


ARTICLE

Agricultural Exceptionalism in the Climate Change Treaties

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Abstract

Agricultural emissions in most countries have been increasing against a backdrop of decreasing non-agricultural emissions. The climate change treaties contain a qualification that appears to exempt the agricultural sector from mitigation of greenhouse gas emissions where there is a ‘threat to food production’. This potential mitigation exception gives rise to the risk that states will invoke a threat to food production in order to shield their agricultural sector from intensifying mitigation pressure. A systematic analysis of documentation issued pursuant to the climate treaties reveals that many states, both developed and developing, have made statements suggesting that their agricultural sector is relieved of some or all of the pressure placed on other economic sectors to deliver mitigation outcomes. However, this concern that mitigation of agricultural emissions will threaten food production is only weakly supported, even as it threatens achievement of the Paris Agreement’s goal of keeping global warming ‘well below 2°C’.

Keywords: Climate change, Greenhouse gas emissions, Agricultural exceptionalism/protectionism, United Nations Framework Convention on Climate Change (1992), Paris Agreement on Climate Change (2015), Food production and security

1. INTRODUCTION

It is well understood that climate change is so serious a problem that anthropogenic greenhouse gas (GHG) emissions must be reduced to net zero within a few decades to avoid the worst of global warming.¹ This is true of emissions not only of carbon dioxide (CO₂), but in time also of methane (CH₄) and nitrous oxide (N₂O), which

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¹ J. Skea et al., ‘Summary for Policymakers’, in Intergovernmental Panel on Climate Change (IPCC), *Climate Change: Mitigation of Climate Change*, Working Group III Contribution to the Sixth Assessment Report of the IPCC (IPCC, 2022), pp. 1–63, paras C.1, C.2, C.3, available at: <https://www.ipcc.ch/report/ar6/wg3> (IPCC *Mitigation SPM*).

together make up the bulk of GHG emissions from agriculture.² Much will need to change across state economic sectors to achieve this. The amount of change that agriculture should undergo remains an open question.³ In this article I argue that inaction related to agricultural GHG emissions mitigation may be influenced by the exceptional treatment of the sector in the climate change treaties, which is an issue that should, and can, be addressed immediately.

I begin in Section 2 with an overview of states' agricultural emissions, which represent the physical processes at the core of the issues addressed in the article. In isolation, reported emissions trends can reveal little about any protectionist influence on agriculture; nevertheless, they supply essential background information. In Section 3, I examine the climate treaty provisions, in particular those related to food security, that give agricultural exceptionalism (or protectionism⁴) its foothold in international law. The doctrine amounts to a justification of low-mitigation expectations for agriculture. Climate-specific agricultural exceptionalism is to be contrasted with a broader and relatively well-established exceptionalist doctrine which has favoured agriculture in domestic legal settings.⁵ One may succeed with an argument against the former,

² Food and Agriculture Organization of the United Nations (FAO), 'Agriculture, Forestry and Other Land Use Emissions by Sources and Removals by Sinks: 1990–2011 Analysis', ESS Working ESS/14-02, Mar. 2014, p. 20. The IPCC estimates that, in order to keep global warming below 1.5°C, agricultural CH₄ emissions must be reduced by 24 to 47% below 2010 levels by 2050 and N₂O emissions must be reduced by up to 26% below the same reference date by mid-century: M.R. Allen et al., 'Summary for Policymakers', in IPCC, *Global Warming of 1.5°C: An IPCC Special Report* (Cambridge University Press, 2018), pp. 3–24, at 14.

³ The scholarly legal literature on the international aspects of the protectionist question, cited at various points in this article, is not extensive; see, e.g., C.C. Bähr, 'Greenhouse Gas Taxes on Meat Products: A Legal Perspective' (2015) 4(1) *Transnational Environmental Law*, pp. 153–79 (Bähr notes that agriculture enjoys special favour in transnational settings, but her article does not explain why this is so); J. Verschuuren, 'Climate Change and Agriculture under the United Nations Framework Convention on Climate Change and Related Documents', in M.J. Angelo & A. Du Plessis (eds), *Research Handbook on Climate Change and Agricultural Law* (Edward Elgar, 2017), pp. 21–46, at 21 ('agriculture has only played a marginal role in the [climate-treaty regime]' – but without explanation as to why that is so). The essay by Angelo in the same volume unfortunately lacks factual support for key claims: M.J. Angelo, 'Untangling the Climate-Food Web: Achieving Food Security and Agricultural Climate-Resilience', in Angelo & Du Plessis, *ibid.*, pp. 1–20.

⁴ The literature uses 'agricultural exceptionalism' and 'agricultural protectionism' interchangeably; see, e.g., M. Trebilcock & K. Pue, 'The Puzzle of Agricultural Exceptionalism in International Trade Policy' (2015) 18(2) *Journal of International Economic Law*, pp. 233–60.

⁵ For a definition of domestic agricultural exceptionalism, see B.R. Finney, 'Agricultural Law Stifles Innovation and Competition' (2021) 72(4) *Alabama Law Review*, pp. 785–838, at 787, 808. Agricultural exceptionalism can amount to a kind of 'anti-law': J.B. Ruhl, 'Farms, Their Environmental Harms, and Environmental Laws' (2000) 27 *Ecology Law Quarterly*, pp. 263–349, at 293. In its negation of the polluter-pays principle, it is also a kind of 'anti-principle' (see Finney, *ibid.*, p. 837). For other accounts of the doctrine, see R. Levandowski, 'Polluting 'til the Cows Come Home: How Agricultural Exceptionalism Allows CAFOs [concentrated animal farm operations] Free Range for Climate Harm' (2020) 33 *Georgetown Environmental Law Review*, pp. 151–71, at 153; C.E. Blattner & O. Ammann, 'Agricultural Exceptionalism and Industrial Animal Food Production: Exploring the Human Rights Nexus' (2019) 15(2) *Journal of Food Law and Policy*, pp. 92–151; D. Kaufman, 'Is It Time To Break Up Big Ag?', *The New Yorker*, 17 Aug. 2021, available at: <https://www.newyorker.com/news/dispatch/is-it-time-to-break-up-big-ag>. While this literature has been critical of the doctrine, support for it in a domestic context can also be well founded, as explained by Trebilcock & Pue, n. 4 above. The reasons in favour go some way to explaining why the practice of agricultural exceptionalism is so widespread ('exceptionally high' compared with other industries: *ibid.*, p. 256).

I will show, without needing to engage with the complexity of the latter. I then review, in Section 4, state support for the climate-specific exceptionalist thesis. Some states have given their support quite openly, whereas many others appear to have done so implicitly. For instance, state pledges to reduce GHG emissions have generally placed less emphasis on agriculture compared with other sectors, or have not mentioned the sector at all. In Section 5, I question the often-made suggestion by states that mitigation measures for agriculture that both deliver substantial mitigation and do not pose a threat to agricultural productivity (food production) are scarce. On the contrary, they are plentiful, albeit little known and little practised. Anticipatory management by the central institutions of the international climate change regime, including through its mechanism of climate finance for developing countries, can reduce the risk of an exceptionalist upsurge in the future.

The concepts central to the issues examined in this article are liable to create confusion. I will succinctly review them here by way of introduction before examining them in greater length in later sections.

The Paris Agreement⁶ links the concepts of ‘food production’ and ‘food production systems’, on the one hand, with those of ‘ending hunger’, ‘food security’ and ‘eradication of poverty’, on the other. The first two are most intimately associated with, if not equivalent to, ‘agriculture’ and ‘agricultural production’. The Paris Agreement’s ninth preambular clause acknowledges the ‘vulnerability’ of food-production systems, and so of agricultural production, to the adverse impacts of climate change. An adaptation issue is thereby raised: agriculture must become more resilient to climate change in order to overcome the threat it presents. As I will show, many states refer to agriculture as presenting, above all, an adaptation issue. However, the very same preambular clause of the Agreement impliedly also makes a mitigation point: namely, that an all-round reduction in emissions (including from agriculture) will benefit agriculture by moderating climate change and its damaging impacts.

The Paris Agreement’s core mitigation imperative is in Article 2. The phrase ‘in a manner that does not threaten food production’ qualifies that imperative. In the conception of Article 2, a mitigation-induced drop in food production is likely to exacerbate hunger, food insecurity, and poverty (the preambular concepts). It is a concern based on two assumptions, both of which are questionable. The first is that hunger, food insecurity, and poverty rise and fall in inverse proportion to food production. This has long been shown to be untrue.⁷ The second assumption is that mitigation of agricultural emissions poses a known threat to agricultural productivity or food production. The literature I review shows this also to be untrue. Emissions mitigation is no more a threat to food production than it is, say, to energy production – a sector in which mitigation measures have been extensively implemented with no loss in energy production.

⁶ Paris (France), 12 Dec. 2015, in force 4 Nov. 2016, available at: https://unfccc.int/sites/default/files/english_paris_agreement.pdf.

⁷ The original refutation was presented in A. Sen, *Poverty and Famines: An Essay on Entitlement and Deprivation* (Clarendon, 1981), e.g., pp. 7, 57, 158.

The real issue in the agricultural sector, as I show, is that mitigation measures have hardly been explored or implemented, and it is this lack of experience with controlling agricultural emissions that, in a circular fashion, perpetuates the climate-specific agricultural exceptionalism in the climate treaties. Underlying the surface concerns with hunger, food insecurity, and poverty is the economic reality that food production boosts countries' export earnings – enormously so, in the case of those that specialize in the sector. A powerful economic interest exists to portray agriculture as presenting primarily an adaptation issue, deserving a constraint-free status in mitigation law. More than any other sector, agriculture lends itself to this kind of sentimental portrayal, even though raising beef cattle, for example, is no more innocent than digging up coal.

Also obscured by the narrative of the 'mitigation threat' to the sector is the reality that agriculture in many parts of the world is still relatively inefficient and unproductive, for reasons that have little or nothing to do with climate change. Any new demand upon agricultural practices in these circumstances may be perceived as a threat, even though the real threat is ongoing underdevelopment in the sector in these countries, which they should be assisted to overcome with international support.

2. STATE EMISSIONS FROM AGRICULTURE IN COMPARATIVE PERSPECTIVE

Table 1 compares agricultural⁸ and combined non-agricultural⁹ emissions in developed countries in 1990 and in three subsequent years, the latest being 2017.¹⁰ The clear pattern that emerges in the latter part of the period (the shaded area of the table) is that agricultural emissions are increasing, while non-agricultural emissions are decreasing; or, where both are increasing, the latter are not increasing as strongly as the former.

As Table 1 shows, agricultural emissions grew in all the jurisdictions listed, except Japan and Switzerland. In Switzerland, they decreased only slightly compared with a much stronger decrease in 'other' emissions in that country. Japan is the only true exception to the general pattern: its agricultural emissions fell between 2010 and 2017, and they fell more significantly than its combined emissions from other sectors.

⁸ Agricultural emissions are structured differently by the IPCC in its revised 1996 Guidelines and in its 2006 Guidelines. In the former, they are a distinct category ('Agriculture'). In the latter, they are part of a more complex category ('Agriculture, Forestry, and Other Land Use', or AFOLU) with four subordinate sections. Of these four, the second and fourth sections ('3B – Land' and '3D – Harvested Wood Products', which together form the 'FOLU' subcategory) broadly correspond to the land sector (LULUCF) category of the 1996 Guidelines. I have excluded these from the agricultural emissions totals presented in Tables 1 and 2. Whether a country uses the older or the newer guidelines, these tables, therefore, compare like with like. For the 1996 Guidelines, see IPCC (J.T. Houghton et al. (eds)), 'Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories', 1996. For the 2006 Guidelines, see IPCC (H.S. Eggleston et al. (eds)), 'Guidelines for National Greenhouse Gas Inventories', 2006.

