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New Conceptual Framework for Sustainability

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ABSTRACT

In 2015 the sustainable development goals (SDGs) and the Paris climate change agreement (COP 21) again drew international attention to the critical global challenges of sustainable development and climate change. For addressing these challenges, an accurate understanding of the complexity and interdependent nature of sustainability is imperative. Within the context of the present development path, this conceptual paper brings clarity to the key issues and actions needed, relevant to the five components of sustainable development. Connected to the key issues and actions required, from a broader and deeper paradigmatic perspective, the framework emphasises the need to shift towards a sustain-centric paradigm, away from the dominant social paradigm.

INTRODUCTION

Sustainability is now a crucial issue in modern business and society.[1] Sustainable development (SD) is about 'Improving the quality of life while living within the carrying capacity of supporting ecosystems'.[2] As detailed in this paper, concerns are increasing regarding the interrelatedness of environmental degradation, the present development path and wealth inequality. Importantly, inaction regarding climate change 'could result in destabilisation and violence, jeopardising national and international security to a new degree'.[3] Within this context the

[1]Rüdiger Hahn and Daniel Reimsbach, 'Are we on track with sustainability literacy? A viewpoint on the influence of sustainability and accounting education on future managers' processing of sustainability information', *Journal of Global Responsibility* 5 (1) (2014), 55–67.

[2]IUCN/UNEP/WWF, *Caring for the Earth: a strategy for sustainable living* (Gland, Switzerland, 1991), 10.

[3]Renate Schubert, Joachim Schellnhuber, Nina Buchmann, Astrid Epiney, Rainer GrieBhammer, Margareta Kulessa, Dirk Messner, Stefan Rahmstorf and Jürgen Schmid, *World in transition: climate change as a security risk*, German Advisory Council on Climate Change (London, 2008), 1.

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need to achieve sustainability is gaining greater traction, as reflected in the call of member states of the United Nations to implement the recently agreed upon sustainable development goals (SDGs).[4] According to Irish Aid the significance of the SDGs is immense.[5] The final SDGs intergovernmental negotiations, facilitated by Irish and Kenyan leadership,[6] represent the world's most comprehensive agenda in terms of addressing environmental degradation and climate change, and building a more peaceful, fair and sustainable world. The SDGs have been compared to that critical moment, 70 years ago, when the United Nations was created from the ashes of war and division.[7]

Understanding sustainability requires bringing clarity to the ambiguity associated with sustainable development and moving beyond simplistic representation of sustainable development. Sustainability will not be achieved without addressing key issues underpinning unsustainable development. According to the United Nations High-Level Panel on Global Sustainability, sustainable development has not become a reality since policies, politics and institutions disproportionately reward the short term. In addition, this panel has posited, the concept of sustainable development has not yet been incorporated into mainstream national and international economic policy debate.[8] At a deeper and more powerful level, un-sustainability, in all its manifestations, arises from the social, economic and political systems of the dominant social paradigm.[9]

The conceptual framework for sustainability proposed in this paper is reflective of the key issues and required actions associated with the five components of sustainable development. Additionally, this proposed framework both emphasises and captures the interdependency and complexity of sustainable development and the historical influence of the dominant social paradigm that has fundamentally influenced the present development path. Essentially, the transition to realising sustainability is a formidable challenge, which requires a paradigm shift away from the dominant social paradigm towards the embodiment of the sustaincentric paradigm. This transition will require global partnership and the implementation of required action from economic, political, institutional and educational actors.

UNDERSTANDING SUSTAINABILITY

Sustainability is a condition, and sustainable development is the means by which we achieve sustainability.[10] The term sustainable development was brought into prominence by the Brundtland commission which stated, 'Sustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.[11] Overall, there is consensus that economic, environmental and social issues,

[4]United Nation Development Programme, 'UNDP Policy and programme brief: UNDP support to the implementation of the 2030 agenda for sustainable development', January 2016.

[5]Irish Aid, Department of Foreign Affairs and Trade, 'Sustainable development goals', 2015, available at: https://www.irishaid.ie/news-publications/news/newsarchive/2015/september/sustainable-development-goals/ (accessed 29 July 2016) (hereafter cited as IA DFAT SDGs).

[6]Irish Aid, Department of Foreign Affairs and Trade, 'Ireland's special role', 2015, available at: https://www.irishaid.ie/what-we-do/post-2015-negotiations/ireland's-special-role/ (18 August 2016).

[7]IA DFATT SDGs, 9/15.

[8]United Nations, *Resilient people, resilient planet: a future worth choosing*, Report of the High-level Panel on Global Sustainability (New York, 2012).

[9]Leister Milbrath, *Envisioning a sustainable society: learning our way out* (Albany, NY, 1989).

[10]Graeme Buchan, Ian Spellerberg and Winfried Blum, 'Education for sustainability: developing a postgraduate-level subject with an international perspective', *International Journal of Sustainability in Higher Education* 8 (1) (2007), 4–15.

[11]World Commission on Environment and Development, *Our common future* (New York, 1987), 43.

together with intergenerational and intragenerational equity, ought to be considered within the framework of sustainable development.[12]

Since the publication of the Brundtland report in 1987, the term sustainability has accumulated hundreds of definitions, which has led to confusion about the meaning of sustainability,[13] where the concept has escaped definition.[14] A review of the literature relevant to sustainable development indicates the absence of a comprehensive framework for understanding sustainable development and its complexities.[15] According to sustainability scholars, sustainability still requires definition and elaboration,[16] since existing definitions of sustainable development are vague,[17] and fraught with contradictions.[18,19] Additionally, the lack of clarity regarding sustainability can result in sustainability becoming everything and in essence becoming nothing.[20]

Sustainable development is illustrated in different ways here. The World Conservation Union[21] used the interlocking circles model (Fig. 1). This representation of sustainable development emphasises the essential interdependence between the three core components of sustainable development.[22]

In addition, Fig. 1 is an important diagram, since it illustrates the theory relevant to sustainable development (where each component should be addressed equally), the present situation (where there is an overemphasis on the economic component) and shows that changes are required regarding the social and especially the environmental components of sustainable development, to re-establish balance between the three components of sustainable development.[23] The concentric circles model (Fig. 2) shows the critically important hierarchical relationship between the three core elements of sustainable development more clearly, reflecting the fundamental importance of the environment (there is no life without planet Earth), where society is totally dependent upon the environment, and the economy is a sub-system of the social sphere.[24]

[12]International Union for Conservation of Nature, *The future of sustainability: re-thinking environment and development in the twenty-first century*, Report of the World Conservation Union (IUCN) Renowned Thinkers Meeting, 29–31 January 2006; Konrad Ott, 'The case for strong sustainability', in Konrad Ott and Philipp Thapa (eds), *Greifswald's environmental ethics* (Greifswald, 2003); John Elkington, *Cannibals with forks: the triple bottom line of 21st century business* (Oxford, 1997); Keith Pezzoli, 'Sustainable development: a trans-disciplinary overview of the literature', *Journal of Environmental Planning and Management* 40 (5) (1997), 549–74.

