Legal Aid and education projects, on gender, water and conservation, in the UK, Ghana, South Africa, Tanzania, Morocco and Kenya. She previously studied for Diploma of Higher Education in History and Politics from the University of Manchester.

# John Knight



Studying for a BEng in Mechanical Engineering.

John travelled to India to work in the water office of the Centre for Science and Environment in Delhi, supported by IWSN.

## Research

John's task was to identify, research and create case studies related to green infrastructure and its applications for water sensitive urban design in Indian cities.



## Abstract

Through desk-based research followed by meetings and interviews, John collected information on the background, functionality and performance of some significant (district scale or larger being the ideal) water-based green infrastructure projects. Three case studies were completed within the five-week internship. Yamuna Biodiversity Park (a 300ac wetland reserve on the banks of the Yamuna river near Wazirabad, North Delhi), Hauz Khas Lake (a controversial lake restoration project using naturally treated outflow from STP in South Delhi), and the lakes of Dwarka (a community-run, volunteer-based restoration project which faced considerable bureaucratic challenges and shows some of the difficulties of working on community-led environmental work).

## Career

Thanks to the opportunity he had with his internship in Delhi, John plans to move into a more environmentally focussed field, and hopes to work on water-based green infrastructure.

*"This was a venture into a very unfamiliar field for me. I found the professional and personal challenges involved character building, I learned a huge amount at CSE and was inspired by the projects and people that I researched and interviewed."*

*John Knight*

# Areya Konjkav-Dana



Graduated in 2018 with a MEng in Mechanical Engineering.

Areya travelled to the National Association of Professional Environmentalists in Uganda in 2017 as part of the UWE Global Water Security Programme, co-funded by IWSN.

## Research

The aim of the project was to design a water filtration system that would eliminate toxins and make water safe for human use. The Mubende district was chosen because of its mining activity. This led to the assumption that there were a lot of toxins being released into the local environment as a result of the gold purifying process.



## Abstract

A key aspect was to design the filtration device so it could be locally sourced and manufactured. The final design was a three-part slow-sand filtration system - the sand and gravel would collect sediment whilst the activated carbon would attack microbes. With the aid of local community members, the area was surveyed and the required materials sourced. The result was brown murky water became milky white after being filtered, but a lack of time meant further progress could not be made.

## Career

Outside of UWE, Areya has worked as an Industrial Placement Student at Steel Makers Surrey Ltd., and as a Mechanical Engineer at Inventor's Alley.

*"It was an amazing experience. It opened my mind to new career prospects, I saw other countries for myself and I have made friends for life. Uganda is beautiful and there is plenty of opportunities to participate in sustainable projects. I would love to be involved in another one."*

*Areya Konjkav-Dana*

# Elliott Lang



Graduated with a BA in Geography (First Class).

Elliott was awarded the 2020 IWSN-UWE Student Prize for best water-related undergraduate final year project.

## Research

How Surf Tourists Can Contribute to Improving Sustainable Development in Lobitos, Peru.



## Abstract

This study identified an economic value of the waves in Lobitos by analysing the daily expenditure of surf tourists. By valuing the waves economically, it is hoped that the municipality can develop a symbiotic relationship with conservation of the ecosystem service and surf tourism. This study found that while a large percent of surf tourists valued the quality of the waves in Lobitos, a substantial proportion would not return there because of environmental issues. This shows that the municipality urgently needs to improve environmental management and enact policies that allow ecologically-sustainable development to occur in Lobitos.

## Career

Elliott is now an ambassador for EcoSwell and represents the organisation at universities. He plans on working for different organisations in focusing on ecological economics.

*"I chose to research this topic because I am obsessed with surfing and have predominantly based my life around it. Researching waves as a renewable resource of natural capital just seemed amazing to me. It was a big surprise to win the Student Prize! I would like to thank EcoSwell for giving me the opportunity to research this topic and for all their support."*

*Elliott Lang*

# Chloe Langham

Graduated with an MSc in Environmental Management.

Chloe received the IWSN Scholarship for MSc students following the 'water pathway'.

## Research

Using the Life Cycle Assessment approach, can the University of the West of England's surface water drainage systems be classed as sustainable?

## Abstract

The research uses the life cycle assessment approach to evaluate the sustainability of a mix of Sustainable Urban Drainage Systems (SuDs) used in the UK. There has been little research considering the sustainability of SuDs in comparison to traditional drainage solutions. In doing this research it provides insights into how current and future urban development could improve water management and water quality to effectively address the challenges of increased population and the threats that climate change pose. The study will also consider the impact of certain SuDs in the urban environment has upon the well-being and health of the occupants.

## Career

Chloe works with project teams at Bristol Zoo Gardens and the Wild Place Project to design new exhibition spaces and enclosures, ensuring the appropriate drainage solutions.



*"Throughout my MSc I have faced many personal challenges, one being dyslexia, and I am very grateful for the support the IWSN team have shown me."*

*Chloe Langham*

# Brigid Letty

Brigid is in her third of year of studying towards a PhD in Crop Science through the University of KwaZulu-Natal in South Africa.



## Research

Brigid's thesis is titled 'An investigation of pruning regimes that can maximise fodder yield from *Sesbania sesban* and pigeon pea (*Cajanus cajan*), while minimising the negative impacts on the understorey maize or pasture crop'.



## Abstract

This PhD study is part of a broader project - Water use of agroforestry systems for food, forage and/or biofuel production - funded by the Water Research Commission. *Sesbania sesban* and pigeon pea are short-lived woody legumes frequently used in agroforestry systems. Alley cropping and silvopastoral systems managed optimally can offer advantages over sole cropping systems (improved water productivity, increased biodiversity, risk avoidance, increased intensification, soil health and enhanced sustainability), but trees compete with understorey crops in alley cropping systems and need to be managed – they also need to be pruned to provide fodder for livestock. To complement the study, the effect of the trees on the soil water status and their effect on the understorey crop (specifically in terms of competition for water) has also been investigated.

## Career

Brigid works as a Principal Scientist at the Institute of Natural Resources (INR). She joined the INR in 2003 after spending six years as a livestock researcher at the provincial department of agriculture in the Farming Systems Research Section.

*"Returning to UKZN after 20 years has been an interesting and rewarding experience. The demographic transformation of the University has given me hope that things in South Africa have indeed changed post-1994."*

*Brigid Letty*



# Maya Loaiza



Graduated with a BSc in Environmental Science.

Maya travelled to Ayacucho, Peru in 2019 to work with Centro de Competencias Del Agua, as part of the UWE Global Water Security Programme, supported by IWSN.

## Research

Investigating the Benthic macroinvertebrate community in a section of the high-altitude Cuenca Cachi.



## Abstract

Using macroinvertebrates as bioindicators tells us more about the environmental conditions in the area, and acts as supporting evidence for what is already known about the highly acidic area. The research will identify species in water samples that have been collected. The results will be added to the database of information about the Cuenca Cachi headwater zone and help the understanding of yet another negative effect of climate change (the melting of the previously-present glacier accelerated the rate of water acidification).

## Career

Maya has worked as a Youth Team Leader for the National Citizen Service (with responsibility for leading and mentoring a group of 15-17 year olds through different activities over the period of eight weeks), and volunteered as a Development Worker for the International Citizen Service (working with young people of all ages and a team of 20 volunteers in a rural village in Cambodia to develop the educational infrastructure in four schools).

# Louis Marchione



Graduated with a First in BSc (Hons) Mathematics in 2020.

Louis was a research intern during summer 2020, working on projects linked to IWSN, funded by UWE.

## Research

Resource West Geographical Trial: initial scoping and project design.

## Abstract

Supporting the planning of a Bristol-based trial of mechanisms and messages to support reduced resource consumption as part of Bristol's campaign to become carbon neutral by 2030. The internship involved assisting with the initial pilot research design, helping prepare documentation for external funding bids, and data analysis using the programming language R. The data analysis involved looking at the utility data at Frenchay Campus and compiling several different years of utility data into a data visualiser.



## Career

Louis did a placement year at the Office for Students (OfS) as an assistant analyst which allowed him to gain experience and improve his data analysis skills. He hopes to work as a data analyst in the future.

*"This internship gave me great experience with the R package Shiny, and allowed me to use the R programming skills I have gained throughout my university degree and apply them in a real-world setting."*

*Louis Marchione*

## Patrick Martel

PhD Candidate at the School of Built Environment and Development Studies, University of KwaZulu-Natal (UKZN), South Africa, commencing in 2016.

IWSN supported Patrick during his internship at the Institute of Natural Resources (INR).

### Research

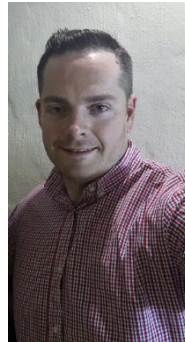
Patrick's PhD aims to temporally analyse hydrosocial relations in Durban. The foundation of this research was established during his internship at the INR.

### Abstract

The hydrosocial cycle is a theoretical framing that emphasises the relational dialectic between water and society, focussing on politics, power relations, paradigms, ideologies, and social, economic and other forces that influence and transform water and its flows. Over time, certain water 'moments' have emerged and come to dominate Durban's waterscape, being characterised by distinct political rationalities, discourses and technologies of rule. Using this framing Patrick's thesis aims to temporally analyse the range of hydrosocial relationships that have emerged in Durban.

### Career

Following his internship at the INR, Patrick was the external reviewer for two phases of the Aller River Pilot Project, which won the Mail and Guardian's Greening Award for Community Conservation and Resilience in 2018. He is currently part of the Community of Innovation for the Palmiet River Rehabilitation Project, which is a case study for implementing ecological infrastructure. Patrick is also involved in mentoring Masters students at UKZN, being one of the coordinators of the pilot EPIC-A programme – which is part of the Durban Research Action Partnership between UKZN and the eThekweni Municipality.



