Promoting Inclusion in Environmental Policy Development

Professor Dr Jill H. Slinger

Scientia

PROMOTING INCLUSION IN ENVIRONMENTAL POLICY DEVELOPMENT

Responding to global environmental change requires ongoing effort, and long-term success depends heavily upon the input of local communities. Moreover, if diverse viewpoints are included in policy development, then shared solutions and common goals are achieved. **Dr Jill Slinger** from the Delft University of Technology is committed to this cause. She also brings a wealth of research experience on estuarine and coastal systems to the policy discussion table.

Tackling Environmental Issues – A Melting Pot of Viewpoints

Humankind is certainly at a momentous point in history. Environmental issues and disasters continue to threaten our lives, livelihoods and potential to flourish as a human race. It is easy to see why, then, scientific research, public discussion and policy development surrounding environmental issues generates a range of different views. Indeed, the necessity for locally relevant, applicable and supported solutions to complex multi-level environmental and engineering challenges is becoming more and more evident. But of course, negotiating this challenge is difficult, to say the least.

Central to confronting this challenge is the input of experienced and skilful scientists. Dr Jill Slinger, environmental systems engineer from the Delft University of Technology (TU Delft) is one such scientist. Her research work focuses on the understanding of coastal and water systems, and how that translates into effective policy development for improved environmental management. Not only that, she also focuses on negotiating the complex issues that arise when the perspectives of affected stakeholders and community members intersect, and determining how, despite differences, long-term progress can be achieved.

Dr Slinger brings scientific rigour – not just in water and coastal management, but also in policy analytical methods – to social-ecological problems, and creates platforms and workshops to encourage people to be socially innovative and to negotiate shared solutions in an ongoing fashion. She states, 'I don't believe in one-off solutions, but in designing and building multi-actor spaces where people can co-design solutions together.'

The Valuable Input of Experienced Scientists

Dr Slinger is first and foremost an inspired scientist, and her portfolio of research is certainly rich. It all began in 1985 with the 'Inland Water Ecosystems National Scientific Programme' at the University of KwaZulu-Natal in Pietermaritzburg, South Africa. In this project, Dr Slinger developed a mathematical model of a freshwater wetland on the Pongola River floodplain to investigate the efficacy of flood releases in maintaining the ecosystem and associated grazing function.

Over a relatively short period of time, Dr Slinger gained much knowledge and expertise in the management of coastal and estuarine systems. She worked on several projects in the areas of oceanography and estuary dynamics, with an emphasis on understanding, quantifying, modelling, and managing water movements and water quality in these complex environmental

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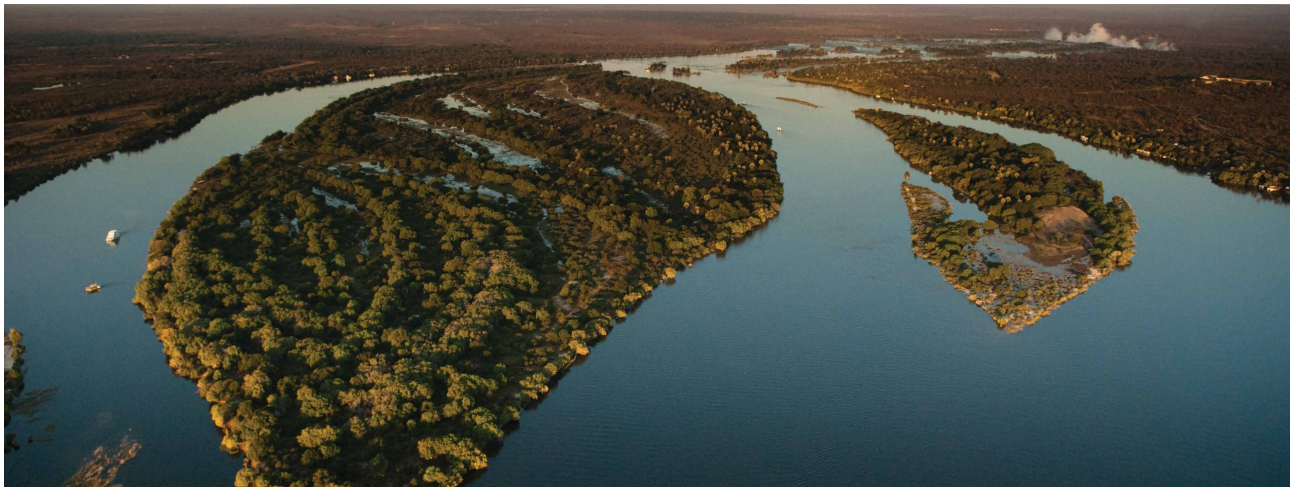


systems. In time, however, she began to merge her scientific expertise on rivers, estuaries and coasts with the development and implementation of effective policy. In fact, this marriage of robust science and policy development is something that would define Dr Slinger's career in the years to come.

