The COVID-19 era: No longer business as usual

Janet McIntyre-Mills1,2,3

1Adjunct Associate Prof at Flinders University, Business Government and Law, University of Adelaide, Adelaide, Australia
2Visiting Research Fellow, Yunus Social Business Centre, College of Professions, University of Adelaide, Adelaide, Australia
3Hon Professor, College of Education, University of South Africa, South Africa

Correspondence
Janet McIntyre-Mills, Adelaide University, Adelaide, South Australia, Australia. Email: janet.mcintyre@adelaide.edu.au; Janet.mcintyre@flinders.edu.au

Abstract
The paper proposes an alternative cyclical economy based on eco-villages supporting urban hubs to regenerate rural–urban balance based on public education to support eco-facturing, to use Gunter Pauli’s concept. The paper sketches an alternative cyclical economy based on eco-villages supporting urban hubs to regenerate rural–urban balance based on eco-facturing. Australia lost over 40 million acres of habitat and at least a billion creatures during the 2019–2020 bushfire season. Africa and Asia are also rapidly urbanizing and rapidly losing habitat. The paper outlines the way in which we could live differently by understanding that production, consumption and regeneration need to follow a natural ecological approach, rather than the current approach to extracting profit at the expense of future generations. Production and regeneration need to be conducted in ways that do not exploit people and the environment. Exchange practices need to ensure that the interests of the few are not expended at the expense of the many.

KEYWORDS
architectures for engagement, cyclical economy, education, learning, living systems

1 | INTRODUCTION TO THE CYCLICAL ECONOMY LEARNING ORGANIZATIONS AND LEARNING COMMUNITIES TO FOSTER MULTI-SPECIES RELATIONSHIPS

The twofold aim of the paper is to sketch out a case for fostering a learning organization and learning community approach to remedy convergent social, economic and environmental challenges expressed as poverty, social exclusion, conflict, climate change and cross species diseases. For the purposes of this paper, the cyclical economy for transformation draws on diverse ways of knowing spanning diverse life chances, genders, cultures, disciplines, religions and species.1

1It draws on the literature (Kalmykova, Sadagopan, & Rosado, 2018) but extends it by spanning, for example, Kenneth Boulding (1966) on alternative economics, Bateson (1972) on an ecology of mind, Bailey (2006) on living systems, Meadows et al. (1972) on the limits of growth, Banathy (2000) on evolutionary systems design, David Bohm (2002) and the Dalai Lama (2005) on alternative physics, cause and effect and compassion, Nussbaum (2006) on the rights of sentient beings and the need to extend our frontiers of justice, Sir Nicholas Stern (2007) on the economics of climate change and the IPPC report (2018), Jane Goodall (2020), Bogue (1989) who explains the contribution of Deleuze and Guattari, Kabeer (2015) on gender, Dhamoon (2011) on intersectionality on animal rights and habitat, Vandana Shiva (1989) on women and survival, Elkington (1997) on triple bottom line accounting and accountability, Wangari Maathai (2006) on the green belt movement to regenerate forests in Kenya, Gunter Pauli (2010) on creating positive cascades through working with nature (which he calls ‘ecofacturing’) to create jobs, Senge (1990, 2006) and Wenger et al. (2009) on implementation and on creating learning organisations, learning communities and habitats, Stephens (2015) on ecofeminism, Haraway (2016, 2018) and Tsing (2015) on extending our relationships to multiple species and Naess and Hankeland (2002) on a deeper relationship with nature.
organizations and communities that adapt and extend Peter Senge’s (1990, 2006) notion of learning organizations and communities and Vandana Shiva’s (2020a) notion of thriving eco-villages to protect people and the environment (whilst creating jobs).

It links critical systemic praxis with regenerative cyclical economics and job creation. Critical systemic thinking and a systems-oriented curriculum are overdue but need to be taught in the form of praxis in order to inspire new forms of engagement that support the circular economy (see Pauli, 2010). The paper makes a case for developing transformative education to address the social, economic and environmental challenges. Currently, education supports ‘business as usual’ and the neo-liberal economy (Jain, 2020). This means that teaching courses that assume a growth economy based on profit at the expense of people and the environment, rather than teaching courses that focus on wellbeing stocks (Stiglitz, Sen, & Fitoussi, 2010) that help to regenerate people and the environment (see Shiva, 2020a, 2020b), is problematic. In line with Shiva’s (1989, 2011, 2012a, 2012b) body of work, regeneration means reestablishing or rehabilitating diverse habitats and seeds, because sustainability of a status quo (that supports plantation agriculture and habitat loss) is insufficient to remedy the current crisis.

