

A more-than-human approach to river restoration. Lessons from Aotearoa New Zealand and China

Une approche plus qu'humaine de la réhabilitation des rivières. Leçons tirées de l'Aotearoa Nouvelle-Zélande et de la Chine

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RÉSUMÉ

Les approches de la restauration des rivières sont très contestées. Une lentille plus qu'humaine (écocentrique) qui envisage ces questions du point de vue de la rivière elle-même offre potentiellement des opportunités pour désamorcer de telles contestations. « Laisser parler une rivière » englobe les relations et les pratiques socioculturelles qui fonctionnent avec et dans les rivières en tant que communautés vivantes de la terre, de l'eau, des plantes, des animaux et des personnes. Travailler avec la rivière est une expression de ses droits – permettre simplement à une rivière d'être elle-même (s'ajuster, s'éroder, se déposer, inonder), en utilisant sa propre énergie pour prendre soin d'elle-même (pour s'auto-guérir). En termes plus larges, ces cadrages reconnaissent que ce qui est bon pour les cours d'eau est bon pour les communautés humaines et plus qu'humaines (c'est-à-dire que des rivières saines sont le produit de socio-écosystèmes sains, et vice versa). Une telle philosophie s'aligne sur une vision du monde indigène (Māori) en Aotearoa Nouvelle-Zélande et sur les applications de longue date (> 2000 ans) des principes taoïstes dans l'ouest de la Chine. À l'aide d'exemples provenant des deux pays, nous montrons comment les pratiques contemporaines peuvent s'appuyer sur les connaissances coutumières pour fournir une plate-forme cohérente pour revitaliser les rivières et atteindre (et œuvrer vers) des objectifs réalistes sur des périodes données. Les politiques et les pratiques émergentes en Chine intègrent cette pensée au cœur des mouvements vers une civilisation écologique. Bien que ces cadres soient profondément contextuels (basés sur le lieu, spécifiques aux bassins versants), nous soutenons que les principes qui émergent de ces études de cas peuvent soutenir les efforts visant à vivre de manière générative avec des rivières vivantes dans d'autres parties du monde.

ABSTRACT

Approaches to river restoration are highly contested. A more-than-human (ecocentric) lens that contemplates such matters from the perspective of the river itself potentially presents opportunities to defuse such contestations. To 'let a river speak' embraces sociocultural relations and practices that work with and within rivers as living communities of land, water, plants, animals and people. Working with the river is an expression of its rights – simply allowing a river to be itself (to adjust, erode, deposit, flood), using its own energy to look after itself (to self-heal). In broader terms, such framings recognise that what's good for waterways is good for human and more-than-human communities (i.e., healthy rivers are products of healthy socio-ecosystems, and vice versa). Such a philosophy aligns with an indigenous (Māori) worldview in Aotearoa New Zealand and long-standing (around 2000 year) applications of Daoist principles in western China. Using examples from both countries, we show how contemporary practices can build upon customary knowledges to provide a coherent platform for revitalising rivers and achieving realistic goals over given time frames. Emerging policies and practices in China embrace such thinking at the heart of moves towards an ecological civilisation. Although such framings are deeply contextual (place-based, catchment specific), we contend that principles that emerge from these case studies can support efforts to live generatively with living rivers in other parts of the world.

KEYWORDS

Conservation, Conservation

Environmental Protection, Protection de l'environnement

Indigenous knowledge, Savoirs autochtones

More-than-human, Plus qu'humain

River rehabilitation, Réhabilitation des rivières

1 BEYOND MANAGEMENT: LIVING GENERATIVELY WITH LIVING RIVERS

Worldviews underpin socio-cultural relations to rivers. Inherent limitations of a competitive world that pitches humans against nature and against each other engender unsustainable outcomes. Insights from the past can inform the quest for more just and equitable ways of being in a post-capitalist world. Rediscovering and embracing the ecological insights of the ancients entails unravelling what works well where and why. Here we show how harmonious relations with nature (and each other) that underpin customary indigenous (Māori) practices in Aotearoa New Zealand, and Daoist relations to rivers that underpin the world's longest continuously operating large-scale irrigation scheme at Dujiangyan in western China (around 2000 years) 'work with the river'. We highlight common threads that reflect more-than-human relations to rivers, conceptualising rivers as indivisible entities (whole of socio-ecological system applications), rivers as living (dynamically adjusting) systems, and rivers as evolutionary (emergent) beings (**Figure 1**). Such framings move beyond limitations of discipline-bound management practices that address single issues (in space and time). They push aside conceptions of rivers as controllable and predictable entities, and associated notions of 'stability'. They dismiss over-simplistic, prescriptive and reactive practices that manage rivers as 'types'. Rather, proactive programmes respect river diversity, managing at source and at scale using fit-for-purpose (place-based, catchment-specific) applications. A conservation-first ethos strategically addresses threatening processes, working with the river towards collective recovery (healthy rivers – healthy societies, and vice versa), through cost-effective, evidence-based decision-making. Such more-than-human, eco- (or river-) centric practices let the rivers speak (Salmond et al., 2019), striving to live generatively with rivers and each other, rather than managing rivers in ways that assert human authority over them.