The Importance of Inclusion in Policy Development

At the core of effective policy development and decision making is effective collaboration and communication with all concerned. Of course, this includes scientists, stakeholders, the public and the private sector. A positive relationship between these stakeholders is vital. But it is something that will not develop and flourish of its own accord. It needs to be cultivated.

In 1995, Dr Slinger was working on an interdisciplinary national research programme for the conservation and management of South African estuaries. It was at this time that she became involved in the discourse on new policy for the allocation of freshwater to South African estuaries. She devoted much time and energy to making sure that the related policy development was effective.

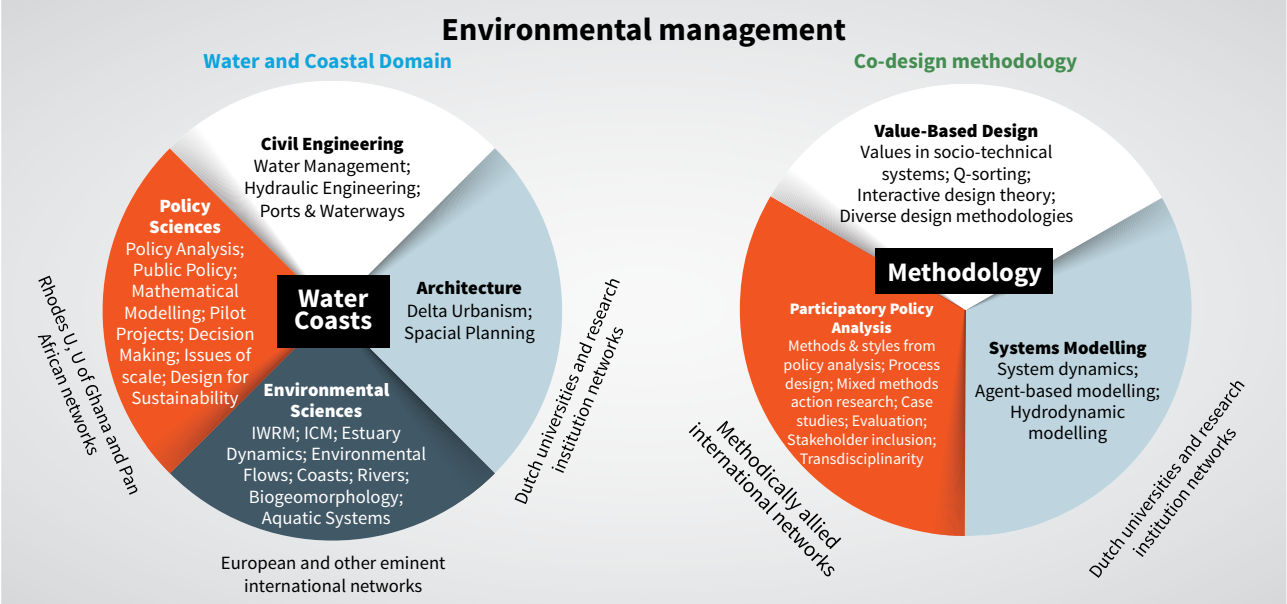
In 1998, Dr Slinger began working on the Scheldt Estuary, which runs through the Netherlands and Belgium. Initial research involved designing and developing a linked system of 3D hydrodynamic model results, spatial and temporal data processing and a rapid assessment model to indicate how physical changes would affect biological responses in the estuary. From 2005 to 2008, however, the focus shifted to the role of policy makers, scientists and citizens in flood risk management. She explored the role of new model-based knowledge in informing the policy debate between affected stakeholders through in-depth interviews, workshops and a quantitative survey. During this research, it became evident that the inclusion of diverse viewpoints, particularly those of local communities, is a prerequisite for successful policy development.

In an associated research paper of 2007, Dr Slinger and her colleagues compared local knowledge and interpretations with that of policy makers. The study concluded: 'People's insights regarding the consequences of flooding and the recovery thereafter went deeper than a purely scientific understanding... In fact, the policy advisors were also surprised by the high quality of the information derived from the study and felt challenged by the request for precautionary post-flood planning measures.' Clearly, local knowledge and viewpoints are vital.

In 2008, Dr Slinger and her team explicitly examined the role of new knowledge and an enhanced understanding of the opinions of fellow citizens in influencing policy preferences in relation to the findings of the Scheldt Estuary project. The related research paper concluded: 'In this study, we have demonstrated that it is possible to engage in meaningful scientifically-based discussions on flooding related issues with local citizens and policy makers.' Indeed, inclusion of diverse perspectives in policy development and decision making is both necessary and possible. But the question remained, how could these insights be applied in practice?

