

New lenses for a new future. Why science needs theology and why theology needs science

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The ecological crisis almost forces different disciplines to search together for a better world.

We all share one earth: the closer we reach a certain point, the closer we also come together. This places the paper amid the so-called science and religion dialogue in which theology increasingly takes cognisance of empirical research and scientific data. On the other hand, sciences are becoming increasingly aware of the need to transcend their evidential limitations to find a comprehensive paradigm.

This paper will apply an exemplary methodology by selecting the eco-theology of Jürgen Moltmann as a theologian who takes relevant results of scientific ecological research seriously. The Club of Rome, on the other hand, is an example of social (and natural) sciences urging to find a new inclusive paradigm for a world in peril.

The juxtaposition of theology and science provides the need for a new value system emerging in social sciences. Randers makes clear that the culture of consumerism had to be replaced by cultural elements that provide substantial longer-term satisfaction and increase well-being.

The latest report of the Club of Rome (2022) and Moltmann's latest two titles on this topic (2019 and 2020) have been integrated into the argument and previous publications of the author.

Contribution: This exemplary approach contributes to a scientifically grounded and biblically founded eco-theology. The two exponents of science and eco-theology provide the much-needed vocabulary for each other. The Earth Charter, one could add, provides a grammar for the engagement of eco-theology and environmental science.

Keywords: Jürgen Moltmann; The Club of Rome; ecological crisis; science and religion dialogue; The Earth Charter; theological nature hermeneutics; Sustainability; degrowth.

Introduction

The ecological crisis almost forces different disciplines to search for a better world *together*.

This departure point places the article amid the so-called *science and religion consonance* in which theology increasingly takes cognisance of empirical research and scientific data, and, on the other hand, natural sciences are becoming increasingly aware of the need to transcend their traditional limitations to find a comprehensive paradigm to come to grips with a sustainable reality. We all share one Earth: the closer we reach the omega (Teilhard) point, the closer we come together. Moltmann (2018:35) echoes this by saying that the closer we get to Christ, the closer we get to one another. The naturalist Edward O. Wilson (2006:4) observed, 'I suggest that we set aside our differences to save the Creation'.

This article applies a methodology of juxtaposing Jürgen Moltmann's eco-theology as a proponent engaging with relevant scientific ecological research and the *Club of Rome's* different reports, on the other hand, as an example of social and natural sciences urging us to find a new inclusive paradigm for a world in peril.

The two chosen paradigms of science and eco-theology mutually provide the much-needed knowledge and *vocabulary* for each other. The preamble of *The Earth Charter*, in its own right, provides a *grammar* for this engagement of eco-theology and science:

We stand at a critical moment in Earth's history, a time when humanity must choose its future. As the world becomes increasingly interdependent and fragile, the future at once holds great peril and great promise. To move forward we must recognize that in the midst of a magnificent diversity of cultures and life forms we are one human family and one Earth community with a common destiny. We must join together to bring forth a sustainable global society founded on respect for nature, universal human rights,

economic justice, and a culture of peace. Towards this end, it is imperative that we, the peoples of Earth, declare our responsibility to one another, to the greater community of life, and to future generations. (Earth Charter International 2001:1)

The juxtaposition of these exponents fulfils an almost heuristic role. When Moltmann discusses creation and evolution, he labels his method as 'theological nature hermeneutics' that deals with the natural phenomena in the light of eternity (Moltmann 2010:140). The *Club of Rome* states in one of its reports that although growth is limited, learning is *not limited* (eds. Botkin, Elmandjra & Malitza 1979). The *Intergovernmental Panel for Climate Change* (IPCC) goes beyond reliance on so-called 'natural scientists' as the sources of data and analysis. It includes 'social scientists', indigenous knowledge experts and community leaders, as well as the voices of young people. This led to the acknowledgement that colonialism, with its emphasis on consumerism, played a role in the climate crisis. The report believes that the impact of colonial history galvanised a destructive lifestyle. The exploitation of natural resources and abuse of indigenous people have lasted centuries. The post-colonial successors could not respond appropriately to planetary emergencies (eds. Bardi & Pereira 2022:loc. 78).

With this juxtapositional approach, I highlight two epoch-making perspectives, which hallmark an eco-theology¹ that is scientifically grounded and biblically founded.

