PROGRAMME

BERGEN SUMMER RESEARCH SCHOOL

WATER, CLIMATE & SOCIETY

UNIVERSITY OF BERGEN
JUNE 13 - 24, 2016



#bsrs2016

WATER, CLIMATE & SOCIETY

Welcome to Bergen Summer Research School 2016



For nine years, the University of Bergen and the other academic institutions in Bergen have invited to a summer research school exploring "Global Development Challenges".

This spring, the World Economic Forum ranked for the first time the water crisis as the greatest global risk to economies, environments and societies in the forthcoming decade. Last year, NATO held their largest military exercise since the Cold War simulating war over water. The UN's General

Secretary and the World Bank have argued that management of water is crucial to future developments.

This year, the Summer Research School will approach global challenges related to "Water, Climate & Society" from many disciplines through plenary sessions, keynote lectures, and in particular through the seven parallel courses:

- Climate change and water
- Modelling the complexities of water, climate and society
- Poverty, climate change and water in the context of SDGs
- River basins, power and law
- The ocean, climate and society
- Religion and water
- Water and global health

BSRS seeks to create a unique environment for participants to present, engage, discuss, progress their thinking, and improve on their work. As part of the taught courses, there will be an excursion into the waterscape of western Norway to explore the impact rivers, fjords and glaciers have had on societies.

We are happy to welcome you to the city of Bergen and to the large academic milieu of high quality research. We hope you will gain knowledge, new perspectives, as well as new acquaintances that will benefit your academic work.

Welcome to Bergen Summer Research School 2016!

Research education to meet global challenges

Research education for global development challenges

Academic institutions are the backbones of society, providing knowledge and educating young people. The Bergen academic milieu is committed to rethink the implications of Norway's position in the world today, emphasizing themes and research that our institutions are already engaged with.

The Bergen Summer Research School is a joint venture led by the University of Bergen (UiB) with the Norwegian School of Economics (NHH), Bergen University College, Chr. Michelsen Institute (CMI) and Uni Research.

Over the years, BSRS has focused on a series of overarching themes:

- 2008: Global Poverty
- 2009: Climate, Environment and Energy
- 2010: Global Health
- 2011: Norms, Values, Language and Culture
- 2012: Transnational Migration and Global Development
- 2013: Food as a Global Development Challenge
- 2014: Governance to Meet Global Development Challenges
- 2015: SDG to Meet Global Development Challenges

Bergen Summer Research School is a vehicle for promoting and advancing the priority areas for research at the University of Bergen, renewed in the new strategy for 2016-2022: climate research, marine research, and research on global social challenges.



Dragefjellet is home of the Law Faculty, UiB Global and the Chr. Michelsen Institute.

Steering Committee



Chairman of the Committee

Dag Rune Olsen

Rector

University of Bergen

Aina Margrethe Berg Managing Director Uni Research

Frøystein GjesdalRector Norwegian School of Economics (NHH)

Ottar Mæstad Director Chr. Michelsen Institute (CMI)

Ole-Gunnar Søgnen Rector Bergen University College

The Organising Committee

Bergen Summer Research School is organised by UiB Global, a special unit reporting directly to the Rector. UiB Global is responsible for initiating and coordinating multi- and cross disciplinary research and related activities within the University's priority area on global societal challenges.



Terje Tvedt is the scientific leader of the BSRS 2016.

Tvedt is Professor at the Department of Geography,

University of Bergen, and at the Department of

Archaeology, Conservation and History, University of

Oslo. He has been visiting professor at University of

Cambridge and at the American University in Cairo, as

well as leader of a number of research networks and

programs.

Tvedt has published extensively on development issues and how human efforts to control and manage

their waters have impacted history and development trajectories. He has written, co-directed and presented three TV-documentaries on the history and future of humankind in a water perspective, documentaries that have been broadcasted in about 150 countries around the world.



Tore Sætersdal
Acting Director &
Academic Head
UiB Global



Kjersti Gravelsæter Berg Scientific Coordinator of BSRS 2016

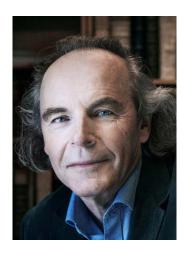


Howaida Faisal AbdelrahmanAdm. Coordinator
UiB Global

Sylvia Duerr Executive Officer UiB Global **Kristin Holst Paulsen**Senior Executive Officer
UiB Global

Kristin Svartveit Adviser UiB Global **Tord K. Rø** Adviser UiB Global

Course Leaders



River basins, power and law

Terje Tvedt is professor at the Department of Geography, UiB, and Professor II in Global History at the University of Oslo. He has been visiting professor at University of Cambridge and at the American University in Cairo, as well as leader of a number of research networks and programs. Tvedt has published extensively on development issues and how human efforts to control and manage their waters have impacted history and development trajectories.



The ocean, climate and society

Øyvind Fiksen is professor at the Department of Biology, UiB, and the Hjort Centre for Marine Ecosystem Dynamics. He works on behaviour and strategies in fish, zooplankton and microbes, and on the consequences of these tactics and strategies in an ecosystem context. The aim is to develop ecological models where mass and energy fluxes are emerging from evolutionary consistent mechanisms - through natural selection.



Water and global health

Bernt Lindtjørn is professor in international health at the Department of Global Public Health and Primary Care, UiB. He has broad working experience from research and public institutions, international organisations and NGOs. A medical doctor by training, he has extensive experience in hospital work, disease control, research and teaching. His professional profile includes surgery in developing countries, population studies, maternal and child health, control of tuberculosis, HIV and AIDS, malaria and malnutrition.



Religion and water

Hans Geir Aasmundsen is a researcher and advisor at UiB Global. He has explored boundaries and interfaces between religion, politics and society in Argentina, with a particular focus on Pentecostalism and local-mesoglobal nexuses. Aasmundsen's interests include Religion, Politics and Society; Global Pentecostalism and the Lausanne Movement; Religion and Climate Change; with a focus on Latin America and Argentina in particular as well as comparisons with African and South-Asia.



Terje Oestigaard is a docent in archaeology at Uppsala University and senior researcher at the Nordic Africa Institute, Uppsala, Sweden. His main research interests are water studies in the past and the present, rituals and religion, water studies and political uses of cultural heritage with a special emphasis on the Nile River. He has conducted fieldwork in Bangladesh, Egypt, Ethiopia, Greece, Jordan, India, Nepal, Palestine, Tanzania and Uganda.



