Research Matters

Title: Sustainable Development Goals driving new thinking and action

Background

In 2015 the 17 Sustainable Development Goals, or Global Goals, were adopted by the UN with 169 targets, and in 2016 a set of indicators for the Goals was adopted. The Goals were developed through a consultative process globally, apply to all countries and progress the discourse on sustainable development by laying out an agenda for action to 2030.
Governments have committed to producing a Voluntary National Review to the United Nations at least twice before 2030.
To promote and drive action 'Global Goals Week' will be held 22 to 29 September, with events taking place in New York and around the world (#GlobalGoals).
This paper presents some of the actions and research about the Goals and their implementation, to promote a need 'to address the scope and systemic nature of the 2030 Agenda and the urgency of the challenges' (ICSU).

Figure 1: The Global Goals or Sustainable Development Goals drive action on social parameters that address social development and quality of life, economic development and the environment.

Key matters raised in research - a summary

The Goals are an integrated set of global priorities and objectives that are fundamentally interdependent. Understanding the synergy or areas for which there need to be 'trade-offs' over targets, is crucial for effective implementation. The Goals have generated much research and discussion on their feasibility, coherence and application from government, business groups like the World Economic Forum[1] and scientists. The International Council for Scientific Unions (ICSU)[2] has developed *A Guide to SDG interactions* 'a science-informed analysis of interactions across the Goals

[1] WEF https://www.weforum.org/agenda/2015/09/how-achievable-are-the-sustainable-development-goals/
[2] ICSU *A Guide to SDG interactions: from Science to Implementation*

domains – which is currently lacking – to support more coherent and effective decision making, and better facilitate follow-up and monitoring of progress." The ICSU Guide aims 'to stimulate more science-policy dialogue on the importance of interactions, to provide a starting point for policy-makers and other stakeholders to set their priorities and implementation strategies, and to engage the policy community in further knowledge developments in this field". The Guide points out that "most goals are synergistic but not equally so". For example, ensuring access to modern energy for all would go a long way toward combatting climate change and decreasing death and illness from pollution – a strong synergy with many SDGs.

However, the Goal of 'zero hunger' does present potential conflicts as expanding agriculture from the 40% of land used now could impact efforts to conserve and restore ecosystems and reduce deforestation, the availability of clean water and land for renewable energy. There are many consequences from intensive agriculture including pesticide pollution and algal blooms from nutrient pollution in freshwater and marine habitats, 'with over 500 'dead zones' of oxygen-depleted water around the world.'[3] These issues are leading to questioning of the degradation of soil and land caused by intensive agriculture globally and an exploration of new models for landscape approaches where – conservation, sustainable management and restoration – are integral to food production. There is an important need for more research, capacity building and education as implementation of the Goals will only be effective with innovation, good governance, collaboration and smart decision-making.

The Goals are increasingly being incorporated into strategic overviews of government strategies, businesses, organisations and in education.

National government action on the SDGs: In Australia, a SDG Summit called for 'a transformation in our industries, cities and agriculture in order to decouple economic growth from environmental degradation and to address rising inequality.' The Australian Government (2018) has just made its first '*Report on the Implementation of the Sustainable Development Goals'* and provides a website where it is possible to track progress on the Sustainable Development Goals against indicators. Incidentally, the Australian Report incorporates some wonderful indigenous art, providing us with our own icons for the Goals (Figure 1). Costanza and others (2016:350)[4] suggest that we still need an overarching goal and a "'narrative of change' to describe the societal shifts and policy reforms necessary to achieve the SDGs."

[3] Dudleya, N. & Alexander S. (2017) Agriculture and biodiversity: a review *Biodiversity*, 18: 2–3, 45–49 https://doi.org/10.1080/14888386.2017.1351892

[4] Costanza, R. Daly, L. Fioramonti, L. Giovannini, E. Kubiszewski, I. Mortensen, L. F. Pickett, K.E. Ragnarsdottir, K. V. De Vogli, R. Wilkinson, R. (2016) Modelling and measuring sustainable wellbeing in connection with the UN Sustainable Development Goals, *Ecological Economics* 130: 350-355

Figure 2: Artwork by Jordana Angus for the cover of the Australian Government Report on the Implementation of the Sustainable Development Goals, uses the 17 Global Goals colours with indigenous motifs.

