THIRD WORLD

RESURGENCE

ISSUE No. 322-323 KDN PP6738/01/2013 (031741) www.twn.my

STORMY WEATHER AHEAD

Surviving Climate Change

ISSN 0128-357X

Double issue

Editor's Note

AS it draws to a close, 2017 will certainly stand out as a year of natural disasters. While every year has its share of climate and weather disasters, what is significant about 2017 is that no continent was spared such calamities. Asia experienced devastating monsoons and floods while Africa was ravaged by droughts, landslides and floods. The Americas suffered the brunt of hurricanes, cyclones, floods and forest fires whereas Europe sweltered under heatwaves and faced droughts, floods and storms.

This spate of natural disasters has raised anew the debate on climate change. Climate change sceptics have been quick to deny that human activity has had anything to do with this phenomenon. Taking the case of hurricanes, they argue that these are a regular phenomenon during the hurricane season and that in the past there have been more devastating hurricanes than those we have recently witnessed.

Such arguments are somewhat misplaced. Those who believe that human activity has a role have never suggested that these hurricanes were caused by human activity. What they have argued is that human activity has contributed to the intensity of these storms. By our profligate use of fossil fuels, we have caused an increase in global warming and this rise in temperature results in an increase in the amount of moisture in the atmosphere. One consequence of this increase in moisture is that hurricanes and cyclones become more destructive because of the increase in the amount of rainfall they discharge.

Research on global warming has also shown that it has an impact on the frequency of hurricanes and cyclones. Moreover, a warmer planet results not only in heavier rainfall and floods but also, paradoxically, in an increase in the risk of droughts and forest fires.

The global incidence of the recent natural disasters should have served as a wake-up call to world leaders to treat the issue of climate change as a matter of the utmost importance. Unfortunately, the United States, which is the world's second biggest carbon polluter, is being led by a president who is a climate change denier. President Donald Trump has not only pulled the US out of the Paris Agreement to tackle climate change but has done everything to undo the measures taken by his predecessor Barack Obama to limit carbon emissions.

The recent natural disasters have also exposed how ill equipped many countries are in confronting such threats. The US may be the world's biggest superpower but its response to the recent natural calamities was woefully inadequate. A whole month has elapsed since Puerto Rico was hit by hurricanes but the US has still not been able to restore electricity to the island. Although it is one of the richest countries in the world, its emergency response system is spasmodic, dependent on corporations and private charity rather than the state.

The contrast with the small island state of Cuba couldn't be starker. Although it is a poor developing country, it has developed a sophisticated hurricane response system which has won accolades from the United Nations. Although the island took a direct hit from Hurricane Irma and 10 people died, its emphasis on educating the people on emergency response has proved invaluable in tackling this challenge.

The recent natural disasters have provided confirmation of the vulnerability of small island states to extreme weather events. In the case of the Caribbean islands, that vulnerability has been compounded by their near-total reliance on tourism as their economic lifeline. As the tourists will not be coming back to these shores for some time, it is incumbent on policymakers to rethink the tenuous foundations on which their economies are based. In short, they must adopt a sustainable development agenda in place of their current overwhelming dependence on tourism.

While the recent dramatic events have served to highlight the threat posed by climate change, it is important not to overlook the silent long-term impact of climate change on human survival. Good soil is essential for food security but it is being degraded by both human activity and climate change. Higher temperatures, changing rainfall patterns and increased water scarcity are impacting adversely on soil fertility. According to a UN Convention to Combat Desertification (UNCCD) report, 'over 1.3 billion people, mostly in the developing countries, are trapped on degrading agricultural land, exposed to climate stress'.

Crucial water sources are also under threat from climate change. As a result of rising temperatures, the high mountains of Asia, including the Himalayas, may lose half their ice in the next 30 years. The consequences can be catastrophic as some 800 million people are dependent on the rivers and aquifers which draw their waters from this glacial source. Droughts may become a regular feature and the diminished supply of water may give rise to conflicts between the states dependent on this source.

New research seems to indicate that climate change may have even more far-reaching impacts than previously suspected. Rising carbon dioxide levels in the atmosphere affect the quality of the food we eat by diluting nutrient content. The loss of nutrients in the plants we eat would have serious public health consequences. For the world's poor, vegetables are the main source of nutrition. If vegetables acquire junk food status because of increasing carbon emissions, it would be a public health disaster.

Our cover story broaches some of these critical issues. While the prognosis may appear to be one of doom and gloom, we are still hopeful that, despite the irresponsibility of the Trump administration, the rest of the international community will wake up to the challenges ahead. The forthcoming UN climate conference in Bonn will be an acid test.

– The Editors

Third World
RESURGENCE
www.twn.my
No 322/323 Jun/Jul 17 ISSN 0128-357X

A woman covers herself with a plastic bag as Hurricane Maria approaches the Dominican Republic, September. The recent wave of hurricanes which battered the Caribbean region is a stern reminder of the devastating effects of climate change. 13

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THIRD WORLD RESURGENCE is published by the Third World Network, an international network of groups and individuals involved in efforts to bring about a greater articulation of the needs and rights of peoples in the Third World; a fair distribution of world resources; and forms of development which are ecologically sustainable and fulfil human needs.

THIRD WORLD RESURGENCE is published monthly by Third World Network, 131 Jalan Macalister, 10400 Penang, Malaysia. Tel: 60-4-2266728 Fax: 60-4-2264505. Email: twn@twnetwork.org
Printed by Jutaprint, No. 2, Solok Sungai Pinang 3, 11600 Penang, Malaysia.
Cover Design: Lim Jee Yuan

An open letter on industrial animal farming

In May, Tedros Adhanom Ghebreyesus of Ethiopia was elected Director-General of the World Health Organisation (WHO), replacing Margaret Chan. Ahead of the election, more than 200 experts in global health, medicine, biology, policy and climate research and over 100 public signatories had endorsed an open letter calling on WHO's new leader to recognise industrial animal farming as a challenge for global health. The following is the full text of the letter.

To the candidates for the position of Director-General of the World Health Organisation

Unprecedented and rising levels of industrial animal farming are undermining the highest attainable standard of health that is WHO's mandate. During the 2016 World Health Assembly, Director-General Margaret Chan highlighted climate change, antibiotic resistance, and chronic diseases as 'slow-motion disasters'. However, their fundamental link to industrial animal farming has continued to be disregarded.

Factory farms use intensive methods to rear poultry, pigs and cattle on a large scale for food products.

Industrial animal farming: A global health challenge

The consumption of meat and other animal products is part of most cultures, yet large-scale industrial animal farming has gone beyond satisfying dietary needs and cultural practices. The extent to which we now produce and consume animal products is harming our health.

Industrial approaches to animal agriculture have spread across many nations and are rapidly increasing in low- and middle-income countries. Factory farms (also known as concentrated animal feeding operations, or CAFOs) use intensive methods to rear poultry, pigs, and cattle on a large scale for food products. Practices such as the indiscriminate use of antibiotics, close confinement of animals, and unsustainably large scale of production have become the industry standard, and each has grave consequences for human health. The problem, however, is getting worse as a rising proportion of global meat consumption comes from factory farms. Factory farms produce 67% of poultry meat, 50% of eggs, and 42% of pork globally.[1] A return to more traditional husbandry methods is unlikely to occur, as the prevalence of factory farming has been rapidly increasing in both the high- and low- and middle-income countries.

Although many previous attempts to tackle factory farming have been largely framed around animal welfare or environmental concerns, we believe that limiting the size and adverse practices of factory farming is also central to improving global health.

Antibiotic resistance is a major threat to global health. Seven hundred thousand people die from antimicrobial-resistant diseases each year.[2] If current trends continue, diseases caused by drug-resistant microbes could kill up to 9.5 million per year by 2050, more than current cancer-deaths.[3,4] While quantification of specific morbidity and mortality burdens attributable to industrial agriculture is currently not possible, an increasing body of evidence suggests that antibiotic use in factory farming is a major contributor to resistance. Many industrial farms use low doses of antibiotics to marginally speed growth or prevent diseases in healthy chickens, pigs, and cattle, but do not bear the societal cost of antibiotic overuse. Although factory farms use antibiotics with the aim of keeping animals healthy and to increase productivity, accumulating evidence suggests that growth-promotion uses do not achieve this purpose[5] and alternatives to antibiotic use for disease preven-

tion such as better husbandry practices and vaccines are available and have been used with success.[6]

Total consumption of antibiotics in animal food production is projected to grow by almost 70% between 2010 and 2030.[5] According to the WHO, two of the three most commonly used classes of antibiotics in US animal farming – penicillins and tetracyclines – are of critical importance to humans. Practices such as the constant low dosing of antibiotics and environmental pollution through animal waste make industrial animal farms the perfect breeding ground for antibiotic resistance by allowing transmission into the environment and nearby community.[7] Several studies have found that the presence of antibiotic-resistant bacteria in livestock is closely associated with their presence in humans, and that decreases in antibiotic resistance have followed reductions in the usage of antibiotics in animals raised for food and humans.[8, 9, 10] The farming of fish in aquaculture poses similar health risks.[11] Currently, in the EU and the US, over 75% of all antibiotics are used in agriculture,[12] while BRICS countries are projected to experience a 99% growth in antimicrobial consumption by 2030, largely due to the continued growth of factory farming. Low- and middle-income countries (LMICs) are estimated to experience rapid growth of both factory farming and antibiotic consumption through agriculture, in part because they may lack the regulatory oversight and veterinary medical workforce that high-income countries have.[13] The consequences of antibiotic resistance will likely be more severe in LMICs because of higher bacterial disease burden and the challenges patients face in accessing expensive second and third line antibiotics.[14] Moreover, antibiotic resistance places a great burden on health systems, leaving weak health systems ill-prepared to deal with increases in resistance.

Climate change is projected to decrease global prosperity and increase wealth inequalities. It is also expected to cause an additional 250,000 deaths each year between 2030 and 2050.[15] As the global health community acknowledges the intertwined nature of planetary and human health, it must also confront the role that factory farming plays in climate change.[16] Experts predict that without rapid and drastic shifts in meat production, agriculture will consume half the world's carbon budget necessary for keeping global temperature rises under 2° Celsius by 2050.[17] Importantly, this contribution to climate change is not due solely to the emissions from raising livestock – animal farming is also a large contributor because of the deforestation that must occur to supply grazing land for cattle and to grow crop feed. The World Bank estimates that between 1970 and 2004, 91% of cleared land in the Amazon has been converted to cattle ranching.[18] Furthermore, factory farming is not only linked to macro-level environmental crises such as climate change, but one of the largest contributors to localised environmental problems like air and water pollution, as well as land and soil degradation.[19] Although it is difficult to predict the multitude of harms that may spill over from livestock production, evidence suggests this deforestation may also be linked to emerging pathogens, an unexpected channel by which animal farming may contribute to the risk of disease pandemics beyond antibiotic resistance.[20] A large proportion of emerging diseases stem from human-animal interaction in the wild, a process that deforestation accelerates. Zoonotic diseases can also emerge from animals in contact with workers in factory farms themselves.[21]

Total consumption of antibiotics in animal food production is projected to grow by almost 70% between 2010 and 2030.

Lastly, the rise of obesity and noncommunicable diseases (NCDs) can be partly attributed to the dramatic dietary changes made possible by factory farming. WHO has classified processed meat as carcinogenic and red meat as probably carcinogenic.[22] High meat consumption has been shown to increase risks for several types of cancer, stroke, obesity, cardiovascular mortality, lung disease and diabetes.[23] The Institute for Health Metrics and Evaluation estimates that diets high in processed meat and red meat contributed to over half a million human deaths (or over 16 million disability-adjusted life years, or DALYs) in 2015 – more deaths worldwide than interpersonal violence, and a similar DALY burden to breast cancer or alcohol use disorders.[24] The declining cost of meat and its increasing prevalence in LMICs, facilitated by factory farms, contributes significantly to the rapidly rising burden of NCDs.

The path forward

The harms caused by large-scale, industrial animal farming are global in nature and felt beyond those who

consume meat, dairy, and eggs. Climate change does not recognise borders and neither do drug-resistant infectious diseases. Although they contribute least to the global burden of animal farming, the world's poorest countries are also the most vulnerable to rising water levels, natural disasters caused by climate change, food insecurity, and infectious diseases. Finding solutions to problems posed by industrial animal farms and shifting us toward more healthful agriculture will therefore require the global leadership of WHO.

Just as the WHO has bravely confronted companies that harm human health by peddling tobacco and sugar-sweetened beverages, it must not waver in advocating for the regulation of industrial animal farming.

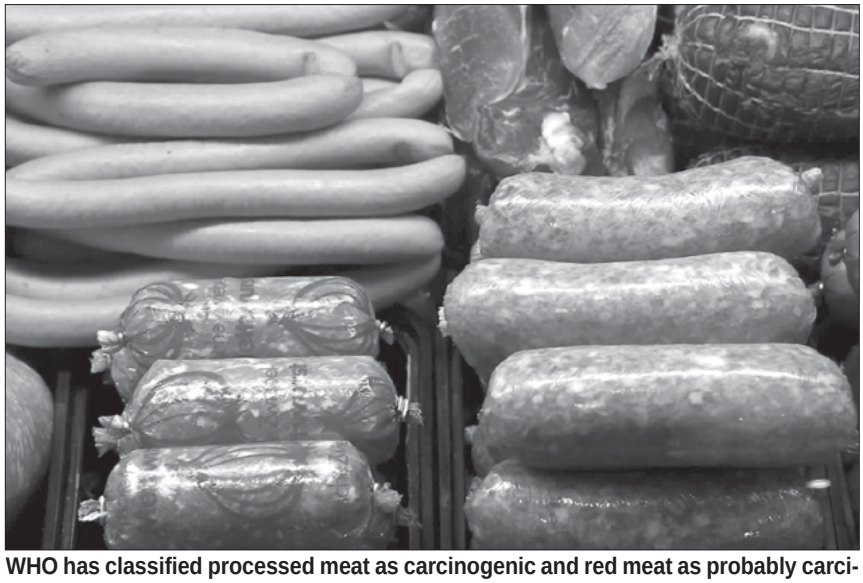
Conclusion

We applaud the WHO's important actions on consumer product industries that jeopardise the right of all people to the highest standard of health. In particular, we recognise the significance of the Framework Convention for Tobacco Control, the inclusion of tobacco reduction in the United Nations Sustainable Development Goals, and WHO's recommendation on sugar consumption.

We call on academics and researchers to apply their energy to document and publicise the harms of industrial animal farming to human, animal, and planetary health.

We call on all candidates for the WHO Director-General position to publicly acknowledge the harm that industrial animal farming inflicts on global health. The next Director-General should take necessary steps to limit the expansion of industrial animal farming and encourage dietary recommendations that reduce meat consumption.

Finally, we call on the next WHO Director-General to provide global leadership to support all member states in finding sustainable alternatives to the rapid growth of industrial animal farming and help shift us toward farming methods that protect public health and the environment.



WHO has classified processed meat as carcinogenic and red meat as probably carcinogenic.

Concluding policy recommendations for the next Director-General

In order to lead us down the path of agricultural production that is better for people's health than our current industrial animal production system, the WHO should:

• Strengthen WHO's Global Action Plan on Antimicrobial Resistance to encourage member states of the WHO to ban the use of growth-promoting antibiotics in animal farming, as well as low-dose 'disease prevention' antibiotics. This reform may cut unnecessary antibiotic use without additional cost to consumers.

• Negotiate country-level standards for antibiotic use in animal husbandry, in coordination with the Food and Agricultural Organisation. Member states should be encouraged to articulate specific, verifiable standards for what constitutes legal antibiotic use in animal farms.

• Incentivise meat producers to dispose of antibiotics and waste residue properly to prevent environmental contamination and excess greenhouse gas emissions.

• Work with all relevant ministries, including those outside of health, to reduce the size and number of factory farms to better balance dietary need and ecological capacity.

• Discourage member states from subsidising factory farming and its inputs, which can cause significant harm to the public.

• Consider the application of relevant fiscal policies in member states that would help to reduce meat demand and consumption, especially where consumption exceeds health recommendations. The WHO's internal research expertise is well-suited to investigate the efficacy and tradeoffs of such a policy.

• Encourage member states to adopt nutrition standards and implement health education campaigns which inform citizens of the health risks of meat consumption.

• Work closely with ministers of health and agriculture to formulate policies that advocate for a greater proportion of plant-based foods in the diets of member states.

• Consider funding the scientific development of plant-based and other meat alternatives, which have the potential to eliminate or reduce the harms of factory farming. ◆

For the full list of signatories to the open letter, go to openletteranimalfarming.com.

Notes

1. Rischkowsky and Pilling 2007
2. Cecchini et al. 2015
3. OECD 2016
4. WHO 2017
5. Sneeringer et al. 2015

6. O'Neill 2015
6. Van Boeckel et al. 2015
7. Silbergeld et al. 2008; You and Silbergeld 2014; Economou and Gousia 2015
8. Vieira et al. 2011
9. Aarestrup 2005
10. Schwarz et al. 2001
11. Sapkota et al. 2008
12. OECD 2016
13. Lam et al. 2016
14. Whitby et al. 2001; Filice et al. 2010; Ganguly et al. 2011
15. WHO 2016
16. Steinfeld et al. 2006; Springmann et al. 2016
17. Baj•elj et al. 2014; Hedenus, Wirsenius and Johansson 2014
18. Margulis 2004
19. Burkholder et al. 2007; Ilea 2009; Cambra-López et al. 2010
20. Lindahl and Grace 2015; Aguirre and Tabor 2008; Patz et al. 2000
21. Ma et al. 2008
22. Bouvard et al. 2015
23. Rouhani et al. 2014; Bouvard et al. 2015; Varraso and Camargo 2015; Yang et al. 2016; Wang et al. 2016; Pan et al. 2012; Pan et al. 2011; Micha et al. 2010; Wolk 2017
24. IHME 2016

References

Aarestrup, Frank M. 2005. 'Veterinary Drug Usage and Antimicrobial Resistance in Bacteria of Animal Origin'. *Basic & Clinical Pharmacology & Toxicology* 96 (4): 271-281. doi:10.1111/j.1742-7843.2005.pto960401.x.

Aguirre, A. A., & Tabor, G. M. 2008. 'Global factors driving emerging infectious diseases'. *Annals of the New York Academy of Sciences*, 1149 (1): 1-3.

Bailey, R., Froggatt, A., & Wellesley, L. (2014). 'Livestock – climate change's forgotten sector'. Chatham House.

Baj•elj, B., Richards, K. S., Allwood, J. M., Smith, P., Dennis, J. S., Curmi, E., & Gilligan, C. A. 2014. 'Importance of food-demand management for climate mitigation'. *Nature Climate Change*, 4 (10): 924-929.

Bouvard, Véronique, Dana Loomis, Kathryn Z Guyton, Yann Grosse, Fatiha El Ghissassi, Lamia Benbrahim-Tallaa, Neela Guha, Heidi Mattock, and Kurt Straif. 2015. 'Carcinogenicity of Consumption of Red and Processed Meat'. *The Lancet Oncology* 16 (16): 1599-1600. doi:10.1016/S1470-2045(15)00444-1.

Burkholder, J., Libra, B., Weyer, P., Heathcote, S., Kolpin, D., Thome, P. S., & Wichman, M. 2007. 'Impacts of waste from concentrated animal feeding operations on water quality'. *Environmental Health Perspectives*, 308-312.

Cambra-López, M., Aarnink, A. J., Zhao, Y., Calvet, S., & Torres, A. G. 2010. 'Airborne particulate matter from livestock production systems: A review of an air pollution problem'. *Environmental Pollution*, 158 (1): 1-17.

Cecchini, Michele, Julia Langer, and Luke Slawomirski. 2015. 'Antimicrobial Resistance in G7 Countries and Beyond: Economic Issues, Policies and Options for Action'. OECD. https://www.oecd.org/els/health-systems/Antimicrobial-Resistance-in-G7-Countries-and-Beyond.pdf.

Economou, Vangelis, and Panagiota Gousia. 2015. 'Agriculture and Food Animals as a Source of Antimicrobial-Resistant Bacteria'. *Infection and Drug Resistance* 8 (April): 49-61. doi:10.2147/IDR.S55778.

Filice, G. A., Nyman, J. A., Lexau, C., Lees, C. H., Bockstedt, L. A., Como-Sabetti, K., … & Lynfield, R. 2010. 'Excess costs and utilization associated with methicillin resistance for patients with Staphylococcus aureus infection'. *Infection Control & Hospital Epidemiology*, 31 (04): 365-373.

GBD 2015 Risk Factors Collaborators. 2016. 'Global, Regional, and National Comparative Risk Assessment of 79 Behavioural, Environmental and Occupational, and Metabolic Risks or Clusters of Risks in 188 Countries, 1990-2015: A Systematic Analysis for the Global Burden of Disease Study 2015'. *The Lancet*, 388: 1659-1724.

Hedenus, F., Wirsenius, S., & Johansson, D. J. 2014. 'The importance of reduced meat and dairy consumption for meeting stringent climate change targets'. *Climatic Change*, 124 (1-2): 79-91.

Ilea, R. C. 2009. 'Intensive livestock farming: Global trends, increased environmental concerns, and ethical solutions'. *Journal of Agricultural and Environmental Ethics*, 22 (2): 153-167.

Lam, Y., Fry, J., Hu, E., Kim, B., & Nachman, K. 2016. 'Industrial Food Animal Production in Low- and Middle-Income Countries: A Landscape Assessment'. Retrieved 6 May 2017 from http://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/_pdf/projects/IFAP/IFAPLowmid_income_countriesWeb1.pdf

Laxminarayan, Ramanan, Thomas Van Boeckel, and Aude Teillant. 2015. 'The Economic Costs of Withdrawing Antimicrobial Growth Promoters from the Livestock Sector'. http://www.oecd-ilibrary.org/agriculture-and-food/the-economic-costs-of-withdrawing-anti-microbial-use-in-the-livestock-sector_5js64kst5wvl-en.

Lindahl, J. F., & Grace, D. 2015. 'The consequences of human actions on risks for infectious diseases: a review'. *Infection Ecology & Epidemiology*, 5.

Ma, W., Kahn, R. E., & Richt, J. A. 2008. 'The pig as a mixing vessel for influenza viruses: human and veterinary implications'. *J Mol Genet Med*, 3 (1): 158-166.

Margulis, S. (2004). *Causes of deforestation of the Brazilian Amazon* (Vol. 22). World Bank Publications.

Micha, Renata, Sarah K. Wallace, and Dariush Mozaffarian. 2010. 'Red and Processed Meat Consumption and Risk of Incident Coronary Heart Disease, Stroke, and Diabetes Mellitus: A Systematic Review and Meta-Analysis'. *Circulation*, 121 (21): 2271–2283. doi:10.1161/CIRCULATIONAHA.109.924977.

Nierenberg, Danielle, and Lisa Mastny. 2005. 'Happier Meals: Rethinking

the Global Meat Industry'. State of the World Library 171. Washington, D.C: Worldwatch Institute.

OECD. 2016. 'Antimicrobial Resistance: Policy Insights'. https://www.oecd.org/health/health-systems/AMR-Policy-Insights-November2016.pdf.

O'Neill, J. 2015. 'Antimicrobials in agriculture and the environment: reducing unnecessary use and waste'. The review on antimicrobial resistance.

Pan, An, Qi Sun, Adam M. Bernstein, Matthias B. Schulze, JoAnn E. Manson, Meir J. Stampfer, Walter C. Willett, and Frank B. Hu. 2012. 'Red Meat Consumption and Mortality: Results from Two Prospective Cohort Studies'. *Archives of Internal Medicine*, 172 (7): 555-563. doi:10.1001/archinternmed.2011.2287.

Pan, An, Qi Sun, Adam M. Bernstein, Matthias B. Schulze, JoAnn E. Manson, Walter C. Willett, and Frank B. Hu. 2011. 'Red Meat Consumption and Risk of Type 2 Diabetes: 3 Cohorts of US Adults and an Updated Meta-Analysis'. *The American Journal of Clinical Nutrition*, 94 (4): 1088-1096. doi:10.3945/ajcn.111.018978.

Patz, J. A., Graczyk, T. K., Geller, N., & Vittor, A. Y. 2000. 'Effects of environmental change on emerging parasitic diseases'. *International Journal for Parasitology*, 30 (12): 1395-1405.

Rischkowsky, B., & Pilling, D. 2007. *The state of the world's animal genetic resources for food and agriculture*. Food and Agriculture Organisation.

Rouhani, M. H., Salehi-Abargouei, A., Surkan, P.J., & Azadbakht, L. 2014. 'Is There a Relationship between Red or Processed Meat Intake and Obesity? A Systematic Review and Meta-Analysis of Observational Studies'. *Obesity Reviews: An Official Journal of the International Association for the Study of Obesity*, 15 (9): 740-748. doi:10.1111/obr.12172.

Sapkota, Amir, Amy R. Sapkota, Margaret Kucharski, Janelle Burke, Shawn McKenzie, Polly Walker, and Robert Lawrence. 2008. 'Aquaculture Practices and Potential Human Health Risks: Current Knowledge and Future Priorities'. *Environment International*, 34 (8): 1215-1226. doi:10.1016/j.envint.2008.04.009.

Schwarz, S., Kehrenberg, C., & Walsh, T. R. 2001. 'Use of Antimicrobial Agents in Veterinary Medicine and Food Animal Production'. *International Journal of Antimicrobial Agents*, 17 (6): 431-437. doi:10.1016/S0924-8579(01)00297-7.

Silbergeld, E. K., Graham, J., & Price, L. B. 2008. 'Industrial food animal production, antimicrobial resistance, and human health'. *Annu. Rev. Public Health*, 29: 151-169.

Sneeringer, S., MacDonald, J., Key, N., McBride, W., & Mathews, K. 2015. 'Economics of antibiotic use in US livestock production'. USDA Economic Research Service, Economic Research Report, 200.

Springmann, M., Godfray, H. C. J., Rayner, M., & Scarborough, P. 2016. 'Analysis and valuation of the health and climate change cobenefits of dietary change'. *Proc. Natl. Acad. Sci.*, 113 (15): 4146-4151. doi:10.1073/pnas.1523119113.

Steinfeld, H., Gerber, P., Wassenaar, T. D., Castel, V., & de Haan, C. 2006. 'Livestock's long shadow: environmental issues and options'. Food and Agriculture Organisation.

Van Boeckel, Thomas P., Charles Brower, Marius Gilbert, Bryan T. Grenfell, Simon A. Levin, Timothy P. Robinson, Aude Teillant, and Ramanan Laxminarayan. 2015. 'Global Trends in Antimicrobial Use in Food Animals'. *Proceedings of the National Academy of Sciences*, 112 (18): 5649-5654. doi:10.1073/pnas.1503141112.

Varraso, Raphaëlle, and Carlos A. Camargo. 2015. 'The Influence of Processed Meat Consumption on Chronic Obstructive Pulmonary Disease'. *Expert Review of Respiratory Medicine*, 9 (6): 703-710. doi:10.1586/17476348.2015.1105743.

Vieira, Antonio R., Peter Collignon, Frank M. Aarestrup, Scott A. McEwen, Rene S. Hendriksen, Tine Hald, and Henrik C. Wegener. 2011. 'Association between Antimicrobial Resistance in Escherichia Coli Isolates from Food Animals and Blood Stream Isolates from Humans in Europe: An Ecological Study'. *Foodborne Pathogens and Disease*, 8 (12): 1295-1301. doi:10.1089/fpd.2011.0950.

Wang, Xia, Xinying Lin, Ying Y. Ouyang, Jun Liu, Gang Zhao, An Pan, and Frank B. Hu. 2016. 'Red and Processed Meat Consumption and Mortality: Dose-Response Meta-Analysis of Prospective Cohort Studies'. *Public Health Nutrition*, 19 (5): 893-905. doi:10.1017/S1368980015002062.

Whitby, M., McLaws, M. L., & Berry, G. 2001. 'Risk of death from methicillin-resistant Staphylococcus aureus bacteraemia: a meta-analysis'. *Medical Journal of Australia*, 175 (5): 264-267.

Wolk, A. 2017. 'Potential Health Hazards of Eating Red Meat'. *Journal of Internal Medicine*, 281 (2): 106-122. doi:10.1111/joim.12543.

World Health Organisation. 2013. 'Critically Important Antimicrobials for Human Medicine'. 4th revision. http://apps.who.int/iris/bitstream/10665/251715/1/9789241511469-eng.pdf?ua=1.

———. 2016. 'Climate Change and Health: Fact Sheet'. http://www.who.int/mediacentre/factsheets/fs266/en/.

———. 2017. 'Cancer: Fact Sheet'.

Yang, Cuili, Lei Pan, Chengcao Sun, Yongyong Xi, Liang Wang, and Dejia Li. 2016. 'Red Meat Consumption and the Risk of Stroke: A Dose-Response Meta-Analysis of Prospective Cohort Studies'. *Journal of Stroke and Cerebrovascular Diseases: The Official Journal of National Stroke Association*, 25 (5): 1177-1186. doi:10.1016/j.jstrokecerebrovasdis.2016.01.040.

You, Yaqi, and Ellen K. Silbergeld. 2014. 'Learning from Agriculture: Understanding Low-Dose Antimicrobials as Drivers of Resistome Expansion'. *Frontiers in Microbiology*, 5. doi:10.3389/fmicb.2014.00284.

BRICS: Time to reset priorities

The BRICS group of developing countries – Brazil, Russia, India, China and South Africa – held their ninth summit in September in Xiamen, China. Surveying the progress made by this formation since its inception almost a decade ago, *Biswajit Dhar* argues that while its initiatives in the financial sector (including creating its own financial institutions) are highly commendable, it has little to show with respect to the goal of changing the rules of global governance through collective action.

THE BRICS summit held in Xiamen, China, in September was the ninth since this formation of emerging economies met in Yekaterinburg, Russia, in June 2009. When the four original members of the formation – Brazil, Russia, India and China (South Africa joined in 2011) – met in the shadow of the worst economic downturn since the 1930s, there was a huge opportunity before the emerging economies to reshape postwar multilateral economic governance, which continues to be under the dominating influence of the major economies.

