10.3197/JPS.63799977346497

RESEARCH ARTICLE

Population, consumption and climate colonialism

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Abstract

Strategies for combatting climate change that advocate for human population limitation have recently been understandably criticised on the grounds that they embody a form of 'climate colonialism': a moral wrong that involves disproportionately shifting the burdens of climate change onto developing nations (which have low per capita emissions but high fertility rates) in order to offset burdens in affluent nations (which have high per capita emissions but low fertility rates). This article argues that once the relevance of population growth to climate change has been correctly understood as working in tandem with consumption levels, this objection fails as a general criticism. Moreover, even if population could be ignored as a variable, the climate colonialism charge would re-emerge in a different form, since, at present population sizes, it would be environmentally catastrophic for developing nations to reach the production ambitions which see their per capita emissions massively increase. Even if emission reductions in affluent nations are (rightly) prioritised, there are good reasons to prevent enormous growth of emissions in developing countries. Those environmental risks become much greater given developing nations' projected population increases in the coming century. The article then explores how the necessary radical environmental policies pertaining

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to fertility rates might be enacted in non-coercive ways, reducing the sting of the 'climate colonialism' charge. The article ends by considering some reasons to be moderately sceptical about such policies.

Key words: climate justice, climate colonialism, population, climate change, sovereignty, coercion

Introduction

There is overwhelming consensus among climate scientists that human activities are causing climate change. Recently, the IPCC have found that as a result of states not taking collective radical action, the 1.5°C threshold on limiting global warming to avoid environmental catastrophe is now likely to be exceeded by 2040 in all possible emission reduction scenarios (IPCC, AR6, 2021). Nevertheless, there is some dispute about the relevant human causes, and where to direct policy. Since the 1980s, certain environmental strategies have often been criticised as 'imperialist' or 'colonialist' on the grounds that they are thinly-veiled attempts by affluent Western nations to unfairly shift the burden of responsibility and economic sacrifice to address climate change onto developing nations (Guha, 1989; Agarwal and Narain, 1991; Whyte, 2017; Reibold, 2023). One version of this criticism has been directed at population engineering, seeking to expose it as a new form of colonial subjugation insofar as it (allegedly) erroneously treats fertility rates – typically at their highest in developing nations – as a significant driver of environmental harms (Smith, 1995; Kuumba, 1999; Mies & Vandana, 2014: Ch. 19). Such policies, it has been thought, distract from the high GHG emission habits of affluent Western nations, which contribute far more to environmental harms.

After attempting to clarify what the charge of 'climate colonialism' amounts to, this article aims to reveal a mistaken presumption at the heart of its application to population engineering generally. While the charge gets something importantly right insofar as it calls for the prioritising of affluent nations to amend their high-consumption behaviours, it erroneously treats consumption as if there were one 'real' issue for tackling climate change, overlooking the cooperative relation between consumption and population for total emissions. This article first argues that concerns over climate colonialism cannot be avoided simply by focusing on levels of consumption. The article then goes on to argue that things get worse: as well as population still being a relevant variable, it would be environmentally

catastrophic for developing nations to reach the high-consumption living standards of affluent nations, and so there are good reasons to prevent this from happening. *Prima facie*, this makes the climate colonialism charge resurface in a further form. The article ends by exploring ways in which these issues might be tackled without invoking what I identify as the feature of climate colonialism likely thought to be most problematic, namely: coercion and the loss of individual and/or national autonomy.

1. What is 'Climate Colonialism'?

It is widely acknowledged in public as well as in philosophical debate that there is a weighty issue of global justice at stake with climate change. Specific climate policies have often been criticised as disproportionately and excessively penalising developing nations – nations who are the least responsible for global GHG emissions, but at the same time the most vulnerable to their effects (e.g. Maltais & Mckinnon, 2015; Gardiner, 2011; Shue, 2014; Blomfield, 2019). As the *Global Humanitarian Forum* noted back in 2009:

> It is a grave global justice concern that those who suffer most from climate change have done the least to cause it. Developing countries bear over nine-tenths of the climate change burden: 98 per cent of the seriously affected and 99 per cent of all deaths from weather-related disasters, along with over 90 per cent of the total economic losses. The 50 Least Developed Countries contribute less than 1 percent of global carbon emissions (GHF-G, 2009: 3)

In recent years, it has often been further argued that there is a specific subset of injustice at play in at least some such cases, namely 'climate imperialism' or 'climate colonialism' (e.g. Whyte, 2017; Blomfield, 2019; Dyett & Thomas, 2019; Táíwò, 2022; Sultana, 2022; Reibold, 2023).[2] What distinguishes climate colonialism from broader climate injustice?