*"The support received from the IWSN helped to establish the foundation of my PhD, which is invaluable."*

*Patrick Martel*

## Darryl Martin

Graduated with a BA in Geography.

Darryl travelled to the National Association of Professional Environmentalists in Uganda in 2017 as part of the UWE Global Water Security Programme, co-funded by IWSN.

### Research

The research investigated how the artisanal and small-scale gold mining activities in the district of Bukuya affected the local communities from an economic and social point of view. This includes interviews, spot checks and general observation to gain an idea about the current situation and what impact this kind of illegal activity had on the locals. The research was also about who was mostly affected (sub-groups) and how it has affected the local environment as well as other sectors of the economy.

### Abstract

Artisanal gold mining is providing jobs, and income from it makes up a major proportion of household earnings in those areas. However, numerous health problems were revealed by the study which indicates mercury poisoning and possibly Minamata disease. The study also found that mercury has contaminated local water systems to an extremely high degree as all samples presented Hg levels at least 10 times above the UNBS safe limit, with the highest almost 100 times the limit. The contamination may suggest further impacts for downstream communities.

*"It is such a worthwhile experience, particularly with the funding and the process of working with an organisation abroad whilst collecting your data. The opportunity is massively beneficial, not only from an academic perspective but also from a personal one."*

*Darryl Martin*



## Busani Masiri



Graduated with an MPhil in Integrated Water Management, and now studying for a PhD.

A recipient of a Water Security Scholarship.

### Research

The role of organisational nesting in risk sharing - A case study of water security in the South African sugar industry.

### Abstract

Busani's research shows that in the sugar industry, organisational nesting and polycentric governance evolve as a response to risk. Once established it provides a system that enables experimentation, innovation, and learning at different scales so that the industry is able to devise solutions to emerging risk to water security (among other risks) at appropriate spatial and temporal scales.



### Career

Busani is continuing his academic career, and has now begun a PhD with Monash South Africa, also funded by IWSN. He will look at the role of green infrastructure (GI) towards urban resilience particularly the codification of GI standards into spatial planning and the interplay between policy and practice towards strengthening urban social-ecological resilience in the face of a changing climate.

*"When I started my MPhil my goals were to develop an understanding of environmental policy formulation, evaluation, monitoring and improvement. I believe I achieved my objectives and I look forward to building on this and developing my understanding and knowledge further."*

*Busani Masiri*

## Derek Mavesere



Graduated with an MPhil in Integrated Water Management.

Derek's studies are being supported by IWSN.

### Research

Water use in the post-harvest value chain of indigenised vegetables: Application of the Structure Conduct Performance (SCP) framework.

### Abstract

This study focuses on water use in the post-harvest value chain of indigenised vegetables in the Mphaila area in Limpopo, South Africa. Quantification of water in the post-harvest value chain alone is not enough - it is important to go to the root cause of why certain amounts of water have been used in a particular manner. The Structure Conduct Performance framework will be applied as a conceptual framework that measures the performance of water used.

### Career

Derek studied Economics at undergraduate level, which informed his interest in value chains. Once his MPhil is completed, he plans to study for a PhD in Water Resources Management, focusing on issues of pricing and the economics of water. His goal for pursuing these studies is to be an expert in this field and to be an advocate for sustainable use of water through research.

*"I am grateful for the opportunity granted to me by IWSN funding and I hope my research contributes towards the sustainable use of water resources around the world."*

*Derek Mavesere*





# Jesús Miguel Maya Rodríguez



Studying on the PhD Program in Social Sciences, concentrating on Public Affairs Theory and Analysis, at El Colegio de Sonora, in Hermosillo, Mexico.

## Research

Jesús is researching the policy for sanitation of urban wastewater in northwest Mexico, including its difficulties and challenges.

## Abstract

The purpose is to analyze the advances in the policy for sanitation of urban wastewater in northwest Mexico, given the fact that since 2000 municipalities were mandated to treat their wastewater effluent. The main framework for this study is the Institutional Development and Analysis (IAD) Framework by Elinor Ostrom.

## Career

Jesús gained a bachelor's degree in Law from the Universidad de Sonora, graduating with a thesis with honors. He has also completed a master's degree in Educational Innovation from the Universidad de Sonora. He is a collaborator in the Academic group CAEC-109, affiliated to the Department of Law of the Universidad de Sonora. He has written conference papers and articles as author and co-author in national and international forums, as well as in books and journals.



*"My fieldwork has helped me to understand that urban water utilities face different conditions and have diverse motivations in addressing their responsibilities regarding wastewater sanitation in Mexico."*

*Jesús Miguel Maya Rodríguez*

# Oscar McLaughlin



Graduated with a first-class degree in BA (Hons) Geography.

Oscar travelled to Uganda in the summer of 2013 as part of the UWE-Africa Water Security Programme, co-funded by IWSN. He was joint-winner of the 2014 IWSN-UWE Student Prize for best water-related undergraduate final year project.

## Research

Oscar produced a bilingual handbook outlining the rights and responsibilities of water user committees. His dissertation was entitled: 'Water security and rainwater harvesting: A case study of rural Uganda.'



## Abstract

Working with the National Association of Professional Environmentalists, Oscar's research found that household water security in rural Uganda is complex and dependent on many factors such as adaptability, consumption and the functionality of alternate water sources. The paradoxical nature of water as a communal resource and commodity is felt at the community level, especially in regards to harvested rainwater.

## Career

Oscar graduated with a master's (with distinction) in Environmental Technology from Imperial College London. He worked as a Project Assistant at the International Rice Research Institute, and is currently a Market Analyst at Market Operator Services Limited (MOSL).

*"Working for an NGO in Uganda was one of the most daunting, inspirational, sobering, educational and enjoyable things I have ever done in my life."*

*Oscar McLaughlin*

## Kirk McLean



Graduated with a BSc Geography and Environmental Resource Management.

Kirk travelled to Kisoro, Uganda in 2019 as part of the UWE Global Water Security Programme, supported by IWSN.

### Research

Kirk researched designs of water filtration systems for rainwater harvesting tanks to improve the microbial quality of drinking water at the household level.



### Abstract

Methods of filtration tested included ceramic filtration and SODIS, a solar water disinfection purification method that uses solar energy to make biologically contaminated water safe to drink. The ceramic filters were manufactured by combining locally sourced clay, water, sand and sawdust. During firing, the clay hardens into a ceramic, and the sawdust combusts, leaving behind pores for water, which is purified by the combined effects of physical filtration. Kirk also assisted in the installation and commissioning of a weather station at the UWE Water Innovation Lab, and scoped potential locations for further solar installations at the local school.

### Career

Kirk has worked as a Smart Energy Champion at the Bristol Energy Network. He has also worked as a solar energy technician, electrician and installer.

*"A very enlightening and rewarding experience. I could make a positive contribution to the people of Kisoro by utilizing and applying the knowledge acquired at university, whilst exercising my passion for the environment. The interaction and interconnection with people from another culture was certainly a pleasure and full of memorable moments."*

Kirk McLean

## Sandra Giankarla Mercadante



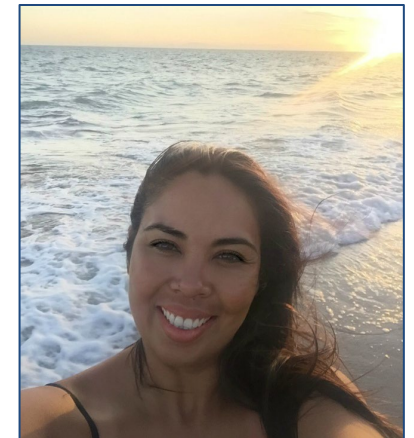
Completed her Master's Degree in Integrated Water Resources Management at El Colegio de Sonora, Mexico in 2018.

### Research

*Estudio exploratorio de la capacidad institucional del Consejo de Cuenca del Alto Noroeste* (Exploratory study of the institutional capacity of the Upper Noroeste Basin Council).

### Abstract

Giankarla worked on the Alto Noroeste Basin Council for nine years as Operational Manager, where she contributed to the integrated management of water resources on the Sonoyta River, Concepcion River and Sonora River Basins, with a focus on social participation. Using this experience, her research will not only assess the institutional capacity of the Council, but also evaluate the degree to which social participation affects the integrated management of water resources.



### Career

Giankarla has been involved in projects on water harvesting, reforestation of native plant species, clean beaches certification, wastewater reuse, and water culture, among others. She also is an active member of Sonora Sustentable, a non-profit organization that aims to promote conservation actions, restoration and sustainable management of ecosystems and their ecosystem services, as well as to promote the equitable governance of natural resources that considers the voices of vulnerable groups.

# Aleksandra Michalec



Completed her PhD in 2020.

Aleksandra was part-funded by IWSN, Bristol City Council and UWE.

## Research

Her research focuses on investigating nexus-pathways to a low carbon future in the Bristol region.



## Abstract

How do cities measure successful transition to the low carbon future? Is it possible to account for the emissions embedded in water and food on top of widely recognised CO<sub>2</sub> from energy production? And most importantly, who is responsible for emissions and who benefits from carbon incentives? This PhD offers both a critical and pragmatic look into the local carbon management framework by introducing concepts of the water-energy-food nexus and climate justice into policymaking and community action.

## Career

After graduating with a degree in Physical Geography and Geology from the University of Manchester in 2014, Ola moved to Bristol to work in the local council on the attitudes toward sustainable transport. For over a year, she engaged with hundreds of businesses across Bristol promoting cycling and upcoming public transport improvements.

*"The scholarship from IWSN, funded by LRF, has helped me to engage critically in the current discourses of environmental resources management."*

*Aleksandra Michalec*

# John Monrose



Successfully completed his PhD in 2019.

John's PhD was supported by AECOM (International Engineering Firm), the University of the West Indies & the International Water Security Network.

## Research

John's research focuses on permeable pavement engineering for water movement in road structures and drainage effects.



