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The Imbalance of Power between Urban and Rural Populations When Addressing Sustainability While Burdened by Indifferent Politics

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Overview of the Status Quo

It takes only a brief scroll through a mainstream newspaper to form the conclusion that Queensland and Australia's progress towards sustainability in general, and environmental protection in particular, is lacklustre, to put it mildly. The passage in mid-2022 of national legislation setting a carbon target is welcome. Nevertheless, every day there seems to be some new announcement of a climate tipping point exceeded, another approval of a fossil fuel project, in some areas a debatable logging operation and elsewhere another story about the inability of the Murray-Darling Basin Plan to rein in overallocation.

Even so, are our expectations and current official strategies unrealistic? Are there just *not enough* skilled people at the right place and time to devise and implement effective environmental policies? Will this always be the case under the present economic paradigm? Is it necessary for our society to significantly re-order the way public budgets are generated and allocated? How do governments and businesses work more cooperatively and intelligently together? If agreement can be reached that collaboration is necessary, how then can we effectively draft strategies to be fit-for-purpose for highly astute interventions in what is clearly a very short window of opportunity to reverse the adverse trends? A window that is likely to be diminishing with the accelerating impacts of climate change! Where is the urgency in our parliaments and business community for this to happen?

We desperately need to upgrade our national communications infrastructure to significantly enhance

our response capabilities. Recent 'unprecedented' extreme events in the form of droughts, fires and floods have accelerated the urgency of improving rapid, high-quality messaging and knowledge transfer across the continent. They have also exposed a woeful lack of insightful planning, essential infrastructure development and necessary emergency services. '*She'll be right mate!*' is just not good enough nowadays, if it ever has been. We also need to establish an economic framework that with some realism addresses these problems. The current economic paradigm does not.

The limitations of contemporary political systems in their ability to achieve a sustainable biosphere and low-emission life-support system for *Homo sapiens*, whilst pre-empting and managing natural disasters of differing magnitude, frequency and intensity as climate change intensifies, have recently become frighteningly obvious. Both democratic and autocratic governance structures are presently largely failing. Major urgent legislative reform is needed. Quinn (2020), in a submission to the independent review of the *Environment Protection and Biodiversity Conservation Act 1999*, outlined amendments that seek to address the deficiencies of its statutory regime. However, parallel complementary legislation would be needed to provide a comprehensive legal framework as the entire physical, social and information infrastructure of our society needs to be re-engineered. Even with a reformed legislative base, genuine political will and broad community commitment, it is not certain that there is still time to redress much of the current predicament in Queensland and Australia-wide before

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cascading biophysical challenges overwhelm our institutional capacities.

Assuming consensus can be achieved to allow scientific knowledge – generated in the laboratory and in field study sites, in tandem with rigorous data management, data analysis and perceptive modelling – to be scaled up and applied at state and national levels and in turn globally, can we actually do it? Or will the ‘ghosts in the human machine’ (past human societal dysfunctional behaviours) lead ultimately to our demise as a civilisation? It has occurred numerous times throughout human history. Upscaling – that is, applying insights about local ecological systems and individual actions to a broader canvas to solve problems of great magnitude – is crucial to any solutions. The catchphrase ‘*Think globally, act locally*’ has been around for more than 40 years, but we need to do more than this. Clearly, upscaling is an essential process in seeking solutions to most of the sustainability challenges we face, but the gloomy news arriving daily in our newspapers and inboxes suggests that existing institutional infrastructures will not allow this to happen.

Downscaling will also be needed, such as trimming and simplifying supply chains in size and scope to reduce the dependency of communities upon resources transported over long distances. This process is needed to reduce over-exploitation or wastefulness of resources and energy, which are the inevitable consequence of relying upon economic profit and market forces to structure our society’s transactions in goods and services. A serious and urgent aim should be for most regional systems to become as sustainably self-sufficient as possible. The next 100 years will undoubtedly present the greatest challenge to survival that *Homo sapiens* / ‘*Homo economicus*’ has yet had to face.

Building Resilience into Social-ecological Systems

How Does Resilience Relate to Sustainability?

A basic definition of resilience is ‘the capacity of a system, be it an individual, a forest, a city or an economy, to deal with change and continue to persist with relevance’. Lack of resilience forces the system to focus on short-term needs and take any action possible to survive – this behaviour

ultimately limits the ability to achieve long-term sustainability.