Poverty, climate change and water in the context of SDGs

Noel Keenlyside is professor at the Geophysical Institute, UiB. His research focuses is on seasonal to decadal variability and predictability of climate, with the Tropics and North Atlantic Sector as particular foci. He is particularly interested in ocean-atmosphere interaction, and in the improvement of climate models.



Alberto D. Cimadamore is Scientific Director of the International Social Sciences Council's Comparative Research Programme on Poverty (CROP), located at the University of Bergen. He is professor at the University of Buenos Aires and Researcher of the National Council of Scientific and Technological Research of Argentina. His research and publications are focused on the political economy of poverty, the international relations of poverty and development, and on regional integration in Latin America.



Climate change and water

Tore Furevik is professor in physical oceanography at the Geophysical Institute at UiB, and Director of the Bjerknes Centre for Climate Research, and the Centre for Climate Dynamics. His research focuses on climate modelling, large-scale variability in the atmosphere and ocean, air-sea-ice interactions and teleconnections. He has published widely in international peer-reviewed journals or books. He is in the steering board for the national climate program Klimaforsk, and is representing Norway in JPI Climate.



Ellen Viste is a meteorologist and a researcher at the Geophysical Institute at the University of Bergen, and the Bjerknes Centre for Climate Research. She has a special interest in precipitation and atmospheric moisture transport and did her PhD on Ethiopian rainfall and droughts. She has also worked on Himalayan snowfall and currently studies extreme precipitation events in Norway.



Modelling the complexities of water, climate and society

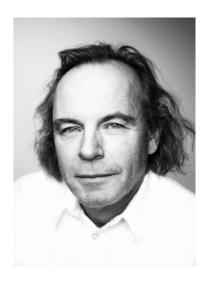
Pål Davidsen is professor in System Dynamics at the Department of Geography, UiB. His research focuses on natural resource management; model based analysis of complex, dynamic systems; educational technology; and the design of simulation based interactive learning environments. Davidsen has served as President of the System Dynamics Society and is currently Vice President of Publications. He has been affiliated with MIT, Karlstad University, and the Naval Academy in Bergen.

MONDAY 13 JUNE / 11:15 - 13:00 / LAW FACULTY / AUDITORIUM 2

KEYNOTE

Water and Society

A need for a paradigm shift?



This keynote addresses a major paradox: in spite of the innumerable confluences between society and water, the social significance of water has made surprisingly little impact on our contemporary understanding of human history and societies' development.

New discoveries about our "water planet", as well as recent developments in society and nature and the growing concern about water shortages and water conflicts, demand a shift in how we think not only about water, but about the world. It requires a reorientation of perspectives and analytical approaches in science and historical research.

This keynote, acknowledging the growing interest in the role of water in history and social development among engineers, scientists, sociologists and historians, politicians, and the public at large, will discuss radically new fields of social enquiry. It distances itself from powerful and conventional viewpoints on the relationship between nature and society and on how the distinction between the two has been drawn.

The keynote will discuss how a reorientation of research can happen, and proposes an approach that, it is argued, will enable us both to ask new and fruitful questions and answer old questions in a more inclusive, non-reductionist way.

Terje Tvedt is professor at the Department of Geography, UiB, and Professor II in Global History at the University of Oslo. He has been visiting professor at University of Cambridge and at the American University in Cairo, as well as leader of a number of international and national research networks and programs. He has also served as President of the International Water History Association.

Tvedt has published extensively on development issues and how human efforts to control and manage their waters have impacted history and development trajectories. He has also written, co-directed and presented three TV-documentaries on the history and future of humankind in a water perspective, documentaries that have been shown in about 150 countries around the world. Tvedt has won awards for both his films and books, and for his research in general.

KEYNOTE

Water and Food in Africa



The world population is predicted to grow from 6.9 billion in 2010 to 8.3 billion in 2030 and 9.1 billion in 2050. Food demand is anticipated to increase by 60% by 2050.

Very few now share the widespread optimism of the early 1970s, when the world's population turned four billion and the then US Secretary of State Henry Kissinger proclaimed that 'no child will go to bed hungry within ten years.'

As development continues and the number of people increases, meeting the world's demand for food, and thus for water, will be one

of the most important challenges for the world community in the 21st century.

The understanding of Africa is caught up in a paradox: Africa is a rich continent when it comes to natural resources, and is, at the same time, the continent that still symbolizes and expresses poverty and food insecurity. In particular, areas of Sub-Saharan Africa continue to face huge challenges with persistent hunger, and hunger is most widespread in rural areas. Africa's history of water and food thus points in two different directions; on the one hand, it has been plagued by chronic food insecurity and climate variability for millennia, but on the other hand, it has also given rise to major agricultural civilizations, including the ancient Egyptian and Nubian civilizations, and export of food beyond the continent.

Understanding water and food in Africa in a historic and comparative context may thus enable new insights into the evolution of food systems from the early humans to today's challenges in the global world. This will be done by introducing a new analytical concept: agro-water variability.

Terje Oestigaard is a docent in archaeology at Uppsala University and senior researcher at the Nordic Africa Institute, Uppsala, Sweden. His main research interests are water studies in the past and the present, rituals and religion, water studies and political uses of cultural heritage with a special emphasis on the Nile River. He has conducted fieldwork in Bangladesh, Egypt, Ethiopia, Greece, Jordan, India, Nepal, Palestine, Tanzania and Uganda.

TUESDAY 14 JUNE / 11:00 - 12:30 / LAW FACULTY / AUDITORIUM 2

KEYNOTE

Water, Sanitation and Hygiene

New imperatives, new approaches



Water, sanitation and hygiene (WASH) are the triumvirate that cannot be separated. The health imperative is clear. Evidence shows that all routes of pathogen transmission have to be closed down if morbidity and mortality is to be prevented, especially in areas of high risk.

The new Sustainable Development Goals mandate universal access to WASH, but this is far from being achieved. Changing long ingrained behaviours is key to meeting this challenge.

This presentation will explore some of the new ways that Hygiene, Sanitation and Water coverage is being improved in homes, in schools,

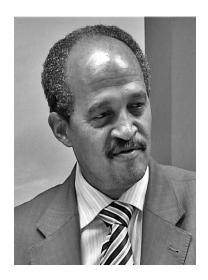
in health centres and in villages and in towns, with lessons from Africa, Asia and Latin America.

Val Curtis is Director of the Environmental Health Group, a multidisciplinary group dedicated to improving hygiene, sanitation and water (WASH). She is trained in engineering, epidemiology and anthropology and studies human behaviour from an evolutionary perspective.

