27. Water concepts

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While Integrated Water Resources Management (IWRM) remains the dominant concept informing water policy and management, the sector is now replete with others that are used by scholars and practitioners alike. For example, 'water security', 'hydropolitics', 'virtual water', water as a critical component of the 'energy-water-food nexus', 'water-sensitive-urban-design' and the typology of green, blue and grey water are all relatively new concepts with a degree of currency in the water sector. The emergence of broader concepts, such as 'ecosystem services' and 'resilience', are also influential in discourses on water resources. In addition, the last 20 years has spawned new tools for managing water resources, many of which are infused with the key tenets of neoclassical economics, and terms like 'water trading', 'water harvesting', 'water footprinting' and 'water pricing' are now part of the sector's vernacular.

Of course, the emergence of so many concepts, indicators and tools reflects our increasing understanding of the challenges that humanity faces in managing water resources. We have moved beyond a blunt appreciation of 'droughts' and 'floods' to a nuanced appreciation of the degrees of impact afflicting different jurisdictions and the underlying causes of those impacts; hence the formulation of concepts such as 'water stress', 'water deficit' and 'water scarcity'. Similarly, where once we might simply have referred to floods in relation to water-related natural disasters, significant breakthroughs in climate science have afforded considerable understanding about the reasons for, consequences of, and connections between, sea-level rise, flash floods, and storm surges. The consequence of this knowledge and the conceptual thinking it has spawned is that a jurisdiction's ability to undertake detailed and rigorous water profiling is significantly enhanced, but it also makes any subsequent debates about appropriate policy interventions more complex.

It is, as they say, a crowded space.

But what should we make of this plethora of concepts informing water policy and management? How can so many concepts and indicators be understood and reconciled? Do they 'speak' to different audiences? Are they sufficiently different as to be individually useful and collectively complementary? Is there evidence that each successive, new concept is building on, and adding value to, the concepts that came before it? The authors in this section make excellent contributions to our understanding of the key concepts and indicators at play

in the water sector and in 'unpacking' these questions. All the chapters identify differences in the way key concepts are defined, measured, and applied in policy and investment decisions; and many question the benefits to be gained from so many 'new' concepts.

In his critique of 'water scarcity', White (Chapter 28) grapples with the inherent tension that exists between the ease of using straight-forward indicators based on easily accessible data, with the contextual nuances and detail that is inevitably lost when more complicated indices are used. The existence of several definitions of water scarcity (he explores four), and indeed the different measures to capture aspects of it, can result in varied, sometimes contradictory, findings in relation to a region's water stress. It is, therefore, important to understand which definition is 'fit for purpose', and to avoid relying on any single measure. A region's capacity to employ multiple indices in decision-making will, however, necessarily be constrained by the skills, knowledge, and data available to it, suggesting that even if definitional clarity is achieved, the value of using such concepts remains a direct function of the institutional capacity in that region.

One of the most interesting developments in recent years has been the emergence of *non-traditional* security threats, and in particular the concept of 'environmental security' (Dalby 2002). The appeal of 'securitisation' as a conceptual frame lies in its realist roots: it is a familiar concept and draws considerable favour with the powers-that-be, not least because security issues are almost always in the purview of national governments. As a consequence, debates about environmental issues are afforded considerably more attention than might otherwise be the case — or so the argument goes. Interestingly, environmental security was very quickly disaggregated into 'climate security', 'energy security', and 'water security', and it is the meaning and practical utility of the latter concept to which Lautze and Manthrithilake (Chapter 29) turn their attention. Specifically, their article is a plea for the concept of 'water security' to be defined in such a way as to be practically applied, and their suggestion is to develop some quantifiable criteria against which to evaluate a region's water security — even though they are openly sceptical about the value of promoting yet another concept in this crowded space.

Wichelns (Chapter 30) is similarly cautious in his chapter on the use of the 'water footprint' as a tool to inform policy. Of all the concepts and terms to emerge recently, surely it is water footprinting that has captured the imaginations of the public and politicians most completely. Certainly, there is something very appealing about distilling what is a very complex problem into a single, simple unit of measurement, but as Wichelns most ably demonstrates, the use of such an overly simplistic tool in isolation from other indicators could do more harm than good. And yet it persists and its use proliferates.

The wariness of new concepts continues in the next chapter, in which Iyer (Chapter 31) provides both an amusing and forensic analysis of the current misunderstandings of virtual water. Correctly, Iyer points to the misuse of 'virtual water' in debates about the import and export of different products and the desire by many to use the term to inform the validity or otherwise of countries producing and exporting certain commodities. In this regard, Iyer points to the penchant for neo-liberal economic philosophy as a contributing factor, but whatever the cause, his projections of where the concept of virtual water might inadvertently take us is almost Kafkaesque, and delightfully so.

Reimer (Chapter 32) responds to Iyer and argues that, instead of dismissing the concept, 'virtual water' should be redefined in line with existing practice in international trade theory. In essence, Reimer calls for a clarification of virtual trade in water to give prominence to the *services* provided by that trade, and he further highlights the potential the concept offers in enabling countries to use 'at the border' policies to encourage more sustainable practices in the exporting country. The merits of such an approach ought to be debated vigorously — not least because of the implications it poses for the principle of free trade — but it does at least offer a tangible use for an otherwise confused concept.

The last chapter in this section tackles a particularly nebulous concept: 'resilience'. As Smith (Chapter 33) laments, it is 'intuitively appealing yet stubbornly intangible', and while there are a number of ways in which the concept of resilience can be operationalised, there is as yet no consensus on the feasibility of those options writ-large and over time.

In many ways, the proliferation of new conceptual frameworks for understanding what are, essentially, ancient problems brings to mind the children's fable 'The Emperor's New Clothes'. In contrast to the role played by the stubbornly silent advisors in the original story, however, the authors in this section do a creditable job of critiquing the *value* of many of the concepts currently influencing regional, national and international water policy. Overall, their assessments are both enlightening and sobering.

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Reference

Dalby, S., 2002. *Environmental Security*, University of Minnesota Press, Minneapolis.

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