[13]Mark White, 'Sustainability: I know it when I see it', *Ecological Economics* 86 (2013), 213–17; Christian Becker, 'The meaning of sustainability', in Christian Becker (ed.), *Sustainability ethics and sustainability research* (Dordrecht, 2012), 9–15.

[14]Melanie DuPuis and Tamara Ball, 'How not what: teaching sustainability as process', *Sustainability: Science, Practice and Policy* 9 (1) (2013), 64–75.

[15]Yosef Jabareen, 'A new conceptual framework for sustainable development', *Environment, Development and Sustainability* 10 (2) (2008), 179–92.

[16]Timothy Beatley and Kristy Manning, *The ecology of place: planning for environment, ecology and Community* (Washington, DC, 1994).

[17]Qizilbash Mozaffar, 'Sustainable development: concepts and rankings', *Journal of Development Studies* 37 (3) (2001), 134–61.

[18]Michael Redclift, *Sustainable development: exploring the contradictions* (London and New York, 1987).

[19]Philip Berke and Maria Conroy, 'Are we planning for sustainable development? An evaluation of 30 comprehensive plans', *Journal of the American Planning Association* 66 (1) (2000), 21–33.

[20]Heather Farley and Zachary Smith, *Sustainability: if it's everything, is it nothing?* (New York, 2014).

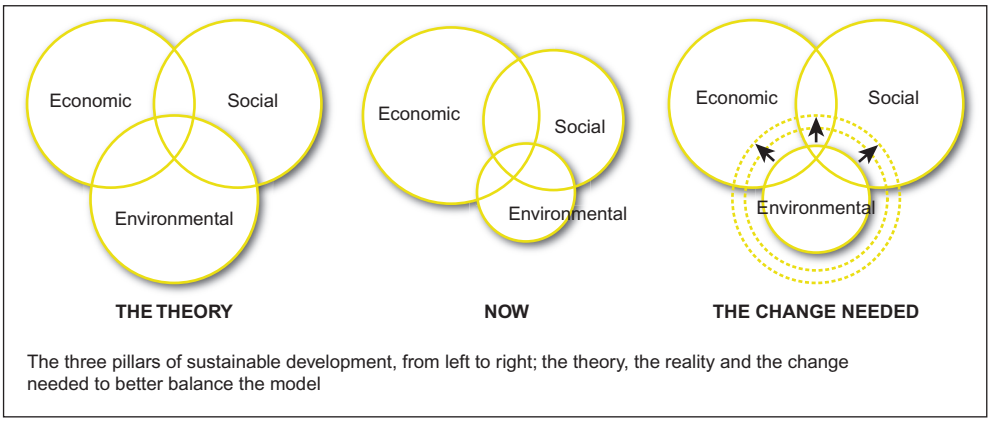
[21]*The IUCN Programme 2005–2008: Many voices, one Earth*, adopted at the World Conservation Congress, Bangkok, Thailand, 17–25 November 2004, 9 (hereafter cited as IUCN 2004, 9).

[22]IUCN 2004, 9.

[23]IUCN 2004, 9.

[24]Molly Scott Cato, *Green economics: an introduction to theory policy and practice* (London, 2009); Ott, 'The case for strong sustainability'.

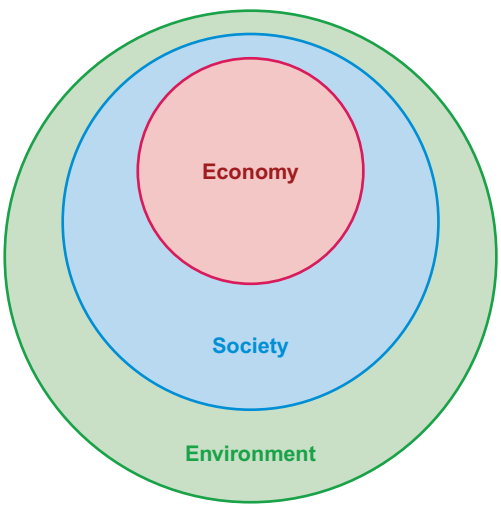
Figure 1. Sustainable development represented as overlapping circles.



Source: The IUCN Programme 2005–2008: Many voices, one Earth, adopted at the World Conservation Congress, Bangkok, Thailand, 17–25 November 2004.

Other definitions that refer to the three components of sustainable development include the triple bottom line[25] and the triple P concept: Planet, People and Profit.[26] Importantly, advancing the triple P concept, the SDGs (see Appendix 1) aim to stimulate action over the next 15 years where the focus is on People, Planet, Prosperity, Peace and Partnership.[27]

Figure 2. Concentric circles model.



Source: Based on original by Molly Scott Cato, *Green economics: an introduction to theory policy and practice* (London, 2009); Konrad Ott, 'The case for strong sustainability', in Konrad Ott and Philipp Thapa (eds), *Greifswald's environmental ethics* (Greifswald, 2003).

[25]Elkington, *Cannibals with forks*, 1997.
[26]Ismail Serageldin, Andrew Steer, Michael Cernea, John Dixon, Ernst Lutz, Sergio Margulis, Mohan Munasinghe and Colin Rees, *Making development sustainable: from concepts to action* (Washington, DC, 1994).
[27]United Nations, *Transforming our world: the 2030 Agenda for Sustainable Development* (2015), 3–5.

In the course of evaluating the progress of implementing Agenda 21, the Commission on Sustainable Development of the United Nations defined sustainable development as having not three but four dimensions,[28] adding institutions as a fourth dimension of sustainable development. Since institutions shape development,[29] the addition of the institutional component was a significant development and contributed towards a more accurate understanding of sustainable development.[30] In support of the addition of the institutional component of sustainable development, at the annual lecture of the United Nations University, World Institute for Development and Economics Research, Nancy Birdsall stated:

> A major challenge of the twenty-first century will be to strengthen and reform the institutions, rules and customs by which nations and peoples complement the global market with collective management of the problems, including persistent and unjust inequality … Global and regional institutions need to be reformed. To play their role in managing a global social contract the World Bank and the IMF need to become more representative and accountable to those most affected by their programmes.[31]

Advanced in the 1990s, the five-capital perspective on sustainable development extends the hierarchical relationship shown in Fig. 2. Essentially, there are five types of capital from which we derive the goods and services we need to improve the quality of our lives.[32] The five capitals (resources) have a strict hierarchy, since a capital that is lower down the list is *dependent* on the capitals listed previously. Since natural capital is the basis not only of production but of life itself, it is the first capital listed in the five-capital model. Therefore, natural capital must be prioritised in terms of achieving sustainability. Consequently, the environmental component of sustainable development is the first component listed in the conceptual framework for sustainability (see Fig. 3). Human capital (people's health, knowledge, skills and motivation) and social capital (institutions that help maintain and develop human capital) are the second and third most important capitals respectively. Prioritised after natural, human and social capital, manufacturing capital consists of material goods or fixed assets that contribute to the production process. The fifth capital is financial capital (banknotes, shares and bonds), which enables the other types of capital to be owned and traded. But unlike the other types of capital, financial capital has no value itself, but is representative of natural, human, social or manufactured capital.[33] Importantly, 'the economy, or more accurately, society, has chosen not

[28]Joachim Spangenberg, 'Environmental space and the prism of sustainability: frameworks for indicators measuring sustainable development', *Ecological Indicators* 2 (3) (2002), 295–309.

