RSiS S. RAJARATNAM SCHOOL OF INTERNATIONAL STUDIES
Nanyang Technological University, Singapore

NTS INSIGHT

NTS Insight, no. IN22-05, November 2022

Is Doughnut Economics a means towards achieving Planetary Health?

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Introduction

With the advent of climate change, the global focus is no longer lingering on climate change mitigation alone, and has shifted towards climate adaptation as well. The 2015 Paris Agreement's target of restricting the average temperature rise in the 21st century to well below two degrees Celsius compared to pre-industrial levels is increasing unlikely, given the inaction of states and the global lack of progress in meeting Paris Agreement goals.[1] As nations scramble to meet Nationally Determined Contributions (NDCs) and effectively design climate policies, the global crisis has given rise to a new domain, Planetary Health. Planetary Health, an interdisciplinary field, is described as a solutions-focused discipline which aims to analyse, mitigate, and resolve human disruption to Earth's natural systems in the new Anthropocene epoch.[2] The Anthropocene epoch, on the other hand, is established as a geological climate where human activity is drastically altering earth's systems to an extent that will be reflected in fossil records.[3] Planetary Health inextricably links human health to the health of the planet and illustrates the interdependency of the two, and this relationship has been substantiated by findings which concur that countries with higher ecological threats concurrently experience greater social

[1] "Climate Commitments Not on Track to Meet Paris Agreement Goals." Unfccc.int, February 26, 2021. https://unfccc.int/news/climate-commitments-not-on-track-to-meet-paris-agreement-goals-as-ndc-synthesis-report-is-published.

[2] "Planetary Health." Planetary Health Alliance. Accessed May 14, 2022, http://www.planetaryhealthalliance.org/planetary-health.

[3] Capon, Anthony. "Understanding Planetary Health." The Lancet 396, no. 10259 (2020): 1325–26. https://doi.org/10.1016/s0140-6736(20)32150-4.

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Recommended citation: Jonathan Ramakrishna, '**Is Doughnut Economics a means towards achieving Planetary Health?**' NTS Insight, No. IN22-05 (Singapore: RSIS Centre for Non-Traditional Security Studies (NTS Centre), Nanyang Technological University Singapore. 2022).

vulnerability[4]. When climate-induced disasters occur due to human action, there are subsequent consequences on food, water, energy, and human security. The consequences are disproportionately felt by vulnerable communities in states that lack resources and capabilities to address the consequent impacts on human security, and climate instability is a driving force behind political instability.[5] Thus, there is cause for concern not only for the planet's health but also for human health as the environment's health continues to dwindle in the Anthropocene Epoch. As such, the concept of Planetary Health is a response to threatened climate security and human security.

As the needs of human civilization evolve with time, economic models and pursuits must follow suit. Conventional dominant economic models such as profit-driven capitalism, no longer works in tandem with the demands and needs of the 21st century. Economic success in the short-term has been achieved at the expense of the long-term future of subsequent generations and the planet's health, and the impact of humans on the earth's natural systems cannot be ignored. As such, reform is an obligation. The Doughnut Economics model, which was conceived by the economist Kate Raworth, is a 21st century specific model which urgently targets the existing shortfalls of human societies. These include climate change, biodiversity loss, pollution, and ever-increasing gender and social inequalities exacerbated by climate- related incidents. It offers itself as a viable alternative to profit-chasing economic models and reveals the chasm between pursuing Gross Domestic Product (GDP) growth as a measure of economic success and the realities of the global non-negotiable need to mitigate climate change.

This report will firstly elaborate on the beneficial aspects of the Doughnut Economics model and its relevance in the contemporary global climate. Next, the implementation of the model in Amsterdam will be assessed as a case study. Lastly, the compatibility of the model with developing countries will be scrutinized, given the economic priorities of countries differ with relevance to their economic, political, and social progress in addition to limitations of financial capacities. These considerations will determine whether Doughnut Economics could be the protagonist towards achieving Planetary Health (Climate Security and Human Security).