## Abstract

The research seeks to explore the theoretical and laboratory approaches which critically assess the applicability of the technology of permeable pavement systems (PPS) as a resilient stormwater control measure in Small Island Developing States (SIDS) particularly given that most SIDS are small, tropical and geologically confined islands vulnerable to the impacts of urbanization and climate change. The research will further evaluate the impact of the use of recycled waste materials on the performance of PPS. These waste materials are being considered to reduce the overall carbon footprint on the construction and implementation phase of pavements and to reduce the volume of natural material used in the construction industry. Additionally, the research will perform a comprehensive life cycle cost analysis and asset management of PPS intended for use in Caribbean SIDS.

## Career

Since graduating, John has been an AECOM employee working on water, wastewater and transportation projects. He has over eight years of experience in Civil Engineering design and construction works. John is a registered member of the Board of Engineering of Trinidad and Tobago (BOETT), an Associate Member of the Association of Professional Engineers of Trinidad and Tobago (APETT) and a Member of the American Society of Civil Engineers (ASCE).



# Santos Joel Morales

Completed a degree at the Nacional University Pedro Ruiz Gallo, Peru.

Santos is funded by IWSN and the PEER Program – Agua Andes.



## Research

His research involves 'Evaluation of Productive Units and Food Security in the Motupe-La Leche Basin, Peru'.



## Abstract

During the past five years, food production in the Motupe-La Leche Basin has decreased as a consequence of plagues, diseases, drought conditions, and other climate change-derived factors. The purpose of this study is to evaluate agricultural productivity in the basin and its consequence for food security.

We found that in this region, there is water scarcity, with abundant rainfall from December through April that causes a streamflow of 120 – 160 lt/sec. 50 percent of the farmers had a monthly income of 200 – 400 soles, which is about a third of the average monthly salary in Lima (1,437 soles). Only 21 percent of the farmers had access to some type of financial support.

*"Learning about the challenges that farmers face has helped me understand the factors that influence food security in my country."*

*Santos Joel Morales*

# Lucy Morrell



Graduated in 2014 with a BA (Hons) in Human Geography.

Lucy travelled to Uganda in the summer of 2013 as part of the UWE-Africa Water Security Programme, co-funded by IWSN.

## Research

Her dissertation was: 'An investigation into the role of communities in rural water governance, using the case study of the Kanungu District, Uganda.'



## Abstract

The aim of the research was to assess the level of communal management of water sources in the Kanungu District. Data was collected using the Multidimensional Poverty Index and the Traffic Light Approach, as well as a separate research specific questionnaire and a focus group. Findings showed that water is generally drawn from a communal tap, protect spring or borehole and is managed by the community themselves. Results also showed that a greater amount of water-related problems were solved by the government if respondents were part of a committee. This was the first study of its kind for the area and therefore represents a baseline for future studies.

## Career

Since 2015, Lucy has worked as a CRM Operations Advisor at WaterAid.

*"This was a great opportunity - a chance to do something beneficial whilst experiencing something truly amazing. It put me in a great position for my final year at university."*

*Lucy Morrell*

# Thandiwe Mpala

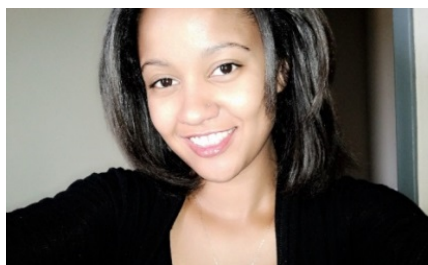


Graduated an MPhil in Integrated Water Management.

A recipient of a Water Security Scholarship.

## Research

Thandiwe is interested in exploring the levels of vulnerability in rural farmers' livelihoods to the impacts of climate and non-climate related shocks. The case study of the Kaleya smallholder scheme will be used to illustrate the relationship between vulnerability and water security.



## Abstract

The aim of the study is to analyse the relationship between vulnerability and water security, so as to understand the means of building resilience within communities that are purely dependent on irrigated crops to sustain their livelihoods. Water is a key resource that rural farmers depend on for sustaining their sugarcane production. Without it, their capabilities to irrigate and produce are affected and this creates indirect risks and uncertainties to their farming livelihoods in the long term.

## Career

Thandiwe graduated with bachelor's degree in International Relations and Geography and completed her Honours in Geography and Environmental Science at Monash South Africa. She has tutored environmental psychology for the Monash South Africa foundation programme.

*"IWSN has provided the opportunity to network with, and learn from, other individuals who have the same drive in understanding water."*

*Thandiwe Mpala*

# Sindy Nkosis'phile Mthimkhulu



Graduated with an MPhil in Integrated Water Management. Passed with distinction.

A recipient of a Water Security Scholarship.

## Research

Sindy is interested in the functioning of the five River Basin Authorities (RBAs), set up by the Swaziland Water Act of 2003, along the country's main rivers to effect decentralised water management.

## Abstract

The research will contribute some knowledge on how the RBAs could improve their functioning as well as their governance systems, to achieve the implementation of integrated water management.

## Career

Before beginning her MPhil, Sindy worked for the Department of Water Affairs in Swaziland. Employed as the Senior Water Engineer responsible for Water Control, her job entailed assessing water availability, water use monitoring, enforcement of the country's water policies and regulations, and setting up and coordinating the activities of decentralised water management institutions.



*"I will forever be grateful to the International Water Security Network for affording me the opportunity to participate in this programme. Through their generous contribution, our water sector in Swaziland will be drastically transformed."*

*Sindy Nkosis'phile Mthimkhulu*

# Agness Musutu



Graduated with an MPhil in Integrated Water Management.

A recipient of a Water Security Scholarship.

## Research

Her research title was: 'Institutions and human mobility in an African river fishery: A case study of fishing camps on the Kafue flats, Zambia.'



## Abstract

Agness' research identifies capacity deficiencies in the Department of Fisheries' approach to the governance of fisheries in Zambia. Drawing from a study in San Francisco Bay and the approach in two fishing camps on the Kafue floodplain, it illustrates how constraints in governance can be overcome. It proposes a nested, polycentric governance system and illustrates how this can be constituted and implemented to manage risk arising from unauthorised access and overfishing on the floodplain and in other situations.

## Career

Agness had previously completed a BSc in Aquaculture and Fisheries at Copperbelt University, Zambia. After her MPhil, she was recruited by World Wide Fund for Nature (WWF – Zambia) as the Young Expert Professional for Freshwater.

*"The IWSN scholarship gave me an amazing opportunity to do something I am passionate about. I had the chance to learn from and interact with brilliant minds in the water governance and conservation field, and build on their ideas. I intend to use my acquired skills to improve water governance and conservation, locally and internationally."*

*Agness Musutu*

# Alejandro Navarro



Graduated from Sonora University with a Master's degree in Economics in 2017.

## Research

His thesis title is: 'The institutional response to the contingency of the licheate spill in the Sonora River, 2014-2015'

## Abstract

Alejandro worked with a team from El Colegio de Sonora (COLSON) to develop a chronological track of the institutional actors and actions responding to the contamination of Río Sonora, Mexico after the August 2014 spill from the copper mine in Cananea.



## Career

Alejandro is interested in environmental economics management and natural resources. He has worked in projects for rural development at the 'Comision Nacional de Zonas Aridas' and SAGARPA, and has conducted analysis of territorial ordering and technical studies promoted by CONANP.

He has also collaborated at El Colegio de Sonora (COLSON) on water management projects. His skills include management of Geographical Information System (GIS) and the integration of databases using open source software 'R'.



# Nyaradzo Nazare



Graduated with an MPhil in Integrated Water Management.

A recipient of a Water Security Scholarship.

## Research

Her research topic is: 'Self-regulation and certification in the promotion of sustainability in the dairy industry: A case study of water use in the uMngeni river basin.'

## Abstract

Nyaradzo's research illustrates how water scarcity and the costs of irrigation have shaped the organisational structure and functioning of the dairy industry in the upper uMngeni River catchment. It illustrates how water and links to common processing plants connect farmers in ways that lead to organisational nesting and polycentric governance. It further illustrates how this enables a collective response to drought events, and promotes learning that improves water use efficiency.



## Career

Before joining Monash South Africa, Nyaradzo worked for the Zimbabwe National Water Authority in the Mazowe catchment undertaking site visits, water quality monitoring and progress evaluations of water and sanitation projects.

*"My postgraduate travels and field work not only helped consolidate my undergraduate experiences, but also led to great personal and professional growth as a student and a future leader in the field of water management."*

*Nyaradzo Nazare*

# Nkosinomusa Ncube



Graduated with an MPhil in Integrated Water Management.

A recipient of a Water Security Scholarship.

## Research

Her research topic is: 'Participation in water governance: a case study of two smallholder outgrower schemes in the Zambian sugar industry.'

## Abstract

Nkosi's research focuses on small-scale outgrower schemes. Sugar cultivation in Zambia requires irrigation and because irrigation is costly, water is a significant cost in production. The capacity to manage water use affects returns to the outgrowers and the larger industry. This research illustrates how two different models affect the development of capacity among small-scale outgrowers and their participation in governance.



## Career

Nkosi is now working as a Sustainability Consultant at Sustainability Truthing, a consultancy that works with businesses to create sustainable solutions and strategies to tackle short and long-term challenges.

*"I got the chance to give back to the community by sharing my journey with primary school, high school and other university students on several occasions. These experiences enriched my degree and gave me a much broader view of water issues and the ways in which different sectors and countries are tackling them."*

*Nkosi Ncube*

# Charlotte Newman



Studying for an MSc in Environmental Management.

Charlotte received the IWSN Scholarship for MSc students following the 'water pathway'.

## Research

Microplastics found in Freshwater Ecosystems, Toxicological Effects, Pollution Point-source and Management Solutions.