Leaders of the BRICS countries at their latest summit, held in Xiamen, China, in September.

This dominance is one of the biggest ironies of the times that should not have been, for at least two reasons. The first is the oft-repeated assertion made by multilateral institutions that the developing countries need to be provided a facilitating environment to help them address their development deficits. The second is the reality of the emerging economies and their growing influence, the sense of which was captured by Goldman Sachs economist Jim O'Neill in 2001 when he argued that the then BRIC had all the credentials to be part of a 'more effective global policymaking'.

But, more than a decade and a half after O'Neill coined the term and nearly a decade after the BRIC(S) came together on a common platform, the ability of the grouping to challenge the hegemons on the global stage seems to be extremely limited.

This was not the case a few years back when the BRICS were seriously engaged in building an institutional framework in order to give shape to their agenda on the global stage. A number of areas were picked up for this purpose, and interestingly, in most of these the global processes were skewed against the interests of the developing countries. The expectation, therefore, was that the BRICS would not only challenge the dominant narrative but also provide a more inclusive agenda.

Financial reform

In this regard, the most noteworthy was the string of initiatives that the BRICS have taken in the financial sector. Ever since its formation, the grouping has emphasised that the governance structure of the Bretton Woods institutions – the International Monetary Fund (IMF) and the World Bank – must be reformed for reducing the legitimacy deficits.

In their second summit, in 2010, the leaders of the BRICS argued that 'reforming these institutions' governance structures requires first and foremost a substantial shift in voting power in favour of emerging market economies and developing countries to bring their participation in decision making in line with their relative weight in the world economy'. This demand was made against the backdrop of discussions in the IMF to realign the quotas held by the member states, which would have an impact on the governance of the institution. In 2008, the IMF Board of Governors had adopted a Resolution on Reform of Quota and Voice and requested the Executive Board to 'recommend further realignments of members' quota shares in the context of future general quota reviews, beginning with the Fourteenth Review [in 2010], to ensure that they continue to reflect members' relative positions in the world economy'.

The quota reform of the IMF, which was finally implemented in 2016, was aimed at enhancing the quotas of each member of the BRICS, but the outcome did not favour all countries in the grouping: South Africa's quota in 2016 was slightly lower than its quota in 2011, while the quotas of China and India increased by over 70% and 44% respectively. For the BRICS, the outcome of the quota review should be disappointing for two reasons: one, not all countries in the grouping were allotted larger quotas, and two, the grouping was not able to exercise any influence in preventing the process of quota reallocation from taking an inordinately long time.

These setbacks notwithstanding, the grouping has kept its focus on the task at hand by demanding at the end of the Xiamen summit that the IMF must conclude the Fifteenth Review of quotas, 'including a new quota formula, by the 2019 Spring Meetings and no later than the 2019 Annual Meetings'. At the same time, the BRICS resolved to 'promote the implementation of the World Bank Group Shareholding Review'.

It must be said to the credit of the BRICS that they did not limit their efforts at reforming the financial architecture to just focusing on the governance of the Bretton Woods institutions; they also created their own financial institutions/mechanisms. This facet of cooperation was set rolling by two agreements between the BRICS development banks which were aimed at providing trade credit on terms that would help in promoting intra-BRICS trade. Following this, the grouping took a couple of initiatives that were unprecedented for the developing countries, namely, establishing international financial institutions. The BRICS breached the exclusive preserve of the developed countries by establishing a development finance institution, the New Development Bank (NDB), and a lender of last resort, the Contingent Reserve Arrangement (CRA). While the former was to provide development finance to other developing countries as well, the latter was to meet the needs of the BRICS in financial distress.

IMF headquarters in Washington. Ever since its formation, the BRICS grouping has emphasised that the governance structure of the IMF and the World Bank must be reformed to reduce the legitimacy deficits.

The NDB, which began operations in 2015, raised tremendous expectations, especially because it was promoted by a group of countries that were already establishing their credentials as partners in the development endeavours of a large number of developing countries. The expectations on this score became even higher as the NDB chose projects in the areas of renewable energy and infrastructure, two critical areas for developing countries. The BRICS seemed willing to back the NDB fully as they agreed that the entity would have an authorised capital of $100 billion. The subscribed capital was $50 billion, with every member having an equal share.

Although these are early days, the promoters of the NDB need to consider at least two factors that could stymie its effectiveness. The first is that the paid-in capital of the NDB has reached only $1.5 billion in 2017, which could limit the ability of the Bank to raise resources from the capital markets. The second and more critical factor is that the NDB seems to be entirely dependent on the capital markets for its funds. The latter implies that the Bank will face stiff competition from a number of development finance entities, which will be a challenge for this new kid on the block.

Climate change

One of the more important aspects of the functioning of the BRICS is the collective response of the grouping to important developments in the global sphere that have implications for not only their development prospects but other developing countries as well. We will pick up two such areas in order to understand the nature of intervention of the grouping.

The challenge of climate change is confronting all economies in the developing world. Lack of investible resources and appropriate technologies were long flagged as the binding constraints for these countries in their quest for adoption of a low-carbon pathway. Importantly, four BRICS members (excluding Russia) highlighted the significance of these constraints in the United Nations climate change negotiations and adopted a joint front by forming the BASIC group in 2009 (coinciding with the formation of the BRIC). The BASIC group took a well-reasoned position that the developed countries, the largest emitters of greenhouse gases over generations, must make structural changes in their economies in order to prevent global warming beyond the

agreed threshold. Besides, they must provide adequate funding and access to relevant technologies to the developing countries. But strangely, the BASIC group then ceased to be a strong collective voice for developing-country interests, as the priorities of the group members diverged.

This absence of a common position of the BRICS in the response to the challenge of climate change was evident in the statements coming from their own forum. Not only has the grouping been making low-key statements, it has not pointed to the serious constraints that are being encountered in garnering the necessary funding and technology. For instance, the Green Climate Fund, established to support developing countries in tackling and adapting to climate change, has been operating with a fraction of the funds, but this serious problem was not flagged by the BRICS leaders in their Xiamen summit declaration.

Trade

Multilateral trade governance has been yet another area in which a subset of the BRICS was very active until the end of the previous decade, with a clear intent of changing the rules of engagement. India, Brazil and South Africa were in the forefront of a developing-country upsurge to make the rules governing the functioning of the World Trade Organisation (WTO) better suited to their interests. The developing countries had taken advantage of the Doha Round negotiations initiated in 2001 after the trade ministers of WTO member states gave the mandate to review the framework of multilateral trade rules. The developed countries tried to jettison the Doha Round by arguing for the inclusion of new issues, namely investment, competition policy and government procurement, but the developing countries held out in the face of these pressures. It was clear that the outcome of the Doha Round would decide whether the WTO would become a more inclusive institution.

A WTO meeting taking place at its Geneva headquarters. The BRICS' Xiamen Declaration makes no reference to the WTO's Doha Round negotiations, the outcome of which would decide whether the trade body would become a more inclusive institution.

The Xiamen Declaration however makes no reference to the Doha Round. This is not the first instance when reference to the Doha Round was dropped; the Ufa Declaration in 2015 marked the first time that the BRICS avoided referring to this crucial process. By giving short shrift to the Doha Round negotiations, the BRICS have dealt a body blow to the hopes of the poorest members of the WTO, namely the least developed countries (LDCs). These countries were expecting that the Doha Round would conclude on the basis of the original mandate, as the existing rules of the WTO had done little to improve their presence in global markets. Since the WTO was established, the share of the LDCs in global exports increased from just under 0.5% in 1995 to 0.9% in 2016. The share of LDCs was just under 0.8% in 2005, which implies that in the past decade, their share has virtually remained stagnant. In sharp contrast, the share of LDCs in imports increased from 0.6% in 1995 to 1.4% in 2016, indicating thereby that their trade balance has worsened.

Contrast these numbers with those of the BRICS: their share in global exports expanded from 6.5% in 1995 to 18% in 2006; the corresponding figures for imports were 6% and 14.6%. In the face of this evidence, the question that arises is whether the BRICS have aligned their interests with those of the dominant economies, thus abandoning their past publicised role of partnering the lesser developed countries.

When the BRIC met in Yekaterinburg in the immediate aftermath of the economic downturn, they spoke on behalf of poorest countries that needed support from the global community. This spirit seems to have deserted the BRICS, when the forum is at the threshold of completing a decade of existence. More importantly, collective action of the grouping for changing the rules of the game of global economic governance seems to have given way to managing bilateral relations. In fact, it was this dimension of the Xiamen summit that received the maximum coverage; the deliberations and the decisions of the collective found a place in the backburner. Few in the developing world would disagree that the BRICS need to change this perception about their forum and that the uppermost priority of these emerging economies should be to change the course of global economic governance through collective action. ◆

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China faces growing debt problems, says central bank governor

The governor of the People's Bank of China has warned that corporate debt has reached disturbingly high levels and household debt, while still low, is rising rapidly. Raising his concern about asset speculation, he sounded a warning that this could pose a 'systemic financial risk'.

Nick Beams

A WARNING by the governor of the People's Bank of China, Zhou Xiaochuan, that the country's financial system faces a possible 'Minsky moment' has again raised concerns over the level of the country's debt.

Zhou, who is expected to retire soon from his position as head of the central bank, made his remarks at a sideline meeting during the Chinese Communist Party congress in October.

People's Bank of China governor Zhou Xiaochuan.

The term 'Minsky moment' refers to a situation described by the US economist Hyman Minsky in which growth in the economy hides potential financial risks that suddenly reveal themselves and lead to a crisis. It was widely used during the 2008 global financial crisis.

Zhou clearly employed the term to ensure his comments would have maximum impact. Zhou, who has said he will 'retire soon', has been speaking increasingly candidly about the problems confronting the Chinese economy.

Zhou said asset speculation and property bubbles could pose a 'systemic financial risk' that would be made worse by wealth management products and off-the-books lending. Corporate debt had reached disturbingly high levels and local governments were using tricks to evade curbs on their credit.

'If there is too much pro-cyclical stimulus in an economy, fluctuations will be hugely amplified,' Zhou stated. 'Too much exuberance when things are going well causes tensions to build up. That could lead to a sharp correction, and eventually to a so-called Minsky moment. That's what we really must guard against.'

Zhou's remarks are particularly significant. In general commentary on the state of the Chinese economy, the prospect of a full-blown crisis is often ruled out because the banks are under government control. This control has been undermined, however, by 'free market' measures introduced by the regime as it seeks to integrate the Chinese economy and financial system more deeply into the global economy.

Zhou himself has been an advocate for greater liberalisation of the Chinese financial system, including the relaxation of government controls on capital movements and increased access for foreign banks, but has faced opposition within government circles.

Zhou was the main force behind the push to have the International Monetary Fund (IMF) recognise the renminbi as an international currency last year. Without the freedom of movement of capital in and out of the financial system, however, it does not have the status of other reserve currencies.

Free capital movement is a two-edged sword. On the one hand, it is seen as applying pressure to domestic financial institutions, forcing them to deal with bad debt on their balance sheets. On the other, it runs the risk of creating the conditions for a major outflow of capital, as was seen in the Asian financial crisis of 20 years ago, an occurrence which would have a major impact on the Chinese economy.

Zhou's warnings came as the growth rate for the third quarter was reported to be 6.8% on an annual basis, well above the government's target of 'around' 6.5%. But there are concerns that this higher growth rate has been achieved largely as a result of stimulus measures, relying on the expansion of credit, particularly in the property market, which is creating risks for the future.

Models of apartments on display at a real estate exhibition in Shenyang city. The concerns over the financial system in China centre on the property market, which is assuming ever-greater significance for the Chinese economy and the banking system.

Eswar Prasad, economics professor at Cornell University and former head of the China department at the IMF, said the latest growth data painted a 'reassuring' picture of an economy that, 'on the surface, is firing well on all cylinders. But beneath the surface, potential financial market stresses continue to build up but remain at bay for now'.

If growth continues at the current level, China will experience its first acceleration in growth since 2010. At that time, the economy expanded rapidly due to stimulus measures – increased government spending and credit – adopted in response to the global financial crisis, which resulted in the loss of around 23 million jobs.

In his remarks, Zhou said corporate debt was 'very high' and household debt, while still low, was rising rapidly. While there were no plans to reduce household debt, its quality would need to be monitored as it grew.

The IMF has issued several warnings about the high level of Chinese corporate debt, describing it as 'dangerous'. Last August, it expected China's total non-financial debt to rise to almost 300% of gross domestic product by 2022, up from 242% last year.

In September, the S&P global ratings agency cut China's sovereign credit rating, following a similar decision by Moody's in May. The Chinese finance ministry claimed the S&P downgrade was the 'wrong decision'.

The concerns over the financial system centre on the property market, which is assuming ever-greater significance for the Chinese economy and the banking system. According to official data, 38% of all bank loans in the year to August were for home mortgages, while local government bought 18% of all residential floor space.

Last August, a senior government legislator warned of the effects of the property boom. Yin Zhongqing, deputy director of the National People's Congress finance and economics committee, said in a speech: 'The real estate industry's excessive prosperity has not only kidnapped local governments but also kidnapped financial institutions – restraining and even harming the development of the real economy, inflating asset bubbles and accumulating debt risk. The biggest problem currently facing the country is how to reduce reliance on real estate.'

Zhou's remarks underscore this warning. *Financial Times* market columnist John Authers described them as a 'startling moment of clarity', likening them to shouting 'fire' in a crowded theatre. He said the term 'Minsky moment' should never be used by a central banker.

Authers pointed to the timing of Zhou's comments to coincide with the Communist Party congress. The installation of President Xi Jinping and his supporters for another five years could be the optimum time to take uncomfortable measures that could allow China to avoid a debt unravelling 'to match the Lehman crisis'. The invocation of Minsky 'was the earliest possible point to send the signal, and a sign of urgency'. ◆

Skyline of the financial district in Shanghai. 'Potential financial market stresses continue to build up but remain at bay for now.'

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Tax experts call for concerted efforts against illicit cash flows

African governments should invest more resources in the fight against illicit financial flows as one of the ways to support development efforts in the bloc.

Peterson Tumwebaze

DR Aida Opoku-Mensah, a senior adviser to the UN Economic Commission for Africa executive secretary, said the challenge of illicit financial flows hinders sustainable development on the continent.

According to the experts, there is a need to have strong legislation and tax institutions with capacity to detect and stop illicit flows across the continent.

A 2016 report estimates that Africa is losing at least $50 billion annually through illegal transactions. Some reports suggest the continent could have lost up to $1 trillion in the past 50 years through illegal cash flows.

Opoku-Mensah, who was speaking during the 5th Pan African conference on illicit financial flows in Nairobi, Kenya, in October, said Africa has 'no choice but to put in place strong measures to deter illicit financial flows from the continent'.

Photo by IISD/Francis Dejon (enb.iisd.org/uneca/arfsd2017/17may.html)

Aida Opoku-Mensah from the UN Economic Commission for Africa said Africa has 'no choice but to put in place strong measures to deter illicit financial flows from the continent'.

'Africa must take a common position to tackle illegal money transfers from the continent,' she said during a workshop organised by the Tax Justice Network.

It brought together over 800 tax experts, policy-makers and members of civil society to unite against the increasing illicit financial flows which have increasingly become a big challenge on the continent.

Opoku-Mensah cautioned that the practice is facilitated by some state officials across the continent. 'So we need to identify those in government that are helping multinational companies to siphon money from the continent using illegal means,' she said. She also urged governments to invest more resources towards lifting millions of Africans out of poverty to help drive development aspirations of the African people.

Commenting on the issue on 13 October, Herbert Gatsinzi, senior partner at Tax Sense Rwanda, said there is a need to develop strong legislation to enable revenue authorities and other implementing agencies to detect and deter entities involved in tax avoidance.

'Equally, governments must ensure they build capacities for the implementing agencies to better understand the complex structures some multinational enterprises use to support illicit financial flows,' he told *The New Times* daily.

Gatsinzi called for unrelenting efforts to fight the malpractice and crack down on the corrupt.

Undermining resource mobilisation

According to Alex Cobham, the Tax Justice Network chief executive, aggressive tax avoidance has played a significant role in undermining domestic resource mobilisation efforts in Africa. This, he said, must remain a core to the anti-illicit financial flow agenda for the continent to achieve sustainable economic development.

In a recent interview with *The New Times*, the Rwandan Minister for Finance and Economic Planning, Claver Gatete, said financial crimes remain one of the greatest threats to corporates and governments around the world.

'Money laundering, bribery, fraud and tax evasion are some of the financial crimes that continue to exert a dampening effect on the global economic and financial space, undermining sustainable economic development,' he said.

Speaking at the Nairobi event, Dr Peter Rene N'Guerttia, the director for economic affairs at the African Union Commission, called for concerted efforts in the fight against money laundering, tax evasion and international bribery, saying these make up the bulk of illicit cash flows. ◆

This article was originally published in The New Times *(Rwanda) (16 October 2017).*

Stormy days ahead

Global warming is no longer an abstract topic as its impact is being experienced across the world in different ways, says *Nnimmo Bassey*. The recent spate of extreme weather events is a poignant reminder of the havoc they can wreak. So long as the power of the fossil fuel industry remains unabated, the prospect of curbing carbon emissions to avert the looming climate crisis is bleak.

SOCIAL media and satellite television have made it possible for us to witness unfolding weather disasters in real time. Fears are shared with loved ones as people send teary assurances that they are safe in the midst of raging bush fires, storms, hurricanes and cyclones. We are also able to watch fearless, even reckless people taking selfies while monster storms approach and sometimes knock them off their feet. Stories of melting ice caps and changing weather patterns are tending towards becoming tales that are expected.

The scenarios point to the tensions around climate change. On one hand are those who believe that the increasing frequency of furious weather events is the result of global warming, while on the other hand are climate deniers who believe that the unfolding changes are normal and that there have been bigger storms in the past.

Recently I sat for over one hour having a conversation with Mika Anttonen, an oil mogul whose company, St1 Group Oy, among other things, bought up all the Shell gas stations in Nordic countries. He uses profits to fund subsidiaries combating climate change through wind power, geothermal heat and waste-based ethanol fuel.[1] His company is currently embarking on a geothermal project that involves drilling two holes 7 km into the earth's crust to generate about 40 megawatts of energy for heating purposes. At the time of our conversation, the holes had already gone over 5 km into the belly of the earth. He also has plans to embark on creating a 'Carbon Farm' in the Sahara Desert with the aim of taking carbon out of the atmosphere. In his view, the capturing of carbon from the atmosphere through a natural carbon capture and storage system would be a means of paying the 'carbon debt'. His demonstration project would capture 100,000 tonnes of carbon dioxide, take up 5,000 to 10,000 hectares of land and use desalinated sea water to grow a eucalyptus plantation interspersed with rows of crops for local consumption.

Apart from the contentious prospect of growing eucalyptus in the Sahara for carbon offsetting, the contradiction here is that a corporation is using cash generated from refining and sales of fossil fuels to fund alternative energy development – a move that does not unhinge the world from the fossil civilisation paradigm. And St1 is not in a hurry to remove its roots from fossils.

Anttonen, however, agreed that fossil fuel companies constitute a major stumbling block in the global efforts to tackle climate change. He also stressed that what governments and the multilateral institutions must do is to regulate fossil fuel corporations and commit them to a phased stoppage of extraction over the next few decades because the world cannot afford to keep on adding to the stock of carbon in the atmosphere. According to him, the corporations will not stop extracting unless they are incentivised by being faced with a serious penalty for non-compliance. He notes that governments refuse to act, on the premise that fossil fuel corporations would not agree to be regulated. In other words, capitalist logic and accumulated power accords fossil fuel corporations the leverage to capture institutions to which they ought to be subject as corporate citizens.

The call to keep fossils in the ground has been voiced for more than a decade, having risen from when we first raised it in the webs of resistance within Oilwatch International. Other groups have taken this up and the call is now a sharp galvanising demand by many civil society groups and movements for a halt to the failing petroleum civilisation. In recent years, Oil Change International has canvassed a 'managed' decline of the use of fossil fuels to which the carbon majors ought to pay close attention.

In a working paper titled 'Addressing fossil fuel production under the UNFCCC: Paris and beyond',[2] the Stockholm Environment Institute (SEI) speaks about how countries could communicate their plans and actions in phasing out fossil fuels by means including through their 'Nationally Determined Contributions' (NDCs) under the Paris Agreement on climate change. The paper notes the absence of clear guidance in the United Nations Framework Convention on Climate Change (UNFCCC) on how countries could report on plans or activities relating to fossil fuels. It, however, notes that countries could nevertheless make such reports and that these could aid debates and reflections that could lead to commitments to provide financial support for actions as well as leading some countries to make reciprocal commitments and generally help raise levels of ambition towards curbing the reliance on fossil fuels.

In the words of the paper, 'Reporting actions to the UNFCCC (and by virtue, to other nations) helps those actions get recognised as aiding global climate mitigation efforts. While several processes exist under the Paris Agreement for countries to communicate pledges and plans, and report on their progress – such as NDCs, LTSs [long-term strategies], annual GHG [greenhouse gas] inventories and biennial reports – there is no ex-

plicit guidance for nations to report on plans or activities relating to fossil fuel extraction or production. Theoretically, nothing prevents any country from submitting information to the UNFCCC related to fossil fuel supply … However, in the absence of clear guidance, or an explicit call to include information on fossil fuel supply, there are very few incentives for Parties to provide information on supply-side actions planned or taken and, subsequently, for such actions to gain recognition.'

One thing we confirmed from our conversation with Anttonen is that we do not only have climate deniers among politicians, we have many governments and institutions that have been absolutely captured by corporations and choose to remain in a wilful but contradictory state of knowing and denial. The SEI paper affirms this: 'As long as fossil fuel supply is not explicitly tied to climate change, some producers can be "strategically ignorant" about the impact of extracted fuels on GHG emissions, or the pace of change necessary to ameliorate climate impacts.'

The fact that the days of easy fossil fuels are over does not deter the industry probably because they continue to enjoy hefty subsidies – either financially or through irresponsible piling up of unaccounted environmental and social costs. Thus, they can keep extracting poor-quality crude oil, build new fossil fuel infrastructure and press on with extreme and risky extractions including through fracking.

Concerning this scenario, Friends of the Earth International says that the power of the fossil fuel industry remains unabated. FoEI notes that 'Over 850 new coal plants are planned or under development in 62 countries. Some countries are looking to expand into coal for the first time, which is unthinkable in this day and age. Coal should be dead. Clean community energy alternatives exist and are coming down in cost. Coal fuels energy poverty, increasing exports, heavy industry, human rights abuses, social and environmental degradation and corporate profits.'[3]

Stormy days

Global warming is no longer an abstract topic. Its impact is being experienced across the world in different ways. The melting ice caps and warmer seas mean a change of current and wind patterns. This has meant wetter and cooler summers in parts of Europe, for example, with some towns recording the coolest day of the year in summer rather than in winter. The implications of these changes are enormous and the impacts cannot be fully imagined at this time.

The hurricanes that hit the United States in recent months were poignant reminders that extreme weather events can wreak havoc that no nation is prepared for. Although the US government has indicated that it is pulling away from global efforts towards tackling climate change, the US has not been, and cannot be, exempted from the impacts of the change. What has miffed the president of the US, from news reports, is that the country is seen as shouldering a disproportionate load in the global climate efforts. That supposition itself is contentious. It could be that he is balking at the plan in the Paris Agreement to raise $100 billion per year from 2020 for a Green Climate Fund to be used for mitigation and adaptation projects in vulnerable nations. $100 billion may seem a huge financial outlay until we consider the damage wrought on Texas by Hurricane Harvey and on Florida by Hurricane Irma.

It is estimated that the two storms reduced the GDP growth of the US by one percentage point in the third quarter of 2017, taking it down to 1.8%. Hurricane Harvey alone is estimated to have caused over $100 billion in damage. Some analysts believe that the recovery cost from Harvey and Irma will be up to $200 billion.[4] Hurricane Maria that hit Puerto Rico caused an estimated $95 billion in damage and left the people without electricity and potable water. Before the US Federal Emergency Management Agency (FEMA) deleted some information on the government's responses to the disaster in Puerto Rico, two weeks after Hurricane Maria struck, just 50% of Puerto Rico had access to drinking water and only 5.4% had electricity.[5] Note that we have referred to just three hurricanes that hit the US.

Climate-related disasters have not spared any continent. We recall the floods and mudslides in Sierra Leone, the heavy floods in Bangladesh, Nigeria and elsewhere. A more recent storm killed 25 persons in Costa Rica. When such impacts in vulnerable countries are considered, the need for the UNFCCC to critically consider and conclude deliberations on loss and damage from climate change becomes inescapable. The consideration must robustly include accountability by those whose actions or inaction are factors responsible for the harm. This is where ecological and climate debts must be considered, recognised and accounted for. It also requires that oil companies and other fossil fuel corporations be held to account as their carbon extractive activities are solidly at the beginning of the chain of the unfolding disasters.

Climate refugees

It has been argued that the UN convention on refugees has no recognition for climate refugees. That may be so, but the reality is that people are displaced by climate change impacts. And that is strong enough reason for the convention to be reviewed.

The forced movement of people in response to climate-related events compromises their human rights. Human rights laws will play an important role where there is violation of rights due to the impacts of climate change. The Universal Declaration of Human Rights and other international human rights instruments demand that states take steps to prevent the violation of human rights. Under Article 2 of the International Covenant on Economic, Social and Cultural Rights, states have an obligation to undertake steps, individually and through international assistance and cooperation, to fulfil rights, and each state is required to use 'the maximum of its available resources to that end'.[6]

It cannot be ignored that global warming and related factors are forc-

ing people to look for higher and safer ground. The slogan 'everyone has a right not to migrate' and not to be a refugee is very instructive. The fact, though, is that climate change is forcing people to migrate. Consider the 2-3 million people who have been displaced by the shrinkage of Lake Chad shared by Cameroon, Chad, Niger and Nigeria. The loss of 90% of its size in the 1960s has led to loss of opportunities for fisherfolks and pastoralists, among others. It has also generated a corps of youths vulnerable to cooption into social groups that they would not have previously considered. Climate change is implicated as a factor in the raging conflicts in the Lake Chad region as well as the internecine conflicts between pastoralists and farmers in Nigeria.

The fact that global warming exacerbates conflicts cannot be denied, although some have argued that it is not the most important factor in conflict generation. It is generally agreed that factors such as droughts do raise the likelihood of 'sustained conflict' among peoples that depend on agriculture and are vulnerable to weather variabilities.[7]

The looming climate disasters are realities that must be confronted. Warning signals that should be the impetus for socio-political change continue to be ignored. Rather than changing the exploitative economic paradigm, we are content with greening the economy. Rather than reduce consumption and waste, we are content to merely increase efficiency. So, mining of minerals and water continues as if these are inexhaustible. Exploitation and extinction of species fail to raise sufficient alarm. Toxic wastes are shipped, traded or simply dumped in an exportation of death that should never be tolerated. Where lands become unproductive, they are grabbed elsewhere in the name of increasing food production. There is scant consideration of the fact that the foods produced may be solely for export, for others to enjoy rather than for those who live on the land.

Land for food

In a dialogue with farmers and pastoralists in Nigeria,[8] we stressed that 'soil quality has direct impact on the quality of harvests. Poor soils produce poor yields and climate change affects the quality and availability of soil for food production. We experience this directly when there are floods or droughts. The increasing desertification in Nigeria can be attributed in part to climate change. Poor soil management is equally responsible for incidents of desertification that is sometimes erroneously described as the "southward march" of the Sahara Desert.' We also noted that degraded lands sometimes get labelled as 'marginal lands', thus setting them up to be grabbed and taken away from communities.

Even small increases in temperature will negatively impact the production of cereals such as maize. Global warming may lead to an increase in pests, diseases and post-harvest losses. In addition, unusual weather variability coupled with extreme weather events also lead to damaged infrastructure; coastal erosion and loss of land and fishing grounds; and intrusion of salt water into freshwater systems, thus affecting marine ecosystems. Possibilities of rain-fed agriculture could be reduced by up to 50% by 2020 and reduction in grassland and grain production will adversely affect animal husbandry.

Another COP looms

We are not seeing any signal that the upcoming Conference of the Parties (COP) to the UNFCCC, which is to take place in Bonn in November, will produce anything that raises the hope of serious concerted climate action by governments. While the targets set by the Paris Agreement of limiting global warming to 1.5°C or well below 2°C will be hyped, the reality is that commitments made by governments already set the path for a much warmer world. We are faced with possibilities of catastrophic temperatures of over 3°C above pre-industrial levels. With extreme weather events such as storms, wildfires and ice shelf collapse occurring even at a 1°C temperature rise, there is no time at all for politicking with climate change.

The Bonn conference will in one sense be a test case for the world. Will nations wake up to the emergency situation confronting the globe and make definite and binding commitments? Or will they allow the US, which has turned its back on the Paris Agreement but will be at the COP negotiating table, to block the routes to action? ◆

Nnimmo Bassey is director of the Health of Mother Earth Foundation, an ecological think-tank based in Nigeria.

Endnotes

1 See https://www.forbes.com/profile/mika-anttonen/

2 Piggot, Georgia et al. September 2017. 'Addressing fossil fuel production under the UNFCCC: Paris and beyond'. SEI Working Paper. https://www.sei-international.org/mediamanager/documents/Publications/SEI-2017-WP-addressing-fossil-fuel-production.pdf

3 FoEI. 4 October 2017. 'Why we need to stand as one globally to combat climate change'. http://www.foei.org/news/need-stand-one-globally-combat-climate-change

4 Dillow, Clay. 22 September 2017. 'The Hidden Costs of Hurricanes'. *Fortune*. http://fortune.com/2017/09/22/hurricane-maria-irma-harvey-damage-cost/ . An estimate at https://www.accuweather.com/en/weather-news/accuweather-predicts-economic-cost-of-harvey-irma-to-be-290-billion/70002686 puts the cost at $290 billion.