A basic definition of sustainability is “the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs” (adapted from a quotation by Gro Harlem Brundtland, Norwegian Prime Minister, 1987). Presently we are neither satisfying this definition nor adequately seeking and facilitating system resilience.

System Resilience

Natural scientists have led the way in exploring ecosystem resilience. Now resilience in social-ecological systems (SES) well deserves to be a major theme of research. A significant beginning has been theoretically achieved in this complex area over the past two decades (Biggs et al., 2021). However, progress in putting this into practice has been slow. The subject is comprehensively and accessibly over-viewed in Brian Walker’s book *Finding Resilience: Change and Uncertainty in Nature and Society* (2019). Discussing his book, Walker (2020a) states that resilience is about change in response to a disturbance: “changing the ways various parts of the ‘system’ are connected, emphasising some and de-emphasising others. It’s the capacity to absorb disturbance and re-organise so as to keep functioning in much the same kind of way – to have the same identity. In systems terms this means staying away from threshold-levels”.

In a subsequent paper, Walker (2020b, p. 1) further explained that: “There are two key parts to resilience: first, learning how to identify and stay away from (or where necessary cross) such known tipping points/thresholds and second, to avoid crossing as yet unknown and unsuspected thresholds, as we learn about the attributes of a system that confer resilience [...]. Possibly the most common mis-interpretation of resilience is ‘bouncing back’...” to the original system state. This is not resilience in any contemporary ecological sense. Ecosystems are continuously changing, albeit often at different component scales to maintain resilience. Walker (2020b, p. 1) continues: “There is [also] confusion in regard to the terms ‘robustness’ and ‘resilience’. ‘Robustness’ is generally taken to mean the ability to resist a disturbance by not changing; sometimes referred to as ‘engineering resilience’” (Holling,

1996, cited in Walker, 2020b). Further, “The two contrasting aspects of stability – essentially one that focuses on maintaining efficiency of function (engineering resilience) and one that focuses on maintaining existence of function (ecological resilience) – are so fundamental that they can become alternative paradigms, whose devotees reflect traditions of a discipline or of an attitude more than of a reality of nature” (Holling, 1996, p. 33).

Walker further identifies (2020b) a firming list of attributes that promote general resilience and describes these: viz. *response diversity (diversity of species and their potential for various advantageous resilient responses), exposure to disturbance, being modular (system modules not being under- or over-connected to sustain resilient advantages), “being able to respond quickly to shocks and changes in the system, being ready to transform if necessary; thinking, planning and managing across scales [and] guiding not steering”* (p. 2).

In conclusion, Walker (2020b, p. 2) offers a number of key points:

1. “Resilience is largely about learning *how* to change in order not to *be* changed.”
2. “It is necessary to consider both the resilience of particular parts of a system to specific threats, as well as resilience in general, of all parts of the system to all kinds of disturbance.”
3. “Trying to protect a system by keeping it in a constant state reduces its resilience. Exposure to the full range of [environmental] and [relevant social] variation is necessary for maintaining and building resilience.”
4. “Deliberate transformation of a system is sometimes necessary for it to continue delivering what is fundamentally of value to society.”

I intend to explore the challenge of building resilience into social-ecological systems in relation to cross-scale issues in a paper in progress that should be published in 2023, tentatively titled: *Challenges of managing scale for sustainability – from science to application*.

Hurdles in the Path to Effective Resilience Policy

Let me now change tack and return to the earlier discussion of the problems caused by the power imbalance between urban and rural populations. This becomes particularly challenging when addressing sustainability in the absence of adequate infrastructure and this while being burdened by indifferent politics. These problems are seriously exacerbated when trying to operate within an ‘out-of-date’ economic paradigm. Here I seek to bring the narrative back to the Society’s experience of the past 12 months. The rangelands of Australia cover about 80% of the continent (Sattler, 2020) with a similar but slightly lower percentage in Queensland. Here they support <1 person per km² of the state’s population with ~0.1 person per km² in the area defined as the Outback^a (Queensland Government, 2017, 2022).