KEYNOTE

The Hydro-diplomacy of the Nile

Prospects for Regional Integration in North-Eastern Africa



Hydro-diplomacy can be utilized as the most preferred instrument and mechanism towards a future integration through environmental, socio-economic, security and institutional interactions among the riparian nations of North-Eastern Africa.

North-Eastern Africa is endowed with numerous and permanently shared waters, thereby the countries in the region are permanently linked with one another by the trans-boundary waters. For instance, eight of the twelve water basins of Ethiopia are trans-boundary, creating permanent linkage with the downstream countries. Kenya, Uganda and Tanzania are linked together by Lake Victoria and its

waters. Ganale-dawa river system binds together Ethiopia, Somalia and Kenya. South Sudan is linked with Ethiopia, Uganda and the Republic of Sudan with Baro-Akobo /Sobat and the White Nile river systems.

All trans-boundary water systems of the region, including those within the Nile Basin, present themselves as the permanent basis for 1) environmental 2) socio-economic 3) security 4) institutional, etc. interactions and potential integration between the riparian countries and regionally.

The Nile Basin has presented a geopolitically distinct and complex case of hydro-diplomacy in North-Eastern Africa. The riparian nations of the Nile have come a long way through many ups and downs of negotiations to significant milestones of interactions and agreements. The trajectory for more interaction and eventual integration of North-Eastern Africa can be primarily enhanced and cemented through the cooperative use, management and protection of the permanently shared water resources.

Yacob Arsano is associate professor of political science and international relations at Addis Ababa University and Director for Addis Ababa University Press.

KEYNOTE

Science for integrated marine governance



Global distillation is a geochemical process that can transfer POP (persistent organic pesticides) from low latitude application in agriculture to high latitude marine and terrestrial food chains where they are concentrated. Nowadays we are familiar with such connections, particularly in relation to issues like climate change, but we struggle to develop the personal, social and political means to deal with the economic and ethical responsibilities that arise.

In this keynote, Dr Brander asks "how can we overcome some of the obstacles within science in order to provide understanding and advice that can help to maintain healthy and sustainable marine ecosystems

and the human communities that depend on them?"

The Nordic Seas are diverse and dynamic, showing great changes over the past century due to regional climate variability and now climate change. They are better studied than any other ocean area and are becoming a test-bed for effective ocean management that can provide a guide to how to study, monitor and protect other oceans. There are strong political commitments to sustainability in place and actions at all levels from individuals to enterprises and communities, to local, national and regional governance to bring this about.

Successful outcomes will depend on developing both the knowledge of the social and ecological systems and the tools for moving towards agreed goals across all scales. For scientists the challenges are how to produce relevant work that transcends disciplinary boundaries and how to communicate this effectively to the public, policy makers and stakeholders.

Keith Brander is an emeritus scientist at the Center for Ocean Life, Technical University of Denmark. He was lead author on climate impacts on fisheries and marine ecosystems for the 4th IPCC report, sharing in the award of the 2007 Nobel Peace Prize. He works on ecosystem approaches for marine management and he has advised national governments the EU and FAO on fisheries management.

RECEPTION

Reception by the City of Bergen

The King's banqueting hall Haakon's Hall is 750 years old, and was built by King Haakon Haakonsson as a royal residence and banqueting hall. When his son Magnus Haakonsson Lagaboete married the Danish princess Ingeborg in 1261, 2000 guests were invited. "The King held court in the stone hall", says the saga.

At that time Bergen was Norway's largest and most important town, and Haakon's Hall was the site of major national events, such as the drawing up of Norway's first complete set of laws.

Inside the thick stone walls there are still echoes of the medieval court's solemn ceremonies and riotous feasts. As a national cultural monument, Haakon's Hall is still used both for royal dinners and other official occasions. It is easy to see where His Majesty the King usually sits.

The City of Bergen will serve us finger food and refreshments. Student assistants will accompany you through the city centre to Haakon's Hall.









KEYNOTE

Climate change and water security



We are living on the blue planet. Earth is the only known planet to have stable bodies of liquid water on its surface, essential for all life forms that we know. Each second, more than a million tons of water is lifted from the surface of the ocean and unevenly distributed over land, making some areas wet and others dry. After days or years, the water eventually returns to the ocean.

Climate change is perturbing this natural cycling of water, changing distribution and intensity at a rate unprecedented in human history. Some regions will see less rain and more droughts; others see more rain, flooding and landslides. Impacts of climate change on water- and

food security will be dramatic, and for some regions likely beyond the adaptation limits for the natural and human systems.

In this lecture I will present the latest news on climate change and water cycle, and gradually zoom in on water security, an integral part of the Sustainable Development Goals (SDGs). A failure in the climate change mitigation and adaptation goals adopted in Paris last year will make it very unlikely that we can ensure global access to reliable water and sanitation services for an increasing population.

Tore Furevik is professor in physical oceanography at the Geophysical Institute, UiB, and Director of the Bjerknes Centre for Climate Research and the Centre for Climate Dynamics. His research focuses on climate modelling, large-scale variability in the atmosphere and ocean, air-sea-ice interactions and teleconnections. He has published widely in international peer-reviewed journals or books. He is in the steering board for the national climate program Klimaforsk, and is representing Norway in JPI Climate.

KEYNOTE

Shared water resources and international water lawA state-of-the-art



The body of rules and principles that constitute the discipline of international water law provides the common language and shared understandings necessary to facilitate meaningful and effective inter-State cooperation. The body of rules and principles that constitute the discipline of international water law can be understood to create a 'culture of communication' among States which share transboundary freshwater resources. thereby providing the common language and shared understandings necessary to facilitate meaningful and effective inter-State cooperation.

Thus, concerns over the 'fragmentation' of international law, where contradictory overlapping norms might apply simultaneously to the same disputed circumstances, appear less relevant to this field. On the contrary, international water law may be regarded as becoming increasingly coherent, due to internal convergence around an almost universally applicable set of procedural and substantive rules, and due to external convergence with other relevant bodies of normativity, including international environmental law and international human rights law.

Owen McIntyre is Professor of Law at the University College Cork, Ireland. His area of research is Environmental and Natural Resources Law, with a particular focus on International and Comparative Water Law. Professor McIntyre has over 25 years' experience in the field of Water Law, having acted as a consultant for a wide range of clients, including the World Bank, UNEP, UNDP, Asian Development Bank, EU Commission, GIZ and SIDA.