At present in the literature, the concept is imprecisely defined and thus open to ambiguity. Often, the term 'climate colonialism' has been used – in both academic and public spheres – to refer merely to how climate-related inequalities (e.g.

2 For the purposes of this article I will treat 'climate imperialism' and 'climate colonialism' as roughly equivalent (though see Mercer & Simpson, 2023).

vulnerability to the effects of climate change; responsibility for pollution, etc) are a causal product of historical colonialism. Institutions such as Greenpeace, for example, have described the present environmental emergency as 'the legacy of colonialism' (Greenpeace and Runnymede, 2022: 23). The IPCC, too, have in their 2022 report, for the first time included 'colonialism' as an historical driver of the climate crisis (IPCC, 2022). While the historical origins of such disparities among nations is important (for reasons I shall come to make explicit), 'climate colonialism' can also refer to a specific type of harmful and unjust practice. At the most general level, it amounts to a process whereby the Global North spares itself the greatest socio-economic sacrifices demanded by climate change and the fight against it by way of exploiting the vulnerabilities of the Global South; a process which is enabled by and consequently perpetuates their existing imbalance of power.

Beyond this broad construal, however, the concept is poorly understood, making inter- and intra-disciplinary engagement with it problematic. Sometimes 'climate colonialism' can refer to different types of *action*, such as: (a) the low-cost purchasing of forests and land in the Global South for carbon offsetting, which comes at the expense of forced evictions and restriction of access to traditional lands for the locals, not to mention allowing nations and companies in the Global North to pollute as normal (e.g. Oakland Institute, 2014); or (b) resource-extraction for 'green' technologies such as electric cars, which require highly dangerous and environmentally damaging cobalt and lithium mining in Africa and Latin America (Sovacool, 2019; Soto Hernandez & Newell, 2022), and the use of land in the Global South to cultivate cleaner biofuels for export to the Global North, creating local food scarcity (Smith, 2000). In addition to assorted types of actions, the *actors* relevant to 'climate colonialism' (i.e. perpetuators and victims) can also vary. We have so far spoken of climate colonialism as involving the 'Global North' and 'Global South', but this can include actors such as nation states as well as collectives such as companies and corporations that operate under their economic jurisdiction, or perhaps even their direct control. Moreover, the same relations may apply *mutatis mutandis* to states' or companies' activity towards smaller collectives such as indigenous communities – domestic or foreign – dwelling on their traditional land (see Whyte, 2017: 125; Bacon, 2019; Reibold, 2023).

In light of this, I suggest that the term 'climate colonialism' is best understood as an umbrella term which includes some or all of the following features:

(i) a disproportionate shifting of specific socio-economic burdens to tackle climate change from one nation to another nation or community;

(ii) these burdens are placed onto the shoulders of developing, often historically exploited, nations or communities in the Global South that are the least responsible for climate change, yet typically the most vulnerable to its effects;

(iii) an undermining of the autonomy of a target people, or the sovereignty of their nation, in facilitating this shift of socio-economic burdens.

Critics of this practice typically take it to be *systemic* as opposed to an isolated phenomenon. That is to say, there seems to be a recognisable pattern and structure to when and where (i)–(iii) occur. One reason for this will likely be the material effects of actual, historical colonial practice, whereby the resulting poverty of previously colonised nations places them in a weak political position with respect to forming contemporary climate policies, and they are thus easier to exploit when distributing climate burdens (see Gardiner, 2011: 119; Figueroa, 2011; 235–236; Shue, 2014: 38–39; Whyte, 2017: 156–157; Blomfield, 2019: 199–200, 206–208). This indicates the necessity of a *real historical competency* in understanding and diagnosing the phenomenon of climate colonialism, rather than erroneously treating it as an ahistorical evil. Another feature of this practice often taken to be typical if not essential is that (i)–(iii) are often presented by their perpetrators as motivated out of a concern to help (or 'fix') both developing nations and the planet broadly, masking exploitative self-interested motives – and perhaps racist assumptions – behind a veil of moral conscience and responsibility (see Sultana, 2022).