5 Chow, Lorraine. 6 October 2017. 'FEMA scrubs data about Puerto Rico's lack of water and electricity'. EcoWatch. https://www.ecowatch.com/tag/hurricane-maria

6 Narang, Sonali. 2017. 'Impacts of Anthropogenic Climate Change on Human Rights. A Look at the Threats for India'. https://m.grin.com/document/376778

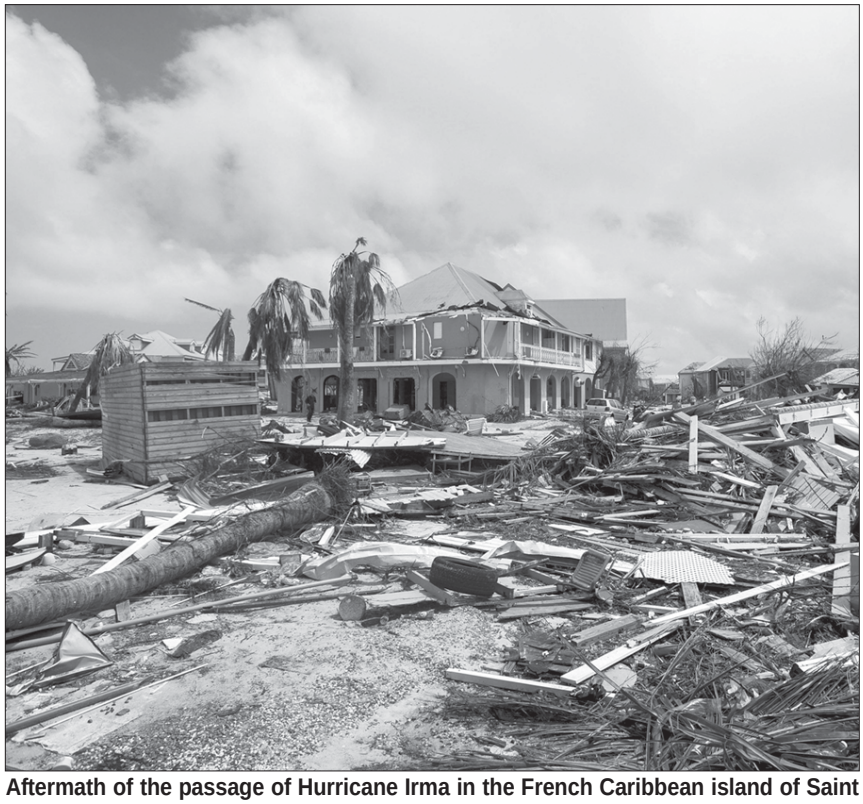
7 The Conversation. 17 October 2016. 'Link between climate change and armed conflict is exaggerated – new study'. https://theconversation.com/link-between-climate-change-and-armed-conflict-is-exaggerated-new-study-67182

8 Bassey, Nnimmo. October 2017. 'Climate Change, Land, Food and Pastoralism'. https://nnimmobassey.net/2017/09/29/climate-change-land-food-and-pastoralism/

After the hurricane(s)

From climate change to dependence on tourism, the Caribbean today faces a variety of existential threats.

Kevin Edmonds



Aftermath of the passage of Hurricane Irma in the French Caribbean island of Saint Martin. As the Caribbean has been hit by stronger and stronger storms in recent decades, state capacity to respond has diminished.

IN the first week of September, a barrage of hurricanes hit the Caribbean with a frequency unrivalled in modern history. Hurricane Irma was the largest, causing the most damage to the Leeward Islands and Greater Antilles, particularly Antigua, Barbuda, Cuba, Haiti and the Virgin Islands.

After the hurricane, the media – disappointingly but unsurprisingly – crafted hyperbolic, racist headlines contrasting descriptions of the tourists as the real victims of the hurricane with locals characterised as a second life-threatening obstacle that had to be overcome. One British paper reported that 'hungry locals on the islands have even started fighting each other for food and there have been reports of looters raiding hotel rooms to profit from the disaster. Tourists have broken down in tears as they have eventually been able to leave the islands devastated by the hurricane.' Several media reports upped the intensity, stating that St Martin was 'on the verge of civil war' after the hurricane passed. The reality was that people were just trying to get their hands on what they needed to survive.

Just as in Haiti after the 2010 earthquake, what we are seeing is a man-made disaster unfolding along several dimensions. While the media coverage of the hurricanes finally prompted many to admit for the first time that climate change does exist and is the most visible culprit for explaining them, the seeds of this destruction have been cultivated over the past 30 years.

While it doesn't make for catchy headlines, the reality is that as the Caribbean has been hit by stronger and stronger storms in recent decades, state capacity to respond to natural disasters has diminished due to increased levels of debt, reduced government revenue and lower development aid. This has led to skyrocketing rates of food insecurity, poverty and unemployment. On its own, the Caribbean cannot adapt fast enough to face the relentless destruction brought about when climate change is thrown into the mix.

This multitude of systemic challenges led one of the region's leading intellectuals, the late Norman Girvan, to remark in 2010 that the Caribbean faces 'existential threats' on a number of fronts. Girvan went on to state that '30 years ago, one expected to deal with major disasters of this kind, say, once every ten years. Nowadays, most islands expect at least one, and possibly two or three, every year. In other words, this now has to be seen as a permanent, recurring phenomenon or integral feature of Caribbean development.'

The increase in natural disasters in both frequency and intensity is evident in Haiti, devastated by Hurricane Matthew in 2016 which left over 1,000 people dead, 55,000 homeless and an estimated 80% of food crops destroyed. The storm decimated critical infrastructure, leaving Haiti with no other option than to descend deeper into debt. After international politicians and NGOs collected and fraudulently diverted billions of dollars for relief efforts from their intended use, Haiti took out loans from the International Monetary Fund (IMF). To make matters even worse, Hurricane Matthew contaminated water

sources across the island, triggering a spike in the cholera epidemic that Haiti has been fighting since its introduction by United Nations troops in 2010.

Beyond the destruction wrought by hurricanes, the region has faced a seemingly contradictory mix of both droughts and extreme hurricanes. These extreme variations in weather have wreaked havoc across the region. It has become increasingly vulnerable to water shortages, making sustaining agricultural and tourism industries nearly impossible.

The other side of paradise

Meanwhile, the region's dependency on an unsustainable model of tourism is becoming increasingly visible. Tourism has now become the main economic engine of the region, providing much-needed employment and government revenue, but often at the expense of diversification in other sectors. In Antigua and Barbuda, tourism contributed 60% to GDP in 2016. Given that tourism is an incredibly vulnerable industry, Caribbean economies have been restructured to balance on a knife's edge.

Over the past 30 years, the Caribbean has been transformed from an agricultural producer with comparatively healthy domestic economies, to an archipelago of predominantly foreign-owned all-inclusive resorts and offshore tax havens, in what has been called a tale of 'riches to rags'. Decades of trade liberalisation, structural adjustment policies and the consequent economic crisis have destroyed the agricultural industry that was once the lifeline of so many islands. With low and stagnant growth across the Caribbean in combination with rising food prices, the region now has an annual food import bill of $4.5 billion.

On social media, tourists and reporters covering the aftermath of the storm were alarmed that local people across the affected islands entered hotels for food and water in order to survive. But to those from the region, it was common sense. Water rationing has become commonplace across the Caribbean, as reservoirs are at record lows – and hotels supply bottled water to tourists.

The tourism sector is fuelled by a mix of imported food and drinks and cheap, disposable labour where locals serve tourists in resorts as variations of domestic servants, from driver and chef to maid and security guard. The region's economy has become overly dependent on an industry that is largely disconnected from the majority of the local people and does not bring meaningful economic development.

According to the United Nations Environment Programme, the Caribbean leads the world in tourism 'leakage' – meaning an estimated 80% of money spent by tourists ends up leaving the region via foreign-owned hotels, operators, airlines, imported food and drinks, and the like. A lack of regulation discourages the creation of much-needed linkages with the local economy, for example through jobs for farmers, food processors and artisans.

A 2015 survey of nearly 2,000 visitors to all-inclusive resorts in the Caribbean revealed that less than 20% had left the resort in order to patronise local restaurants, bars or attractions. Combined with the fact that multinational corporations force islands into cutthroat competition with each other, resulting in resorts receiving 25-year tax holidays, all-inclusive resorts have had a negative impact on local economies.

The unhealthy dependency on tourism means that heavily damaged islands like Barbuda will take a double hit. Resorts will be closed for peak tourism season, leaving many unemployed and unable to reconstruct their homes. Once tourists have evacuated and the camera crews disappear, the Caribbean will be left alone once again to patch up the damage before the next 'storm of the century' rolls up again, all too soon.

A 2008 report from Tufts University on climate change and the Caribbean stated that the combination of increased hurricane damages, loss of tourism revenue and infrastructure damages will cost the region $22 billion annually by 2050 – 10% of the current Caribbean economy – and $46 billion by 2100 – 22% of the current Caribbean economy. Due to the repeat reconstruction of resorts, it could only be a matter of time before resorts decide that the Caribbean is too unstable and unprofitable due to extreme weather, killing the Caribbean's largest industry, however problematic, and plunging it further into economic devastation.

It is worth noting that the Caribbean (aside from Trinidad) contributes a disproportionally low share of carbon emissions globally, yet exists on the frontlines of climate change in a state of paralysis. As always, the poorest and most vulnerable are hit hardest by the actions of the wealthy. Evidence of climate change abounds. As Norman Girvan has said, 'Caribbean leaders must take the fight to a higher level.'

The Philippines has filed a legal case against the world's largest oil companies for violating the human rights of local people: carbon-based climate change was responsible for a 2013 storm that killed thousands and resulted in billions of dollars in damage. The Caribbean Community (CARICOM) could follow such an example. Furthermore, states that are major contributors to carbon emissions must be targeted and challenged in a similar manner.

Such a move is not without precedent in the region, as 14 Caribbean nations have launched a lawsuit against European colonial powers for their role in engaging in the enslavement and genocide of African and Indigenous people. This will no doubt have adverse repercussions in terms of economic and political retaliation. But, as the power and persistence of environmental disaster increases in the region, the status quo is killing the people of the Caribbean. ◆

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In the Caribbean, colonialism and inequality mean hurricanes hit harder

Across the Caribbean, while exposure to hazards is about the same, poverty and social inequality drastically magnify the severity of disasters. *Levi Gahman* and *Gabrielle Thongs* explain.

HURRICANE Maria, the 15th tropical depression this season, is now battering the Caribbean, just two weeks after Hurricane Irma wreaked havoc in the region.

The devastation in Dominica is 'mind-boggling', wrote the country's prime minister, Roosevelt Skerrit, on Facebook on 19 September. The next day, in Puerto Rico, NPR public radio reported via member station WRTU in San Juan that 'Most of the island is without power … or water'.

Among the Caribbean islands impacted by both deadly storms are Puerto Rico, St Kitts, Tortola and Barbuda.

In this region, disaster damages are frequently amplified by needlessly protracted and incomplete recoveries. In 2004, Hurricane Ivan rolled roughshod through the Caribbean with wind speeds of 160 mph. The region's economy took more than three years to recover. Grenada's surplus of $17 million became a deficit of $54 million, thanks to decreased revenue and the outlays for rehabilitation and reconstruction.

Nor were the effects of a 7-magnitude earthquake that rocked Haiti in 2010 limited to killing some 150,000 people. United Nations peacekeepers sent in to help left the country grappling, to this day, with a fatal cholera outbreak.

These are not isolated instances of random bad luck. As University of the West Indies geographers who study risk perception and political ecology, we recognise the deep, human-induced roots of climate change, inequality and the underdevelopment of former colonies – all of which increase the Caribbean's vulnerability to disaster.

The devastation wrought on Dominica by Hurricane Maria was described as 'mind-boggling' by Prime Minister Roosevelt Skerrit.

Risk, vulnerability and poverty

Disaster risk is a function of both a place's physical hazard exposure – that is, how directly it is threatened by disaster – and its social vulnerability, specifically, how resilient it is.

Across most Caribbean islands, hazard exposure is about the same, but research shows that poverty and social inequality drastically magnify the severity of disasters.

Haiti, where eight out of every 10 people live on less than $4 a day, offers an example of how capitalism, gender and history converge to compound storm damage.

The country is among the Western Hemisphere's poorest in large part because of imperialism. After Haitians successfully overthrew their European enslavers in 1804, global powers economically stifled the island. From 1915 to 1934, the US first militarily occupied Haiti, and then followed a policy of intervention that continues to have lasting effects on its governance. International interference and the resulting weak institutions, in turn, impeded development, poverty reduction and empowerment efforts.

In such a context, disasters aggravate a country's numerous existing social vulnerabilities. Take gender, for example. Mental health professionals offering support to victims after Haiti's 2010 earthquake found that an extraordinarily high number of displaced women – up to 75% – had experienced sexual violence. This prior trauma exacerbated the women's post-disaster stress responses.

Geography and gender

Inequality and underdevelopment are perhaps less marked in the rest of the Caribbean, but from Antigua and Barbuda to St Kitts and Nevis, socioeconomic problems are now complicating both disaster preparedness and response.

Across the region, people spend most of their income on daily essentials like food, clean water, shelter and medicine, with little left over for greeting Irma and Maria with lifesaving hurricane-resilient roofs, storm shutters, solar generators and first-aid kits.

For the poor, emergency radios and satellite telephones that could warn of impending disasters are largely unaffordable, as is homeowners' insurance to hasten recovery.

Poorer Caribbean residents also tend to live in the most disaster-prone areas because housing is cheaper on unstable deforested hillsides and eroding riverbanks. This exponentially increases the danger they face. The low construction quality of these dwellings offers less protection during storms while, post-disaster, emergency vehicles may not be able to access these areas.

Caribbean women will also continue to be at particular risk well after Maria passes. In a region where gender roles remain quite rigid, women are typically tasked with childcare, harvesting, cooking, cleaning, washing and the like.

Even in post-disaster settings, women are expected to perform household labour. So when water supplies are contaminated (with sewage, *E. coli*, salmonella, cholera, yellow fever and hepatitis A, among others), women are disproportionately exposed to illness.

The work of nourishing the spirits and bodies of others when food and water shortages occur is also thrust onto women, even though they generally have less access to income and credit than men.

No place for politics

Politics, too, play a role in how the Caribbean is faring during this tumultuous hurricane season. Longtime colonial rule isn't the only reason Caribbean societies and ecosystems are now so vulnerable.

A poor household in Jamaica. Across the Caribbean, socioeonomic problems are complicating both disaster preparedness and response.

Many contemporary governments in the region are, arguably, also doing their part to make life generally worse for marginalised communities. In Trinidad and Tobago, divestment in public education has hurt working-class university students, youth from low-income communities and older adults who were previously eligible for financial aid.

In oil-rich Guyana, dependency upon fossil fuels has invited an eager ExxonMobil in for a round of drilling, despite its track record for extracting, polluting and taking profits largely elsewhere. And, from Jamaica to Belize, widespread corruption and land rights violations have severed relationships of trust between people and the states that are, in theory, supposed to protect them.

When storms threaten, such policies and practices intensify the Caribbean's societal and ecological risks.

Irma and Maria are surely not the last extreme disasters that will strike the region. To survive and flourish in this dangerous new normal, Caribbean countries would do well to look to the heart of these issues, rethinking the concept of risk and mindfully engaging with factors like poverty, gender and climate change.

In practice, this means identifying their most vulnerable communities and working to improve their day-to-day well-being – not just their survival in a storm.

The Caribbean's own Frantz Fanon (1925-1961), from the island of Martinique, recognised these complexities in his book *The Wretched of the Earth*. Fanon asserted that democracy and the political education of the masses, across all post-colonial geographies, is a 'historical necessity'. Presciently, he also noted that 'the soil needs researching, as well as the subsoil, the rivers, and why not the sun'.

As the Caribbean looks for solutions to the damage and suffering brought on by both nature's revolt and social inequality, Fanon's words seem like a good place to start. ◆

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Irma and Maria: Shedding light on Puerto Rico's colonial reality

After 199 years as a US colony and 100 years as US citizens, Puerto Rico has been trapped in a dangerously steep spiral, its current fiscal and socio-political crisis one of its many repercussions. The disastrous impact of Hurricanes Irma and Maria has only served to put the spotlight on the country's colonial reality by highlighting all of the current complications rooted in it.

Ana Portnoy

A man wades through a flooded road in Fajardo, Puerto Rico, in the wake of Hurricane Maria. It was estimated that the cost of overall damage caused by Maria in Puerto Rico would exceed $10 billion.

YOU came to Puerto Rico for the golden sands and sun (gold was also the basis of our first colonisers' initial attraction); for the endless piña coladas and rum-spiked mysteries; for the 'colonial charm' and 'quaint, humble lifestyle' (poverty looks so alluring in the Caribbean, what with the bright colours, translucent waters and lush greens in the background – and it's only for a week). Your friends say it's the hottest spring break spot, the newspapers say it's a debt-ridden disaster, your parents say it's dangerous and that the water is undrinkable, and the brochures say it's a (tax) haven, absolute paradise. So here you are, in your bathing suit and sarong, mojito in hand, ready to focus on your one task for the week: tanning.

But it turns out that the sun isn't nailed onto the sky, that it doesn't run on unfailing one million 100-watt light bulbs; that the tides rise and the swells are ferocious; that coconuts, palm trees and branches are potential projectiles; and that a hurricane is heading straight towards your worry-free fantasy. So you try to catch your flight out of this paradise-turned-inferno, because a hurricane was not in your itinerary of sites to see, but instead, Jetblue takes you to one of the many refuge sites in San Juan, to a hot and humid coliseum, where your beach chair is replaced for a cot, your piña colada for a Walgreens water bottle, your dream for our reality.

The power was out in my house as I imagined this scenario (and read parts of it in the newspapers[1]), which had taken place the day before, right before Irma's arrival. The next day, the morning after Irma's passing, there were more than a million households without power,[2] the Electric Power Authority (EPA) predicting that the outages would last from 2-4 months,[3] and almost 80,000 households had lost their water service as well.[4] Over 6,200 people were in refuges around the northeastern side of the island,[5] and Puerto Rico's agricultural industry suffered $30.4 million in losses. To make matters worse, about two weeks later, a new disastrous category 4 hurricane, the effects of which were 1,000 times more catastrophic than Irma's, was heading our way: Maria.

But Puerto Rico is no stranger to crisis. Before Irma's and Maria's devastating pitstops in the archipelago, Puerto Rico was (and still is, even more so now) undergoing one of the most detrimental financial and socio-political crises of its contemporary history. With an unaudited $74 billion debt under its belt, and $49 billion in pension obligations, with decades of illegal bond issuances and trades and an overly advertised tax haven, Puerto Rico was/is almost literally drowning. Neoliberal policies, such as draconian budget cuts and extreme austerity measures, have been in the works towards the precarisation of Puerto Rican livelihood. Governor Ricardo Rosselló, an unelected and anti-democratic Fiscal Control Board, and Judge Laura Taylor Swain are all trying to oversee and command Puerto Rico simultaneously, going back and forth on the archipelago's fiscal management and debt restructuring processes.

However, for too many Global North-ers, even as its financial crisis worsened and hurricanes Irma and Maria headed straight towards it, Pu-

erto Rico was a mere casualty on CNN's news ticker, an enchanting US-owned island on a tourist brochure, that exotic place where the music video for 'Despacito' was filmed,[6] a pebble sinking between an ocean and a sea that have seen too much. But Irma's and Maria's passing, and more importantly their after-effects, exasperated the aforementioned and brought to light Puerto Rico's primordial conundrum, which encompasses everything from its stifling debt crisis to its crumbling infrastructure to the lack of media coverage and recovery-related attention by the US to PR's hurricane dilemmas: colonialism.

After 199 years as a US colony (the US would rather euphemise it as a 'commonwealth', 'unincorporated territory', 'free associated state' or 'foreign in a domestic sense') and 100 years as US citizens, Puerto Rico has been trapped in a dangerously steep downward spiral, its current fiscal and socio-political crisis one of its many repercussions. And so, 'natural disasters' (which are really disasters of our own making, so let's call them human disasters[7]) are setting PR's colonial reality under the spotlight by highlighting all of the current complications rooted in it.

Irma's and Maria's passing were real kicks in the stomach as they underscored the neoliberal austerity measures (and their effects) being imposed on PR by the (Colonial) Fiscal Control Board, and the corporate crimes being committed by corporate entities taking advantage of PR's colonial status. For starters, as one of the many consequences of the massive closure of public schools,[8] only 329 schools across the island were available as shelters during Hurricane Irma, whereas 372 public schools had been available during Hurricane Bertha's passing in 2014.[9] According to Julia Keleher, the leader of PR's Department of Education, a week after Hurricane Maria, there were only about 160 refuge sites available for post-hurricane stays, this including community centres, not just schools.

As a result of a decades-long crisis, Puerto Rico's infrastructure finds itself in an advanced state of deterioration, including roads, bridges, the University of Puerto Rico, public service buildings and the electric power system, which were in critical danger during Irma's and Maria's passing. The first few days after Hurricane Maria, the entire island was powerless, PR's EPA predicting the power outages to last up to six months; there were rows of wooden and cement light posts on the ground, broken to pieces, generators and power cables lining narrow neighbourhood roads and expansive highways. Internet and communication systems were down as well, the recovery despairingly slow (and still ongoing[10]), leaving civilians in a horrible state of despair, longing to either know if their family and friends were safe or to communicate their post-hurricane status to people both on and off the island. Governor Rosselló estimated that the cost of overall damages caused by Maria would exceed $10 billion.[11]

Furthermore, a good part of PR's 'essential infrastructure'[12] is on the coast, making it more vulnerable to flooding and high tides, especially during a hurricane of Irma's or Maria's intensity. Interestingly enough, however, a lot of the 'essential infrastructure' is built to benefit and serve the tourist industry and mercantile trade with the US, and only the US (thank you, cabotage laws[13]). Whatever money is invested in infrastructure tends to go towards revitalising these 'essentials' (forget the hole-covered roads leading to our homes, asbestos-filled buildings and crumbling light posts at the mercy of hurricane winds), further proving our colonial market dependency and the coloniality of the tourist industry, which caters particularly to PR's colonial relations with the US.

Additionally, after Hurricane Irma, President Donald Trump signed a disaster declaration for Puerto Rico, which meant the Federal Emergency Management Agency (FEMA) would be able to assist the archipelago. However, the assistance authorised for Puerto Rico was only for search and rescue, public health and safety, and debris removal. It didn't include rebuilding or even restoration of power,[14] and with the current fiscal crisis, and the (Colonial) Fiscal Control Board's long silence after Irma's passing,[15] rebuilding and restructuring will be a tough feat for Puerto Rico given the lack of resources to do so. After Maria's passing, Governor Rosselló met with FEMA's administrator, William B Long, and solicited that Congress pass a law to help PR, claiming that Puerto Ricans should be treated equally, as American citizens (his statehood-er party politics at play, no matter the truthfulness of his statement).

The US' unjust exceptionality and second-class treatment of Puerto Ricans, both islanders and statesiders, even though they're American citizens, is exemplary of the workings of colonialism, just like the US media's blatant disregard of Puerto Rico (and the Caribbean as a whole) during Irma's passing, coverage taking place well after disaster struck and people complained,[16] and the unequal recovery-related attention after both hurricanes in comparison with the aid being offered to Florida and Texas.

Carla Minet, from the Center for Investigative Journalism in Puerto Rico, elaborated on the crisis's already devastating effects on PR, and how they would be further aggravated: 'The budget cuts, in an already weak economy, will probably make the storm's social impact worse. A forecast before Irma arrived by the Center for a New Economy think tank's policy director, Sergio M. Marxuach, projected the catastrophic effects of the Fiscal Plan that was recently approved: high probability of another lost decade, continued population loss due to migration and lower birth rates, lower employment, less access to public education, pension cuts, worsening health outcomes, higher mortality and lower life expectancy, and in the end – of course – higher poverty and inequality. Now add in the cataclysm of a monster hurricane that the plan never accounted for.'[17] Therefore, Puerto Rico's financial crisis, a product of colonial practices such as the well-known tax-haven, highly-suspected unconstitu-

tional bond issuances by some financier members of the (Colonial) Fiscal Control Board,[18] and corporate involvement,[19] was heightened by Irma's and Maria's dangerous threats to the lives of the people of Puerto Rico.

On the topic of corporate involvement, Applied Energy Systems (AES), a corporation that generates coal-based energy and is profiting off Puerto Rico's colonial status, didn't properly cover up the toxic ashes[20] and coal waste that it produces in the town of Guayama. And what's worse is that, whereas Irma skirted the north-eastern part of PR (its devastating effects mostly experienced in that region), Maria cut straight through the island, entering through the town of Yabucoa, which is only four towns away from Guayama. The uncovered ashes[21] were at the mercy of Irma and Maria, representing a profound health risk to communities far and wide. AES Puerto Rico, and many other corporations residing and profiteering in PR, have been exploiting and taking advantage of colonially enforced deregulation, tax exemption, corporate welfare, labour reform,[22] the list goes on.

And so Naomi Klein's 'shock doctrine' comes into play in a colonial context. Klein, an award-winning journalist, uses the term 'shock doctrine' to 'describe the brutal tactic of using the public's disorientation following a collective shock … to push through radical pro-corporate measures'.[23] After Irma's and Maria's destructive passing, and most importantly, after the chaos they created, the 'shock doctrine' is a recipe for disaster for a colonial territory under the jurisdiction of a (Colonial) Fiscal Control Board and neoliberal-loving governor, and additionally, under the threat of profit-hungry hedge funds.

The (Colonial) Fiscal Control Board is likely to push, even more aggressively, the many policies it has in line, such as the privatisation of PR's EPA, using Irma and Maria as excuses to do so.[24] In a press conference in PR three days after Maria's passing, New York's Governor Andrew Cuomo, who flew to PR to assess damages and assist rebuilding and restoration efforts, said PR might as well use this opportunity not just to rebuild, but to rebuild with the intention of making everything 'better' than it was before, referring to PR's electrical infrastructure as an example. But is Cuomo aware of what 'better' entails under the colonial-fiscal crisis PR finds itself in?

With much of Puerto Rico still lacking power supply following the passage of Hurricane Maria, its people have been forced to rely on gas and diesel generators. Picture shows Puerto Ricans lining up at gas stations for fuel.

Similarly, news anchor Erin Burnett from CNN was in utter shock after hearing that PR's power-outage situation would probably take up to six months to get fixed: 'Six months without power?! This is the United States of America!' But that's where Burnett is utterly wrong: this (PR) is not the United States of America, this is a colony of the United States of America; this is not a First World country, this is a Third World country; this is not a Global North, developed nation, this is a Global South, (made) under-developed nation; this is not a fully incorporated and equally privileged state (not that we want to be), this is a neglected and rejected foreign yet domestic appendage of the US.

To continue making matters worse regarding the 'shock doctrine', it wouldn't be surprising if Rosselló and the (Colonial) Fiscal Control Board applied this very doctrine, aided by Irma and Maria and further aided by PR's colonial vulnerability, to dismantle and privatise the University of Puerto Rico,[25] the only public higher education institution on the archipelago (which has been conveniently shut down for too long due to Irma's and Maria's passing, Maria having caused devastating damage to many of its campuses). And so on and so forth with a number of other public institutions that are defenceless under the colonial rule of the (Colonial) Fiscal Control Board and its blatant neoliberal attacks, especially after chaos-monsters like Irma and Maria.

On 23 September, PR was supposed to commemorate El Grito de Lares, a highly important uprising against Spanish colonial rule that took place 149 years ago. Instead, almost two weeks after Irma's passing, PR had to stare down another monstrous hurricane which headed straight towards the archipelago where Irma's after-effects were still being felt; where some people had just gotten their power back while others were still living in the dark; where trees and light posts were still lying around, waiting to take on second lives as projectiles; where many (both locals and refugees from neighbouring Caribbean islands) were still recovering from having lost their homes and living in one of PR's many refuge sites; where crisis and colonialism hold hands, crowned normal, everyday.

Faced with an unaudited $74 billion debt and $49 billion in pension obligations, Puerto Rico is being subjected to severe budget cuts. The graffiti on the wall in the picture reads 'Puerto Rico first. To hell with the debt'.

And so, you're sitting in your cot with your straw hat on, hundreds of locals scrambling around you with their homes stuffed in a bag or a suitcase, and you wonder why your flight dropped you and ditched; why this place of refuge is so understaffed; why the power went out when it hasn't started raining yet and no gusts of wind have blown; why CNN isn't covering the hurricane's passing over Puerto Rico ('I'm here, send over an embassy representative for me!' you yell in your mind as you stare into your almost-batteryless smartphone); why life has been so unfair to you, ruining your longed-for vacation in the island of enchantment. Your thoughts are interrupted when you spot a window and decide to walk towards it in gloomy fashion, only to look through pigeon-christened glass and watch as clouds gather and incoming winds batter a US flag … oh, and a Puerto Rican one.

* * * * * * * * *

Parts of this article were previously published in a piece entitled 'Puerto Rico, trapped between colonialism and hurricanes', published on the Global Voices website. I worked on and finished this article from the very trenches of the scene of devastation: Puerto Rico. In my hometown, Mayagüez, I currently have no power, water, Internet or cellphone service. Therefore, aside from sparse local print newspapers, a solar radio and an unreliable hour of news every once in a while made possible by a power plant, I'm totally isolated. ◆

The above is reproduced from CounterPunch.org.