He serves on the editorial boards of a number of journals and is widely published in his specialist areas, including a monograph on Environmental Protection of International Watercourses under International Law (Ashgate, 2007), which has been translated into Mandarin and published in China (IPPH Publishing, Beijing, 2014).

He serves as the inaugural Chair of the IUCN World Commission on Environmental Law's Specialist Group on Water and Wetlands. McIntyre is an Honorary Lecturer at the UNESCO Centre for Water Law, Policy & Science at the University of Dundee. He is an Honorary Professor at the School of Law, Wuhan University, China; and an Honorary Associate by the China International Water Law (CIWL) Programme at Xiamen University Law School.

PANEL DEBATE

Climate and migration



This debate on one of the most important issue in the present day world will highlight different perspectives on the connections between climate change, political instability and migration.

Dr Nina Birkeland, Senior Adviser, Disasters and Climate Change, the Norwegian Refugee Council Professor Tor Halvdan Aase, Department of Geography, University of Bergen Dr Ellen Viste, meteorologist and researcher, Geophysical Institute at the University of Bergen / the Bjerknes Centre for Climate Research

Moderator: Postdoc Synnøve Bendixsen, Institute for social anthropology, University of Bergen / Uni Rokkan Centre **KEYNOTE**

Integrated Watershed Management

The socio-institutional tale of one River Basin and one Lake Basin



The Jubones River Basin in Ecuador stretches from the Atlantic to the Pacific Oceans traversing the Andean mountains, cultivated valleys and lowland plantations. It is home to half a million people of Quechua, Mestizo and African descent. Since 2000, the vast and diverse watershed has been cooperatively managed by an alliance of government, nongovernmental and community-based organizations convened by the Commonwealth of the River Jubones Basin to address increasingly urgent threats to ecosystem integrity and local livelihoods, exacerbated by the impacts of glacier melting in the upper river basin. Key aspects of the Commonwealth's approach are support for participatory governance and facilitating negotiating power of local municipalities.

The Lake Victoria Basin, stretching across parts of five East African nations is home to over 40 million people who rely on the lake and the Basin's watersheds and ecosystem services for survival, largely from agriculture and fisheries. As a result of a fast growing population, declining soil fertility, threatened wetlands and fish stocks, food insecurity is worsening. Health of People and Environment – Lake Victoria Basin (HoPE-LVB), a partnership of several donor agencies, NGOs, CBOs, local and regional governments, is an initiative to address these and other challenges. The partnership is now in its second scaling-up phase to create and demonstrate evidence for institutionalizing the approach within and beyond the Basin.

What can we learn from the experiences of these two distinct socio-institutional responses to complex and interrelated ecosystem, economic and social challenges of a River and a Lake Basin? Can we make a case for south-south knowledge sharing across continents that will improve the outcomes for both approaches?

Robin Marsh is a senior researcher at the Institute for the Study of Societal Issues at UC Berkeley. She is a socio-economist with over 25 years of experience in international agriculture and rural development. She received her PhD from the Food Research Institute, Stanford University, and has subsequently worked for the World Vegetable Center on socio-economic and nutritional benefits of home/community gardening, and for the Food and Agriculture Organization on local institution strengthening for food security and sustainable livelihoods. Marsh joined UC Berkeley in 2000 and has held prominent positions in research and in teaching.

WORKSHOP

Library resources at UiB



This workshop organised by the University Library will allow participants to take full advantage of the library resources at the University of Bergen and to assess and increase the impact of their scientific work.

You will learn how to find literature in the University Library and access research articles and books online from different sources. You will get hands on training on how to find the most relevant databases for your research question, and how to save time and effort with efficient searching. You

will further learn how to set up alerts to get updates about new publications in your field.

To be able to keep track of these references you will also get a short introduction to reference management tools. The course will be held in different branches of the library, all located at the campus area. The student assistants will guide you to the right location. The workshops will be given by Librarians from the Bergen University Library and the Bergen University College.

At the homepage of the University of Bergen Library you can find more information about the library: https://www.uib.no/ub/en

PANEL DEBATE

Ethical and practical challenges related to scientific publication

This panel debate organised by the University Library takes on ethical and practical issues related to research publications.

The following question will be addressed:

- How does quality control in science work?
- How and why avoid plagiarism?
- Why is the retraction rate so high for scientific publications?
- Why open access becomes more and more important?
- How to evaluate the quality of open access journals?
- What is citation impact and why is it so important for researchers?
- Does it reflect the scientific merits of a given paper?
- And what can you do to improve your impact?

After a short introduction into the topics there will be time for questions and debate.



Ingrid CutlerAdviser
University of Bergen Library



Matthias Kaiser
Director
Centre for the Study of the
Sciences and the Humanities,
UiB



Marta Zygmuntowska Senior Academic Librarian University of Bergen Library

LECTURE

The enforcement of water rights



The human right to water and sanitation (HRtWS) was explicitly recognized in a UN Resolution in 2010. Has this international recognition improved the ability of poor and marginalized people to secure access to water?

Lara Côrtes will discuss the cases of Brazil, Costa Rica, Ethiopia, India, Peru, South Africa and Zambia. These countries have experienced significant attempts to enforce the right to water through litigation, legal reforms, the use of UN mechanisms, political mobilization, and increased attention given to vulnerable and previously neglected areas and groups.

The presentation explores whether the resolution has resulted in changes in the national frameworks concerning the human right to water, and in the way countries are reporting on this right to the UN's Universal Periodic Review (UPR).

This presentation is a joint effort by Bruce Wilson og Camila Gianella, and is a part of the project: "Elevating water rights to human rights: Has it strengthened marginalized peoples' claim for water?" at the Centre on Law & Social Transformation, Chr Michelsen Institute / UiB.

Lara Côrtes is a Project researcher (PhD law) at the Centre on Law & Social Transformation, Chr Michelsen Institute / UiB.

FRIDAY 17 JUNE / 14:15 - 15:00 / EGGET @ THE STUDENT CENTRE

LECTURE

How to present a research paper



How do you most effectively present your research findings across to your colleagues or to the public? This presentation will give you some useful tips for preparing your presentation. There will be some time for questions.

Kikki Kleiven is Associate Professor at UiB's Department of Earth Science. Dr Kleiven works on Paleoseanografi, the study of the history of the oceans in the geologic past with regard to circulation, chemistry, biology, geology and patterns of sedimentation and biological productivity.

She is also passionate about popular science outreach and dissemination, especially on climate related topics.