That may change when the report of an Australian Senate Inquiry into the SDGs is delivered November 2018. The inquiry is considering the potential opportunities and benefits for Australia both domestically and through international aid as it considers over 150 submissions documenting actions and calling for more action. It is hoped the result will "set in place collaborative plans and strategies that are most likely to lead to successful implementation of the SDGs between now and 2030".

Unfortunately the Australian '*Report on the Implementation of the Sustainable Development Goals'* reflects poor performance on many of the environmental goals and targets including a lack of action to avoid the worst impacts of climate change, increasing greenhouse gas emissions which are projected to be even higher in 2030 than in 2000. The loss of life on land and under water is high. The Australian report states 16.2% of land is under forest (where forest is regarded as having 20% canopy cover or more), yet NSW has recently introduced laws that permit easier clearing of agricultural land. If the impacts are similar to what happened in Queensland, biodiversity will be taking another hit. In total 1.2 million hectares of forest and shrub was cleared between, 2012-2016 in response to an easing on land clearing laws. The total is equivalent of around 814 rugby fields being bulldozed every day for 4 years. For 2015-16 the daily rate was 1072 fields. In 2015, of the woody vegetation cleared, 35% was remnant (never before cleared) and 158,000 hectares of trees were cleared in the Great Barrier Reef catchments, a 45 per cent increase on the year before. We sure need education!

Education: The Global Goals call for quality education and one target is:
"By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development." This target sadly lacks an emphasis on developing understanding of the ecosystems that support life!

All the Goals provide a holistic framework for education for sustainable development and when structured, as suggested by the Stockholm Resilience Centre, as a wedding cake (Figure 3), provide a strong rationale for the importance of sustaining the planet's ecosystem services to support all life. Goal 15: Life on Land, Goal 14: Life below Water, Goal 13: Climate Change and Goal 6: Water &

Sanitation are the foundation of resilience and sustainability. It is these domains that urgent action is required to save the earth systems from tipping into new more hostile conditions and disrupting our social development, economy and the future of other life on earth.

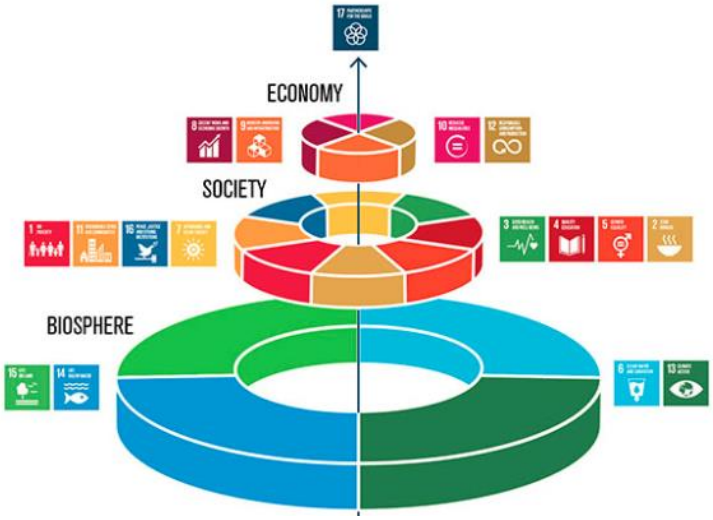

Figure 3: This model of the SDGs changes our paradigm for development, moving away from the current sectorial approach where social, economic, and ecological development are seen as separate parts, but rather economies and societies are seen as embedded parts of the biosphere. Now, we must transition toward a world logic where the economy serves society so that it evolves within the safe operating space of the planet determined by planetary boundaries. http://www.stockholmresilience.org/research/research-news/2016-06-14-how-food-connects-all-the-sdgs.html

For education, the concept of planetary boundaries (Figure 4) is important, as an appreciation of an operating space for humanity that carries a low likelihood of harming the life support systems on Earth to such an extent that they no longer are able to support the economy and human development. Planetary boundaries do not place a cap on human development, rather they indicate a safe space where innovation to meet human needs to address poverty, and foster human development, and prosperity in an increasingly populated and inequitable wealthy world.[5]

Future, innovative and creative thinking are needed to support solutions. For example, the movement to 'stop the sixth mass extinction' is promoting protecting 50% of the 846 ecoregions that provide habitat for all biodiversity ('Nature Needs Half' and 'Half Earth Project')[6] and is considered feasible. A response, more like a massive 'tsunami' of action, and partnership is needed, including more integration of biodiversity in agricultural areas. This would benefit climate change as deforestation and degradation accounts for around 15% of the world's annual carbon emissions.