[29]Nancy Birdsall, 'The world is not flat: inequality and injustice in our global economy', UNU- WILDER Annual Lecture, United Nations University, World Institute for Development Economic Research (UNU-WILDER); John Fien, *Environmental education: a pathway to sustainability* (Deakin University, 1993).

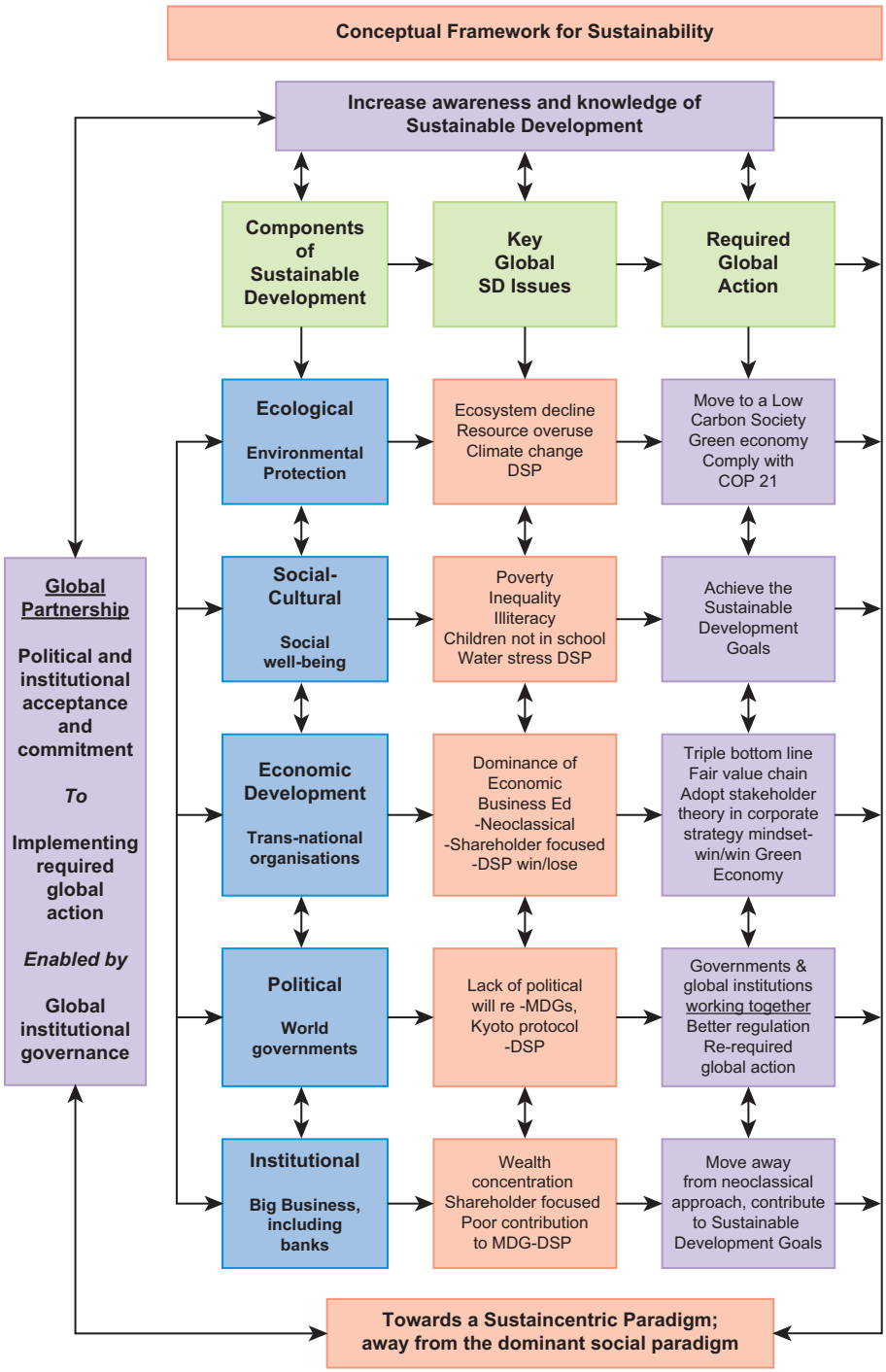
[30]Helen Foley, 'Understanding sustainability: a new conceptual framework for sustainability', Paper presented at the 26th Irish Environmental Researchers' Colloquium, 22–24 March 2016, University of Limerick, Limerick, 1–15: 4.

[31]Birdsall, 'The world is not flat', 34–6.

[32]Forum for the future, 'The five capital model'.

[33]Andy Johnson, Heloise Buckland, Fiona Brooks and Elizabeth White, *Learning and skills for sustainable development: developing a sustainable literate society, guidance for higher education institutions* (Forum for the Future, 2004), 12; William Timpson, Brian Dunbar, Gailmarie Kimmel, Brett Bruyere, Peter Newman and Hillary Mizia, *147 practical tips for teaching sustainability: connecting the environment, the economy, and society* (Madison, WI, 2006); Forum for the future, 'The five capital model'.

Figure 3. Conceptual Framework for Sustainability.



Source: Helen Foley, 'Understanding sustainability: a new conceptual framework for sustainability', Paper presented at the 26th Irish Environmental Researchers' Colloquium, 22 to 24 March 2016, University of Limerick.

to invest in natural, human or social capital or indeed in manufactured capital as assiduously as it has in financial capital'.[34] Achieving sustainability will require complying with the resource prioritisation outlined in the five-capital model.