On behalf of the Rangelands Discussion Group, since 2019 the Society has sought financial or institutional support for the kind of whole-systems analysis and dialogue that is necessary to address the ills identified in the first half of this paper. But we have failed. For all of the valuable scientific and economic knowledge generated and synthesised in the Rangelands Dialogue and its associated outputs, there has been a lack of interest in deep engagement by most sectoral groups. Does wide-window thinking and a whole-systems perspective pose too much of a threat to entrenched ways of rural and remote land management? How can we cut through? A paper by Lloyd and George (2022) in these *Proceedings* provides a rigorously developed example of a ‘cut-through path’ that addresses the challenges to promote and gain consensus of perception among pastoralists regarding climate change and, potentially, a changed approach to rangelands management, use and sustainment. Their excellent grounded strategy deserves wide cooperative support.

In another case, the Royal Societies of Australia have not been able to attract any significant

^a Overall, Queensland has 2.5 people per km² (Population Australia, 2022), with 68.6% living in SEQ. Even so, it is comparatively decentralised when compared to other states, with numerous coastal cities and towns to the north and two inland cities. Nevertheless, vast open areas make up the majority of the state’s land tenure in which the rangelands are located. The Queensland Outback is 834,679.8 km² in area, which in 2016 had a population density of 0.015 per km² with 79,700 persons including 26,560 Indigenous persons. Whereas the Indigenous population is increasing, there have been recent drops in other sectors of the population.

logistical support for their nation-wide, insightfully developed and delivered ‘Stewardship of Country’ series of webinars to proceed to the next stage, viz. a policy hub. Why?

The range of insights represented in our *Proceedings* and forums related to broader sustainable land management strategies during this time have exposed an absence of government institutional infrastructure to carry them into public policy. This is one of the major barriers to achieving progress in these areas. A compelling example of this, concerning the impacts of coal seam gas mining on farming, is critically examined in these *Proceedings* by Dart et al. (2022). Other barriers, particularly in the rangelands, include low population density and lack of skilled people who are long-term inhabitants, across the full spectrum of key trades, professions and other occupations.

I give credit to many of our authors, including Peter Dart and co-authors, who are crossing disciplines in their research work. Another excellent example is the widely acclaimed *Springs of the Great Artesian Basin*, Special Issue of the *Proceedings*, Volume 126 (2020).

I extend praise and encouragement to the early-career researchers and say how galling it has been recently to have had to decline more than 15 excellent applications for grants from our Research Fund because of a lack of ongoing funding support.

Why have we been corralled in this way? It is perhaps simple: behavioural change requires effort and sometimes pain. Governing bodies are political and tend to act to maintain continuity of power, often at the cost of achieving rational outcomes which would benefit the majority of stakeholders. At the other end of the community spectrum, many rural and remotely located people are already steeped in extreme physical and mental stress, and some are experiencing high levels of psychological trauma (Shrapnel et al., 2000; Hossain et al., 2012).

Another solemn factor, which reflects this situation, is the significant difference trending in suicide rates per 100,000 people between large cities (~10), outer regions (~18), remote regions (~17) and very remote regions (~25) (Australian Institute of Health and Welfare, 2022). For communities in these latter circumstances there is often inertia, high economic risk-aversion and resistance to change. But change may be welcomed by some, and even more if they

understand potential positive outcomes. To the contrary, however, we mainly appear to be slaves to the crudeness of the push-pull of supply-and-demand market forces, whilst continuing to operate largely disconnected from ecological services and associated unpriced values such as those intrinsic to our culture.

Rethinking Pathways to Global Resilience in an Alternative Economic Framework

Are there novel pathways to a more intelligent economic future that also imbue options for resilience in social-ecological systems? Let us briefly explore one of these: *a safe space for the future of humanity operating in a genuinely ecologically viable but workable economic framework*.

Initially, Rockstrom et al. (2009) of the Stockholm Resilience Centre, Stockholm University, with 28 associate scientists, identified nine planetary boundary entities that regulate the stability and resilience of the Earth System. These are: climate change; ocean acidification; stratospheric ozone; biogeochemical nitrogen and phosphorus cycles; global freshwater use; land system change; and the rate at which biological diversity is lost. The two additional, undetermined planetary boundaries are chemical pollution and atmospheric aerosol loading. Rockstrom et al. (2009) estimated that humanity has already transgressed three planetary boundaries: viz. for climate change, rate of biodiversity loss, and changes to the global nitrogen cycles. And even though the framework was thoroughly revised by Steffen et al. (2015), the complexity and number of novel artefacts (new substances, modified life forms, new types of engineered materials and organisms), which could form an additional category, has probably expanded significantly since then. Transgressions may overshoot certain safe boundary thresholds of the defined ecological ceiling, e.g. excessive, cumulative nitrogen and phosphorus loading. Their proposed ecological ceiling boundaries are first estimates only. Filling knowledge gaps will require major advancements in Earth System and resilience science. The proposed concept of planetary boundaries lays the groundwork for shifting our approach to governance and management, away from the essentially sectoral analyses of limits to growth aimed at minimising negative externalities that are still tied to the prevailing economic

