ANU - UNESCO Chair in
Water Economics & Transboundary Water Governance

ANNUAL REPORT
2011-2012

Prepared by
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Chairholder, UNESCO Chair in Water Economics & Transboundary Water Governance
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April 2012

http://www.water.anu.edu.au/UNESCOChair/
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From the Chairholder

The past year has seen many exciting developments with the ANU-UNESCO Chair in Water Economics and Transboundary Water Governance. Daniel Connell, Jamie Pittock and I visited South Africa in June and delivered a specially devised course in water economics and governance for free to students at the University of Western Cape and The University of Cape Town.

In the second half of 2012 we undertook a scoping project on food security on water in Southern Africa and worked with NGOs, farmers and leading experts from Zimbabwe, Mozambique and South Africa. The outcome of this work will be featured in a book to be published later this year.

We also delivered a series of six lectures via the Global Development Learning Network in October and November 2011 on water economics and governance to African and Asian countries. The lectures were recorded and are free to download on our website. This complemented an AusAid funded intensive training program over three months that we provided to professionals from the Mekong region.

In addition to the learning and development opportunities in the classroom, and in the field, the ANU-UNESCO Chair supported the “Global Water Forum” blog. This forum goes from strength to strength and is already a leading site for water and development issues.

On the research front we have also been able to publish a large number of academic papers in water related areas and two books.

In sum, it has been a productive year with many achievements. I thank all of those who have supported us to deliver better outcomes in water economics and governance and helped us to respond to the challenges of meeting the Millennium Development Goals in water and sustainability.

R. Quentin Grafton
About the Chair

Overview

The UNESCO Chair in Water Economics and Transboundary Water Governance was officially launched by the Hon. Bob McMullan, the Australian Parliamentary Secretary for International Development, on 15 April 2010. The UNESCO Chair is a 4-year renewable program that links the Australian National University with a number of partner institutions in Southern Africa and China for research, training and capacity-building. Those partners are UNESCO’s International Hydrological Programme (IHP) and Institute for Water Education (IHE); WaterNet; the International Center for Water Economics and Governance in Africa (IWEGA) at the University of Eduardo Mondlane; the International Water Management Institute; Wuhan University, China; the University of Pretoria, South Africa; the Global Water Partnership; and the Global Development Learning Network.

The Chair creates a pole of excellence in water economics and governance in Africa and China and exists to pursue the Millennium Development Goals (specifically goals 3 and 7) and provide socio-economic expertise in two major areas: (1) Water Education Training, which focuses on capacity-building and knowledge-transfer in water economics and water governance; and (2) ‘Water and Society’, which seeks to understand the value of water in development and to examine the trade-offs among different water users and between water use and the environment. Gender equity is a major concern of the latter program.

The ANU-UNESCO Chair has five major strands of activities: (1) Develop local flexible-learning courses in water economics and transboundary water governance that build issues of gender equity into the course structures. This work is particularly targeted to countries in Southern Africa; (2) A student-exchange program; (3) Web-based learning modules as part of the Global Water Forum; (4) Interactive flexible-learning modules in water economics, water governance, and gender equity in integrated water resource management – in collaboration with the Global Development Learning Network housed by the World Bank Institute; and (5) Development internship programs for water professionals from the South.

Context

The Food and Agriculture Organization of the United Nations estimates that about 3,800 children die every day – almost exclusively in poor countries – as a direct result of unsafe drinking water and lack of proper sanitation. Africa is the continent with the largest disparity in water availability and smallest provision of potable water supply and sanitation. Without a fundamental change in how water is
managed, scarcity problems will become much worse as world population grows and climate change increases the frequency and severity of droughts. There is the potential for a calamity in food production, especially in the South.

As the amount of water available to people decreases, water conflicts will be exacerbated. In response to water scarcity, diversions of water from one region or catchment to another is likely to become more common. Almost invariably, however, water cannot be diverted without imposing substantial costs on the people living where the water originates, and also of course on the environment.

The UNESCO Chair exists to address three key issues in water scarcity. (1) In the context of the Millennium Development Goals in Water, to study the economics of trade-offs among competing users and between water use and the environment. (2) To study the governance of water, both between states and across regions within states. (3) To study inequalities of water access and use, especially those based on gender.

The project will co-ordinate will link a wide range of institutions: the Global Development Learning Network; the Global Water Partnership; the International Water Management Institute and its work on transboundary governance in Africa; Wuhan University’s work on the Yangtze River; the University of Pretoria and its interdisciplinary expertise in water (which involves partnership with the International Center for Water Economics and Governance in Africa, IWEGA, at the University of Eduardo Mondlane); and finally Australian expertise in water economics and experience in the governance of the Murray–Darling Basin. The aim is to gather this expertise together in 4 major ways. (1) High-level capacity building in water governance and economics that will help achieve the Millennium Development Goals. (2) Knowledge-transfer between Australia and Southern Africa and Australia and the Mekong Basin on water governance. (3) New insights into how to effectively manage water scarcity across boundaries. (4) Establishment of a pole of excellence in water economics and governance in Africa which will complement existing programs (MSc and short courses of UNESCO-IHE and WaterNet) primarily in the sciences, engineering and law.

**Development Objective**

The long-term goal of the UNESCO Chair is to help achieve the Millennium Development Goals. The approach is one of promoting environmental sustainability and gender equality through supporting socioeconomic and environmental resilience and sustainable development in Africa and Asia. This will be achieved by promoting better water governance and increasing the knowledge of current and future water professionals and policy makers.
Specific objectives

1. To increase the skills, capacity, networks and potential of leaders and prospective water managers and policy makers. This will be done through a co-ordinated suite of learning modules addressing key issues in water economics (water markets, water pricing, valuation), governance (especially transboundary issues, climate variability), and gender equity in integrated water resource management.

2. To sustain and strengthen institutional capacity (especially in Southern Africa) by providing a platform for collaboration and institutional development. This will involve professional courses, student exchanges, professional internships, and flexible learning via the Global Water Forum and the Global Development Learning Network.

3. To develop innovative research, tools, case studies and insights on water economics, water governance and gender equity. These will extend global knowledge and support integrated water resource management.