Doughnut Economics Works in Tandem with Contemporary Global Crises

The very basis for the conception of Doughnut Economics, was its relevance to modern problems encountered by humanity in the 21st century. Several of these problems which were not as prevalent in the 20th century, include climate change, biodiversity loss and pollution, all of which fall under the umbrella of Planetary Health. These in turn threaten food and water security and have direct influences on human security, risking inaccessibility to basic human needs. In theory, Doughnut Economics addresses both climate security and human security simultaneously and acknowledges that the "sweet spot" for humanity lies in between the ecological ceiling and the social foundation ring. According to the World Economic Forum Global Risk Report 2020, a staggering 5 of the top 10 global risks are environmental, which suggests that it is not merely a necessity but also a moral imperative for policymakers to shift their attention away from GDP growth

[4] Rep. Human Development Report 2020. United Nations Development Programme, 2020. https://hdr.undp.org/system/files/documents//hdr2020pdf.pdf [5] Floyd, Rita. "Global Climate Security Governance: A Case of Institutional and Ideational Fragmentation." Conflict, Security & Development 15, no. 2 (2015): 126–29. https://doi.org/10.1080/14678802.2015.1034452.

[5] Selby, Jan, and Clemens Hoffmann. "Rethinking Climate Change, Conflict and Security." Geopolitics 19, no.4 (2014): 747–54. https://doi.org/10.1080/14650045.2014.964866.

and rapid industrialization, and towards the environment instead.[6] 20th century history is argued by DeLong (2000) to be dominated by economics, as the economy was at the forefront of changes worldwide and the "driving force behind other areas of life" in a way that was not witnessed in previous ages.[7] In the same vein as the economy was the thematic focus in the 20th century, it is inevitable that the environment has distinctly assumed its place as the dominant element in the Anthropocene Epoch. Economics that do not further destabilize the climate are pivotal to the future of both human and climate security, and thus GDP growth can no longer be the overriding goal of policy making.[8] Not only does Doughnut Economics acknowledge the non-negotiable nature of planetary health and support growth within the means and limits of our ecological systems, it also places environmental health at the forefront and no longer reduces it to externalities which undermine the relationship between human health and planet health.[9] It prioritizes social well-being and reduces social and gender inequalities, which have been exacerbated by the disproportionate impacts of climate change on marginalized social groups, and aims to decouple growth and well-being from resource use.[10]

In addition, the advocacy for redistribution and sustainability will ensure the long-term mitigation of climate change and surpasses temporal short-term solutions. Remaining focused on capitalism and industrialism whilst pursuing impermanent solutions such as cloud seeding, and carbon capture and storage (CCS) will cultivate a sense of complacency and is unsustainable in the long run. These solutions also entail conflict between stakeholders, incur significant costs and play second fiddle to renewables in their efficacy in reducing carbon emissions.[11] CCS entails a 33% additional energy penalty as opposed to fossil-fuel powered plants, and therefore is currently not an economic option and does more harm than good, unless the process is made substantially more economic and energy-saving in the future.[12] Ideally, these methods should be utilized as a method of mitigation and not a solution.

Doughnut Economics in Amsterdam

In April 2020, the Doughnut Economics model was officially implemented by Amsterdam as a starting point in shaping public policy decisions, making it the pioneering city in the world to formally endorse and incorporate Doughnut Economics into public policy.[13] The timing of its incorporation coincided with the coronavirus pandemic, and its introduction was intended to mend the post-coronavirus economy and avoid regressing back into previous degenerative ways.[14]

Amsterdam's main climate objectives include achieving a 100% circular economy by 2050 and becoming a climate neutral municipality by 2030.[15] These climate goals are supplemented by the Amsterdam Circular Strategy (2020-2025) which aims to drastically reduce the usage of new raw materials by accounting for the movement of materials, from entry to processing, so as to conserve raw materials, and this overarching strategy utilized the Doughnut Economics model in its creation and in shaping its policies.[16] The strategy focuses on three value chains, namely food and organic waste streams, consumer goods, and the built environment. One instance where the principles of Doughnut Economics was put into effect was the housing crisis in Amsterdam, where in 2018, an estimated 20% of city tenants were unable to