EXCURSION

Into the Norwegian waterscape

Bergen is situated at the very mouth of the Hardanger fjord, so naturally, our excursion starts by ferry. You will see how the city of Bergen is connected to several suburbs on surrounding islands. The landscape changes as we approach the picturesque village of Rosendal, where we will take a brisk walk to the grounds of the old Mannor from 1665.

Onwards by buss, you might get a glimpse of the **Folgefonna** glacier before we enter the tunnel that leads to **Tyssedal** Power Plant. Here we will be guided through the oldest power plant of its kind that managed to harvest the energy of falling water, and learn how this shaped society and inspired innovation. If the weather allows, we will eat lunch by the dam that feeds the turbines.

More tunnels and steep roads will bring us up to the glacier at **Jondal** where one of our glaciologists will give a guided tour. The busses will then take us through cultural landscapes to the town of Voss where we will enjoy dinner at the legendary Fleischer's Hotel.

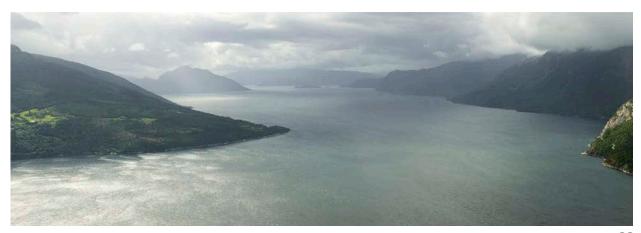
This is a long excursion. Bring good shoes, an extra sweater and a windbreaker/rain jacket.

The ferry will leave on time, so set the alarm and ally yourself with your neighbour to make sure you get out of bed in time. Student assistants will meet you at the light rail stop in down town Bergen (the last stop) to take you to the ferry. Breakfast will be served on-board.



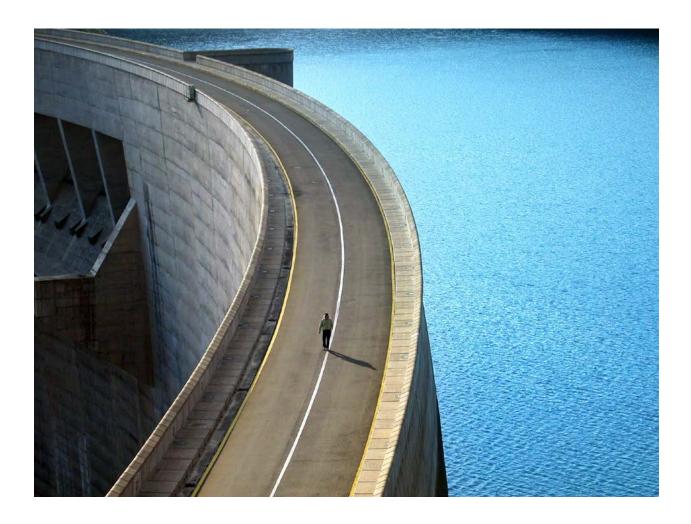






FILM EVENING

Screening of "The Future of Water"



Come watch the award-winning documentary A Journey in the Future of Water and talk to film maker, writer and researcher Terje Tvedt, and archaeologist and academic head, Tore Sætersdal of UiB Global.

This event is open to the public.

INFORMATION STAFF

Student Assistants

Don't hesitate to contact our student assistants with any inquires you may have.



Sylvia Duerr Executive Officer UiB Global



Laura Drivdal



Marwan Mohammed



Yelitza Hernandez



Krishna Shrestha



Detailed Schedule

Monday 13 June		
08:30 - 10:00	Registration and breakfast	Dragefjellet
10:00 – 10:15	Music by students at the Grieg Academy Morten Norheim (soprano sax), Sjasmin Reitehaug (alto sax), Roger Andreas Holme (tenor sax), Thomas Fossaert (baritone sax)	
10:15 – 11:00	Welcome by Professor Terje Tvedt , Scientific Director of BSRS 2016	
	Welcome to Bergen by Marte Mjøs Persen, Mayor of Bergen Welcome to the University of Bergen by Rector Dag Rune Olsen, Uiß Welcome to Uiß Global by Dr Tore Sætersdal, Director of Uiß Global Introduction to the academic content, Dr Kjersti Berg, Academic cooperactical information, Dr Howaida AbdElRaman, Administrative cooperactical information.	ordinator
11:00 – 13:00	Keynote lecture Water and Society: A need for a paradigm shift? Professor Terje Tvedt, University of Bergen	
13:00 – 14:00	Lunch and group photo	
14:00 – 15:30	Course leaders' presentation and conversation	
15:30 – 16:30	Registration and questions	
Tuesday 14 June		
09:00 – 10:30	Keynote lecture Water and food in Africa Dr Terje Oestigaard, Nordic Africa Institute, Sweden	Auditorium 2
10:30 - 11:00	Break	
11:00 – 12:30	Keynote lecture Water, Sanitation and Hygiene New imperatives, new approaches Dr Val Curtis, London School of Hygiene and Tropical Medicine, UK	
12:30 - 13:30	Lunch	
13:30 – 15:00	Keynote lecture The Hydro-diplomacy of the Nile Prospects for Regional Integration in North-Eastern Africa Associate Professor Yacob Arsano, Addis Ababa University, Ethiopia	
15:00 – 15:30	Coffee /tea	
15:30 – 17:00	Keynote lecture Science for integrated marine governance Emeritus Keith Brander, Technical University of Denmark	
17:00 - 18:30	Water quiz	
18:30 - 19:00	Guided walk to Haakon's Hall	
19:00 – 20:00	Reception by the City of Bergen with light meal	Haakon's Hall

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09:00 – 10:30	Keynote lecture Climate change and water security Professor Tore Furevik, University of Bergen	Auditorium 2
10:30 - 11:00	Break	
11:00 – 12:30	Keynote lecture Shared water resources and international water law: A state Professor Owen McIntyre, University College Cork, Ireland	e-of-the-art
12:30 - 13:30	Lunch	
13:30 – 15:00	Debate Climate and migration Dr Nina Birkeland, Norwegian Refugee Council Professor Tor Halvdan Aase, University of Bergen Dr Ellen Viste, The Bjerknes Centre / UiB	The University Aula
	Moderator: Postdoc Synnøve Bendixsen, University of Berge	en
15:00 – 15:30	Coffee /tea	
15:30 – 17:00	Keynote lecture Integrated Watershed Management The socio-institutional tale of one River Basin and one Lake E Dr Robin Marsh, UC Berkeley, USA	Basin
Thursday 16 June		
09:00 - 10:00	PhD course	Seminar rooms
10:00 - 10:30	Break	
10:30 - 12:00	PhD course	
12:00 - 13:00	Lunch	
13:00 - 15:30	PhD course	
15:30 - 16:00	Coffee /tea	
16:00 – 18:00	PhD course	
Friday 17 June		
09:00 - 10:30	Library workshops	Multiple libraries
10:30 - 11:00	Guided walk to the Egg (Student Centre)	
11:00 – 12:30	Panel debate Ethical and practical challenges related to scientific publications and Cutler, Adviser at the UiB Library Matthias Kaiser, Director, Centre for the Study of the Sciences and the Humanities, UiB Marta Zygmuntowska, Senior Academic Librarian at the UiB	
12:30 – 13:30	Lunch	
13:30 – 14:15	The enforcement of water rights Dr Lara Côrtes, Researcher, Chr. Michelsen Institute	
14:15 – 15:00	How to present a research paper Associate Professor Kikki Kleiven, Department of Earth Scien	nce, UiB
15:00 – 17:00	Work on assignments	