People

Professor R. Quentin Grafton, ANU
Chairholder

Dr. Daniel Connell, ANU
Director of Education Programs

Dr. Jamie Pittock, ANU
Director of International Programs

Governance

An Advisory Council has been established to provide advice and oversight to the activities of the UNESCO Chair. Membership of the Advisory Council comprises

- Robert Hill (Chair), US Studies Centre, The University of Sydney
- James Horne
- Marcus Howard, AusAID
- Karen Hussey, Fenner School of Environment and Society, ANU
- Tom Kompas, Crawford School of Economics and Government, ANU
- Bob McMullan, European Bank for Reconstruction and Development
- Awadhesh Prasad, Murray–Darling Basin Authority
Partner Institutions and Key Individuals

Professor Wang Shuyi, Wuhan University, is a Member of the Standing Committee of Hubei Provincial People’s Congress and Vice Chair of the Chinese Association of Environment and Resource Law.

Professor Rashid Hassan, University of Pretoria, is an expert on water economics and water use efficiency and water valuation. He is a Member of the Academy of Science, South Africa, and Chief Editor of the African Journal of Agricultural and Resource Economics.

Mark Giordano, Head of Institutions and Policy Group at the International Water Management Institute, is a geographer and economist with extensive experience in economic development, water management and transboundary resources.

Dr Frances Cleaver, University of Bradford, is one of the world’s leading researchers in gender equity and water resource management. All partners will work actively and collaboratively with the International Hydrological Programme at UNESCO.

Dr Stefano Farolfi, Scientific Director, International Center for Water Economics and Governance in Africa (IWEGA), Universidade Eduardo Mondlane, coordinates a number of projects on water governance and management and teaches courses on environmental economics and policy.

Professor Innocent Nhapi, Department of Civil Engineering, University of Zimbabwe, is an expert in sanitary and environmental engineering. His research interests include transboundary water quality monitoring, eco-technology research in Africa, and catchment water quantity and quality management.

Dr Hodson Makurira, University of Zimbabwe, has nearly 20 years of experience in the field of water management. He teaches undergraduate courses in civil engineering and is actively involved in the delivery of the SADC regional Masters Programme in Integrated Water Resources Management.

Professor Dominic Mazvimavi, Director Institute of Water Studies, University of the Western Cape, South Africa, is one of Africa's leading experts on environmental flows. He is managing guest editor of the Journal of the Physics and Chemistry of the Earth. His research interests include water resources planning and management, hydrological regionalization and effects of land use change.

Dr Keith Kennedy, Council for Scientific and Industrial Research (CSIR), is a key member of CSIR’s Water Resource team, which is part of the Natural Resources and the Environment Research Unit based in Stellenbosch, South Africa.

Mr Derick du Toit, Association for Water and Rural Development (AWARD), has worked on education reform in both Namibia and South Africa. He has been participating in the drafting of the Catchment Management Strategy guidelines for DWAF and is currently working with AWARD on the FETWater training of Catchment Management Agencies and water managers.
Types of Activities

The activities of the Chair include:

1. **Postgraduate teaching program** focused on Millennium Development Goals 3 and 7 through a graduate course in water economics and water governance at the Australian National University.
2. **Short-term training** through joint (Australia/China/Southern Africa) intensive taught courses in water economics and governance, and gender equity in integrated water resource management.
3. **Research** and its publication by the UNESCO Chair and project team and partners.
5. **Institutional development** through collaboration with the Global Water Partnership, Global Development Learning Network and International Water Management Institute to deliver interactive learning, tools, knowledge-sharing via the Global Water Forum.

Target Beneficiaries

Projects of the Chair target the following groups, especially women, as part of its knowledge-transfer and capacity-building:

1. **Students** through their participation in post-graduate and also flexible learning courses developed by project partners.
2. **Academics** through scholarly exchanges and joint research initiatives in water economics, water governance and gender issues in integrated water resources management.
3. **Professionals** through internships and workshops developed by project partners, and also flexible and interactive learning as part of the Global Water Partnership and the Global Development Learning Network.

Outreach

The insights, results and tools of the Chair are communicated through the following channels.

1. Published by the Australian National University Water Initiative which has a high profile in water within Australia and a comprehensive website ([www.water.anu.edu.au](http://www.water.anu.edu.au)).
2. Research papers and books are submitted for publication in international journals and other outlets.
3. Presentations at both national and international conferences for knowledge dissemination.
4. Seminar and workshops in-country and in partner institutions.
5. Target media outlets in the countries of project partners.
6. Delivery of interactive video-based training via the international education network.
### Major Activities, Education, Training and Impacts, 2010-2012