The specifically 'colonialist' component of this phenomenon seems to be most vividly reflected in claim (iii). By 'the undermining of autonomy', I mean measures taken which diminish the scope of rational choices that a state, or community within the state, may take on a given issue, as well as diminishing the ability to do so on an informed basis. Interfering with socio-political and cultural self-determination in this way may manifest in a variety of forms. They may be explicitly coercive, or remain implicitly coercive. The latter might, for example, involve a process of morphing indigenous people's cultural, moral, and

religious values and beliefs into an ideology more conducive to the aims of those exploiting them, thus facilitating more efficient means of resource extraction (see Reibold, 2023: 625). Alternatively, it might involve relying on the effects of climate change upon an ecosystem to make traditional occupations that engage with it impossible, forcing nations or communities within them to integrate within the cash economy on terms favourable to affluent nations (e.g. providing access to land and resources; becoming dependent on affluent states' help to sell the relevant technology to make use of their land in economically viable ways) in order to subsist (see Surralles and Hierro, 2005: 9; Reibold, 2023: 633–634). It may also involve economically pressuring nations to sign on to climate initiatives which are not necessarily favourable, and which obfuscate disparate levels of responsibility for current ecological harms. While I am open to a more conceptually robust definition of climate colonialism that builds more features into it,[3] claims (i)–(iii) given above will, collectively, suffice for the purposes of this article.[4]

The moral badness of climate colonialism may be manifold. Typically, it is understood as failure to satisfy a required standard of justice, where various rights – of individuals or collectives – are undermined. However, climate colonialism may be considered morally wrong on alternative grounds. For example, it is plausible that it embodies a failure to meet a required standard of fairness or respect, or that it expresses a deep chauvinism. For my purposes, it will matter little which substantive moral wrong is at stake, and so I shall leave open the way(s) in which it might be unjust, unfair, disrespectful or chauvinistic. I will, however, in the final section assess the relevance of the perceived injustices of climate colonialism to the aims of global cooperation on GHG emission reduction.

3 For example, climate colonialism may additionally be defined in terms of the potential effects of burden-shifting and bypassing autonomy, such as the disruption of individual and collective human relationships to their environment (Whyte, 2017: 125; Bacon, 2019; Reibold, 2023: 628).

4 The term 'climate colonialism' has also been used in further ways that are not as relevant to the present discussion. Doreen E. Martinez, for example, has proposed that referring to the ecological crisis as 'climate change' is itself a subversive colonial tool which obscures its real causes, and suggests the use of the term 'climate colonialism' instead to force 'a re-embodiment and relocation of how, why, and who is at fault/responsible' (Martinez, 2014: 79). I am sceptical of how much weight should be placed on this linguistic point, especially given that the vast majority of work being done on climate justice now acknowledges the disparity of responsibility for climate change.

2. Population engineering as an instance of Climate Colonialism?

One proposed climate policy that has attracted the charge of climate colonialism has been population control and/or reduction. Over the last century, the world's population has grown at an exponential rate, now standing at 8.1 billion and continuing to grow, albeit at a slower rate than any time since 1950. According to the *UN World Population Prospects: 2024*, the world's population is likely to reach 10.3 billion in the mid-2080s (UNWPP, 2024: 1),[5] with the majority of this growth being accounted for in the least economically developed areas – primarily sub-Saharan Africa (UNDESA, 2024: 1–2).

Rapid population increase has been thought to be problematic for a variety of reasons, including, but not limited to: neo-Malthusian concerns over food, water and resource scarcity; poverty; war; land degradation; and species extinction. I will say nothing about these concerns here. Instead, my focus will be on the relevance of population size as a contributing factor to climate change. The issue of human population growth has 'seen a revival within the climate debate' (Wichterich, 2012: 23). It has sometimes been argued – to varying degrees – that human overpopulation is a major part of the problem, and that some form of population engineering may be required to solve it (e.g. Hardin, 1968; Erlich, 1968; Rolston, 1996; Young, 2001; Campbell, 2007; Cafaro, 2012; Cripps, 2015; Hickey, Rieder & Earl, 2016; Hedberg, 2019; Gheaus, 2019). The essence of the concern is that the more humans that are brought into existence now, the greater total GHG emissions will be, which increases climate change. Indeed, some recent studies suggest that the most 'high impact' way of reducing greenhouse gas emissions is to have fewer children. In one study, it is argued that in developed countries having one fewer child is by far the most effective method of reducing individual carbon emissions, saving an average of 58.6 tonnes CO2-equivalent emissions per year (Wynes & Nicholas, 2017). This is over 24 times more effective than the second most impactful lifestyle change, living car-free; and over 26 times more effective than the third most impactful lifestyle change, avoiding airplane travel (Wynes & Nicholas, 2017).