Saturday 18 June		
06:45 - 23:00	Every reion to Hardanger Poet leaves from Strandkaion at OCAE	
06:45 - 23:00	Excursion to Hardanger. Boat leaves from Strandkaien at 06:45 .	
Sunday 19 June		
19:00 - 21:00	Documentary film evening Professor Terje Tvedt and Dr Tore Sætersdal	The Fantoft Club
Monday 20 June		
09:00 - 10:00	PhD course	Seminar rooms
10:00 - 10:30	Break	
10:30 - 12:00	PhD course	
12:00 - 13:00	Lunch	
13:00 – 15:30	PhD course	
15:30 – 16:00	Coffee /tea	
16:00 – 18:00	PhD course	
Tuesday 24 July		
Tuesday 21 July	Dh D. courses	Cominan na ana
09:00 – 10:00	PhD course	Seminar rooms
10:00 – 10:30	Break	
10:30 – 12:00	PhD course	
12:00 – 13:00	Lunch	
13:00 – 15:30	PhD course	
15:30 – 16:00	Coffee /tea	
16:00 – 18:00	PhD course	
Wednesday 22 July		
09:00 - 10:00	Student presentations	Seminar rooms
10:00 – 10:30	Break	
10:30 – 12:00	Student presentations	
12:00 – 13:00 13:00 – 15:30	Lunch Student presentations	
15:30 – 15:30 15:30 – 16:00	Coffee /tea	
16:00 – 18:00	Student presentations	
Thursday 23 June		
09:00 - 10:00	Student presentations	Seminar rooms
10:00 – 10:30	Break	
10:30 – 12:00	What have we learnt?	Auditorium 2
	Presentations by each course group	riadicorrain 2
12:00 – 13:00	Lunch	
13:00 – 14:30	What have we learnt? Debate w/ course leaders	
14:30 – 15:00	Coffee /tea	
15:00 – 16:30	Closing remarks and award ceremony	
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River basins, power and law

Course Leader

Terje Tvedt Professor, Department of Geography, UiB

Lecturers

Yacob Arsano Associate professor, College of Social Sciences, Addis Ababa University

Kjersti Berg Adviser, UiB Global

Julie Gjørtz Hovden PhD Candidate, Faculty of Law, UiB

Robin Marsh Researcher, Institute for the study of Societal Issues,

University of California, Berkeley, USA

Owen McIntyre Senior Lecturer, Faculty of Law, University College Cork

Terje Oestigaard Docent, Nordic Africa Institute, Sweden

Tore Sætersdal Assistant Director, UiB Global

Course Presentation

The aim of the course is to critically reflect upon past and current practices in river basin management and how these will have to adapt to growing competition for water and the possibility of changing waterscapes due to climate variabilities.

This course consists of three interconnected parts. First, a general part dealing with and discussing central theoretical and methodological issues in the study of water and society; secondly, a part presenting central issues in the development of international water law, river basin management and the study of power relations among actors in river basins; and thirdly, a case study of the River Nile, since this river can serve as a very useful example to highlight fundamental issues both in international law, water management, theories of sovereignty and the interrelationships between these factors.

There will be key notes by world leading experts, student presentations, discussions of films and a possibility to produce a paper afterwards, enabling the participants to earn 10 credits.

One day of the course will be an excursion into the water landscape and also river basins of Western Norway. From a river basin perspective this will be especially interesting since all the Western river basins of Norway are national river basins, and the Norwegian legal tradition when it comes to water is very unusual as water rights are private.

The ocean, climate and society

Course Leader

Øyvind Fiksen Professor, Department of Biology, UiB and

the Hjort Centre for Marine Ecosystem Dynamics

Lecturers

Svein Sundby Senior researcher, IMR

Dag L. Aksnes Professor, Department of Biology, UiB
Anders Goksøyr Professor, Department of Biology, UiB
Katja Enberg Program leader, Adjunct professor, IMR

Christian Jørgensen Associate Professor, Department of Biology, UiB

Aud Larsen Principal Researcher, Uni Research

Stein Kaartvedt Professor, Section for Aquatic Biology and Toxicology,

University of Oslo

Mark Powell Professor, Department of Biology, UiB

Course Presentation

The ocean is an increasingly important source of protein for a growing human population, but at the same time it is under constant pressure from climate change, pollution and fisheries activities.

In this course we will discuss how the ocean and the organisms living in it are affected by these factors, focusing on how ocean warming and acidification, pollution and fisheries influence the future productivity of the ocean. Can marine ecosystems supply enough food for coming generations? What policy decisions are needed to reach this goal?

Course objectives

- Summarize the recent IPCC-report and how it describes the consequences for marine ecosystems under the predicted climate change.
- Discuss how climate change will affect the productivity of the ocean, and the production chains we depend upon for fisheries and aquaculture.
- Develop an understanding of how climate change and human activities influence fundamental processes in marine organisms and ecosystem functioning from microbes to fish.

Religion and water

Course Leaders

Hans Geir Aasmundsen Researcher, UiB Global

Terje Oestigaard Docent, Nordic Africa Institute, Sweden

Lecturers

Håkan Rydving Professor, Department of Archaeology, History, Cultural

Studies and Religion, UiB

Bron Taylor Professor, University of Florida, USA

Course Presentation

This two-folded course addresses the role of water in religious mythologies and rituals as well how these religious understandings and affinities with water are manifested in various socio-cultural practises in different contexts around the globe.