<table>
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<tr>
<th>Objective</th>
<th>Activity</th>
<th>Description, Time &amp; Location</th>
<th>Expected Outcomes</th>
<th>Impact of the Chair</th>
</tr>
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<tbody>
<tr>
<td><strong>Training and knowledge transfer</strong></td>
<td>Master’s level water course ‘CRWF8013 Water Economics and Governance’ delivered in ANU, Australia</td>
<td>Postgraduate course offered Feb–Jun 2011, Crawford School, ANU</td>
<td>Young professionals developed important skills in water economics and governance and gender equity in integrated water resources management</td>
<td>Weekly 3 h courses of lectures and tutorials exposed students to current knowledge of water economics and governance. The course was taught by Prof Quentin Grafton, Dr Daniel Connell and Dr Jamie Pittock. Some 25-30 postgraduate students from various disciplines and countries attended</td>
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<tr>
<td><strong>Training and knowledge transfer</strong></td>
<td>Intensive Master’s level professional development water course delivered in South Africa</td>
<td>Two-day intensive course ‘Water Economics and Governance’ 7-8th July 2011 to undergraduate and postgraduate students in the University of Cape Town and University of Western Cape, South Africa</td>
<td>Young professionals developed important skills and expertise in water economics, governance and gender equity in integrated water resource management</td>
<td>The first intensive course offered in South Africa by the UNESCO Chair and taught by experts from Australia and South Africa. Technical knowledge and global examples were offered. It was received positively, with 90% of students rating it as very good or excellent. It brought together students from two universities in South Africa to promote professional knowledge exchange and debate, and friendships were formed.</td>
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<tr>
<td><strong>Training and knowledge transfer</strong></td>
<td>Series of interactive flexible-learning modules for the Global Development Learning Network</td>
<td>2011 course scheduled for October and November in six countries. 2012 GDLN lecture series is scheduled.</td>
<td>Global access to tools, case-studies and expertise of the project team and its partners which will contribute to better water resource management and environmental sustainability</td>
<td>Immediate training of participants in sub-Saharan Africa. Teaching materials from experts in the field available online, free, globally via Global Water Forum and various websites.</td>
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<tr>
<td>Institutional capacity building</td>
<td>Establish a professional internship program for water professionals</td>
<td>Krasposy Kujinga, a PhD scholar from the University of Zimbabwe, will visit ANU 25 October to 26 November 2011</td>
<td>Water professionals from the South work with Australian water professionals to enhance and expand their water management expertise</td>
<td>Aim of the visit is to develop long-term academic and professional links related to water resources management between the Institute of Environmental Studies at the University of Zimbabwe and the ANU</td>
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<td><strong>Institutional capacity building, research development</strong></td>
<td>Establish a scholar exchange program between China and the ANU</td>
<td>Australia–China Environment Development Partnership Seminar: Water and Wetlands, ANU, 29 July 2010</td>
<td>University academics in China and Australia establish a series of collaborative research programs in water</td>
<td>Five of China’s leading freshwater researchers were joined by prominent Australian experts in a discussion on the latest insights and proposed solutions for sustaining limited freshwater resources. It was an opportunity to provide suggestions for proposed guidelines for managing wetlands in China</td>
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<tr>
<td><strong>Institutional capacity building, research development</strong></td>
<td>Establish a scholar exchange program between University of Pretoria and the ANU</td>
<td>UNESCO Chair Water Governance in South Africa Workshop at ANU 25 November 2010</td>
<td>University academics in Southern Africa and Australia establish a series of collaborative research programs in water</td>
<td>The 1-day workshop provided an opportunity for South African and Australian academics and experts to exchange knowledge and experience in managing water scarcity issues across engineering, ecology, economics, policy, governance, and social sciences. It raised awareness of water issues in South Africa; participants were interested to discuss water economics and trading in Australia’s Murray–Darling Basin</td>
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<tr>
<td><strong>Institutional capacity building, research development</strong></td>
<td>Dahlem workshop with water experts from South and North</td>
<td>Beginning 2013, biennially thereafter</td>
<td>Share knowledge and synthesis on key challenges in water resource management in the South for world-wide dissemination</td>
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<td>Institutional capacity building, research development</td>
<td>Collaborative project ‘Potential incentives for sustainable farming for food and water security, and poverty reduction in southern Africa’ funded by ACIAR</td>
<td>The 7-month project started in June 2011</td>
<td>The project intends to assess current practices and promising options for research and implementation involving: a) rainwater harvesting and conservation agriculture, b) adaptive, local-scale water resource management for agriculture, c) better water management in agriculture to reduce poverty, d) exchange of knowledge between Australia and Africa. Technical publications on these topics will be delivered</td>
<td>Technical publications that document current knowledge and identify future investment priorities. Advice to Australian government agencies on future aid investment priorities in Africa</td>
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<tr>
<td>Training, knowledge transfer, institutional capacity building, research development</td>
<td>Mekong Alliance project 4-month intensive program on ‘Transboundary cooperation in the Mekong region’, funded by AusAID, the program started in August 2011</td>
<td>Program brought together 20 academic staff from universities in China, Vietnam, Cambodia and Laos. The aim was to develop a package of cooperative research and teaching focusing on climate change and pro-poor development issues in the Mekong region</td>
<td>Program creates a unique opportunity for selected participants, who are leaders in their institutions, to come together and promote cross-border cooperation. It will discuss major issues affecting the Mekong region and work on proposals for cooperation when staff return home</td>
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<tr>
<td>Training, knowledge transfer</td>
<td>Master level intensive course ‘CRWF8003 International Water Politics’</td>
<td>One of the courses designed and provided for the Mekong Alliance project in August – October 2011</td>
<td>The course was co-taught by Dr Daniel Connell and Dr Jamie Pittock</td>
<td>The course brought together academic staff from universities along Mekong River to discuss the politics of transboundary water issues</td>
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<td>Training, knowledge transfer, institutional capacity building, research development</td>
<td>4-month intensive course on ‘Civil society in Asia, South Asia, South America and Africa’</td>
<td>Seeking funding and intend to start in 2012</td>
<td>Program seeks to bring together middle-level staff from NGOs across the regions and involve them in courses and activities that will strengthen their</td>
<td>The courses will promote community engagement with the Millennium Development Goals, particularly as they relate to water</td>
</tr>
<tr>
<td>Training, knowledge transfer, research development</td>
<td>Joint conference ‘International Conference on Freshwater Governance for Sustainable Development’ by ANU–UNESCO Chair, Water Research Commission South Africa, and Department of Water Affairs – South Africa</td>
<td>Planned conference to be held in 5-7 November 2012 at Central Drakensburg, KwaZulu, Natal</td>
<td>Joint conference to focus on transboundary water management issues, the first in a series alternating between South Africa and Australia, co-hosted by the ANU and the South African WRC</td>
<td>The proposed alternating conference will promote knowledge-sharing and research development and will build on the many similarities in water management policies shared by the two countries</td>
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<tr>
<td>Training, knowledge transfer, research development</td>
<td>ANU–Oxford University workshop on ‘Water Security in Federal Rivers’</td>
<td>The 1-1/2 day workshop will be held at Oxford University in April 2012</td>
<td>Workshop/book project will be built around a series of case studies of major transboundary rivers in the political systems of Australia, South Africa, United States, Mexico, Spain, India, China and Brazil</td>
<td>The workshop will provide a focused opportunity to advance comparative research about water security and governance in trans-boundary rivers. Researchers and practitioners will use the forum to exchange lessons learnt from case studies while advancing a series of program objectives for future research</td>
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<tr>
<td>Training, knowledge transfer, research development</td>
<td>Harvard University end-of-course conference</td>
<td>April 2012</td>
<td>Dr Daniel Connell is invited to the end-of-course student conference Water and federalism: comparative perspectives on water institutions in federal systems.</td>
<td>Provide training and capacity building for university students involves in water studies in Harvard University</td>
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<tr>
<td>Training, knowledge transfer</td>
<td>Proposed book ‘Water, food and agricultural sustainability in southern Africa’</td>
<td>December 2011–June 2012, to be published by ANU EPress. At least 8 chapters, as a portion of this book is the findings of the ANU and ACIAR supported project ‘Assessing potential capacity to promote civil society goals in their home countries</td>
<td>The book aim to synthesis knowledge from, and present the perspective of, key research groups and practitioners on how scarce water resources may be better managed: for sustainable</td>
<td>The book will identify priorities for research and management in order to enhance sustainable water management and food production in southern Africa. It will make this knowledge readily available to</td>
</tr>
<tr>
<td>Training, knowledge transfer</td>
<td>Proposed book ‘Water security, governance and economics’</td>
<td>Book proposal for Tilde Publishing, expected to publish in 2012/13.</td>
<td>The book will focus on water scarcity, the economics of water resources, and the governance of water (urban and rural) from an international perspective. Select Australian case studies illustrate both innovative measures and the gaps between theory and practice in the complex venture that is water management.</td>
<td>The chapters of this book provide an overview of the wide range of controversies that together make up the international water debate and enable the reader to develop a good understanding of relevant perspectives from the literature on water security, governance and economics.</td>
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<tr>
<td>Training, knowledge transfer, institutional capacity building, research development</td>
<td>Online learning platform ‘Global Water Forum’</td>
<td>GWF was established in 2010, and it provides a weekly discussion topic, water news, water research highlights and announcements. It also provides information and links to ANU-UNESCO Chair GDLN water courses content and videos.</td>
<td>The GWF is established as an initiative of the Chair in order to present freely available knowledge and insight from some of the world’s leading water researchers and practitioners. The contributions provide evidence-based, accessible, and freely available articles looking at local, regional, and global water challenges.</td>
<td>The goals of GWF are to: support capacity building through knowledge sharing; provide a means for informed, unbiased discussion of potentially contentious issues; provide a means for discussion of important issues that receive less attention than they deserve; and create high quality resource for water practitioners that is accessible and freely available across the world.</td>
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<td>Research development</td>
<td>Rivers and climate change</td>
<td>Journal paper submission in early 2012</td>
<td>A comparative analysis of management of the Orange, Murray-Darling Basin and two other rivers globally, and the implication of climate change has been submitted to a leading journal.</td>
<td>The research makes important recommendations for managing water entitlements to sustain rivers with climate change.</td>
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<tr>
<td>Capacity building</td>
<td>Network on Africa</td>
<td>Early 2012</td>
<td></td>
<td>The UNESCO Chair also contributed</td>
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<tr>
<td><strong>Training, knowledge transfer, institutional capacity building, research development</strong></td>
<td><strong>Agriculture and water management in southern Africa</strong></td>
<td>Seeking funding from ACIAR, proposal submitted, proposed to start in Jan 2013</td>
<td>The four year research project on ‘Improving small-holder farmers’ access to water for sustainable agricultural production in southern Africa’. The proposed project build on from the recommendation of the previous ACIAR project to enhance capacity building, institutional and research development on southern African water issue among agricultural sector.</td>
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<td><strong>Training, knowledge transfer, institutional capacity building, research development</strong></td>
<td><strong>International RiverSymposium</strong></td>
<td>October 2012</td>
<td>An Australia-Africa session on common lessons for sustainable river management is planned at the International RiverSymposium involving the UNESCO Chair, GiZ and African partners. The session provides a platform for knowledge sharing, research development and capacity building among participants.</td>
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<td><strong>Training, knowledge transfer, institutional development, capacity building</strong></td>
<td><strong>Australian Leadership Award</strong></td>
<td>Seeking funding from AusAID. Proposed three months intensive course in early 2013</td>
<td>Proposed to fund 20 mid-level staff from African partner institutions to undertake a three months intensive graduate diploma on climate change and food and water security at ANU. The course will provide training and capacity building for the staff in African institutions.</td>
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<tr>
<td><strong>Capacity building, institutional development</strong></td>
<td><strong>GIZ collaboration</strong></td>
<td>Informal collaboration is underway</td>
<td>Potential cooperation with GIZ on water economics capacity building and in work with SADC on climate change adaptation and river management.</td>
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<td><strong>Research development</strong></td>
<td><strong>Inflow interception</strong></td>
<td>Under planning</td>
<td>Collaborative research is intended with South African and other colleagues on governance of inflow interception derived from forestry plantations for carbon sequestration.</td>
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<tr>
<td><strong>Institutional development, capacity building</strong></td>
<td><strong>Climate change adaptation in Mekong Delta</strong></td>
<td>Seeking funding from AusAID</td>
<td>Developing a proposal regarding to institutional and social capacity on climate change adaptation in the Mekong Delta with Kien Van Nguyen</td>
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Event Highlights in 2011