Jürgen Moltmann

When Moltmann (2010:140) discusses creation and evolution, he labels his method as a *theological nature hermeneutics* [theologische Naturhermeneutik] that deals with natural phenomena in the light of eternity. He states that his theological methods have developed as he refined his theological thought.

The road emerged only as I walked it. And my attempts to walk it are of course, determined by my personal biography, and by the political and historical *kairos* in which I live. (Moltmann 2000:xv)

Moltmann tends to repeat his thoughts in various publications. When this trend is carefully assessed, it becomes clear that his ideas are increasingly developed through a hermeneutic of *iteration* (see McGrath 2006:194–203). It is like the action of a diamond miner who incessantly shakes a mesh grid to let the diamonds emerge from the gravel gradually.

Based on his 2018 German booklet, Moltmann published two books in 2019 and 2020 respectively *The Spirit of Hope: Theology for a World in Peril* and *Hope in These Troubled Times*. Both the titles contain an atypical reference regarding 'peril' and 'troubled times', which allude to an unreceptive state compared with the positive wordings in the titles of his other publications. Here he reminds us that the Christian faith has much to say in response to a despairing world. In the eternal *yes* of the living God, we affirm our fragile humanity's

1. See my article where I argue for the inverse of eco-theology, that is, *theo-ecology* (Buitendag 2022).

goodness and ongoing purpose. Likewise, God's love empowers us to love life and resist a culture of death.² The book analyses the challenges of hope in our contemporary world, particularly the environmental crisis. It argues that the Christian faith – and indeed, all the world's religions – must orient itself towards the human family's wholeness and the physical environment necessary to nurture that wholeness.

I interpret a relatively recently published book, *Christliche Erneuerungen in Schwierigen Zeiten* (2018), as the culmination of Moltmann's eco-theological legacy. This is evident from his treatment of Jesus's summary of the commandments when Moltmann spontaneously changes the wording of Luke 10:27–28 inserting a phrase about the Earth:

Thou shalt love the Lord thy God with all thy heart, and with all thy soul, and with all thy strength, and with all thy mind; and thy neighbour [and the earth] as thyself. (Moltmann 2018:99)

This is, in my view, the quintessence of his eco-theology.

The creation command of Genesis 1:28 requires recognising all creatures' dignity as a challenge to Karl Barth. He distorted Protestant theology by declaring that creation theology is essentially nothing but anthropology: 'But in practice the doctrine of creation means anthropology – the doctrine of man'. (Barth 2004:3). However, today, a different view is increasingly emerging: '... [t]he idea that there is a fundamental difference between human beings and animals is seriously questioned ...' And: 'This covenant is anything but Anthropocentric – it is *eco-centric*' (Labuschagné 1996:127, 131). Human beings are part of nature, in their character, in their destiny and in their hope for life. So, they do not stand at the centre of the world (Moltmann 2019:38).³

Four contours are subsequently presented in this article regarding the eco-theology of Moltmann:

- We need a fresh understanding of God's 'image'; a movement away from human beings as the centre of creation to a cosmic integration. Before humans *imagines Dei*, they were *imagines mundi*, microcosms in which all previous life forms are integrated. The Earth is composed of five interconnected spheres (Pope 2016:93–97): *cryosphere* → *hydrosphere* → *atmosphere* → *geosphere* → *biosphere*. All the circles are concentric and interdependent. However, the movement is unidirectional. We need nature, but nature does not need us (Moltmann 2019:12, 15, 20, 27).⁴ A human is instead a 'cosmic image', seeing that humans' *Gestalt* is embedded in nature and society.

2. This is in sharp contrast to Slavoj Žižek's (2017) view that '[t]he *Courage of Hopelessness* is indeed a dark book, but I prefer to be a pessimist: not expecting anything, I am here and there nicely surprised (since things are usually not as bad as they could be), while optimists see their hopes dashed and end up depressed all the time' (loc. 58–59).

3. See Nancy Murphy's (2006) concept of 'nonreductive physicalism' as a corollary of this thesis: 'Evolutionary theory, with its emphasis on our continuity with animals, raised the question of how it could be that we have souls while the (other) animals do not. The significance of contemporary neuroscience is this: all of the capacities once attributed to the mind or soul now appear to be (largely) functions of the brain' (loc. 186).

4. See the corollary by Dennis Meadows (in Bardi 2022:68): 'Humanity suddenly cares about climate change, but climate change does not care about humanity'.

Ecology, in other words, is not only a matter of scientific study. It also concerns how human beings see themselves concerning the world, with religion playing a formative role.