Notes

1. http://www.primerahora.com/noticias/puerto-rico/nota/jetbluedejadecenasdepasajerosenrefugioensanjuan-1244291/
2. http://cb.pr/mas-de-un-millon-de-abonados-sin-servicio-de-energia-electrica/
3. http://www.primerahora.com/noticias/gobierno-politica/nota/aeeanticipaquehabraareassinluzhastapor4meses-1244014/
4. https://www.elnuevodia.com/noticias/locales/nota/casi80000abonadossequedaronsinaguaporirma-2355524/
5. http://cb.pr/irma-deja-sobre-6200-refugiados-en-puerto-rico/
6. 'Despacito's music video was filmed in a historically marginalised and impoverished borough in San Juan called La Perla.
7. https://medium.com/@aurora-levinsmorales/stop-calling-the-events-of-this-summer-natural-disasters-5cfc32f0af17
8. A decision made by the leader of the Department of Education, Julia Keleher, and sanctioned by the (Colonial) Fiscal Control Board. https://www.elnuevodia.com/noticias/locales/nota/educacionreducea167lalistadeescuelasqueserancerradas-2326578/
9. https://www.washingtonpost.com/news/posteverything/wp/2017/09/07/puerto-rico-wasnt-ready-for-hurricane-irma-we-couldnt-possibly-be/?utm_term=.90117de3a2e8
10. 'Tomará meses restablecer la industria', by Yalixa Rivera Cruz, published in *El Nuevo Día*, 24 September 2017.
11. 'Impacto económico sin precedentes', by Gloria Ruiz Kuilan, published in *El Nuevo Día*, 24 September 2017.
12. http://prospect.org/article/puerto-ricos-double-whammy-irma-and-hedge-funds?platform=hootsuite
13. Which were annulled for a short span of time, approximately a week, after Irma's and Maria's passing.
14. http://prospect.org/article/puerto-ricos-double-whammy-irma-and-hedge-funds#.WbMB2Fzz6FE.facebook
15. http://www.noticel.com/noticia/207770/la-junta-no-ha-llamado-al-gobernador-a-preguntar-como-esta-todo.html
16. https://medium.com/@odanu/in-the-eye-of-hurricane-irma-there-is-too-much-quiet-181eefbe1067
17. https://www.washingtonpost.com/news/posteverything/wp/2017/09/07/puerto-rico-wasnt-ready-for-hurricane-irma-we-couldnt-possibly-be/?utm_term=.90117de3a2e8
18. https://www.thenation.com/article/bankers-behind-puerto-ricos-debt-crisis/
19. Corporations have been partners with the colonial enterprise since the 17th century, the West India Company being an example.
20. http://theconversation.com/in-puerto-rico-environmental-injustice-and-racism-inflame-protests-over-coal-ash-69763
21. https://www.elnuevodia.com/noticias/locales/nota/montanasdecenizasenguayamacontinuanamercedddelosvientos-2355318/
22. http://cb.pr/resumen-del-proyecto-de-la-reforma-laboral-de-rossello/
23. https://www.theguardian.com/us-news/2017/jul/06/naomi-klein-how-power-profits-from-disaster?CMP=share_btn_fb
24. https://www.washingtonpost.com/news/posteverything/wp/2017/09/07/puerto-rico-wasnt-ready-for-hurricane-irma-we-couldnt-possibly-be/?utm_term=.737d8342e419
25. https://protestamos.net/2017/06/05/enlaces-al-plan-sos-upr/

In Maria's wake, could Puerto Rico go totally green?

In the following article, *Harvey Wasserman* makes a strong case for Puerto Rico to go green by abandoning the old paradigm of centrally generated and distributed electricity based on fossil fuels and moving instead to a decentralised network of green-based microgrids. Since this article was written, automaker Tesla has moved in to deliver solar power to a children's hospital in Puerto Rico.

THE ecological and humanitarian destruction of Puerto Rico has left the world aghast. But there is a hopeful green-powered opportunity in this disaster that could vastly improve the island's future while offering the world a critical showcase for a sane energy future.

By all accounts Hurricane Maria has levelled much of the island, and literally left it in the dark. Puerto Rico's electrical grid has been extensively damaged, with no prospects for a return to conventionally generated and distributed power for months to come.

In response, US President Donald Trump has scolded the island for its massive debt, and waited a full week after the storm hit to lift a shipping restriction requiring all incoming goods to be carried on US-flagged ships. (That restriction is largely responsible for the island's economic problems in the first place.)

The Puerto Rico Electric Power Authority is a state-owned operation that hosts a number of solar and wind farms, as well as a network of hydroelectric dams. But the bulk of its energy supply has come from heavy industrial oil, diesel and gas burners. It also burns coal imported from Colombia at a plant in Guayama.

The fossil burners themselves apparently were left mostly undamaged by Maria. But the delivery system, a traditional network of aboveground poles and wires, has essentially been obliterated. Power authority officials say it could take at least 4-6 months to rebuild that network. And of course, there is no guaranteeing such a pole-and-wire set-up would not then be obliterated by the next storm.

Among the most serious casualties have been the island's hospitals. According to reports, 58 of Puerto Rico's 69 medical facilities have been blacked out. At least two people died when intensive care units went dark.

But therein lies the opportunity. With solar panels and battery backups, every one of those hospitals could be energy self-sufficient. Throughout the US, such technology is now being applied at medical facilities, data processing and storage facilities, and other critical units.

According to Mark Sommer, a California-based energy expert, Puerto Rico could safeguard such critical facilities and far more quickly restore its power by letting go of the old paradigm of centrally generated and distributed electricity, and moving instead to a decentralised network of green-based microgrids.

Microgrids are community-based networks that power smaller geographic and consumer areas than the big central grids like the one that served Puerto Rico. Mostly they are based on decentralised generation, including networks of rooftop solar panels. As Sommer puts it, 'Renewably powered microgrids are a relatively simple and already mature technology that can be deployed in months rather than years and once the initial investment is recovered deliver dramatically lower energy bills.'

Because Puerto Rico is mountainous and hosts many small, remote villages, the island's best hope for a manageable energy future is with decentralised power production in self-sustaining neighbourhoods. Built around small-scale wind and solar arrays, with battery backups protected from inevitable floods and hurricanes, Puerto Rico could protect its electricity supply from the next natural disaster while building up a healthy, low-cost energy economy.

The island is also a good source of sugar cane and other fast-growing tropical vegetation, making a strong case for biomass sources like ethanol. Much of Brazil's automobile fleet runs at least partly on fuel produced by fermenting bagasse, a by-product of the country's huge sugar cane crop.

With local financing and ownership, the prospects for a sun-drenched ecosystem like Puerto Rico's to go to renewable-based microgrids are overwhelming. In terms of cost, immediacy, immunity from the next hurricane and long-term sustainability, this is a tragic but unique opportunity.

There is little precedent for an entire geographic entity to lose 100% of its grid. We can expect a deaf ear on this from a Trump administration dominated by the fossil fuel and nuclear power industries.

But to rebuild Puerto Rico's electric grid in a traditional centralised fashion would only prolong Maria's agony while leaving the island deathly vulnerable to the next big wind storm.

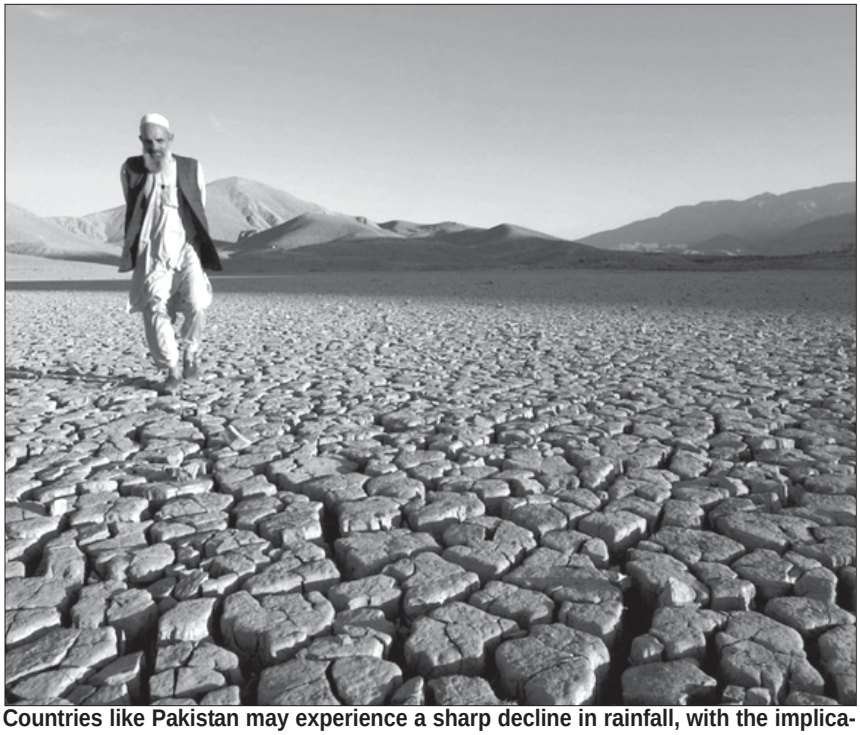
Puerto Rico's best hope for a safe, prosperous, sustainable energy future is to take control of its power supply with a mix of renewable generation, protected backup storage, and a decentralised, local-based network of community-owned microgrids. ◆

Harvey Wasserman is co-founder of the global grassroots No Nukes movement and author or co-author of 20 books, including Solartopia! Our Green-Powered Earth *(solartopia.org) and* The Last Energy War *(Seven Stories Press). The above article is reproduced from Progressive.org.*

Devastating consequences

According to the Asian Development Bank (ADB) and the Potsdam Institute for Climate Impact Research (PIK), unabated climate change will have 'devastating consequences' in Asia and the Pacific. The impacts could 'severely affect their future growth and reverse current development gains'.

Sheila Mysorekar



Countries like Pakistan may experience a sharp decline in rainfall, with the implication of droughts, if climate change continues unabated.

'THE global climate crisis is arguably the biggest challenge human civilisation faces in the 21st century, with the Asia and Pacific region at the heart of it all,' argues Bambang Susantono, the ADB vice-president for knowledge management and sustainable development. 'Home to two-thirds of the world's poor and regarded as one of the most vulnerable regions to climate change, countries in Asia and the Pacific are at the highest risk of plummeting into deeper poverty – and disaster – if mitigation and adaptation efforts are not quickly and strongly implemented.'

Climate change has consequences including sea-level rise, stronger storms, changing rainfall patterns and dwindling glaciers. The landmass of small island states in the Pacific is being eroded by the rising sea level. After all, they consist of atolls that are hardly above sea level, so these countries are likely to cease to exist. Their people would become climate-change refugees, without hope of ever returning home.

Six to eight degrees warmer

But even in Asia's biggest and most developed countries, unmitigated climate change will lead to severe setbacks and economic decline. According to a recently published report by the ADB and PIK, business as usual would mean a six-degree rise of average temperatures over the Asian continent by the end of this century, and some countries could experience even 'significantly hotter climates'. Temperatures in Tajikistan, Afghanistan, Pakistan and the north-western part of China may even rise by eight degrees.

In the business-as-usual scenario, moreover, annual precipitation is expected to increase by up to 50% over most land areas in the region. Accordingly, there would be more and worse floods. Countries like Pakistan and Afghanistan, however, may experience a decline in rainfall by 20-50%, with the implication of droughts.

The authors warn of 'drastic changes in the region's weather system, agriculture and fisheries sectors, land and marine biodiversity, domestic and regional security, trade, urban development, migration, and health'. Mitigation and adaptation are needed, as business as usual would pose an 'existential threat to some countries' and 'crush any hope of achieving sustainable and inclusive development'.

Health impacts are important too. Based on statistics provided by the World Health Organisation, the authors show that the death toll related to vector-borne diseases such as malaria and dengue is rising.

Forced migration

Generally, two categories of climate impacts can be identified as migration triggers: slow-onset events (for example, droughts and water stress) and sudden events (for example, floods and storms). It is well known that natural disasters often force people to leave their homes. Slow-onset developments, however, also lead to similar reactions. The researchers point out that 'migratory responses to gradual climate change,

Over 50% of Vietnam's staple rice crop is produced in the Mekong Delta, but climate change could 'aggravate the situation in the delta for people whose livelihoods are closely intertwined with the ecosystem'.

such as desertification, salinisation and drying of soils, deserve more attention.'

One example the report gives is the Mekong Delta in Vietnam. With more than 18 million people, it is one of the most densely populated regions on earth. The fertile soil makes it ideal for rice planting. Over 50% of Vietnam's staple food is produced here, and so are 60% of the country's shrimps. However, salinisation of soils is a consequence of sea water pressing into aquifers and more evaporation due to greater heat. In addition, erratic rainfalls affect livelihoods. In the long term, sea-level rise, tropical storms and flooding events could 'aggravate the situation in the delta for people whose livelihoods are closely intertwined with the ecosystem', the report states.

Mass migration away from the area is to be expected, according to the researchers. In the past, disaster-related displacement in the Mekong Delta was largely linked to cases of unusually heavy precipitation. However, slow-onset developments matter too because they make the delta less fertile and inhabitable. Food production will suffer in other regions as well, as the report predicts: 'In some countries of Southeast Asia, rice yields could decline by up to 50% by 2100 if no adaptation efforts are made.'

Megacities at risk

The Asia and Pacific region includes some of the world's largest urban agglomerations. According to the ADB-PIK publication, Asia accommodated 16 of humankind's 28 megacities (with more than 10 million inhabitants) in 2014. Many important urban centres are 'located within a short distance of the coast of the region'. Throughout the region, 'coastal population growth is far higher than national growth', the authors point out.

Low-lying coastal cities are especially exposed to the expected predicaments associated with climate change, including tropical cyclones and flooding. It is estimated that East Asia and South Asia will account for the lion's share of projected coastal flood damage in 2050.

According to the ADB-PIK report, of the 20 cities that account for the worst annual flood damages worldwide, 13 are in Asia. They are: Guangzhou, Shenzhen, Tianjin, Zhanjiang and Xiamen in China; Mumbai, Chennai-Madras, Surat and Kolkata in India; Ho Chi Minh City in Vietnam; Jakarta in Indonesia; Bangkok in Thailand; and Nagoya in Japan.

Nineteen of the 25 cities most exposed to a one-metre sea-level rise are located in the Asia-Pacific region; seven of them are in the Philippines alone. Indonesia, however, will be the country most hit in the region by coastal flooding, with approximately 5.9 million people expected to be affected every year until 2100.

Decisive action needed

On the upside, Asian nations depend less on agriculture than previously, according to the ADB and PIK, because economic diversification has made them more resilient. On the downside, increasingly integrated regional economic systems are vulnerable to disruptions in supply chains. As Asia's industries are highly interlinked internationally, extreme weather events in one Asian country will have strong repercussions in others – as well as in the rest of the world. The experts warn that economic progress can be undone fast.

To mitigate the impact of climate change, the report highlights the importance of implementing the commitments of the Paris Agreement: 'The region has both the capacity and weight of influence to move towards sustainable development pathways, curb global emissions, and promote adaptation,' the report concludes. To support these efforts, the ADB approved a record $3.7 billion in climate finance in 2016 and is committed to further scaling up investments to $6 billion by 2020.

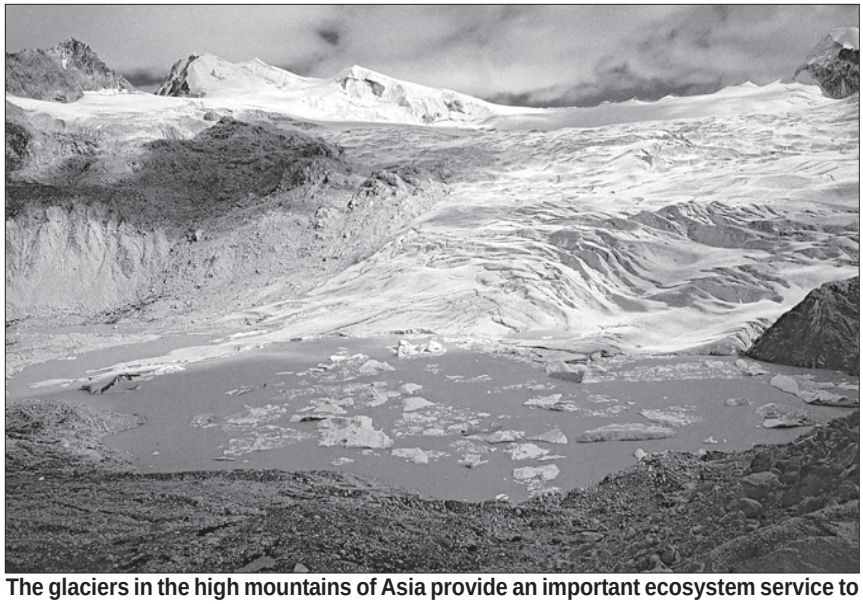
The outlook is thus not necessarily bleak. Hans Joachim Schellnhuber, who heads the PIK, says that 'leading the clean industrial revolution will provide Asia with unprecedented economic opportunities'. ◆

Sheila Mysorekar is a member of the editorial team of D+C *(*Development and Cooperation*) magazine, from which this article is reproduced (No. 2017/10, www.dandc.eu).*

Asia's high glaciers protect communities from drought

The high mountains of Asia, including the Himalayas, the Hindu Kush and Karakoram, are now being greatly affected by global warming. If this results in a loss of glaciers, it could have a perilous impact on countries like Pakistan, Tajikistan, Turkmenistan, Uzbekistan and Kyrgyzstan which are highly dependent on the summer meltwater from these sources.

Rosette Zarzar



The glaciers in the high mountains of Asia provide an important ecosystem service to 800 million people by acting as a regional buffer against drought.

A RECENT study in the journal *Nature* by Hamish Pritchard, a glaciologist at Cambridge University and researcher for the British Antarctic Survey, shows that the high mountains of Asia, including the Himalayas, the Hindu Kush and Karakoram, are being greatly affected by global warming. In some areas of the Himalayan region, for example, temperatures have risen faster than the global average. From 1982 to 2006, the average annual mean temperature in the region increased by 1.5°C, with an average increase of 0.06°C per year, according to the United Nations Environment Programme (UNEP). Even though studies on the high mountains of Asia are incomplete, it is believed that the mountains will lose half of their ice in the next 30 years.

This glacial loss has consequences for Asia as the glaciers provide an important ecosystem service to 800 million people by acting as a regional buffer against drought and providing summer meltwater to rivers and aquifers. If the glaciers in the eastern and central Himalayas disappear by 2035, the ecosystem service protecting against drought would be lost. Despite the fact that glaciers can promote drought resiliency, the surrounding areas would be particularly vulnerable to water scarcity because the glaciers will not supply enough meltwater to maintain the rivers and streams at adequate levels.

Lack of water could lead to devastating food shortages and malnutrition, further impacting the economy and public health. Based on a projected estimate of glacier area in 2050, it is thought that declining water availability will eventually threaten some 70 million people with food insecurity. Droughts in the Himalayan region have already resulted in more than 6 million deaths over the past century. Glacier loss would only add to drought-related water stress in the region, impacting a surrounding 136 million people.

In an interview with the GlacierHub website, Pritchard explained, 'Without these glaciers, particularly in the Indus and Aral, droughts would be substantially worse in summer than they are now, and that could be enough to drive conflict and migration, which becomes a regional and potentially global issue. It could result in social instability, conflict and migrations of populations.'

According to Pritchard's research, the high mountains of Asia supply 23 cubic kilometres of water downstream every summer. If the glaciers were to vanish, the amount of water during the summer would decrease by 38% in the upper Indus basin on average and up to 58% in drought conditions. The loss of summer meltwater would have its greatest effects on the municipal and industrial needs of Pakistan, Tajikistan, Turkmenistan, Uzbekistan and Kyrgyzstan, with water stress being classified as medium to extremely high. For example, the Indus River, which has one of the world's largest irrigation networks, is Pakistan's primary source of freshwater. About 90% of Pakistan's agriculture depends on the river and much of the world's cotton

comes from the Indus River Valley. Additionally, decreased meltwater would further affect upstream countries such as Kyrgyzstan, Tajikistan and Nepal that rely on hydropower. The Toktogul hydropower plant and four smaller plants downstream produce almost 80% of Kyrgyzstan's electricity.

Pritchard presents data that show how much the glacier meltwater contributes to different regions within Asia during drought. Some areas, such as the Aral Sea, rely exclusively on the glacier water during the drought months. The glaciers provide meltwater when rainfall is minimal or non-existent under drought conditions because glaciers store precipitation for decades to centuries as ice, which then flows to lower altitudes when melting in the summer.

Twila Moon, a postdoctoral research associate at the US National Snow and Ice Data Centre in Boulder, Colorado, recently discussed the consequences of global glacier volume loss on populations worldwide in *Science* magazine. 'Rising seas, to which melting ice is a key contributor, are expected to displace millions of people within the lifetime of many of today's children,' she stated. 'This loss of Earth's land ice is of international concern.'

As temperatures continue to rise, the surrounding regions will begin to lose their source of water for food, agriculture and survival. Due to inadequate scientific studies and evidence, the trends and status of glaciers in the Himalayas and other ranges are not being sufficiently observed and recorded. A lack of adequate monitoring of the glaciers means political action to adapt to the foreseen changes will be limited. More communication between the scientific community and policy-makers is needed to relay knowledge about the impacts of changes in glaciers on the region's hydrology, environment and livelihoods. ◆

Rosette Zarzar is a fourth-year student at Columbia University majoring in Sustainable Development. This article is reproduced from GlacierHub (glacierhub.org).

Devastating Himalayan floods are made worse by an international blame game

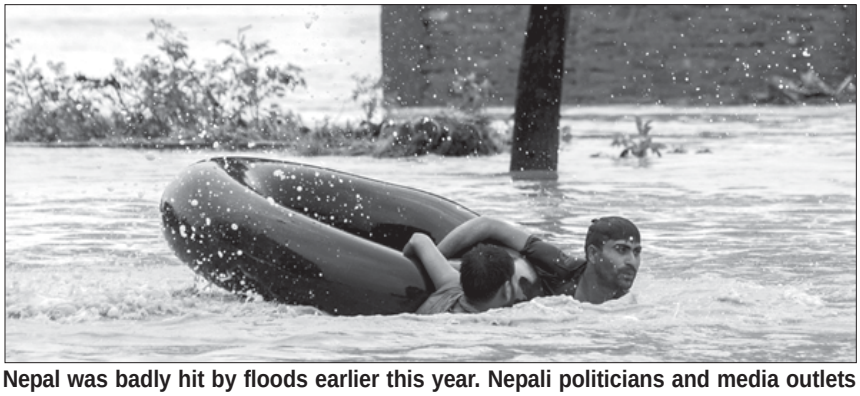
As the Himalayas come under pressure from climate change, climate scientists have warned that 'extreme floods' in the region are becoming more frequent, driven by less frequent but more intense rainfall. These transnational floods, which have sparked off a blame game among India, Nepal and China, underscore the need for institutions with a region-wide perspective rather than country-specific remits to handle the problem, says *Jagannath Adhikari*.

DEVASTATING floods in Nepal have sparked regional tension, with Nepali politicians and media outlets claiming that Indian infrastructure along their shared border has left Nepal vulnerable.

In a visit to India in August, Nepal's Prime Minister Sher Bahadur Deuba released a joint statement with his Indian counterpart Narendra Modi pledging to work together to combat future flood disasters. But relations between the two countries remain strained, and many in Nepal still resent India for a three-month blockade of supplies in the wake of the 2015 earthquakes.

One source of this tension is simply the geography of the Himalayas, where a dam or road built in one country can cause inundation in its neighbour.

The result is an international blame game, with India, China and Nepal accusing each other of short-sighted and self-interested politics. Without region-wide organisations to effectively share information and coordinate disaster relief, many more people have suffered.



Nepal was badly hit by floods earlier this year. Nepali politicians and media outlets claim that Indian infrastructure along their shared border has left the country vulnerable to flooding.

Tangled geography

Floods are almost annual events in the Himalayas. Huge rivers originating in the Himalayas pass through the densely settled Terai flats that span both India and Nepal, and these rivers swell enormously in the monsoon season.

But this year's floods have been particularly devastating. In July and August more than 1,200 people were killed and 20 million others affected by floods in Nepal, India and Bangladesh.

These transborder floods are a political as well as a logistical problem. In the case of the recent floods, Nepal's Ministry of Home Affairs pointed to two large Indian dams in the Kosi and Gandaki rivers, as well as high roads, embankments and dykes built parallel to Nepal's 1,751km border with India, arguing that this infrastructure obstructs the natural flow of water.

India, for its part, has blamed Nepal for creating floods in the past and – although disputed in scientific circles – many believe deforestation in Nepal contributes to water overflow into India.

The problem is that infrastructure in one country can have a serious impact on its neighbours, especially in monsoon season. At least a dozen people were injured last year in clashes over an Indian dam that the *Kathmandu Post* reported will inundate parts of Nepal when completed.

And the problems aren't just caused by dams. Hydrologists and disaster experts in Nepal claim that recent floods have been worsened by significant illegal mining of the low Churia hills for boulders and sand, for use in the rapidly expanding construction sector in India.

India, China and Nepal

The disputes aren't limited to India and Nepal. India and China signed a deal in 2006 to share hydrological information on the huge rivers that run through both their territories, so as to cope better with annual flood-

ing. But earlier this year India's Ministry of External Affairs accused China of failing to share vital data, exacerbating floods in India's northeast.

This is not an isolated incident. In 2013 a huge flood in northwestern India, called the Himalayan tsunami, killed around 6,000 people and affected millions more. At that time, Indian officials claimed that they did not get information from Nepalese officials on heavy rainfall in Nepal's hills, or on glacier conditions. Nepali officials, in turn, responded that China was in a better position to share information about climatic conditions on that part of the Himalayas. Studies conducted later concluded that efficient information sharing and early warnings would have reduced the resulting damage.

This problem becomes more urgent as the Himalayas come under pressure from climate change. Climate scientists have warned that 'extreme floods' in the region are becoming more frequent, driven by less frequent but more intense rainfall.

It is now vital to think differently about how institutions handle these disasters. India and Nepal announced in August that they would establish a Joint Committee on Inundation and Flood Management, and a Joint Team of Experts to 'enhance bilateral cooperation' in water management, which is a positive sign.

But the Himalayas urgently needs institutions with a region-wide perspective, rather than country-specific remits. These organisations can effeciently share information on weather patterns, take action to reduce overall impact of floods, and consult each other while developing infrastructures that could have transboundary consequences.

Human interference and myopic political action have intensified the impact of these floods. We now need every country in the region to accept shared responsibility and commit to helping those affected, regardless of their nationality. ◆

Jagannath Adhikari is an adjunct faculty member at Curtin University in Perth, Australia. This article is reproduced from The Conversation (theconversation.com) under a Creative Commons licence.

Saving the soil that feeds us

The confluence of conflict and climate-related shocks such as drought and floods is threatening global food security. What is particularly alarming is the continued degradation of soil, with a UN report warning that one-third of the world's land has been severely degraded and fertile soil is being lost at the rate of 24 billion tonnes a year. *Clare Westwood* examines this grim situation and what can be done to save the soil.

GLOBAL hunger is on the rise. In 2016, the number of chronically undernourished people in the world increased to an estimated 815 million, up from 777 million in 2015, according to a recent United Nations report.[1] The world is home to 155 million stunted children and wasting continues to threaten the lives of almost 52 million children (8% of children under five years of age), while childhood overweight and obesity rates are on the rise in most regions and in all regions for adults.[2]

The food security situation has visibly worsened in parts of sub-Saharan Africa and South-Eastern and Western Asia.[3] Deteriorations have been observed most notably in situations of conflict, exacerbated by climate-related shocks like droughts and floods.

The UN report, *The State of Food Security and Nutrition in the World 2017*, states: 'The concurrence of conflict and climate-related natural disasters is likely to increase with climate change, as climate change not only magnifies problems of food insecurity and nutrition, but can also contribute to a further downward spiral into conflict, protracted crisis and continued fragility.' The report identifies several countries where a conjunction of conflict and climate-related shocks was associated with food crisis situations in 2016, including South Sudan, which was hit by both drought and floods, and Yemen, where flooding, heavy rains and tropical cyclones impacted adversely on food security.

The recent increases in hunger and undernutrition figures pose a significant challenge to realising the goal of ending hunger by 2030 as per international commitments in the 2030 Agenda for Sustainable Development. While it is not yet clear whether this recent rise in hunger and food-insecurity levels signals the beginning of an upward trend, or whether it reflects an acute transient situation, one thing is clear: we will not end hunger and all forms of malnutrition by 2030 unless we address all the factors that undermine food security and nutrition. And one of those factors is the rapid pace of soil degradation globally. Good soil is a fundamental aspect of food security. But the viability of soil is being threatened by human activity as well as climate change.

Chemical fertliser being sprayed on a field of wheat. It has been estimated that the massive use of chemical fertilisers and other unsustainable practices of industrial agriculture caused an average loss of at least 30-60 tonnes of soil organic matter for every hectare of agricultural land.

Soil is the largest land-based reservoir of carbon on Earth, absorbing it from trees and vegetation as they die and decay.[4] The soil stores four times more carbon than all trees and other life on Earth.[5] Soil microbes (the tiny bacteria, fungi and other microorganisms that determine soil health) are fundamental to countless ecosystem services such as producing humus (the dark organic material in soils) and providing a critical water filtration system for trees.[6] The health and vitality of soil everywhere, from the smallest backyard garden to the largest farm, plays an essential role in food production.

Alarmingly though, soil is being destroyed at a rapid rate. If we continue to degrade our soils, we will not be able to feed the world in the future. A 2017 United Nations Convention to Combat Desertification (UNCCD) study reports that a third of the Earth's land is severely degraded and fertile soil is being lost at the rate of 24 billion tonnes a year.[7] In 2009, the international farmers' rights NGO GRAIN had already calculated that in the previous 50 years, the massive

use of chemical fertilisers and other unsustainable practices of industrial agriculture had caused an average loss of at least 30-60 tonnes of soil organic matter for every hectare of agricultural land.[8] This translated to a total loss of at least 150-205 billion tonnes of organic matter over the period.[9] In any event, carbon losses from the intensive use of chemicals on soils, ploughing up grasslands, and clearing forests and peatlands constitute the second-largest source of carbon dioxide, after burning fossil fuels.[10]

Heavy tilling, multiple harvesting and the over-use of agrochemicals have increased yields, but this has come at the expense of long-term sustainability. In the past 20 years, agricultural production has increased threefold and the amount of irrigated land has doubled.[11] This diminishes fertility, which can lead to land abandonment and desertification. The UNCCD study mentioned above noted that decreasing productivity could be observed on 20% of the world's cropland, 16% of forest land, 19% of grassland and 27% of rangeland.[12]

The same study cited high levels of food consumption in wealthy countries as another reason for soil degradation in developing and least-developed countries.[13] Such demands are expected to continue to grow. The UNCCD study forecasts that by 2050, sub-Saharan Africa, South Asia, the Middle East and North Africa will face the greatest pressure unless the world sees lower levels of meat consumption, better land regulation and improved farming efficiency.[14] Overgrazing by livestock due to high meat consumption contributes greatly to soil degradation.[15] Soya production, mainly for industrial animal feed, has destroyed forests and ecosystems in Latin America.[16]

Against this grim scenario, we have climate change.