[5] Stockholm Resilience Centre

[6] Half Earth by E.O Wilson and Nature Needs Half https://natureneedshalf.org/ and http://www.half-earthproject.org/

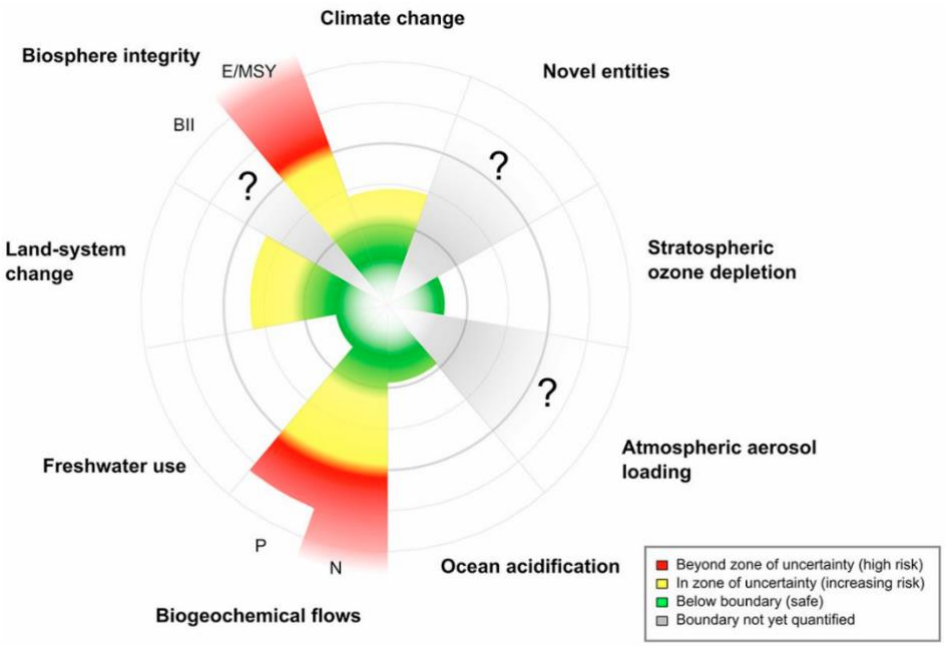

Figure 4. Four of nine planetary boundaries (inner band around the safe operating space in green) have now been crossed as a result of human activity: climate change, loss of biosphere integrity, land-system change, altered biogeochemical cycles (phosphorus and nitrogen). The yellow represents the zone of uncertainty (increasing risk), the zone of uncertainty (between the two heavy circles, and red is the high-risk zone. Climate change and biosphere integrity, are "core boundaries", and significantly altering either of these would "drive the Earth System into a new state". "Transgressing a boundary increases the risk that human activities could inadvertently drive the Earth System into a much less hospitable state, damaging efforts to reduce poverty and leading to a deterioration of human wellbeing in many parts of the world, including wealthy countries," Processes for which global-level boundaries cannot yet be quantified are represented by grey wedges Steffen et al *Science*[7] (16 January 2015).

The Goals and Business: The Goals are being used as a framework to review and assess their direct and indirect contributions to the material or relevant functions of business. The UN Global Compact integrates the Goals into its principles for business and Haski-Leventhal[8] (2016) welcomes the Goal 16 on peace and active and strong institutions for the corporate sector. An ACCSR report *Reimaging sustainable value Annual Review of the State of CSR in Australia and New Zealand* 2017 states that "more than half of respondents' report the SDGs have been mapped against business strategy as much as they have been against CSR (corporate social responsibility) strategies or reporting. Even better, organisations are assessing their impacts through the lens of the SDGs, setting targets, developing partnerships, and reporting performance (2017:3)."

Everard and Longhurst (2018) celebrate the Sustainable Development Goals as they stimulate innovation of products and processes to satisfy human needs in a sustainable way in contrast to the recent focus on regulatory and implementation frameworks that stifle opportunities for innovation.