- We need a new *imago Dei* that moves away from the image of a remote God to an embodiment of an immanent God. The *missio Dei* should be seen as *permissio Dei*, which leads to the all-pervasive God. God is not a different God. The Trinity is the hermeneutical key to interpreting history. This does not mean that Moltmann supports pantheism or even panentheism (although he supports it in his 1985 book on Creation but rephrases it in later works). God contracted [*zimzum*] Godself to free up a void for the creation that is not God. Therefore, God did not only create from anything [*ex nihilo*] but in nothing [*in nihilo*] as well (Moltmann 1985:100). Furthermore, now God inhabits [*schechina*] this handiwork of God through the Spirit (see Is 6:3). The implication is that the crown or pinnacle of creation is not the human being but the Sabbath when (and eventually where!) God and creatures are together in a state of harmony. Indeed, the concluding theme of Sabbath shows that Genesis 1 is more theocentric than anthropocentric in its orientation (Brown 2017:240).
- We need a new understanding of the creation command that moves away from domination and subjugation to cosmic love. Humanity is not *the lord and possessor of nature* (Descartes), and Genesis 1:28–29 is interpreted as a nutritional command: the animal gets green herbs. Still, humans must live from the herbs-bearing seed, which implicates cultivation (Moltmann 1985:43). Time is converted into space when God comes. God constitutes the dwelling place for those Godself has created.
- The new heaven and the new Earth motivate a change from world politics to *earth politics*, from the world economy to *earth economy* and from world religions to *earth religions* (Moltmann 2016:26–31). Eschatology is essentially not the end but the beginning of all things. One world or no world, says Moltmann, and the closer we get to God, the closer we get to one another. The new heaven and new Earth are the cosmic temples of God.

Moltmann (2018:88; 2019:138) is apparent in his vision for the future: we urgently need a new Reformation, a *Green Reformation*.

The Club of Rome

The *Club of Rome* was established in 1968 at the *Accademia dei Lincei* in Rome by Aurelio Peccei and Alexander King. It started as a think-tank (*tt*) and was initially formalised with 30 members and an Executive Committee of 12. The purpose of the *Club of Rome* was:

- To foster an understanding of the varied but interdependent components – Economic, political, natural and social – That make up the global system in which we all live;
- To bring that new understanding to the attention of policymakers and the public worldwide and
- To promote new policy initiatives and action (Meadows et al. 1972:9).

The main reports⁵ are now considered, and the qualitative aspects are highlighted to map the mutual terrain of science and theology.

The first publication, *The Limits to Growth* (Meadows et al. 1972), was publicised widely and enjoyed much attention. The team examined the five fundamental factors impacting the planet's growth: *population, agricultural production, natural resources, industrial production and pollution*. The first 70 years of the last century were used as the point of departure and basis to outline specific future scenarios. (See the economic setting of the geopolitical context of the time by Bardi.)⁶

The *World3* computer simulation model (based on the work of Jay Forrester of MIT) was designed to give insights into the causes and consequences of growth in the global population and material consumption on a finite planet. It was a linear program creating algorithmic outcomes regarding the supply of nature and humanity's demand.

The disequilibrium in the consumption of the planet's resources concerned them greatly. In 1972, 20% of people in high-income countries accounted for 86% of private consumption, while the poorest 20% of the world's population consumed only 1.3%. The report concluded: 'The equilibrium society will have to weigh the trade-offs engendered by a finite earth not only with consideration of present human values but also with consideration of future generations' (Meadows et al. 1972:182). Overconsumption, not overpopulation, appears to be the main problem.

The main critique, however, was that the *World3* model aired 'Malthusian' pessimism and was mathematically too static. (See figure 1 for these supply and demand curves). It did not include improvements resulting from the ingenuity of humans.⁷