Climate change is a serious threat to soil health. Soil health is closely related to water and water is key to all agriculture.[17] The climate crisis has fundamentally altered the water cycle around the world. The result is shifting precipitation patterns and increased evaporation which result in more frequent severe rainfall events and more severe droughts. In many areas, rainfall has become either increasingly abundant or in desperately short supply, relative to long-term averages.[18]

Agroecological methods such as 'no-till farming', which eliminates manipulation of soil for crop production, can improve soil health.

Extreme downpours can lead to runoff and erosion because the ground is simply not able to absorb the precipitation at the rate it is falling. This strips healthy soil of key nutrients needed to sustain agriculture. In urban, suburban and agricultural areas, this runoff can pick up pollutants from the land and carry them down to rivers and other waterways. Furthermore, when a powerful downpour occurs in an area without adequate trees and other vegetation to hold the soil in place, a landslide can happen. In coastal areas, sea-level rise can lead to increased groundwater salinisation due to the intrusion of salt water inland. This will reduce the availability of fresh water for home consumption as well as for garden and farm irrigation.

On the other side of the coin, reduced precipitation together with rising temperatures is causing increased desertification, leading to a complete loss of farm production in many areas. Frequent droughts and enhanced evaporation are killing off the vital living soil ecosystems necessary to grow healthy crops. In addition, they leave less water to dilute even relatively common pollutants in rivers, streams, lakes, wells and reservoirs. It is projected that Asia's mountain glaciers will lose at least a third of their mass through global warming by the end of the century, with dire consequences for millions.[19] These glaciers feed many of the world's great rivers, including the Ganges, the Indus and the Brahmaputra, on which hundreds of millions of people depend for freshwater.

The climate crisis thus has a profound impact on every drop of water on the Earth's surface. The viability of home gardens and farms, and the availability of fresh, healthy and affordable food everywhere is directly threatened when climate changes and there is either too much or too little water. Another 2017 study projects that rising temperatures and increasing extreme weather events could reduce global production of maize, wheat, rice and soya by 9% in the 2030s and up to 23% in the 2050s.[20]

Another impact of climate change on soil health is through its effect on soil microbes. A 17-year study[21] into the effect of global warming on microbes found them to be far less adaptable to changing conditions than previously expected. This means that we cannot assume that microbes,

and therefore the soil, will respond to climate change in a way that many scientific models have assumed. This finding thus raises concerns that the microbes will not be able to carry out essential functions, such as breaking down leaves and other organic matter in a process which converts them into nitrogen and other nutrients that plants need to grow. Soil is the major buffer system for environmental changes, and the microbial community is the basis for that resilience. Therefore, if the microbial community is not resilient to climate change, then it calls into question the resilience of the whole environment to climate change.[22]

What then should be done to save soil? Clearly, agroecology is the way forward to ensure soil health and abundant food production as well as effective carbon sequestration. The UNCCD study called for a shift away from destructive intensive agriculture.

Already in 2009, GRAIN calculated that, by using sustainable farming techniques, we could progressively increase soil organic matter by 60 tonnes per hectare over 50 years, and capture a large chunk of the excess carbon dioxide in the atmosphere.[23] Agroecological methods would include 'no-till farming', which eliminates the manipulation of the soil for crop production. This should ideally be combined with cover cropping using non-cash crops like clover or small grains to protect soil from erosion, weeds, pests and diseases; decrease nutrient loss; and improve soil fertility and biodiversity between periods of regular crop rotation.[24] This will build soil organic matter which will trap carbon; act as a shield over the soil to protect it during dry times; act as a sponge to protect the soil from heavy rains; add nutrients to the crops; and provide water quality benefits.

Another good move would be to turn exhausted cropland to pasture land to protect soils and build soil carbon while still producing food.[25] Small numbers of animals that eat grass and arable by-products which humans do not eat could be good for the environment, provided of course that these pasture lands do not encroach upon critical wildlife habitats such as forests and peatlands. Low-intensity grazing will allow fallow land to remain productive, which will encourage farmers to protect their soils and reduce pressure on the land.

Last but not least, changing our eating habits from high amounts of industrially raised meat to far smaller quantities of higher-quality, mainly grass-fed meat or going vegetarian entirely, along with less dairy, more ecologically grown fruit and vegetables, and less processed food will make a big difference to sustainable global soil and food security.[26] ◆

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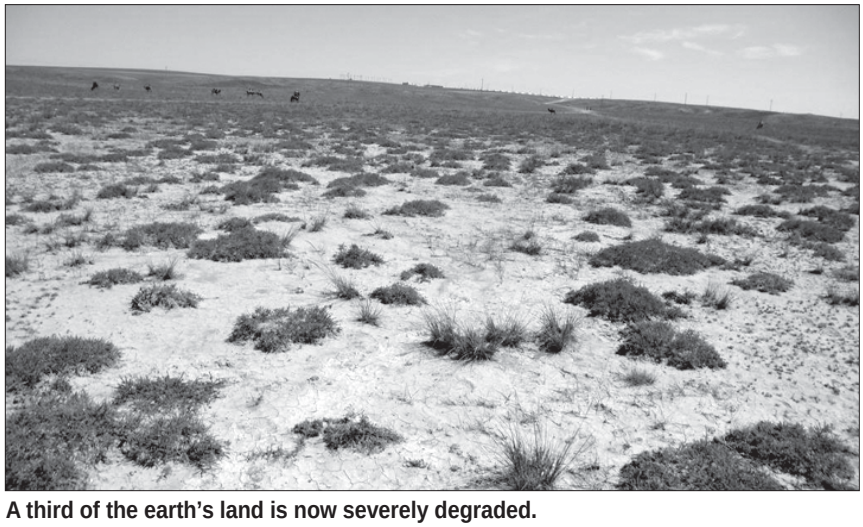
Notes

1 FAO, IFAD, UNICEF, WFP and WHO. 2017. *The State of Food Security and Nutrition in the World 2017: Building resilience for peace and food security*. Rome, FAO. http://www.fao.org/3/a-I7695e.pdf
2 Ibid.
3 Ibid.
4 Sauven, J. 2017. 'Why meat eaters should think much more about soil'. *The Guardian*. https://www.theguardian.com/commentisfree/2017/may/16/meat-eaters-soil-degradation-over-grazing
5 Ibid.
6 Bond-Lamberty, B. et al. 2016. 'Soil Respiration and Bacterial Structure and Function after 17 Years of a Reciprocal Soil Transplant Experiment'. *PLOS ONE*. http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0150599. Cited in independent.co.uk/environment/climate-change/soil-crisis-brought-about-by-climate-change-may-hit-global-food-production-claims-alarming-new-a6970376.html
7 UNCCD (United Nations Convention to Combat Desertification). 2017. *The Global Land Outlook*. https://global-land-outlook.squarespace.com/the-outlook/#the-bokk. Cited in https://www.theguardian.com/environment/2017/sep/12/third-of-earths-soil-acutely-degraded-due-to-agriculture-study
8 GRAIN. 2009. 'Small farmers can cool the planet'. https://www.grain.org/article/entries/4168-small-farmers-can-cool-the-planet-presentation
9 Ibid.
10 Sauven, op. cit.
11 UNCCD, op. cit.
12 Ibid.
13 Ibid.
14 Ibid.
15 Sauven, op. cit.
16 Ibid.
17 The Climate Reality Project. 2017. 'Right Under Your Feet. Soil and Climate Change'. https://www.climaterealityproject.org/sites/climaterealityproject.org/files/Soil%20Health%20and%20Climate%20Change.pdf?utm_source=advocacy&utm_medium=email&utm_campaign=general&utm_content=soil_health_ebook
18 Ibid.
19 *The Guardian*. 2017. 'Asia's glaciers to shrink by a third by 2100, threatening water supply of millions'. https://www.theguardian.com/environment/2017/sep/14/asia-glaciers-shrink-threatening-water-supply
20 Haile, M.G. et al. 2017. 'Impact of Climate Change, Weather Extremes, and Price Risk on Global Food Supply'. *Economics of Disasters and Climate Change*, Vol. 1, Issue 1. https://link.springer.com/article/10.1007/s41885-017-0005-2
21 Bond-Lamberty et al., op. cit.
22 Bawden, T. 2016. 'Soil crisis brought about by climate change may hit global food production, claims alarming new research'. *The Independent*. independent.co.uk/environment/climate-change/soil-crisis-brought-about-by-climate-change-may-hit-global-food-production-claims-alarming-new-a6970376.html
23 GRAIN, op. cit.
24 The Climate Reality Project, op. cit.
25 Sauven, op. cit.
26 Ibid. See also Smithers, R. 2017. 'Vast animal-feed crops to satisfy our meat needs are destroying planet'. *The Guardian*. http://www.theguardian.com/environment/2017/oct/05/vast-animal-feed-crops-meat-needs-destroying-planet

Alert: Nature on the verge of bankruptcy

Pressures on global land resources are now greater than ever, as a rapidly increasing population coupled with rising levels of consumption are placing ever-larger demands on the world's land-based natural capital, warns a new United Nations report.

Baher Kamal



cc Derik van Zuetphen via Flickr

A third of the earth's land is now severely degraded.

CONSUMPTION of the earth's natural reserves has doubled in the last 30 years, with a third of the planet's land now severely degraded, adds the United Nations Convention to Combat Desertification (UNCCD)'s new report, launched on 12 September in Ordos, China, during the Convention's 13th summit (6-16 September).

'Each year, we lose 15 billion trees and 24 billion tonnes of fertile soil,' the *Global Land Outlook (GLO)* report says, adding that a significant proportion of managed and natural ecosystems is degrading and at further risk from climate change and biodiversity loss.

In basic terms, there is increasing competition between the demand for goods and services that benefit people, like food, water and energy, and the need to protect other ecosystem services that regulate and support all life on Earth, according to the new publication.

At the same time, terrestrial biodiversity underpins all of these services and underwrites the full enjoyment of a wide range of human rights, such as the rights to a healthy life, nutritious food, clean water and cultural identity, adds the report.

The report provides some key facts: from 1998 to 2013, approximately 20% of the Earth's vegetated land surface showed persistent declining trends in productivity, apparent in 20% of cropland, 16% of forest land, 19% of grassland and 27% of rangeland.

These trends are 'especially alarming' in the face of the increased demand for land-intensive crops and livestock.

More land degradation, more climate change

Land degradation contributes to climate change and increases the vulnerability of millions of people, especially the poor, women and children, UNCCD says, adding that current management practices in the land use sector are responsible for about 25% of the world's greenhouse gases, while land degradation is both a cause and a result of poverty.

'Over 1.3 billion people, mostly in the developing countries, are trapped on degrading agricultural land, exposed to climate stress, and therefore excluded from wider infrastructure and economic development.'

Land degradation also triggers competition for scarce resources, which can lead to migration and insecurity while exacerbating access and income inequalities, the report warns.

'Soil erosion, desertification, and water scarcity all contribute to societal stress and breakdown. In this regard, land degradation can be considered a "threat amplifier", especially when it slowly reduces people's ability to use the land for food production and water storage or undermines other vital ecosystem services.'

Meanwhile, higher temperatures, changing rainfall patterns and increased water scarcity due to climate change will alter the suitability of vast regions for food production and human habitation, according to the report.

'The mass extinction of flora and fauna, including the loss of crop wild relatives and keystone species that hold ecosystems together, further jeopardises resilience and adaptive capacity, particularly for the rural poor who depend most on the land for their basic needs and livelihoods.'

Our food system, UNCCD warns, has put the focus on short-term production and profit rather than

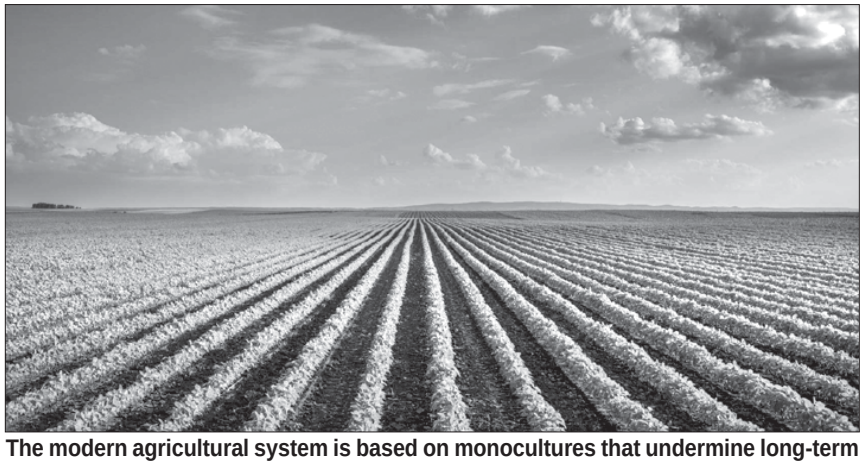
long-term environmental sustainability.

The modern agricultural system has resulted in huge increases in productivity, holding off the risk of famine in many parts of the world, but, at the same time, is based on monocultures, genetically modified crops, and the intensive use of fertilisers and pesticides that undermine long-term sustainability, it adds.

And here are some of the consequences: food production accounts for 70% of all freshwater withdrawals and 80% of deforestation, while soil, the basis for global food security, is being contaminated, degraded and eroded in many areas, resulting in long-term declines in productivity.

In parallel, small-scale farmers, the backbone of rural livelihoods and food production for millennia, are under immense strain from land degradation, insecure tenure, and a globalised food system that favours concentrated, large-scale and highly mechanised agribusiness.

This widening gulf between production and consumption, and ensuing levels of food loss/waste, further accelerates the rate of land use change, land degradation and deforestation, warns the UN Convention.



The modern agricultural system is based on monocultures that undermine long-term sustainability.

Global challenges

Speaking at the launch of the report, UNCCD Executive Secretary Monique Barbut said, 'Land degradation and drought are global challenges and intimately linked to most, if not all aspects of human security and well-being – food security, employment and migration, in particular.'

'As the ready supply of healthy and productive land dries up and the population grows, competition is intensifying, for land within countries and globally. As the competition increases, there are winners and losers.'

According to the Convention, land is an essential building block of civilisation yet its contribution to our quality of life is perceived and valued in starkly different and often incompatible ways.

A minority has grown rich from the unsustainable use and large-scale exploitation of land resources, with related conflicts intensifying in many countries, UNCCD states.

'Our ability to manage trade-offs at a landscape scale will ultimately decide the future of land resources – soil, water, and biodiversity – and determine success or failure in delivering poverty reduction, food and water security, and climate change mitigation and adaptation.'

Except for some regions in Europe, human use of land before the mid-1700s was insignificant when compared with contemporary changes in the Earth's ecosystems, UNCCD notes, adding that the notion of a limitless, human-dominated world was embraced and reinforced by scientific advances.

'Populations abruptly gained access to what seemed to be an unlimited stock of natural capital, where land was seen as a free gift of nature.'

The scenario analysis carried out for the *Outlook* report examines a range of possible futures and projects increasing tension between the need to increase food and energy production, and continuing declines in biodiversity and ecosystem services.

From a regional perspective, these scenarios predict that sub-Saharan Africa, South Asia, the Middle East and North Africa will face the greatest challenges due to a mix of factors, including high population growth, low per capita GDP, limited options for agricultural expansion, increased water stress and high biodiversity losses.

These are the real facts. The big question is whether this self-destructive trend can be reversed. The answer is yes, or at least that losses could be minimised.

On this, Barbut said that the *GLO* report suggests, 'It is in all our interests to step back and rethink how we are managing the pressures and the competition.'

'The *Outlook* presents a vision for transforming the way in which we use and manage land because we are all decision-makers and our choices can make a difference – even small steps matter,' she further added.

For his part, UN Development Programme Administrator Achim Steiner stated, 'Over 250 million people are directly affected by desertification, and about one billion people in over one hundred countries are at risk.'

They include many of the world's poorest and most marginalised people, he said, adding that achieving land degradation neutrality can provide a healthy and productive life for all on Earth, including water and food security.

The *Global Land Outlook* shows that 'each of us can in fact make a difference'.

Can Mother Nature recover? The answer is a clear yes. Perhaps it would suffice that politicians pay more attention to real human needs than promoting weapons deals – and that big business helps replenish the world's natural capital. – *IPS* ◆

'Alarm bells ringing': Global CO_2 levels at highest in three million years

A UN publication has revealed that last year, the average global concentration of carbon dioxide surged at record-breaking pace to the highest level in approximately three million years. *Jessica Corbett* reports.

AHEAD of the 6-17 November United Nations climate negotiations in Bonn, Germany, an annual bulletin released on 30 October revealed that last year, the average global concentration of carbon dioxide (CO_2) surged at a record-breaking pace to the highest level in approximately three million years, renewing scientists' concerns that more action is needed to reduce greenhouse gas emissions.

'This should set alarm bells ringing in the corridors of power,' Dave Reay, a professor of carbon management at the University of Edinburgh who was not involved with the research, told *The Guardian*. 'We know that, as climate change intensifies, the ability of the land and oceans to mop up our carbon emissions will weaken.'

'There's still time to steer these emissions down and so keep some control,' Reay added, 'but if we wait too long humankind will become a passenger on a one-way street to dangerous climate change.'

The *Greenhouse Gas Bulletin*, published by the United Nations World Meteorological Organisation (WMO)'s Global Atmosphere Watch programme, found that globally averaged CO_2 concentrations increased from 400 parts per million (ppm) in 2015 to 403.3 ppm last year.

Scientists have reliable data on carbon dioxide concentration spanning approximately 800,000 years, and researchers estimate the last time the planet had a comparable concentration of carbon dioxide was 3 to 5 million years ago, during the Pliocene epoch, when the global temperature was up to 3°C warmer and, due to melting ice sheets, the sea level was about 66 feet higher than it is today.

The bulletin attributes the increase in CO_2 levels to the El Niño event and greenhouse gas emissions from human activities, including 'growing population, intensified agricultural practices, increases in land use and deforestation, industrialisation, and associated energy use from fossil fuel sources' since the 'industrial era, beginning in 1750'.

'If we wait too long humankind will become a passenger on a one-way street to dangerous climate change.'

While emissions represent the full amount of carbon dioxide released into the atmosphere, the measured concentrations focus on what remains in the atmosphere 'after the complex system of interactions between the atmosphere, biosphere, cryosphere, and the oceans'. As carbon sinks, the oceans and biosphere each takes up about a quarter of total CO_2 emissions.

The bulletin warns that today's global CO_2 concentrations, which are now 145% of levels before 1750, will likely have a notable impact on global climate systems and cause 'severe ecological and economic disruptions'.

'CO_2 remains in the atmosphere for hundreds of years and in the oceans for even longer. The laws of physics mean that we face a much hotter, more extreme climate in the future,' said WMO Secretary-General Petteri Taalas.

'Without rapid cuts in CO_2 and other greenhouse gas emissions, we will be heading for dangerous temperature increases by the end of this century, well above the target set by the Paris climate change agreement,' Taalas added. 'Future generations will inherit a much more inhospitable planet.'

'The longer we wait to implement the Paris Agreement, the greater the commitment and the more drastic (and expensive) the required future emission reductions will need to be to keep climate change within critical limits,' the bulletin notes, echoing growing concerns about the economic costs of climate change.

'The numbers don't lie,' said Erik Solheim, head of UN Environment. 'We are still emitting far too much and this needs to be reversed. The last few years have seen enormous uptake of renewable energy, but we must now redouble our efforts to ensure these new low-carbon technologies are able to thrive.'

'We have many of the solutions already to address this challenge,' Solheim concluded. 'What we need now is global political will and a new sense of urgency.' ◆

Jessica Corbett is a staff writer with the Common Dreams website (www.commondreams.org), from which this article is reproduced under a Creative Commons licence.

The great nutrient collapse

The atmosphere is literally changing the food we eat, for the worse. And almost nobody is paying attention.

Helena Bottemiller Evich

IRAKLI Loladze is a mathematician by training, but he was in a biology lab when he encountered the puzzle that would change his life. It was in 1998, and Loladze was studying for his Ph.D. at Arizona State University. Against a backdrop of glass containers glowing with bright green algae, a biologist told Loladze and a half-dozen other graduate students that scientists had discovered something mysterious about zooplankton.

Zooplankton are microscopic animals that float in the world's oceans and lakes, and for food they rely on algae, which are essentially tiny plants. Scientists found that they could make algae grow faster by shining more light onto them – increasing the food supply for the zooplankton, which should have flourished. But it didn't work out that way. When the researchers shined more light on the algae, the algae grew faster, and the tiny animals had lots and lots to eat – but at a certain point they started struggling to survive. This was a paradox. More food should lead to more growth. How could more algae be a problem?

Loladze was technically in the math department, but he loved biology and couldn't stop thinking about this. The biologists had an idea of what was going on: The increased light was making the algae grow faster, but they ended up containing fewer of the nutrients the zooplankton needed to thrive. By speeding up their growth, the researchers had essentially turned the algae into junk food. The zooplankton had plenty to eat, but their food was less nutritious, and so they were starving.

Loladze used his math training to help measure and explain the algae-zooplankton dynamic. He and his colleagues devised a model that captured the relationship between a food source and a grazer that depends on the food. They published that first paper in 2000. But Loladze was also captivated by a much larger question raised by the experiment: just how far this problem might extend.

'What struck me is that its application is wider,' Loladze recalled in an interview. Could the same problem affect grass and cows? What about rice and people? 'It was kind of a watershed moment for me when I started thinking about human nutrition,' he said.

In the outside world, the problem isn't that plants are suddenly getting more light: It's that for years, they've been getting more carbon dioxide (CO_2). Plants rely on both light and carbon dioxide to grow. If shining more light results in faster-growing, less nutritious algae – junk-food algae whose ratio of sugar to nutrients was out of whack – then it seemed logical to assume that ramping up carbon dioxide might do the same. And it could also be playing out in plants all over the planet. What might that mean for the plants that people eat?

What Loladze found is that scientists simply didn't know. It was already well documented that CO_2 levels were rising in the atmosphere, but he was astonished at how little research had been done on how it affected the quality of the plants we eat. For the next 17 years, as he pursued his math career, Loladze scoured the scientific literature for any studies and data he could find. The results, as he collected them, all seemed to point in the same direction: The junk-food effect he had learned about in that Arizona lab also appeared to be occurring in fields and forests around the world. 'Every leaf and every grass blade on earth makes more and more sugars as CO2 levels keep rising,' Loladze said. 'We are witnessing the greatest injection of carbohydrates into the biosphere in human history – [an] injection that dilutes other nutrients in our food supply.'

He published those findings just a few years ago, adding to the concerns of a small but increasingly worried group of researchers who are raising unsettling questions about the future of our food supply. Could carbon dioxide have an effect on human health we haven't accounted for yet? The answer appears to be yes – and along the way, it has steered Loladze and other scientists directly into some of the thorniest questions in their profession, including just how hard it is to do research in a field that doesn't quite exist yet.

In agricultural research, it's been understood for some time that many of our most important foods have been getting less nutritious. Measurements of fruits and vegetables show that their minerals, vitamin and protein content has measurably dropped over the past 50 to 70 years. Researchers have generally assumed the reason is fairly straightforward: We've been breeding and choosing crops for higher yields rather than nutrition, and higher-yielding crops – whether broccoli, tomatoes or wheat – tend to be less nutrient-packed.

In 2004, a landmark study of fruits and vegetables found that everything from protein to calcium, iron and vitamin C had declined significantly across most garden crops since 1950. The researchers concluded this could mostly be explained by the varieties we were choosing to grow.

Loladze and a handful of other scientists have come to suspect that's not the whole story and that the atmosphere itself may be changing the food we eat. Plants need carbon dioxide to live like humans need oxygen. And in the increasingly polarised debate about climate science, one

thing that isn't up for debate is that the level of CO_2 in the atmosphere is rising. Before the industrial revolution, the earth's atmosphere had about 280 parts per million of carbon dioxide. Last year, the planet crossed over the 400-parts-per-million threshold; scientists predict we will likely reach 550 parts per million within the next half-century – essentially twice the amount that was in the air when Americans started farming with tractors.

If you're someone who thinks about plant growth, this seems like a good thing. It has also been useful ammunition for politicians looking for reasons to worry less about the implications of climate change. Lamar Smith, a Republican who chairs the House Committee on Science, recently argued that people shouldn't be so worried about rising CO_2 levels because it's good for plants, and what's good for plants is good for us.

'A higher concentration of carbon dioxide in our atmosphere would aid photosynthesis, which in turn contributes to increased plant growth,' the Texas Republican wrote. 'This correlates to a greater volume of food production and better quality food.'

But as the zooplankton experiment showed, greater volume and better quality might not go hand-in-hand. In fact, they might be inversely linked. As best scientists can tell, this is what happens: Rising CO_2 revs up photosynthesis, the process that helps plants transform sunlight to food. This makes plants grow, but it also leads them to pack in more carbohydrates like glucose at the expense of other nutrients that we depend on, like protein, iron and zinc.

In 2002, while a postdoctoral fellow at Princeton University, Loladze published a seminal research paper in *Trends in Ecology and Evolution*, a leading journal, arguing that rising CO2 and human nutrition were inextricably linked through a global shift in the quality of plants. In the paper, Loladze complained about the dearth of data: Among thousands of publications he had reviewed on plants and rising CO_2, he found only one that

High temperatures drive down sorghum yields

It may not only be their nutrient content that is declining in an age of climate change; key food crops could also be yielding less.

G.B.S.N.P Varma

Sorghum packs a nutritional wallop and bestows food security on half a billion people in Africa and South Asia. Cultivated in semi-arid and arid climate, it is a staple food for people in developing countries, and is also used in developed countries as animal fodder.

Sorghum is well-known for weathering harsh environmental conditions and for being able to draw water from far depths of the earth.

However, up until now that assumption has never been tested against predictions of higher future temperatures due to climate change. A new study published in *Proceedings of the National Academy of Sciences of the United States of America (PNAS)* does precisely that.

The researchers, from Kansas State University (KSU), studied 30 years of sorghum production in the state and found that the crop has considerable vulnerability to heat stress under higher average temperatures. Yields decline by 10% for each degree of warming above 33 degrees Celsius, according to the study's lead authors Krishna Jagadish and Jesse Tack.

They also found that there was not much genetic diversity among more than 400 cultivars they analysed, which limits producers' ability to adapt to a warming climate. The crop is mostly grown in hot countries – the US is the largest producer, with Mexico, Nigeria, Sudan and India also producing it in high quantities.

Rising temperatures damage the growth and development of sorghum. The researchers looked at planting and flowering schedules and stages of the crop, and found that high temperatures impacted both pre-flowering and post-flowering stages.

The pre-flowering stage is a critical point in the lifecycle of the plant when reproductive parts are developed, while the post-flowering stage is important for seed production.

Warming makes plants grow faster, shortening the plant's lifecycle and reducing the yield. It also dries up the air, forcing the plant to transpire more water to grow normally, which means it runs out of water sooner.

'Despite the appreciation for sorghum's water-sipping attributes, there does not seem to be an effort to couple that with needed heat resilience,' says Tack.

The research findings lead to the wider question of whether other crops have cultivars that can withstand harsher conditions.

'Do other millets such as pearl millet have sufficient genetic diversity to counter future increase in temperatures? This hypothesis requires systematic investigation similar to what we have undertaken with sorghum,' Jagadish says.

A 2016 paper by KSU researchers published in the journal *Field Crops Research* notes that research that has investigated the impact of heat stress during reproductive stages of crops has found that damage occurs between 30-40°C.

High temperatures have been found to affect other major crops. Researchers from around the globe analysed 70 studies looking at the impacts of temperature on yields of four crops. In a study also published in *PNAS*, they concluded that for each degree rise in global mean temperature, yields of wheat would fall by 6%, rice by 3%, maize by 7% and soybean by 3%. These crops provide two-thirds of the world's calorific intake. – *TheEcologist.org* ◆

G.B.S.N.P Varma is a freelance journalist based in India with an interest in climate science, environment and ecology.

looked specifically at how it affected the balance of nutrients in rice, a crop that billions of people rely on. (The paper, published in 1997, found a drop in zinc and iron.)

Loladze's paper was first to tie the impact of CO_2 on plant quality to human nutrition. But he also raised more questions than he answered, arguing that there were fundamental holes in the research. If these nutritional shifts were happening up and down the food chain, the phenomenon needed to be measured and understood.

Part of the problem, Loladze was finding, lay in the research world itself. Answering the question required an understanding of plant physiology, agriculture and nutrition – as well as a healthy dollop of math. He could do the math, but he was a young academic trying to establish himself, and math departments weren't especially interested in solving problems in farming and human health.

Loladze struggled to get funding to generate new data and continued to obsessively collect published data from researchers across the globe. He headed to the heartland to take an assistant professor position at the University of Nebraska-Lincoln. It was a major agricultural school, which seemed like a good sign, but Loladze was still a math professor. He was told he could pursue his research interests as long as he brought in funding, but he struggled. Biology grant makers said his proposals were too math-heavy; math grant makers said his proposals contained too much biology.

'It was year after year, rejection after rejection,' he said. 'It was so frustrating. I don't think people grasp the scale of this.'

It's not just in the fields of math and biology that this issue has fallen through the cracks. To say that it's little known that key crops are getting less nutritious due to rising CO_2 is an understatement. It is simply not discussed in the agriculture, public health or nutrition communities. At all.

When the POLITICO news organisation contacted top nutrition experts about the growing body of research on the topic, they were almost universally perplexed and asked to see the research. One leading nutrition scientist at Johns Hopkins University said it was interesting, but admitted he didn't know anything about it. He referred me to another expert. She said they didn't know about the subject, either. The Academy of Nutrition and Dietetics, an association representing an army of nutrition experts across the country, connected me with Robin Foroutan, an integrative medicine nutritionist who was also not familiar with the research.