paradigm. This will enable us to move towards a more enlightened understanding and delineation of the safe space for human development.

Raworth (2012) followed this work by developing the Doughnut Economic Model of planetary boundaries. This explains the concept of the safe space for humanity in the biosphere. She incorporates an inner boundary named the ‘social foundation’. This delineates a range of global basic human needs and estimates of the proportion of undershoots, e.g. inadequate food, water, housing, etc. Her later publication (Raworth, 2017a) presents an accessible,

logical case for a paradigm shift in economics for the 21st century and provides seven ways to consider the need and potential of its application. These include moving from a GDP-dominated goal to a doughnut-shaped economic goal, which has the following attributes: an embedded economy^c; social, adaptable humans; the recognition of the dynamic complexity of systems; distributive income by design; income equity achieved by regenerative design^d; and becoming an economy agnostic about growth. Figure 1 introduces and provides a brief explanation of the concepts involved.

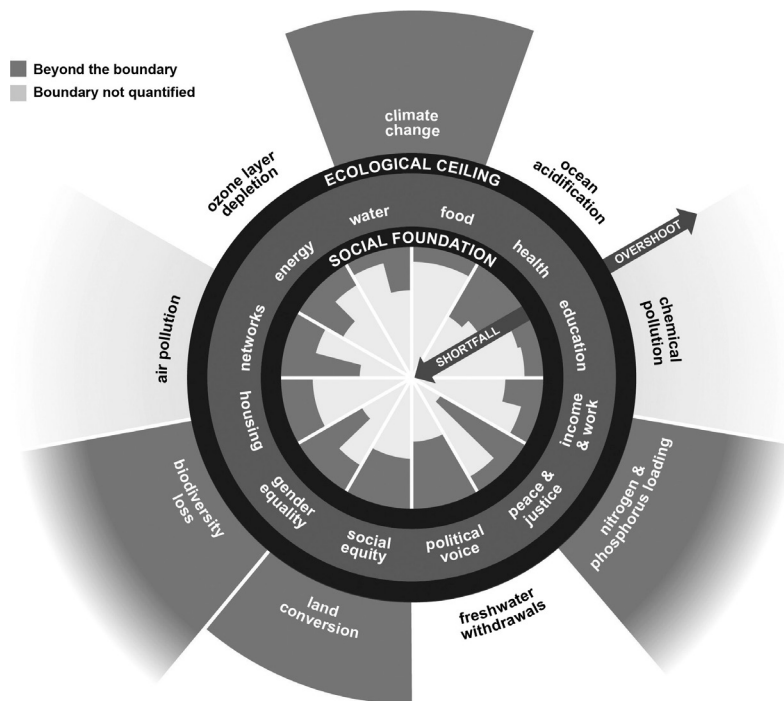


FIGURE 1. Shortfalls and overshoots both sides of the doughnut’s boundaries. The black circles show the ecological ceiling and social foundation, encompassing a safe and just space for humanity. The grey wedges below the social foundation schematically show the proportion of people worldwide falling short on life’s basics. The grey wedges radiating beyond the ecological ceiling show the overshoot of planetary boundaries. The light-grey wedges and white areas indicate that the overshoot is not yet adequately quantified. The twelve dimensions covering human welfare are shown in white in the inner circle of the doughnut. These describe the minimum standards adopted for human wellbeing by all UN nations in 2015 as Sustainable Development Goals (Raworth 2017b). A complete explanation of the data used is provided in an Appendix to Raworth’s (2017a) book on pages 295–299. (Modified figure is reproduced under a CC BY 4.0 licence from Raworth 2017b, p. e48. Figure modifications include changes to colour, and basic changes to shape, thickness, font type and size.)

^b One where economic values are not necessarily the preeminent values, and the public interest is determined by social and political processes.