⁹ 'Combined non-agricultural emissions' refers to combined emissions from the sectors of energy, industrial processes, and waste, but excluding LULUCF/FOLU emissions and removals. The reason for the exclusion is the inherently high uncertainty in the estimated amounts of LULUCF/FOLU emissions/removals (IPCC, *Mitigation SPM*, n. 1 above, para. B.2.2).

¹⁰ At the time of writing, the latest confirmed emissions data for developed countries was for the year 2017.

Table 1 GHG Emissions (in 1000s of tonnes CO₂ equivalent (Kt CO₂ eq.)) from Agriculture for Developed Countries (including the 28 member states of the EU, as they were, but excluding very small countries^a and ‘economies in transition’ (EITs) apart from Russia, for selected years in the period 1990–2017, compared with GHG emissions from all other sectors combined, excluding emissions and removals from the ‘land’ sector^b)

Territory	Sector	1990	2000	2010	2017	% Change
Australia	Agriculture	80,247.70	78,382.75	66,279.92	73,003.95	10.14
	Other	340,067.62	406,636.26	470,995.33	481,122.61	2.15
Canada	Agriculture	46,875.65	56,938.86	54,952.01	59,906.64	9.01
	Other	555,308.79	673,648.74	637,666.84	655,842.59	2.85
European Union	Agriculture	543,254.95	461,255.34	423,381.31	438,994.20	3.68
	Other	5,106,274.39	4,707,656.56	4,360,246.48	3,884,168.95	−10.91
Japan	Agriculture	37,252.76	35,203.96	35,729.88	33,195.51	−7.09
	Other	1,232,750.86	1,339,642.63	1,267,001.67	1,256,435.07	−0.83
New Zealand	Agriculture	34,257.22	38,060.44	37,728.70	38,880.72	3.05
	Other	31,411.03	38,119.07	41,236.20	41,972.75	1.78
Norway	Agriculture	4,693.88	4,485.73	4,248.61	4,468.85	5.18
	Other	46,516.52	50,346.24	51,218.14	48,243.69	−5.80
Russia ^c	Agriculture	276,422.57	128,196.11	115,474.56	127,905.37	10.76
	Other	2,910,373.43	1,772,623.55	1,942,198.20	2,027,565.30	4.39
Switzerland	Agriculture	6,765.55	6,184.76	6,159.10	6,077.17	−1.33
	Other	46,473.84	46,154.46	47,945.59	41,069.15	−14.34
United States	Agriculture	555,342.79	556,880.87	596,334.01	605,548.03	1.54
	Other	5,887,307.84	6,756,735.62	6,394,772.33	5,877,743.30	−8.08
Total	Agriculture	1,585,113.07	1,365,588.82	1,340,288.10	1,387,980.44	3.55
	Other	16,156,484.32	15,791,563.13	15,213,280.78	14,314,163.41	−5.91

Notes

The shaded area shows the period over which change is calculated.

^a Namely, Iceland, Liechtenstein, and Monaco.

^b All data in this table is from the Common Reporting Format tables submitted by Annex I parties to the UN Framework Convention on Climate Change (UNFCCC) to its Secretariat in connection with the so-called Fourth Biennial Review round. They are available at: <https://unfccc.int/ghg-inventories-annex-i-parties/2021>.

^c Note that emissions data for 1990 for (pre-reform) Russia bear no comparison, for well-understood reasons, with the country’s emissions in later years.

The country is said to have suffered an unprecedented ‘decline of agriculture’ since 1990,¹¹ caused by a significant reduction in the extent of land under cultivation, paralleled by a decrease in holdings of livestock and a decrease in the use of fertilizer on the remaining agricultural land.¹²

The general growth (or non-decline) in agricultural emissions in developed countries is to be contrasted with the trend in emissions from their combined non-agricultural sectors. For the European Union (EU), Japan, Norway, Switzerland, and the United States (US), in 2017 combined non-agricultural emissions were significantly lower than in 2010, whereas in the other jurisdictions listed they increased only slightly in comparison with the growth in agricultural emissions. In the case of New Zealand, the difference is not as pronounced, but the same pattern is evident.

Rising agricultural emissions in developed countries (an overall rise of 3.55% over the period 2010 to 2017, compared with a 5.91% drop in other emissions combined: [Table 1](#)) could be the result of a number of factors. Agricultural emissions could be rising because export markets for agricultural products are growing. Population growth or a growing per capita income in importing countries in turn could explain the growth in those export markets. A rise in agricultural emissions in absolute terms is not necessarily inconsistent with the existence of an underlying *mitigation* of emissions resulting from active mitigation policy, in the sense of a reduction in emissions measured against a counterfactual business-as-usual projection (to give an example from a different sector, a steady reduction in emissions intensity promoted by a nationwide policy on energy efficiency). Agricultural emissions which are increasing in absolute terms could therefore be decreasing in relative terms (relative to the emissions that would have transpired if the state’s mitigation policy for that sector had not been in place). Nevertheless, as we shall see, mitigation in agriculture is a weak or neglected policy area throughout the world. This partly accounts for the relatively strong growth in agricultural emissions seen in [Table 1](#).

In the next table ([Table 2](#)), where the subject is emissions in developing countries, the picture is not as sharp. This is in part because of data issues. Emissions reporting in developing countries, including the 11 countries selected for this table, is still far from complete or reliable. Poor data, or nil reporting, by many countries also makes for a short list of countries in [Table 2](#). This necessitates caution in generalizing from the information presented.

Despite the asymmetry and gaps in this comparison, a general trend does emerge. It hints at a future of unyielding agricultural emissions from developing countries. There is an argument, to which I will return, that the situation in [Table 1](#) represents a historical progression from that in [Table 2](#). Developing countries are expected to move through it (that is, to acquire a [Table 1](#)-type profile), so that in coming years their agricultural emissions will either not change much from their current level or will increase,

¹¹ Ministry of the Environment (Japan), ‘Seventh National Communication under the United Nations Framework Convention on Climate Change’, Dec. 2017, p. 67.

¹² *Ibid.*, pp. 45, 67. Japan is now the world’s largest net importer of agricultural products: Trebilcock & Pue, n. 4 above, p. 247.

Table 2 GHG Emissions from Agriculture (in Kt CO₂ eq.) (for selected developing countries – three from Africa, five from Asia, and three from Central and South America – in selected years, compared with emissions from all other sectors combined, excluding the ‘land’ sector^a)

Territory	Sector					% Change
		2000	2015	2016	2017	
Korea ^b	Agriculture	21,368.79	20,983.96	20,809.52	20,958.19	-0.12
	Other	481,497.08	671,530.61	672,725.30	688,791.78	2.57
Nigeria ^c	Agriculture	39,567.00	57,873.00	65,006.55	67,682.82	16.95
	Other	132,461.66	259,583.88	260,762.71	275,018.27	5.94
South Africa ^d	Agriculture	53,229.40	51,804.30	48,984.6	48,641.80	-6.10
	Other	395,644.80	475,496.70	465,514.20	464,018.90	-2.41
		2000	2012	2015	2016	
Brazil ^e	Agriculture	365,624.64	459,140.30	475,039.66	485,197.96	5.67
	Other	406,105.87	584,421.13	627,034.57	590,555.77 ^f	1.04
		2000	2010	2015	2018	
Argentina ^g	Agriculture	108,114.00	97,911.34	100,153.57	106,353.38	8.62
	Other	156,243.07	208,093.10	228,702.18	222,694.24	7.01
		2000	2010	2015	2016	
India ^h	Agriculture	355,600.00	390,165.00	409,703.00	407,821.00	4.52
	Other	1,168,176.00	1,746,676.00	2,379,369.00	2,431,067.00	39.18
		2000	2011	2014	2016	
Malaysia ⁱ	Agriculture	8,752.54	9,906.22	11,081.37	10,627.72	7.28
	Other	171,343.94	269,076.02	301,991.43	306,205.51	13.79
		2000	2010	2014	2016	
Vietnam ^j	Agriculture	65,090.65	82,957.55	76,737.58	78,301.58	-5.61
	Other	70,704.36	191,518.43	229,403.33	268,722.72	40.31
		2000	2005	2012	2015	
Egypt ^k	Agriculture	27,800.00	39,446.00	n/a	48,391.00	22.67
	Other	165,500.00	220,896.00	n/a	277,224.00	25.49
Mexico ^l	Agriculture	94,072.18	94,956.04	96,400.29	102,059.50	7.48
	Other	450,587.92	497,631.19	577,321.62	597,504.76	20.06

		2005	2010	2012	2014	
China ^m	Agriculture	788,000.00	828,000.00	938,000.00	830,000.00	0.24
	Other	7,227	9,716,000.00	10,958,000.00	11,472,000.00	18.07

Notes

The shaded area shows the period over which change is calculated.

^a Comparisons in this table are imperfect because data unavailability renders a fixed set of years for the presentation of emissions data unfeasible. For the same reason (lack of usable data), several sizeable developing countries, which one might expect to see included in this table, could not be included.

^b Republic of Korea, Ministry of Environment, 'Fourth Biennial Update Report under the UNFCCC', Dec. 2021, pp. 106–7. Emissions in 2018 were 21,190.51 Kt CO₂ eq. (agriculture) and 706,442.78 Kt CO₂ eq. (other).

^c Federal Republic of Nigeria, Ministry of Environment, 'Third National Communication under the UNFCCC', 2020, p. 216 (data for 2016; the data for 2000 and 2015 lies across many pages); and Federal Ministry of Environment (Nigeria), 'Second Biennial Update Report to the UNFCCC', June 2021, p. 41 (data for 2017); gases covered: CO₂, CH₄ and N₂O only.

^d South Africa, Department of Forestry, Fisheries and the Environment, 'National GHG Inventory Report 2017', Aug. 2021, p. 113.

^e Brazil, Ministry of Foreign Affairs and Ministry of Science, Technology and Innovations, 'Fourth Biennial Update Report to the UNFCCC', 2020, pp. 23–42. Emissions in 2010 were 451,069.84 Kt CO₂ eq. (agriculture) and 526,929.01 Kt CO₂ eq. (other).

^f Most of the drop from 2015 to 2016 is in CO₂ from energy and industrial processes. In the energy sector, most of the drop is from 'public service' power plants (ibid.).

^g Argentina, Ministerio de Ambiente y Desarrollo Sostenible, 'Informe Nacional de Inventario del Tercer Informe Bienal de Actualización a La Convención Marco de Las Naciones Unidas Para El Cambio Climático', 2022, pp. 87–8. The trend over 10 years to 2016 is that emissions from all sectors increased slowly, with agricultural emissions increasing the slowest.

^h India, Ministry of Environment and Forests, 'Second Biennial Update Report to the United Nations Framework Convention on Climate Change', 2018, p. 81 (data for 2010); and Ministry of Environment, Forest and Climate Change, 'Third Biennial Update Report to the UNFCCC', Feb. 2021, pp. 181–2. The trend in the period 2014–16 is that emissions increased slowly, with agricultural emissions reducing slowly.

ⁱ Malaysia, Ministry of Environment and Water, 'Third Biennial Update Report to the UNFCCC', Dec. 2020, p. 46. Some industrial gases were not estimated.

^j Vietnam, Ministry of Natural Resources and Environment, 'Report on National GHG Inventory for 2016', 2020, p. 41 (for 2000); pp. 194–211 (other years). Gases covered: CO₂, CH₄ and N₂O only.