'It's really interesting, and you're right, it's not on many people's radar,' wrote Foroutan, in an email, after being sent some papers on the topic. Foroutan said she would like to see a whole lot more data, particularly on how a subtle shift toward more carbohydrates in plants could affect public health.

'We don't know what a minor shift in the carbohydrate ratio in the diet is ultimately going to do,' she said, noting that the overall trend toward more starch and carbohydrate consumption has been associated with an increase in diet-related disease like obesity and diabetes. 'To what degree would a shift in the food system contribute to that? We can't really say.'

Asked to comment for this story, Marion Nestle, a nutrition policy professor at New York University who's one of the best-known nutrition experts in the country, initially expressed scepticism about the whole concept but offered to dig into a file she keeps on climate issues.

After reviewing the evidence, she changed her tune. 'I'm convinced,' she said, in an email, while also urging caution: It wasn't clear whether CO_2-driven nutrient depletion would have a meaningful impact on public health. We need to know a whole lot more, she said.

Kristie Ebi, a researcher at the University of Washington who's studied the intersection of climate change and global health for two decades, is one of a handful of scientists in the US keyed into the potentially sweeping consequences of the CO_2-nutrition dynamic, and brings it up in every talk she gives.

'It's a hidden issue,' Ebi said. 'The fact that my bread doesn't have the micronutrients it did 20 years ago – how would you know?'

As Ebi sees it, the CO_2-nutrition link has been slow to break through, much as it took the academic community a long time to start seriously looking at the intersection of climate and human health in general. 'This is before the change,' she said. 'This is what it looks like before the change.'

Loladze's early paper raised some big questions that are difficult, but not impossible, to answer. How does rising atmospheric CO_2 change how plants grow? How much of the long-term nutrient drop is caused by the atmosphere, and how much by other factors, like breeding?

It's also difficult, but not impossible, to run farm-scale experiments on how CO_2 affects plants. Researchers use a technique that essentially turns an entire field into a lab. The current gold standard for this type of research is called a FACE experiment (for 'free-air carbon dioxide enrichment'), in which researchers create large open-air structures that blow CO_2 onto the plants in a given area. Small sensors keep track of the CO_2 levels. When too much CO_2 escapes the perimeter, the contraption puffs more into the air to keep the levels stable. Scientists can then compare those plants directly with others growing in normal air near by.

These experiments and others like them have shown scientists that plants change in important ways when they're grown at elevated CO_2 levels. Within the category of plants known as 'C3' – which includes approximately 95% of plant species on earth, including ones we eat like wheat, rice, barley and potatoes – elevated CO_2 has been shown to drive down important minerals like calcium, potassium, zinc and iron. The data we have, which look at how plants would respond to the kind of CO_2 concentrations we may see in our lifetimes, show these important minerals drop by 8%, on average. The same condi-

tions have been shown to drive down the protein content of C3 crops, in some cases significantly, with wheat and rice dropping 6% and 8%, respectively.

Earlier this summer, a group of researchers published the first studies attempting to estimate what these shifts could mean for the global population. Plants are a crucial source of protein for people in the developing world, and by 2050, they estimate, 150 million people could be put at risk of protein deficiency, particularly in countries like India and Bangladesh. Researchers found a loss of zinc, which is particularly essential for maternal and infant health, could put 138 million people at risk. They also estimated that more than 1 billion mothers and 354 million children live in countries where dietary iron is projected to drop significantly, which could exacerbate the already widespread public health problem of anaemia.

There aren't any projections for the United States, where we for the most part enjoy a diverse diet with no shortage of protein, but some researchers look at the growing proportion of sugars in plants and hypothesise that a systemic shift in plants could further contribute to our already alarming rates of obesity and cardiovascular disease.

Another new and important strain of research on CO_2 and plant nutrition is now coming out of the US Department of Agriculture (USDA). Lewis Ziska, a plant physiologist at the Agricultural Research Service headquarters in Beltsville, Maryland, is drilling down on some of the questions that Loladze first raised 15 years ago with a number of new studies that focus on nutrition.

Ziska devised an experiment that eliminated the complicating factor of plant breeding: He decided to look at bee food.

Goldenrod, a wildflower many consider a weed, is extremely important to bees. It flowers late in the season, and its pollen provides an important source of protein for bees as they head into the harshness of winter. Since goldenrod is wild and humans haven't bred it into new strains, it hasn't changed over time as much as, say, corn or wheat. And the Smithsonian Institution also happens to have hundreds of samples of goldenrod, dating back to 1842, in its massive historical archive – which gave Ziska and his colleagues a chance to figure out how one plant has changed over time.

They found that the protein content of goldenrod pollen has declined by a third since the industrial revolution – and the change closely tracks with the rise in CO_2. Scientists have been trying to figure out why bee populations around the world have been in decline, which threatens many crops that rely on bees for pollination. Ziska's paper suggested that a decline in protein prior to winter could be an additional factor making it hard for bees to survive other stressors.

Ziska worries we're not studying all the ways CO_2 affects the plants we depend on with enough urgency, especially considering the fact that retooling crops takes a long time.

'We're falling behind in our ability to intercede and begin to use the traditional agricultural tools, like breeding, to compensate,' he said. 'Right now it can take 15 to 20 years before we get from the laboratory to the field.'

As Loladze and others have found, tackling globe-spanning new questions that cross the boundaries of scientific fields can be difficult. There are plenty of plant physiologists researching crops, but most are dedicated to studying factors like yield and pest resistance – qualities that have nothing to do with nutrition. Math departments, as Loladze discovered, don't exactly prioritise food research. And studying living things can be costly and slow: It takes several years and huge sums of money to get a FACE experiment to generate enough data to draw any conclusions.

Despite these challenges, researchers are increasingly studying these questions, which means we may have more answers in the coming years. Ziska and Loladze, who now teaches math at Bryan College of Health Sciences in Lincoln, Nebraska, are collaborating with a coalition of researchers in China, Japan, Australia and elsewhere in the US on a large study looking at rising CO_2 and the nutritional profile of rice, one of humankind's most important crops. Their study also includes vitamins, an important nutritional component that to date has almost not been studied at all.

USDA researchers also recently dug up varieties of rice, wheat and soy that USDA had saved from the 1950s and 1960s and planted them in plots around the US where previous researchers had grown the same cultivars decades ago, with the aim of better understanding how today's higher levels of CO_2 affect them.

In a USDA research field in Maryland, researchers are running experiments on bell peppers to measure how vitamin C changes under elevated CO_2. They're also looking at coffee to see whether caffeine declines. 'There are lots of questions,' Ziska said as he showed me around his research campus in Beltsville. 'We're just putting our toe in the water.'

Ziska is part of a small band of researchers now trying to measure these changes and figure out what it means for humans. Another key figure studying this nexus is Samuel Myers, a doctor turned climate researcher at Harvard University who leads the Planetary Health Alliance, a new global effort to connect the dots between climate science and human health.

Myers is also concerned that the research community is not more focused on understanding the CO_2-nutrition dynamic, since it's a crucial piece of a much larger picture of how such changes might ripple through ecosystems. 'This is the tip of the iceberg,' said Myers. 'It's been hard for us to get people to understand how many questions they should have.'

In 2014, Myers and a team of other scientists published a large, data-rich study in the journal *Nature* that looked at key crops grown at several sites in Japan, Australia and the United States that also found rising CO_2 led to a drop in protein, iron and zinc.

It was the first time the issue had attracted any real media attention.

'The public health implications of global climate change are difficult to predict, and we expect many surprises,' the researchers wrote. 'The finding that raising atmospheric CO_2 lowers the nutritional value of C3 crops is one such surprise that we can now better predict and prepare for.'

The same year – in fact, on the same day – Loladze, then teaching math at the Catholic University of Daegu in South Korea, published his own paper, the result of more than 15 years of gathering data on the same subject. It was the largest study in the world on rising CO_2 and its impact on plant nutrients. Loladze likes to describe plant science as 'noisy' – research-speak for cluttered with complicating data, through which it can be difficult to detect the signal you're looking for. His new data set was finally big enough to see the signal through the noise, to detect the 'hidden shift', as he put it.

What he found is that his 2002 theory – or, rather, the strong suspicion he had articulated back then – appeared to be borne out. Across nearly 130 varieties of plants and more than 15,000 samples collected from experiments over the past three decades, the overall concentration of minerals like calcium, magnesium, potassium, zinc and iron had dropped by 8% on average. The ratio of carbohydrates to minerals was going up. The plants, like the algae, were becoming junk food.

What that means for humans – whose main food intake is plants – is only just starting to be investigated. Researchers who dive into it will have to surmount obstacles like its low profile and slow pace, and a political environment where the word 'climate' is enough to derail a funding conversation. It will also require entirely new bridges to be built in the world of science – a problem that Loladze himself wryly acknowledges in his own research. When his paper was finally published in 2014, Loladze listed his grant rejections in the acknowledgements. ◆

Helena Bottemiller Evich is a senior food and agriculture reporter for POLITICO Pro. This article is reproduced from POLITICO.com.

Before the hurricane

Cuba is a world leader in hurricane preparedness and recovery. There is much other states can learn from this island nation.

Branko Marcetic

Residents being transported in a trailer to a shelter before the arrival of Hurricane Matthew in Cuba in October 2016. Hurricane response in Cuba is carried out by ordinary Cubans in their local communities, building on the regular training they receive.

ALONG with the horrifying images of floating corpses, devastating flooding and people trapped on makeshift islands, another indelible image has emerged from the Hurricane Harvey catastrophe. In the midst of disaster, locals began sharing pictures of hundreds of fire ants forming chain-linked rafts to float on water and protect their queen, eggs and young.

This striking display of insect solidarity in the face of calamity seemed to contrast with the human response to Harvey, which, however valiant, appeared to remind us of the apparent futility of human resistance in the face of acts of God.

But what if I told you there was a country that has survived its last 17 hurricanes with only 35 deaths? What if that country demonstrated exactly the kind of society-wide solidarity we envy the fire ants for? And what if that country had a GDP that was a fraction of the United States'?

There is such a country: Cuba.

While 2016's Hurricane Matthew killed 44 people in the United States, it killed no one in Cuba, despite leaving a trail of destruction in its wake. Ditto for Hurricane Katrina, which left as many as 1,800 people dead in the US. In 2008, Hurricanes Gustav and Ike pummelled Cuba at the peak of their intensity, slaying seven. But in the US, 30 people perished, even though the storm had lost much of its strength. Hurricane Isabel killed more Americans in 2003 than six major hurricanes killed Cubans between 1996 and 2002.

The same pattern holds true for every hurricane that's struck the two countries. It's no wonder then that organisations like the International Federation of the Red Cross and Red Crescent Societies and the United Nations have repeatedly cited Cuba as a global model for risk reduction (see box).

So how does Cuba do it? There's no great secret. After several particularly deadly 20th-century hurricanes, the country simply put in place a comprehensive, all-hands-on-deck national programme of disaster preparation, evacuation, relief and recovery that involves virtually every citizen, from the national to the local levels.

Rather than a side issue, forgotten until the next time disaster strikes, hurricane preparation and recovery in Cuba are treated as the life-and-death matters that they are. And while some might argue that the Cuban model is only possible because it's a one-party state, there's little about its hurricane programme that rests on authoritarianism.

Here are four key facets of the Cuban programme that set it apart.

1. Cuba is always preparing for the next hurricane.

Cuba quite rightly assumes that another major hurricane is always right around the corner. It therefore has a variety of government entities devoted to predicting and bracing for the next hurricane. Its 68 weather stations track storms, while the National Civil Defence has an early warning system, emergency stockpiles and rescue teams.

This by itself does not set Cuba far apart from countries like the United States. But as a 2009 delegation to Cuba from Galveston, Texas, found, 'preparation in Cuba is a year-round event'. All adults are mandated by law to go through a civilian defence training programme that teaches them how to help during an evacuation. Every year since 1986, each and every citizen, regardless of age, has taken part in a two-day hurricane drill known as the Ejercicio Meteoro, in which they simulate an evacuation. Schools have incorporated preparedness into the curriculum at all ages.

In addition, emergency plans at the national, provincial, municipal

and local levels are devised and updated annually. As part of this plan, every Cuban is designated a location for refuge well in advance of any storm.

Weather information, meanwhile, is broadcast continually on state-run media, every six hours, increasing in frequency to every three hours if storms are on their way, while alerts are sounded 72 hours before a hurricane hits. In other words, the state of the weather is never far from Cubans' minds.

UNICEF Cuba/López Fesser

Students in Santiago de Cuba explain their school's plan for evacuation in the event of a natural disaster. Cuba has put in place a national programme of disaster preparation, evacuation, relief and recovery that involves virtually every citizen.

2. Everyone is mobilised.

A major reason for the Cuban model's success, particularly in a country with comparatively few resources, is its philosophy of total mobilisation. The hurricane response may be directed from the top down, but it's carried out by ordinary Cubans in their local communities, building on the regular training they receive.

As Oxfam America found in a 2004 study, 'the single most important thing about disaster response in Cuba is that people cooperate en masse'. Provincial and municipal leaders are made Civil Defence leaders and put in charge of their particular areas, combining a centralised decision-making process with a decentralised implementation. They call meetings, review emergency plans, assign transportation and equipment, delegate tasks and duties, and more.

In Cuba, everyone has a role. Doctors, school directors, members of mass organisations and others review emergency plans and check evacuation procedures and supplies. 'Everyone, even the children, knew what to do,' observed one foreign aid worker in 1996, noting how everyone in an apartment building would get to work taping up windows, stockpiling rations, cooking food and advising neighbours on how to safeguard their property. It's part of what the UN-Habitat agency has called a culture of safety.

Community members work to move animals to higher ground, rescue those who are stranded, and hurricane-proof homes. If a family home is deemed safe and not at risk for flooding, they take in neighbours. Otherwise, citizens are assigned to a neighbour or family member's house, or, failing that, to a government-run group shelter (which can be anything from a school to a church).

To get people there, local communities draw on whatever transportation they have on hand, from cars and trucks to boats and horse carts. Citizens are even allowed to bring pets, with veterinarians stationed at evacuation centres ready to tend to them. Municipal bakeries pitch in by providing the shelters with food.

This continues into the recovery phase. Local communities form teams to assess the damage and start cleaning. Citizens work together to clean up and rebuild, collecting clothing and materials for the community. Some continue to live with friends and family or in shelters until it's safe to go back.

Such solidarity is not somehow unique to Cuba. As scenes out of Texas and other disaster-stricken states in the US over the years have shown, ordinary Americans are more than ready to sacrifice to help their neighbours. But such energies are often expended after the fact, when it's too late, not in advance, as in Cuba.

3. Vulnerable communities are taken care of.

The damage wrought by natural disasters is always lopsided. In the United States, wealth inequality makes this stratification especially acute, but a whole host of other factors – from geography to personal health – also contribute to disparities.

Cuba goes out of its way to identify which of its citizens, areas and properties are most vulnerable to disaster, at both the macro and micro levels. Municipalities compile detailed biographical information on all citizens annually, from their age to any special services they might require.

Meanwhile, community members such as doctors or representatives of mass organisations assess their own neighbourhoods. One explained to Oxfam that she knew the people who lived in the neighbourhood and their particular needs, from an elderly woman in a wheelchair to a pregnant woman in need of assistance.

As a hurricane approaches, these

local representatives make sure vulnerable people are okay, while community doctors check on patients to see if they need to go to hospital as a precaution.

4. The protection of personal property is guaranteed, among a host of other unique measures.

One of the most unique elements of the Cuban model is the government's effort to protect ordinary Cubans' personal property. This is important for financial and sentimental reasons, but also to convince people to follow evacuation orders.

Government officials, police and the military are sent in to move furniture and other belongings to higher ground or somewhere else safe. Some provinces let residents put their valuables in boxes and send them away to be stored elsewhere. To give citizens added peace of mind, the government guarantees the replacement of all destroyed property, despite the country's meagre resources.

This is just one of a number of distinct measures the Cuban government takes during a hurricane. Print and broadcast media give detailed instructions for how to secure homes and where to go. Electricity and cooking gas mains are shut down when the wind reaches a certain speed, preventing deaths from electrocution or gas explosions. Harvesting is accelerated in advance of an event, while trees near phone and electrical wires are cleared.

And instead of closing hospitals and other vital services, as is often done in the US, Cuba keeps them open and secures them, to provide medical care and more to its beleaguered people. Such medical help for victims continues long after the disaster is over, a reflection of the government's insistence that healthcare is a human right.

We can do better

All of this stands in stark contrast to the United States.

The US' disaster response is planned and carried out with little to no citizen engagement. Municipalities don't have to respond to a centralised body concerning evacuation procedures, but instead make their own decisions, which they can't enforce. There's no mandatory emergency drill or cooperation that citizens must take part in. Vulnerable communities are not mapped out, and the military's resources are directed towards fighting far-off wars instead of helping communities back home.

True, the United States doesn't have a state-run media that can broadcast information in an emergency. Yet privately run media are known to collaborate with the US government to transmit information in times of emergency, as well as cut into regular programming to deliver urgent messages from the president. It's difficult to believe they would refuse to assist the government when natural disaster strikes.

Some might also point out that the United States can't force people to evacuate, a major cause of death as residents ignore evacuation warnings. But as the Galveston delegation determined, 'an informed populace, more keenly involved and aware of the risk a natural disaster poses, will be more likely to evacuate voluntarily'. In other words, making ordinary people part of the response effort, delegating responsibilities to them and educating them about the dangers of natural disasters means they're more likely to take such threats seriously — as does guaranteeing the safety of their personal property.

The Cuban model is not some kind of outlier that is the outgrowth of its authoritarian political system. It's a product of political will. The government decided they would prioritise the lives of the Cuban people, including the most vulnerable, and built a hurricane response programme around that.

Imagine what the United States, a nation with more than 100 times Cuba's wealth and resources, could do if its politicians made the same decision. ◆

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UN body lauds Cuban hurricane risk management

Back in 2004, as Hurricane Ivan stormed across the Caribbean, the United Nations stated that Cuba was a model in hurricane risk management in developing countries. 'The Cuban way could easily be applied to other countries with similar economic conditions and even in countries with greater resources that do not manage to protect their population as well as Cuba does,' explained Salvano Briceno, director of the International Strategy for Disaster Reduction (ISDR) secretariat in Geneva, the UN body that focuses on disaster reduction.

Cuba presents an example of how the vulnerability of people can effectively be reduced with low-cost measures – and strong determination. Authorities are determined to implement disaster reduction policies in Cuba, said Briceno. 'It is part of their development planning and their culture, which play a key role in saving lives and livelihoods. This illustrates the importance of a strong political will ... Leaders of countries around the world have at their disposal the knowledge needed to reduce risk and vulnerability to hazards. Even poor countries are not entirely without options to mitigate or prevent the consequences of hazards. What is often lacking are concrete programmes of action and the political will to implement policies and measures.' ◆

Source: *'Cuba: A model in hurricane risk management', ISDR press release, September 2004*

What Nicaragua teaches us about climate disasters

From evacuation and resettlement of low-income flood victims to emergency simulation to low-cost insurance, Nicaragua has many lessons to impart. *Douglas Haynes* explains.

JULIO Baldelomar and Aryeri Rodríguez are flood victims, but you rarely hear about the plight of people like them. In April 2009, they were squatting on the shore of Lake Xolotlán, a polluted lake nearly the size of Los Angeles that lines the north side of Nicaragua's capital, Managua. Aryeri was fleeing an abusive household, and her work as a food vendor didn't earn her enough to rent a place to live. She asked her boyfriend Julio – who wanted to escape living with his parents – to join her. They built a sheet metal shanty on an open part of the lakeshore and lived for 16 months 'in healthy peace', as Julio says. Until weeks of torrential rains in September 2010 forced them out of their home and the Humanitarian Rescue Division of the Nicaraguan army helped them evacuate.

The climate phenomenon known as La Niña – likely strengthened by global warming – unleashed these rains. More than 10,000 Nicaraguans lost their homes in this flood. Most of them languished for months in more than 100 government-run emergency shelters. Eventually, they were resettled in furnished homes built by the government. After enduring 16 months in a dark shelter cubicle, Julio and Aryeri received a free three-room concrete house in a new community that includes a health clinic, a school, a vocational education centre, a park and a police station. It is their first home without a dirt floor. When Aryeri awoke the first morning there, she told me, she felt like she'd gone to heaven.

Without the Nicaraguan government's help with evacuation and resettlement, she and Julio probably would have lost much of what they owned and squatted in a high-risk location again. Had they done this, they would have been imperilled once more in 2011, when another week-long storm without a name parked over Central America and put almost 10% of the country under water.

Climate violence

Such storms are becoming more frequent in Nicaragua, and rainfall is becoming more intense, while overall precipitation is declining. According to the 2017 Germanwatch Climate Risk Index, between 1996 and 2015, Nicaragua was the world's fourth-most-affected country by extreme weather. On average, more than two extreme weather events a year killed more than 160 people annually and caused annual economic losses of more than 1% of Nicaragua's GDP. By comparison, in the US the equivalent number of dead out of the total population would be almost 9,000 every year: approximately five times the number caused by Hurricane Katrina. In proportional economic terms, the direct damage in the US would be roughly the equivalent of that from four to seven Hurricane Sandys every year and more than $200 billion (based on 2016 GDP). Even in the world's richest country, such impacts would be not only tragic but economically debilitating. In Nicaragua – a country of only six million with a gross national income per capita of $2,050 – these impacts mean chronic calamity.

This was the context for the Nicaraguan government's decision not to sign the Paris climate agreement last year. President Daniel Ortega's administration objected to the agreement for reasons very different than US President Donald Trump's: Nicaragua criticised the agreement's voluntary basis for reducing carbon emissions and its lack of a mechanism to make the countries that emit the most carbon primarily responsible for addressing climate change. Nicaragua emits only 0.03% of the world's human greenhouse gas emissions, while suffering disproportionate effects of climate change.

For people living on Nicaragua's economic margins like Julio and Aryeri, climate violence isn't just a temporary peril. It makes everyday life harder through food insecurity, public health problems and damaged infrastructure. These gradual effects are less visible than superstorms, but they combine and persist to undermine people's long-term well-being and livelihoods. But the global media largely ignores these cumulative effects.

One of the most profound impacts of climate change in Nicaragua is food insecurity. About 30% of Nicaraguan workers are employed in agriculture. When extreme weather damages crops, both their pocketbooks and stomachs suffer. Over the past 40 years, the yields of the staple crops corn and beans have stagnated – partly due to rising temperatures – and crop losses due to droughts and floods are becoming more common. These declining yields and losses cause food stress not only for subsistence farmers but also for urban consumers. After the 2010 flood that displaced Julio and Aryeri, prices of the foods that provide almost half of Nicaraguans' calories – red beans, corn and rice – spiked due to crop failures. This happened again due to flooding in 2012 and repeatedly during the record-breaking El Niño drought years of 2014 and 2015. When the

prices of staples go through the roof, many people in both rural areas and cities eat less, eat only plain rice or don't eat at all.

Growing climatic variability also causes other public health problems, particularly in low-income communities, where they often perniciously stew together. In recent years, Nicaragua's volatile weather has contributed to repeated epidemics of deadly leptospirosis – caused by rodent-borne bacteria that spread in water – and a rise in gastrointestinal and respiratory illnesses. Three of Nicaragua's largest cities also experienced outbreaks of mosquito-borne dengue fever after periods of intense rainfall between 1993 and 2010. Evidence suggests that the warmer and intermittently wetter conditions associated with climate change may also contribute to the spread of Zika virus. Floods frequently compromise drinking water sources as well, exacerbating health problems. Finally, an estimated hundreds of thousands of Nicaraguan workers face heat stress on the job, and climate change is expected to cause many more workplaces to exceed the threshold for safe, steady labour.

On top of extreme weather's health impacts is the damage it causes to already inadequate infrastructure. Many of Nicaragua's bridges, for example, weren't designed for the quantity of rain that now falls in intense bursts rather than over the course of several months. According to Suyén Pérez, general director for climate change in the Nicaraguan Ministry of Environment, when floods and landslides degrade bridges and roads, farmers can't get crops to market, access to health clinics and hospitals is restricted when it is often most needed, and governments with limited budgets have to sacrifice human development projects such as schools to repair transportation infrastructure. 'This is climate change,' she emphasises, 'that our infrastructure can't withstand the extreme phenomena anymore.' To address this problem, the Nicaraguan Ministry of Transportation and Infrastructure is working with the Inter-American Development Bank to incorporate climate change concerns in road design. International partnerships like this have helped the Central American nation confront the climate crisis in ways many richer countries haven't mustered.

Nicaraguan example

After being hit by Hurricane Irma and Hurricane Harvey, the US is debating how to better understand, prevent and respond to disasters. From evacuation and resettlement of low-income flood victims to emergency simulation to low-cost insurance, Nicaragua has many lessons to impart. In particular, Nicaragua offers an example for how to help the most marginalised people survive disasters and rebuild their lives afterwards.

Between 2009 and 2014, the Nicaraguan government evacuated and built homes in safer locations for almost 30,000 flood, landslide and earthquake victims and people living in vulnerable places. This has helped keep the number of flood fatalities relatively low in Managua especially, given that parts of this city of almost two million are regularly inundated. Nationwide emergency simulation exercises are another effort to lessen the human costs of disasters. A 2016 simulation exercise aided by the World Food Programme involved more than one-twelfth of the country's population and all but one of its municipalities. And to help recover from climate catastrophes, Nicaragua has joined an innovative programme supported by the World Bank that allows countries to access low-cost insurance against natural disasters. In 2015, Nicaragua was the first Central American nation to join.

The country is also invested in mitigating climate change through increasing its use of renewable energy. In 2016, Al Gore's Climate Reality Project ranked Nicaragua number three in its list of global renewable energy leaders, behind only Sweden and Costa Rica. Wind, solar, hydro and geothermal sources now provide about half of Nicaragua's energy, and the government aims for 90% of energy to be from renewables by 2020.

Of course, the Nicaraguan government is not without faults. The US Senate is currently considering a bill that would hinder multilateral loans to Nicaragua from international financial institutions due to the country's lack of transparent elections. Undoubtedly, President Ortega's consolidation of power has endangered Nicaraguan democracy. But given that climate change is arguably one of the greatest threats to democracy everywhere, the US should focus on its own lack of action on the climate crisis and consider what it can learn from Nicaragua instead of sanctioning it.

The lives of Julio, Aryeri and thousands of other Nicaraguans demonstrate that climate disasters aren't just dramatic storms that come and go from the headlines. They're often slowly unfolding calamities that combine to make already vulnerable people even more vulnerable. The Nicaraguan government shows it understands this through its multi-faceted response to the climate emergency. Its discourse of empathy for the most vulnerable is also a crucial contribution to the ways we talk about climate change. The words 'dignity' and 'love' often spill from Sandinista officials' mouths.

Aryeri is grateful to Ortega's government for helping her and Julio restart their lives after losing their home. Today, she runs a small store and video arcade in their new house, and Julio helps her when he's not out selling food on the streets. For the first time in their lives, they have a secure place to call home. 'To be in this heaven, I suffered so much,' Aryeri says.

To better prevent and respond to the disasters sweeping the planet, we should heed both her suffering and the relief that helped her find heaven. ◆

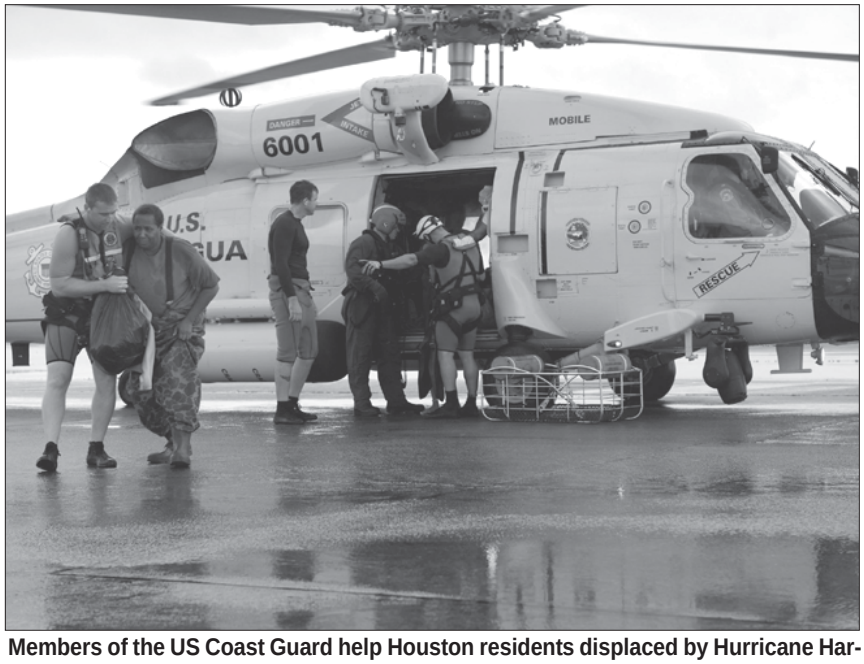
Douglas Haynes is an essayist, journalist and poet whose work has appeared in Orion, *Longreads,* Virginia Quarterly Review, *Huffington Post,* Boston Review *and many other publications. He is author of the forthcoming book* Every Day We Live Is the Future: Surviving in a City of Disasters. *He teaches writing at the University of Wisconsin Oshkosh. The above article is reproduced from the website of the North American Congress on Latin America (nacla.org).*

Beyond Harvey and Irma

Militarising homeland security in the climate-change era

Any increase in climate-related extreme events striking US territory will inevitably lead to a commensurate rise in American military support for civilian agencies, diverting key assets – troops and equipment – from elsewhere.

Michael T Klare



Members of the US Coast Guard help Houston residents displaced by Hurricane Harvey disembark from a helicopter. The previously peripheral mission of disaster relief is threatening to become a primary one for an already overstretched US military.