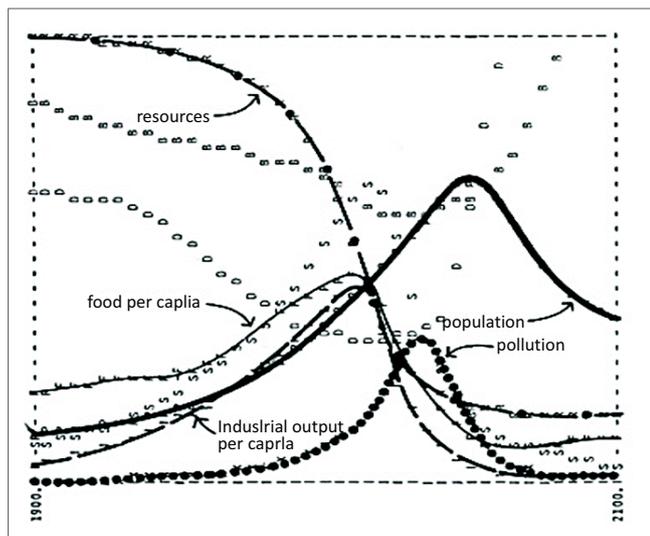
A revised report, authored by Mesarovic and Pestel (1974:146), appeared only 2 years later. In this report, *values and attitudes* were regarded as of the utmost importance:

- A global consciousness must be developed through which every individual realises his role as a member of the world community;
- A new ethic in the use of material resources must be developed, which will result in a lifestyle that is compatible with the oncoming age of scarcity;

5.Except for official reports, study results and other literature, the *Club of Rome* publishes an updated report of its progress every 10 years. The following essential reports were published: *The limits to growth* (Meadows et al. 1972); *Mankind at the turning point* (Mesarovic & Pestel 1974); *Beyond the limits* (Meadows, Meadows & Randers 1992); *Limits to growth: The 30-year update* (Meadows, Randers & Meadows 2004); *The Limits to Growth Revisited* Bardi (2011) and the second last centennial one, *2052. A global forecast for the next forty years* (Randers 2012). The last publication is, *Limits and beyond: 50 years on from The Limits to Growth, what did we learn and what's next?* (Bardi & Pereira 2022). (For the other publications, visit <https://www.clubofrome.org/publications/?filter=reports-to-cor>).

6.'The end of the Second World War brought a period of great prosperity for the Western World. It was the time of suburban housing, of two cars for every family, of a refrigerator in the kitchen, and of air travel which was not any more a privilege for the rich. It was the time of plastics, of antibiotics, of television, and of the first computers. [...] Cheap fuels obtained from crude oil generated the urban reality that we see today in most of the Western World: large suburban areas inhabited by commuters who use their cars to reach their workplaces in urban centers' (Bardi 2011:5).

7.In 2011, Ugo Bardi put the controversy into perspective and, at the same time, gained insights into 'dynamic modelling' and some of the critical arguments debated. It argued that the early rejection of the findings was based on a flawed reading of the text and a misunderstanding of its purpose.



Source: Meadows, D.H., Meadows, D.L., Randers, J. & Behrens, W.W., 1972, *The limits to growth. A report for the Club of Rome's project on the predicament of mankind*, Universe Books, New York, NY.

FIGURE 1: World standard run.

- An attitude towards nature must be developed based on harmony rather than conquest;
- If the human species is to survive, humans must develop a sense of identification with future generations and be ready to trade benefits with the next generations.

The original authors, Donella and Dennis Meadows, and Jørgen Randers, updated their work personally in 1992 and titled their new book, *Beyond the Limits*. Twenty years later, they realised that despite more advanced technology, information and stricter environmental legislation, sustainability's ultimate limits had already been exceeded in many respects. Without admitting or intending to do so, humanity has gone overboard: 'To overshoot means to go beyond limits inadvertently, without meaning to do so' (Meadows, Meadows & Randers 1992:1).

After two decades, the challenge then became *sustainable development*. A sustainable society is 'one that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Meadows et al. 1992:12).

The third decade's update was entitled *Limits to Growth. The 30-year update* (Meadows, Randers & Meadows 2004). It provided evidence that the demand on the planet had already been 120% of what it could supply by the turn of the century. They confessed: 'We failed totally to get the concept of 'overshoot' accepted as a legitimate concern for public debate'. (Meadows et al. 2004:xx). Noteworthy is that the *Club of Rome* emphasised strongly that a particular understanding of reality is indispensable: People who think differently will also act differently. The critical knowledge of such a new paradigm will be that there is only *one* planetary system. Again, it is stated (as in the Meadows et al. 1992 publication) that 'visioning, networking, truth-telling, learning, and loving' are the five key concepts for a sustainable life.