As I prepare the paper for submission more than 15 million COVID-19 cases have been recorded globally so far. The pandemic could have been predicted and prevented if species that usually do not come into contact had been able to remain in their local habitats. The COVID-19 pandemic has provided Goodall (2020) the platform to speak out about how cross-species infections are caused by the way human beings are encroaching on the habitat of wild animals, such as pangolins and bats. Her stature as a leading primatologist and conservationist has enabled her to speak out about previous epidemics such as swine and avian flu and to highlight the treatment of farmed and trafficked animals. Enabling farm animals and wild animals space for a life worth living would also protect us from illness. One of the positive aspects of the COVID-19 epidemic is that it has raised awareness of cross-species pathways for epidemics that can reach pandemic proportion as species are thrust into increasingly closer contact as urbanization and habitat loss escalate (Gorbalenya et al., 2020).

We need to pause to ask, if the Latin root for education potentially means to lead out and not merely to train or mould (Bass & Good, 2004), what could a design for the transformation of education to support multispecies relationships look like and why could it be vital for human security?

The potential to learn from nature and to mimic nature’s design would be a step in the right direction (along with understanding the patterns across different scales of living systems). Furthermore, an understanding of patterns across organic and inorganic systems could help to enhance an understanding of the hybridity and interconnectedness (McIntyre-Mills, 2017a) of human species within the web of life (Capra, 1996). Whilst consciousness is not the preserve of human beings, our ability to think about our thinking behoves us to address stewardship. A nonanthropocentric approach to education and stewardship requires an openness to new ways of knowing and an appreciation of the importance of moving to the next level of understanding, as hinted by Boulding’s (1956) skeleton of knowledge that could have been represented as a continuum of consciousness from inorganic to organic ways of knowing. This notion of continuity is inherent in the last stage of the continuum which includes ‘transcendence,’ which is explained by Banathy (2000) when applying evolutionary design to education, democracy and engagement.

COVID-19 has also provided a platform for the Black Lives Matter protests to highlight that the gap between rich and poor also intersects along racial lines. ‘Ecological apartheid’ (Shiva, 2020a) and economic apartheid (Shiva, 2020b) have consequences, and the Uluru Statement of the Heart (May 23–26, 2017) stresses that valuing the land as ‘our mother’ has not yet occurred and that the divisions are ongoing.

With substantive constitutional change and structural reform, we believe this ancient sovereignty can shine through as a fuller expression of Australia’s nationhood. Proportionally, we are the most incarcerated people on the planet. We are not an innately criminal people. Our children are aliened from their families at unprecedented rates. This cannot be because we have no love for them. And our youth languish in detention in obscene numbers. They should be our hope for the future. These dimensions of our crisis tell plainly the structural nature of our problem. This is the torment of our powerlessness.

The paper builds on and extends the content of several pieces of work which together constitute a program of research to address the issue of a priori norms and a
posteriori measures for transformation towards (a) regenerative living and (b) preventing the displacement of people, indigenous cultures, plants and animals. The research discussed in these volumes draws on indigenous wisdom and contributes to regenerating the commons (Bollier & Helfrich, 2012), which needs to be seen as a process and a sense of connection rather than as a resource (Bollier, 2011). As Blok and Gremmen (2016) sum it up, the ‘domination and exploitation of nature’ need to be replaced by ‘learning and exploration’ to enable an understanding of the relevance of biomimicry and, I would add, by understanding our place in the web of multispecies relationships as well as the entirety across inorganic and organic living systems. This has been understood and expressed by First Nations in Australia and is a foundational aspect of Mahayana Buddhism (Bohm & Dalai Lama, 2018).

Rapid urbanization and the decline of regional areas pose a human security challenge. The upstream approach to addressing the human security risk is to promote regenerative integrated development in line with the proposed laws of ecocide which protects all inhabitants in a region. This is a multispecies approach. The downstream approach is to address the consequences of displaced inhabitants. As Polly Higgins stressed in 2018 in her address to The Hague, 750 million people are at risk of displacement by 2050. According to Lewis (2020), Professor Chris Dickman estimated that a billion mammals, birds and lizards could have lost their lives by the end of the Australian bushfire season, given that more than 18.7 million hectares (or about 46 million acres) had been lost by mid-February. Further investigations of WWF (2020) research to which Prof. Dickman has contributed estimates that the numbers are in the region of three billion.