DEPLOYED to the Houston area to assist in Hurricane Harvey relief efforts, US military forces hadn't even completed their assignments when they were hurriedly dispatched to Florida, Puerto Rico and the US Virgin Islands to face Irma, the fiercest hurricane ever recorded in the Atlantic Ocean. Florida Governor Rick Scott, who had sent members of the state National Guard to devastated Houston, anxiously recalled them while putting in place emergency measures for his own state. A small flotilla of naval vessels, originally sent to waters off Texas, was similarly redirected to the Caribbean, while specialised combat units drawn from as far afield as Colorado, Illinois and Rhode Island were rushed to Puerto Rico and the Virgin Islands. Meanwhile, members of the California National Guard were being mobilised to fight wildfires raging across that state (as across much of the West) during its hottest summer on record.

Think of this as the new face of homeland security: containing the damage to America's seacoasts, forests and other vulnerable areas caused by extreme weather events made all the more frequent and destructive thanks to climate change. This is a 'war' that won't have a name – not yet, not in the Trump era, but it will be no less real for that.

'The firepower of the federal government' was being trained on Harvey, as William Brock Long, administrator of the Federal Emergency Management Agency (FEMA), put it in a blunt expression of this war-like approach. But don't expect any of the military officials involved in such efforts to identify climate change as the source of their new strategic orientation, not while Commander in Chief Donald Trump sits in the Oval Office refusing to acknowledge the reality of global warming or its role in heightening the intensity of major storms; not while he continues to stock his administration, top to bottom, with climate-change deniers.

Until Trump moved into the White House, however, senior military officers in the Pentagon were speaking openly of the threats posed to American security by climate change and how that phenomenon might alter the very nature of their work. Though mum's the word today, since the early years of this century military officials have regularly focused on and discussed such matters, issuing striking warnings about an impending increase in extreme weather events – hurricanes, incessant rainfalls, protracted heatwaves and droughts – and ways in which that would mean an ever-expanding domestic role for the military in both disaster response and planning for an extreme future.

That future, of course, is now. Like other well-informed people, senior military officials are perfectly aware that it's difficult to attribute any given storm, Harvey and Irma included, to human-caused climate change with 100% confidence. But they also know that hurricanes draw their fierce energy from the heat of tropical waters, and that global warming is rais-

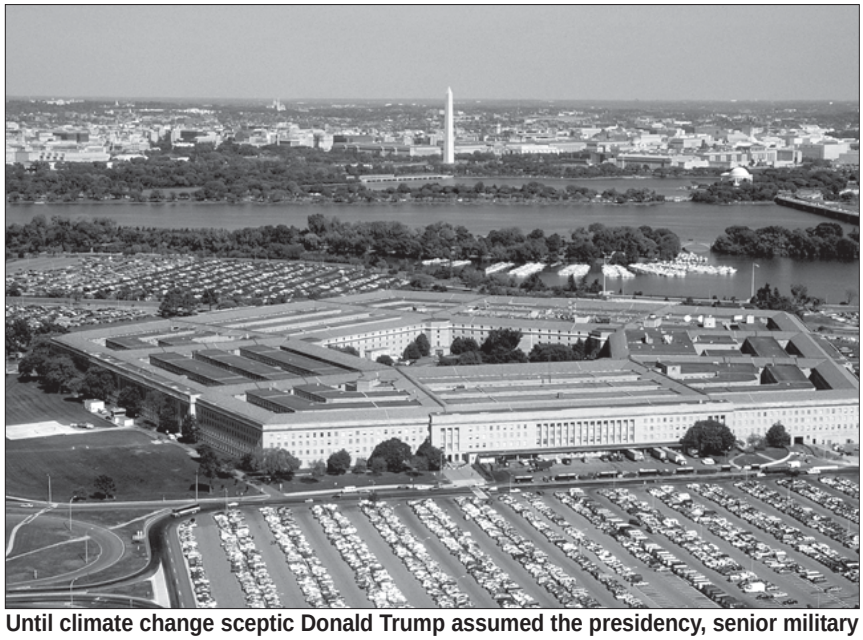
ing the temperatures of those waters. It's making storms like Harvey and Irma, when they do occur, ever more powerful and destructive.

'As greenhouse gas emissions increase, sea levels are rising, average global temperatures increasing, and severe weather patterns are accelerating,' the US Department of Defense (DoD) bluntly explained in the Quadrennial Defense Review, a 2014 synopsis of defence policy. This, it added, 'may increase the frequency, scale, and complexity of future missions, including defense support to civil authorities' – just the sort of crisis we've been witnessing over these last weeks.

As this statement suggests, any increase in climate-related extreme events striking US territory will inevitably lead to a commensurate rise in American military support for civilian agencies, diverting key assets – troops and equipment – from elsewhere. While the Pentagon can certainly devote substantial capabilities to a small number of short-term emergencies, the multiplication and prolongation of such events, now clearly beginning to occur, will require a substantial commitment of forces, which, in time, will mean a major reorientation of US security policy for the climate-change era. This may not be something the White House is prepared to do today, but it may soon find itself with little choice, especially since it seems so intent on crippling all civilian governmental efforts related to climate change.

Mobilising for Harvey and Irma

When it came to emergency operations in Texas and Florida, the media understandably trained its spotlight on moving tales of rescue efforts by ordinary folks. As a result, the military's role in these operations was easy to miss, but it took place on a massive scale. Every branch of the armed services – the Army, Navy, Air Force, Marine Corps and Coast Guard – deployed significant contingents to the Houston area, in some cases sending along the sort of specialised equipment normally used in major combat operations.



Until climate change sceptic Donald Trump assumed the presidency, senior military officers in the Pentagon *(pic)* had been speaking openly of the threats posed to American security by climate change.

The combined response represented an extraordinary commitment of military assets to that desperate, massively flooded region: tens of thousands of National Guard and active-duty troops, thousands of Humvees and other military vehicles, hundreds of helicopters, dozens of cargo planes and an assortment of naval vessels. And just as operations in Texas began to wind down, the Pentagon commenced a similarly vast mobilisation for Hurricane Irma.

The military's response to Harvey began with frontline troops: the National Guard, the US Coast Guard and units of the US Northern Command (USNORTHCOM), the joint-service force responsible for homeland defence. Texas Governor Greg Abbott mobilised the entire Texas National Guard, about 10,000 strong, and guard contingents were deployed from other states as well. The Texas Guard came equipped with its own complement of helicopters, Humvees and other all-terrain vehicles; the Coast Guard supplied 46 helicopters and dozens of shallow-water vessels, while USNORTHCOM provided 87 helicopters, four C-130 Hercules cargo aircraft and 100 high-water vehicles.

Still more aircraft were provided by the Air Force, including seven C-17 cargo planes and, in a highly unusual move, an E-3A Sentry airborne warning and control system, or AWACS. This super-sophisticated aircraft was originally designed to oversee air combat operations in Europe in the event of an all-out war with the Soviet Union. Instead, this particular AWACS conducted air traffic control and surveillance around Houston, gathering data on flooded areas and providing 'situational awareness' to military units involved in the relief operation.

For its part, the Navy deployed two major surface vessels, the USS *Kearsarge*, an amphibious assault ship, and the USS *Oak Hill*, a dock landing ship. 'These ships,' the Navy reported, 'are capable of providing medical support, maritime civil affairs, maritime security, expeditionary logistic support, [and] medium and heavy lift air support'. Accompanying them were several hundred Marines from the 26th Marine Expeditionary Unit based at Camp Lejeune, North Carolina, along with their amphibious assault vehicles and a dozen or so helicopters and MV-22 Osprey tilt-rotor aircraft.

When Irma struck, the Pentagon ordered a similar mobilisation of

troops and equipment. The *Kearsarge* and the *Oak Hill*, with their embarked Marines and helicopters, were redirected from Houston to waters off Puerto Rico and the Virgin Islands. At the same time, the Navy dispatched a much larger flotilla, including the USS *Abraham Lincoln* (the aircraft carrier on which President George W Bush had his infamous 'mission accomplished' moment), the missile destroyer USS *Farragut*, the amphibious assault ship USS *Iwo Jima* and the amphibious transport dock USS *New York*. Instead of its usual complement of fighter jets, the *Abraham Lincoln* set sail from its base in Norfolk, Virginia, with heavy-lift helicopters; the *Iwo Jima* and *New York* also carried a range of helicopters for relief operations. Another amphibious vessel, the USS *Wasp*, was already off the Virgin Islands, providing supplies and evacuating those in need of emergency medical care.

This represents the sort of mobilisation you would expect for a small war and is characteristic of how, in the past, the US military has responded to major domestic disasters like hurricanes Katrina (2003) and Sandy (2012). Such events were once rarities and so weren't viewed as major impediments to the carrying out of the military's 'normal' function: fighting the nation's foreign wars. However, thanks to the way climate change is intensifying the weather, disasters of this magnitude are starting to occur more frequently and on an ever-larger scale. As a result, the previously peripheral mission of disaster relief is threatening to become a primary one for an already overstretched Pentagon and, as top military officials are aware, the future only holds promise of far more of the same. Think of this as the new face of 'war', American-style.

Former US Army Chief of Staff General Gordon Sullivan on climate change: 'If we keep on with business as usual, we will reach a point where some of the worst effects are inevitable.'

Redefining homeland security

Even if no one else in Donald Trump's Washington is ready or willing to deal with climate change, the US military will be. It's already long been preparing in its own fashion to take a pivotal role in responding to a world of recurring natural disasters. This, in turn, will mean that in the coming years climate change will increasingly dominate the domestic national security agenda (whether the Trump administration and those that follow like it, or even admit it) and such domestic emergencies will undoubtedly be militarised. In the process, the very concept of 'homeland security' is destined to change.

When the Department of Homeland Security (DHS) was established in November 2002 in the wake of the 9/11 terror attacks, its principal missions included preventing further terrorist assaults on the country as well as dealing with drug smuggling, illegal immigration and other similar issues. Climate change never entered the equation. Even though FEMA and the Coast Guard, major components of the DHS, have found themselves dealing with its increasingly disastrous effects, the department's focus on immigration and terrorism has only intensified in the Trump era. The president has ensured that this myopic outlook would reign supreme by, among other things, calling for a sharp increase in the number of Border Patrol agents (and greater infusions of funding for border control issues), while working to slash the Coast Guard's budget.

He has also, of course, ensured that all parts of the government other than the military that might in any way deal with climate change were staffed and run by climate-change deniers. Only at the Department of Defense do senior officials still describe climate change in a more realistic fashion, as an observable reality that will pose new dangers to America's security and create new operational nightmares.

'Speaking as a soldier,' said former Army Chief of Staff General Gordon Sullivan back in 2007, 'we never have 100% certainty. If you wait until you have 100% certainty, something bad is going to happen on the battlefield.' The same, he continued, was true regarding climate change. 'If we keep on with business as usual, we will reach a point where some of the worst effects are inevitable.'

General Sullivan's comments were incorporated into a highly influential report that year on 'National Security and the Threat of Climate Change', released by the CNA Corporation (formerly the Center for Naval Analyses), a federally funded research centre that aids the Navy and Marine Corps. That report focused with particular concern on the risk of an increase in overseas conflicts from the impact of climate change, particularly if prolonged droughts and growing food scarcity inflame existing ethnic and religious schisms in a range of poor countries (mainly in Africa and the Greater Middle East). 'The US may be drawn more frequently into these situations, either alone or with allies, to help provide

stability before conditions worsen and are exploited by extremists,' the report warned.

The same climate effects that could trigger a more embattled world would also, military analysts came to believe, produce increased risk for the United States itself and so generate a greater need for Pentagon involvement at home. 'Extreme weather events and natural disasters, as the US experienced with Hurricane Katrina, may lead to increased missions for a number of US agencies, including state and local governments, the Department of Homeland Security, and our already stretched military,' that CNA report noted a decade ago. In a prescient comment, it also warned that this could lead to clashing strategic priorities. 'If the frequency of natural disasters increases with climate change, future military and political leaders may face hard choices about where and when to engage.'

With this in mind, a group of officers – active-duty as well as retired – endeavoured to persuade top officials to make climate change a central focus of strategic planning. (Their collective efforts can be sampled at the website maintained by the Center for Climate and Security, an advocacy group former officers established to promote awareness of the issue.) These efforts achieved a major breakthrough in 2014, when the Pentagon released a Climate Change Adaptation Roadmap, a blueprint for Pentagon-wide remedial action in a warming world. Such an effort was needed, Secretary of Defense Chuck Hagel explained in his foreword, because climate change was sure to generate more conflict abroad and more emergencies at home. 'The military could be called upon more often to support civil authorities, and provide humanitarian assistance and disaster relief in the face of more frequent and more intense natural disasters.' As a consequence, the DoD and its component organisations must begin 'integrating climate change considerations into our plans, operations, and training'.

For a time, the armed forces embraced Hagel's instructions, taking steps to reduce their carbon emissions and better prepare for just such a future. The various regional combatant commands like NORTHCOM and the US Southern Command (SOUTHCOM), which covers Latin America and the Caribbean, responded with increased training and other preparations for extreme storm events and for sea-level rise in their areas of responsibility, a change reflected in a 2015 DoD report to Congress, 'National Security Implications of Climate-Related Risks and a Changing Climate'.

In the past, such efforts, only beginning, were never allowed to distract the services from their main presumed function: contesting America's foreign adversaries. Now, as with Harvey and Irma, the military's domestic responsibilities are on the rise just as the president is assigning them yet more (or more intensified) missions in the never-ending war on terror, including a stepped-up presence in Afghanistan as well as in Iraq and Syria, more intense air campaigns across the Greater Middle East, and a heightened pace of military manoeuvres near North Korea. As shown by a series of deadly collisions involving Navy vessels in the Pacific, this higher tempo of operations has already stretched the military to or even beyond its limits in various conflicts it has proven incapable of either winning or ending. The result: overworked crews and overstretched resources. With the massive response to Harvey and Irma, it is being pushed yet further.

In short, as the planet continues to heat up, the armed forces and the nation at large face an existential crisis. On the one hand, President Trump and his generals, including Secretary of Defense James Mattis, are once again fully focused on the increased use of military force (and the threat of more of the same) abroad. This includes not only the wars against the Taliban, ISIS, al-Qaeda and their numerous spin-offs, but also preparations for possible military strikes on North Korea and perhaps even, at some future date, on Chinese installations in the South China Sea.

As global warming intensifies, instability and chaos, including massive flows of refugees, will only grow, undoubtedly inviting yet more military interventions abroad. Meanwhile, climate change will increase chaos and devastation at home and there, too, it seems that Washington will often see the military as America's sole reliable response mechanism. As a result, decisions will have to be made about ending American conflicts abroad and refocusing domestically or that overstretched military will simply swallow even more of the government's dollars and gain yet more power in Washington.

And yet, whatever else the armed forces might (or might not) be capable of, they are not capable of defeating climate change, which, at its essence, is anything but a military problem. While there are potential solutions to it, those, too, are in no way military.

Despite their reluctance to speak publicly about such environmental matters right now, top officials in the Pentagon are painfully aware of the problem at hand. They know that global warming, as it progresses, will generate new challenges at home and abroad, potentially stretching their capabilities to the breaking point and leaving this country ever more exposed to the ravages of climate change without offering any solutions to the problem.

As a result, the generals face a fundamental choice. They can continue to self-censor their sophisticated analysis of climate change and its likely effects, and so remain complicit with the administration's headlong rush into national catastrophe, or they can speak out forcefully on its threat to homeland security, and the resulting need for a new, largely non-military strategic posture that puts climate action at the top of the nation's priorities. ◆

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No end in sight to 50 years of Israeli occupation

The 50th anniversary this year of the Israeli occupation of the Gaza Strip and the West Bank, including East Jerusalem, is marked by five decades of de-development, suppressed human potential and denial of the basic human right to development of the Palestinian people, with no end in sight, the UN Conference on Trade and Development (UNCTAD) has said.

Kanaga Raja

Construction work on a Jewish settlement in the occupied West Bank. In 2017 Israel intensified the expansion of settlements and housing units in the West Bank.

IN its report on UNCTAD assistance to the Palestinian people, presented to UNCTAD's Trade and Development Board (TDB) on 19 September, UNCTAD said that instead of the hoped-for two-state solution envisaged by the United Nations and the international community, the occupation, the longest in recent history, is currently even more entrenched, while its complex socioeconomic toll has worsened over time.

The TDB was holding its regular 64th session in Geneva from 11-22 September.

According to an UNCTAD news release, at the TDB session on 19 September, Palestinian Minister of National Economy Abeer Odeh said: 'The consequences of the occupation are more serious than we thought. Israeli occupation has become essentially an act of colonisation ... The occupying state must bear the costs of this occupation.'

'Most of the donor support has been used for damage control,' said Mahmoud Elkhafif, lead author of the UNCTAD report and Coordinator of the UNCTAD Unit on Assistance to the Palestinian People. 'Falling donor support is a major shock to the Palestinian economy and the international community should assume responsibility to support the Palestinian people,' he told the TDB.

The developing-country Group of 77 (G77) and China expressed alarm at the continuing loss of Palestinian land and resources through settlement building by Israel, while the Arab Group expressed deep concern over Israel's expansionist activities in the Palestinian Territories.

Continued erosion of Palestinian economy

According to the UNCTAD report, despite a 4.1% growth in gross domestic product (GDP) in 2016, the productive capacity of the Palestinian economy continued to erode, economic performance was far below potential and unemployment persisted at levels rarely seen around the world since the Great Depression.

In addition, in 2016, real per capita GDP was roughly at the level in 1999: $1,766 in constant 2004 dollars.

In 2016, 3% GDP growth in the West Bank barely kept up with population growth, and did not have much positive impact on per capita income.

In Gaza, although the economy picked up, with real GDP growth of 7.7%, this growth reflected only reconstruction activities to repair the extensive damage caused by the Israeli military operation in 2014.

Despite this growth, the de-development of Gaza continued unabated, UNCTAD said, noting that since the conclusion of the Oslo Accords in 1995, per capita GDP in Gaza has shrunk by 23%.

As in previous years, in 2016, GDP growth was driven by an unsustainable expansion in domestic demand, in particular private consumption, which accounted for 26% of bank credit to the private sector. While the relative importance of private consumption in economic growth increased relative to government consumption, investment and

A woman in Gaza harvesting wheat and barley. The contribution of the agricultural sector to the Palestinian economy has been shrinking.

exports continued to lag behind.

UNCTAD said the observed GDP growth should not obscure the bleak economic reality of the ongoing erosion of the productive base and continuing loss of land and natural resources to settlements and the annexation of land in the West Bank, as well as fragmentation of the economy into disconnected markets and regions and restrictions by Israel on the importation of essential production inputs, all of which escalate production costs, depress investment and inevitably set the economy onto a distorted path of high unemployment and widespread poverty.

Furthermore, it noted, asymmetric economic relations continue to reinforce the imposed Palestinian economic dependence on Israel. Throughout the decades of occupation, Israel has consistently accounted for the largest segment of Palestinian international trade. This continued in 2016, with Israel accounting for at least half of Palestinian trade, while the share of the Occupied Palestinian Territory (OPT) in the trade of Israel is around 3%.

In 2016, Palestinian imports from Israel were estimated to exceed exports to Israel by $2.6 billion (19.4% of GDP), at a time when cheaper and more competitive sources for Palestinian imports are available worldwide.

'The massive Palestinian trade deficit is a direct result of the weakness of the tradable goods sector and the inability of agricultural and industrial producers to penetrate export markets, as well as their inability to compete domestically against imports from abroad.'

The decline of the productive sectors is illustrated by continued de-agriculturalisation, the report said, noting that the value added of agriculture contracted by 11% in 2016. Consequently, between 2015 and 2016, the sector's share in GDP fell from 3.4 to 2.9%.

The decline of the tradable goods sector continued in 2016, with a 21.3% decline in the value added of mining and quarrying, which more than offset the slight increase in the share of manufacturing in GDP.

The distribution of credit to the private sector presents a similar picture of decline in the productive sectors. In 2016, the share of agriculture and food processing in credit to the private sector was a mere 2%, or half of that allocated for financing vehicles, while the share of mining and manufacturing was 6% and consumption and real estate accounted for more than half of the credit, at 26% and 25%, respectively, followed by trade, at 20%.

The concentration of credit in consumption and real estate reflects the aversion of banks to the high risk of investment in productive sectors because of the unpredictability and severity of the economic restrictions that Israel unilaterally imposes and adjusts at will.

'De-industrialisation and de-agriculturalisation thus stifle economic and technological progress and leave the Palestinian economy further behind in the global supply chain,' said UNCTAD.

The low contribution of the agricultural sector is also explained by the fact that only 21% of cultivable land is utilised and a high 93% of cultivated land is not irrigated. Moreover, restrictions by Israel on the import of suitable fertilisers add $28.6 million to the costs borne by producers and cut one-third of land productivity.

Palestinian agricultural producers also face unequal competition with subsidised imports from Israel and settlements – in the range of $500 million per year – while producers in Israel operate under normal cost conditions and benefit from a range of supportive government policies.

Moreover, Area C, which accounts for at least 60% of West Bank area, remains under the control of Israel and is off-limits to Palestinian producers, although it is the only contiguous terrain in the West Bank. It includes much of the West Bank's natural resources and has great potential for job creation in agriculture, tourism, cosmetics, construction, mining and quarrying.

Another factor inhibiting the productive sectors is the lack of a national currency and Palestinian reliance on the new Israeli shekel. As a result of the monetary and exchange rate policies of Israel, in the last two decades, the inflation rate has been subdued and the real effective exchange rate of the new Israeli shekel has been on an upward trend (appreciation) as its real value has increased by 25%. 'This appreciation acts as a tax on exports and a subsidy on imports, thereby impairing the already weak international competitiveness of the Palestinian economy.'

Economic costs of occupation and plight of Gazans

According to the UNCTAD report, the enormity of the economic

Jobless in Gaza. One of the harshest consequences of the Israeli occupation is an unemployment rate that is persistently among the highest in the world: 42% in Gaza and 18% in the West Bank.

cost of occupation has been confirmed by various organisations and in various reports and studies.

Most recently, the International Monetary Fund (IMF) suggested that, under the most conservative assumptions, if there had been no occupation, real GDP per capita in the Occupied Palestinian Territory would currently have been nearly 40% higher, while another methodology suggested that real GDP per capita would have been 83% higher.

A further methodology noted that in 1994-2014, per capita output in the Occupied Palestinian Territory grew at an insignificant rate of 0.1%, and concluded that had it continued to grow at the 4.4% trend observed in 1968-87, when borders were more open, current real GDP per capita would have been 130% higher.

UNCTAD has emphasised that for Gaza to be a liveable place in 2020, enormous reconstruction efforts are urgently needed in sectors such as health, education, energy, water and sanitation. However, the humanitarian and economic situation has instead worsened since then.

The Office of the United Nations Special Coordinator for the Middle East Peace Process observed the following with regard to the severity of the protracted, unprecedented level of human suffering in Gaza:

(a) There have been more than 10 years of collective punishment through land, sea and air blockades;

(b) Thirty-five percent of the agricultural land and 85% of the fishing waters of Gaza are not accessible to producers;

(c) Exports from Gaza were 65% lower in early 2017 than the level in 2007;

(d) Two-thirds of the population of Gaza need some form of humanitarian assistance;

(e) About half of the population is food-insecure, although 80% receive food assistance and other forms of social transfers;

(f) Electric power was unavailable for 12-18 hours per day in 2016 and up to 20 hours per day in early 2017. This cripples all economic activities and impedes the delivery of services, especially water supply, sewage treatment and health services;

(g) Access to an improved water supply fell from 98% of the population in 2000 to 10% in 2014; and

(h) Partially treated sewage is routinely discharged into the sea.

Also, only 51% of the $3.5 billion pledged for Gaza at the Cairo Conference on Palestine – Reconstructing Gaza held in 2014 has been disbursed, and 84% of total recovery needs have yet to be addressed.

In 2016, the Palestinian National Authority (PNA) achieved favourable, but unsustainable, revenue performance, said the UNCTAD report. The 24% increase in revenue is not sustainable since it was the result of one-time windfalls in two areas, namely receipt of $145 million in telecommunications licensing fees (an additional $73 million in 2017 and 2018) and two payments totalling $300 million made by Israel to compensate PNA for leaked fiscal resources related to health stamps, equalisation levies, border exit fees and value-added tax.

At the same time, total expenditures grew by 10% compared with expenditures in 2015. Therefore, the success of PNA in reducing the deficit between 2015 and 2016, from 11.3% to 8.1% of GDP, hardly indicates an improved fiscal space, because it was mainly due to these one-time windfalls, without which the deficit would have increased from 11.3% to 11.5%.

'It is worth noting that UNCTAD research and studies were a major factor behind the above-mentioned $300 million in reimbursement from Israel to PNA.'

In the past few years, the Palestinian economy has suffered yet another negative external shock, in the form of a 38% drop in donor support in 2014-16, from $1.23 billion to $757 million, which is projected to further decline by 13% in 2017.

One of the reasons for weakening donor engagement is that occupation has prevented aid from translating into development gains. Damage control, humanitarian interventions and budget support have been taking priority at the expense of development support.

In this sense, said UNCTAD, the increasing belligerence of occupation presents a twofold challenge, because it denies the Palestinian people access to their natural and economic resources and at the same time discourages donor support by minimising devel-

opment gains.

'Occupation has therefore undermined the efficacy of ordinary, traditional development policies and set the Palestinian economy onto a uniquely distorted growth path, whereby donor-funded government spending plays a crucial role in maintaining a minimum level of aggregate demand.'

According to UNCTAD, PNA is running out of less painful options for cutting spending. 'Any further fiscal austerity, under worsening conditions of occupation and negative donor support shocks, could lead to perilous economic, social and political consequences, with undesirable impacts on the provision of critically important public services and the institution-building efforts required for a well-functioning economy in a future sovereign State.'

According to the report, there is a significant risk of the emergence of a vicious cycle involving a mutually reinforcing trio of increasingly belligerent occupation, falling aid levels and political discontent.

Termination of the blockade on Gaza, the lifting of restrictions on internal and external Palestinian trade and the ending of the occupation of Area C are necessary conditions to launching sustainable development in the Occupied Palestinian Territory, said UNCTAD.

Settlement activity, de-development, mass unemployment

The report noted that in 2017, Israel intensified the expansion of settlements and housing units in the occupied West Bank. In 2016, housing construction in these settlements was 40% higher than in 2015 and at the second highest level since 2001. Further plans have been announced to build more than 5,000 new housing units and for the retroactive legalisation of 4,000 units in settlements and outposts.

In recent years, the settler population growth rate has surpassed not only the rate in Israel but also the growth rate of the Palestinian population. The settler population has more than doubled since the Oslo Accords in 1993 and 1995, and currently stands at between 600,000 and 750,000. 'This is encouraged and incentivised by housing, education and tax benefits from Israel to individual settlers and to industries,' said UNCTAD.

Also in 2016, more Palestinian structures were demolished in the West Bank than in any other year. The United Nations Office for the Coordination of Humanitarian Affairs reports that in 2016, Israel demolished or seized 1,094 Palestinian structures throughout the West Bank, double the rate in 2015 and the highest since 2009, resulting in the displacement of over 1,600 Palestinians, half of them children.

Moreover, the destruction of donor-funded humanitarian assistance spiked in 2016 – with 292 donor-funded structures demolished or seized, 165% more than those demolished in 2015 – and affected relief items including shelters, tents, water cisterns, animal barracks and other basic structures necessary for survival and the maintenance of livelihoods.

In addition, Palestinians in the West Bank remain subject to many forms of violence by settlers, including harassment, attacks and damage to property. For example, in 2016, more than 1,500 Palestinian olive trees were vandalised or uprooted by settlers, on top of 2.5 million productive trees uprooted since 1967.

'Furthermore, there are two parallel legal systems in the occupied West Bank, namely the domestic law of Israel, with more guarantees for defendants, is applied to Israeli settlers, while Palestinians are subject to Israeli military law.'

The UNCTAD report pointed out that one of the harshest consequences of the occupation is an unemployment rate that is persistently among the highest in the world. In 2016, unemployment remained extremely high, at 18% in the West Bank, 42% in Gaza and 27% in the Occupied Palestinian Territory, more than twice the regional average.

'A low labour force participation rate of 45%, disproportionately high unemployment among women and youth and extreme dependence on the labour market in Israel add to the toll exacted by joblessness and poverty crises, which are not fully captured in official unemployment statistics.'

The employment situation is worsened by the fact that about 10% of the labour force is not employed in the domestic economy but in Israel and settlements.

UNCTAD said with weak growth and high unemployment levels, poverty and food insecurity have deepened. Moreover, the unemployment rate (42%) and poverty rate (39%) in Gaza are more than double the corresponding rates in the West Bank.

The dependency ratio of 7 in Gaza and 5 in the West Bank means that the joblessness of one Palestinian worker impacts, on average, six other Palestinians.

UNCTAD calculations suggest that annual real GDP growth consistently above 5.3% is needed to make a minor dent in unemployment. This is consistent with the IMF finding that above 4% annual GDP growth is required simply to maintain unemployment at current levels and prevent even more precipitous socioeconomic deterioration.

IMF projections suggest that if current trends persist, GDP growth in the mid-term will be around 3.3% in the Occupied Palestinian Territory as a whole and 2.7% and 5.5% in the West Bank and Gaza, respectively.

'Therefore, with the Palestinian population expected to double by 2050, unless current trends are reversed, unemployment will worsen, per capita income will fall and poverty will worsen, adding to the risk of the emergence of a vicious cycle of mutually reinforcing economic decline and political crises,' said UNCTAD. ◆

Kanaga Raja is Editor of the South-North Development Monitor (SUNS)*, which is published by the Third World Network. This article is reproduced from* SUNS *(No. 8538, 25 September 2017).*

Israeli support for Myanmar is the natural alliance of regimes based on ethnic supremacy

Even while the Burmese military is being condemned internationally for its campaign of ethnic cleansing against its Muslim minority, Israel has continued supplying weaponry to Myanmar.

David Lloyd

Myanmar is one of the countries supplied with weaponry by Israel. Picture shows Senior General Min Aung Hlaing, commander in chief of the Myanmar Armed Forces, touring an Israeli naval base during his visit to the country in 2015.