^k Egypt, n. 19 below, pp. 64–6, 141–4; and Egypt, Environmental Affairs Agency, 'Third National Communication under the UNFCCC', Mar. 2016, p. 28 'National Greenhouse Gas Inventory'. Gases covered: CO₂, CH₄ and N₂O only.

^l Mexico, Comisión Intersecretarial de Cambio Climático, 'Inventario Nacional de Emisiones de Gases y Compuestos de Efecto Invernadero 1990–2015', 2018, pp. 31, 56.

^m People's Republic of China, State Council, 'Second Biennial Update Report on Climate Change', 2018, pp. 16–26. Some industrial gases were not estimated.

while their emissions from other sectors will begin to fall. The divergence in the trends of agricultural and non-agricultural emissions in this group will, by definition, be greater the more that each developing country shields its agriculture from mitigation pressure.

For the developing countries in [Table 2](#), combined non-agricultural emissions are growing strongly and are still ahead of the growth in agricultural emissions – with Nigeria, South Africa, Brazil, and Argentina being the exceptions. This is the *expected* pattern for developing countries, which we know are at present still growing their energy sectors using cheaply available technologies and fossil fuels.¹³ A state’s energy sector includes not only the ‘stationary’ energy produced for industrial use and general electrification but also the energy consumed in transport (a subsector of energy). Developing countries are strongly growing both these forms of energy use as they industrialize.¹⁴ An improvement in incomes in developing countries, along with higher birth rates, partly accounts for increased consumption; it is powering growth in emissions, not only from energy consumption but also from non-energy industrial processes and waste processing.¹⁵ A cresting of non-agricultural emissions in most developing countries is not expected to occur before 2040.¹⁶ A few more-advanced developing countries, including China,¹⁷ indicate that the cresting may come as early as 2030.¹⁸

By contrast, agricultural emissions in the selection of developing countries in [Table 2](#) appear to be holding more or less steady in the majority of cases (Korea, South Africa, India, Malaysia, Vietnam, and China), growing in others (Nigeria, Brazil, Argentina, and Mexico), and growing remarkably strongly in Egypt.¹⁹ These countries are developmentally at a stage similar to that at which the [Table 1](#) jurisdictions were two to three decades ago. This may be seen from the unshaded columns of [Table 1](#), which concern a period when emissions growth in developed countries was driven primarily by the expansion of energy sectors. During that period, agricultural-sector emissions were relatively subdued (exceptions are the EU and perhaps New Zealand). On this understanding of the relationship between emissions and development, when developing countries manage at last to guide their energy-related emissions into a downward trend by switching economy-wide to low-emission energy sources and by tackling energy inefficiency – whether they do that before 2030 or before 2040 – their agricultural emissions will continue unaffected and may even increase.

¹³ International Energy Agency (IEA), ‘World Energy Outlook 2021’, Oct. 2021, revised Dec. 2021, pp. 15, 44.

¹⁴ *Ibid.*, p. 16.

¹⁵ *Ibid.*, pp. 43–4.

¹⁶ *Ibid.*, pp. 115–8.

¹⁷ People’s Republic of China, ‘Third National Communication on Climate Change’, Dec. 2018, pp. 21–2.

¹⁸ IEA, n. 13 above, pp. 340–2.

¹⁹ Egypt has had a long-standing policy of active expansion of its agricultural sector through reclamation of desert areas (it is currently reclaiming around 150,000 acres per year) and increasing investment in agriculture: Egypt, Ministry of Environment, ‘First Biennial Update Report to the UNFCCC’, 2018, pp. 37, 88. There have been significant increases in livestock populations and fertilizer use in Egypt over the years, as well as an emphasis on ‘self-sufficiency’ in food production: *ibid.*, pp. 66, 88.

Speculation is involved in any projection, of course. The continuation of Table 2, but also of Table 1, is necessarily speculative. This is in part because of our ignorance of how the very issue addressed in this article – climate-specific agricultural exceptionalism – will fare. What certainly does follow from the information presented in this section is that agricultural emissions already now form a substantial proportion of global emissions; and, with the exception of Japan, they are not on a downward trend anywhere.

3. A MITIGATION EXCEPTION FOR FOOD PRODUCTION IN THE CLIMATE TREATIES

The Paris Agreement assigns a ‘fundamental priority’ to food-related issues in a block of interrelated preambular clauses:

Preamble, Clauses 7–9

Recognizing that Parties may be affected not only by climate change, but also by the impacts of the measures taken in response to it,

Emphasizing the intrinsic relationship that climate change actions, responses and impacts have with equitable access to sustainable development and eradication of poverty,

Recognizing the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change.²⁰

If one were to skim the third of these clauses or not notice its connection with the previous two, one could be left with the impression that this concerns an adaptation issue: namely, that protection from the adverse *impacts* of climate change should be the priority for agriculture. This, however, would be inaccurate. ‘Recognizing the fundamental priority of safeguarding food security and ending hunger’ stands on its own, separate from its continuation, which recognizes that food-production systems are vulnerable to climatic impacts; and it immediately follows two clauses that warn of the potential impact of ‘response’ measures – a technical term that includes mitigation (that is, emissions reduction) measures – and, in particular, of the impact of response measures on sustainable development and the eradication of poverty. Therefore, the last of the three preambular clauses is at least as much about safeguarding against mitigation measures as about pursuing adaptation to impacts.

The issue of food production is raised again in the Paris Agreement’s Article 2(1)(b). For context, I reproduce the whole article (with emphasis added):

Article 2

1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

- (a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-

²⁰ N. 6 above.

- industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;
- (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, *in a manner that does not threaten food production*; and
 - (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

2. This Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

Article 2 refers to ‘food production’ and ‘poverty’ only. The preambular references to ending hunger and to food security are not repeated. However, the group of concepts associated with food is so tightly intertwined in the phrasing of the Preamble that a reference to food production in Article 2(1)(b) can hardly fail to allude (or so a state might wish to argue) to the earlier food-related concerns as a whole.

Precisely why the Paris Agreement uses the term ‘food production systems’ in the Preamble instead of the plain-speaking ‘agriculture’ is unclear.²¹ Agriculture is responsible for producing more than just food (it also produces feed, fibre, and fuel). Perhaps the drafters wanted the emphasis to be kept on food. Still, a food-production system is an agricultural system; agriculture has, by definition, a role to play in food security; and the protection of food production or the enhancement of food security for the purposes of ending hunger are measures that necessarily involve agriculture, both intuitively and in the actual opinion of states.²² In negotiations pursuant to the United Nations Framework Convention on Climate Change (UNFCCC),²³ the group of preambular ‘food’ issues in the Paris Agreement is subsumed under the topic ‘Issues relating to Agriculture’.²⁴ The agricultural sector, therefore, underlies the Paris Agreement’s food-related provisions.

²¹ The Paris Agreement’s negotiating texts are of little help on this topic, as noted by J. Verschuuren, ‘The Paris Agreement on Climate Change: Agriculture and Food Security’ (2016) 7(1) *European Journal of Risk Regulation*, pp. 54–7, at 55.

²² As stated, e.g., by Argentina, a major exporter (see n. 35 below) of agricultural produce: ‘agriculture ... serves the fundamental and priority purpose of protecting food security.... This role of agriculture becomes even more significant if it is also considered that the sector is of critical importance to economic and social development and the eradication of poverty, since a large part of the population of many developing countries depend on agriculture for subsistence’: UNFCCC Secretariat, Subsidiary Body for Scientific and Technological Advice (SBSTA), ‘Views on Issues relating to Agriculture: Submissions from Parties and Admitted Observer Organizations’, UN Doc. FCCC/SBSTA/2016/MISC.1, 14 Apr. 2016 (SBSTA, Views April 2016), p. 3. The phrase ‘economic and social development and the eradication of poverty’ used by Argentina is from Art. 4(7) UNFCCC (‘economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties’; the UNFCCC citation is given in n. 23 below). See also M.A. Caretta et al., ‘Water’, in IPCC (H.-O. Pörtner et al. (eds)), *Climate Change 2022: Impacts, Adaptation and Vulnerability*, Contribution of Working Group II to the Sixth Assessment Report of the IPCC (IPCC, 2022) (IPCC *Impacts*), pp. 551–712, at 664 (‘Agriculture provides food security for all’).

²³ New York, NY (US), 9 May 1992, in force 21 Mar. 1994, available at: <https://unfccc.int/resource/docs/convkp/conveng.pdf>.

²⁴ See, e.g., the first of the sources cited in n. 22 above (SBSTA, Views April 2016). See also UNFCCC, ‘Issues related to Agriculture and Food Security’, available at: <https://unfccc.int/topics/land-use/workstreams/agriculture>.

Like the Paris Agreement, the Framework Convention before it also expressed concern about the protection of agriculture in its core provision (emphasis added):

Article 2

The ultimate objective ... is to achieve ... stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, *to ensure that food production is not threatened* and to enable economic development to proceed in a sustainable manner.

It is clear from the Paris Agreement's negotiating texts that 'in a manner that does not threaten food production' in its Article 2(1)(b) is intended to echo the phrasing 'to ensure that food production is not threatened' in Article 2 UNFCCC.²⁵

The negotiation history of the text which was to become the Convention's Article 2 shows that it was the Netherlands that, in 1991, proposed the sentence containing the qualification relating to agriculture; and it would seem that the proposal was incorporated immediately into the draft Convention text without objection.²⁶ It might be significant that the Netherlands has long been one of the world's largest exporters of food.²⁷ Perhaps the country was concerned that mitigation of agricultural emissions would dent its earnings from exported produce. Whatever the case, the Netherlands was not acting alone. The absence of objection from other states to the inclusion in the core provision of the world's first climate treaty of a clause about the protection of food production is entirely consistent with a widespread practice of agricultural exceptionalism in domestic jurisdictions.²⁸

Given the presence of virtually the same phrase in an equivalent position in the UNFCCC and the Paris Agreement, one might conclude that nothing changed in the transition from the earlier to the later treaty: that the special concern for agriculture was simply carried over. Yet, because the whole treaty context certainly *did* change, the same phrase has taken on a new meaning. Compared with the conservative and unhurried vision of the UNFCCC's Article 2 ('should be achieved within a time frame sufficient...'), which lacks a quantified limitation on global warming, Article 2 of the Paris Agreement expresses the need for urgent change ('aims to strengthen the global response') and assigns to the goal of limiting warming to 'well

²⁵ See, e.g., Ad Hoc Working Group on the Durban Platform for Enhanced Action, 'Work on the Contact Group on Item 3: Negotiating Text', advance unedited version, 12 Feb. 2015, available at: https://unfccc.int/sites/default/files/negotiating_text_12022015%402200.pdf.

²⁶ Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (INC), 'Meeting Notes of Afternoon Session on 11 December 1991 at INC 4', Doc. No. SO/Pre/10, p. 3, available at: <https://unfccc.int/about-us/unfccc-archives/unfccc-archival-holdings>. Negotiations on the drafting of the UNFCCC were held over 11 sessions of the INC, beginning in Feb. 1991.

²⁷ The Netherlands' agricultural exports, in 1990, accounted for 23% of the total value of its exports: FAO, *The State of Food and Agriculture* (FAO, 1992), p. 242. Agricultural land in the Netherlands was at the time by far the most irrigated, fertilized, and profitable in the whole of continental Europe: *ibid.*, pp. 245, 248. In 2019, the Netherlands held the distinction of being the world's second largest food exporter in value, after the US: FAO, *World Food and Agriculture: Statistical Yearbook 2021* (FAO, 2021) (FAO *Yearbook 2021*), pp. 207–11.