[6] Rep. The Global Risks Report 2020. World Economic Forum, January 15, 2020. https://www.weforum.org/reports/the-global-risks-report-2020.
[7] DeLong, J. Bradford. "The Shape of Twentieth Century Economic History," 2000, 5–9. https://doi.org/10.3386/w7569.
[8] TEDtalksDirector. A Healthy Economy Should Be Designed to Thrive, Not Grow. Kate Raworth, 2018. https://www.youtube.com/watch?v=Rhcrbcg8HBw.
[9] Myers, Samuel, and Howard Frumkin. "An Introduction to Planetary Health." Essay. In Planetary Health: Protecting Nature to Protect Ourselves, 3–15. Washington ; Covelo: Island Press, 2020.
[10] TEDxTalks. Why It's Time for 'Doughnut Economics'. Kate Raworth, 2014. https://www.youtube.com/watch?v=1BHOflzxPjI
[11] Kubota-Stanford, Taylor. "Carbon Capture Might Not Be Such a Great Idea." Futurity, October 28, 2019. https://www.futurity.org/carbon-capture-climate-change-2195712.
[12] Singh, Udayan. "Carbon Capture and Storage: An Effective Way to Mitigate Global Warming." Current Science 105, no. 7 (2013): 914–922. http://www.jstor.org/stable/24098511.
[13] Boffey, Daniel. "Amsterdam to Embrace 'Doughnut' Model to Mend Post-Coronavirus Economy." The Guardian. Guardian News and Media, April 8, 2020. https://www.theguardian.com/world/2020/apr/08/amsterdam-doughnut-model-mend-post-coronavirus-economy.
[14] Ibid.
[15] "New Amsterdam Climate: Roadmap Amsterdam Climate Neutral 2050." City of Amsterdam, February 2020. amsterdam.nl/klimaatneutraal.
[16] "Policy: Circular Economy." City of Amsterdam. Gemeente Amsterdam. Accessed August 10, 2022. https://www.amsterdam.nl/en/policy/sustainability/circular-economy/.

afford basic necessities after paying for rent, and only 12% of approximately 60,000 housing applications were successful.[17] Instead of rapidly building more houses to meet the increased demand and resolving the issue in the short-term, the Doughnut Economics model prompted the city to regulate builders to use materials that were bio-based and easily recyclable, thus reflecting the farsightedness of the model in applying climate-friendly solutions to complex social and economic issues.

The Amsterdam City Doughnut, a downscaled version of the global concept of Doughnut Economics, is envisioned as a "tool to drive transformative action" and "provide a starting point for holistic new thinking to inform policy decisions and the implementation of the Circular Strategy".[18] It approaches social and ecological issues from both a local and global perspective, acknowledging that these issues cannot be scrutinized in isolation as there are possible far-reaching ramifications. Doughnut Economics considers social foundation indicators, and the City Doughnut identifies areas where there are lapses, such as the import of cocoa beans from West Africa, where labour is exploited, and human rights are undermined.[19] Additionally, the City Doughnut includes ecological indicators which show the extent to which Amsterdam is overshooting planetary boundaries. It shows that Amsterdam's pressure on the planet is more than twice its share, and the city is overshooting planetary boundaries in the components of ocean acidification, fertilizer use, land use, climate change and waste generation.[20] Therefore, it is effective in demonstrating to cities their respective positions with regard to the various social and ecological indicators in a local and global context, and all stakeholders from governments to businesses to community networks, can better understand which industries are characterized by insufficient or regressive action and hence require more positive action to navigate closer towards shared climate goals. Given that the City Doughnut revolves around social and ecological indicators, it could be argued that the model is already synchronized with the concept of Planetary Health, and it has hitherto successfully quantified a city's progress towards achieving both human and climate security.