## Abstract

This project will provide an insight into methods to remove small and large scale anthropogenic and natural pollutants through micro filtration, bio-filtration, geological-filtration and chemical filtration. It will look at problematic sources, and policy solutions. It will use data from river sediment samples in and around Bristol, through the process of filtration and analysis using specific forensic fibre investigative techniques.

## Career

During her undergraduate degree, Charlotte used analytical techniques to test for the quality and chemical constituency of drinking water from variable geographical urban and rural locations across Great Britain. This resulted in a keen interest in toxicology and forensic methods for assessing the impacts of plastics on the environment, which progressed to a research project looking into microplastics in and around the River Thames. She has also participated in a research expedition to Isla de la Juventud, where she worked on scientific diving, dry forest carbon data measurements and multi-tropical-species collection and handling.

*"The IWSN has given me the opportunity to fund my postgraduate study and collaborate with a team working on filtration methods at the Bristol Robotics Laboratory."*

*Charlotte Newman*

# Stanley Ngene



Successfully completed his PhD in 2020.

## Research

The research focuses on preserving the environment (water, air and land) around areas where oil and gas production activities take place. It looks at work on reduction of pollutants generated and energy consumed in oil and gas production processes.



## Abstract

The study aims to find a way of reducing the volume and toxicity of pollutants generated, and amount of energy consumed, during oil and gas production through process integration, simulation and optimization using data from oil and gas fields in Nigeria.

## Career

Stanley graduated from École des Mines de Nantes, France with an MSc. in Project Management for Environmental and Energy Engineering in 2010. He also has a Master's degree in Process Engineering from the University of Lagos in Nigeria.

*"As an engineer who has worked in the oil and gas industry for over a decade, I was motivated to embark on this research in order to reduce the amount of pollutants being released into the environment daily as a result of oil and gas production."*

*Stanley Ngene*

## Daniela Dafne Noreña Rivera

Completed her Bachelor's degree in Public Administration at the University of Sonora in 2016.



Daniela received a six-month scholarship for the completion of her thesis.

### Research

Her research topic is: 'Analysis and Perspectives on the Upper Northwest Watershed Council.'

### Abstract

The research investigates the actions related to Integrated Water Resources Management by the Council of the Northwest Watershed, during its 17 years in existence. It will analyse its operation and propose recommendations that will allow for improved water management in the coming years.



### Career

While completing her thesis, Daniela worked as a Project Assistant to Dr Nicolás Pineda. She plans to do a Master's in Social Sciences at El Colegio de Sonora.

*"It was a privilege to have the support of IWSN in order to conclude my thesis research. It gave me the opportunity to learn about new academic and intellectual horizons that I hope to pursue in the future, in order to contribute new research ideas."*

*Daniela Dafne Noreña Rivera*

## Katie Norris



Graduated with an MSc in Environmental Science in 2015.

Katie received funding from IWSN for her placement, which allowed her to collect data for her final year project.

### Research

Her research topic was: 'Assessing the extent to which an environmental impact assessment addresses water issues within a planning decision.'

### Abstract

Through a literature review and interviews, the study revealed that the Environmental Impact Assessment (EIA) process did play a part in mitigating water issues during the planning for a new housing development on a greenfield site in Somerset. It emphasised that the EIA sits amongst other environmental regulatory instruments within the planning application process.

### Career

Katie graduated with a BA in Geography from the University of Plymouth in 2009, and has worked for the Exmoor Park Authority as a Project Assistant. Since completing her MSc, she has worked as a Consultancy Project Administrator at the Campaign to Protect Rural England, and is currently an Environmental Planner at LUC in Bristol.

*"With IWSN support, I assessed how water policy integrated into the UK planning system, following the severe flooding that affected the UK in 2013/14. I discussed my findings alongside interviews and the latest research."*

*Katie Norris*



# Diego Ocampo Melgar

Graduated from his Master's degree in Environmental Resources – Global Change area in 2017.



## Research

Diego topics was: 'Detecting past rain-on-snow events in the Central Andean mountain range using satellite imagery: Toward greater understandings of the physical processes occurring in unmonitored mountain areas.'

## Abstract

As part of the project 'Water security and governance in a transnational Andean scenario: Analysis of the role of hydroclimatic information on transboundary water management in Chile and Argentina,' this investigation focused on the transboundary vulnerability of the Nival regime to the occurrence of rain on snow events.



Snow is vulnerable to climate change through increased temperature and reduced precipitation but also by the phase change of said precipitation.

These are known as rain on snow events and can alter the Nival regime and have significant transboundary impacts for water security.

## Career

After completing his studies, Diego was employed by UNESCO in Santiago.

# Stephanie Orellana Bello

Graduated with a Master's degree in Natural Resources from Pontificia Universidad Católica de Chile.

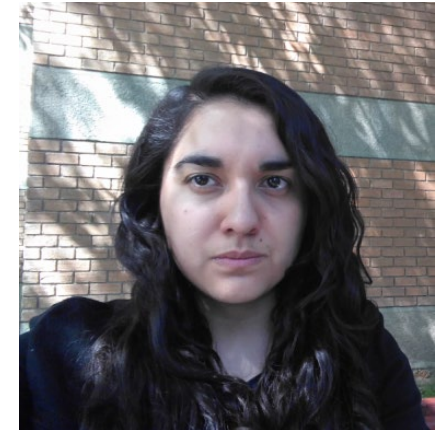


## Research

Stephanie's research looks at the effect of 'Climate and Water Security on Wine Production in a Chilean Semi-Arid Region.'

## Abstract

This research is based on a spatial description of climate, using statistical models to estimate precipitation and temperature variables, as well as satellite images as covariates.



With these products, the mapping of suitable zones for vine cultivation can be completed now and in future, taking into account climate change scenarios.

In addition, water supply and demand will be analysed through spatial analysis of the water balance, also considering climate change scenarios, in which a decrease in rainfall is forecast in the study area, and consequently, lower demand satisfaction.

## Griselda Ortega Ramírez



Successfully completed a Master's degree in Integrated Water Management at El Colegio de Sonora, in Hermosillo, Mexico in 2016.

She was supported with a grant from IWSN to help complete her studies.

### Research

Griselda's researched the institutional capacities of water agencies Hermosillo and Ciudad Obregón, Sonora (2009-2015).



### Abstract

The institutional capacities of the water utilities (OOAs) in Obregón and Hermosillo were evaluated by assessing the factors that influence their performance; that is, both the resources they possess and the way they use them. The results showed that the influence of political factors has the same impact on both OOAs, something that is to be expected since both are governed by the same legal framework. In human resources, there were differences regarding technological resources, a reflection of the investment and management priorities for each OOA. A further difference was the greater number of hours of training provided by Agua de Hermosillo. With greater institutional capacity comes better planning and performance, although in this case it cannot be deduced that one OOA is better than the other, since the results were very even.

### Career

She is currently working in the National Water Commission in the Potable Water Directorate. Her work includes the federal program of sewage sanitation and collaborating with the clean water program. All these activities are related to the water operators.

*"I am grateful to the International Water Security Network, and Lloyd's Register Foundation for the support in the development of this work."*

*Griselda Ortega Ramírez*

## Nicolás Parise

Completed his Master's Degree in Latin American Studies.

Nicolás studies were supported by the IWSN.

### Research

His research focuses on irrigated oasis dynamics and public policies in Mendoza (1968-2010).

### Abstract

Nicolás Parise is analysing the spatial trajectories of the northern oasis of Mendoza province and its relationship with productive development policies implemented since the 'great drought' of 1968 up to the present. He is also looking at the territorial paths of water management through the following specific objectives: to account for the dynamics (increase/decrease) of irrigated areas, and to identify and analyse changes in the productive matrix of the irrigated areas studied, giving an account of progress and/or setbacks within the primary sector related to water shortages and droughts.



### Career

Nicolás presented his work at the Jornadas de Sociología, Universidad Nacional de Cuyo in October 2016. He participated in the Commission for the Actualization and Innovation of the Plans of Study for the Geography Department. He also helps in the development of new courses on Political Ecology, and Environmental Geography, among others.

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## Erik Misael Parra Armenta



Completed a PhD Program in Social Sciences, concentrating on Public Affairs Theory and Analysis, at El Colegio de Sonora, in Hermosillo, Mexico.

### Research

Erik's thesis was titled: *Redes de gobernabilidad en el mecanismo de participación de políticas de agua en el estado de Sonora* (Governance networks in the mechanism of water policy participation in the state of Sonora).



### Abstract

The research objective was to compare the governance processes that have been developing between governmental and non-governmental stakeholders who are members of the Basin Councils of the Alto Noroeste and the Mayo River; in particular those elements related to integrated water resources management that determine the performance of these councils as part of Mexican water policy.

### Career

For five years, Erik worked as a research assistant in the Department of Regional Development of the Center for Research on Food and Development, A.C. (CIAD A.C., in Hermosillo, Mexico). He has also taught undergraduate-level courses.

*"I am contributing valuable information on the functioning and performance of river basin councils in Mexico from the point of view of the stakeholders."*

Erik Misael Parra Armenta

## Ed Pearson



Studying for a BA in Geography.

Ed travelled to Ayacucho, Peru in 2019 to work with Centro de Competencias Del Agua, as part of the UWE Global Water Security Programme, supported by IWSN.

### Research

Researching community awareness of new water initiatives in Peru.



### Abstract

This investigation, carried out in a series of questionnaires in the community of Chuschi and city of Ayacucho, was aimed at exploring people's awareness and perceptions of both the new MRSE (Remuneration Mechanism for Ecosystem Services) initiative being implemented by the National Superintendence of Sanitation Services (SUNASS), and about conservation as a compensatory benefit of the MRSE scheme. 80% of the respondents had never heard of the MRSE project being implemented in the Cachi Basin, and 65% of those who had heard of the project were from Ayacucho, not Chuschi. This suggests the population who will be impacted upon the most by this initiative (Chuschi), are significantly less aware of its existence.