The UNESCO Chair in Water Economics and Transboundary Water Governance was launched in April 2010, and is led by Professor Quentin Grafton at the Australian National University. A number of key activities have commenced, focused on southern Africa and Australia. A website with further details about the UNESCO Chair, its goals and its people is available at http://www.water.anu.edu.au/UNESCOChair/.

Below are some of the events highlights of the Chair in 2011–12.

ANU–UNESCO Chair South Africa Lectures 2011:

Water Economics and Governance

University of Cape Town, 7–8 June 2011

A series of 2-day intensive lectures on water economics and governance was conducted in June 2011 in Cape Town, South Africa. This was the first intensive course offered by the Chair in South Africa to be taught by water experts from both Australia and South Africa. The course brought together students from the University of Cape Town and the University of the Western Cape. The workshop was built around sessions led by Professor Quentin Grafton, Dr Daniel Connell and Dr Jamie Pittock. The course received a positive response (90% of the students rated the course as very good or excellent). It promoted professional knowledge exchange and debate, and friendships developed during the course.

<table>
<thead>
<tr>
<th>date</th>
<th>Week/day/session</th>
<th>topic</th>
<th>lecturer</th>
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<tbody>
<tr>
<td>07/06/2011</td>
<td>Session 1</td>
<td>World water</td>
<td>Prof. Quentin Grafton</td>
</tr>
<tr>
<td>07/06/2011</td>
<td>Session 2</td>
<td>Urban water</td>
<td>Prof. Quentin Grafton</td>
</tr>
<tr>
<td>07/06/2011</td>
<td>Session 3</td>
<td>Water models and markets</td>
<td>Prof. Quentin Grafton</td>
</tr>
<tr>
<td>07/06/2011</td>
<td>Session 4</td>
<td>Governance - Managing risk</td>
<td>Dr. Daniel Connell</td>
</tr>
<tr>
<td>08/06/2011</td>
<td>Session 1</td>
<td>Freshwater and climate change</td>
<td>Dr. Jamie Pittock</td>
</tr>
<tr>
<td>08/06/2011</td>
<td>Session 2</td>
<td>Freshwater and the environment</td>
<td>Dr. Jamie Pittock</td>
</tr>
<tr>
<td>08/06/2011</td>
<td>Session 3</td>
<td>Water accounting</td>
<td>Dr. Ephias Makaudze</td>
</tr>
<tr>
<td>08/06/2011</td>
<td>Session 4</td>
<td>Water Governance Reform in Federal River Systems</td>
<td>Dr. Daniel Connell</td>
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</table>
The Global Development Learning Network (GDLN) is a partnership of over 120 global institutions, collaborating in the design of customised learning solutions for people working in development.