Jørgen Randers (2012) was the sole author of a 40-year report in which it was made clear that the culture of consumerism had to be replaced by cultural elements that provide substantial longer-term satisfaction and increase well-being:

- Darwin must be reinterpreted not as survival of the fittest but as advanced life that evolves through cooperation instead of domination;
- Cultures that live closer together will contribute to a global society that exists on a higher level and
- A new understanding of community with values of a more benign form of individualism understands the importance of collective solutions.

The *Club of Rome's* appeal during their 50-year celebration in 2018 is alarming: 'Come on!' as well as 'We need a crash plan'. It stresses that the appeal of the *Paris Protocol* must be taken seriously, despite political opposition.⁸

Since 2018, a new agenda⁹ of the *Club of Rome* was formulated consistent with the 'Come On' philosophy but identified five relevant 'hubs' of new action for the *Club of Rome*, namely:

- Planetary Emergency and Action Plan
- Reframing Economics
- Rethinking Finance
- Emerging New Civilization Initiative (ENCI)
- Global Youth Engagement

Mamphela Ramphela, one of the two co-presidents since 2018, concludes aptly:

The Club of Rome's unique value proposition derives from this understanding of how living systems change. Our role as members and leaders is to collaborate with partners to enhance our catalytic role in transformative systems change. (eds. Bardi & Pereira 2022:180)

Conclusion

Hope was the concept with which Moltmann began his theological oeuvre in 1964. It summarised his entire theology. His last two titles (2019 and 2020) also bear the word 'hope' in the respective titles, *The Spirit of Hope: Theology for a World*

8. Moltmann (2018:111) mourns that Pres. Donald Trump withdrew the United States of America (USA) from the Paris Protocol. Pres. Joseph Biden turned the withdrawal around and accepted on 20 January 2021, 'the Agreement and every article and clause thereof on behalf of the United States of America' (see <https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/paris-climate-agreement/>).

9. Today, the *Club of Rome* continues to be at the forefront of challenging and controversial global issues. Propelled by a new mission and organisational structure, which today includes 35 National Associations, the *Club of Rome* has published over 45 reports. They continue to challenge established paradigms and advocate for policies that practically address the many emergencies facing society and the planet today. The *Club of Rome* remains true to its historical intent while it attempts to lay the foundations for long-term systemic shifts in global social, environmental and economic systems. In short, it is an established, respected, international think-tank positioned to face the core challenges of the 21st century. The organisation includes around 100 active full members with a full-time secretariat in Winterthur, Switzerland, with a satellite office in Brussels, Belgium. <https://www.clubofrome.org/history/>

in Peril and *Hope in These Troubled Times*.¹⁰ These books rounded off the circle of his publications and qualified hope more clearly. His journey with scientific research¹¹ brought him to reflect on hope again.

Jørgen Randers' work, the *Club of Rome's* only continuous author, shows how one discipline is complemented by the other. His reflection on the future also prompted him to reflect on hope in contemporary times. Randers spelt out a message for the time to come:

Thus my final word of encouragement: Don't let the possibility of impending disaster crush your spirits. Don't let the prospect of a suboptimal long-term future kill your hope. Hope for the unlikely! Work for the unlikely! Remember, too, that even if we do not succeed in our fight for a better world, there will still be a future world. And there will still be a world with a future – just less beautiful and less harmonious than it could have been. (Randers 2012:loc. 7120).

The juxtaposition of theology and science provides the need for a new value system apparent in social sciences. For example, the *Gross Domestic Product Index* (GDPI) has been criticised as an unreliable measurement of well-being. In contrast, the *Human Development Index* (HDI) has been regarded as a much more reliable yardstick to determine well-being. The ultimate goal is *well-being*, not Gross Domestic Product (GDP) growth. And this demands degrowth instead.¹²

Life is the essence of the departure of both eco-theology and environmental science. What emerges from Moltmann's eco-theology is that the contours of theology and science are not only prone to a degree of convergence – especially on a transversal plane – but also synergistically integrated, almost like a double helix. Anthropocentrism is to be discarded, and we must comprehend that there is only one planet, *Gaia*, the Blue Planet, our mother, our *Heimat* (Moltmann 2018:113).

The *Club of Rome*, for example, advocates the development of a new paradigm of 'planetary well-being' and reaches out to theology as a co-partner. At the same time, Moltmann acknowledges that we must deal with reality in an empirical-inductive way, pleading for a 'new paradigm which links human culture and nature differently from the way they were linked in the paradigm of modern times' (Moltmann 2020:15).