As a result, it is not uncommon to see arguments for constraining population growth being offered as a (partial) solution to climate change. What such

5 High-variant projections place the human population in 2100 as high as 14 billion.

arguments mean for public policy is a matter of dispute. Some advocates hold that while we have a moral duty not to reproduce, either at all or beyond a certain number, this is not enforceable by the state (e.g. Overall, 2012: 183–184). Others, however, argue that the enforcement of reproduction limits is sometimes permissible (Conly, 2005), or even required (Hardin, 1968: 1246–1248). If it can be shown that rapidly increasing human population is indeed a significant driver of climate change, then such policies need to at the very least be considered a serious option.

How might environmentally-focused population control strategies attract the charge of climate colonialism? As a preliminary, there have been (justifiable) suspicions over population engineering generally as thinly veiled racist and/or imperialist programmes as a result of sterilisation campaigns that have been perpetrated under the guise of various moral causes. This has been observable in both US domestic policy and foreign policy (see Dillingham, 1977: 27–28; Bellanger, 1982: 30–35). Since population control 'has been associated with imperialism, racism, eugenics' (Samways, 2022: 35), there are grounds for *prima facie* suspicion about their contemporary use. But anything more than *prima facie* suspicion here risks a genetic fallacy. Just because population control may have originated for pernicious ends, that in itself does not rule out that population control may be required now, for independent reasons. The objector would have to show that contemporary population initiatives with respect to tackling climate change are (a) misguided, and (b) reducible to the same pernicious motives. Here I will focus on (a), which I take to be a thesis that is more straightforwardly falsifiable in principle than (b).

As a means of combatting climate change, population engineering has been objected to as a form of climate colonialism on the grounds that it erroneously locates the primary causes of the problem. As mentioned earlier, fertility rates are the highest in the least economically developed nations, in particular nations in sub-Saharan Africa (UNWPP, 2024: 1–2). But the levels of *per capita* consumption and emissions in these countries is disproportionately lower than in affluent western nations (e.g. US, Canada, Australia, Russia, Japan, United Kingdom, Germany and a number of other EU states).[6] In 2018, the average American, for example, was responsible for 16.9 metric tonnes of CO2 emission. Australia's *per*

6 See, for example, GHF-G, 2009; Boden et al., 2011.

capita emissions for the same year was 16.6 metric tonnes, and the European Union 6.7 metric tonnes. Compare this with India, whose *per capita* emissions were 2.0 metric tonnes, meaning that the average American's levels of consumption and pollution are roughly equivalent to the emissions of eight average Indians. The contrast is even starker when considering Africa's average CO2 emissions of 1.1 metric tonnes (Jackson et al., 2019). In addition to this, as the *UN World Population Prospects of 2024* has found, the fertility rate in countries with the highest levels of consumption and emissions is actually below the replacement level (UNDESA, 2024: 5). So it appears that the imposition of population control policies in themselves would demand little sacrifice in affluent nations, and a much bigger sacrifice in developing nations. Though he doesn't cash the point out in terms of 'climate colonialism', Henry Shue rightly observes the significance of this kind of sacrifice in poor nations as 'unprecedented and extreme' (Shue, 2014: 71). He claims that in such circumstances, it is possible that 'the rich will be asking parents in the poorest regions of the world to show a level of concern about the global environment unimaginable among today's rich' (Shue, 2014: 71).

The sharp disparity in *per capita* emissions/fertility rates between affluent and developing countries seems to suggest that a focus on population size looks to be a red herring (see Klein, 2014: 114; Monbiot, 2020). If so, not only would focusing attention solely on the high fertility rates of less economically developed nations disproportionately blame and penalise those least responsible for climate change (as well as those most vulnerable to its effects), but it would do so while exonerating those most responsible in affluent nations (Mies & Vandana, 2014: Ch. 19). This kind of deflection and distraction from the most pressing causes of climate change will only perpetuate inaction on relevant issues surrounding consumption habits. But further, it has been claimed that population engineering, as well as disproportionately affecting developing nations, will have harmful effects on certain demographics within those nations insofar as anti-natal policies will facilitate racial inequality, class exploitation and gender subordination (Kuumba, 1999; Smith 1995; Mies & Vandana, 2014: Ch. 19; Sultana, 2022).