Active collaboration between stakeholders is the bedrock principle which underpins Doughnut Economics. Policies influenced by the City Doughnut should ideally be put into practice via collaboration between a network of changemakers such as the government, businesses, academics, and communities on multiple levels to connect global level action to the neighbourhood and household. The model hopes to create an iterative cycle of co-creation, setting into motion fresh initiatives and the amplification of effective practices.[21]

Monitoring Progress in Amsterdam

To assess Amsterdam's progress in its pursuit of falling within the 'sweet spot' in the doughnut model and satisfying both social and ecological indicators, the city has developed a monitor. The monitor aims to provide continuous insight into both the social foundations and ecological ceiling of Amsterdam's economy, and detail its findings and subsequently propose policy recommendations.[22] The monitor plays a key role in identifying existing strengths and weaknesses in the transition to a circular economy, and it identified the greatest ecological impacts of the Dutch economy as greenhouse gas emissions, the excessive use of chemical fertilisers, and marine pollution. On the other hand, the greatest social impact was on housing. The monitor is imperative to performative assessments, as it quantifies the city's position within

[17] Boffey, Daniel. "Amsterdam to Embrace 'Doughnut' Model to Mend Post-Coronavirus Economy." The Guardian. Guardian News and Media, April 8, 2020. https://www.theguardian.com/world/2020/apr/08/amsterdam-doughnut-model-mend-post-coronavirus-economy.

[18] "Amsterdam's City Doughnut as a Tool for Meeting Circular Ambitions Following COVID-19." C40 Knowledge Community, May 2020. https://www.c40knowledgehub.org/s/article/Amsterdam-s-City-Doughnut-as-a-tool-for-meeting-circular-ambitions-following-COVID-19?language=en_US.

[19] Doughnut Economics Action Lab, Biomimicry 3.8, Circle Economy, and C40 Cities, eds. Publication. The Amsterdam City Doughnut: A Tool for Transformative Action. Doughnut Economics Action Lab, March 2020. https://doughnuteconomics.org/amsterdam-portrait.pdf.

[20] Ibid.

[21] Ibid.

[22] City of Amsterdam, TNO, TU Delft, Ton Bastein, Arnout Sabbe, and Rusné Sileryté, eds. Publication. Amsterdam Circular Monitor (pp. 4-11). City of Amsterdam, February 11, 2020. https://assets.amsterdam.nl/publish/pages/867635/amsterdam_circular_monitor.pdf.

the doughnut model and places emphasis on the ongoing processes in material and waste management. Monitor frameworks are crucial elements of circular economy strategies, and it is developed based on an abundance of data and statistics, and the bulk of the datasets which form the monitor are waste statistics.[23]

The monitor operates by quantifying the amount of materials that the city consumes and produces as waste, therefore the weight of raw and other materials are calculated, with the assumption that weights will be related to environmental costs and CO2 emissions in the coming years.[24] Waste collection by public authorities and waste processing in regional industries are a few of the measures and indicators, and the report's findings have documented promising potential in these areas. Regarding waste processing in the regional industry, there are significant opportunities for higher-grade processing in different value chains (built environment, food and organic waste, consumer goods).[25]

However, there are several limitations of the monitor. Firstly, there is an existing lack of data and structured information about waste materials, which results in a loss of potential value within different chains. Moreover, focusing on input insufficiently accounts for the effects of the use and discarding of raw materials, and the usage and lifespan of materials are extremely complex and challenging to quantify given that consumer habits vary. As such, accurate and valid methodologies need to be formulated to enable indicators to transform processes into tangible and quantifiable data.[26]

To combat the limitations of the monitor, there have been numerous recommendations for the further development of an open-sourced monitor and greater accessibility to the public. The recommendations proposed include an increased visibility of measures and the further development of universal indicators to quantify progress. It is acknowledged that the circular economy should provide the market with commercial opportunities to expand on circular measures and convince citizens in Amsterdam that a circular economy does indeed enhance well-being. Tangible statistics and Doughnut Economics workshops will garner increased support for the Amsterdam Circular Strategy, and advocate for the exchange of data and expert insights between collaborators. Data partnerships and platforms have also been identified as pivotal aspects in preventing waste, converting waste into secondary materials and the refinement of calculations to gain valuable insights, develop new concepts and accelerate the transition to a circular economy.