THE INTERDEPENDANCY AND COMPLEXITY OF SUSTAINABILITY

Understanding sustainability also requires comprehending the interconnectivity of the five components of sustainable development (see Fig. 3, columns one, two and three). Scholarship on sustainability often overlooks the multidisciplinary and complex nature of sustainability.[35] In reality, both human social systems and ecological systems are complex adaptive systems.[36] Human societies and ecological systems are so interconnected that they are co-adaptive, reacting to each other and to previous interactions and reactions in a network of feedbacks; consequently, the study of sustainable development must be grounded in complex adaptive systems epistemology.[37] The interconnectivity of human societies and ecological systems is reinforced by the German Advisory Council on Global Change, who have indicated, 'Without resolute counteraction, climate change will overstretch many societies' adaptive capabilities within the coming decades'.[38]

Drawing on the literature, the pursuit of sustainable development must be global,[39] where there is simultaneous[40] and interdependent pursuit of the social, environmental, economic,[41] political[42] and institutional[43] dimensions of sustainable development. Consequently, sustainable development can be defined as, 'The global, simultaneous and interdependent pursuit of equitable sociocultural, environmental, economic, political and institutional goals relevant to achieving sustainability'.

Building on this definition, a more comprehensive and accurate conceptualisation of sustainability requires capturing the key issues (see Fig. 3, column two), and taking action (see Fig. 3, column three) relevant to the five components of sustainable development.

[34]Johnson, *Learning and skills for sustainable development*, 12.

[35]Timpson, *Practical tips for teaching sustainability*, 147.

[36]Lance Gunderson and C.S. Holling (eds), *Panarchy: understanding transformations in human and natural systems* (Washington, DC, 2002); Wayne Reeves, *Learning-centered design: a cognitive view on managing complexity in product, information and environmental design* (London, 1999).

[37]Ann Dale and Lenore Newman, 'Sustainable development, education and literacy', *International Journal of Sustainability in Higher Education* 6 (4) (2005), 351–62.

[38]Schubert, *World in transition: climate change as a security risk*, 1.

[39]Bedrick Moldan, 'The outcome of the world summit on sustainable development (WSSD) and global education', Global Education in Europe to 2015: Strategy, Policies and Perspectives, Maastricht Global Education Congress, 15–17 November 2002, 35.

[40]Inno Onwueme and Bruno Borsari, 'The sustainability asymptogram: a new philosophical framework for policy, outreach and education in sustainability', *International Journal of Sustainability in Higher Education* 8 (1) (2007), 44–52.

[41]Damjan Krajnc and Peter Glavic, 'A model for integrated assessment of sustainable development', *Resources, Conservation and Recycling* 43 (2) (2005), 189–208; Simon Bell and Stephen Morse, *Sustainability indicators: measuring the immeasurable* (2nd edn, London, 2000); Elkington, *Cannibals with forks*, 1997.

[42]UNESCO, *Education for sustainability. From Rio to Johannesburg: lessons learnt from a decade of commitment* (Paris, 2002), 11.

[43]Birdsall, 'The world is not flat', 34–36; Spangenberg, 'Environmental space and the prism of sustainability'; Jeffrey Sacks, 'Interview', Today with Pat Kenny, RTÉ Radio 1, 15 August 2010.

ECONOMIC, INSTITUTIONAL AND POLITICAL COMPONENTS OF SUSTAINABLE DEVELOPMENT: KEY ISSUES

The present development model embodies a weak sustainability perspective, where the prevailing way of living is mainly left unquestioned.[44] Of concern, business actors and interest groups are keen to promote the so-called business interpretation of sustainability,[45] which is the same as the weak sustainability perspective (the present development path).[46] Key global issues driving the present development path and the economic, institutional and political components of sustainable development include the dominance of economic consideration, which is usually shareholder-focused, influenced by neoclassical theory, resulting in wealth concentration and inequality. The dominance of the present economic development path is also facilitated by policy-making, which is related to tax secrecy and tax avoidance (see Fig. 3, column 2).

Economic development and shareholder theory

As shown in Fig. 1, there is an overemphasis on economic development which, for the most part, ignores environmental protection and social development. A key issue (see economic component, Fig. 3) influencing the present development path is the historical adherence to shareholder theory. Shareholder value theory proposes that the primary duty of management is to maximise shareholder returns,[47] but shareholder value maximisation has been criticised by prominent CEOs and top management.[48] In contrast, required action towards sustainability necessitates the embodiment of enlightened stakeholder theory (see Fig. 3, column three), which adopts a stakeholder perspective and focuses on the maximisation of the long-term value of the firm.[49]

Neoclassical theory

Historically, the present development path of weak sustainability has been influenced by ideas advanced by Adam Smith in an inquiry into the nature and causes of the Wealth of Nations, published in 1776.[50] Indeed, the fundamentals of a pro-capitalist ideology and the predominant strands of orthodox economic theory have remained essentially unchanged for about 300 years.[51] Fundamental to the dominant social paradigm is a Western neoliberal economy. Neoliberalism has been broadly defined as a theory of political economic practices which

[44]Ernst Ulrich Von Weizsäcker, Amory Lovins and Hunter Lovins, *Factor four: doubling wealth, halving resource use* (London, 1998).

[45]Michael Porter and Claas van der Linde, 'Green and competitive: ending the stalemate', *Harvard Business Review* 73 (5) (1995), 120–29; Charles Holiday, Stephan Schimdheiny and Philip Watts, *Walking the talk. The business case for sustainable development* (Sheffield, UK, 2002); John Elkington, 'The link between accountability and sustainability: theory put into practice', *Conference on the Practice of Social Reporting for Business, ISEA,* 19 January 1999, Commonwealth Conference Centre, London.

[46]Foley, 'Understanding sustainability', 2016.

[47]Jeff Smith, 'The shareholders vs. stakeholders debate', *MIT Sloan Management Review* 44 (4) (2003), 85–90.

[48]Steve Denning, 'The dumbest idea in the world: maximizing shareholder value', *Forbes*, 28 November 2011, available at: http://www.forbes.com/sites/stevedenning/2011/11/28/maximizing-shareholder-value-the-dumbest-idea-in-the-world/#246b60432224 (18 August 2014).

[49]Eric Pichet, 'Enlightened shareholder theory: whose interests should be served by the supporters of corporate governance?' *Corporate Ownership and Control* 8 (2/3) (2008), 353–62.

[50]Adam Smith, *An inquiry into the nature and causes of the wealth of nations* (London, 1776).