²⁸ See the sources in n. 5 above. See also the discussion on state attitudes to mitigation in agriculture in Section 4 below.

below 2°C’ a status not qualified by any concern that the mitigation ‘time frame’ might be achieved too quickly. Indeed, with 1.5°C given as an alternative and more desirable upper limit of warming, the Agreement displays a willingness to rush the timeframe considerably. The effect of this difference in context is that, under the more urgent objective of the Paris Agreement, a clause that suggests lenient treatment of a major source of emissions – agriculture – assumes a significance that it did not have in the UNFCCC.²⁹

Another difference in context is an improved understanding (since 1992) of how climate change affects agriculture. Its effect is (and will continue to be) overwhelmingly negative.³⁰ The logical inference is that, for agriculture’s sake, mitigation of GHG emissions across the board is vital. This adds to the significance of an (arguable) anti-mitigation clause for the supposed benefit of agriculture surviving the transition from the UNFCCC to the Paris Agreement. The paradox is more apparent now than it was in 1992.

The observed and expected negative impacts of climate change on agriculture call for adaptation measures specific to the sector. An adaptation measure, such as altering crop varieties or planting times, may in fact present a threat to food production. As I have indicated, however, agricultural adaptation is not the sole concern of the Paris Agreement. The Agreement is often described as ‘balanced’ in relation to the prioritization of mitigation and adaptation.³¹ In fact, mitigation concerns exceed adaptation concerns in the Agreement’s core article. Clause (1)(a) of Article 2 is clearly the treaty’s core mitigation clause. The one following it, Clause (1)(b), which contains the saving for food production/agriculture, might be read as a counterbalancing adaptation clause, for it starts off in that way (‘Increasing the ability to adapt...’). In fact, Clause (1)(b), as well as Clause (1)(c) following it, are mixed adaptation/mitigation provisions. According to the former, adaptation, resilience, and ‘low greenhouse gas emissions development’ are to be enhanced. Low-emissions development has the same meaning as a downward deviation from business-as-usual emissions, which makes it

²⁹ On the proportional contribution of agriculture to GHGs, see [Tables 1 and 2](#), in the main text.

³⁰ See, e.g., A. Arneth et al. (eds), ‘Summary for Policymakers’, in IPCC (P.R. Shukla et al. (eds)), *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems* (IPCC, 2019), pp. 3–36, at 9 (IPCC *Land SPM*) (‘Climate change ... has ... contributed to desertification and land degradation in many regions (high confidence)’); *ibid.*, p. 10 (‘agricultural pests and diseases have already responded to climate change resulting in both increases and decreases of infestations (high confidence)’); C. Mbow et al. (eds), ‘Food Security’, in IPCC, *Climate Change and Land*, *ibid.*, pp. 437–550, at 439 (‘Warming compounded by drying [from climate change] has caused large negative effects on yields in parts of the Mediterranean’); H.-O. Pörtner et al., ‘Summary for Policymakers’, in IPCC *Impacts*, n. 22 above (IPCC *Impacts SPM*), para. SPM.B.1.3 (‘negative impacts [on agricultural productivity caused by climate change] were mainly in mid- and low latitude regions but positive impacts occurred in some high latitude regions (high confidence)’); Caretta et al., n. 22 above, p. 664 (‘future droughts and floods will pose a major risk to food security and agriculture’); C.H. Trisos et al., ‘Africa’, in IPCC *Impacts*, n. 22 above, pp. 1285–455, at 1350 (on negative impacts of climate change on agriculture in Africa); and R. Shaw et al., ‘Asia’, in IPCC *Impacts*, *ibid.*, pp. 1457–579, at 1493–4 (on negative impacts of climate change on agriculture in Asia).

³¹ See, e.g., A. Sharma (ed.), *Guide to the Paris Agreement* (European Capacity Building Initiative, 2020), *passim*. On the Paris Agreement’s declared need for ‘balance’ between mitigation and adaptation, see its Arts 9(4) and 10(6).

a mitigation provision. With the qualification regarding food production/agriculture coming at the end of Clause (1)(b), the resulting legal position is that not only must adaptation action not threaten food production, but mitigation action also must not do so. Certainly, this is an arguable position available for a state to embrace.

It is no objection to the analysis presented here to say that Article 2 does not create state obligations. This is something that is well understood. Nonetheless, Article 2 may still negate the putative existence of an obligation, suggesting, as in this instance, that *no* obligation exists to lower emissions from agriculture where this might threaten food production.

It follows that a state could seek to rely on the treaty texts to excuse itself for not adopting measures that might threaten the productivity of its agricultural sector, and that such an excuse may relate to avoided mitigation measures as much as to avoided adaptation measures. As will be seen in the next section, states, far from avoiding adaptation measures for agriculture, insist (not entirely logically) that adaptation of agriculture to climate change is the foremost duty of a state, and that this entails a cautious approach to (in effect a kind of avoidance of) mitigation in the sector. Despite Article 2 of the Paris Agreement giving, overall, more emphasis to mitigation than to adaptation action, when it comes to agriculture, states may plausibly stake out the position (which they do: see next section) that the Agreement prioritizes adaptation, because the reference to a threat to food production qualifies the *mitigation* component of Clause (1)(b) of Article 2.

As for the UNFCCC's saving clause for agriculture in its own Article 2 (inserted courtesy of the Netherlands), while it appears without any preambular build-up about food issues, it contains the same idea as the corresponding text in the Paris Agreement. However, as I explained above, there is a significant difference in legal effect between the two instances, because the saving in the 1992 text is coloured by the vagueness of the UNFCCC on the timeframe and level of ambition required in mitigation action, as well as by relative ignorance at the time of its drafting of the dangers posed to agriculture by climate change. All this makes the Paris Agreement the better basis for a defence of agricultural exceptionalism (should a state wish to mount one).

The climate treaties contain no saving clause for any other economic sector. The very specificity of the food production exception is particularly striking in the context of the Paris Agreement's Article 2, the wording of which in other respects articulates high-level global goals. 'Sustainable development' and 'eradication of poverty', which occur in both the quoted preambular block and in the chapeau of Article 2(1), are broad, compared with the subject of food. Many aspects of poverty (needless to say) go beyond *food* poverty. Energy poverty, for example, can also lead to deprivation of life's necessities and even be the cause of death, not least because it may hinder food production and food consumption.³² However, no concern is expressed in the

³² See J. Woods et al., 'Energy and the Food System' (2010) 365 *Philosophical Transactions of the Royal Society B*, pp. 2991–3006, at 2998; and J. Birkmann et al., 'Poverty, Livelihoods and Sustainable Development', in *IPCC Impacts*, n. 22 above, pp. 1171–284, at 1244–5.

Paris Agreement (or in the UNFCCC) for ‘energy security’ (or energy generation, distribution, or access).

Freedom from hunger is, of course, a specifically recognized human right,³³ which gives it more prominence than other aspects of poverty. However, even if hunger were understood to be the core issue of poverty, and even if the chapeau’s ‘eradicate poverty’ were understood to mean, in essence, eradicate hunger, the qualifying phrase in Article 2(1)(b) – ‘in a manner that does not threaten food production’ – still stands out, because not only is ‘food production’ inserted into the otherwise lofty language of Article 2, it is the only element in the article that is negatively expressed – that is, as an exception. Such uniquely exceptional language in the Paris Agreement’s core article gives agricultural exceptionalism an arguably strong legal foothold in the treaty. The fact that the Agreement sets challenging limits to global emissions, and the fact that climate science warns of the harm that climate change has in store for agriculture, only make the apparent loophole for agriculture more remarkable – but those are facts that do not necessarily weaken it legally.

It follows from the above analysis that the most natural reading – certainly an arguable reading – of the Paris Agreement’s Article 2, supported by Article 2 UNFCCC, is that agriculture is provided with a measure of relief from mitigation pressure. Nothing in the preparatory texts of the two treaties suggests otherwise. This is tantamount to a form of protection of agriculture in international law – and, *ipso facto*, of the agricultural industry itself (those so-called ‘food production systems’ referred to in the Paris Agreement). On the basis of this reading of the treaty texts, if a country could show that an additional mitigation effort urged upon it might negatively affect its food production, understood as the ability of its agricultural sector to maintain or increase its output of food, the country would have a lawful excuse, by reason of the apparent saving clause in the treaties, not to make that additional effort.

We may think of this problem as one of legal risk. There are provisions in the Paris Agreement that create an expectation that mitigation of emissions is to be ‘economy-wide’, in both developed and developing countries.³⁴ They imply that, where a country is not meeting this treaty-inscribed expectation, a justification is called for. The legal risk arises, not from any definite way in which ‘a threat to food production’ operates in the context of the Agreement to bestow distinct rights, but from the fact that the concept is exploitable. To put it differently, the exceptionalism is not drafted in sufficiently concrete terms to ground active state resistance to mitigation in agriculture, but it is also not so slight as to remain unnoticed as a potential loophole. Once noticed, its influence

³³ International Covenant on Economic, Social, and Cultural Rights, New York, NY (US), 16 Dec. 1966, in force 3 Jan. 1976, Art. 11(2), available at: <https://www.ohchr.org/en/instruments-mechanisms/instruments/international-covenant-economic-social-and-cultural-rights>.

³⁴ See, in particular, Art. 4(4) Paris Agreement, as well as Art. 3(3) UNFCCC (‘[Mitigation] policies and measures should ... be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases ... and comprise all economic sectors’). Because agriculture is responsible for by far the most anthropogenic emissions of methane and nitrous oxide, and because ‘deep reductions’ in these two types of GHG are necessary (IPCC *Mitigation SPM*, n. 1 above, para. C.2), other economic sectors cannot make up for a lack of mitigation action in agriculture, as they cannot themselves reduce those particular gases (*ibid.*, paras C.1.2, C.3.1).

could be enough to weaken a country's resolve to mitigate its emissions from that sector. A country challenged on its persistently high level of emissions might retort that, given its assessment that mitigation in its agricultural sector might threaten its food production, it is not required further to justify its upward-trending agricultural emissions. It would be too difficult to disprove the state's assessment. Once a threat is allowed as a possibility, who is to say that a state's perceived benefit in avoiding it is to be accorded less weight than a no-less theoretical or, at most, miniscule intensification of climate change resulting from the state's choice?

The apparent saving clause for agriculture in Article 2 thus potentially delivers a decisive benefit for a country which has no desire to pursue an ambitious climate policy; and herein lies the legal risk. While it may seem a low risk at present, the attraction of agricultural exceptionalism potentially increases as climate change becomes more severe, as the remaining global emissions budget shrinks, and as competition among states for access to vanishing emissions allowances (actual or notional) intensifies – all of which constitute temptation for a state to develop more creative defences of its mitigation policies and measures.

It might be argued that the quoted block of preambular clauses in the Paris Agreement implies that only developing countries may avail themselves of the protectionist doctrine for agriculture, because it exists for the benefit of countries experiencing significant levels of poverty; but that is not a plausible distinction. Firstly, Article 2(1)(b) does not imply any such limitation. Adaptation, resilience, and low-emissions development must be practised by all states. The accompanying exception, therefore, also applies equally to all of them.

Secondly, many foods are international commodities. Since time immemorial, countries have imported agricultural produce from other countries that enjoy a comparative yield advantage.³⁵ Because the 'threat' to food production in the Article 2 wording is not limited to threats to a country's agricultural produce earmarked for domestic consumption, it must also – or so a state might argue – protect food produced for export. Many developing countries rely on imports from developed countries to meet their food requirements.³⁶ They also rely on their own exports of foodstuffs (cocoa, sugar, fruits, beans, and so forth) to developed countries to boost their foreign currency earnings.³⁷ Should their imports or exports of food be rendered less plentiful or have their prices driven up by compulsory mitigation of agricultural emissions in developed countries, the food security (in the sense of access to food) of developing countries might suffer and the incidence of hunger might rise.