Debra Bird Rose stressed in her work on extinction that we need to see ourselves as part of a living system (see Rose, 2015). Social, economic and environmental challenges are convergent, and in the wake of current crises, a press release (Lancet Press Office, 2020) published in The Lancet cautions that the world population is due to decrease but growth in Africa will continue. The article stresses that ‘Sub-Saharan Africa is likely to become an increasingly powerful continent on the geopolitical stage as its population rises.’ In 2014, the UN urbanization report made the case that the majority of the world’s population would be in Africa and Asia and that they would be city-based. But, the impact of social, economic and environmental disasters associated with the convergent factors of poverty, climate change and the COVID-19 pandemic may impact this assessment, as more people opt to move away from high density living during the pandemic (as was discussed in July 2020 with staff working across multiple campuses for Islamic Higher Education in Indonesia). Paradoxically, in Indonesia, villages are becoming increasingly densely populated, and this poses risks for poverty, morbidity and mortality. Nevertheless, if urbanization recontinues (in a postpandemic era), Africa and Asia will continue to be at risk of displacement and habitat and species loss, as food and water insecurity increase. Climate change and the loss of habitat go hand in hand and have been clearly linked with species being thrust together that would never usually come into contact, which poses the risk of further pandemics (Andersen et al., 2020) and has implications for the way in which economics, ethics and governance are framed.

Recently, New Zealand has supported the notion of a ‘Wellbeing Budget’ (WEF, 2019) which resonates with some of the Maori notions of wholistic wellbeing (New Zealand Dept of Public Health, 2007). In 2019, New Zealand Prime Minister Jacinda Ardern supported the notion that wellbeing indicators should be measured by government departments, clean air and water, access to housing and health care, education standards, economic mobility, social harmony and community safety, and a safe climate, is the core of work of government. (Field, 2019, p.32)

• Planetary Passport for representation, accountability and regeneration.
• Mixed Methods and Cross Disciplinary Research: Towards Cultivating Ecosystemic Living.
• Democracy and Governance for Resourcing the Commons: Theory and Practice on Rural–Urban Balance. Springer, New York.
• From Polarisation to Multispecies Relationships in an era of mass extinctions.
3https://en.wikipedia.org/wiki/2019%E2%80%9320_Australian_bushfire_season
4The study was conducted by researchers at the University of Washington, Seattle, USA.
5The other United Nations Reports such as “United Nations Declaration of the rights of Indigenous people” and “United Nations Office for Disaster Risk Reduction, 2015-20” also inform this concern.
6Higher education policy and research, Directorate of Islamic Higher Education, Ministry of Religious Affairs, Jakarta, 10 July, 2020. The rapid rate of urbanisation in Africa and Asia was discussed when I highlighted by the United Nations Urbanisation Report (2014), but we then discussed how the outbreak of Covid-19 has changed people’s perspectives about the desirability of high density living. Rural, regional and suburban areas are now more desirable than high density areas. City office workers can now rely on internet and virtual conferencing so that travel is no longer so important. But factory workers, service workers and shop keepers have had to continue working in a face to face manner without the luxury of social distancing.
This policy provides a way forward and is in line with aspects of the work by Stiglitz et al. (2010) who stress the importance of taking wellbeing into account, rather than only narrow notions of productivity and profit. The paper summarizes some of the key points and is aimed at being a source of ideas for policy makers and those engaged in critical system thinking to protect and regenerate living systems by addressing ‘wellbeing stocks’—a concept adapted from Stiglitz et al. (2010, p.15) to refer to a multidimensional measure of wellbeing. This requires reframing not only economics but our relationships. COVID-19 provides a once-in-a-lifetime opportunity to rethink our place in the web of life by extending and applying Stiglitz et al.’s (2010, p.15) multidimensional measure of wellbeing, spanning

1. Material living standards (income, consumption and wealth), 2. Health, 3. Education, 4. Personal activities including work, 5. Political voice and governance, 6. Social connections and relationships, 7. Environment (present and future conditions), 8. Insecurity, of an economy as well as a physical nature.

The aim of the wellbeing stocks concept is to enable people to reevaluate economics and to become more aware of the way in which we neglect social and environmental aspects of life. The pursuit of profit at the expense of people and the environment is a central problem for democracy and governance. Alternative forms of organization are possible to support ‘wellbeing stocks’ for the common good (McIntyre-Mills et al., 2014), but the commons needs to be theorized as a legal concept (Marella, 2017) and as a transformative governance concept (see McIntyre-Mills, 2017a, 2017b Systemic Ethics; McIntyre-Mills, 2014; Wirawan & McIntyre-Mills, 2019).