Challenges Associated with Doughnut Economics

The resounding success of the Doughnut Economics model in Amsterdam, and the eagerness of several other European cities such as Brussels and Copenhagen to follow suit, is indicative of the model's efficacy and evidence that it transcends theory and possesses value in practice.[27] However, the question then arises, whether the application of Doughnut Economics will only be successful in developed nations, and whether developing nations can equally thrive using the model. Developing countries have been left behind in the wake of globalization and many are still playing catchup with developed nations. As such, the economic priorities of developing countries are likely to comprise of poverty alleviation, increased employment, reduced inequality, GDP growth, and rapid industrialization. These problems are exacerbated by the influence of international agencies and corporations on national markets of developing countries as these nations lose sovereignty and are often at the mercy of wealthier and more powerful states.[28] Thus, given the disadvantage that developing nations already possess, it can be argued that they do not have the social, financial, and political capital to

[23] Sileryte, Rusne, Arnout Sabbe, Vasileios Bouzas, Kozmo Meister, Alexander Wandl, and Arjan van Timmeren. "European Waste Statistics Data for a Circular Economy Monitor: Opportunities and Limitations from the Amsterdam Metropolitan Region." Journal of Cleaner Production 358 (July 15, 2022):

[24] City of Amsterdam, TNO, TU Delft, Ton Bastein, Arnout Sabbe, and Rusné Sileryté, eds. Publication. Amsterdam Circular Monitor (pp. 1-13). City of Amsterdam, February 11, 2020. https://assets.amsterdam.nl/publish/pages/867635/amsterdam_circular_monitor.pdf.

[25] Ibid.,15-21

[26] Ibid., 22

[27] Meredith, Sam. "Amsterdam Bet Its Post-Covid Recovery on 'Doughnut' Economics - More Cities Are Now Following Suit." CNBC. CNBC, March 25, 2021. https://www.cnbc.com/2021/03/25/amsterdam-brussels-bet-on-doughnut-economics-amid-covid-crisis.html.

[28] Gul, Nabiha. "Globalization and Developing Countries." Pakistan Horizon 56, no. 4 (2003): 49–63. http://www.jstor.org/stable/41394391.

attain a healthy social foundation and meet key indicators of social wellbeing within the ecological ceiling demonstrated in the Doughnut Economics model. According to the International Monetary Fund (1997), the reality is that only accelerated economic growth coupled with a cultivated understanding of how economic activities impact the environment, can environmental issues be mitigated and resolved.[29]

In developing countries which generally exhibit heavy dependence on agricultural production, climate insecurity in the form of climate-induced disasters and unprecedented weather expose loopholes in food security and threaten the livelihoods of citizens. These nations are often lacking in climate-resilient infrastructure and climate adaptation solutions, and climate change only amplifies existing inequalities.[30] This can lead to social unrest and political instability and threaten national stability; therefore, the risk of climate refugees and civil violence arises, posing the possibility of interstate and intrastate conflict.[31] Hence, these vulnerable states may prioritise the allocation of their resources towards creating climate-resilient infrastructure and the acceleration of this process takes precedence over the sustainability of the practices, and these methods may not fall in line with the values of Doughnut Economics.

Incorporating Doughnut Economics into Developing Countries

The adoption of an equity-based and respective capabilities approach, two of the three justice principles prescribed by the United National Framework Convention on Climate Change (UNFCCC) which are applied to the decision-making behind the allocation of climate change mitigation burdens for climate justice, could perhaps be frameworks used to ascertain the degree to which sustainability practices and human security indicators ought to be incorporated into the economic models of developing nations.[32] It is acknowledged that the degree of responsibility for developing countries in mitigating climate change is lesser than that of developed nations such as the United States as well as the European Union, both parties of which rapidly increased carbon emissions during the Industrial Revolution in the 1950s. Most developing countries however, like China, do still contribute significantly to carbon emissions with developing countries accounting for 63% of current carbon emissions[33]. Therefore, there remains a moral imperative, although at varying degrees, for developing countries to incorporate elements of sustainable practices into their policies.

An exceptional example of the functionality of Doughnut Economics and developing countries is the 2015 Oxfam research report investigating whether South Africa was operating in a safe and just space. Researchers were able to assess South Africa via a range of environmental and social domains, establish key findings and subsequent policy recommendations[34].