Water has many functions in religions. For example, there are rituals that try to call forth more water and others that try to stop the rain; there are lakes, rivers and springs that by religious people are regarded as having the power to heal the sick and overcome death – some of them are even regarded as divinities. In many religions, there are narratives about different forms of water. Among other things, these narratives tell that the world was created out of water, that there were struggles between fresh water and salt water in the early history of the world, that there once was 'a great flood' that killed nearly every living being on the earth, or that dangerous creatures try to entice people into the sea.

Water is also one of the most common religious metaphors, representing as different things as 'knowledge', 'life', 'salvation' and 'time', to mention only a few examples. The lectures on water and religion take up these and other themes in a comparative perspective and with empirical examples from both the large religions of today, historical religions of antiquity, and religions of indigenous peoples.

By emphasizing lived lives, practices and experiences, rather than exegesis, theology and eschatology as ideologies, this part of the course will address the role of water and religion in history, societies and cultures today in a wide range of contexts. Moreover, water will be addressed as part of nature and environment, as well as a politically contested resource of which religious and other groups may fight or argue over. We will also present new avenues of research, where water is seen as intrinsic in all religions and where the particular and pervasive historic role of water in religion will be highlighted.

Modelling the complexities of water, climate and society

Course Leader

Pål Davidsen Professor, Department of Geography, UiB

Lecturers

David Wheat Associate Professor, Department of Geography, UiB

Birgit Kopainsky Researcher, Department of Geography, UiB Erling Moxnes Professor, Department of Geography, UiB

Course Presentation

This course will address the complexities of the water, climate and society nexus by way of computer based modelling and simulation. The intent is for participants to familiarize themselves with system dynamics, - a method aimed at explaining and managing change (i.e. dynamics) at large based on an understanding of the underlying structure governing such change.

The method will be illustrated using examples from greenhouse gas emissions, hydrology, demography, epidemiology, and agriculture.

Poverty, climate change and water in the context of SDGs

Course Leader

Noel Keenlyside Professor, Geophysical Institute, UiB

Alberto Cimadamore Scientific Director, CROP

Lecturers

Ronaldo Munck Professor, Dublin City University

Honor Fagan Professor, National University of Ireland
Gaby Ortiz Barreda Associate Professor, HEMIL Centre, UiB

Jörn Schmidt Professor, Christian-Albrechts-Universität Zu Kiel

Course Presentation

The new Sustainable Development Goals are ambitious and aim to ensure the availability of water for all (SDG #6), the sustainable use of marine resources (SDG #14), at the same time as eradicating poverty (SDG#1) and reducing inequality (SDG#10). The defined targets are equally ambitious and represent a test for an international community striving for sustainability in a time dominated by massive global challenges.

The main objective of this course is to analyse these challenges within an integrated scientific framework and to provide students with tools to address these and other major global challenges. Transdisciplinary research (TDR) and more specifically, Sustainability Science, offer the possibility to address urgent societal problems focusing on the transition to sustainability.

This course will include research and educational modules that will explore the theoretical and empirical links of some of the biggest challenges of our time; poverty, climate change, and sustainable development.

DOCTORAL COURSE / JEKTEVIKSBAKKEN 31 / SEMINAR ROOM 2

Climate change and water

Course Leaders

Tore Furevik Professor, Geophysical Institute at UiB and

Bjerknes Centre for Climate Research, UiB

Ellen Viste Researcher, Geophysical Institute at UiB and

Bjerknes Centre for Climate Research, UiB

Lecturers

Jürgen Bader Group Leader, Max-Planck-Institut für Meteorologie

Scott Bremer Researcher, Centre for the Study of the Sciences and the Humanities, UiB

Teferi Demissie Senior Researcher, Uni Climate and the Bjerknes Centre for

Climate Research

Miriam Jackson Research Scientist, The Norwegian Water Resources and Energy Directorate

Ina T. Kindem Energy Meteorologist at the Norwegian energy company BKK

Stefan Sobolowski Scientist, Uni Climate and the Bjerknes Centre for Climate Research

Asgeir Sorteberg Professor, Geophysical Institute at UiB, Bjerknes Centre for Climate Research

Mathew Reeve Senior Researcher, Uni Climate, Bjerknes Centre for Climate Research

Course Presentation

The aim of this course is to give an overview of the present and future state of the Earth's water cycle, the foundation for all life on land.

Water that evaporates from the surface of the oceans moisturizes the air above and can be carried by the winds thousands of kilometres in over land before it precipitates, forming rivers and lakes, and makes the planet habitable. Global warming is changing this distribution and the intensity of the rainfall. Regions that are dry today are generally becoming dryer and wet areas wetter, with increased risks for extreme precipitation, flooding and often landslides.

This course will be structured around the water cycle, from evaporation via transport to precipitation, using theory and models. Global and regional changes related to global warming will be discussed. We start out with a global perspective, before presenting case studies from Europe, Africa and Asia. There will be a mixture of theoretically and empirically focused lectures from expert lecturers, and students will engage through group works and various other activities.

DOCTORAL COURSE / JEKTEVIKSBAKKEN 31 / SEMINAR ROOM 3

Water and global health

Course Leader

Bernt Lindtjørn Professor, Department of Global Public Health and Primary Care, UiB

Lecturer

Seifu Hagos Gebreyesus PhD Candidate, Department of Global Public Health and

Primary Care, UiB

Course Presentation

The purpose of this course is to train young researchers to develop robust interdisciplinary research projects in the complex area of climate and health. The course covers the basics of climate change, its effects on health, and appropriate tools and actions to reduce climate-related health risks.

Participants will learn about climate, weather, and especially seasons, and its association with the risk for food production and malnutrition, as well as risk of vector borne infectious diseases such as malaria and dengue fever.

The course is designed for doctoral students who aim to work in the management and decision-making process related to health programmes. The course will also give a good foundation for non-medical professionals involved in addressing the health challenges posed by climate change.

Students will gain an understanding of methods used in the field of climate change and health and will practice applying their analytical skills in this interdisciplinary research field.

Participants

Nationalities in parenthesis if different from country of academic institution.