[51]Peter Senker, 'Research papers: the triumph of neoliberalism and the world dominance of capitalism', *Prometheus: Critical Studies in Innovation* 33 (2) (2015), 97–111.

proposes that human well-being can best be advanced by the maximisation of entrepreneurial freedoms within an institutional framework characterised by private property rights, individual liberty, free markets and free trade.[52] Importantly, critical scholars dispute whether the neoliberal development path is adequate in addressing social and environmental challenges.[53] An alternative approach to studying the dynamics of the modern world economy is to view the world economy as a complex network of interlocking systems.[54]

Wealth concentration

Influenced by neoclassical and shareholder theory, the present economic development path has resulted in wealth concentration. In 2015 the most profitable 2,000 companies, from 60 countries (known as the Global 2000), accounted for *disclosed* combined revenues of $39 trillion, profits of $3 trillion, with assets worth $162 trillion and a market value of $48 trillion.[55] While the United Nations have estimated it would cost $30 billion a year to address world hunger,[56] this equates to one per cent of the Global 2000 profit figure of $3 trillion.[57]

Business education

Since today's business students are tomorrow's business decision-makers and leaders, movement towards stakeholder governance also needs to manifest within business and management education, but to date, 'Sustainability has not yet become embedded in the mainstream of business related education'.[58] Business education is predominately underpinned by shareholder theory and supports weak sustainability. The call and need for business and management education to be reflective of sustainability issues is not new and is supported by previous research.[59]

Political will at the international level

Political will at national and international levels is not addressing the challenge of inequality. Within the context of the 2030 Agenda for Sustainable Development, addressing a special meeting on inequality convened by the UN Economic and Social Council (ECOSOC), Jan Eliasson, the deputy secretary general of the United Nations, stated,

[52]David Harvey, *A brief history of neoliberalism*.

[53]Helen Kopnina, 'Metaphors of nature and economic development: critical education for sustainable business', *Sustainability* 6 (2014), 7496–513.

[54]Senker, 'The triumph of neoliberalism', 111.

[55]Frobes, 'The world's biggest public companies', 6 May 2015, available at: http://www.forbes.com/sites/liyanchen/2015/05/06/the-worlds-largest-companies/#14f495194fe5 (16 March 2016).

[56]FAO, 'The world only needs 30 billion dollars a year to eradicate the scourge of hunger', Food and Agricultural Organisation of the United Nations, 3 June 2008, available at: http://www.fao.org/newsroom/en/news/2008/1000853/index.html (26 July 2012).

[57]Foley, 'Understanding sustainability', 2016.

[58]Jose Alcaraz and Eappen Thiruvattal, 'The United Nations' principles for responsible management education: a global call for sustainability', *Academy of Management Learning & Education* 9 (3) (2010), 542–50.

[59]Alcaraz, 'The United Nations' principles for responsible management education'; World Resource Institute, *World resources 1994–1995: a guide to the global environment* (New York, 1994); Thomas Gladwin, James Kennelly and Tara Krause, 'Shifting paradigms for sustainable development: implications for management theory and research', *Academy of Management Review* 20 (4) (1995), 877–80.

> Large disparities in income, wealth, power and opportunity plague our work for progress, both internationally and nationally, so do also large gaps in access to education, healthcare, water, sanitation, food, energy, and social protection … inequality is not just a statistic or a value-free measure of economic activity'.[60]

Although policymaking has been used by many countries to address inequality, including the use of debt restructuring, fiscal stimulus and low interest rates,[61] inequality is also driven by illicit financial flows, financial manipulations and tax evasion.[62]

ENVIRONMENTAL COMPONENT OF SUSTAINABLE DEVELOPMENT: KEY ISSUES

Key global issues inextricably linked to the present development path and particularly relevant to the environmental component of sustainable development include ecosystem decline, resource overuse and climate change (see Fig. 3, column 2).

Ecosystem decline and resource overuse

According to the Global Footprint Network, humanity uses the equivalent of 1.6 planets to provide the resources we use. Based on moderate UN scenarios, two Earths will be required by 2030.[63] Ecological overshoot is concerned with converting resources into waste faster than waste can be converted into resources. The most noticeable effects of overshoot are collapsing fisheries, diminishing forest cover, depletion of fresh-water systems and the build-up of carbon dioxide emissions, which is creating global climate change. Importantly, overshoot also contributes to resource conflicts and wars, mass migrations, famine, disease and other human tragedies which disproportionately impact the poor, who cannot buy their way out of the problem by getting resources from somewhere else.[64] In addition, according to the *Living planet report 2014*, the living planet index (LPI) (which measures more than 10,000 representative populations of mammals, birds, reptiles, amphibians and fish), has declined by 52 per cent since 1970.[65]

Climate change

Christine Lagarde, director of the International Monetary Fund, has stated that climate change 'is by far the greatest economic challenge of the 21st century. The science is sobering … make no mistake, without concerted action, the very

[60]Jan Eliasson, 'UN calls for political will to overcome inequality hindering sustainable development for all', United Nations, 2016, special meeting on inequality convened by the UN Economic and Social Council (ECOSOC), available at: http://www.un.org/apps/news/story.asp?NewsID=53576#.V5OOhNIrLIU (22 August 2016).

[61]Eliasson, 'UN calls for political will to overcome inequality'.

[62]Eliasson, 'UN calls for political will to overcome inequality'.

[63]Global Footprint Network, 'World footprint: do we fit on the planet?', 2016, available at: http://www.footprintnetwork.org/en/index.php/GFN/page/world_footprint/ (21 June 2016).

[64]Global Footprint Network, 'Advancing the science of sustainability', 2015, available at: www.footprintnetwork.org/en/index.php/GFN/ (11 March 2015).

[65]World Wildlife Fund, *Living planet report: species and spaces, people and places* (World Wildlife Fund International, 2014).

future of our planet is in peril'.[66] According to the Intergovernmental Panel on Climate Change, climate change is unequivocal, climate change is a global challenge which has both social and environmental consequences. Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850. In the Northern Hemisphere, 1983 to 2012 was likely the warmest 30-year period of the last 1,400 years.[67] From an Irish perspective, Ireland's 2020 target is to achieve a 20 per cent reduction of greenhouse gas emissions. Of concern, trends indicate that Ireland is projected to exceed its annual binding limits in 2016 and 2017.[68]

SOCIAL COMPONENT OF SUSTAINABLE DEVELOPMENT: KEY ISSUES

Key global issues relevant to the present development path and the social component of sustainable development include poverty, inequality, illiteracy, children not in school and water stress (see Fig. 3, column 2).

Poverty and inequality

As detailed in the Outlook on the Global Agenda 2014, after rising societal tensions in the Middle East and North Africa, widening income disparities were identified as the second greatest worldwide risk in 2014 and 2015.[69] In terms of wealth inequality in 2014, the wealth of 85 of the richest people on the planet added together was equal to the wealth of the poorest half of the world population;[70] in 2015 this figure dropped to 80, which was down from 388 people in 2010.[71] Although the world produces more than enough food to feed everybody, due to unequal distribution and waste (one-third of food is wasted),[72] almost a billion people suffer from hunger.[73]

In contrast, the richest one per cent increased their share of income in 24 out of 26 countries between 1980 and 2012.[74] Additionally, according to the Tax Justice Network, at least $21 trillion (possibly $32 trillion) of unreported private financial wealth was owned by wealthy individuals via tax havens at the end of 2010.[75]

[66]Christine Lagarde, 'A new global economy for a new generation', International Monetary Fund, 23 January 2013, available at: https://www.imf.org/en/News/Articles/2015/09/28/04/53/sp012313 (2 September 2016).