Current forms of democracy and governance do not protect the rights of sentient beings unless they are recognized by the state as citizens. Just as democracy evolved from the ancient Greek version that excluded women and slaves, democracy needs to evolve to include the rights of those who are currently accorded minimal rights or excluded by the social contract that protects only those who fall under the mantle of citizenship within the nation state. The social contract excludes those who do not have the vote and whose rights and interests remain unheard (e.g., young people, asylum seekers, the frail and disabled and nonhuman sentient beings). Whilst human rights (at best) may be able to address some of these concerns, current legal constructs remain anthropocentric.

To what extent can current structures be considered to support the ‘banality of evil’ (Arendt, 1963) associated with everyday decisions that lack critical analysis and that undermine living systems by causing pain and suffering? Valuing others, irrespective of age, gender, class, culture, level of ability or species is a starting point for addressing the critical systemic risks that we currently face.

For example, the policy document provided by the Department of Home Affairs (2019) entitled ‘Profiling Australia’s Vulnerability: The interconnected causes and cascading effects of systemic disaster risk’ frames the need for a ‘conversation about vulnerability.’ Balancing individual and collective rights could be supported through international law on ‘ecocide’ to criminalize actions against the environment (Gauger, Rabatel-Fernel, Kulbicki, Short, & Higgins, 2013). The participatory action research described in ‘Transformation from Wall Street to Wellbeing’ (McIntyre-Mills, 2014) grasps the nettle to respond to the challenge posed by the Earth Charter (Hayden, 2010). Designs need to be supported by constitutions and laws (based on a priori norms) and consequentialist or a posteriori approaches (based on testing out ideas within context and with future generations in mind). The circle of participatory democracy requires respect for the balance between the individual and the collective. This in turn requires ongoing adjustments through thinking about who gets what, when, why, how and to what effect, in order to make better decisions to, for example, address gender mainstreaming—not merely meeting the UN Sustainability Goals but addressing the need for regeneration as a way to minimize urban risks highlighted by the Sendai Risk Platform (2015–2030).

Salience is a vital consideration, as people need to feel that engagement is relevant and that they can trust the process. Trust is built through representation, accountability and a belief that the process is both sustainable and regenerative. Wirawan and McIntyre-Mills (2019) have made the case that block chain (Al-Saqaf & Seidler, 2017) provides a viable way to ensure that everyone is included in a process that allows for cross-checking. The approach informs the conceptualization of new architecture for democracy and better governance through addressing the issue of a priori

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8The critical systemic approach takes into account many diverse ways of seeing and tries to find common themes that could underpin ‘lives worth living,’ based on testing out ideas with those who are to be affected by the decisions and mindful of future generations of life (including sentient beings). This is a form of expanded pragmatism based on mindful decision making in the interests of living systems of which we are a strand (McIntyre-Mills, 2017). We need to respond to systemic sociodemographic, cultural, political, economic and environmental challenges and the different needs of age cohorts in developed and developing and less developed parts of the world.

9Systemic ethics (McIntyre-Mills, 2017) develops the argument for a priori norms and a posteriori ethics to support balancing individual and collective needs based on nonanthropocentricism.
Recognizing that identity politics takes place at the site where categories intersect thus seems more fruitful than challenging the possibility of talking about categories at all. Through an awareness of intersectionality, we can better acknowledge and ground the differences among us and negotiate the means by which these differences will find expression in constructing group politics.

The forthcoming volume ‘From polarisation to multispecies relationships in an era of mass extinctions’ (McIntyre-Mills & Corcoran Nantes, 2020) extends politics to include nonhuman participants and supports the extension of alternative architectures for democracy and governance. As such, it develops an alternative way of living and being that supports a learning community and learning organization approach. The case is made that taxonomic categories that divide human beings from the rest of nature are obsolete and that many species are able to communicate, make decisions, share resources and to reciprocate based on a sense of balancing individual and collective needs harmoniously for the common good. A paper drawn from the forthcoming volume extends the points made in a paper delivered at the ISSS in Corvallis (McIntyre-Mills, 2019a, 2019b) and proposes developing eco-villages and enabling people to live, learn and grow in regional areas as a way to halt urbanization and the loss of diverse habitats.