The primary focus, it is thought, ought to instead be consumption and carbon emission levels, which have radically increased over the last 50 years.[7] Dyett &

7 For a detailed report of the severe consequences of a rise to 2°C, see the IPCC Report, 2018, Summary: B.

Thomas, for example, claim that 'framing Africa's population growth within the context of catastrophic climate change with no comparison of resource use to that of the Global North is disingenuous' (Dyett & Thomas, 2019: 210). Moreover, that '[b]laming [communities in developing nations] and requiring them to change, instead of critically engaging the over-consumptive people of the developed states, is an ignorant expression of capitalist-driven technocrats placing the blame on anyone but themselves' (Dyett & Thomas, 2019: 213). Not only, they claim, are population control models 'degrading, domineering, and false antidote[s] to the ecological crisis' (Dyett & Thomas, 2019: 206), but, they suggest, they are implicit and often explicit tools of colonial subversion: 'mainstream discussions of overpopulation and climate change are performances of Western masculinity, coloniality, patriarchy, and white supremacy' (Dyett & Thomas, 2019: 210). This form of objection is not restricted to the academy, but finds frequent expression in contemporary popular discourse (e.g. Monbiot, 2020).

3. How population remains a relevant variable

As it stands, the essence of this critique gets something importantly right, but also something importantly wrong. What it gets right is that far greater efforts must be made to acknowledge and reduce the (disproportionately high) *per capita* emissions in affluent western nations in order to tackle climate change. In fact, given *inter alia* the levels of these emissions, such efforts may even have to be more radical than measures taken anywhere else. Moreover, the critique is also correct that it would be severely misguided to lay the blame for climate change solely – or even primarily – at the feet of individuals or communities in low-emission but high-fertility nations.

However, the crucial mistaken assumption at the heart of the objection is that there is one 'real' root cause of climate change – i.e. consumption rather than population – and that fertility rates can thus be ignored, with projected population growth treated as an invariable descriptive fact.[8] This is the inverse of the same problem with taking climate change to be solely a function of population growth. The reality is that total GHG emissions, which are the primary drivers of climate

8 David Samways has argued that 'reticence' among environmentalists to discuss population growth as a problem stems not only from an observation of inequalities between Global North and Global South, but also from a failure to appreciate the temporal dimension of population growth as it interacts with consumption levels (see Samways, 2022: 34; 23–27).

change, are a function of 'not only … the carbon-intensity of individuals' activities, but also the number of individuals engaged in those activities' (Hickey, Rieder & Earl, 2016: 847; see also Samways, 2022: 22–23). So intimate is the relationship between these two variables for GHG emissions that, as William Ryerson has noted, while *per capita* rates of carbon emissions in the US peaked in the 1970s at around 20.2 metric tonnes of CO2 and have remained relatively stable (only modestly declining in recent years), the total carbon emissions in the US have increased with a near 1:1 correlation with rising populations (Ryerson, 2010: 3). This point can be expressed with reference to the I=(PAT) equation (Chertow, 2000),[9] now familiar since its development by environmental scientists in the 1970s:

> I=(PAT): Environmental impact (I) is a function of the proportionate relations between population (P), affluence (A) and technology (T).

'Environmental impact' can be measured in a variety of ways other than climate change (e.g. desertification, bio-diversity loss, pollution and so on), but for our purposes this can be ignored. 'Affluence' refers to the average consumption *per capita*, using the proxy of GDP *per capita* (which normally measures production, but assuming consumption increases when production increases, can reveal consumption rates). 'Technology' refers to how resource intensive and polluting the production, deployment, transportation and disposal of goods are within a society. The equation holds that the population – multiplied by its consumption *per capita*, and by the resource requirements of producing, transporting and disposing the goods that make up the population's consumption – amounts to that population's environmental impact.