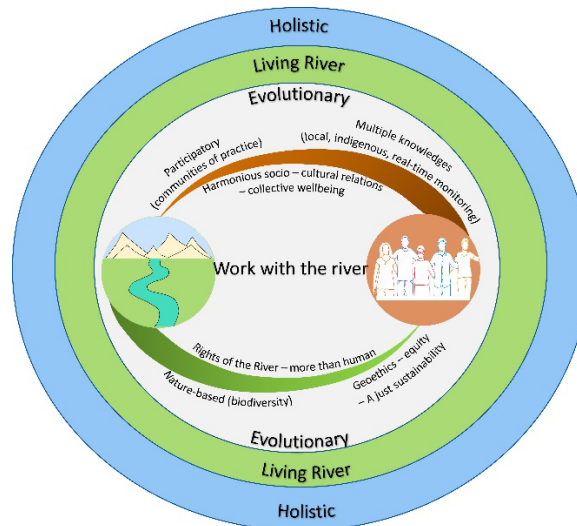


Figure 1. Conceptual representation of the convergent threads that work with the river in Daoist and Māori ways of knowing and living with river systems

2 DAOIST UNDERPINNINGS OF AN EMERGING ECOLOGICAL CIVILIZATION IN CHINA

Understanding behavioural traits of anabranching river systems based on Daoist principles underpins the ongoing success of the irrigation scheme at Dujiangyan that has supplied water to the Chengdu Plain for around 2000 years (Mathews, 2023). Process-based understandings 'work with the river', maintaining flow and sediment regimes and associated roughness (balance of impelling and resisting forces). Local communities support adaptive management through sediment maintenance programmes, clearing gravels from structures reminiscent of T-jacks at annual festivals that celebrate the river.

Unlike western cultures that emphasise concerns for anthropocentrism, traditional Chinese philosophies did not separate man from nature, or create a dichotomy of man and nature. A Daoist lens conceptualises humans as an intrinsic part of nature with the central, orienting, ideal being the search for harmony – humans with nature, humans with society (St'ahel, 2023). Unlike a Western deity, Dao is natural, not supernatural, and not a personified substance, but an energy flow that manifests as a pulse, a beat, or a rhythm (Xia & Schönfeld, 2011). The secular and the sacred merge, and nature gains intrinsic value in all its things, in this holistic view of reality, differing markedly from dualistic notions asserted in Platonism or Judeo-Christian belief systems (**Figure 1**; Xia and Schönfeld, 2011). Dao follows the laws of nature, leaving nature to go its way (Pan, 2016). It

emphasizes the interrelatedness of every thing, forever reminding of their affinities and relations. As an indigenous religion with nearly two thousand years of history, Daoist tenets and practices articulate ideas that emphasize conservation (e.g., care and love of plants, insects, animals, as well as mountains and rivers; protection of endangered species) and envision a post-consumerist existence (Xia & Schönfeld, 2011). The Daoist concept of affluence, for example, refers to the largest number of species and individuals that an ecosystem naturally supports. Daodejing perceives the world as an evolving continuum between nature and man, or rather culture (i.e. more-than-human relations; Schönfeld & Xia, 2019). Notions of emergence are core to its cosmology and ontology - as nature evolves, so must civilization (Pan, 2016).

Several passages of the Daodejing relate directly to core tenets of contemporary environmentalism (St'ahel, 2023). For example, Schönfeld (2014, p227) states: "With its emphasis on nonaction, nonviolence, and gentleness, ... Laozi offers us an evolutionary roadmap to a sustainable future." One of the basic concepts of Daoism, *wu wei*, translates as "non-action", "no-doing", "inactivity", "effortless action" or "non-calculating action" (i.e., not interfering in the natural course of things or natural processes; Xia & Schönfeld, 2011). Such notions work with the river, supporting its capacity to self-heal and recover. However, *wu wei* is a conscious choice or way of being, it does not mean to do nothing. In Laozi it often appears together with the notion of 'nothing left undone' or *wubuwei* (Xia & Schönfeld, 2011, p200).