^c A process-orientated, whole-systems approach to design.

The ‘doughnut’ she suggests might act as a 21st-century compass to guide us forward (Raworth, 2017b). Attenborough & Hughes (2020) strongly affirm this innovative framework, which can intelligently help create an effective map to enable humanity to navigate our path to a more sustainable future.

Concluding Remarks

My recognition of the need for a new economic paradigm began in the early 1970s with the publication of *The Limits to Growth* (Meadows et al., 1972). It was reinforced when I attended the launching of *Our Common Future* (World Commission on the Environment and Development, 1987) at the 4th World Wilderness Congress in Denver, Colorado, USA. It was clarified in reading Pearce et al. (1989) and Young (1992), who exposed the disarticulation of the current economic paradigm from ecological services. They also identified the lack of responsible incorporation of option, bequest and intrinsic (aesthetic, biological and cultural) values in resource-use decision-making and implementation. These are transgressions for which humanity has never truly paid any real price.

Another factor seldom questioned globally at that time^d was overpopulation of previously viable habitable areas, which with climate change are beginning and will continue to produce millions of ‘climate refugees’ over the next decades. Ironically, in Australia and particularly the rangelands in Queensland and the tropical north generally,

we lack a rational ethical economic platform to rigorously address overall sustainability and resilience. Perhaps some of the climate refugees might ultimately become residents. These converging maladaptations are now forcing us to face new consequences.

If the ‘doughnut economy’ or a similar alternative is not implemented, as is likely to be the case in a *just-too-late* global economic and political mode, the result will not be as these contemporary thinkers have envisioned, despite the predicted crucial C reduction targets of climate scientists, and it will take much longer than 2050 to reach net zero C+ emissions. Nevertheless, we all need to recognise eventually, but hopefully very quickly, that human societies can no longer operate in a global economy that is mainly disarticulated from our natural environment and the ecological services it provides (Pearce et al., 1989; Young, 1992; Hynes & Panetta, 1994).

One is tempted to feel some despair that 2022 marks the 50th anniversary of *The Limits to Growth* and that more than 30 years have passed since Pearce et al.’s *Blueprint for a Green Economy*. Yet, those of us who understand the significance of these authors’ warnings must soldier on. Queensland and our nation need to play a realistic leadership role in this transformation. We have been slow learners in recognising the serious limitations of our current economic system in effectively managing the present and increasing environmental crises. It is time for change! *Fortis fortuna adiuvat!*

^d With perhaps the exceptions being Paul Ehrlich’s 1968 book *The Population Bomb* and Meadow’s et al.’s 1972 *The Limits to Growth*.

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Literature Cited

- Attenborough, D., & Hughes, J. (2020). *A life on our planet: My witness statement and vision for the future*. Witness Books; Penguin; Random House.
- Australian Institute of Health and Welfare. (2022). *Deaths by suicide by remoteness areas*. <https://www.aihw.gov.au/suicide-self-harm-monitoring/data/geography/suicide-by-remoteness-areas>
- Biggs, R., Clements, H., de Vos, A., Folke, C., Manyani, A., Maciejewski, K., Martin-Lopez, B., Presider, R., Selomane, O., & Schluter, M. (2021). *Routledge handbook of research methods for social-ecological systems*. Routledge.