### Career

Ed took part in international tourism research in Palma, Majorca during his course at UWE Bristol. He also collaborated with students from Nursing and Midwifery courses to outline a set of actions that their department could apply to make their day-to-day operations more sustainable.

*"The month I spent in this beautiful part of the world has been extremely beneficial to me, providing valuable lessons and work experience. It was a truly amazing trip."*

Ed Pearson



# Daphning Pierre



Studying for an MSc in Environmental Management.

Daphning has been awarded a Chevening Scholarship, a UK Government scholarship aiming at developing global leaders.

## Research

Daphning is researching the life cycle assessment of kieselguhr, a beer filter aid, within a Heineken brewery.

## Abstract

Heineken is willing to minimise the environmental externalities of spent kieselguhr in supply chain. This research will assess the life cycle stages of such material and will contribute to helping Heineken identify sustainable alternatives to offset kieselguhr footprint.

## Career

Daphning graduated from University Quisqueya in Haiti, with a BSc in Industrial Engineering.



*"I am grateful for the UK Government scholarship which is helping me achieve my fullest height academically and professionally in UWE."*

*Daphning Pierre*

# Catherine (Kate) Pringle



PhD student at Stellenbosch University.

Kate is a part-time PhD student funded by IWSN.

## Research

Kate's research interests include social-ecological systems, ecosystem services and water resource management.

## Abstract

Kate's research applies a social-ecological systems lens to explore social cohesion in water resource governance systems, and its contribution to resilience. This research draws on case studies from southern Africa, particularly the uMngeni catchment.



## Career

Kate holds a BSc. Agriculture degree and a Master's in Environmental Law. For 13 years, she was employed at the Institute of Natural Resources where she conducted applied research on social-ecological systems. She is currently the director and sole-proprietor of the Resilient Systems Institute. She has worked on range of multi-disciplinary projects across South Africa, Lesotho, Kenya, Botswana, Angola, Namibia and South Sudan.

*"Support from the Lloyd's Register Foundation has enabled me to embark on a thought-provoking PhD journey. Thank you for the opportunity."*

*Kate Pringle*

# Miryam Fernanda Ramírez Ruiz



Graduated in Public Administration from University of Sonora in Hermosillo, Mexico in 2016.

Miryam was one of three co-winners of the IWSN-University of Arizona Student Prize 2016, for their study of water use in Hermosillo.

## Research

Promoting water conservation at the household level in Hermosillo, Mexico.



## Abstract

Even though the majority of the participants were aware of the importance of water conservation, there is still a need to raise awareness. Increased water scarcity in this region is an impact of climate change; however, many participants do not know about climate change. For this reason, we have to inform society and develop a culture of climate change mitigation and adaptation that can be translated into public policy and action plans with clear strategies. Agua de Hermosillo should improve the way they read and measure water consumption at the household level and that every household should have a meter that works. This would allow a more efficient way to control water consumption.

## Career

After graduating, Miryam took part in a water rights project in Sonora – her work focused on water rights in the Yaqui River Basin. Previously, Miryam was councillor in the Caere, Virtual Municipality for Sustainability project and was part of the ‘Herminio Ahumada Ortiz Association - Citizens building a possible future’ project. She studied for a Diploma in ‘Government and Municipal Administration in Sonora’ in 2015 and in ‘Municipality, Development and Sustainability’ the following year. In the penultimate semester of her studies, she received the Distinguished Student Annual Award 2014-2015. In 2014 and 2015 she participated as verifier of the Agenda for Municipal Development Program of the Ministry of Interior.

# Navin Ramroop



Successfully completed his PhD in 2020.

Supported by IWSN, UWE Bristol, the University of Trinidad and Tobago, Statiker Limited and Tharuna Limited.

## Research

The dynamic response of a novel quadric surfaced sludge digester used in wastewater treatment works under seismic excitation.



## Abstract

Quadric surfaced sludge digesters have become a cost-effective alternative to traditional cylindrical tanks. A novel 3D-printed polymer digester can reduce the construction cost, which can make it ideal for use in developing small island states in the Caribbean. Since the region is consistent with seismic activity, the dynamic response of this novel digester would also be investigated.

## Career

Navin is currently an instructor at the University of Trinidad and Tobago where he lectures on structural analysis and computer modelling and structural engineering design. He has ten years professional experience as a structural engineer working on various projects within Trinidad and Tobago and throughout the Caribbean islands. Navin holds a BSc in Civil Engineering from the University of the West Indies as well as an MSc in Structural Engineering from the University of Surrey. He has professional memberships in the Association of Professional Engineers of Trinidad and Tobago (APETT) and the American Society of Civil Engineers (ASCE). He is also a registered Structural Engineer with the Board of Engineers of Trinidad and Tobago.

# Tinashe Patience Rimau



Graduated with an MPhil in Integrated Water Management. Passed with distinction.

A recipient of a Water Security Scholarship.

## Research

Tinashe's research interests include sustainable development and water governance with a particularly strong interest in addressing the exclusion of women and marginal groups in the management of water.



## Abstract

The purpose of the study is to explore learning and participation strategies in adaptive co-management, as elements of resilience, to overcome water shortages in the Quarry Road West informal settlement in the uMngeni River Basin, South Africa.

## Career

Before beginning the MPhil, Tinashe was a youth worker.

*"I am forever indebted to the International Water Security Network for providing me with a scholarship, which will allow me to develop as a future water leader."*

*Tinashe Patience Rimau*

# Rodrigo Rivera Jécari



Completed a Bachelor's degree in Public Administration at the University of Sonora.

He was supported by the IWSN through a scholarship for the completion of his undergraduate studies.

## Research

Water management for domestic consumption in the Yaqui town of Belem, Sonora, Mexico.

## Abstract

Generally, the Belem, Bahugo and Guásimas communities are understood to be subordinated to the Traditional Authorities, who lack the vision to carry out an audit of the basic needs of each community, or deal with the problems that each one of them has. For example, a study of water distribution networks in these communities would be valuable, although each community obtains drinking water differently. The solution could be a union that would be focused on a single voice, guaranteeing the needs of the communities, such as appealing to the competent authorities for a system of providing potable water of quality and in quantity. The Traditional Authorities could make the necessary arrangements to change the distribution networks in the three communities, managed so that the state government complies with the 1992 agreement to provide water to the Yaqui communities, as well as providing drinking water treatment.



## Career

After graduating, Rodrigo worked at the Sonoran Institute of Education for Adults.



# Josh Rogers



Graduated with a BA in Geography in 2016.

Josh travelled to Uganda in the summer of 2015 as part of the UWE-Africa Water Security Programme, co-funded by IWSN.

## Research

Josh assessed adoption trends of domestic rainwater harvesting in rural central Uganda and examined hygiene and sanitation practices.



## Abstract

This research found that household characteristics such as family size, access to credit, membership of a relevant organisation, and age were all significant in the adoption of domestic rainwater harvesting (DRWH), while education level, gender and attitude were not. A positive correlation between adoption of DRWH and improved sanitation and hygiene was also found. Moreover, this study re-affirmed DRWH's potential in providing a safe, easily accessible water source whilst showing the potential to increase school enrolment and balance gender equality through the eradication of travel to alternate water sources. However, the way in which DRWH is currently being approached needs considerable reform.

## Career

Since graduating from UWE Bristol, Josh worked at the National Trust and completed a Postgraduate Diploma in Education (PGDE) at the University of Sheffield. A paper based on his research was published by Water International in 2018.

*"My placement to Uganda has undoubtedly been the best experience of my life, to date. It has changed my outlook as a human being."*

*Josh Rogers*

# David Ruiz Lopez



Senior undergraduate student majoring in Public Administration at the University of Sonora in Hermosillo, Mexico.

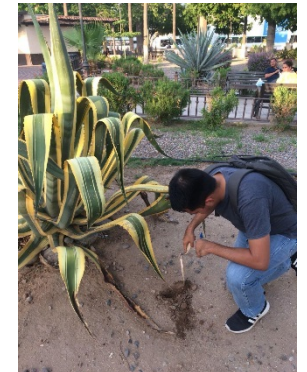
David won the IWSN Student Prize in 2018.

## Research

His research interest is water security issues related to greenspace, and identifying sustainable solutions in his municipality.

## Abstract

Using three parks - Parque Madero, Plaza Zaragoza and Jardín Juárez - as case studies, this research looked at both the system and the type of water (treated or potable) used for irrigation. In addition, the types of plant species used in the parks has been documented, and much of it has been identified as non-native to this region.



This research is interdisciplinary because it involves botany (to identify vegetation) and agronomy focused on plant breeding (to determine the type of soil). Determining the soil type is a critical component in ensuring the health and life of the plants, since soil provides the necessary nutrients to stay alive. Ideally, in order to ensure the proper maintenance and irrigation of the parks and gardens, the preferred solution is an irrigation system, the use of treated water and xerophytic trees to reduce water consumption.

## Rob Sarkozi



Graduated in 2017 with an MSc in Environmental Management.

Rob received the IWSN Scholarship for MSc students following the 'water pathway'.

### Research

Rob has focussed his post-graduate research on urban water resilience and the changing nature of water services provision.



### Abstract

Rob has worked alongside a cohort of international colleagues expanding on work focussed on the Urban Hydrosocial Transition (UHT). His research on water services provision in Osaka, Japan has given the UHT model some further scope in identifying the pros, cons, issues and challenges regarding public water services in a country increasingly privatising its infrastructure. Rob will remain engaged with such discourse whilst steering towards the resilience issues that Bristol, England faces in attempt to integrate the context and postulate potential ways forwards.

### Career

Rob graduated from UWE with a First Class BA in Geography. Alongside his studies, he works at Sustain Limited, a resource efficiency management company, as a Products and Technology Project Manager. Rob's aim is to combine his experience in the commercial and consultancy sector and apply it into a career in resource research, teaching and management.