Although industrial civilisation brought about enormous economic benefits and helped to address significant poverty-related ills in China, recognition of environmental damage has engendered significant moves towards environmental protection and rehabilitation in recent decades. Such interventions manage at source and at scale, managing the land to manage the river, as demonstrated by large-scale reafforestation and grassland management programmes in western China (e.g., Brierley et al., 2022). In recent years these principles and practices have been extended as part of comprehensive moves towards an ecological civilization, clearly positioning environmental needs alongside concerns for economic, political, cultural, and social development (Wei et al., 2021). Integrated approaches simultaneously seek to improve human well-being alongside conservation goals (Ma et al., 2021). Framed around systemic change towards green development, ecological civilization is already incorporated into several political, and legal, documents, including the Constitution, and is part of both political and media discourse (St'ahel, 2023). Alongside the key role of new technologies, moves towards ecological civilisation recognise that a suite of cultural adaptations is required to achieve a sustainable future (Xia & Schönfeld, 2011).

3 TE AO MAORI – CUSTOMARY KNOWLEDGES AND RELATIONS TO RIVERS IN AOTEAROA NEW ZEALAND

Māori sailed to and settled the land that became Aotearoa New Zealand, around 800 years ago on waka – double-hulled vessels designed for long distance, open ocean voyaging (interestingly, Māori genetic heritage can be sourced back to modern-day Taiwan). Today, Māori trace their lineage (*whakapapa*) to the waka on which their ancestors arrived in New Zealand. *Whakapapa* expresses a distinctly relational (more-than-human) lens, as expressed through statements such as "I am the river and the river is me" (see Hikuroa et al., 2021). Although recurrent and ongoing contestations have followed the signing of the Treaty of Waitangi (Te Tiriti o Waitangi) in 1840, the treaty conferred responsibilities and obligations on New Zealand governments to uphold the rights of Māori people as British subjects and New Zealand citizens, and the relationships of Māori kin groups (*hapū*) with their ancestral land, estates, water, forests, and other treasures (*taonga*). In terms of relations to waterbodies, such practices respect the *mana* (authority) of each river system, recognising and respecting its *mauri* (life force; Stewart-Harawira, 2020). Associated framings underpin recent assertions of the rights of the river, expressed through principles outlined on **Figure 1**. Direct alignment is evident between *mātauranga Māori* (Māori knowledge, culture, values, and world view) and contemporary scientifically-informed management principles (Brierley et al., 2019; Wilkinson et al., 2020).

Working with (as part of) nature lies at the heart of Māori ways of being (*Te Ao Māori*), recognising nature as kin, not merely a provider of resources to be exploited and tested. Māori not only consider themselves 'of the land' but 'as the land,' co-existent with the *whenua* (land, placenta), and literally growing and emerging from it (the principle and practice of *Tauutuutu*, an indigenous concept that places an ethical obligation on communities and enterprises to emphasise balance, reciprocity, and symbiosis in their social and environmental relationships; Reid et al., 2019). Respect for the inherent diversity and dynamic nature of living landscapes implicitly links past,

present, and future through endeavours that work with and seek to protect or enhance the unique *mauri* (life force), lineage (*whakapapa*) and *mana* (authority) of each river system. Māori relational thinking appreciates landscapes as complex and emergent networks of plants, animals, land, water, and people in a dynamic process of coevolution, without arrogance or assumptions that people are in control of it (Salmond, 2017). A holistic (whole-of-system) lens conceives rivers as living and indivisible entities, embracing big-picture relations such as the catchment-scale operation of river systems and their communities ‘From the Mountains to the Sea’ (*ki uta, ki tai*; Hikuroa et al., 2021). Integrating concepts such as *ora* (life, wellbeing) encapsulate concern for the integrity, vigour, and vitality of living systems – collective health in its broadest sense, encapsulating a state of peace, prosperity, and well-being for people, plants, and animals, as well as landscapes (Salmond, 2017). Commonly in *Te Ao Māori*, *mana whenua* (traditional authorities) are the *kaitiaki* (guardians) of their lands, waters, and physical and cultural environments (i.e., socio-ecosystems).

4 CONVERGENT THREADS OF UNDERSTANDING IN LONG-STANDING APPROACHES TO LIVING WITH LIVING RIVERS IN CHINA AND AOTEAROA NEW ZEALAND

As outlined on **Figure 1**, a whole of river, whole of society perspective underpins relations to rivers through Daoist-informed practices in China and the Māori world (*Te ao Māori*) in Aotearoa New Zealand. Convergent threads expressed through a holistic, living system and emergent ‘ways of being’ present a generative foundational premise to work with nature, living generatively with living rivers, respecting their rights as indivisible and emergent entities. Letting rivers speak develops and applies place-based, appropriately contextualised knowledges that support appropriate transfer of insight and applications from one situation to others (Brierley, 2020; Salmond et al., 2019). Prospectively, this approach can support generative uptake of indigenous (customary) ways of being in differing cross-cultural contexts (e.g., Cohen et al., 2023; Linton & Pahl-Wostl, 2024). Collective approaches to learning will be key to the outcomes of future ventures that embrace customary knowledges and practices (de Souza et al., 2024). Whenever possible and practicable, it pays to stand back and let the river do the work, as rivers are majestically designed to use their own energy as they perform their functions.

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