One of the positive aspects of the COVID-19 epidemic is that it has raised awareness of cross-species pathways for epidemics that can reach pandemic proportion as species are thrust into increasingly closer contact (Andersen et al., 2020) as urbanization and habitat loss escalates. Taxonomies that impact social enterprise such as human/animal/organic/inorganic, human/machine and local/nonlocal need to be reframed as they impact social enterprise and entrepreneurship. Donna Haraway (1991, 1992) stressed ‘we are the boundaries’ and we can change them. ‘From polarisation to multispecies relationships’ explores the following:

- Could an engagement process spanning micro, meso and macro levels based on visioning and cocreation help to reframe taxonomies of species, rights and relationships in ways that enhance public education and ‘buy in’ to new norms and governance requirements?

All sentient beings have a right to a life worth living. This requires access to habitat in which they can express their full capabilities (Nussbaum, 2006, 2011). The right for animals to live undisturbed lives requires recognizing their rights, simply because they are sentient. The right for plants to exist in biodiverse habitats also needs to be recognized if living systems are to have a hope of surviving (Higgins, 2012, 2019; Higgins, Short, & South, 2013). The boundaries need to be redrawn to recognize justice for living systems. This has been stressed by both barrister Polly Higgins and physicist Vandana Shiva in making a plea for an Ecocide Law and a recognition of an Earth Charter which extends the notion of a Global Covenant, as suggested by Held (2004). Just as the artificial human–animal barrier has been breached, the artificial barrier between people and nature needs to be breached by recognizing our hybridity and interconnectedness (McIntyre-Mills, 2018). We need systemic ethics (McIntyre-Mills, 2014) to underpin nonanthropocentric forms of democracy and governance.

Wild habitat has been lost, and the species that once lived in isolation (and have no immunity to viruses) are thrust into contact with one another. The domino effect of loss continues as agricultural land and liminal green spaces in and around cities disappear. If politics is about who gets what, when, why and to what effect, it is time to rethink politics as cross species engagement (Meijer, 2016; Stephens, Taket, & Gagliano, 2019) to ensure the balance of individual and collective needs.

A new politics needs to acknowledge our interconnectedness, based on recognition and respect. The Ecocide Law (Higgins et al., 2013) is central to protect multiple species, as the earth needs a good lawyer to disrupt the cycle of greed, overexploitation, lack of distribution, poverty and conflict. But, the legal perspective needs to be buttressed by the rights perspective to protect all sentient human and other animals (simply because they are sentient) as well as their habitat. The systemic consequences of our thinking and practice are climate change, poverty and pandemics. We need to enter into a new respectful dialogue with nature and extend Martin Buber's ‘I-Thou’ approach (see 2008 translation) to multiple species. The notion that profit can be extracted by commodifying the environment is challenged by drawing on the potential of alternative approaches suggested by Gunther Pauli (2010) who makes a case for so-called ‘eco-facturing,’ by working with nature to achieve regenerative cascading benefits, rather than extractive degenerative profits.
Wellbeing stocks, according to Stiglitz et al. (2010), need to be the focus of a raft of indicators so that economic governance systems avoid ‘mis-measuring our lives’ by outdated notions of what constitutes progress. Business as usual is increasingly irrelevant to human and environmental security. Cooperation rather than competition within postnational bioregions is needed to ensure food, energy and water security to support life (McIntyre-Mills, 2017a).

The need to flatten the curve of the COVID-19 virus and to protect employment and the life chances of the marginalized, the frail and the unemployed is central in the debates as to when and how to open up the economy. The several pieces of work mentioned above make the case for a new form of economics that protects the rights of sentient beings and that produces goods and services that are not only sustainable and social, economically and environmentally, but that they also strive to regenerate people and places by working with nature, rather than working against it. Examples of regenerative farming using bamboo, mushrooms, honey, organic crops and fostering eco-facturing that creates positive cascading effects are detailed in a number of case studies where aspects of eco-facturing have been trialled.