[67]Intergovernmental Panel on Climate Change, *Climate Change 2013. The Physical Science Basis: Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Summary for Policymakers*, 2013.

[68]Environmental Protection Agency, 'Greenhouse gas emission projections to 2020: an update', 1 March 2016, available at: https://www.epa.ie/pubs/reports/air/airemissions/2020_GHG_Projections_2016_Bulletin.pdf (2 September 2016).

[69]World Economic Forum (2014).

[70]Oxfam, 'Working for the few: political capture and economic inequality', 178 Oxfam Briefing Paper—Summary (2014), 2.

[71]Oxfam, 'Richest 1% will own more than all the rest by 2016', Oxfam International, 2015, available at: https://www.oxfam.org/en/pressroom/pressreleases/2015–01–19/richest-1-will-own-more-all-rest-2016 (11 August 2016).

[72]FAO, *Statistical Yearbook 2013*, Food and Agricultural Organisation (Rome, 2013).

[73]Holger Hoff, *Understanding the nexus. Background paper for the Bonn 2011 conference: the water, energy and food security nexus* (Stockholm, 2011).

[74]Oxfam, 'Working for the few'.

[75]Tax Justice Network, 'Global super rich hide up to $32 trillion offshore to avoid taxes', 2016, available at: https://www.popularresistance.org/panama-papers-and-the-shadow-world-of-finance/ (23 March 2016).

Illiteracy

In terms of global illiteracy, 17 per cent of the world's adult population cannot read or write (two-thirds are women), while 775 million adults and 122 million youths globally are illiterate.[76]

Children not in school

Education is a right which is enshrined in Article 26 of the 1948 Universal Declaration of Human Rights.[77] According to the Education for All Global Monitoring Report, 58 million children globally are out of school and around 100 million children do not complete primary education.[78] In terms of addressing children out of school, Sustainable Development Goal 4, specific target 4.1 aims to ensure that all girls and boys complete free, equitable and quality primary and secondary education, leading to relevant and effective learning outcomes by 2030.[79]

Water stress

Regarding access to water, 768 million people are living without a safe, clean water supply.[80] Of additional concern, it has been predicted that by 2030 almost half of the world's population of almost 4 billion people will be living in areas of high water stress.[81] Human rights, the green economy, sustainable development and gender are among the most salient legal and policy frameworks to be considered by policy-makers when addressing the water and jobs nexus.[82]

REQUIRED ACTION FOR ADDRESSING KEY GLOBAL SUSTAINABILITY ISSUES

As addressed earlier, the components of sustainability are interrelated; consequently, the implementation of required actions will positively impact the environmental, social and economic components of sustainable development, facilitated by political and institutional commitment. Required action for addressing key global issues includes (see Fig. 3, column 3):

1. *Implementing the sustainable development goals*: These goals become applicable in January 2016 and are now a new universal set of goals, targets and indicators that United Nations member states will be expected to use to frame their agendas and political policies regarding sustainable development.[83] The conceptual framework also links the components of sustainable development with the five pillars (People, Planet, Prosperity, Peace and Partnership) of the global SDGs policy framework.

[76]UNESCO, 'Education: Statistics on literacy', 2016, available at: http://www.unesco.org/new/en/education/themes/education-building-blocks/literacy/resources/statistics (9 May 2016).

[77]UNESCO, *The global literacy challenge: a profile of youth and adult literacy at the mid-point of the United Nations Literacy Decade 2003–2012* (2008).

[78]UNESCO, *Education for all: EFA Global Monitoring Report 2015* (2015).

[79]United Nations, 'Transforming our world: the 2030 Agenda for Sustainable Development', 3–5, available at: https://sustainabledevelopment.un.org/post2015/transformingourworld, 2015 (20 March, 2015).

[80]79 WHO/UNICEF (2013), Joint Monitoring Programme for Water Supply and Sanitation (JMP), 2013, available at: www.wssinfo.org (26 October 2016).

[81]OECD, *Better policies for better lives: cool, clean water*, 2016, available at: http://www.oecd.org/general/coolcleanwater.htm (29 October 2016).

[82]UNESCO, *The United Nations world water development report 2016: water and jobs* (Paris, 2016), 1–148: 5.

[83]UNDP, *implementation of the 2030 agenda for sustainable development*, 2016.

2. *Adopting a stakeholder economic development model*: In terms of achieving sustainability, companies need to change their focus from increasing shareholder value to a broader focus on all stakeholders.[84] This is particularly true in terms of the need for ethical value chain governance, where the pay of poor people in value chains needs to be increased.[85] In terms of achieving sustainability, our future lies in building sustainable enterprises and an economic reality that connects industry, society and the environment.[86]
3. *Pursuing a green economy*: According to the GLOBE Foundation, the green economy, estimated to be worth $5.2 trillion, is an economic model that focuses on the creation of green jobs, real sustainable economic growth, the prevention of environmental pollution, global warming, resource depletion and ecological degradation.[87] Additionally, transitioning to a 'green economy' is more than a short-term response to current global crises. The green economy can be a long-term strategy for sustainable development and poverty alleviation.[88]
4. *Addressing climate change*: The importance of climate change was again highlighted in Paris in December 2015 at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change, commonly known as COP 21. COP 21, it is hoped, will avert some of the worst effects of global warming and shift economies around the world to cleaner energy sources.[89] On 22 April 2016, 175 countries including the European Union signed the Paris Agreement.[90] The global call to action in terms of addressing anthropogenic climate change is now imperative, since climate change represents an urgent and potentially irreversible threat to human societies and the planet and thus requires the widest possible co-operation from all countries, where deep reductions in global emissions are now urgently needed.[91]
5. *Global partnership and governance*: Within the context of the 2030 Sustainable Development Agenda, according to the deputy secretary general of the United Nations, Jan Eliasson, progress is plagued by large disparities in income, wealth, power and opportunity.[92] Importantly, without revenues, governments are unable to provide critical social

[84]Tim Koller, Marc Goedhart and David Wesselš *Valuation: measuring and managing the value of companies* (6th edn, New Jersey, 2015).

[85]Jonathan Mitchell, Jodie Keane and Christopher Coles, *Trading up: how a value chain approach can benefit the rural poor*, COPLA Global: Overseas Development Institute, 2009.

[86]Peter Senge and Goran Carstedt 'Innovating our way to the next industrial revolution', *Sloan Management Review* 42 (2) (2001), 24–38; S.L. Hart, 'Beyond greening: strategies for a sustainable world', *Harvard Business Review* 75 (1) (1997), 67–76.

[87]GLOBE Foundation, 'Building a strong low-carbon future', 2010, available at: http://globe.ca/wp-content/uploads/2012/10/bcge_report_feb_2010.pdf (6th June 2015).

