In the Media

Mark Diesendorf argues that it is high time we got smart about power: how we generate it and how we deliver it.

Mark Diesendorf’s response to Question 13 of the Millennium Project challenge “How can growing energy demands be met safely and efficiently?” was recently published on The Conversation. The purpose of the Millennium Project is to improve humanity’s prospects for building an ecologically sustainable and socially just future by challenging the three drivers of unsustainable development on a finite planet and presenting a vision of a sustainable future. Question 13 was posed by the Millennium Project in a global context. Read Mark’s full response at http://theconversation.edu.au/challenge-13-smart-energy-demand-and-renewable-supply-6994

In Focus

Institute of Environmental Studies PhD candidate Nahid Sultana was the winner of the Best Student Poster Award at the National Adaptation Conference “Sharing Knowledge to Adapt”, held on the 26–28 June 2012 in Melbourne. Her winning poster titled “A Comparative Study on the Decision Making Process of the Coastal Climate Adaptation of Central and Western Coastal District of Bangladesh”, explores how different stakeholders make decisions regarding coastal management and the effectiveness of these policies in enhancing people’s adaptation to climate change. Nahid thanked all involved in her poster win: “I am very grateful to my supervisors John Merson, Daniel Robinson and Russell Wise from the CSIRO who helped me translate my thoughts into a poster and made it possible for me to go to Melbourne to participate in the Conference.”
Research News

Governance and Sustainable Use of International Waterways

Crelis Rammelt and John Merson with IES research associates Paul Brown and James Arvanitakis are using their UNSW International Research Collaboration funding and support from the Arsenic Mitigation and Research Foundation to hold two complementary action-research workshops in Bangladesh in October.

The (Arsenic Mitigation) Action Workshop is the outcome of two programs:

1. The Arsenic Mitigation and Research Foundation (AMRF) has implemented safe drinking water supplies in over 33 villages in Bangladesh in a way that has shown to be sensitive both to the local cultural context as well as the complex power hierarchies that exist. It is essential that these learning experiences are shared in a broader network of interested parties. The AMRF program also formed the basis of doctoral research at the Institute of Environmental Studies (at UNSW) over the past 5 years.

2. A UNSW International Research Collaboration Scheme grant was provided to establish a synergy between the doctoral research on arsenic contamination in Bangladesh with the interest of academics at the University of Hyderabad and Burdwan University in India. An initial visit to West-Bengal hosted by Burdwan University in September 2011 included a number of field visits to arsenic affected communities around Burdwan and around Calcutta. It led to the idea that there are opportunities to learn and share experiences with some of the work currently undertaken by AMRF in Bangladesh.

The Waterways workshop will be devoted to the development of papers for a special issue of a journal, tentatively titled: Waterways: Response to climate change in estuarine landscapes and their communities. This proposed special issue will aim to explore matters of governance and processes of adaptive management in catchments affected by climate change and other environmental impacts.

Rapid Climate Mitigation

Climate science suggests that, to have a high probability of limiting global warming to an average temperature increase of 2°C (which may not be safe), global greenhouse gas emissions must peak by 2020 and be reduced to close to zero by 2040. At present, very few governments around the world are implementing policies for mitigating climate change that are rapid enough to meet these scientific requirements. However, what if a climate disaster, such as a sudden sea-level rise of 1-2 metres caused by the collapse of the West Antarctic ice sheet, finally galvanized governments into action? IES PhD student, Laurence L. Delina, supervised jointly by Mark Diesendorf and John Merson, is investigating non-technical contingency strategies that could be used by the Australian government to undertake urgent, rapid and radical actions to mitigate Australia's greenhouse gas emissions. Laurence's research draws upon the experiences of recent rapid socio-economic-technological restructurings, such as during World War 2 and structural adjustment programs.
Renewable Energy

The IES is collaborating with the Centre for Energy and Environmental Markets (CEEM) and the School of Electrical Engineering & Telecommunications (EE&T) in developing scenarios and simulation models of 100% renewable electricity in the Australian National Electricity Market (NEM). PhD student Ben Elliston, supervised jointly by A/Prof. Mark Diesendorf (IES) and A/Prof. Iain MacGill (CEEM & EE&T), has developed a fast and flexible computer program that uses actual hourly data on electricity demand, solar and wind energy and other weather data. Through repeated simulations, they have found that electricity demand on the NEM in 2010 could have been supplied completely by combinations of commercially available renewable energy technologies, while obtaining the same overall generation reliability as the existing polluting fossil fuel technologies. This high degree of reliability can be achieved without any base-load power stations. (Elliston, Diesendorf and MacGill, 2012a&b). They are currently investigating the economics of 100% renewable electricity systems. In presenting an earlier version of this research, Ben Elliston was joint winner of the Wal Read Memorial Prize for best postgraduate student paper at the 2011 Australian Solar Energy Society Annual Conference held in December 2011. This research will now be expanded in both breadth and depth with the assistance of a grant of $900,000 from the Commonwealth government’s Emerging Renewables Program. The formal aim is to develop a more detailed open-source software tool for modelling a future low-carbon Australian national electricity market (NEM). The University of Melbourne will lead the project and the UNSW team will receive one-third of the grant.

Teaching News
Soil Sampling Session 25th July

Masters of Environmental Management students enjoyed participating in the new soil sampling activity that Daniel Robinson has introduced to the Core Course Tools for Environmental Management. This activity is a mock land contamination assessment that prepares students for the ‘real world’ problems of environmental assessment by requiring them to think logically, apply relevant standards, analyse results against thresholds, write a succinct and professional report, and make recommendations regarding requirements for the remediation of the site.

Daniel created a mock ‘petrol spill’ site on the Scientia lawn at UNSW, and students had to re-enact the role of a consultant who has been hired to investigate the spill and surrounding area. Students measured the site using measuring tape and took advantage of the supplied head torches, soil map and geology handbook to help them make the requisite decisions like where to drill boreholes, how many samples should be taken in each hole, and adequately describe the soil composition, likely sub-soil and geology.
In July 2012 the Institute hosted a celebration to honour three PhD candidates who had recently submitted their theses. Alex Baumber submitted his PhD thesis titled ‘Harnessing Bioenergy as a Driver of Revegetation: An analysis of policy options for the New South Wales central west, Australia’. His research was supervised jointly by John Merson and Mark Diesendorf and co-supervised by Peter Ampt from the University of Sydney. Lily Wang submitted her PhD thesis titled ‘Community adaptation to climate change in the arid Loess Plateau, China’. Her research was supervised by John Merson and co-supervised by Sandy Booth. Phoenix Lawhon-Isler submitted her thesis titled ‘Seeking sustainability in Sydney’s water and policy management’. Her research was supervised by John Merson and co-supervised by David Roser of the UNSW Water Research Centre. Amazingly enough, all three candidates are also new parents, and all three brought their new babies along to the celebration.

IES Publications Jan - Jul 2012


Upcoming Summer Courses

IEST5008 Ecosystems Management
IEST6911 Managing Greenhouse Gas Emissions 6, 7 & 12-14 Dec
IEST5009 Corporate Sustainability: External Drivers 10-12 Jan
IEST5010 Corporate Sustainability: Internal Responses 17-19 Jan