I concur with David Korten (2016:21) that one of the most hopeful initiatives is *Economics for the Anthropocene* (E4A), an academic partnership organised by different universities. Its goal is to improve how the social sciences and humanities connect to scientific realities about human-Earth relationships (see <https://e4a-net.org/>).

10. These are reworked and expanded versions of his *Hoffen* and *Christliche Erneuerungen in schwierigen Zeiten*, (Moltmann 2016, 2018).

11. 'I wanted to study mathematics and physics. [...] According to my own experiences in the border zone between theology and science, when faith encounters serious science, it requires no defence but only interest and curiosity' (Moltmann 2019:72).

12. See <https://en.wikipedia.org/wiki/Degrowth> (accessed on 05/10/2022).

In the 2022 publication of the *Club of Rome*, one of the co-authors draws the following important conclusion:

As such, we would have new goals for humanity. We would embed solidarity in modern capitalism, both as a social principle – to ensure we serve the common good – and as an ethical principle – to ensure fairness and equity – with considerations at the personal, corporate, and governmental levels. We would enable individuals to move from a self-interest-driven to a shared-value-creation mindset. We would facilitate corporations to shift from a profit-centred business paradigm to one built around holistic value creation (socially, economically, environmentally, etc.). Finally, we would require governments to step away from old-school policies to instead nurture a new way of thinking and doing business that ensures that the capitalist system earns its social licence to operate. (eds. Bardi & Pereira 2022:130)

This exemplary approach of this vantage point by juxtaposing models (social sciences *vis-à-vis* natural sciences) contributes to a scientifically grounded and biblically founded eco-theology. It confirms the need for theology to take cognisance of scientific research and *vice versa* for scientific research to engage with the human sciences. It is constructive theology as an integrative discipline that 'aims at a coherent, inclusive, dialogical, and hospitable vision' (Kärkkäinen 2015:loc. 58).

In his chapter 'Engaging Religion in the Quest for a Sustainable World', Gary Gardner (2003:154) suggests how the mentality of people engaged in protecting nature changed regarding their approach to religion. Religious institutions and leaders can bring at least five assets to build a sustainable world:

- capacity to shape cosmologies (worldviews),
- moral authority,
- large base of adherents,
- significant material resources and
- community-building capacity.

The current two co-presidents of the *Club of Rome* – Mamphela Ramphele and Sandrine Dixson-Declève – conclude in the *Club of Rome's* latest publication aptly:

The universe is conspiring to bring humanity to its inescapable destiny – being inextricably interconnected and interdependent within the web of life. Humanity's attempts at escaping into a make-believe world of me, myself, and I have hit a dead end. (eds. Bardi & Pereira 2022:loc. 63)

The ecological crisis has brought us the insight that new lenses are needed for new vistas. Theologians and scientists meet in *hermeneutics* as Moltmann (2019:73) intuitively exercised his theology and the *Club of Rome* endeavours the same.

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J.B. is the sole author of this research article.