³⁵ Almost all countries export some types of food and import other types; see FAO *Yearbook*, n. 27 above, pp. 207–11 (exports) and pp. 217–21 (imports). As noted earlier, the world's largest exporter of food in value in 2019, after the US, was the Netherlands, despite its miniscule territory and population (*ibid.*). Of the top four *net* exporters of food in the world in 2019 (exported food minus imported food, in value), three were developing countries: Brazil, Argentina, and Thailand, with the Netherlands only slightly ahead of Thailand as a net exporter (*ibid.*, pp. 212–6).

³⁶ Organisation for Economic Co-operation and Development (OECD) & FAO, *Agricultural Outlook 2021–2030* (OECD, 2021), p. 18.

³⁷ *Ibid.*

There is therefore no plausible argument to prevent a developed country from relying on the apparent saving for agriculture in Article 2. (New Zealand already appears to have done so: see next section.) It should also be noted that the concept of ‘food production’, which alone makes it into Article 2 of the Paris Agreement, has important purposes that are not shared by ‘food security’ or by its close relative ‘hunger’ – these two having been left behind in the Preamble. Food production encompasses an interest in wealth creation, which is as much an interest of developed countries as of developing ones. I will say more about this interest and its manifestation in state pronouncements in Section 4.

Even assuming that climate-specific agricultural exceptionalism is for the benefit of developing countries only, this should give us no comfort: the great majority of parties to the Paris Agreement would then be entitled to plead exceptional treatment of their agricultural emissions as a matter of treaty law. If even a subset of populous developing countries were to exploit this legal advantage, the 2°C limit on global warming would likely be placed beyond reach. Therefore, climate-specific agricultural exceptionalism is an issue that deserves the attention of scholars and policymakers alike.

4. STATE PRONOUNCEMENTS ON MITIGATION OF EMISSIONS FROM AGRICULTURE

Certain aspects of state conduct in the context of the climate treaties amount to evidence of an incipient agricultural exceptionalism that goes hand-in-hand with the particular interpretation of the treaty texts presented above. In this section, I present the results of a review of decisions and records of workshops since 2013 under the direction of the UNFCCC’s Subsidiary Body for Scientific and Technological Advice (SBSTA) on issues relating to agriculture. These led to the establishment in 2018 of the Koronivia Joint Work on Agriculture (KJWA).³⁸ As at 2022, the KJWA had received state submissions on the organization of its future work and had arranged six additional workshops, all of which I have also reviewed.³⁹ This work programme on agriculture under the auspices of the UNFCCC is a key source of understanding state attitudes on two issues: firstly, the significance of the savings clause for agriculture in Article 2 UNFCCC/Paris Agreement; secondly, the relative priority of adaptation versus mitigation actions in the agricultural sector. Also of relevance to these two issues are the nationally determined contributions (NDCs) of states pursuant to the Paris Agreement. As studies of agriculture’s role in NDCs already exist,⁴⁰ I have drawn on

³⁸ UNFCCC Conference of the Parties (COP), ‘Decision 4/CP.23: Koronivia Joint Work on Agriculture’, 17 Nov. 2017, UN Doc. FCCC/CP/2017/11/Add.1, p. 19. The KJWA is the ‘joint’ work of the SBSTA and the UNFCCC’s Subsidiary Body on Implementation (SBI): *ibid.*, para. 1.

³⁹ UNFCCC Secretariat, SBSTA & SBI, ‘Sustainable Land and Water Management, Including Integrated Watershed Management Strategies, to Ensure Food Security’, 18 Aug. 2021, UN Doc. FCCC/SB/2021/3, para. 2. KJWA documentation can be found at the UNFCCC website on ‘Issues related to Agriculture and Food Security’, n. 24 above.

⁴⁰ R. Strohmaier et al., *The Agriculture Sectors in the Intended Nationally Determined Contributions: Analysis*, Environment and Natural Resources Management Working Paper No. 62 (FAO, 2016); and S.E. Hönle, C. Heidecke & B. Osterburg, ‘Climate Change Mitigation Strategies for Agriculture:

them as necessary. I have also reviewed the latest NDCs of all states listed in [Table 1](#) and [Table 2](#), as well as those of many other states.

To begin with, states have made pronouncements that appear to support the position that the climate treaties protect agriculture from mitigation imperatives.

For example, Brazil, in 2013, made the following submission to the SBSTA:

Brazil believes that the main aspect of the discussions related to agriculture under the UNFCCC, as expressed in the ultimate objective of the Convention, is to ensure that food production is not threatened (article 2). Therefore, along with the efforts undergoing in the Convention to hold the increase in global average temperature below 2°C above pre-industrial levels, it is important to define actions which will support the maintenance of food production capacity and its increase, taking into consideration population growth and increased access to food. Such actions should strengthen the capacity of different agricultural production systems to face the negative impacts of climate change ... ensuring therefore the production capacity of agriculture is maintained.⁴¹

Brazil's intention here appears to be to have the agricultural qualification in Article 2 UNFCCC deemed to be the controlling provision ('the main aspect') in state negotiations on agriculture. The 'efforts' to which Brazil is reacting date from the UNFCCC Conference of the Parties (COP) of 2009, at which a 'below 2°C' limit for global warming first gained a formal foothold in COP decision making.⁴² The mitigation imperative of the Convention was thus strengthened in 2009 (albeit through a non-binding instrument) by substitution of a vague aim with a concrete aim, and the implications of that change in policy were still being worked out in 2013, at the time of Brazil's SBSTA submission.

There was much at stake economically for Brazil in the SBSTA proceedings. Its agricultural area was the fourth largest in the world (after China, the US, and Australia).⁴³ Possibly in order to keep unfettered the economic advantages flowing to it from agriculture, Brazil's SBSTA submission attempts to reduce the issue of agriculture to one of adaptation. In the country's view, the aim of the climate change treaty regime should be to protect the sector from the impacts of climate change and to increase food production. Agriculture's potential mitigation contribution is thereby rendered a secondary concern.

In a submission to the SBSTA in 2016, Argentina – another giant of food exports⁴⁴ – referenced the agricultural qualification in the recently signed Paris Agreement:

[A]griculture is one of the sectors most affected by ... climate change, which is of grave concern considering that this very sector at the same time serves the fundamental and priority purpose of protecting food security. Such a crucial role and such a delicate balance have been safeguarded in the Paris Agreement ... [I]n accordance with the agreement reached

An Analysis of Nationally Determined Contributions, Biennial Reports and Biennial Update Reports' (2019) 19(6) *Climate Policy*, pp. 688–702.

⁴¹ UNFCCC Secretariat, SBSTA, 'Views on the Current State of Scientific Knowledge on how to Enhance the Adaptation of Agriculture to Climate Change Impacts: Submissions from Parties and Admitted Observer Organizations: Addendum', 16 Oct. 2013, UN Doc. FCCC/SBSTA/2013/MISC.17/Add.1, p. 3 (SBSTA, Views October 2013).

⁴² COP to the UNFCCC, 'Decision 2/CP.15, Copenhagen Accord', 18–19 Dec. 2009, UN Doc. FCCC/CP/2009/11/Add.1, para. 1.

⁴³ FAO, *The State of Food and Agriculture* (FAO, 2014), p. 106.

⁴⁴ See n. 35 above. Argentina ranks 7th in the world in size of agricultural area: FAO, *ibid.*, p. 105.

in COP21 [in Paris, in 2015], [agriculture] will be needed to ensure that food production is not threatened. This role of agriculture becomes even more significant if it is also considered that the sector is of critical importance to economic and social development and the eradication of poverty, since a large part of the population of many developing countries depend on agriculture for subsistence.⁴⁵

This is another example of an attempt to frame agriculture as raising an adaptation issue above all else. Argentina deems the agricultural sector to be the guardian of food security.⁴⁶ The country recalls the qualification in Article 2(1)(b) through which, as Argentina puts it, the Paris Agreement safeguards agriculture's 'crucial role'. This same provision, according to Argentina, also safeguards a certain 'delicate balance', on which Argentina does not elaborate but which can only be a reference to the balancing of mitigation and adaptation requirements. In Argentina's view, adaptation encompasses the protection of food security, and food security encompasses agriculture. 'Delicate' seems to indicate that Argentina regards even the slightest mitigation pressure on agriculture as constituting a threat to food production.⁴⁷ Argentina's final point in the quoted passage is that mitigation in agriculture is even more of a delicate issue for developing countries, because these countries are confronted not only with food insecurity but also with poverty and a relative lack of development.

The implication in Argentina's submission is that agriculture must be allowed to grow freely. Agriculture is not, in its view, a mitigation priority within the Paris Agreement's framework. It is to be categorized under adaptation.

Also indicative of an exceptionalist approach to agriculture, referenced to the climate treaties, are New Zealand's several submissions to the SBSTA. They are the most extensive of any country on this topic.

In one submission, New Zealand recalls Article 2(1)(b) of the Paris Agreement:

References within the Paris Agreement to food production and food security reflect the collective desire of Parties to recognise the relationship between food security and climate change objectives. ... For many Parties, agricultural emissions represent an important proportion of national greenhouse gas emissions. These Parties will need to carefully consider appropriate domestic measures that advance both their food security and climate change objectives.⁴⁸

In this passage New Zealand raises 'food security' as a counterbalance to mitigation of agricultural emissions, just as Argentina had done earlier. In reality, neither of these

⁴⁵ SBSTA, Views April 2016, n. 22 above, p. 3. Argentina also references the Art. 2(1)(b) qualification in its NDC: Argentina, Ministerio de Ambiente y Desarrollo Sostenible, 'Segunda Contribución Determinada a Nivel Nacional de la República Argentina', 2020, p. 28 (in Spanish). Argentina updated its NDC in Oct. 2021 on some points that are not relevant here. NDCs are available at: <https://unfccc.int/NDCREG>.

⁴⁶ It also sees *itself* in the role of guardian: 'Argentina has committed itself to increasing its food supply to the world, so that it moves from feeding 400 million people at present to feeding 680 million people in 2020, thus substantially contributing to the achievement of world food security': *ibid.*, p. 3.

⁴⁷ Hönle, Heidecke & Osterburg (n. 40 above, pp. 695–6) classify Argentina with a group of countries whose central plank of climate policy is to exclude agriculture from mitigation (including from their NDC under the Paris Agreement) and to emphasize instead the sector's vulnerability and adaptation priority.

⁴⁸ SBSTA, Views April 2016, n. 22 above, pp. 35–6.

countries faces an issue of food security; they rank high on that scale.⁴⁹ Their real concern, one suspects, is to defend their share of the expanding international market for high-value agricultural produce.⁵⁰ Beef and dairy, like fossil fuels, are vulnerable to market substitution; if New Zealand or Argentina does not supply them, another country, such as the US, will.⁵¹

In around 1990, New Zealand's farmers began to invest heavily in beef and dairy cattle,⁵² reducing the number of sheep they kept to make way for that most polluting (and yet profitable) of livestock.⁵³ New Zealand prides itself on having abolished agricultural subsidies almost entirely, leaving land-use decisions to the commercial sense of its farmers.⁵⁴ However, this jettisoning of an important component of domestic agricultural protectionism did nothing to reduce agricultural emissions. New Zealand's farmers, through their preference for a business model centred on large ruminants, have led the country into a difficult position for climate policy.