*"The IWSN scholarship has enabled me to sharpen the pencil on a hitherto broad career path. The support and opportunities on offer are paramount and are undoubtedly driving my career as a water and resources manager."*

*Rob Sarkozi*

## Yolandi Schoeman



Graduated with an MPhil in Integrated Water Management. Passed with distinction.

### Research

Her research focuses on the social sustainability of phytotechnological floating treatment wetlands in integrated watershed management in Johannesburg.

### Abstract

The research identifies the factors contributing to the adoption of floating treatment wetlands amongst various stakeholders and investigates the social sustainability of the floating treatment wetlands. The research also identifies the process of diffusion to be followed in contributing to the widespread acceptance of floating treatment wetlands as a tool in water quality enhancement. The research contributes to understanding the diffusion process to be followed in adopting eco-technology.



### Career

Yolandi started her career in the Kruger National Park and was subsequently employed by the Council for Science and Industrial Research, tertiary institutions, the mining and metals industry, engineering consultancy firms and municipalities. She completed a master's degree at the University of the Free State in Environmental Management prior to commencing her MPhil. She currently runs a company in South Africa that specialises in ecological engineering innovations, particularly in addressing water conservation, water resource management and quality.

*"Eco-Technology has the potential to address many of our current sustainability challenges in Africa, especially in the water sector. The support and study opportunity I received from Monash South Africa assisted in my research being recognised on a global level."*

*Yolandi Schoeman*

## Mlungisi (Mlu) Shabalala



Mlu is currently a full-time PhD student at the University of KwaZulu-Natal (UKZN). He is part of the INR/UKZN/UWE academic and professional development programme.

### Research

His study aims to investigate the viability of adopting macadamia nut trees as a replacement for water-use-intensive exotic commercial forest plantations through field-based water use measurements in a water-stressed groundwater-driven catchment along the Maputaland coastal plain, South Africa. His research interests include land use change impacts, agricultural water use, water use efficiency, irrigation, soil health, water governance and understanding the resilience of agricultural systems and their catchments to the increasingly unpredictable and severe effects of climate change.



### Career

Mlu completed an MSc Hydrology degree at UKZN, where he was investigating the impacts of changes in agricultural land management practices on water resources using a physical-conceptual, daily time-step model. Following his MSc, he worked as an intern at the Institute of Natural Resources, where he worked across various agricultural water use and environmental management projects including: the resilience of the UK fresh fruit and vegetable system to water-related risks; water use of agroforestry systems; cost benefits of implementing sugarcane buffers; development of a national rainwater harvesting strategy, and water quality monitoring at two hydropower stations in the Drakensburg area. He is now working as a developmental lecturer at the University of Zululand.

## Musyani Siame



Graduated with an MPhil in Integrated Water Management. Passed with distinction.

A recipient of a Water Security Scholarship.

### Research

His study is aimed at 'Exploring the adaptive capacity of hydro-power water user organisations to the effects of climate change in Zambia: A case study of Kafue River Basin.'

### Abstract

The purpose of the study is to explore adaptive capacity of water user organisations in responding to drought associated with climate variability and change in the Kafue River Basin of Zambia. The research seeks to highlight why some organisations display low capacity to cope with drought responses whilst others do not.

### Career

Musyani has a background in forestry, environment and natural resources. He holds a BSc Degree from the Copperbelt University in Zambia. Prior to joining the MPhil IWM programme at Monash South Africa in 2015, he worked as an assistant environmental officer with a private consulting firm in Zambia and was involved in developing environmental impacts assessment for the small, medium and large scale projects.



*"I am grateful to IWSN for the opportunity they have afforded me to interact and network with many professionals in the water sector and I hope to gain the necessary skills and knowledge to contribute to water resources management in Southern Africa, Africa and, by extension, the whole world."*

*Musyani Siame*



## Victor Siingwa



Graduated with an MPhil in Integrated Water Management. Passed with distinction.

A recipient of a Water Security Scholarship.

### Research

His research topic is: 'Adaptive governance and water security on the Kafue Flats; A case of the sugar cane farming industry in Mazabuka, Zambia.'

### Abstract

Victor is interested in understanding the interplay between adaptive governance and water security. His research draws on the Kaleya smallholder sugar cane outgrower scheme (KASCOL) to provide an illustration of the interplay between adaptive governance and water security in a collaborative irrigation agricultural scheme in Zambia. Adaptive governance is known to be common in long-term relationships such as collaborative schemes and is more visible in the maturity stage of a resilient long-term collaborative social relationship.



### Career

Before joining Monash South Africa, Victor worked as a Nature Conservationist and Conservation Coordinator carrying out the Avifauna population census of water birds, and monitoring threats to habitat quality in Zambia. He also has experience of coordinating and producing materials for Environmental Education outreach programmes.

*"I am confident my career interests will be well nurtured, and I will be able to contribute to making water resources secure and sustainable for the social, ecological and economic demands of the world."*

Victor Siingwa

## Karen Simpson



PhD student in the Department of Geography and Environmental Management.

Karen is a full-time PhD student, funded by IWSN.

### Research

Her research focuses on understanding and managing urban domestic water consumption in the context of behaviour change.

### Abstract

The aim is to better understand how people use water, by using current behaviour change theories from social practice theory, social marketing and behavioural economics. It will apply learnings to water efficiency trials, such as the UWE Student Village in partnership with Bristol Water. Hard and soft interventions will be designed, using different messages, media channels and change agents suited to harder-to-reach and high consuming population segments. The research will explore the longevity of savings and the potential for soft measures to sustain long-term savings; review case studies; and inform recommendations for future domestic water demand reduction schemes to maximise success.



### Career

Karen worked for Thames Water Utilities Limited from 2011-16, where she managed two award-winning area-based partnership water efficiency campaigns: the flagship Save Water Swindon project, with Waterwise and WWF-UK, and Care for the Kennet, with Action for the River Kennet. She has also worked at the Environment Agency and Mouchel.

*"I am very grateful for the support from IWSN & LRF to enable me to undertake research into practical domestic water efficiency interventions to help the UK adapt to the impacts of our changing climate."*

Karen Simpson

# Boris Siromahov



Graduated with a BA in Journalism in 2016.

Boris travelled to Uganda in the summer of 2015 as part of the UWE-Africa Water Security Programme, co-funded by IWSN.

## Research

Boris filmed and produced two documentaries about water issues in Uganda.



## Abstract

In partnership with the National Association of Professional Environmentalists, UWE contributed funds for the rehabilitation of a well in Mukono, Uganda. Boris travelled to Mukono make a short documentary to analyse the impact of the well on the local community (see: <http://tinyurl.com/mukonowells>). He also produced a film about water pollution in Uganda (see: <http://tinyurl.com/ugandawater>). For this film, he was awarded the Student Journalism Award (L3) from the Bristol branch of the National Union of Journalists.

## Career

Boris studied at the National Lyceum for Ancient Languages and Cultures in Bulgaria. He has worked as a radio host, video editor and post-production assistant for a Bulgarian reality TV show, and has made several short films.

*"I know I am going back to Africa one day, because there are so many stories to be told. It was one of the best things that I have ever done."*

*Boris Siromahov*

# Tom Smallwood



Graduated with an MSc in Environmental Management.

Tom received the IWSN Scholarship for MSc students following the 'water pathway'.

## Research

His final project examines the efficacy of constructed wetlands in Kenya, and the implications for their implementation.



## Abstract

This research will provide an up-to-date overview of constructed wetlands (CWs) in Kenya and East Africa. These projects will be assessed for efficacy and financial comparability to more commonly used wastewater treatment methods. The research will also establish the barriers that prevent implementation of CWs and suggest possible solutions to reduce these barriers and increase appropriate implementation. This will provide policy makers, industry bodies and NGOs with information as to whether CWs might be suitable for wide scale application and if so in what context (domestic, industrial, agricultural).

## Career

Tom is the Commercial Director of Diplomats of Sound, a music booking agency and Chai Wallahs, a festivals and event company. Tom plans to move into the environment industry specialising in reforestation, rainwater harvesting techniques and agro forestry.

*"I am hugely thankful to IWSN for supporting my studies and my trip to Kenya - both have been genuinely life enhancing experiences. I have made valuable personal and professional connections that will allow me to work with greater confidence in the environmental industry and in the East African region."*

*Tom Smallwood*

## Debbie Smith



Graduated with a BSc in Geography and Environmental Management in 2017.

Debbie travelled to Swaziland in the summer of 2015 as part of the UWE-Africa Water Security Programme, co-funded by IWSN.

### Research

Her research investigated whether commercial farming along the Komati River in Swaziland impacts on the water quality in the river.

### Abstract

Working with RMI Outgrower Development, water samples were taken along a 55 mile stretch of the river to understand the levels of macro nutrients in each sample. These macro nutrients are nitrate, phosphate and potassium and are the main nutrients used in fertilisers needed on sugar cane plantations which grow on either side of the river. The results indicated that the further downstream past large scale plantations, the higher the concentration of nutrients in each water sample. After analysing and interpreting my results, I set up a meeting with the farmers to show and explain the basic science behind these results. We were able to discuss possible solutions to improve impacts such as ensuring fertilisers were used in the correct way with accurate amounts.

### Career

Debbie presented the results of her research at the British Conference of Undergraduate Research in March 2016.



*"This experience has been incredible and I hope to travel to Africa again in the near future."*

Debbie Smith

## Elena Suckling



Graduated with 2:1 in Geography and Environmental Management (BSc Hons) in 2015.

Elena travelled to Uganda in the summer of 2014 as part of the UWE-Africa Water Security Programme, co-funded by IWSN.

### Research

Elena's final project was entitled: 'An investigation into water accessibility and water supply in schools located in Kanungu, Western Uganda.'



### Abstract

Elena evaluated the difference in school water supplies and how this affects contamination levels, collection times, if schools perceive they have an adequate water supply, if schools provide water to their students and how much water a school can store. Rainwater harvesting tanks were only used in a small proportion of schools, but the schools that were studied that used them provided positive results of improving the water access levels within schools.