As part of their work on water and development, the GDLN is working with the UNESCO Chair in Water Economics & Transboundary Water Governance, whose aim is to provide expertise in capacity building and knowledge transfer in water economics and water governance, and develop an understanding of the value of water and trade-offs across water users and between water use and the environment.

The result of this collaboration is a series of lectures from leading academics in the water sector at the Australian National University which are being streamed live to water practitioners in Sri Lanka, Tanzania, Uganda, and India. The lectures take place from 18:00-20:00 AEST each Wednesday in November, and cover a range of topics across water economics and governance. Six GDLN 2-hour sessions on water economics and governance. Local discussion will be facilitated.

<table>
<thead>
<tr>
<th>Seminar</th>
<th>Topic</th>
<th>Speaker</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminar 1</td>
<td>Water: global-local and rural-urban issues</td>
<td>Prof. Quentin Grafton</td>
<td>26/10/11</td>
</tr>
<tr>
<td>Seminar 2</td>
<td>Risk and federal rivers</td>
<td>Dr. Daniel Connell</td>
<td>02/11/11</td>
</tr>
<tr>
<td>Seminar 3</td>
<td>Managing conflicts between climate, energy and water policy</td>
<td>Dr. Jamie Pittock</td>
<td>09/11/11</td>
</tr>
<tr>
<td>Seminar 4</td>
<td>Water governance: water reform and federal rivers</td>
<td>Dr. Daniel Connell</td>
<td>16/11/11</td>
</tr>
<tr>
<td>Seminar 5</td>
<td>Rivers, water, and climate change adaptation</td>
<td>Dr. Jamie Pittock</td>
<td>23/11/11</td>
</tr>
<tr>
<td>Seminar 6</td>
<td>Water models and markets</td>
<td>Prof. Quentin Grafton</td>
<td>20/11/11</td>
</tr>
</tbody>
</table>

**VC Connection / Time Schedule**

<table>
<thead>
<tr>
<th>Country</th>
<th>City</th>
<th>Time schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Canberra</td>
<td>6-8 pm</td>
</tr>
<tr>
<td>Mauritania</td>
<td>Nouakchott</td>
<td>8-10 am</td>
</tr>
<tr>
<td>Uganda</td>
<td>Kampala</td>
<td>11 am – 1 pm</td>
</tr>
<tr>
<td>Kenya</td>
<td>Nairobi</td>
<td>11 am to 1 pm</td>
</tr>
<tr>
<td>India</td>
<td>Delhi</td>
<td>1 – 3 pm</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>Colombo</td>
<td>1 – 3 pm</td>
</tr>
<tr>
<td>Tanzania</td>
<td>Dar Es Salaam</td>
<td>11 am – 1 pm</td>
</tr>
</tbody>
</table>

* one hour local discussion to follow.
With the exception of seminar 3 which was not recorded, the lectures can be accessed at
http://www.globalwaterforum.org/tools/lectures
Reactions from participants were posted on the World Bank GDLN ning site: http://gdln-
global.ning.com/profiles/blogs/facilitating-water-governance-outcome-of-anu-lead-vc-series

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Global Water Forum
THE CHALLENGES OF WATER GOVERNANCE IN THE 21ST CENTURY

HOME DISCUSSIONS ← RESOURCES ← CONTRIBUTE ABOUT NEWSLETTER

Lectures

As part of our aim to provide expertise in capacity building and knowledge transfer in water economics and water governance, and to develop an understanding of the value of water and the trade-offs across water users and between water use and the environment. In order to achieve this aim, this page hosts a number of video lectures from partners of the Global Water Forum which cover a variety of water governance issues. For access to any of the lectures click on the links below:

Global Development Learning Network lecture series

The Global Water Forum is working with the GDLN to provide expertise in capacity building and knowledge transfer to develop an understanding of the value of water and the trade-offs across competing water uses. The result of this collaboration is a series of lectures from leading academics in the water sector at the Australian National University which were streamed live to water practitioners in Sri Lanka, Tanzania, and India.

<table>
<thead>
<tr>
<th>Lecture 1</th>
<th>Lecture 2</th>
<th>Lecture 3</th>
<th>Lecture 4</th>
<th>Lecture 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global Water</strong></td>
<td><strong>Risk and Rivers</strong></td>
<td><strong>Governance</strong></td>
<td><strong>Climate Change</strong></td>
<td><strong>Hydropower</strong></td>
</tr>
<tr>
<td>Prof. Quentin Grafton discusses global water stocks, and future water scenarios.</td>
<td>Dr. Daniel Connell discusses political systems and risks for transboundary river systems.</td>
<td>Dr. Daniel Connell discusses water governance and water reform for federal rivers.</td>
<td>Dr. Jamie Pittock discusses rivers, water, the environment, and climate change.</td>
<td>Dr. Jamie Pittock discusses trade-offs between dams, hydropower, and the environment.</td>
</tr>
</tbody>
</table>
Global Water Forum

The Global Water Forum, established in 2010 as an initiative of the United Nations Educational, Scientific and Cultural Organization (UNESCO), works with the Global Development Learning Network (GDLN), to provide expertise in capacity building and knowledge transfer in water economics and governance, and to develop an understanding of the value of water and across different uses.

As part of this broader collaboration Tokyo Development Learning Center, The World Bank (TDLC) has provided its connectivity services for a series of video lectures to leading academics in the water sector at the Australian National University (ANU), which connected to water practitioners in Sri Lanka, Tanzania, Uganda, and India in November 2011.

The full schedule of lectures is as follows:

Seminar 1: Water: global-local and rural-urban issues
Prof. Quentin Grafton

Seminar 2: Risk and federal rivers
Dr. Daniel Connell

Seminar 3: Managing conflicts between climate, energy and water policies
Dr. Jamie Pittock

Seminar 4: Water governance: water reform and federal rivers
Dr. Daniel Connell

Seminar 5: Rivers, water, and climate change adaptation
Dr. Jamie Pittock

Seminar 6: Water models and markets
Prof. Quentin Grafton

With the exception of seminar 3 which was not recorded, the lectures can be accessed as follows.
Global Development Learning Network (GDLN) lecture series

For information on the Global Water Forum, access the Global Water Forum website.
Reactions of participants:

Comments from Sri Lanka Distance Learning Centre participants

“All the participants appreciated the insights that the series offered. Please share our sentiments with the resource speakers. All of them did a good job and Jamie particularly did very well.”