Under New Zealand's climate change legislation of 2019, livestock emissions enjoy exceptional treatment.⁵⁵ While they, too, are subject to an emissions cap, it is relatively light. Livestock emissions are not constrained by the country's net-zero target for 2050.⁵⁶ In effect, New Zealand's main agricultural exports (beef and dairy) have been exempted from general mitigation policy in the country on the ground that

⁴⁹ New Zealand and Argentina are ranked 16th and 53rd, respectively, in the Economist's Global Food Security Index, available at: <https://impact.economist.com/sustainability/project/food-security-index/Country>.

⁵⁰ OECD & FAO, n. 36 above, pp. 17–8.

⁵¹ See M.H. Cooper, J. Boston & J. Bright, 'Policy Challenges for Livestock Emissions Abatement: Lessons from New Zealand' (2013) 13(1) *Climate Policy*, pp. 110–33, at 115. On the US's vast yields of meat production for export, see *FAO Yearbook 2021*, n. 27 above, p. 14.

⁵² SBSTA, 'Views on the Current State of Scientific Knowledge on How to Enhance the Adaptation of Agriculture to Climate Change Impacts: Submissions from Parties and Admitted Observer Organizations', 19 Sept. 2013, UN Doc. FCCC/SBSTA/2013/MISC.17, p. 34 (SBSTA, Views September 2013).

⁵³ Large ruminants are exceptionally GHG-intensive, and the herds are growing strongly; see *FAO Yearbook 2021*, n. 27 above, p. 39. The emissions intensity of cattle and sheep meat is 26 kg CO₂ eq./kg and 22 kg CO₂ eq./kg, respectively. That of rice (0.9 kg CO₂ eq./kg) and of cereals excluding rice (0.2 kg CO₂ eq./kg) have the lowest emissions intensity of all major foods: *ibid.*, p. 40. Beef also has the highest emissions intensity per unit of protein (>300 kg CO₂ eq./kg protein): P.J. Gerber et al., *Tackling Climate Change through Livestock: A Global Assessment of Emissions and Mitigation Opportunities* (FAO, 2013), p. 17 (*FAO Livestock*). See also J.L. Lusk et al., 'Impact of Plant-Based Meat Alternatives on Cattle Inventories and Greenhouse Gas Emissions' (2022) 17(2) *Environmental Research Letters*, article 024035 pp. 1–6, at 2.

⁵⁴ SBSTA, Views September 2013, n. 52 above, p. 34; SBSTA, Views April 2016, n. 22 above, p. 37.

⁵⁵ New Zealand's Climate Change Response (Zero Carbon) Amendment Act 2019 in effect creates legal protection for livestock emissions. See s. 5Q of the Act, which sets the country's mitigation targets through to 2050 and beyond: 'net accounting emissions of greenhouse gases in a calendar year, *other than biogenic methane*, are zero by the calendar year beginning on 1 January 2050 and for each subsequent calendar year; [whereas] emissions of biogenic methane in a calendar year ... are 10% less than 2017 emissions by the calendar year beginning on 1 January 2030; and ... 24% to 47% less than 2017 emissions by the calendar year beginning on 1 January 2050 and for each subsequent calendar year' (emphasis added). In other words, New Zealand law permits livestock emissions to be reduced by less than a quarter (24%) from 2017 levels by 2050. It follows that more than three-quarters of 2017-level livestock emissions may lawfully continue, indefinitely, past 2050.

⁵⁶ See previous footnote.

doing otherwise would threaten food production. The suspicion must remain that it is really towards profit that the putative threat is perceived to be directed.

The agricultural protectionism now seen in New Zealand law represents the revision of a position first presented to the SBSTA in 2016. New Zealand, at that time, maintained that reducing the *intensity* of agricultural emissions was sufficient to discharge its obligations in the climate treaty context,⁵⁷ despite the fact that intensity reductions are a hallmark of mitigation policy for developing countries, rather than developed countries. The nominal caps New Zealand set for livestock emissions in its 2019 legislation did little to change the country's long-standing exceptionalist approach to mitigation of emissions from agriculture.⁵⁸

In another submission to the SBSTA, New Zealand stated:

Global mitigation scenarios that set the world on a pathway to limit warming to less than 2°C above pre-industrial levels assume 2050 global agricultural greenhouse gas emissions will remain at levels similar to today. This is in contrast to other sectors, where the assumption is emissions will reduce to near zero. ... The forecast divergence in sectoral pathways is driven by the limited mitigation potential in agriculture compared with other sectors. As the [UNFCCC's] Structured Expert Dialogue on the 2013–2015 Review reported 'CO₂ removal technologies are needed to compensate for past GHG emissions overshooting the target and, more importantly in the second half of the century, also for emissions that cannot be reduced to zero (e.g. non-CO₂ emissions from agriculture)'.⁵⁹

New Zealand's two claims in this passage are potentially misleading. In support of the first, New Zealand cites an article by Gernaat and co-authors.⁶⁰ However, nowhere does that article suggest that world agricultural emissions will be about the same in 2050 as they are today. Rather, the article finds that:

[A]ssumptions on the mitigation of non-CO₂ gases become increasingly important over time. Certainly if the option to further create negative emissions from CO₂ is constrained (due to limitations on bio-energy availability or [carbon capture and storage]), assumptions on the non-CO₂ gases thus become critically important in achieving low concentration targets.⁶¹

⁵⁷ SBSTA, Views April 2016, n. 22 above, p. 35. See also SBSTA, 'Workshop on the Identification and Assessment of Agricultural Practices and Technologies to Enhance Productivity in a Sustainable Manner, Food Security and Resilience, Considering the Differences in Agroecological Zones and Farming Systems, such as Different Grassland and Cropland Practices and Systems', 30 Aug. 2016, UN Doc. FCCC/SBSTA/2016/INF.6, p. 7 (SBSTA, Workshop 2016).

⁵⁸ New Zealand's favourable treatment of its livestock emissions is not unique to that country. See, e.g., V. Peters, 'A Legal Obligation to Mitigate Greenhouse Gas Emissions from Agriculture: A Challenge to the European Union's Emissions Trading System and the EU Member States with the Largest Agricultural Impact' (2015) 19 *UCLA Journal of International Law and Foreign Affairs*, pp. 213–42, at 235; for Norway and Switzerland, see Trebilcock & Pue, n. 4 above, p. 235; for the US, see SBSTA, Views April 2016, n. 22 above, p. 61; Finney, n. 5 above, p. 814; and, in general, see Hönle, Heidecke & Osterburg, n. 40 above, p. 699 ('only a quarter of countries have included measures targeting livestock emissions from enteric fermentation in their programmes').

⁵⁹ SBSTA, Views April 2016, n. 22 above, p. 36.

⁶⁰ D.E.H.J. Gernaat et al., 'Understanding the Contribution of Non-Carbon Dioxide Gases in Deep Mitigation Scenarios' (2015) 33 *Global Environmental Change*, pp. 142–53.

⁶¹ *Ibid.*, p. 144.

In other words, while the authors of the article acknowledge a significant difference in the trends of CO₂ and CH₄/N₂O emissions into the future, their projection is not as clear-cut as New Zealand suggests. Much depends, in their view, on the potential of negative-emissions technology (NET) to deliver CO₂ reductions by 2050. There is a risk that NET potential will prove to be low, in which case mitigation in agriculture (and in other land-based systems) must be correspondingly high, raising the possibility that agricultural emissions must be reduced in absolute terms by mid-century. For this reason, the authors urge further development of options for the mitigation of agricultural emissions.⁶²

In relation to New Zealand's second claim, the passage it quotes from the Expert Dialogue states that non-CO₂ agricultural emissions 'cannot be reduced to zero' – which is very different from New Zealand's claim that they 'will remain at levels similar to today'. That claim may be understood as an attempt by the country to justify its comparatively modest 2050 target for livestock emissions in its 2019 climate legislation.

It is no doubt true that a huge effort is required to substantially reduce CH₄ and N₂O emissions from agriculture by 2050 from today's levels,⁶³ but this does not make it a foregone conclusion that emissions of these gases will remain at today's levels. Equally true is that CO₂ emissions from the energy sector, the industrial processes sector (steel and cement manufacturing, especially), and bunker fuels (international airline and shipping emissions) will not be reduced to the required level by 2050 without a huge effort. Of these sources, only energy-sector emissions are 'expected to decrease to zero' by mid-century under optimistic scenarios, and then only with NETs soaking up ongoing CO₂ emissions in other sectors.⁶⁴

Thus, gross CO₂ emissions, just like CH₄/N₂O emissions, are projected to be well above zero in 2050.⁶⁵ We may grant that agriculture presents perhaps the greatest long-term mitigation challenge of all sectors. However, from the fact that agricultural and non-agricultural emissions follow significantly different trajectories through to 2050, as indeed they have done through to the present (as seen in [Table 1](#) and [Table 2](#)), it does not follow that agriculture is entitled to exceptional treatment in mitigation law or policy. This is the weakness of New Zealand's position, which is a position shared with many other countries, as I illustrate in this section.

What is missing from the above group of protectionist statements by Brazil, Argentina, and New Zealand is any acknowledgement that the considerable influence of agricultural protectionism in the legal order of many countries⁶⁶ has left us with no well-informed projection of agricultural GHG emissions into the future to rely on, precisely because the result of protectionist influence has been that agriculture has so far

⁶² Ibid., p. 150. Subsequent research suggests that Gernaat et al. may have *underestimated* the risk; see M.A. Clark et al., 'Global Food System Emissions Could Preclude Achieving the 1.5° and 2°C Climate Change Targets' (2020) 370(6517) *Science*, pp. 705–8.

⁶³ IPCC *Mitigation SPM*, n. 1 above, para. C.1.2.

⁶⁴ Ibid., para. C.2.

⁶⁵ See the figure New Zealand presents at SBSTA, Views April 2016, n. 22 above, p. 37.

⁶⁶ See n. 5 above, as well as the country information presented throughout this section.

successfully resisted the brunt of GHG mitigation policy. This is a point I will return to in the next section.

Many other examples may be cited of forms of state support for agricultural exceptionalism in the climate treaty context. The examples below are sourced from the SBSTA/KJWA process and state NDCs, as well as other sources.

Domestic law and policy have, with few exceptions, permitted mitigation action in agriculture to remain voluntary.⁶⁷ Alternatively, regulation of agricultural emissions has been kept vague or unclear and free of sectorial mitigation targets,⁶⁸ or the state has opted to regulate agricultural emissions indirectly, through environmental-improvement measures, which make the impact of this approach on GHG emissions difficult to measure.⁶⁹ Most of these forms of agricultural exceptionalism may be considered implicit. They do not appeal directly to the Article 2 qualification on agriculture in the UNFCCC or Paris Agreement. Rather, they assume that the weight of considerations argues for the expansion of a nation's agriculture for the sake of 'adaptation', downplaying the need for mitigation policy in the sector.⁷⁰

⁶⁷ See, for Australia: J. Verschuuren, 'Towards a Regulatory Design for Reducing Emissions from Agriculture: Lessons from Australia's Carbon Farming Initiative' (2017) 7(1) *Climate Law*, pp. 1–51; for the EU: A. van Doorn, J.P. Lesschen & P. Kuikman, *Next Phase of the European Climate Change Programme: Analysis of Member States Actions to Implement the Effort Sharing Decision and Options for Further Community-Wide Measures: Agriculture Sector – Policy Case Studies Report* (AEA Technology Plc, 2012), pp. 3–4; Bähr, n. 3 above, p. 176; for France: Peters, n. 58 above, p. 227; for the Netherlands: Verschuuren, n. 3 above, p. 26; for Switzerland: SBSTA, Views October 2013, n. 41 above, pp. 8–9; for the United Kingdom: Woods et al., n. 32 above, pp. 2999–3000; for India: M.B. Richards, E. Wollenberg & D. van Vuuren, 'National Contributions to Climate Change Mitigation from Agriculture: Allocating a Global Target' (2018) 18(10) *Climate Policy*, pp. 1271–85, at 1283; for several developing countries which largely ignore agriculture in their NDCs: Hönle, Heidecke & Osterburg, n. 40 above, pp. 695–6 ('strong emphasis on vulnerability and adaptation priority'); and globally: IPCC *Mitigation SPM*, n. 1 above, para. B.5.2.