River basins, power and law

Lama Mosad Elhatow Erasmus University Rotterdam, the Netherlands (Egypt)

Catherine Gutmann Roberts Bournemouth University, UK Sarah Elizabeth Yoho The University of Leeds, UK (USA) Michelle Kathryn Blade University of Calgary, Canada Safa Mustafa Khiralla Mudoi Askoy municipality, Norway

Palesa Promise Diale University of Cape Town, South Africa Neha Singh Indian Institute of Technology Indore, India Mónica Patricia Cadenas Erazo Universidad Andina Simon Bolivar, Ecuador (Peru)

Thobekile Zikhali University of Witwatersrand, South Africa (Zimbabwe)

Janice Johnson University of Edinburgh, UK (Germany)

Jesse Peterson KTH-Royal Institute of Technology, Sweden (USA)

North-Eastern Hill University, India Refullme Eugene Lamare

Patrick Michael Martel Institute of Natural Resources, South Africa Njabulo Ngcobo University of KwaZulu-Natal, South Africa

Jahan Zeb Ahmed American University, Pakistan Lund University, Sweden (Ethiopia) Wondwosen Seide

Sergio Vidal Parra University of Deusto, Spain

Muraree Lal Meena Banaras Hindu University, Varanasi (UP), India

The ocean, climate and society

Kjersti Opstad Strand University of Bergen, Norway

University of Bergen, Norway (Spain) Libe Aranguren Anna Jeja GabriellaLjungström University of Bergen, Norway (Sweden) Katharina Maj Ottosen University of the Faroe Islands (Denmark) Esther Deborah Beukhof Wageningen University, Netherlands Theresa Theuretzbacher The Climate Foundation, Austria

Norwegian University of Science and Technology (UK) Rachael Morgan

Ines Nicole Spangenberg University of Potsdam, Germany

Natalia Mikhalchenkova Moscow State University of International relations, Russia

University of Oslo, Norway (Croatia) Leana Deris University of Bergen, Norway (Germany) Tom Jasper Langbehn University of South Carolina, USA **Brendan Turley** Roger Norum University of Leeds, UK (USA)

Amrit Kumar Mishra University of Plymouth, UK (India) Gabriel Barros Gonçalves Souza Federal University of Rio de Janeiro, Brazil

Kaixing Dong University of Oslo, Norway (China)

Religion and water

Anehi Mundra Jawaharlal Nehru University, India

Amanda Nichols University of Florida, USA

Eveline Renée De Smalen Ludwig-Maximilians-Universität, Germany (the Netherlands)

Nataly Viviana Vargas Gamboa Pontificia Universidad Javeriana, Colombia (Bolivia)

Vhonani Sarah-Jane Neluvhalani North-West University, South Africa

Philip Onoriode Aghoghovwia University of the Free State, South Africa (Nigeria)

Adewale Oluwole Owoseni University of Ibadan, Nigeria Rachid Boutannoura UCA Marrakesh, Morocco

University for Development Studies, Ghana

Conrad-Joseph WulekaKuuder

Madhava Kakani University of Hyderabad, India Oluwaseun Olawale Afolabi University of Ibadan, Nigeria Ramesh Dheeravath University of Hyderabad, India

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Water and global health

Heloise Greeff University of Oxford, UK (South Africa)

Becky Nancy Achieng' Aloo Jaramogi Oginga Odinga University of Science and

Technology, Kenya

Nneka Lynda Umego University of Ibadan, Nigeria
Stella Yonah Shija The Open University of Tanzania
Rasha Adam Mohamed Shommein Sudan Academy of Science, Sudan

Md. Shoriful Alam Mondal Bangladesh University of Engineering and Technology
Bipin Kumar Acharya Institute of Remote Sensing and Digital Earth, China (Nepal)

Dejene Getachew Bekele Addis Ababa University, Ethiopia

Hafiz Iqbal Bangladesh University of Professional, Bangladesh

Melf-Jakob Kuehl University of Bergen, Norway (Germany)

Silas Arinze Udeh University of Nigeria, Nigeria Sakiru Olarotimi Raji University of Ibadan, Nigeria

Climate change and water

Sabita Madhvi Singh Indian institute of Technology (BHU), India

Marie Pontoppidan Uni Research, Norway (Denmark)

Regin Hanlon Virginia Tech, USA

Manasi Debnath North Eastern Hill University, India
Astrid Fremme University of Bergen, Norway

Mahsa Noori University of Agricultural Sciences and Natural Resources, Iran

Pradeep Vashsisht TERI University, India Patricia Serwaa Afrifa University of Ghana

Simon Onesmo Mpyanga Copenhagen University, Denmark/Ardhi University, Tanzania

Kamleshan Pillay University of KwaZulu-Natal, South Africa Sher Muhammad Institute of Tibetan Plateau Research, China

Maurin P. N. Zouzoua University Félix Houphouët Boigny of Cocody, Ivory Coast

Javed Akhter Jadavpur University, India

Thupstan Angchuk Jawaharlal Nehru University, India
Kofi Asare University of Cape Coast, Ghana
Sunil Kumar Pariyar University of Bergen, Norway (Nepal)

Lele Wei Wuhan University, China

Meysam Motahari Imam Khomeini International University, Iran

Innocent Royal Kamya Makerere University, Uganda

Moses Basitere Cape Peninsula University of Technology, South Africa

Modelling the complexities of water, climate and society

Lisa Steffensen Bergen University College, Norway
Karla Elizabeth Valenzuela University of York, UK (Ecuador)
Ana Jeleapov Academy of Sciences, Moldova

Mesi Shinta Dewi Universitas Indonesia

Emmy Farha Binti Alias University of Bergen, Norway (Malaysia)

Shifteh Mobini Lund University, Sweden

Azelia Green University of Pretoria, South Africa
Hailemariam Birke Andarge Debre Berhan University, Ethiopia
Sebastian Schlauß Luebeck University of Applied Sciences, Germany

Karim Shahin Alexandria University, Egypt

Manivasagam Subramanian Indian Institute of Technology Bombay, India Santosh Subhash Palmate Indian Institute of Technology Roorkee, India

Tuhin Bhadra Jadavpur University, India

Sushil Kumar Indian Institute of Technology Roorkee, India

William Musazura University of KwaZulu-Natal, South Africa (Zimbabwe)

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Poverty, climate change and water in the context of SDGs

Paola Alejandra Slimming Peruvian University Cayetano Heredia, Peru

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Bashintshile Buthelezi University of KwaZulu-Natal, South Africa

Shailly Jaiswal TERI University, India

Arielle Stela Njouodo University of Cape Town, South Africa (Cameroon)

Odo Jones Bassey

Arvid Van Dam

University of Venda, South Africa (Nigeria)
University of Leeds, UK (the Netherlands)
University of Maryland, USA (Benin)

Issah Justice Musah Surugu University of Ghana

Swamy Kalva University of Hyderabad, India

Rodrigue Anicet Koungue University of Cape Town, South Africa (Cameroon)

Sisay Nune Hailemariam Addis Ababa University, Ethiopia

NOTES