### Career

After graduating, Elena worked as a Researcher at the We Feed the World Project. She is now working as a Certification Administrator at Organic Farmers & Growers Ltd in Shrewsbury.

*"The learning experience of working so closely with the local members of the community was invaluable."*

Elena Suckling



# Diilwe Syamuntu



Studying for an MPhil in  
Integrated Water Management.

Diilwe's studies are being supported by IWSN.

## Research

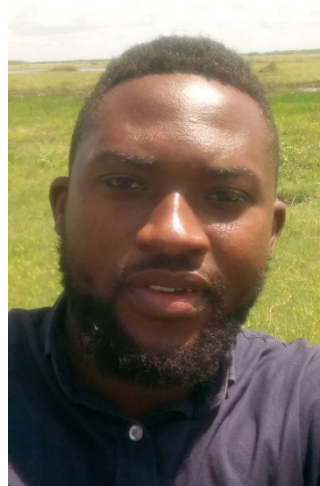
Information sharing in ecological infrastructure management: A case study of invasive species control in the Kafue Flats, Zambia.

## Abstract

This research dwells on the mechanisms of information sharing among actors in the Kafue Flats. It is assumed that information sharing is key in the adaptive management of ecological infrastructure. However, studies that explore adaptive management in the specific context of information sharing in ecological infrastructure are rare. Thus, this study is motivated by the existing ecological infrastructure management (invasive species control) in the Kafue Flats of Zambia and the need to understand if information sharing can contribute to adaptive management of ecological infrastructure.

## Career

Diilwe is an experienced environmentalist, who has worked in both the environment and conservation sectors within Zambia. It is his passion for environmental matters that saw him take up the opportunity to study for an MPhil in integrated Water Management at Monash South Africa.



*"Thanks to IWSN, one of my personal professional career goals - to attain an MPhil - is on track and soon to be achieved."*

*Diilwe Syamuntu*

# Rossi Taboada



Completed her Master's degree in Water Resources Management at Pontifical Catholic University of Peru in 2017.

Rossi's study fees were paid by IWSN, while the USAID-funded Partnerships for Enhanced Engagement in Research (PEER) provided a living stipend.

## Research

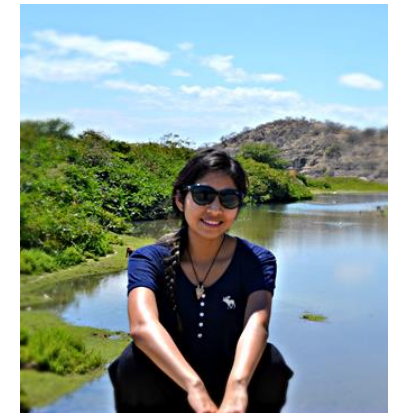
Her areas of research interest are socio-environmental conflicts, development, gender, and public policy.

## Abstract

In Peru, extreme environmental conditions, the expansion of large-scale agriculture and the enactment of regulatory reforms in water management have set the conditions needed for irrigation water access and consequently influence water security for different sectors. In the case of an irrigation organization in Chira Valley, this research aims to analyse the strategies developed by agrarian producers to gain water access while dealing with heterogeneous groups with different capacities and diverse socioeconomic and cultural conditions. For this research, studying the local knowledge has allowed me to understand how people make decisions, in many different cases, under adverse conditions. Also, sharing my results with multiple stakeholders has helped to inform their decision-making process.

## Career

Rossi is Associate Researcher at the El Centro de Competencias del Agua (CCA) in Peru, where she investigates natural resources governance (with especial attention to water), rural development and social conflicts in the Andean region. She previously studied anthropology at the National University of San Marcos (UNMSM) in Peru.



# Jitender Taneja



Graduated with an MPhil in Integrated Water Management.

A recipient of a Water Security Scholarship.

## Research

His research focuses on examining the nature and level of participation in community-based natural resource management. His study site is located in the mountains of northern India.

## Abstract

It was a qualitative study to examine the nature and role of participation in a community-based micro-hydro power project in India. The study involved interviewing various stakeholders associated with the micro-hydro project. It was found that the resident population was involved in the decision-making processes related to the project. This study also provided examples of the ways in which the participation of the residents may be improved in CBNRM projects.



## Career

Prior to joining Monash South Africa, Jitender worked with Indian Nitrogen Group on a project where he researched water-saving technologies in the field of rice cultivation and their impact on GHG emissions. Now, he is exploring opportunities in the field of environment especially in water resources management.

*"The Water Security Scholarship has been a turning point in my life. The degree involved various field work and team management activities that helped me to understand solutions to various day-to-day challenges in the management of natural resources."*

*Jitender Taneja*

# Elliot Tasker



Graduated with a BSc in Geography.

Elliott travelled to Centro de Competencias Del Agua, Peru in 2017 as part of the UWE Global Water Security Programme, co-funded by IWSN.

## Research

Elliott investigated the viability of a constructed wetland solution for wastewater treatment at San Cristóbal of Huamanga University.

## Career

Elliott worked as a laboratory assistant at One Scientific, which conducts food and water microbiology testing. In 2017, he took part in a week-long professional training excursion in Corsica, aimed at improving ecological skills and knowledge for aspiring environmentalists, organised by Operation New World.



*"Everything about the people and the place was amazing – especially everyone from Centro de Competencias Del Agua. It was incredible to learn about all the research that is going on."*

*Elliot Tasker*

# Bhuwan Thapa



Udall Center  
for Studies in Public Policy

Completed his PhD student in 2018.

Bhuwan's PhD studies have been part-funded by IWSN. In March 2015, he was awarded a PhD research grant from ICIMOD's Himalayan Adaptation, Water and Resilience (HI-AWARE) Research on Glacier and Snowpack Dependent River Basins for Improving Livelihoods programme. His pre-dissertation field work in 2015 was also supported by Climate Assessment for the Southwest Fellowship, provided by University of Arizona, with support from U.S. National Oceanic and Atmospheric Administration (NOAA).

## Research

His proposed study is entitled: 'Pathways to climate-resilient irrigated agriculture: adaptation to water stress by farmer-managed irrigation systems in Trishuli-Narayani sub-basin of Central Nepal'



## Career

Prior to his PhD, Bhuwan had five years of research and work experiences in Nepal and USA. He was a consultant for the Japan Water Agency and Danish Hydraulic Institute for two years in an Asian Development Bank project on the Bagmati River basin, Nepal. He has worked in the areas of water and sanitation, community forestry, environmental impact assessment, environmental laboratory analysis and climate change assessment for national and international organisations such as the World Wildlife Fund (Nepal), WaterAid in Nepal, the Center for Clean Air Policy (USA) and A4 Scientific (USA).

*"Water Security is a key challenge for natural and social scientists and engineers in the Himalayan region – IWSN is breaking new ground in approaching these issues in a truly multidisciplinary way."*  
Bhuwan Thapa

# Francieli Thums



Graduated with a BEng in Civil and Environmental Engineering

Francieli was awarded the 2017 IWSN-UWE Student Prize for best water-related undergraduate final year project.

## Research

A detailed assessment of two innovative methods for large diameter sewer inspection to determine structural and visual integrity.

## Abstract

Francieli assessed two methods of tunnel survey - the Mechanical Assessment of Conduits (MAC) for structural integrity and Multi-Sensor Inspection (MSI) - by using information from two case studies carried out by Wessex Water. Analysing the application, performance, limitation and effectiveness of each testing device, she concluded: "both surveys have delivered what they claimed to and the results have enabled Wessex Water to effectively design rehabilitation works for the areas affected."



## Career

Francieli joined Wessex Water in July 2015 as a Placement Student in the department responsible for flooding in the sewerage network. She was seconded to the Sewer Rehabilitation team, which led to her final project. She will take up a Graduate Engineer role in August 2017. She will also study for an MSc in Civil and Structural Engineering at the South Wales University

*"I am flattered and honoured to receive the International Water Security Network Prize for my dissertation. This wouldn't have been achieved without the partnership between a great university (UWE) and a great water company (Wessex Water)."*  
Francieli Thums



# Melanie Vaxevanakis



Graduated in 2017 with a first class BA degree in Media Culture and Practice.

Melanie travelled to the National Association of Professional Environmentalists in Uganda in 2017 as part of the UWE Global Water Security Programme, co-funded by IWSN.

## Research

Melanie filmed, directed and edited a documentary, 'Surviving on gold', in which she interviewed miners, landowners and gold buyers involved in the artisanal gold mining business in Bukuya, Mubende, Uganda.

## Career

Melanie is a freelance video journalist. After graduating, she joined Tusko Films as an Assistant Producer Intern. She had previously worked as a Production Runner for East City Films, a Volunteer Creative Director for Barnardo's, and a Student Volunteer at the BBC's Talent Ticket Roadshow. She also did work experience at GQ Magazine.

*"It is such a great and rewarding experience to get the chance to travel with the help of some funding and also volunteer with an organisation that gives the chance to truly understand different cultures and the deep rooted problems they face."*

*Melanie Vaxevanakis*

# Verónica Thalía Vilchez Yarango



Studying at the Nacional University Pedro Ruiz Gallo

## Research

Verónica is researching the management of productive units and food security in the Zaña Basin, Peru.

## Abstract

Even though the Zaña Valley of Peru has not faced drought conditions, agricultural yield is low compared to the rest of the country. The low yields are a consequence of plagues and diseases, and scarce financial support to commercialize agricultural production.



Through participatory research methods with irrigation users from the low and medium parts of the valley, we found that the average area for agricultural unit is 1-3 hectares. The most common cultivated crops include rice, sugar cane, sweet potato, and maize.

*"By conducting this research, I learned about the lack of education and capacity in the agricultural sector. Farmers are not able to manage their production successfully. This lack of capacity threatens food security in this basin."*

*Verónica Thalía Vilchez Yarango*

# James Walker



Graduated with an MSc in Environmental Management.