⁶⁸ Strohmaier et al., n. 40 above, pp. xiv, 13 ('The majority of countries (54 percent) do not further elaborate on concrete actions in agriculture for achieving their GHG target'; and only 7 out of 162 NDCs include any quantified sector-specific targets for agriculture). Burundi, e.g., has a 2030 target to replace all mineral fertilizers with organic fertilizers (*ibid.*), but it is unclear to what extent this will amount to a solution, given that organic fertilizers can be just as GHG-intensive as inorganic ones per unit of output: Woods, et al., n. 32 above, pp. 2993–4. See also EU, Directorate General for Climate Action, 'Seventh National Communication and Third Biennial Report from the European Union under the UNFCCC', 19 Dec. 2017, pp. xiv, 250 (for examples of input-oriented policies that may or may not reduce GHG emissions below business as usual); and, in general, Hönle, Heidecke & Osterburg, n. 40 above, p. 696 (who also note backtracking in seven cases: 'higher engagement in agricultural mitigation according to the NDCs was expected than was represented in [these states' biennial reporting]').

⁶⁹ For the EU, see Van Doorn, Lesschen & Kuikman, n. 67 above, p. 4; G. Grosjean et al., 'Options to Overcome the Barriers to Pricing European Agricultural Emissions' (2018) 18(2) *Climate Policy*, pp. 151–69, at 152; and J. Verschuuren, 'Achieving Agricultural Greenhouse Gas Emission Reductions in the EU Post-2030: What Options Do We Have?' (2022) 31(2) *Review of European, Comparative & International Environmental Law*, pp. 246–57, at 250.

⁷⁰ The UNFCCC Green Climate Fund (GCF) reports that '[a]bout 75 per cent of projects classified as agriculture projects by the GCF are supported under the adaptation window, with most of the remaining 25 per cent supported as cross-cutting projects involving both mitigation and adaptation and very few supported solely under the mitigation window': UNFCCC Secretariat, SBSTA, 'Improved Nutrient Use and Manure Management towards Sustainable and Resilient Agricultural Systems', 28 Feb. 2020, UN Doc. FCCC/SB/2020/1, para. 26. In a submission to the KJWA on its future work, Norway sensed that the forum risked being turned into an adaptation-only issue space, and it warned against this tendency: Norway, 'Submission by Norway in Response to Conclusions from SB48, Inviting Views on Future Topics and Progress of the KJWA', available at the UNFCCC's website on 'Issues related to Agriculture and Food Security', n. 24 above, p. 3.

Consider the following statement by Kenya before the SBSTA:

[The] SBSTA needs to provide scientific and technological advice on priority adaptation actions to improve water management ... *to increase agricultural and livestock production* ... These actions reduce the impact of droughts and floods on crop yields and livelihoods.⁷¹

The reasoning here is that, because rain-fed cropping is vulnerable to cyclical and long-term climatic disturbances, Kenya should be supported through the climate treaty regime to expand its livestock production. Such a measure would be properly adaptive, in Kenya's view, both because livestock farming is less dependent on rainfall variability and because '[a]griculture plays a major [role] in the economy of Kenya, directly contributing 24% of GDP and ... [the] sector employs about 65% of the workforce in the country'.⁷²

Kenya's submission does not acknowledge that an expanded livestock sector (as opposed to the installation of crop-irrigation systems, which would directly address the problem Kenya raises) would worsen the impacts of climate change in the long run. Additionally, Kenya raises a 'food security' concern for the country;⁷³ however, it fails to mention that it already exports a significant amount of surplus food, for which it receives a significant income.⁷⁴ The country is far from being in the grip of a food crisis. Its interest in expanding its livestock subsector is likely to be because meat production in East Africa is lucrative. There is a high demand for it in the nearby Gulf States, for example. Kenya's neighbour, Ethiopia, maintains the tenth largest livestock population in the world, from which it supplies the oil-rich states across the Red Sea.⁷⁵ Possibly, Kenya has an eye on the same market.

The general tendency of countries is to skirt around the mitigation issues that agriculture presents, while emphasizing the value of the sector as a food-production engine to a country's adaptation to climate change and economic development.⁷⁶ Adaptation is rendered the sector's 'priority' in most state narratives, and the ongoing growth of the sector is generally held up to be all-important.⁷⁷

⁷¹ SBSTA, Views September 2013, n. 52 above, p. 13 (emphasis added).

⁷² *Ibid.*, p. 11.

⁷³ *Ibid.*

⁷⁴ Kenya exported 98,600 tonnes of cereals in 2019: FAO *Yearbook 2021*, n. 27 above, p. 224. The value of its food exports, including cereals, in 2019 was US\$2,386 million: *ibid.*, p. 209.

⁷⁵ M.I. Tongwane & M.E. Moeletsi, 'A Review of Greenhouse Gas Emissions from the Agriculture Sector in Africa' (2018) 166 *Agricultural Systems*, pp. 124–34, at 125.

⁷⁶ E.g., Malawi: SBSTA, Views September 2013, n. 52 above, p. 21 (according to the government, 'the agricultural sector [in Malawi] accounts for nearly 90 percent of foreign exchange earnings', making economic growth almost synonymous with agricultural growth); India: SBSTA, Workshop 2016, n. 57 above, p. 7; and Sri Lanka: SBSTA, Views April 2016, n. 22 above, pp. 44, 54 (which incidentally also confirms the weak link between food production and food security, as the country is self-sufficient in rice production and exports surplus rice, yet it characterizes 12% of its population as 'severely food insecure': *ibid.*, p. 44).

⁷⁷ Mali, for the Like Minded Developing Countries: SBSTA, Views September 2013, n. 52 above, p. 24; Swaziland, for the Africa Group: *ibid.*, p. 42 ('The priority for the agriculture sector in Africa ... is adaptation'); Nepal, for the Least Developed Countries: *ibid.*, p. 30 ('top priority is to increase agricultural production'); and Uruguay: SBSTA, Views October 2013, n. 41 above, p. 15.

Nowhere is this clearer than in the NDCs. Even through ‘most [countries] are aiming to use mitigation opportunities in the sector’,⁷⁸ these commitments are so vague as to allow for unfettered growth in agricultural emissions. NDCs of developed countries all take the form of a singular, economy-wide, absolute mitigation target. In order to preserve flexibility, they do not declare any sectorial mitigation targets. When the use of international market mechanisms is factored in, an economy-wide target is not incompatible with uninterrupted growth in agricultural emissions.

NDCs of developing countries are even harder to pin down in this respect. Firstly, the vast majority of them make their mitigation actions conditional, to one degree or another, on the receipt of international financial (or other) support.⁷⁹ Egypt’s NDC, for example, is in its entirety conditioned on the receipt of international climate finance for its performance; on top of that, it excludes agriculture from its (fully conditional) mitigation plans.⁸⁰

Secondly, developing-country NDCs, with few exceptions, set relative rather than absolute mitigation targets – relative, that is, to projected business-as-usual emissions in 2030 or to a past level of emissions intensity of gross domestic product (Uruguay’s NDC is an example). Such targets allow for unlimited growth in emissions from agriculture and from other sectors. China’s NDC is limited to the control of CO₂ emissions, thus excluding agriculture.⁸¹

Thirdly, developing-country NDCs generally prioritize adaptation and food security, deepening the conditionality of their mitigation plans for agriculture where they exist.⁸² India’s NDC disclaims any mitigation obligation for agriculture, characterizing the sector as a vulnerable sector of the economy deserving ‘protection’.⁸³

5. THE CASE AGAINST EXCEPTIONALISM

The narrative against mitigation in agriculture is able to latch onto an arguable exception for the sector in the climate change treaties; beyond this, however, the narrative is weak. State submissions to the SBSTA/KJWA process highlight a host of readily understood threats to food production that are unrelated to climate change. They include a lack of basic technology for irrigation,⁸⁴ as well as situations of armed conflict and

⁷⁸ UNFCCC Secretariat, ‘Nationally Determined Contributions under the Paris Agreement: Synthesis Report by the Secretariat’, 17 Sept. 2021, UN Doc. FCCC/PA/CMA/2021/8, para. 127.

⁷⁹ W.P. Pauw et al., ‘Conditional Nationally Determined Contributions in the Paris Agreement: Foothold for Equity or Achilles Heel?’ (2020) 20(4) *Climate Policy*, pp. 468–84, at 469.

⁸⁰ Egypt, ‘First Updated Nationally Determined Contribution’, 8 June 2022, p. 37.

⁸¹ China, ‘Nationally Determined Contribution: Achievements, New Goals and New Measures’, 28 Oct. 2021, p. 7 (in Chinese).

⁸² Argentina’s NDC, e.g., takes this form. No planned decreases in agricultural emissions are mentioned – only increases: Argentina, n. 45 above, pp. 21, 38 (in Spanish). The same is true of Brazil’s NDC: Brazil, ‘Nationally Determined Contribution [Updated]’, 21 Mar. 2022, p. 5.

⁸³ India, ‘Intended Nationally Determined Contribution: Working Towards Climate Justice’, 2 Oct. 2016, p. 30. In Aug. 2022, India updated its NDC in some particulars, not relevant here, while keeping the earlier version in force.

⁸⁴ E.g., Swaziland, for the Africa Group: SBSTA, Views September 2013, n. 52 above, p. 42; Democratic Republic of the Congo, for the Least Developed Countries: SBSTA, Views April 2016, n. 22 above, p. 9; and Mali, for the Africa Group: *ibid.*, p. 14.

political insecurity,⁸⁵ which, along with the damaging impacts of climate change on the sector, conspire to envelop it in a haze of vulnerability.

Agriculture's actual vulnerability – in certain circumstances, in certain countries – can be exploited to sow confusion about highly contentious questions of state responsibility for the mitigation of GHG emissions and the level of mitigation effort that counts as 'fair' for each country. For example, the essence of Malawi's food insecurity problem would seem to be captured in the country's claim that '99 per cent of Malawi agriculture land is under rain-fed cultivation'.⁸⁶ Far from providing a basis for downplaying the need for mitigation of emissions from agriculture in that country, the logical response to the claim would be to ensure international technological support for Malawi, such as assistance with improvements in basic water-management systems.⁸⁷ This would do much to increase both the country's agricultural productivity and its food security.⁸⁸ The issue of the agricultural sector's undercapitalization⁸⁹ in many countries – high inefficiency, low productivity – is a genuine issue of international concern. However, this is not the main issue that the climate change treaty regime has been set up to address.