What this entails is that if the rate of human environmental impact is even just to be stabilised as the population increases, consumption must decrease and/or humans must innovate and deploy more efficient technology. In other words: sustainability requires that population growth must be compensated for. This can be vividly demonstrated by contrasting the differing *per capita* emissions of nations with their total GHG emissions. As we noted in the previous section, *per capita* emissions in the USA, for example, are significantly higher than in India and China. Yet India and China (along with the USA) are the top three biggest

9 The I=(PAT) equation has been significantly confirmed by its more concrete form, the Kaya Identity, used by climate scientists to explain and predict changes in CO2 emissions (see Kaya and Yokobori, 1997).

producers of total GHG emissions (China being the biggest). The reason for this is largely because of their comparatively greater population. More people equals more emissions, whatever the *per capita* figure. This point is well recognised in the climate justice literature. Henry Shue, for example, writes that it is 'arithmetically evident' that 'the more humans there are, the lower the *per capita* emissions rate must be in order for the global total of emissions to hold constant' (Shue, 2014: 71). We may call this point the Compensation Thesis.

The import of the Compensation Thesis for the issue at hand is that there is no single 'real' issue, as the climate colonialism objection to population engineering presumes: population and consumption are both issues, all the time. Higher *per capita* consumption is more of a problem the bigger the population. The question of which we ought to focus on – population or consumption – is like asking whether we ought to care more about the height or the length of a rectangle when determining its surface area. Thus, any ecological narrative containing the proposition that population is irrelevant to climate change involves a serious misunderstanding of how climate change occurs. Consequently, anti-colonialists that decry attributing weight to concerns over population size also risk inadvertently endangering indigenous communities and citizens of developing nations – those most vulnerable to the effects of climate change, and currently the least suited to manage satisfactory food distribution for an increased population – even further.

4. The return of Climate Colonialism: preventing consumption ambitions

As shown above, including population as a variable does not mean replacing talk of consumption reduction; it is in addition to, not instead of. The importance of this is reflected in the outcome if we were to ignore population size in developing effective climate policies. As I argue in this section, accepting the Compensation Thesis demonstrates that focussing exclusively on limiting production and consumption habits is no less vulnerable to the climate colonialism charge, and perhaps even more so if population is ignored.

The largest producers of *per capita* emissions uncontroversially reside in the most affluent nations. No matter what the rest of the world does, these nations could easily push global warming beyond 2°C all by themselves if their emissions remain

constant or increase, so the emphasis on structural changes in policy ought to be on the lifestyles of the affluent. One might hold that this alone would dissolve the climate colonialism charge. However, accepting the Compensation Thesis reveals that climate colonialism would only re-emerge in a different form than previously proposed. This is because the production and consumption ambitions of many developing nations, if achieved, would have significant consequences for climate change. If all or most of, say, Africa raised their average *per capita* emissions – certainly to the average North American level, but even marginally – the goal of capping global warming to avoid environmental collapse would been forlorn. As Stephen Gardiner writes, 'it would be disastrous for the poor countries to adopt the more energy- and pollution-intensive lifestyles of the west, and so … there is reason to prevent this' (Gardiner, 2011: 455). Similarly, Shue claims that the planet 'simply could not tolerate a majority emitting GHGs at the *per capita* rate reached by today's rich minority, or anywhere near that rate', and so 'the poor' – which, in the context of the present discussion, amounts to historically colonised developing nations in the Global South – 'must prepare to live with a level of economic activity compatible with *per capita* GHG emissions well below the present levels of the rich' (Shue 2014: 70). Many of the world's poorest are becoming wealthier, and their *per capita* GHG emissions will consequently begin rising. But moreover, the population of Sub-Saharan Africa alone, for example, is expected to increase exponentially. In nine countries within this region, populations are likely to double or more in size between 2024 and 2054, accounting for more than one fifth of the projected increase in global population during this period (UNDESA, 2024: 42–43). Increased consumption is yet more catastrophic if this comes to pass.