[88]Rupert Maclean, John Fien and Jose Roberto Guevara (eds), 'Skills development for inclusive and sustainable growth in developing Asia-Pacific', *Technical and Vocational Education and Training: Issues, Concerns and Prospects* 19, 2013, available at: https://www.adb.org/sites/default/files/publication/30071/skills-development-inclusive-growth-asia-pacific.pdf (26 October 2016).

[89]Alexandra Zavis, Chris Megerian and William Yardley, 'Nearly 200 nations join together to fight climate change in historic Paris agreement', *Los Angeles Times*, 12 December 2015.

[90]United Nations, List of parties that signed the Paris Agreement on 22 April 2016: United Nation Paris Climate Agreement signing ceremony 2016, available at: http://www.un.org/sustainabledevelopment/blog/2016/04/parisagreementsingatures/#prettyPhoto (8 November 2016).

[91]UNFCCC, 'Adoption of the Paris Agreement', United Nations Framework Convention on Climate Change, 2015, available at: https://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf (3 August 2016).

[92]Eliasson, 'UN calls for political will to overcome inequality'.

services such as health and education.[93] At the international level new instruments are required, including good governance, transparency, use of information technology, global co-operation on taxes, and closing down abuse on tax secrecy and tax havens.[94] In terms of creating a more sustainable international tax environment, the OECD/G20 Base Erosion and Profit Shifting (BEPS) project provides governments with solutions for closing the gaps in existing international rules that allow corporate profits to disappear or be artificially shifted to low/no tax environments, where little or no economic activity takes place.[95]

TRANSITION FROM THE DOMINANT SOCIAL PARADIGM TOWARDS A SUSTAINCENTRIC PARADIGM

As indicated in Fig. 3, all key issues and required action are connected to the external frame of the conceptual framework, and together contribute towards a shift to a sustaincentric paradigm. Since the present development path has been fundamentally influenced by the dominant social paradigm, understanding sustainability also requires viewing sustainability from a paradigmatic perspective. Leister Milbrath defined the dominant social paradigm as, 'A society's belief structure that organises the way people perceive and interpret the functioning of the world around them'.[96] The prevailing dominant social paradigm is that which was engendered during the Enlightenment and has informed both scientific and social analysis since that time.[97] Within the context of the dominant social paradigm,

> The transition to an ecological sustainable society will involve a historically unprecedented revolution in institutions, systems, lifestyles and values. Much of Western culture has to be totally reversed in a few decades. We have to replace a long list of cultural traits by their opposites, particularly obsessions with material affluence, getting richer, competing, winning, exercising power and controlling nature.[98]

The transition to an ecological, sustainable society is a formidable challenge, since the dominant social paradigm is so widely held that individuals are only vaguely aware of the direction it gives to their behaviour,[99] though it provides legitimisation and justification for the institutions of society and as such acts as an ideology.[100]

[93]Jeffery Sachs, 'UN calls for political will to overcome inequality hindering sustainable development for all', United Nations, 2016, special meeting on inequality convened by the UN Economic and Social Council (ECOSOC), available at: http://www.un.org/apps/news/story.asp?NewsID=53576#.V5OOhNIrLIU (11 July 2016).

[94]Sachs, 'UN calls for political will to overcome inequality'.

[95]Organisation for Economic Co-operation and Development, 'OECD presents outputs of OECD/G20 BEPS Project for discussion at G20 finance ministers meeting: reforms to the international tax system for curbing avoidance by multinational enterprises', 2015, available at: http://www.oecd.org/tax/oecd-presents-outputs-of-oecd-g20-beps-project-for-discussion-at-g20-finance-ministers-meeting.htm (2 August 2016).

[96]Milbrath, *Envisioning a sustainable society*, 116.

[97]Milbrath, *Envisioning a sustainable society*, 1989.

[98]Fine, *Environmental education: a pathway to sustainability*, 39.

[99]Howard Perlmutter and Eric Trist, 'Paradigms for societal transition', *Human Relations* 39 (1) (1986), 1–27.

[100]Stephen Cotgrove, *Catastrophe or cornucopia: the environment, politics and the future* (New York 1982).

> Paradigms are not only beliefs about what the world is like and guides to action; they also serve the function of legitimating or justifying courses of action. That is to say, they function as ideologies .... Hence, conflicts over what constitutes the paradigm by which action should be guided and judged to be reasonable is [sic] itself a part of the political process. The struggle to universalize a paradigm is part of the struggle for power.[101]

According to Thomas Gladwin, *et al.*, sustainable development is a process of achieving human development in an inclusive, connected, equitable, prudent and secure manner.[102] As an alternative to the dominant social paradigm, 'Sustaincentrism represents the perspective that is most congruent with the representations of sustainable development'.[103] In addition, the conventional technocentric paradigm (or dominant social paradigm) views humans and nature as being disassociated (as opposed to interdependent), where the human role is one of dominance (as opposed to stewardship). In terms of economic structure, the sustaincentric paradigm favours the green economy over the free market and conserving as opposed to exploiting natural capital, while in terms of poverty alleviation, sustaincentrism favours equal opportunity over growth trickle (see Appendix 2 for more detail).[104] Sustaincentrism supports moral and ethical pluralism,[105] in adherence with the theory of intergenerational equity,

> The human species hold the natural environment of our planet in common with other species, other people, and with past, present and future generations. As members of the present generation, we are both trustees, responsible for the robustness and integrity of our planet, and beneficiaries, with the right to use and benefit from it for ourselves.[106]

Importantly, movement towards a sustaincentric paradigm is a choice to use the planet's resources in a sustainable way. Without a transition away from the dominant social paradigm the degradation and integrity of ecosystems will continue.

CONCEPTUAL FRAMEWORK FOR SUSTAINABILITY

As outlined in this paper and illustrated in Fig. 3, within the context of the present unsustainable path there is a need for a transition from the dominant social paradigm towards the sustaincentric paradigm. The inside of the conceptual framework is made up of three columns which are interconnected, indicated by arrows pointing from left to right. All arrows connect the internal columns with the external structure of the conceptual framework, which converge into increasing awareness and knowledge of sustainable development, thereby contributing to a shift towards a sustaincentric paradigm.

The first column of the conceptual framework for sustainability lists the five components under each other; each component is then linked to the global issues and actions required to address it. The components listed in the conceptual framework include:

[101]Cotgrove, *Catastrophe or cornucopia*, 88.
[102]Thomas Gladwin, James Kennelly and Tara-Shelomith Krause, 'Shifting paradigms for sustainable development: implications for management theory and research', *Academy of Management Review* 20 (4) (1995), 874–907.
[103]Gladwin *et al.*, 'Shifting paradigms for sustainable development', 894.
[104]Gladwin *et al.*, 'Shifting paradigms for sustainable development'.
[105]Gladwin *et al.*, 'Shifting paradigms for sustainable development'.
[106]Edith Brown Weiss, 'In fairness to future generations and sustainable development', *American University International Law Review* 8 (1) (1992), 20.