The report highlighted the shortcomings of the South African government at local and national levels, the need for spatial development to address the inequality as a result of the apartheid, and the potential for 816,000 ‘green’ jobs which present the multi-faceted opportunity of increasing employment in a sustainable manner and reducing environmental stress concurrently. The plethora of policy recommendations include “breaking down the silos between development and environment” to disrupt the narrative that growth must occur at the expense of the environment, and the three priorities for the government were identified as tackling inequality, job creation and poverty alleviation.

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[29] Rep. Development Focus: Economic Trends in the Developing World. International Monetary Fund, March 1997. https://www.imf.org/external/pubs/ft/fandd/1997/03/pdf/devfocus.pdf .

[30] Guivarch, Céline, Aurélie Méjean, and Nicolas Taconet. Publication. Linking Climate and Inequality. International Monetary Fund, September 2021. https://www.imf.org/en/Publications/fandd/issues/2021/09/climate-change-and-inequality-guivarch-mejean-taconet .

[31] von Uexkull, Nina, and Halvard Buhaug. “Security Implications of Climate Change: A Decade of Scientific Progress.” Journal of Peace Research 58, no. 1 (2021): 3–17. https://doi.org/10.1177/0022343320984210.

[32] Unprecedented Impacts of Climate Change Disproportionately Burdening Developing Countries, Delegate Stresses, as Second Committee Concludes General Debate. United Nations, October 8, 2019. https://press.un.org/en/2019/gaef3516.doc.htm.

[33] “Developing Countries Are Responsible for 63 Percent of Current Carbon Emissions.” Center for Global Development | Ideas to Action. Accessed June 3,

[34] Cole, Megan. Rep. IS SOUTH AFRICA OPERATING IN A SAFE AND JUST SPACE? Oxfam Research Reports, May 2015. https://oxfamilibrary.openrepository.com/bitstream/handle/10546/555842/rr-south-african-doughnut-sustainability-social-justice-280515-en.pdf?sequence=7 .

Although South Africa has not followed Amsterdam and Brussels in adopting the Doughnut Economics model, it is evident that this framework is extremely constructive in evaluating and analysing how a developing country operates, and identifying weaknesses and areas for growth to strive towards an environmentally safe and socially just system. The framework does not decouple GDP growth from sustainable living, but rather unifies the two and offers tangible, insightful and valuable recommendations on how poverty alleviation, increased employment and GDP growth can be achieved together, and human and climate security are not merely glittering generalities but tangible objectives.

Conclusion

In conclusion, Doughnut Economics is certainly a viable framework and economic model that can shape the future global outlook and lead the journey towards an environmentally safe and socially just world. This radical model which challenges our foundational understanding of economics, is not only worth contemplating but an absolute necessity in mankind's race against time to halve carbon emissions by 2030 and achieve the 2015 Paris Agreement's goal of restricting the average temperature rise in the 21st century to well below two degrees Celsius compared to pre-industrial levels. There remain challenges for the implementation of the model, including the desire of developing nations to accelerate economic growth, the prioritization of vulnerable states in allocating resources towards the development of climate-resilient infrastructure via potentially non-sustainable processes, and the reluctance of nations to challenge conventional measures of economic success and place the planet's health and social wellbeing at the forefront.

While this report considers the application of the Doughnut Economics model in developed and developing nations, it is limited in that it does not consider the different interpretations of Planetary Health in different regions, and it should not be assumed that human insecurity in Europe would look the same as it does in Asia, therefore there is potential for future research in that area. Additionally, the compatibility of Doughnut Economics with a Least Developed country is yet to be tested, and this would be significant in illustrating the model's compatibility with dire economic conditions. Protecting nature is a tool for peace and resilience, and whether or not Doughnut Economics assumes the role of the protagonist in achieving Planetary Health, international cooperation is, in the words of Aksel Jakobsen (State Secretary of International Development, Norwegian Ministry of Foreign Affairs), a pre-requisite to resolving complex transboundary and interconnected environmental challenges.[35]

[35] "To Combat Climate Change and Nature Loss, Multilateralism Is Key: Nordic Countries." UNEP. United Nations Environment Programme, November 13, 2020. https://www.unep.org/news-and-stories/story/combat-climate-change-and-nature-loss-multilateralism-key-nordic-countries.

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