James received the IWSN Scholarship for MSc students following the ‘water pathway’.

## Research

James’ research looked at how women’s access to sanitation can be improved in Uganda and India, through an evaluation of ‘urine-tricity’ technology developed by IWSN partners, the Bristol Bio-energy Centre.



## Abstract

The general aim of this project is to bring ‘pee-power’ technology, developed by the Bristol Bio-energy Centre, to Kisoro, Uganda for purposes of an extended field trial. The pee-power toilets use microbial fuel cells (MFC) to generate electricity out of input urine (derived from urinals or urine-diverting toilets). The trial took place within the Seseme Girls High School compounds. Pee-power was retrofitted to the existing latrines in the school, with the technology housed in a specially built unit. One of the main purposes of this technology is to use the electricity generated on site to power the lights in the urinals, making the toilets safer to use at night, especially for women.

## Career

James graduated in 2013 with a First in Law, and went on to work in banking and finance. During this time, he did a lot of travelling and volunteering in developing countries, including with a reforestation and rainwater harvesting project in Tamil Nadu, India.

# Calum Warriner



Graduated with a BA in Geography.

Calum travelled to Kenya in the summer of 2015 as part of the UWE-Africa Water Security Programme, co-funded by IWSN.

## Research

Working with IEWM, Calum’s research looked at how community-based organisations (CBO) benefit poor urban farmers and the surrounding population, as well as the gender specific challenges for their development.



## Abstract

Prolonged observation and in-depth interviews were used over a period of six months at one small community farm in Nairobi’s slum district, Kibera. Findings revealed that despite slow but steady growth of the project, several institutional and socio-economic barriers were hindering the farmers from utilising the area’s full potential, thus limiting the benefits the CBO could have on Nairobi’s most disadvantaged demographic.

## Career

Calum hopes to return to East Africa following his graduation and continue working for NGOs in the water and environment sector.

*“It has long been an aspiration of mine to live and work in East Africa, and I can only thank UWE, IWSN and IEWM for making it possible. It was both a sobering and intoxicating experience, one which will undoubtedly help me to achieve my goal of returning, so I can continue to learn and work alongside some of the most dedicated and passionate people it’s ever been my privilege to meet.”*  
Calum Warriner

# Charlotte Whitmarsh



Graduated in 2015 with a BA (Hons) degree in Geography.

Charlotte travelled to Uganda in the summer of 2014 as part of the UWE-Africa Water Security Programme, co-funded by IWSN. She also won the 2015 IWSN-UWE Student Prize for best water-related undergraduate final year project.

## Research

Her research topic was: 'To examine the role of seasonality as a barrier to the expansion of agriculture and its consequential effects on communities in the Kanungu District, Uganda.'



## Abstract

A baseline study was carried out to assess agricultural practises and the barriers farmers face. 197 household surveys and 10 focus groups were conducted. Findings revealed that this region is dependent on rainfed agriculture; that gender affects the perception of climatic changes; and that there are different impacts on communities. Social, economic and environmental impacts arise from reduced capital, health and low fertility soils.

## Career

After graduating, Charlotte worked for Marsh & Parsons estate agents in London, and was made Lettings Manager in 2019.

*"I will never forget this humbling yet incredible experience. To receive the Student Prize for a piece of work of which I am really proud and which reflects on a place close to my heart was fantastic."*  
Charlotte Whitmarsh

# Jennifer Wilson



Graduated in 2016 with an MSc in Environmental Management.

Jennifer received the IWSN Scholarship for MSc students following the 'water pathway'.

## Research

Jennifer's final project was entitled: 'An investigation into the consequence of cattle bank poaching for the mobilisation of sediment, nutrients and bacteria.'



## Abstract

Agricultural land use, and specifically cattle bank poaching, is a potentially significant contributor to damage to river systems. Turbidity, soluble reactive phosphorus and faecal coliforms were analysed at upstream control and downstream impact sites correlated with cattle activity over a 65m river margin throughout a two-month summer period. Cattle activity impacted water quality, specifically turbidity and faecal coliform levels. Average turbidity increased by more than 90% between upstream and downstream sites during cattle activity, whilst average faecal coliform counts almost doubled. Findings for phosphorus concentrations were less conclusive, perhaps due to filtration of suspended sediment-bound phosphorus prior to analysis.

## Career

Jennifer is now working as a Hydrologist and Flood Risk Analyst at Natural Resources Wales.

*"I would like to express my sincere gratitude to my supervisor, IWSN's Dr Mark Everard, for his help and advice, and for the opportunity to develop this project."*  
Jennifer Wilson



# Mia Wreford



Graduated with a BSc in Geography in 2018.

Mia travelled to the National Association of Professional Environmentalists in Uganda in 2017 as part of the UWE Global Water Security Programme, co-funded by IWSN.

## Research

The research looked at the effect of mercury on cropland and natural water sources as a direct result of artisanal and small-scale gold mining in Bukuya, Mubende, Uganda.



## Abstract

The National Analytical Laboratory of Uganda were incredibly helpful and generous, helping to analyse 60 samples to a very high standard and allowing their equipment to be used in the field. The results showed that the mercury concentration in the nearby River Kitumbi exceeded the Ugandan published safety limit, with the highest water reading recorded at a private school borehole – exceeding the limit by 90 times.

## Career

Mia's final year project was awarded the IES Vice President's Prize in 2018. During her time as a student, Mia was also President of the UWE Geography Society. After completing her undergraduate degree, Mia studied for an MSc in Climate Change Science and Policy at Bristol University. She also worked as an Executive Associate for Natalie Fee, Founder of City to Sea.

*"The most amazing experience ever – working, while also having fun. Going with a good group of people made it even better. Thanks so much!"*

Mia Wreford

# Grace Wright



Graduated in 2014 with a BA in Geography.

Grace travelled to Uganda in the summer of 2013 as part of the UWE-Africa Water Security Programme, co-funded by IWSN.

## Research

Grace's dissertation looked at the work of the charity Watsan, and assessed how effective it was in improving lives in Uganda, focusing on schools in Rukungiri.



## Abstract

Working with the charity Watsan, I visited six schools - boarding, primary and secondary - in contrasting areas, some being well off and some very deprived. Watsan has two departments: software (teaching and education of water security) and hardware (the actual physical building of facilities). I took part in work in both of these areas as projects were in different stages in the process. Where work had already been completed, we saw excellent latrines with manholes in working condition, we saw tipi taps which worked and children were using on a daily basis, and boreholes which cut down walking time to water sources dramatically. We completed questionnaires at these schools and found that water borne diseases such as diarrhoea had dramatically decreased as much as up to 60%.

## Career

Since graduating, Grace has worked as a Marketing Intern and Sales Consultant, then Marketing Manager, at Turquoise Holidays.

*"The experience of a lifetime. I have gained a whole new understand of the issues facing Uganda."*

Grace Wright

# Nina Yiannoukos



Graduated with an MSc Environmental Consultancy in 2015.

Nina received funding from IWSN for her placement, which allowed her to collect data for her project.

## Research

Nina's final project was entitled: 'A study of the correlations between tillage practice, field margin and crop rotations with metaldehyde runoff within the Ampney Brook Catchment.'



## Abstract

Water sampling and a two-phase questionnaire were used to obtain data on the metaldehyde levels present in the watercourse, and data on the farming practices at three target farms. Clear correlations were identified between metaldehyde runoff and rainfall patterns, soil moisture deficit and river flow. With exceptions to the peaks in metaldehyde associated with high rainfall, for the majority of the study period, the levels of detected metaldehyde were below the drinking water standard.

## Career

Nina began working as a Senior Catchment Advisor at South Staffordshire Water in 2016, where she designs and implements catchment management.

*"I was offered my dream job at South Staffordshire Water just a few minutes after I left my graduation ceremony. During my degree I learned a lot about the catchment-based approaches I am now using."*

Nina Yiannoukos

# Jenny Youngs



Graduated with an MSc in Environmental Management.

Jenny received the IWSN Scholarship for MSc students following the 'water pathway'.

## Research

Jenny's research project is looking at the benefits to health and wellbeing of access to 'blue space' and how environmental management needs to change to encompass better access regardless of demographic.

## Abstract

From an 'ecosystems services' perspective, we know that 'blue water environments' (lakes, river corridors, etc.) can have multiple cultural, spiritual and physical therapeutic effects. Measuring these effects however is quite difficult, but Jenny has developed a methodology for assessing the physical and mental benefits of 'blue water' in the general population.

## Career

In 2016 Jenny was appointed Head of Olfactometry (Trainee) at Odournet UK in Bradford on Avon while completing her MSc. Previously, she worked as a marine science and conservation officer, having received a degree in marine science from Plymouth University.

*"Receiving the scholarship from IWSN has allowed me to study a subject I am passionate about. The experience I have gained and the progress I have made during the course has been invaluable."*

Jenny Youngs

# Giada Zannini



Studying for an MSc in Environmental Management.

## Research

Investigating nature-based treatment for chronic pain through a literature review of the physiological and psychological parameters connected with chronic pain and influenced by contact with nature.

## Abstract

The project aimed to provide an idea of how far the research on the benefits for chronic pain management from contact with nature has gone, and what are the next steps a researcher might take. This field of study is still in its infancy, and further exploratory studies will help pain organisations to widen their range of treatments.



## Career

Giada completed a bachelor's degree in Italy in Environmental and Forestry Science, and then spent two years in London learning English so she could study abroad. She also spent four months on a Greek island, where she saw the poor condition in which stray animals live and felt the necessity to help some of them. This made her realise that in the future she would like to work in the field of behaviour change, but most of all, in wildlife and nature conservation.

*"This internship experience made me realise how many hard-working people collaborate in the field of research, and made me hope to be part of it."*

*Giada Zannini*