Many in the water sector in Sri Lanka believed that the reforestation is going to increase the water availability in a river basin and as such it is better to convert barren lands into forests. The recent video conference held at the Distance Learning Center Ltd, on Water Economics and Governance revealed that this belief needs to be revisited.

Experiences related to Murray and Darling rivers in Australia were discussed where it was revealed that what actually happened exceeded all the predictions of specialist studying climatic change. There is much evidence to say that both droughts and floods could be severe in future than one might foresee or predict. Without getting ready to respond to the median, the necessity of getting ready for the extremes was stressed. The need to revisit the designs and also the need to reformulate the hydrological studies was stressed.

As droughts approach slowly, there is time to react but the same flexibility is not available for responding to floods. As such dam safety should be a critical area of focus of future water resources managers than water management, with climate change creating unpredictable extreme weather conditions.

Future long distance training

We are currently developing a plan to expand the number of participants in the Water economics and governance course, presenting via the GDLN network.

Contact is being made with the following institutions to gauge interest and the course will be advertised more widely through the network. Our aim is to extend the course to a wider group of countries and to work with participants to provide the training that they want. The institutions with whom discussions are beginning include:

- University of KwaZulu Natal
- University of Western Cape
- University of Cape Town
- University of Pretoria
- Wits University
- IWEGA / University of Eduardo Mondlane
- University of Zimbabwe
- Rhodes University
- Sokoine University of Agriculture

In addition, we are working through the UNESCO International Hydrological Program national committees in Africa.
Mekong Alliance Project

*Crawford School, ANU, October – November 2011*

A four month AusAID funded project re climate change in the Mekong Basin for 20 teaching and research staff from Beijing Forestry University, Vietnam Forestry University, Royal University of Phnom Penh and the National Economic Research Institute of Laos. The aim was to build cross boundary alliances.

While at the ANU the participants developed strong links between their four countries and with ANU researchers that will have many benefits for ongoing collaborative work in the Mekong catchment re climate change adaptation, REDD+ projects, environment induced migration, a wide range of forestry related issues, and various social and economic subjects linked to the millennium development goals. A number of ANU staff in both the Crawford and Fenner Schools developed plans for future projects with the participants while they were here. Since the end of the Mekong Alliance program in November 2011 Crawford staff made two in-country visits to institutions that took part in the program and more are planned in the near future. While here at the ANU individual Mekong Alliance participants planned joint projects with staff from the ANU and the CSIRO. There were also a series of planning meetings with staff from the CSIRO and Sydney University’s Mekong Research Centre resulting in proposals for joint educational activities in the Mekong region in the near future.

In the immediate future two proposals are being prepared for submission to potential funders including AusAID. The first is for a summer school on Climate Change and the Mekong Basin to be held somewhere in the region in the mid-year university vacation. The second proposal will be for a conference/workshop focussing on environmental education in the Mekong region. In addition to the four Mekong institutions and the ANU (Crawford and Fenner Schools) the second project proposal will also involve the Mekong Research Centre at Sydney University.

*Photo: End of year celebration*
ACIAR Project Workshop: Water and Agriculture in South Africa

Wits Rural Facility (WRF), Limpopo Province, South Africa, 31 Oct – 2 Nov 2011

The purpose of the workshop was to bring together the four African and Australian teams that have undertaken research for the project “Potential incentives for sustainable farming for food and water security and poverty reduction in southern Africa” to present, discuss, refine and synthesize their research.

The aim was to produce a synthesis that will result in a report to the Australian Government that recommends future priorities for investment in this field as well as an academic publication that will make the knowledge generated in the project freely available.

The workshop would also bring together key African and Australian institutions working for sustainable farming for food and water security and poverty reduction in order to enhance partnerships for potential future work. The location of the workshop in an area where sustainability projects are underway will enable participants to learn from work on the ground though the field trip.

Collaborative partnership presentations:

In total, five presentations were made as follows:

<table>
<thead>
<tr>
<th>Institution</th>
<th>Presenter</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Zimbabwe (UZ)</td>
<td>Dr Hodson Makurira</td>
<td>Rainwater Harvesting and Conservation Agriculture in the southern African region</td>
</tr>
<tr>
<td>AWARD</td>
<td>Dr Sharon Pollard and Derick du Toit</td>
<td>Towards catchment-based water and food security: Exploring the role of incentives for sustainable farming within the context of Integrated Water Resources Management</td>
</tr>
<tr>
<td>CSIR</td>
<td>Dr Jean Marc Kahinda and Dr Mutsa Masiyandima</td>
<td>The Role of Better Water Management in Agriculture for Poverty Reduction</td>
</tr>
<tr>
<td>Ecolink</td>
<td>Prof Jacqueline Goldin</td>
<td>Rainwater harvesting in Mpumalnga: Women and youth participation.</td>
</tr>
<tr>
<td>ANU</td>
<td>Dr Jamie Pittock</td>
<td>Australia Southern Africa links</td>
</tr>
</tbody>
</table>
Workshop outputs:

1. Produce a synthesis of the four project component reports;
2. Help refine a report to ACIAR and AusAID in December 2011 with recommendations for future Australian investment in this field
3. Project proposal for a 3 year project to be submitted to ACIAR
4. Form the basis of an ANU E-Press book for publication in early 2012
The Chair has developed collaborative research projects with our partners locally, in China, Southeast Asia, Europe and in South Africa (see International Program and Education Program Reports for details).

Below are some selected publications produced directly and indirectly from the Chair.

Books

Book chapters

Journal articles

**Conference paper / presentations**


**Working papers**

• Finlayson, C.M., Pittock, J. (Submitted) Adoption of an ecosystem approach for maintaining the ecological character of the rivers and wetlands in the Murray-Darling Basin (South-Eastern Australia).
• Pittock, J. (submitted) Small hydropower, the environment and climate change.
• Yu, X., Pittock, J., Jiang, L., Larry Li, B.L., Norse, D., Deng, X., Yi, W., Gu, S., Braat, L., Avishek, K. (submitted) What we can learn from the ecosystem management and policy change in China (1949-2010)?
The brief for the international programs component of the UNESCO Chair in Water Economics and Transboundary Water Governance is to seek additional funds and developing research and collaboration projects on water with African partners. This report covers the past years as well as planned activities.