If, in the way the Compensation Thesis suggests, increased consumption must be compensated for by population reduction, and increased population must be compensated for by consumption reduction, there is an uncomfortable decision to be made. Either population growth in developing nations ought to be controlled, or their *per capita* GHG emissions ought to be controlled. But if population engineering is an objectionable form of climate colonialism, it is unclear why requiring less economically developed countries to limit their consumption habits to well below those previously and presently enjoyed by wealthy and developed countries fares any better. We have earlier looked at the burdens that population control measures especially place upon poorer nations, but as Shue argues, mitigation strategies of the latter kind also demand a 'unique

sacrifice' (2014: 70) from poorer nations, namely: that poorer nations choose to live at an economic level (a) 'much lower than levels previously attained by other people'; and (b) 'lower than they themselves could sustain, for at least some time, with their own resources' (Shue, 2014: 71). Shue then reasonably asks:

> Is it humanely possible for whole peoples to choose less rather than more? We are asking people who have never enjoyed a plentiful, or even an economically adequate, life, to accept and help to implement a limit on the hopes they can have for their children's and grandchildren's economic welfare (Shue, 2014: 71).

The proximity of such demands to climate colonialism would look even starker where there was (understandable) scepticism about whether poorer nations could be expected to voluntarily adopt this position – particularly in light of historical injustices – and a highly restrictive economical paternalism is the suggested solution. Indeed, it is precisely this sort of enforced financial disparity and failure to respect sovereignty that is, and has been, condemned as paradigmatically colonial in nature.

We are left with a dilemma. Barring a miraculous breakthrough in the development and effective distribution of cleaner technologies – a point to which we shall shortly return – there are two options: either (i) measures are taken to prevent anticipated population growth in developing countries, or (ii) measures are taken to prevent developing countries from reaching (or even moderately progressing towards) the consumption and emission levels of wealthier nations. Because of the Compensation Thesis, those adamant about the moral badness of population strategies as a form of climate colonialism must compensate for the resulting GHG emissions with radical restrictions in *per capita* emissions that would otherwise emerge from economic growth and consumption ambitions. The problem is that if (i) amounts to climate colonialism, (ii) looks to as well. The challenge of 'climate colonialism' thus re-emerges, not in its previous form as a policy-specific objection, but as a *pro tanto* wrong that now needs to be weighed against catastrophic risk.

5. Preventive measures: choice, incentive and coercion

The previous section sought to establish that the concern over climate colonialism remains, even after recognising that consumption reduction in affluent nations

ought to be prioritised. In the final sections of the article we shall ask: what can be done about it?

A presumption at the heart of the point linking climate colonialism with either population engineering or economic restriction is, I believe, a concern over coercion. There is something deeply unsettling about the idea of undermining reproductive autonomy by attempting to control and enforce fertility rates – a right enshrined in the UN Declaration of Human Rights. This might especially be the case in circumstances in which enforcement of such restrictions could cross international boundaries. The right of self-determination of sovereign states within the limits of their territorial jurisdictions is widely acknowledged in international law. Violation of this may be particularly alarming given historically exploitative endeavours from the very same affluent nations toward the very same developing nations. As such, there is understandable apprehension about population-engineering discourse, especially at the international level. But for the same reasons, suggestions of a need to instead coercively enforce restrictions on the socio-economic autonomy of developing nations by the more affluent and powerful – again, those who perhaps profited from the historical exploitation of those developing nations – raises a number of ethical concerns.

One may plausibly wonder, however, whether this type of response grants too much. There is a legitimate question as to whether the move from (i) warranted concern to prevent increased emission levels in developing nations, to (ii) endorsing a requirement of coercion, is one that can be directly established. If there is a non-coercive path for public policy programmes on the scale required for global emission reduction, it would go some way to taking the sting out of the remaining climate colonialism charge, as most would agree that coercive policies are both morally and practically justifiable *iff* non-coercive alternatives are unavailable. There are at least three non-coercive alternatives for fertility reduction that I shall briefly consider: (a) choice-based models; (b) preference-adjustment models; and (c) incentive-based models. I shall also consider one possible non-coercive method of emission reduction for consumption: (d) technology research, development and transfer.

One proven non-coercive method for dramatically reducing fertility rates is to adopt a choice-based policy model, increasing commitments to social

infrastructure, and in particular providing women with access to healthcare, family planning, education and greater career prospects (Campbell, 2007; Speidel et. al, 2009; Engelman 2010; Cafaro, 2012; Das Gupta, 2014; Bongaarts, 2016; Bongaarts and Sinding, 2011). Recent evidence from the Middle East and North Africa (MENA), for instance, strongly suggests that improving family planning services, economic development and gender equality leads to a predictable decline in fertility. The total fertility rate for the MENA region has declined from around 7 in 1960 to around 3 in 2006. This is largely due to 'delayed marriage, wider acceptance of and access to family planning services, and increased education of girls and young women' (Roudi-Fahimi and Mederios Kent, 2007: 8). Choice-based models are attractive because they demand not autonomy restriction but autonomy enhancement. Affluent nations assisting developing nations to set up and maintain the required social infrastructure thus would not appear to be coercive. Choice-based models are also attractive because they are highly cost effective. The UN has estimated that 'for every dollar spent in family planning, between two and six dollars can be saved in interventions aimed at achieving other development goals' (UNDESA, 2009; cf. Huesemann, 2006: 563).