The world’s poorest workers are involved in agriculture. It is hardly surprising that poverty (linked with climate change) is driving people into the cities. World hunger is increasing at an alarming rate, according to the Report by the Secretary-General. This is not yet the case in some parts of West Java, where agricultural regeneration is a focus among young people who are making a success of farming through forming cooperatives, giving farming a good name as a vocation that can provide a good living. They make farming appear ‘cool’ by wearing uniforms and supporting one another in successful farming ventures. Another successful example is the way that the entire community of Alamendah in that region has worked together to support successful enterprises. The successful intergenerational transfer of knowledge on bee farming in Cibeber from father to son spanning more than four generations is another example. Through creating a community of practice network at a postnational level (McIntyre-Mills, 2019a, b), we have considered the application of the “one village one enterprise” notion in the South African context to help share local wisdom to support local capacity building. The UN 2030 Agenda is the new global framework to help eradicate poverty and achieve sustainable development by 2030. It includes an ambitious set of 17 Sustainable Development Goals.... The 2030 Agenda for Sustainable Development sets out the global framework to eradicate poverty and achieve sustainable development by 2030.

In order to have a hope of achieving the UN Sustainable Development Goals (2030), this paper proposes a new approach. Highly urbanized regions face food and water insecurity and are at risk of becoming food deserts during the COVID-19 pandemic unless everyday strategies are explored with service users and providers to find better pathways to resilience and wellbeing for the most vulnerable members of the population. Cities can be regarded as (potential and actual) food deserts for some and places where the dreams of a better future end for many. In line with the Paris (2005) Declaration and Accra Agreement (2008), engagement to address educational challenges needs to address indigenous wisdom and to avoid colonization.

2 | NEW ARCHITECTURES TO PROTECT THE COMMONS

The axiological underpinnings for a new architecture to protect the commons needs to include the following:

- a priori decisions need to be made at the local level underpinned by the principle of subsidiarity, and
- a posteriori monitoring needs to ensure that individuals and organizations can be free and diverse in their praxis to the extent that their decisions do not undermine the rights of others (including sentient beings and the environment).

The fear of COVID-19 has brought the global economy to a halt in many parts of the world. The desire to resume ‘business as usual’ perhaps should be replaced with a desire to achieve a better way of engaging with living systems of which we are a strand. We have learned that we are no longer top predator, and Clive Spash makes a plea for us to heed the warning that business as usual is problematic (Spash, 2020, p.14). In the same
paper, he makes the case that the green economy and growth are incompatible, but this paper suggests that perhaps we can grow a new way of producing through developing multiple nodes that are networked to market locally produced products that make use of nature, the sun, the wind and the earth for producing products that enable a production, distribution and consumption cycle that creates opportunities for all based on positive cascading effects, rather than exploitation and profit.

Mair (2020) reflects on the social and economic situation and sums up the governance challenge for the future as follows: a centralized or decentralized response that either prioritizes exchange values or the protection of life. Mair (2020) explains the four extreme options elegantly as follows:

1. State capitalism: centralized response, prioritizing exchange value.
2. Barbarism: decentralized response, prioritizing exchange value.
3. State socialism: centralized response, prioritizing the protection of life.
4. Mutual aid: decentralized response, prioritizing the protection of life.

The first two options prioritize economics and profit. The second two options prioritize people and the environment and provide leadership for transformation, ‘navigating disruption’ by working with many ways of knowing. Drawing on Mair’s (2020) elegant summary, this paper suggests a fifth option that fosters the protection of all living systems and that strives to balance individualism and collectivism. Society needs to face up to the implications of no longer being top predator and to learn from the implications of the COVID-19 pandemic that has required us to pause and to reflect on what we value and why. We could choose to maximize social and environmental factors and meaningful jobs, rather than focusing on business as usual, where a minority win at the expense of current and future generations of life.

Clearly, nation states need to pivot quickly to mitigate and adapt to the pandemic. Australia has demonstrated that society is capable of rapid transformation to flatten the curve of COVID-19, but it needs to apply this zeal to flattening our carbon footprint to minimize the risks of further loss of life through climate related disasters that result death and displacement on an unprecedented scale. Perhaps a positive aspect of COVID-19 could be a rapid U-turn towards a new form of governance that cares for people and supports partnerships to enable the common good. Clearly, human beings have learned that they are no longer the top predator, but sadly the positive impact on climate change caused by a slowing economy has reversed as the world economy begins to open up (Carrington & Kommenda, 2020).

Bearing in mind these points, a new approach is suggested based on reconceptualizing the way in which we relate to other species in which the fourth governance option is stressed, namely mutual aid and a recognition that a great deal of volunteering, and nonpaid household, community and caring work is undervalued. A circular economy that supports both social and environmental justice is needed, and the way in which the vulnerable and nature has been controlled and mastered needs to be remedied.