**Activities to Date**

1. **Research project: sustainable farming for food security, water and poverty reduction in southern Africa**

A research project “Assessing potential incentives for sustainable farming for food security, water and poverty reduction in southern Africa” was undertaken by the UNESCO Chair and African partners (University of Zimbabwe, Association for Water and Rural Development (AWARD), South Africa’s Council for Scientific and Industrial Research (CSIR)) in 2011 with funding support from the Australian Centre for International Agricultural Research. This project investigated the potential for improving incentives for better water use in agriculture at the meso scale in Mozambique, South Africa and Zimbabwe. It focussed on assessing the potential for enhancing management at the local community to river catchment (sub-basin) scale – or meso scale - that have been identified as a priority for improved management practices. Further, the benefits from collaboration in research that Australia and Africa can gain in areas of mutual interest and expertise were identified, including: optimising agriculture in semi-arid and wet-dry tropical regions; conservation agriculture; agricultural extension; management of inflow interception; water economics and policy, and catchment management.

A key output from this project was an assessment of priorities for further Australian support for water management in agriculture in southern Africa. A book on agriculture and water management in southern Africa is also in preparation.

2. **Visiting fellow**

Mr Krasposy Kujinga from the University of Zimbabwe was a visiting fellow at the Crawford School on October – November 2011 researching comparative governance and exploring collaboration. A joint paper comparing management of the Zambezi and Murray-Darling rivers is proposed.

3. **Rivers and climate change**

A comparative analysis of management of the Orange, Murray-Darling and two other rivers globally, and the implications of climate change has been submitted to a leading journal. The paper was prepared by
Prof. Grafton, Dr Pittock, Dr Connell, two African colleagues and other collaborators. The research makes important recommendations for managing water entitlements to sustain rivers with climate change.

4. Network on Africa

The UNESCO Chair also contributed to ANU’s input to the planned Australia Africa Universities Network that is being formed following the recent parliamentary inquiry on Australia’s relations with Africa.

**Planned activities:**

1. Agriculture and water management in southern Africa. A four year, $3.56 million research program on “Improving small-holder farmers’ access to water for sustainable agricultural production in southern Africa” has been submitted to ACIAR. We anticipate advice on whether we are accepted into the next round of assessment in March. If approved in mid-2012 the project would commence in January 2013.

2. International RiverSymposium. An Australia-Africa session on common lessons for sustainable river management is planned at the International RiverSymposium in October 2012 involving the UNESCO Chair, GiZ and African partners.


4. Australian Leadership Award. Following on from the ACIAR-supported research project a proposal is being prepared for consideration by ANU then AusAID for an Australian Leadership Award that would fund 20 mid-level staff from African partner institutions to undertake a three month intensive graduate diploma on climate change and food and water security at ANU in early 2013.

5. GIZ collaboration. Informal collaboration underway with the German development agencies GIZ includes potential cooperation on water economics capacity building and in work with SADC for a request to AusAID for an Australia-Africa Partnership Facility award on climate change adaptation and river management.

6. Inflow interception. Collaborative research is intended with South African and other colleagues on governance of inflow interception derived from forestry plantations for carbon sequestration.

**More information:**

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Education Programs

Dr. Daniel Connell, Director of Education Programs
Research Fellow, Crawford School, ANU
March 2012

Teaching

- CRWF8013 Water Economics and Governance (in combination with Quentin Grafton and Jamie Pittock)
- South Africa short course Cape Town, June, (in combination with Quentin Grafton and Jamie Pittock)
- Mekong Alliance project – coordinator (a four month AusAID funded project re climate change in the Mekong Basin for 20 teaching and research staff from the Beijing Forestry University, Vietnam Forestry University, Royal University of Phnom Pehn and the National Economic Research Institute of Laos. The aim was to build cross boundary alliances.)
- CRWF8003 International Water Politics – co-taught with Jamie Pittock (one of the package of courses provided for the Mekong Alliance project)
- GDLN teleconference series, November, re water economics and governance (contribution to series of lectures in combination with Quentin Grafton and Jamie Pittock)
- (In addition there were my other teaching commitments in 2011 where the themes were more general but which frequently involved subjects relevant to the priorities of the UNESCO Chair (EMD 8007 Environmental Policy and Communications taught twice as a semester length course and as an intensive course, EMD 8008 Research Proposal and EMD 8066 Research Project)

Lectures for other courses in ANU

- ENSV1001 Environment and Society
- ENVS3005 Water Resources Management
- ENVS Qualitative Research Methods for Sustainability
- CRWF 8004 Case Studies in Economic Policy

One-off presentations to student/staff audiences

- Oxford University, June, School of Geography, Water Futures Program
- Delft, Netherlands, June UNESCO-IHE
- Yangling, China, December, Chinese Academy of Sciences Institute of Water and Land Conservation.
- Xian China, December, Centre for Rural Development Research Shaanxi Normal University

Conference presentations

- Vienna, April, International Conference on the Status and Future of the Worlds Large Rivers
- Montpelier, France, June, *French-Australia workshop on water and land management*
- ANU, December, (three conferences)
  1. Workshop on the legal and institutional dimensions of Adaptation and extreme event management
  2. Water law and policy – Optimizing the future of the Murray-Darling Basin
  3. Federalism and Reform in Asia.

(Post conference papers are being prepared for the Vienna, Montpelier, and the first and third of the ANU events.)

**Public presentations**

- Crawford Seminar, October, *The federal system and the Murray-Darling Basin*

**Publications**

**Book**


**Chapters and papers**


**Planned activities in 2012**

- Follow up activities for the 2011 Mekong Alliance project (proposals include an intensive course re cross boundary themes and a workshop/conference re environmental education in the Mekong, both to be conducted within the region)
- Developing a proposal for submission to AusAID to fund a project similar to the Mekong Alliance in 2011, designed for researchers in southern Africa. It would be conducted in early 2013. Based on an ANU four course graduate certificate it would complement the ANU-UNESCO Chair proposal being developed for submission to ACIAR.
- Developing a proposal re institutional and social capacity re climate change adaptation in the Mekong Delta with Kien Van Nguyen for submission to AusAID.
ANU - UNESCO Chair in Water Economics & Transboundary Water Governance

Annual Report 2011-2012

- Contribution to the 2012 GDLN lecture series (in combination with Quentin Grafton and Jamie Pittock)
- Shiga University, Japan, February, paper presented to the *International water market symposium Australia, China, United States and Japan*. (I was a member of the organizing committee)
- Oxford University, April, workshop for book of contributions from researchers in eleven federal systems re *Water Security and Federal Systems* to be co-edited by myself and Dustin Garrick Oxford University.
- Harvard University, USA, April, invited guest to end-of-course student conference *Water and federalism: comparative perspectives on water institutions in federal systems*. To be hosted by the Harvard Water Security Initiative and the Harvard Law School Environmental Law Program.

