

# Impact case study



**Institution:** Melbourne Sustainable Society Institute, University of Melbourne

**Title of case study:** Revisiting *Limits to Growth*: is humanity headed for global collapse?

## SUMMARY

This research project reignited a long-running and vigorous global debate about the sustainability of our human civilisation. Dr Graham Turner's work updating the seminal 1972 book *Limits to Growth*, which argued human society was on track for collapse unless environmental and resource challenges were solved, captured the attention of hundreds of thousands of people around the world. Dr Turner concluded that 40 years on, the book's predictions were accurate. This finding extended the knowledge base on the question of the sustainability of human civilisation and exposed a large new audience – many of them younger people – to the idea that there might be “limits to growth”.

Dr Turner's work challenged the way many people see the sustainability of their own society and way of living. His research provoked vigorous arguments in lounge rooms, chat rooms, workplaces and academic forums around the world.

## UNDERPINNING RESEARCH

The question of whether human civilisation is on the path to ecological and economic collapse has been debated for centuries. The book *Limits to Growth*, published in 1972, fuelled that debate. Commissioned by think tank the Club of Rome, the book's authors built a computer model to track the world's economy and environment. They modelled data up to 1970 then developed a range of scenarios out to 2100, depending on whether humanity addressed pressing environmental issues. The authors, including husband-and-wife team Dennis and Donella Meadows, concluded that if environmental issues weren't addressed, humanity faced a collapse in the economy, environment and population by 2070. They called this the “business as usual” scenario.

*Limits to Growth*, with its central assertion that “the earth is finite” and the quest for unlimited growth would lead to a crash, was deeply controversial on its release and remains so.

Dr Graham Turner, an applied physicist who joined MSSI as Principal Research Fellow in 2013, decided to update the data in *Limits to Growth* to see if its projections were on track. Forty years after its publication, Dr Turner crunched



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the numbers to ask: did the book get it right?

This research involved data from the UN, the US National Oceanic and Atmospheric Administration, the BP Statistical Review and elsewhere. The results showed the world was tracking pretty closely to the *Limits to Growth* “business as usual” scenario. Dr Turner concluded that if humanity continued to track this scenario, the early stages of global collapse could be expected soon – perhaps within a few years.

MSSI then faced a challenge. Dr Turner’s findings were clearly of interest to the wider community. But his academic research, involving formulae and modelling, was not easily understandable to non-experts. In 2014, Dr Turner began working with Cathy Alexander, MSSI Research Fellow for Research Translation, on a media article to explain the research to the wider public. Dr Turner provided the research base and monitored the article to ensure it was accurate, while Ms Alexander used her background as a journalist to summarise the research in an accessible way.

Working together, the team wrote an article for *The Guardian* online. The story ran prominently across the publication’s UK, US and Australian editions, receiving more than 400,000 views. The article made a significant and ongoing contribution to the debate on the sustainability of society.

#### *Key researchers:*

Graham Turner, Principal Research Fellow – Australian Physical Economy, MSSI

Cathy Alexander, Research Fellow – Research Translation, MSSI

## REFERENCES TO THE RESEARCH

Turner, G. M. (2012) “On the Cusp of Global Collapse? Updated Comparison of The Limits to Growth with Historical Data”, *GAIA: Ecological Perspectives For Science & Society*, 21(2). ISSN: 09405550.

Turner, G. M. (2013) “The Limits to Growth model is more than a mathematical exercise”, *GAIA - Ecological Perspectives For Science And Society*, (1), 18. ISSN: 0940-5550.

Turner, G.M. (2014) *Is global collapse imminent?*, Parkville, Melbourne Sustainable Society Institute (Research paper series: no. 4). ISBN: 9780734049407.

## DETAILS OF THE IMPACT

This project stimulated public debate globally, engaging hundreds of thousands of people from a wide range of backgrounds. It added significantly to the knowledge base on the crucial question of the sustainability of human civilisation, and exposed a large new audience to the challenging conclusions of *Limits to Growth*. MSSI’s research challenged existing modes of thought about sustainability.

The article in *The Guardian* generated a strong public response from around the world. It received more than 400,000 page views and was shared 74,000 times on Facebook. The story received 870 comments, most either strongly supportive of Dr Turner’s conclusion or strongly against – a vigorous debate.

The *Guardian* article was officially re-run by at least 90 smaller websites and blogs, while hundreds of other websites republished it illegally. Dozens of organisations and bloggers published their thoughts on the article, from sustainability thought-leaders to economics bloggers to technology writers. The *Guardian* story was uploaded to Reddit where it attracted 100 comments.

The story sparked a lively global debate on Twitter. Top tweeters who linked to the article included US hip hop artist

EL-P (146,000 followers), UK Conservative MP Zac Goldsmith (63,000 followers), Scottish historian and broadcaster William Dalrymple (197,000 followers), and US economics blogger Noah Smith (42,000 followers). It was MSSI's most popular tweet of 2014. Many tweeters who engaged were born after *Limits to Growth* was published.

Dr Turner's original research paper, homed on the MSSI website, received more than 100,000 page views - 100 times the standard traffic for a MSSI research paper (150 – 1000 page views).

Dr Turner's research was used to update the Wikipedia entries for "The Limits to Growth" and "Dennis Meadows". That content remains live.

This public debate sparked by Dr Turner's research was impassioned, and ranged across resource reserves, population, and the ability of human civilisation to adapt and thrive in the face of major challenges. Many of those who engaged took Dr Turner's work as further evidence that humans were not living sustainably, and that radical change was needed – or that it was too late and societal collapse was inevitable. Equally, many took the view that Dr Turner's conclusion of likely ecological and economic collapse was too pessimistic and would not come to pass. While some of these critics challenged Dr Turner's methodology or data sources, the majority instead argued he had not factored in humanity's ingenuity and ability to find new resources when existing ones deplete. Critics said humanity had long adapted to dwindling resources and would continue to do so.

There was an accompanying debate about global population and whether it was headed for a crash. Commenters compared Dr Turner's research findings with the work of Thomas Malthus, Paul R. Ehrlich (*The Population Bomb*) and the authors of *Limits to Growth*.

Dr Turner sought to take his research on *Limits to Growth* to a wider audience in person. In 2012 he gave an invited presentation to the Sustainable Population Australia national AGM. In 2013 he spoke at world music festival WOMADelaide on "The elephants in the room: the *Limits to Growth*," alongside prominent author Paul R. Ehrlich. Dr Turner was also interviewed on YouTube.

The research project and associated article sparked interactions with – and interest from – global thought leaders in sustainability. Dennis Meadows contacted Dr Turner to say he welcomed the research update. Several staff members from the Club of Rome contacted MSSI to discuss the research.

## SOURCES TO CORROBORATE IMPACT

1. "Limits to Growth was right. New research shows we're nearing collapse", *The Guardian* online, by Graham Turner and Cathy Alexander, 2 September 2014.
2. "'Limits to Growth' was right- we are nearing societal collapse", *Reddit* post, 2014, 100 comments.
3. "Dennis Meadows" page, *Wikipedia*, refers to Dr Turner's research paper for MSSI and article for *The Guardian*.
4. "The Limits to Growth" page, *Wikipedia*, refers to Dr Turner's research paper for MSSI and article for *The Guardian*.
5. Email from Dennis Meadows to Graham Turner noting and commending Dr Turner's research update, 4 September 2014.
6. Email from Ian Dunlop, member of The Club of Rome, to Cathy Alexander, expressing interest in *The Guardian* article, 11 September 2014.
7. "Graham Turner Interview - A Simpler Way: Crisis as Opportunity", YouTube video, September 2015, 6500 views.