- Dart, P., Lynam, C., Pointon, R., & Edwards, G. (2022). Coal seam gas mining: An assault on farming land, water resources and property rights. *Proceedings of The Royal Society of Queensland*, 131, 87–109. <https://doi.org/10.53060/prsq.2022-06>
- Ehrlich, P. R. (1968). *The population bomb*. Sierra Club/Ballantine.
- Holling, C. S. (1996). Engineering resilience versus ecological resilience. In P. Schulze (Ed.), *Engineering with ecological constraints*. (pp. 32–44). National Academy of Engineering, National Academic Press. <https://doi.org/10.17226/4919>
- Hossain, D., Chapelle, B., Gorman, D., Mann, W., Penton, G., Saal, R., Woods, M., & Goddard, R. (2012). *Capacity building of rural and remote communities to manage their mental health: Identification of issues and measures* (RIRDC Publication No. 11/168). Rural Industries Research and Development Corporation.
- Hynes, R. A., & Panetta, F. D. (1994). Pest invasion, land sustainability and the maintenance of biodiversity. *Australian Biologist*, 7, 4–22.
- Lloyd, D. L., & George, D. A. (2022). A rangelands conundrum – the division within and among producers and stakeholders regarding climate change: Addressing the challenge to promote and gain consensus of perception. *Proceedings of The Royal Society of Queensland*, 131, 71–85. <https://doi.org/10.53060/prsq.2022-05>
- Meadows, D. H., Meadows, D. L., Randers, J., & Behrens III, W. W. (1972). *The Limits to Growth*. Potomac Associates; Universe Books.
- Pearce, D., Markandya, A., & Barbier, E. B. (1989). *Blueprint for a green economy* (Report for the Department of Environment, UK, prepared by the London Environmental Economics Centre). Earthscan Publications Ltd.
- Population Australia. (2022). *Population of Queensland 2022*. <https://www.population.net.au/population-of-queensland/>
- Queensland Government. (2017). *Queensland regions compared, Census 2016*. Queensland Government Statistician's Office. <https://www.qgso.qld.gov.au/issues/3246/qld-regions-compared-census-2016.pdf>
- Queensland Government. (2022). *Population estimates. Regions*. Queensland Government Statistician's Office. <https://www.qgso.qld.gov.au/statistics/theme/population/population-estimates/regions>
- Quinn, N. (2020). *Submission to the independent review of the Environment Protection and Biodiversity Conservation Act 1999*. Griffith University, Queensland. <https://scienceqld.org/2022/09/26/quinn-on-esd/>
- Raworth, K. (2012). *A safe and just space for humanity* (Oxfam Discussion Paper). Oxfam International.
- Raworth, K. (2017a). *Doughnut economics: Seven ways to think like a 21st-century economist*. Penguin; Random House.
- Raworth, K. (2017b). A doughnut for the Anthropocene: humanity's compass in the 21st century. *The Lancet Planetary Health*, 1, 48–49. [https://doi.org/10.1016/S2542-5196\(17\)30028-1](https://doi.org/10.1016/S2542-5196(17)30028-1)
- Rockström, J., Steffen, W., Noone, N., Persson, A., Chapin III, F. S., Lambin, E., Lenton, T. M., Scheffer, M., Folke, C., Schellnhuber, H., Nykvist, B., De Wit, C. A., Hughes, T., Van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P. K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R. W., Fabry, V., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P., & Foley, J. (2009). Planetary boundaries: Exploring the safe operating space for humanity. (2009). *Ecology and Society*, 14(2), 32. <https://doi.org/10.5751/es-03180-140232>
- Sattler, P. (2020). Conclusion: A Rangelands Dialogue: Towards a sustainable future. *Proceedings of The Royal Society of Queensland*, 127, 135.
- Shrapnel, M., Davie, J., & Frank, B. (2000). *Farmers' personality profiles* (Australian Research Council Report). School of Natural and Rural Systems Management, University of Queensland.
- Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, I. M., Biggs, R., Carpenter, S. R., de Vries, W., de Wit, C. A., Folke, C., Gerten, D., Heinke, J., Mace, G. M., Persson, L. M., Ramanathan, V., Reyers, B., & Sörlin, S. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science*, 347, 1–9. <http://doi:10.1126/science.1259855>

- Walker, B. (2019). *Finding Resilience: Change and Uncertainty in Nature and Society*. Stylus Publishing; CSIRO Publishing.
- Walker, B. (2020a). Resilience: what it *is* and is *not*. *Ecology and Society*, 25(2), 11. <https://doi.org/10.5751/ES-11647-250211>
- Walker, B. (2020b). *A lesson in 'resilience': realities and misconceptions*. Centre for Agriculture and Bioscience International. <https://blog.cabi.org/2020/07/02/a-lesson-in-resilience-realities-and-misconceptions/>
- World Commission on Environment and Development. (1987). *Our Common Future* (The Brundtland Report). Oxford University Press.
- Young, M. D. (1992). *Sustainable Investment and Resource Use*. CSIRO; UNESCO; Parthenon Publishing Group.

Hynes, R. A. (2022). Presidential address 2022: The imbalance of power between urban and rural populations when addressing sustainability while burdened by indifferent politics. *Proceedings of The Royal Society of Queensland*, 131, 163–170. <https://doi.org/10.53060/prsq.2022-15>