More information:

Dr Daniel Connell, Director of Education Programs, UNESCO Chair in Water Economics and Transboundary Water Governance, Crawford School of Economics and Government, The Australian National University. E: Daniel.connell@anu.edu.au
Global Water Forum

THE CHALLENGES OF WATER GOVERNANCE IN THE 21ST CENTURY

About Global Water Forum

The Global Water Forum was established in 2010 as an initiative of the UNESCO Chair in Water Economics and Transboundary Water Governance in order to present freely available knowledge and insight from some of the world’s leading water researchers and practitioners. The contributions provide evidence-based, accessible, and freely available articles looking at local, regional, and global water challenges.

Specifically, the goals of the Global Water Forum are to:

- Support capacity building through knowledge sharing;
- Provide a means for informed, unbiased discussion of potentially contentious issues;
- Provide a means for discussion of important issues that receive less attention than they deserve;
- Create a high quality resource for water practitioners that is accessible and freely available across the world.

To reach these goals, the Global Water Forum seeks to:

- Present fact and evidence-based insights;
- Make the results of academic research freely available to those outside of academia;
- Investigate a broad range of issues within water management;
- Provide a more in-depth analysis than is commonly found in public media.
Discussion Themes

The Global Water Forum is a dynamic discussion forum for aspects of freshwater management and use. For ease of navigation discussion topics have been grouped into themes:

- Water Economics
- Water and Agriculture
- Water Quality
- Hydrology
- Millennium Development Goals
- Urban Water
- Environmental Flows
- The Murray-Darling Basin
- Case Studies

We endeavour to foster a dynamic, interesting, and valuable discussion. The themes shown above are evolving and we encourage suggestions, comments, thoughts, and analysis that may make this discussion as wide and deep as our largest water assets.

Development and Research Impacts of GWF (2011-2012)

To improve the GWF website: key changes have been made to the accessibility, content, and maintenance. These include:

1. **Accessibility** – redesign of the front page to make content more accessible. The front page now contains 4 boxes which link to:
   - Weekly Discussion Topic (i.e. a newly published GWF article)
   - Water News
   - Water Research Highlights
   - Announcements

   The redesign also included a footer which links to:
   - Key water sites
   - Recent comments on the site
   - Recent articles on the site
   - Subscription to the GWF Newsletter

   Installing a search engine optimisation plugin to ensure Google search presents definitions from the glossary page of the website, as well as optimising Google search terms in webpage metadata.

   The redesign also included substantial aesthetic changes to the rest of the site in order to improve accessibility.

2. **Content** – a significant expansion of content including:
   - New discussion themes: ‘water economics’ and ‘water and agriculture’
   - An online water image resource allowing users to download photographs and charts (use requires crediting the GWF)
   - Links to a series of online video lectures from the Global Development Learning Network and the Australian Science Media Centre
   - A page dedicated to water announcements, jobs, and opportunities
3. **Maintenance** – setting regular updates of the site at the beginning of each week including a new article, a summary of the week’s water news, two research highlights from the academic literature, and announcements.

**Impacts**

The result of these changes has been a significant and steadily growing increase in the use of the site – it should be noted that we do not have usage statistics before the site overhaul as installing a statistics tracker was part of the redesign:

- Monthly visitors increased from 711 in November 2011 – 1,206 in December 2011 – 1,395 January 2012
- Weekly visitors are now averaging around 350
- Visitors look at an average of 2.70 pages per visit and spend an average 3 minutes 22 seconds on the site
- The number of comments made on the site increased from 4 comments over the entire 2 year period prior to the changes, to 6 comments in the last 3 months
- The first Newsletter was sent out in January to 34 subscribers, this number has increased to 61 subscribers by the 13th February

- The top 10 most visited pages on the site (since January 7th) are as follows:
  - Front page – 1,189 views
  - Special essay: Pakistan floods (K. Lahiri-Dutt) – 250 views
  - Managing residential water demand in the OECD (M. Ward) – 220 views
  - Changing the paradigm for financing of rural water improvements (A. Abramson) – 186 views
  - About the GWF – 145 views
  - Newsletter signup – 133 views
  - Online lectures – 125 views
  - Glossary – 102 views
  - Six reasons why the 2011 draft Murray Darling Basin Plan fails (J Pittock) – 88 views
  - Contribute to the GWF – 88 views

- The top 5 locations of visitors on the site (since January 7th) are as follows:
  - Australia – 373 visits
  - United States – 297 visits
  - Pakistan – 158 visits
  - United Kingdom – 127 visits
  - India – 49 visits

**Future developments**
Subsequent to the redesign we have focused on marketing and publication of the website to increase readership and contributions of material for publication. Our plans for future developments include:

- Branding the site with a GWF logo, the UNESCO logo, and the ANU logo. Once branding is complete we will seek collaboration with external partners to promote GWF, including the Global Water Partnership, World Water Forum, among others. The branding will provide the site with further legitimacy as a quality source of information, and increase our partners’ contribution to the site content.

- Development of a series of articles describing specific water projects and/or communities in developing countries. Discussions are planned with WaterAid Australia to implement this development.

- Developing a series of formal, academic Discussion Papers which will be available through Google Scholar based on the GWF articles. This will encourage submissions as contributors’ work will receive citations and will be available as a fully referenced academic piece rather than just a blog post.

- Setting up an ‘emerging scholars’ competition to encourage promising PhD candidates from leading universities to contribute original pieces of work. This development will increase the level of content on the site and strengthen the readership base.

- An online conference co-hosted with a suitable partner, such as the Global Water Partnership.

- Further expansion of discussion themes to include: water security, groundwater, transboundary governance, water quality etc.

More information:

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Paul Wyrwoll, Editor

Website: [http://www.globalwaterforum.org/](http://www.globalwaterforum.org/)

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Disclaimer:

The authors are responsible for the choice and presentation of views contained in this report and for opinions expressed therein, which are not necessarily those of UNESCO and do not commit the Organization.

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