THE mainstream press has been full of reports of the dire plight of the Rohingya, a Muslim ethnic group in predominantly Buddhist Myanmar that is currently being ethnically cleansed by the Burmese military. Hundreds of thousands have fled into neighbouring Bangladesh since late August and many observers fear that the military will engage in full-scale genocide. Reports suggest that the military has been sowing landmines along the frontier with Bangladesh across which Rohingya women and children have been fleeing to escape military violence.

Myanmar's campaign of ethnic cleansing has been widely condemned and the United States and the European Union have maintained an arms embargo on the Burmese military due to ongoing concerns about violations of human rights and religious freedom. What has not been reported in the mainstream news, however, is the fact that, even during this ongoing genocidal campaign against its Muslim population, Myanmar has been supplied with weaponry by Israel.

This is by no means the first time that the Israeli defence industry has supplied repressive regimes with the tools of their trade, from apartheid South Africa to Pinochet's Chile and the Guatemalan dictatorship: its weapons industry, indeed, proudly boasts of the fact that its products come well 'field tested'. They usually fail to mention that their weapons have been tested in repressing Palestinian resistance to an illegal occupation, conducting war against the predominantly civilian population of Gaza, or in maintaining surveillance and policing of the illegal apartheid wall that runs through the West Bank.

Those who have been following the close connections between the Israeli defence industry and the United States will not be surprised to learn from Israeli newspaper *Ha'aretz* that among the companies which have hosted military officials from Myanmar is defence contractor Elbit Systems, specialists in surveillance equipment that has been deployed both along the apartheid wall and on the US border with Mexico. *Ha'aretz* also reports that the head of the Israeli Defence Ministry's International Defence Cooperation Directorate, Michel Ben-Baruch, went to Myanmar in the summer of 2015, possibly in conjunction with the sale of Israeli-made patrol boats to the military.

Less well known is the defence firm TAR Ideal Concepts, an Israeli provider of military and police equipment which also hosts a defence fair, ISDEF in Tel Aviv, which its CEO Aviad Matza proudly claims has become 'the international flagship of the Israeli defence industry'. Matza is among those who attribute Israel's prowess in producing the technologies of repression to the laboratory that Palestine furnishes. As he puts it: 'There is no doubt that the secret in the success of Israeli branding in this area lies in the very diverse defence challenges that Israel faces, and the solutions they get – the Iron Dome and the intelligent fences; tunnel iden-

Hundreds of thousands of Rohingya fleeing persecution in Myanmar have entered neighbouring Bangladesh since late August.

tification systems and armoured windows for housing along the border; cyber defence for strategic devices and riots control means. All these are practical and equally important, fast solutions, which meet the rapidly changing security needs.'

Matza does not specify that Israel's 'defence challenges' are largely caused by its 50-year regime of occupation and its 12-year blockade on Gaza. Nor, of course, does he invoke Israel's own history and current practices of ethnic cleansing, going back to the Nakba of 1947-48 in which Israel was founded and continuing in today's practices of quiet 'transfer' of Palestinians from Israeli-controlled territories.

Like Myanmar, Israel is a state dominated by a single ethnic and religious group that seeks to maintain its political supremacy in open violation of international law and human rights. Its affinity with Myanmar is only the latest example of the natural alliances that it forms with other regimes whose survival depends on an ideological commitment to ethnic or ideological supremacy.

'[The Israeli defence industry] usually fail to mention that their weapons have been tested in repressing Palestinian resistance to an illegal occupation...' Picture shows Israeli soldiers checking their weapons while on patrol in the West Bank city of Hebron.

TAR Ideal Concepts uses that experience of control and repression in ways that should concern us all: it not only sells weapons to a genocidal Burmese military, but also operates what Bloomberg describes as 'a defence academy that provides training, including military, police, homeland security, and professional training, as well as K-9 training services. It serves ministry of defence (MOD), police departments, and prisons; and law enforcement forces … in Israel and internationally.'

Among the organisations training in Israel are US law enforcement departments, both police and Homeland Security, who have been brought there annually by the Anti-Defamation League in collaboration with Israel's national police, military and intelligence services. Their training, funded by US taxpayers, can include participation in operations on the occupied West Bank against Palestinians. Concern that the highly militarised training of US police forces in Israel has exacerbated the brutality and excessive force that has been used against peaceful demonstrators from Baltimore to Ferguson has inspired Jewish Voice for Peace's ongoing 'Deadly Exchange' campaign against these exchange programmes that inculcate the 'worst practices' of repressive policing.

In the United States, we still have the space to protest Israel's baleful influence on our military and police and the international network of repressive forces for which Palestine serves as a malevolent laboratory. But the Rohingya, like the Palestinians, are at the mercy of Israel's sophisticated arsenals. In protesting the deployment of Israeli techniques and equipment against our fellow citizens, we must not forget to draw the lines of solidarity with those who bear the full brunt of this global network of violence and terror. ◆

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US documents released on 1965-66 massacres in Indonesia

Staring from October 1965, Indonesian army officials led by then Major General Suharto oversaw a campaign of mass killings targeting the Communist Party of Indonesia, in which up to a million people may have been slaughtered. No one has been brought to book for these crimes and the whole issue is being allowed to fade into oblivion. While the recent decision of the US government to release some 30,000 pages of US embassy documents on the issue is to welcomed, it is incumbent on the US to release all documents pertaining to the subject so that justice can be done.

NEWLY released US government documents on the mass killings in Indonesia in 1965-66 underscore the need for the US and Indonesian governments to fully disclose all related classified materials, Human Rights Watch has said. Those classified documents are crucial to an accurate historical record of the killings and to provide justice for those crimes.

The 39 US Embassy in Jakarta documents released on 17 October by the US non-governmental public transparency organisation National Security Archive show that US diplomatic personnel were fully aware of the scale and savagery of the 1965-66 killings.

The documents reveal that US diplomats and their State Department counterparts in Washington were documenting tens of thousands of killings by the military, paramilitary groups and Muslim militias of suspected members of the Communist Party of Indonesia (PKI) and ethnic Chinese, as well as trade unionists, teachers, activists and artists.

'These newly released documents make clear that US officials had detailed knowledge of the mass killings in Indonesia in 1965-66,' said Phelim Kine, deputy Asia director of Human Rights Watch. 'The US government now needs to release the remaining documents, not only for the historical record of one of the 20th century's worst atrocities, but as a long overdue step toward bringing redress to the victims.'

The 39 documents are part of a cache of almost 30,000 pages of declassified embassy paperwork spanning from 1965 to 1968, processed by the National Declassification Center, a division of the US National Archives and Records Administration (NARA). They include State Department letters, telegrams, situation reports, and confidential communications between US consulates in Indonesia and the US Embassy in Jakarta. They do not include US Central Intelligence Agency (CIA) documents, which remain classified.

Soldiers stand guard over Communist Party of Indonesia (PKI) members being transported to a Jakarta prison in October 1965. In 1965-66, Indonesian army officials oversaw a campaign of mass killings targeting PKI members and giving free rein to soldiers and local militias to kill anyone they considered a communist.

In Indonesia, there has been a recent surge in efforts by paramilitary groups and militant Islamists to stoke 'anti-communist' paranoia in response to calls for accountability for the mass killings. Elements of those groups led a violent 'anti-communist' demonstration in Jakarta in September while the Indonesian military launched a propaganda offensive aimed at reinforcing the official narrative that the killings were a justified response to an attempted communist coup.

Starting in October 1965, Indonesian army officials, led by then-Major General Suharto, oversaw a campaign of mass killings targeting Communist Party members and giving free rein to a mix of soldiers and local militias to kill anyone they considered a communist. Over the next few months into 1966, at least 500,000 people were killed (the total may be as high as 1 million).

In the 52 years since the killings, the Indonesian government has justi-

fied the massacres as a necessary defence against the PKI. Its account holds that the communists attempted a coup, murdering six army generals on 30 September 1965 as part of their attempt to turn Indonesia into a communist state. In October 2012, then-Coordinating Minister of Political, Legal and Security Affairs Djoko Suyanto responded to findings of the National Commission on Human Rights (Komnas HAM) that the events of 1965-66 constituted a 'gross human rights violation' by insisting that those killings were justified.

Public discussion about the killings, a taboo topic in Indonesia for decades, has increased in recent years, a process substantially aided since 2012 by the release of the documentary films *The Act of Killing* and *The Look of Silence*.

On 10 December 2014, US Senator Tom Udall introduced a 'Sense of the Senate Resolution' condemning the 1965-66 atrocities in Indonesia and calling on US authorities to declassify related documents in US files. The proposed Senate resolution highlighted the continued impunity enjoyed by those who carried out the crimes, and called on Indonesian political leaders to establish a truth and reconciliation commission to address alleged crimes against humanity and other human rights violations. It called upon all relevant US government agencies to 'locate, identify, inventory, recommend for declassification, and make available to the public all classified records and documents concerning the mass killings of 1965-1966, including but not limited to records and documents pertaining to covert operations in Indonesia from 1 January 1964-30 March 1966,' and to expedite the public release of such files. The release of the 30,000-odd US Embassy documents was just the first step in that process.

'The US government can help the Indonesian government shine a light on the 1965-66 massacres,' Kine said. 'Meaningful accountability for those heinous crimes – including the role of the US government – requires full disclosure and declassification of all relevant official information.' – *Human Rights Watch* ◆

Part of the US embassy complex in Jakarta. 'US officials had detailed knowledge of the mass killings in Indonesia in 1965-66.'

Excerpts from the 39 declassified US Embassy in Jakarta documents

• 'We continue to receive reports [of] PKI being slaughtered by Ansor [a Muslim militia] many areas East Java. Killing of PKI continues in villages bordering Surabaya and wounded released from Surabaya refuse to return to their homes. According head East Java Railways, 5 stations closed because workers afraid to come to work since some of them have been murdered.' (Telegram from US Consulate in Surabaya to the US Embassy in Jakarta, 26 November 1965)

• 'Meanwhile, both in the provinces and Djakarta, repression of the PKI continued, with the main problem that of what to feed and where to house the prisoners. Many provinces appear to be successfully meeting this problem by executing their PKI prisoners, or by killing them before they are captured.' (Cable marked 'Secret' from the Political Affairs Counsellor at the US Embassy in Jakarta to Washington DC, 30 November 1965)

• 'Muhammadiah [a reference to Muhammadiyah, Indonesia's oldest Muslim mass membership organisation] source reports that preachers in Muhammadiah mosques are telling congregations that all who consciously joined PKI must be killed. "Conscious" PKI members are classified as lowest order of infidel, the shedding of whose blood is comparable to killing a chicken. This appears to give Muhammadiah Muslims wide license for killing. Policy of reformist Muhammadiah very similar to "Final Interpretation" issues by conservative NU [a reference to Indonesia's mass membership Muslim organisation Nahdlatul Ulama], suggesting Muslim opinion here practically unanimous on disposal of PKI members.' (Cable marked 'Confidential' from the US Consulate in Medan to the US Embassy in Jakarta, 6 December 1965)

• '[Anti-PKI violence] have now resulted in an estimated 100,000 PKI deaths. A reliable Balinese source informed the Embassy that PKI deaths on the island of Bali now total about 10,000 and include the parents and even distant relatives of crypto-Communist Governor Sutedja.' (Cable marked 'Secret' from the Political Affairs Counsellor at the US Embassy in Jakarta to Washington DC, 21 December 1965)

‘I’ll tell you a story’: Violence against women in Peru

Domestic violence has a shockingly high incidence in Peru and is particularly prevalent in rural areas. *Andrea Vale* examines the situation.

DOMESTIC violence is alarmingly prevalent in Peru. Not only is it statistically more common than in other, more progressive cultures, but Peruvian women tend to accept it as simply a ‘part of marriage’.

It was therefore both surprising and understandable that the domestic violence classes at a women’s centre in the Cajamarca region, observed throughout the summer of 2016, were always crowded and bustling, teeming with adult women and teenage girls.

‘A lot of women don’t speak out against domestic violence because they aren’t as educated, they don’t know about it as much,’ one woman called out during class one afternoon. Her fellow classmates all nodded. ‘Their husbands will insult them and hit them, and the women believe that it’s their fault, that they deserve that kind of treatment.’

One of the class attendees, Cecilia, was reluctant to speak after initially offering to do so, instead staring down at her skirt while her friend sitting next to her, Yolanda, asked, ‘Are you ready to talk about it?’ To which Cecilia quietly replied, ‘No.’

(Surnames have been omitted to ensure confidentiality.)

When asked if she or anyone she knew has had experience with domestic violence, Yolanda’s eyes immediately darted to Cecilia. ‘Many of my friends have experience with it,’ she said in Spanish.

When asked if she thinks that some women don’t object to being subjected to domestic violence because they think it’s simply a part of marriage or a part of the larger culture, Yolanda whispered to Cecilia, ‘Come on, tell them, tell them.’ Cecilia, however, did not answer.

An August 2016 rally in the Peruvian capital Lima to protest violence against women.

In many Peruvian families, men’s education takes priority over that of women. According to a report by the United Nations, only 56.3% of women in Peru have received at least some secondary education, as compared with 66.1% of men. According to UNESCO, only 6.3% of adult males in Peru are illiterate – as compared with 17.5% of females.

As with almost any aspect of society, education makes a huge difference, but especially so when it comes to domestic violence. According to a study carried out by Princeton University, the less education you have, the higher your chances of being domestically abused are: 42.04% of women with no education at all and 42.80% of those with primary school education had been abused – compared with 28.93% of those with tertiary or college education or more.

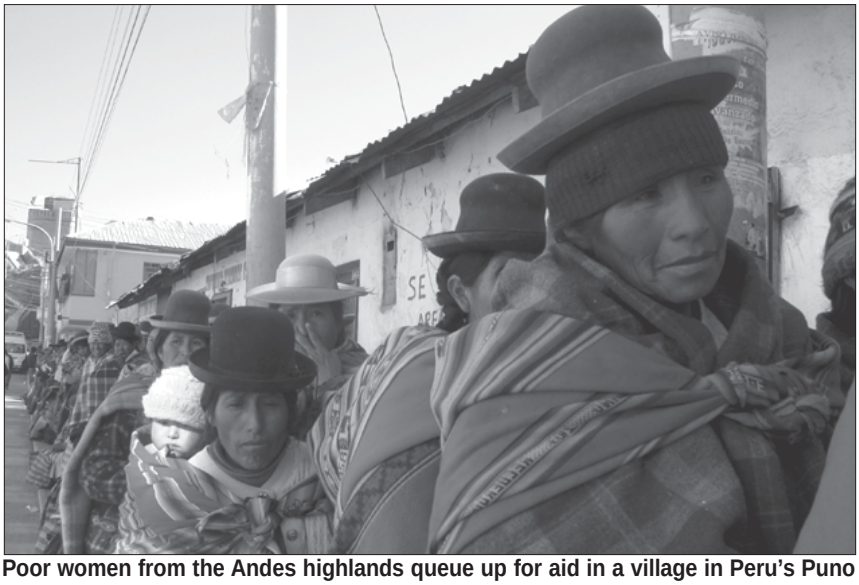
‘Mothers teach their boys to not do women’s work, that they don’t cook and clean and that’s the woman’s job,’ another woman chimed in during class one afternoon. ‘If the women don’t cook and do women’s chores, then they’ll be abused. They won’t be able to get out of it because they don’t have any education, they don’t have any resources.’

All of the women in the class fell into one of two camps. Some wore jeans and tank tops. Others wore traditional long skirts, button-down shirts and cardigans. Some were timid – others were not. The ones who spoke openly, condemning machismo culture and lecturing the others on the importance of marrying your best friend, were wearing leggings. The ones with waist-length braids and farming boots stayed quiet.

Contributing to that machismo culture is the reality that Peru is a sometimes vision-bending fusion of the old existing alongside the new. While many in Peru drive cars, have cellphones and wear modern clothing, the simultaneous perseverance of a rural lifestyle that feels like going back in time offers fertile soil for that outdated, patriarchal society to take root in.

Consequently, domestic violence is more prevalent among rural women, as is their willingness to put up with it.

‘It’s even worse in the rural areas. There, women are just expected to stay in their homes and that’s it,’



Milagros Salazar/IPS

Poor women from the Andes highlands queue up for aid in a village in Peru's Puno region. Domestic violence in Peru is more prevalent among rural women.

Yolanda said. 'The women from out in the country are quiet. They don't talk, they don't say anything. They were raised in that home. Their father hits their mother, and when they get married they get hit. They see it as normal.'

According to the Pan American Health Organisation, physical violence within domestic abuse – as opposed to emotional, sexual or verbal violence – is 'used much more frequently on women with fewer economic resources' in Peru.

According to the World Health Organisation, the lifetime prevalence of physical violence by an intimate partner is 50% in urban areas of the country, as opposed to 62% in rural areas. And there, more than other countries, domestic violence often becomes fatal.

According to the Peruvian publication *La Republica*, there have been 356 *feminicidios*, or 'womenicides', in the country within the last four years, with an additional 174 attempted *feminicidios*. What's more, judges have been markedly lenient in their punishments for perpetrators, with almost half receiving less than 15 years in prison and two receiving less than seven – that is, if they end up being convicted, which only 84 were.

After staring over periodically at Yolanda while she spoke, and visibly reacting to one of Yolanda's answers, Cecilia became willing to speak. When asked if she knew any stories of domestic violence, she stared down into her lap for a long silence, then nodded.

'Yes. I could tell you a story,' she said.

She proceeded to describe in detail the situation of a 'relative' who happened to be the same age as herself – twenty-nine.

'She got engaged to this man … He is always telling her that he loves her, and that he wants her, all the time right?' Cecilia said. 'And always saying how much he loves her, and how he's willing to give her everything, right? But in reality, I can see that it is not good.

'When he tells her that he needs her, she'll go and be with him. But she is alone. He says that he loves her so much, and that's why he doesn't want her to work. He says she should only dedicate herself to her child. She has a daughter, and because of that she can't work.

'Every instant the phone rings to call her, he asks, "Where are you? What are you doing? Who are you with?" And he'll find her.'

She finished, 'He forces her to stay with him. She tries to leave, but he's there always, always behind her, listening and waiting for her. Whenever he sees her with someone, that's when he starts to get angry. And that's when he hits her. She has tried to get out, but he's forcing her. Because right now she lives more in fear, out of fear that he's going to kill her if she were to have another partner.'

Cecilia's hesitancy to speak – whether or not she actually was talking about a 'relative' – says leagues about her situation, and that of all the women facing the machismo culture in Peru. It's difficult to grapple with an issue that is in many ways tied into the larger economic, political and historical storylines that have resulted in the perseverance of a rural, anachronistic culture.

The education they are receiving at classes like the one taught at the women's centre is a necessary start – but only if paired with empowerment, so that women like Cecilia can know that they don't have to be afraid to tell their stories. – *IPS* ◆

Education makes a huge difference when it comes to reducing the prevalence of domestic violence.

Why some Western intellectuals are trying to debrutalise colonialism

Vijay Prashad explains why he resigned from the editorial board of *Third World Quarterly* after it published an apologia for colonialism.

Ek tarz-e-taghaful hai so vo unko mubarak;
Ek 'arz-e-tamanna hai so ham karte-rahenge.
[There is a style of indifference to which they are welcome;
But our wishes, we will continue to list.]
– Faiz Ahmed Faiz, *Dast-e-Saba*, 1952

A depiction of the Jallianwala Bagh massacre in India in 1919. 'Peppering away at niggers', a phrase often used in British memoirs, defines the colonial experience from Jallianwala Bagh to the Hola massacre (Kenya) in 1959.

IN 1950, Aimé Césaire, one of the clearest voices of the 20th century, looked back at the long history of colonialism that was coming to an end. He wanted to judge colonialism from the ashes of Nazism, an ideology that surprised the innocent in Europe but which had been fostered slowly in Europe's colonial experience. After all, the instruments of Nazism – racial superiority as well as brutal, genocidal violence – had been cultivated in the colonial worlds of Africa, Asia and Latin America.

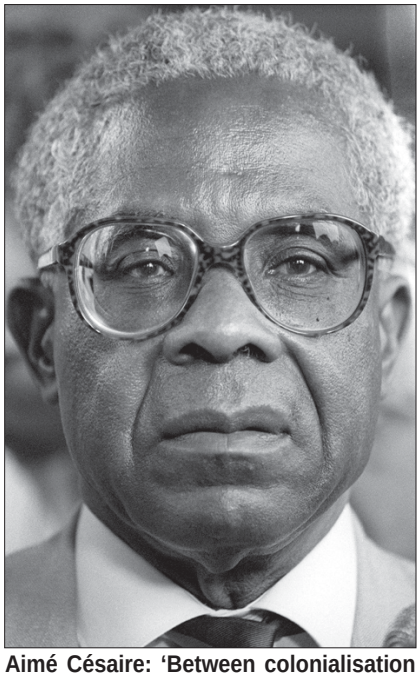
Césaire, the effervescent poet and communist, had no problem with the encounter between cultures. The entanglements of Europe's culture with that of Africa and Asia had forged the best of human history across the Mediterranean Sea. But colonialism was not cultural contact. It was brutality. Césaire wrote in his *Discourse on Colonialism*:

'Between colonialisation and civilisation there is an infinite distance; that out of all the colonial expeditions that have been undertaken, out of all the colonial statutes that have been drawn up, out of all the memoranda that have been dispatched by all the ministries, there could not come a single human value.'

Césaire was adamant: colonialism had produced nothing that would earn it respect in the scales of history. This was in 1950, when a few nations had just emerged out of the scar of colonialism and when many societies fought pitched battles to extricate themselves from colonial power.

The ugliness of colonial power in India emerged at its end, with callous policy by the British engendering the millions dead in the Bengal Famine of 1943, and the million dead and millions displaced in the Partition of 1947-48. It was harsh too when one considers that after centuries of rule, the British left behind a region with a literacy rate of merely 12%. Indian historians had looked back at the record of British rule in India to find economic and political policies designed to impoverish the country at the expense of Britain, with massive surpluses from India sucked into Britain to underwrite the industrial revolution and to build a British military force capable of ruling the sprawling British Empire. 'India is to be bled,' said the Marquess of Salisbury in the 1870s. So it was.

The Indian subcontinent did not submit to this 'drain of wealth' with submissiveness. Revolts came hard and fast, from the early days of British colonial rule in the 18th century (such as the Fakir-Sanyasi rebellion in the 1770s) to the final days of its



Aimé Césaire: 'Between colonialisation and civilisation there is an infinite distance....'

rule in the 20th century (such as the Patri Sarkar in the 1940s). In the aftermath of one of these rebellions, in 1857-58, the British cracked down with singular brutality. One young soldier, Edward Vibart, said of the massacres he helped conduct in Delhi's Kucha Chelan, where 1,400 civilians were killed: 'The orders went out to shoot every soul. It was literally murder.' 'Peppering away at niggers' was the phrase often used in British memoirs. It defines the colonial experience from Jallianwala Bagh (India) in 1919 to the Hola massacre (Kenya) in 1959.

In 1960, the United Nations General Assembly passed the 'Declaration on the Granting of Independence to Colonial Countries and Peoples', which drew a firm red line through the record of colonialism. Colonial rule's continued existence, said the UN's free nations, 'prevents the development of international economic cooperation, impedes the social, cultural and economic development of dependent peoples and militates against the United Nations ideal of universal peace'. In other words, colonialism was an abomination that needed to be brought to an end, since 'the process of liberation is irresistible and irreversible'.

Rewriting history

In the past decade, several prominent European and North American intellectuals, with very poor analytical skills, have produced work that seeks to overturn the consensus against colonialism. Some of this work – such as produced by the British counterfactual historian Niall Ferguson – is openly rooted in the present moment of American imperial wars rather than in a serious reconsideration of the historical record. In his book *Empire: How Britain Made the Modern World*, Ferguson argued that British colonial rule – brutal here and there, to be sure – had given places such as India parliamentary democracy and the English language. India, he wrote, 'owes more than it is fashionable to acknowledge to British rule'.

These are times when white supremacy has made a comeback, times when colonialism has been on the agenda since the US war on Iraq.

The context is the 2003 American war on Iraq, with people such as Ferguson urging the United States to colonise Iraq and set aside the anti-colonial values of the United Nations and of the world's peoples. When books arrived from serious scholars that demonstrated the brutality of the colonial experience, these were savaged by Western ideologues buoyed by Ferguson and the US war on Iraq. Caroline Elkins's *Britain's Gulag: The Brutal End of Empire in Kenya* and Olivier Le Cour Grandmaison's *Coloniser, exterminer. Sur la guerre et l'État colonial* faced harsh scrutiny in the Western world for being forthright about colonialism's fascistic past. The space was being created to now ask questions that had appeared settled for half a century: that colonialism was on balance a benevolent part of human history.

In the current issue of *Third World Quarterly*, a mediocre essay appears with the grand title 'The Case for Colonialism'. This essay, by Bruce Gilley, is within the parameters set by Ferguson. The essay, as many have shown, violates the basic protocols of academic scholarship; the author misuses the work of scholars such as Berny Sébe, Alexander De Juan and Jan Pierskalla, citing their essays to make points that they simply do not make. The author's 'cost-benefit analysis' poses certain indicators such as 'improvements in living conditions' and 'training for self-government' to show – against any evidence – that without colonialism the situation in Africa, Asia and Latin America would be worse. If India's literacy rate was low in 1947, the author would contend, it would be lower still if the British had not been India's imperial masters.

The essay appears in the age of Donald Trump, when white supremacy is back and the itch for colonialism is on the horizon. The idea that liberals, post-colonials and Marxists have denigrated 'white history' is a constant refrain from the racists. This essay does not merely suggest that the 'white history' of colonialism has been vilified, but that the Europeans should return to finish the job. 'Maybe the Belgians should come back' to the Congo, suggests the author – a statement that discounts the at least 10 million people massacred in a decade by the rapacious rule of the Congo by Belgium's King Leopold.

The reputable scholarly work that now exists for the Congo includes Daniel Vangroenweghe's *Du Sang Sur Les Lianes*; Jules Marchal's *L'État Libre du Congo: Paradis Perdu, L'histoire du Congo, 1876-1900*; Adam Hochschild's *King Leopold's Ghost: A Story of Greed, Terror and Heroism*; and Jean-Luc Vellut's *La Mémoire du Congo: Le Temps Colonial*. None of this enters either Gilley's framework or Ferguson's. They are meticulously blind to the grave and consequential crimes of colonial-

A US armoured convoy pushing towards Baghdad during the early days of the US invasion of Iraq in March 2003. Since the US war on Iraq, colonialism has been back on the agenda.

ism.

Such work is to be expected. These are times when white supremacy has made a comeback, times when colonialism has been on the agenda since the US war on Iraq. Western liberals such as Michael Ignatieff, who made the case for Western colonialism in *The New York Times Magazine* on 5 January 2003, opened the door for such an argument for colonialism. Ignatieff argued that the US needed to take up 'the burden' to impose order on a fractious world. He was not alone.

What was most shocking about the essay published in *Third World Quarterly* was not only that it was mediocre; that it violated basic academic standards; and that it was rejected by the peer review system. It was that it appeared in this journal.

In the late 1970s, the Pakistani journalist Altaf Gauhar decided, while in his London exile, to set up a series of reviews and journals to stimulate debate around the Third World's anti-imperialist agenda. In its first issue, in January 1979, the editor provided the context for this journal, to make the case for freedom for the states of Africa, Asia and Latin America, to revive a discussion of the New International Economic Order (1973) and to ensure that the voice from the Third World was not to be stifled. 'Our concern is the Third World: we will speak for it, indeed, speak with its own voice,' wrote Gauhar.

The point of the journal, Gauhar wrote, was to encourage 'an open-minded and sympathetic search for establishing an international order based on justice'. Early voices in the journal included Tanzania's Julius Nyerere, Guyana's Shridath Ramphal and Sri Lanka's Gamani Corea. In the fourth issue, Gauhar wrote, 'A class of British academics and politicians has been assiduously propagating the fiction that the British left behind a whole crop of western democratic institutions, planted and nurtured under prolonged British trusteeship, which the inept and inchoate natives failed to harvest.' This, Gauhar wrote, was fiction. The institutions that the British built in the colony 'served imperial interests, commercial as well as strategic', and not the well-being of the people. This was the ethic of *Third World Quarterly*.

Over the years, changes have indeed come to the journal. It weathered the storm when Gauhar's main sponsor – the Bank of Credit and Commerce International – collapsed after coming under suspicion of money laundering and other financial misdeeds. To some extent, the journal was also able to stand above the fray when neoliberal ideas swept through the academies of the world, demanding that public sector development be given over to private sector growth. There was stubbornness in the journal, a desire to continue to speak for the peoples of the Third World even as its elites had taken a different direction. Shahid Qadir, who took over from Gauhar, was the captain in these difficult times.

I joined the editorial board of the journal with enthusiasm, eager to help it move forward a new agenda for the peoples of the formerly colonised world. It was with sadness that I, and other members of the editorial board, decided to resign this when the company that owns *Third World Quarterly*, Taylor and Francis, declined to retract this objectionable essay – objectionable since it is against the values of the journal and because it failed the peer review process. Our resignation letter asks that the journal return to its values and develop an agenda for our present that is not set by the white supremacists and the colonialists. There are plenty of places for them to put forward their views. *Third World Quarterly* had a different mission. It needs to be true to its history. ◆

Vijay Prashad is Chief Editor of LeftWord Books, and a columnist for Alternet, BirGün *and* Frontline. *This article is reproduced from Scroll.in.*

No Chonmyong (1912-1957) was a Korean poet, lecturer and journalist. As a result of her opposition to the Korean War, she was convicted for 'anti-government' activities and sentenced to 20 years' imprisonment. Public protests, especially from the literary community, forced the authorities to release her after six months.

A nameless woman

No Chonmyong

I wish to be a nameless woman
way out on a small hillside.
With gourd-vines on the roof of my cottage,
pumpkins and cucumbers in a hemp-garden,
the moon invited into my yard
over a fence made of roses,
and my arms full of stars;
the owl-hooting dark will not make me lonely.

In a village where the train never stops,
eating millet-cake soaked in a brass basin,
talking with a close friend until late at night
about the secrets of the fox-haunted mountains,
while a shaggy dog barks at the moon,
I shall be happier than a queen.

Translated by Ko Won