Practical and Innovative Strategies for Inclusion

Dr Slinger's efforts to pioneer and implement practical strategies to incorporate stakeholder viewpoints and local knowledge is well illustrated through her work on the Great Brak Estuary in South Africa. She has been involved with the Great Brak since the construction of the Wolwedans Dam more than 30 years ago. Recently, an approach taken by Dr Slinger and



her team was once again to 'engage with stakeholders… to generate a common understanding of the water resource issues and management processes...' The project highlighted that ongoing societal and environmental changes have altered the relationship between the community, their environment and their environmental management representatives. This means that old management arrangements will have to be replaced by new, relevant procedures.

A subsequent research project of 2016 delineated an effective approach for tackling this challenge. Dr Slinger and her team suggested utilising 'a progression from collecting and exploring individual experiences of stakeholder's problems; to connecting individual's experiences to their broader sector's problems; and finally, to cross-connecting the sector's impacts and requirements to one another under different scenarios of change.' In a paper published in 2017, she also suggested that structurally embedding the practice of learning from the experiences of local people, in a well-timed and thoughtful manner, is extremely important.

In summary, Dr Slinger's approach is multi-disciplinary, includes embedded opportunities for contributions from all concerned parties, and is centred on the principles of environmentally sound, inclusive design. This overarching approach is being applied, for example, in the 'Integrated and Sustainable Port Development in Africa' project. In this case, Dr Slinger and her colleagues report a 'significant step forward in enhancing knowledge synergy not only for sustainable port development but also for sustainable large-scale infrastructure development in general.' This is certainly a step forward in the holistic management of natural resources and sites of environmental significance.

Continuing to Incorporate Diversity into Planning and Policy

Dr Slinger continues to work on the Netherlands Organization for Scientific Research's 'Integrated and Sustainable Port Development in Africa' project. This project is focused on planning, designing and enabling green ports in Africa – with the Port of Tema, Ghana, as the central case study. Collaboration and Inputs from local stakeholders are core to this research endeavour. She is also developing the co-design method further in a project called 'Co-designing Coasts in Nested Channel Shoal Systems', or 'CoCoChannel', focusing on Texel Inlet in The Netherlands. Over the last three years, groups of Dutch and Texan students have tested the co-design methods further in a series of Living Labs. These authentic learning experiences have been funded by a Partnership in Education and Research grant from the National Science Foundation of the United States of America.

Of course, Dr Slinger's work continues to involve pioneering and testing new ways to ensure inclusive and sound policy decision making. All the while, she conducts rigorous scientific research and acquires funding for the many, varied projects aimed at managing coastal and estuarine systems. She has also spearheaded the development of a Massive Open Online Course (MOOC) on the topic of 'Engineering: Building with Nature' to teach engineers to consider the environment in their designs. To invest time and energy into all these areas concurrently is truly an outstanding achievement. Furthermore, her work has brought together scholars, citizens and professionals from around the globe.

Overall, Dr Slinger has 30 years international experience in applied consultancy and research leadership. Without a doubt, she is committed to the sustainable management of water and coastal systems. She is also committed to promoting inclusion in the related planning and policy development. And there are many more projects and ventures on the horizon.

Meet the researcher

Professor Dr Jill H. Slinger

Faculty of Technology, Policy and Management

Delft University of Technology

Jaffalaan 5, Delft

The Netherlands

Professor Dr Jill H. Slinger received her PhD from in Applied Mathematics, from the University of KwaZulu-Natal, South Africa. Her postdoctoral research career has focused on field-based studies of aquatic systems, mathematical modelling and design, and participatory engagement with communities, scientists, policy makers and the private sector. Her current research activities focus on using ecosystem- and model-based design knowledge in supporting the interactions between people, science and policy in river and coastal systems – a co-design approach to environmental planning and management. She currently serves as Associate Professor at Delft University of Technology's Faculty of Technology, Policy and Management. She also holds an honorary position as Visiting Professor at the Water Research Institute of Rhodes University, South Africa.

CONTACT

E: J.H.Slinger@tudelft.nl

W: https://online-learning.tudelft.nl/instructors/jill-slinger/

KEY COLLABORATORS

Dr Susan Taljaard, Council for Scientific and Industrial Research, South Africa

Dr Heleen Vreugdenhil, Deltares, The Netherlands

Prof Dr John Largier, Bodega Marine Laboratory, California

Prof Tally Palmer, Institute for Water Research, South Africa

Dr Jai Clifford-Holmes, Association for Water and Rural Development, South Africa

Prof (em) Dr Wil Thissen, Delft University of Technology, The Netherlands

Prof Dr Kathelijne Wijnberg, University of Twente, the Netherlands

TU Delft

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