Who is it useful for?

[7] Steffen et al. 2015. Planetary Boundaries: Guiding human development on a changing planet. Science Vol. 347 no. 6223 DOI: 10.1126/science.1259855

[8] Haski-Leventhal, D. (2016) ACCSR (2017), UN Global Compact

Educators at all levels to provide a conceptual framework for education for sustainable development and to consider the capacity building for more complex decision making to practically implement the Goals;
Business to assess direct and indirect contributions to the Goals;
Council staff to guide business partnerships with a connection to a global agenda, and
Council operations in regard to national reporting on the SDGs.
For academia partnerships and collaborations around the integration of different disciplines can support decision making in regard to the SDGs and build the case for the relevance of universities in tackling real-world problems.

Where can you find it?

Australian

Australian Government (2018) Report on the Implementation of the Sustainable Development Goals (Voluntary National Review) 2018 https://dfat.gov.au/aid/topics/development-issues/2030-agenda/Pages/sustainable-development-goals.aspx

Australian Government Reporting Platform on the Sustainable Development Goals' Indicators https://www.sdgdata.gov.au/

Co-chairs statement (2018) Australian SDGs Summit http://ap-unsdsn.org/australian-sdgs-summit-message-from-the-co-chairs/).

Australia and the Sustainable Development Goals Poster http://dfat.gov.au/aid/topics/development-issues/2030-agenda/Documents/poster-australia-and-the-sdgs.pdf

ABC Fact Check http://www.abc.net.au/news/2017-12-01/fact-check-queensland-land-clearing-brazilian-rainforest/9183596

Global Goals and Indicators

UN Sustainable Development Goals https://sustainabledevelopment.un.org/?menu=1300

Sustainable Development Goals indicators
https://sustainabledevelopment.un.org/content/documents/11803Official-List-of-Proposed-SDG-Indicators.pdf

Planetary Boundaries

The Stockholm Resilience Centre has numerous videos and papers on the planetary boundaries concept. http://www.stockholmresilience.org/research/research-news/2015-01-15-planetary-boundaries---an-update.html

Johan Rockström and Jeffrey D. Sachs with Marcus C. Öhman and Guido Schmidt-Traub 2013 *Sustainable Development and Planetary Boundaries Background Research Paper Submitted to the High Level Panel on the Post-2015 Development Agenda*
http://www.post2015hlp.org/wp-content/uploads/2013/06/Rockstroem-Sachs-Oehman-Schmidt-Traub_Sustainable-Development-and-Planetary-Boundaries.pdf

Steffen et al. 2015. Planetary Boundaries: Guiding human development on a changing planet. *Science* Vol. 347 no. 6223 DOI: 10.1126/science.1259855

Sustainable Development Goals implementation

Costanza, R. Daly, L. Fioramonti, L. Giovannini, E. Kubiszewski, I. Mortensen, L. F. Pickett, K.E. Ragnarsdottir, K. V. De Vogli, R. Wilkinson, R. (2016) Modelling and measuring sustainable wellbeing in connection with the UN Sustainable Development Goals, *Ecological Economics* 130: 350-355

Dudleya, N. & Alexander S. (2017) Agriculture and biodiversity: a review *Biodiversity*, 18: 2–3, 45–49 https://doi.org/10.1080/14888386.2017.1351892

International Council for Science (ICSU), 2017. *A Guide to SDG Interactions: from Science to Implementation* [D.J. Griggs, M. Nilsson, A. Stevance, D. McCollum (eds)]. International Council for Science, Paris

Business and the SDGs

ACCSR (2017) Reimaging sustainable value Annual Review of the State of CSR in Australia and New Zealand 2017 http://accsr.com.au/wp-content/uploads/2017/05/ACCSR-State-of-CSR-Report-2017.pdf

Haski-Leventhal, D. (2016). Business, peace and the sustainable development goals. *Business, Peace and Sustainable Development, 2016* 8:3-6. DOI: 10.9774/GLEAF.8757.2016.de.00002

UN Global Compact and SDGs https://www.unglobalcompact.org/sdgs/about

Everard, M. Longhurst, J. 2018 Reasserting the primacy of human needs to reclaim the 'lost half' of sustainable development. *Science of the Total Environment* 621: 1243-1254

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