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References

- Bardi, U., 2011, *The limits to growth revisited*, Springer, New York, NY.
- Bardi, U. & Pereira, C.A. (eds.), 2022, *Limits and beyond: 50 years on from The Limits to Growth, what did we learn and what's next?*, Kindle edn, Exapt Press.
- Barth, K., 2004, *Church dogmatics: The doctrine of creation. Part 2*, vol. 3/2, T&T Clark, London.
- Botkin, J.W., Elmandjra, M. & Malitza, M. (eds.), 1979, *No limits to learning. Bridging the human gap*, Report to the Club of Rome, Pergamon Press, Oxford.
- Brown, W.P., 2017, *A handbook to Old Testament exegesis*, Kindle edn., Presbyterian Publishing Corporation.
- Buitendag, J., 2019a, 'The Club of Rome's search for the planetary well-being through the eyes of a reformed theologian', *LitNet (Academic)* 16(3), 373–392, viewed 05 September 2022, from https://www.litnet.co.za/wp-content/uploads/2019/12/LitNet_Akademies_16-3_Buitendag_373-392.pdf.
- Buitendag, J., 2019b, 'You must love the earth as yourself', *LitNet (Academic)* 16(3), 305–320, viewed from https://www.litnet.co.za/wp-content/uploads/2019/12/LitNet_Akademies_16-3_Buitendag_305-320.pdf.
- Buitendag, J., 2022, 'What is in a name? Does the difference between onto-theology and theo-ontology direct the way from eco-theology to theo-ecology? Specific Russian theological perspectives', *Verbum et Ecclesia* 43(1), 1–8. <https://doi.org/10.4102/ve.v43i1.2400/>
- Club of Rome, 2018, *Climate emergency plan*, viewed 20 August 2022, from https://www.clubofrome.org/wp-content/uploads/2018/12/COR_Climate-Emergency-Plan-.pdf.
- Earth Charter International, 2001, Earth Charter Associates, Ltd., New York, viewed 20 August 2022, from <https://earthcharter.org/read-the-earth-charter/preamble/>.
- Gardner, G., 2003, 'Engaging religion in the quest for a sustainable world', in L. Starke (ed.), *State of the world 2003: A Worldwatch Institute Report on Progress Towards a Sustainable Society* Gary Gardner, Worldwatch Institute, Kindle edn., pp. 152–176, Taylor and Francis.
- Kärkkäinen, V.-M., 2015, *Creation and humanity: A constructive Christian theology for the pluralistic world*, vol. 3, Kindle edn., William B. Eerdmans Publishing Company, Grand Rapids, Michigan, Cambridge, UK.
- Korten, D., 2016, *The new economy. A living earth system model*, A Report Prepared for and Published by the 'Next System Project', 10 August 2016, viewed 06 September 2022, from https://davidkorten.org/wp-content/uploads/2019/01/NEXT_SYSTEM-Living_Earth_System_Model.pdf.
- Labuschagné, C.J., 1996, 'Creation and the status of humanity in the Bible', in V. Brümmer (ed.), *Interpreting the universe as creation*, Kok Pharos, Kampen.
- McGrath, A.E., 2006, *The order of things: Explorations in scientific theology*, Blackwell Publishing, Oxford.
- Meadows, D.H., Meadows, D.L. & Randers, J., 1992, *Beyond the limits. Envisioning a sustainable future*, Chelsea Green, VT, Vermont.
- Meadows, D.H., Meadows, D.L., Randers, J. & Behrens, W.W., 1972, *The limits to growth. A report for the Club of Rome's project on the predicament of mankind*, Universe Books, New York, NY.
- Meadows, D.H., Randers, J. & Meadows, D. L., 2004, *Limits to growth. The 30-year update*, Chelsea Green, VA, Vermont.
- Mesarovic, M. & Pestel, E., 1974, *Mankind at the turning point: The second report to the Club of Rome*, EP Dutton and Co., New York.
- Moltmann, J., 1985, *Gott in der Schöpfung. Ökologische Schöpfungslehre*, Chr. Kaiser Verlag, München.
- Moltmann, J., 2000, *Experiences in theology*, Fortress, Minneapolis, MN.
- Moltmann, J., 2010, *Ethik der Hoffnung*, Kindle edn., Gütersloher Verlagshaus, München.
- Moltmann, J., 2016, *Hoffen und Denken*, Neukirchener Verlagsgesellschaft, Neukirchen-Vluyn.
- Moltmann, J., 2018, *Christliche Erneuerungen in schwierigen Zeiten*, Claudes Verlag, München.
- Moltmann, J., 2019, *Hope in these troubled times*, World Council of Churches, Geneva, viewed from https://www.oikoumene.org/sites/default/files/2021-04/Hope_in_These_Troubled_Times_Full_2.pdf
- Moltmann, J., 2020, *The spirit of hope: Theology for a world in peril*, John Knox Press, Westminster, Louisville, Kentucky, viewed from <https://www.perlego.com/book/2100962/the-spirit-of-hope-theology-for-a-world-in-peril-pdf>
- Murphy, N., 2006, *Bodies and souls, or spirited bodies?* (Current Issues in Theology), Kindle edn., Cambridge University Press, Cambridge.
- Pope, M., 2016, Rediscovering a spirituality of creation for the anthropocene', in G. Buxton & N. Habel (eds.), *The nature of things*, pp. 92–100, Pickwick Publications, Eugene, OR.
- Randers, J., 2012, 2052. *A global forecast for the next forty years*, Kindle edn., Chelsea Green, VA, Vermont.
- Wilson, E.O., 2006, *The creation: An appeal to save the life on earth (Kindle-uitgawe)*, W.W. Norton & Company, Inc., New York.
- Žižek, S., 2017, *The courage of hopelessness*, Kindle edn., Penguin Books Ltd, City of Westminster, London, England.