- The Ecological (environmental protection) component; where the *key issues* are climate change, ecosystem decline and resource overuse, which have been influenced by the dominant social paradigm (DSP). *Global action*, in terms of addressing these key issues, includes moving to a low carbon society, the embodiment of the green economy and complying with COP 21.
- The Social/Cultural (Social Well-being) component; where the *key issues* are poverty, inequality, illiteracy, children not in school and water stress, which have been influenced by the DSP. *Required action* includes implementing the sustainable development goals (SDGs).
- The Economic Development component; where the *key issues* include the dominance of economic short-term goals and neoclassical theory, where both are shareholder focused, with an emphasis on a win / lose perspective, shaped by the DSP. *Required action* includes addressing the triple bottom line, the implementation of fair value chains, the adoption of stakeholder theory in corporate strategy, embodying a positive mindset or win / win perspective and shifting to a green economy.
- The Political (World Governments) component; where the *key issues* are lack of political will regarding the millennium development goals (now replaced by the sustainable development goals), inadequate progress in terms of complying with the Kyoto protocol (now replaced by COP 21), where both issues are influenced by the DSP. *Required action* includes, governments and global institutions working together, facilitated by better regulation in terms of achieving the required global action.
- The Institutional (Big Business including banks) component; where the *key issues* are wealth concentration, increasing CO2 emissions and poor contribution to achieving the millennium development goals, influenced historically and presently by the DSP. *Required action* includes, moving away from the neoclassical approach and proactively contributing to the achievement of the sustainable development goals.

All the required actions feed into the external framework, which is concerned with increasing awareness and knowledge of sustainable development regarding the five components and associated issues and actions required, thereby enabling a shift from the dominant social paradigm towards the sustaincentric paradigm. It is emphasised in the framework that the shift towards sustainability will not occur without political and institutional acceptance and commitment to implementing the required action, utilising integrative systems of management enabled by institutional governance and global partnership. As indicated by the United Nations System Task Team, a 'more coherent, transparent and representative global governance regime will be critical to achieve sustainable development in all its dimensions'.[107]

CONCLUSION

The SDGs and COP 21 have again highlighted the criticality of sustainable development, where the transition towards sustainability is an imperative strategic global goal. The embodiment of sustainability now requires integrated and transformational leadership from economic, political, educational and institutional actors. Within the context of the dominant social paradigm, the conceptual framework outlined in this paper captures the complexity of the

[107]OHCHR, OHRLLS, UNDESA, UNEP and UNFPA, *Global governance and governance of the global commons in the global partnership for development beyond 2015* (New York, 2012), 8.

interrelated components of sustainable development and the associated global issues and required actions needed in a transition to a sustaincentric path. Without a transition to the sustaincentric paradigm, the negative consequences of environmental degradation, growing inequality and profit maximisation for the few will continue unabated, further exacerbating the fragility of international and global relations. It is time for global leaders to take the words of John Fitzgerald Kennedy seriously, for the supreme reality of our time is the vulnerability of our planet.[108]

[108]John Fitzgerald Kennedy, 'President's Address before a Joint Session of the Dáil and Seanad, Dublin, 28 June 1963', US Department of State Bulletin (1963).

APPENDIX 1

Sustainable Development Goals

1	End poverty in all its forms everywhere
2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
3	Ensure healthy lives and promote well-being for all at all ages
4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5	Achieve gender equality and empower all women and girls
6	Ensure availability and sustainable management of water and sanitation for all
7	Ensure access to affordable, reliable, sustainable and modern energy for all
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9	Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation
10	Reduce inequality within and among countries
11	Make cities and human settlements inclusive, safe, resilient and sustainable
12	Ensure sustainable consumption and production patterns
13	Take urgent action to combat climate change and its impacts
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17	Strengthen the means of implementation and revitalise the global partnership for sustainable development

Source: United Nations, *Transforming our world: the 2030 agenda for sustainable development* (New York, 2015).

APPENDIX 2

Alternative Environmental Paradigms

Key Assumptions	Technocentrism/ Dominant social paradigm	Sustaincentrism	Ecocentrism
A. Ontological and ethical			
1. Metaphor of Earth	Vast machine	Life support system	Mother/web of life
2. Perception of Earth	Dead/passive	Home/managed	Alive/sensitive
3. System composition	Atomistic/parts	Parts and wholes	Organic/wholes
4. System structure	Hierarchical	Holarchical	Heterarchical
5. Humans & nature	Disassociation	Interdependence	Indisassiciation
6. Human role	Domination	Stewardship	Plain member
7. Value of nature	Anthropocentrism	Inherentism	Intrinsicalism
8. Ethical grounding	Narrow homocentric	Broad homocentric	Whole Earth
9. Time/space scales	Short/near	Multiscale	Indefinite
10. Logic/reason	Egoistic/rational	Vision/network	Holism/spiritualism
B. Scientific and technological			
1. Resilience of nature	Tough/robust	Varied/fragile	Highly vulnerable
2. Carrying capacity limits	No limits	Approaching	Already exceeded
3. Population size	No problem	Stabilise now	Freeze/reduce
4.Growth pattern	Exponential	Logistic	Hyperbolic
5. Severity of problems	Trivial	Consequential	Catastrophic
6. Urgency of solutions	Little/wait	Great/decades	Extraordinary/now
7. Risk orientation	Risk taking	Precaution	Risk aversion
8. Faith in technology	Optimism	Skepticism	Pessimism
9. Technological pathway	Big/centralised	Benign/decoupled	Small/decentralised
10. Human vs natural capital	Full substitutes	Partial substitutes	Complements
C. Economic and psychological			
1. Primary objective	Efficient allocation	Quality of life	Ecological integrity
2. The good life	Materialism	Post materialism	Anti materialism
3. Human nature	Homo economicus	Homo sapient	Homo animalist
4. Economic structure	Free market	Green economy	Steady state
5. Role of growth	Good/necessary	Mixed/modify	Bad/eliminate
6.Poverty alleviation	Growth trickle	Equal opportunity	Redistribution
7. Natural capital	Exploit/convert	Conserve/maintain	Enhance/expand
8. Discount rate	High/normal	Low/complement	Zero/inappropriate
9. Trade orientation	Global	National	Bioregional
10. Political structure	Centralised	Devolved	Decentralise

Source: Thomas Gladwin, James Kennelly and Tara-Shelomith Krause, 'Shifting paradigms for sustainable development: implications for management theory and research', *Academy of Management Review* 20 (4) (1995), 877–94: 883.