Few (with the exception of eco-feminists Deborah Bird Rose, Donna Haraway and Anna Tsing) have spoken out about multispecies relations, and fewer have stressed the need for a multispecies approach that honours the rights of all sentient beings to a habitat that makes life worth living—with perhaps the exception of Sue Donaldson and Will Kymlicka (2011) in their work ‘Zoopolis’ in which they argue that habitat for all animals’ needs should be considered a right—from appropriate space for domesticated animals (such as pets and agricultural animals) to the liminal creatures that share our cities and gardens with us, and the wild animals who have a right to their own habitat. As stewards, we have a responsibility to ensure that their rights are met through passing and implementing laws to protect them.

3 | ECO-VILLAGES AND ECO-FACTURING: A POTENTIAL WAY FORWARD?

Positive cascades can be created by working with nature in a circular economy, instead of exploiting nature. The aim of the concept of eco-facturing and eco-villages is to enable local people to identify opportunities and market their products. The proposed approach ensures that the service users build the capacity of the service providers (and not the other way around!) and that a better match between perceived needs and service outcomes is achieved. Eco-villages could help to restore the regeneration of seeds threatened by global companies, and championing an approach to development by advocating respect for the vital role played by rural populations and appropriately managing the habitat on which local farmers depend.

Ecofacturing relies on natural resources: the sun, wind and water for power; the earth to support seed germination; and the protection of pollinators and organic workers of the soil, spanning many species (see Pauli, 2010). Cassava for bioplastics, bamboo for biochar and

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12https://www.ccl.org/blog/navigating-disruption-vuca-alternative/
fair trade and free range luwark coffee are examples of ecofacturing that are currently being developed in Indonesia (Wirawan & McIntyre-Mills, 2019). Participants who access a capacity-building portal for eco-villages could be supported by means of digital habitats (Wenger et al., 2009) and could consider the following:

- What they have (material and nonmaterial resources they can draw on).
- What they need.
- What are the turning points for better and worse.
- Barriers they face.
- Resources (material and nonmaterial) shared in common.

This paper suggests an alternative way forward based on eco-villages that are interconnected and that market their goods through online portals protected by blockchain. Each portal could be supported by universities that enable capacity building so that participants are able to learn, earn and grow a future together. Participants would be asked to think about what they have, what they need, what they could do differently and what the barriers are, and they could be matched with locals who could help or be helped in order to grow the enterprise.

3.1 | Decoupling education and social enterprise from neo-liberalism: The potential of eco-villages linked with education hubs to address biomimicry

We face a dismal future if ‘business as usual’ prevails (Beck, 2010; Bostrom, 2011; IPPC, 2018), and we do not grasp the nettle to redesign our future. Education and research need to be reconceptualized to take into account many ways of knowing, including the arts, sciences, spirituality, an appreciation of diverse species intelligences and a willingness to learn from and adapt to the complexities of nature.

‘Earn while we learn and grow a future together’ is the slogan for working together with rural communities supported by vocational education and training in collaboration with a network of providers.

Education at the primary, secondary, tertiary, and vocational educational levels is missing the mark. Isomorphies should be taught (as stressed by Len Troncale, July 18, 2020, webinar); for example, feedback (positive and negative flows) could be illustrated by examples at different scales; interactions, connections across nodes, and networks could be discussed in terms of different social organizations and historical contexts. Students could also learn that what appears to be a static structure is actually a construct and that all matter is in motion. The implications of systemic isomorphies or patterns in nature could provide valuable insights for informing human cultural constructs, and students could learn that they are able to draw and redraw conceptual boundaries with constructive or destructive consequences that could be understood by studying the implications of policy choices in specific contexts.

Furthermore, the opportunity to apply participatory action learning and research as a component of each of the core subjects could create the context for a new approach to regenerative education. The thematic patterns across many ways of knowing could be a key learning outcome in capstone action research projects that would strive to achieve systemic integration. To sum up, primary, secondary and tertiary education nodes and networks need to be linked, spanning face-to-face engagement and supported by capacity building through online training. The mission ought to enable the development of regenerative social, economic and environmental systems. The current education system churns out certificates and degrees for jobs within the neoliberal economy. But, supporting ‘business as usual’ will not address social and environmental injustice.

3.2 | Restoring rural–urban balance through nodes and networks supported by learning portals and on the ground facilitators

Instead of students being required to move to cities for their education, primary, secondary and tertiary education could be supported so that vocational education and training is an outreach of learning organizations that become learning communities. The curriculum could be revised to enable learning about ‘our hybridity and interconnectedness’ (McIntyre-Mills, 2017a) with a focus on nonanthropocentrism and systemic ethics that recognize that consciousness and sentience is not the preserve of human species.