Instead, mitigation of agricultural emissions, as well as agriculture's adaptation to climate change, are the main issues for the sector under the climate change regime. Despite this, states frequently mix up the various narrative strands, perhaps because it allows them to evade addressing forthrightly the potentially unpopular issue of reducing emissions from agriculture. The very reference in the climate treaties to a threat to food production conjures up a danger – a crisis even – that is contradicted by the facts. Global food production has been growing steadily for half a century, outstripping population growth, and its spectacular performance is not expected to diminish.⁹⁰ There have been spikes in hunger, but these have generally been for reasons other than a fall in food production (most recently, they were caused by the COVID-19

⁸⁵ E.g., Myanmar: SBSTA, 'Views on Issues Relating to Agriculture: Submissions from Parties and Admitted Observer Organizations', 23 May 2016, UN Doc. FCCC/SBSTA/2016/MISC.1/Add.1, p. 2; UNFCCC Secretariat Summary: SBSTA, Workshop 2016, n. 57 above, p. 8, para. 30; and FAO *Yearbook 2021*, n. 27 above, p. 31.

⁸⁶ SBSTA, Views September 2013, n. 52 above, p. 21.

⁸⁷ Irrigation allows food production to grow much faster than growth in the extent of cultivated areas: FAO *Yearbook 2021*, n. 27 above, p. 3. The world's share of agricultural land area equipped for irrigation is increasing, albeit slowly: in 2019 it was 7.2%, up from 5.9% in 2000: *ibid.*

⁸⁸ On the link between irrigation and food security, see Caretta et al., n. 22 above, pp. 626–7. See also Nepal, for the Least Developed Countries, SBSTA, Views September 2013, n. 52 above, pp. 31–2, on the sorts of basic technological support for agriculture that Least Developed Countries need in order to increase the sector's productivity.

⁸⁹ See Tongwane & Moeletsi, n. 75 above, pp. 124–5.

⁹⁰ The period 1965 to 2000 'saw a doubling of global agricultural production [primarily as a result of] massive increases in fertilization and irrigation, as well as improved crop genetics': Woods et al., n. 32 above, pp. 2996–7. See also IPCC *Land SPM*, n. 30 above, pp. 7–8. Moreover, between 2000 and 2019, the global amount of cereals available as an international commodity grew steadily from 273.88 megatonnes in 2000 to 468.08 megatonnes in 2019 (an increase of 70.9%, which is far greater than the corresponding population growth of 25%): FAO *Yearbook 2021*, n. 27 above, p. 222. See also *ibid.*, pp. 10, 14, 16. In parallel, agricultural land massively *decreased* (*ibid.*, p. 34), as did the share of employment in agriculture (*ibid.*, p. 4), implying significant increases in efficiency (*ibid.*, p. 3). These trends are expected to continue: OECD & FAO, n. 36 above, p. 18; and IPCC *Impacts SPM*, n. 30 above, para. SPM.B.1.3.

pandemic and the war in Ukraine⁹¹). Such spikes aside, there is no expectation that hunger will rise globally in the future, even with the impact of climate change factored in.⁹²

Moreover, proven agricultural mitigation methods and technologies that are productivity-neutral, or even enhance productivity, already exist.⁹³ They are not widely known or used, in significant part because of a lack of implementation incentive.⁹⁴ Moreover, many promising technologies exist in a state of development, or have been developed but have not yet been scaled up, among which are some that await shifts in dietary preferences before they can be scaled up and begin to effect significant reductions from business-as-usual emissions.⁹⁵

A vicious circle, in other words, has held back mitigation ambition in agriculture.⁹⁶ Promising mitigation techniques cannot be proved at scale as long as the exceptionalist sentiment is influential. Nevertheless, climate models assume that agricultural mitigation technologies will come on line eventually – they will have to – for the sake of

⁹¹ On the impact of COVID-19 see FAO *Yearbook 2021*, n. 27 above, pp. 26–7. See also IPCC, *Land SPM*, n. 30 above, p. 10. On the impact of the war in Ukraine see, e.g., World Food Programme of the United Nations, ‘War in Ukraine Drives Global Food Crisis’, 24 June 2022, available at: <https://www.wfp.org/publications/war-ukraine-drives-global-food-crisis>.

⁹² G. Cissé et al., ‘Health, Wellbeing and the Changing Structure of Communities’, in IPCC *Impacts*, n. 22 above, pp. 1041–170, at 1097. See also IPCC *Land SPM*, n. 30 above, p. 7; FAO *Yearbook 2021*, n. 27 above, pp. 28, 31 (blaming a slight decline in dietary energy supply in Africa since 2016 on political conflict and an El Niño event, neither of which were related to climate change); and OECD & FAO, n. 36 above, pp. 17–8.

⁹³ See, e.g., FAO, *Climate Change and Food Security: A Framework Document* (FAO, 2008), pp. 62–5 (FAO *Food Security*); Woods et al., n. 32 above, pp. 3002–3; D.F. Larson, A. Dinar & J.A. Frisbie, ‘Agriculture and the Clean Development Mechanism’, Policy Research Working Paper 5621, The World Bank, Apr. 2011, p. 24; Van Doorn, Lesschen & Kuikman, n. 67 above, p. 10; Cooper, Boston & Bright, n. 51 above, p. 117; FAO *Livestock*, n. 53 above, pp. xiii–xiv, 48–50; SBSTA, Views September 2013, n. 52 above, p. 38; SBSTA, Views April 2016, n. 22 above, p. 33; Grosjean et al., n. 69 above, p. 154; Richards, Wollenberg & van Vuuren, n. 67 above, p. 1283; Tongwane & Moeletsi, n. 75 above, p. 132; IPCC *Land SPM*, n. 30 above, p. 24; SBSTA & SBI, ‘Improved Livestock Management Systems, including Agropastoral Production Systems and Others’, 27 Apr. 2021, UN Doc. FCCC/SB/2021/1, paras 19, 21; and IPCC *Mitigation SPM*, n. 1 above, para. C.9.1.

⁹⁴ As noted by Verschuuren, n. 21 above, p. 57. See also FAO *Livestock*, n. 53 above, pp. xii–xiii, 46, 48, as well as M. Zurek, A. Hebinck & O. Selomane, ‘Climate Change and the Urgency to Transform Food Systems’ (2022) 376(6600) *Science*, pp. 1416–21.

⁹⁵ See, e.g., FAO *Food Security*, n. 93 above, p. 63; Woods et al., n. 32 above, p. 2997; Van Doorn, Lesschen & Kuikman, n. 67 above, pp. 5, 21; Cooper, Boston & Bright, n. 51 above, p. 111; Bähr n. 3 above, p. 157; Trebilcock & Pue, n. 4 above, p. 259; SBSTA, Views April 2016, n. 22 above, p. 7; Grosjean et al., n. 69 above, p. 154; IPCC *Land SPM*, n. 30 above, p. 24; S. Leahy, H. Clark & A. Reisinger, ‘Challenges and Prospects for Agricultural Greenhouse Gas Mitigation Pathways Consistent with the Paris Agreement’ (2020) (22 May issue) *Frontiers in Sustainable Food Systems*, pp. 1–8, available at: <https://doi.org/10.3389/fsufs.2020.00069>; S. Ghavam et al., ‘Sustainable Ammonia Production Processes’ (2021) (29 Mar. issue) *Frontiers in Energy Research*, pp. 1–19, at 2, available at: <https://doi.org/10.3389/fenrg.2021.580808>; Birkmann et al., n. 32 above, pp. 1244–5; IPCC, *Mitigation SPM*, n. 1 above, para. C.9.3; Lusk et al., n. 53 above, pp. 1, 4.

⁹⁶ Cooper, Bright & Boston, n. 51 above, p. 124 (‘few countries have given serious consideration to market-based measures for agricultural GHGs. This creates an unhealthy feedback loop whereby a lack of knowledge contributes to limited policy development, which in turn makes it impossible to learn about actual sector responses’); see also Grosjean et al., n. 69 above, p. 157. It is well understood, of course, that protectionism in general stifles competition and technological innovation. This point is applied to agriculture by Finney, n. 5 above.

compliance with the 2°C warming limit.⁹⁷ In the EU, the de facto leader in climate action, signs of a break from the past in agricultural mitigation have emerged.⁹⁸ The real issue for the international community is not one of avoiding ‘threats’ but of capacity building for mitigation in agriculture.⁹⁹ Climate finance is pitifully lower for agriculture than it is for other sectors.¹⁰⁰ At the same time, however, for those countries where agriculture lacks the most basic technology to make it secure and productive, the support must come, not from the narrowly mandated sources of climate finance, but from the larger budgets that support sustainable development throughout the world.

6. CONCLUSION

Certain provisions in the climate change treaties may be interpreted to allow for a permissive approach to agricultural emissions. State pronouncements and mitigation pledges (the NDCs) appear to conform with this view. Because agricultural exceptionalism has pre-dated the problem of climate change in domestic legal settings and has been widely practised by states, the carrying over of an arguable protection for agriculture into international law is perhaps to be expected. Reasons for the domestically grown agricultural exceptionalism are complex and deep-rooted and, to some (small) extent, justified.¹⁰¹ I have limited myself to an argument against the narrow, mitigation-specific, agricultural exceptionalism present in the climate treaties. My argument does not deny, of course, that hunger, food insecurity, and poverty persist globally. However, these ills are not, in general, the result of a failure of food production, the aggregate global output of which has been growing strongly for decades. The tight relationship implied by the Paris Agreement’s preambular text between food production, on the one hand, and hunger, food security, and poverty, on the other, is overly simplistic. Once a wedge is driven between them, any temptation to develop an anti-mitigation thesis on agriculture is thereby weakened.

While one is bound to acknowledge that agricultural exceptionalism may have been accorded an arguable legal basis in the climate treaties, the thesis can still be resisted, as I have sought to demonstrate, for being without practical, if not without legal, merit. Mitigation options for agriculture have hardly been explored, and this casts much doubt on a legalistic exceptionalism, as there is little evidence that mitigation action in agriculture raises a threat for food production, let alone that it leads to an increase in food insecurity. When these points are coupled with the positive argument against

⁹⁷ E. Wollenberg et al., ‘Reducing Emissions from Agriculture to Meet the 2°C Target’ (2016) 22(12) *Global Change Biology*, pp. 3859–64; Richards, Wollenberg & van Vuuren, n. 67 above, p. 1273; and Hönle, Heidecke & Osterburg, n. 40 above, p. 690.

⁹⁸ Verschuuren, n. 69 above, p. 253.

⁹⁹ IPCC *Mitigation SPM*, n. 1 above, paras C.9.1, E.5, E.5.3.

¹⁰⁰ The Global Environment Facility has called on states to ‘help to close the massive gap in finance for climate change mitigation and adaptation in agriculture’: UNFCCC Secretariat, SBSTA & SBI, ‘Sustainable Land and Water Management, including Integrated Watershed Management Strategies, to Ensure Food Security’, 1 Nov. 2021, UN Doc. FCCC/SB/2021/3/Add.1, para. 29.

¹⁰¹ Trebilcock & Pue, n. 4 above.

a treaty-based exceptionalism – namely, that it supports business-as-usual emissions (which accelerate climate change, which has a negative impact on agriculture) – the legal case for the anti-mitigation doctrine is hollowed out.

Climate-related agricultural exceptionalism is, moreover, superfluous. The concerns that it is meant to address are already covered by other, more general, principles in the climate treaties, including the obligation to support developing countries through a transfer of technology, know-how, and related capacity building for adaptation and mitigation. To the extent that the threats to agricultural production are unrelated to climate change or to policies and measures responding to it (and many of them are), other mechanisms of the international regime (such as development aid) are relevant in addressing the problem.

In the light of the above, it is not for the critic of state inaction on mitigation of agricultural emissions to show that mitigation action in the sector will not lead to a fall in food production with a flow-on exacerbation of hunger, food insecurity, and poverty. Rather, it is for the state that appears to act contrary to the principle that mitigation of GHG emissions should be economy-wide to produce evidence to justify its stance on managing the emissions from its agricultural sector.