We must recognize that ‘we are the boundaries’ and that where we draw boundaries is a matter of questioning our relationships, reconceptualizing our perspectives and developing processes and structures that protect current and future generations of life. What we regard as sacred and profane is a matter of judgement (see Douglas, 1978; Midgley, 2000).

The development of eco-villages supporting the ‘one village many enterprises’ concept currently applied in Indonesia relies on responsive design informed by the principle of subsidiarity (Poe, 2010) and Ashby’s (1956) rule, namely that policy decisions need to be made at the lowest level possible, and that the complexity of design
decisions need to match the complexity of the local residents who act as caretakers for local living systems. Regeneration is not only feasible, but essential. Education policy needs to extend the sustainability approach, as it does not currently go far enough. This paper aims to do more than raise the poignant issues faced by those in rural areas by service users and providers; instead, it hones in on the axiological root causes of the problems and the purpose of transformative education. It contributes vignettes and chapters on best cases, pilots and small projects by service users and providers who have ideas about how to support an education for social and environmental justice in a range of contexts.

Education curricula need to address many ways of knowing, spanning human logic, empiricism, dialectical thinking and pragmatism (Churchman, 1971; Ulrich & Reynolds, 2010) and extend to include spiritualism and appreciation of many ways of knowing, animal knowing, biomimicry (Troncale, n.d, website link) and learning from nature. By valuing certain kinds of knowledge at the expense of others, human beings have created a new age, namely ‘the Anthropocene,’ characterized by rapid urbanization and unsustainable development.

Policy needs to reconceptualize education for regenerative development to provide hope and inspiration based on systemic ethics and to address the question: What should/could transformation entail? Scenarios need to be considered within context and reflecting upon the implications each scenario poses for education, for example, the following:

- **Education as usual or neo-liberal factory education** that does not address human beings as part of a ‘web of living systems.’
- **Steps towards alternative forms of education at the primary, secondary and tertiary level** linked at each level with vocational education and training that address social, economic and environmental challenges.
- **Transformative education nodes and networks that balance individual and collective social, economic and environmental protection** across rural and urban areas. This could be an opportunity to apply participatory approaches (Wadsworth, 1998, 2010) to transformation. New approaches to education could combine (a) face-to-face learning in the community (that draws on the local tacit knowledge) and is supported by (b) local e-learning hubs where people could meet and learn new skills in a multi-generational way. Paid facilitators (supported by the public sector and self-sustaining social enterprises) could build capacity.

Social enterprises have failed in the past due to a lack of representation and accountability. If distributive networks could cross-check material and nonmaterial contributions, this could help to reduce the failure rate of cooperatives that enable practical learning.

Those who live sustainably could be rewarded through measuring their low impact and be afforded points on a resilience scorecard that would indicate transparently the extent to which wellbeing stocks were being supported.

### 4 | CONCLUSION: A SYSTEMIC APPROACH: FLATTENING THE CURVE OF THE VIRUS, CLIMATE CHANGE AND UNEMPLOYMENT

The pandemic could be said to be a result of our being ‘enfolded,’ in the sense used by Bohm (2002). Thinking matters because our thinking shapes our designs and our actions (McIntyre-Mills, 2014; Midgley, 2014). All thinking has consequences, as explained in a recorded conversation with the Dalai Lama about relationships in ‘From Fragmentation to wholeness’ (2018). Recently, the Dalai Lama (2005, 2020) underlined this in his discussions on the consequences of our thinking and practice for climate change and pandemics.

Passion for ‘business as usual’ and our lack of compassion has brought into being the present order. The need to flatten the curve of the COVID-19 virus and climate change whilst protecting employment and the life chances of the marginalized, the frail and unemployed is central in the debates as to when and how to open up the economy. The approach to addressing the UN Sustainable Development Goals will require appropriate planning and public education processes across public, private and volunteer sectors before, after and during disasters. Policy and planning to address preventative measures require mitigating and adapting to climate change to enable lowering of emissions whilst flattening the curve of virus and creating sustainable green, circular economies (Alexander, 2020).

### ORCID

**Janet McIntyre-Mills** [https://orcid.org/0000-0001-7733-1228](https://orcid.org/0000-0001-7733-1228)

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