Another non-coercive and historically successful method for dramatically reducing fertility rates is to adopt a preference-adjustment model (Ryerson, 2012; Hickey, Rieder and Earl, 2016: 857). This involves influencing desires, beliefs and attitudes towards child-bearing within a given society to the end of the reducing fertility rates. The mechanisms for effecting this kind of cultural shift are manifold. They may include: information dissemination campaigns via Radio, TV, podcasts, social media and other modes of advertising; public lectures; school outreach programs; performance art and music; and more. These methods preserve the bodily autonomy and liberty of citizens while acting as light prompts for, or 'nudges' toward, desired behaviours, mainly by highlighting the difficulties facing large families and the advantages of smaller families. Like choice-based models, preference-adjustment is also relatively cost-effective. Ryerson claims that comprehensive media campaigns are 'probably the most effective strategy for reducing fertility rates' and estimates only a $35 million a year investment to be sufficient for an efficacious campaign across the entirety of the developing world (Ryerson, 2012: 248).

Yet another non-coercive method for inducing fertility decline is an incentive-based model, according to which legitimate authorities engineer the outcomes of

particular reproductive behaviours to incur certain benefits or penalties. 'Positive' incentives that aim to motivate citizens to limit their reproduction may include tax breaks or reduced fees for medical charges. 'Negative' incentives may range from surcharges for hospital fees after the first child, to limiting maternity leave or denying access to certain specialist roles in the labour force beyond the first child. In both cases, the subject is free to accept or refuse the benefit/penalty. This remains a non-coercive method so long as the penalties of the negative incentive are not sufficiently heavy as to outweigh the subject's freedom to refuse (a point about which I shall say more in the next section). Incentive-based models – as deployed in Singapore (Saw, 1975), amongst other countries – will be especially pertinent in developed nations, where the gulf between access to education, healthcare and family planning services is far narrower.

But what about the need to ensure that consumption does not significantly increase in the developing world (as well as in affluent nations)? Do affluent nations need to coercively interfere with sovereign nations' economic development? Perhaps not. Recall the I=(PAT) equation: one of the three proportionate relations which measures environmental impact – alongside population and consumption – is technology (i.e. how resource intensive the production, deployment, transportation and disposal of goods are within a society). It has long been suggested that tech R&D and tech-transfer are a necessary condition for global action on climate change (e.g. Speth, 2009). Emission-efficient technologies are expensive, and developing nations have little immediate incentive to spend their limited resources acquiring them. As a result, there is a strong practical reason for affluent nations to develop, share and install efficient technologies in developing nations to ensure they bypass long, energy intensive, high-emitting stages of development; schemes which are in some places already underway (European Commission, 2014).

This is not to deny, of course, that there will also be normative reasons for affluent nations to incur higher costs of climate action, given the fact they have contributed the most to global emissions, and/or may have rectificatory duties derived from historical injustices (e.g. Shue, 2014: 4; Blomfield, 2019: Ch. 9). As far back as 1992 the United Nations Framework Convention on Climate Change advocated on these grounds for 'differentiated responsibilities' among affluent and developing nations to mitigate climate change, placing the duty on the former to 'take the lead' on emissions reductions (UNFCCC, 1992: Article 3). I leave open what the

substantive normative reasons and outcomes might be. But one other practical reason for affluent nations to bear the brunt of the burden for climate change concerns the perceptions of international justice, fairness and respect. In addition to familiar international prisoner's dilemmas (Gardiner, 2011), distrust emanating from historical exploitation and present inequality makes political cooperation on climate change between the Global South and Global North extremely difficult (Timmons and Parks, 2007). Aside from whether the considered policies are unjustly coercive or not, the beliefs (and corresponding sentiments) of those in the developing world that they are or might be remain legitimate practical obstacles to implementing policies aimed at emission reduction. Cases such as this can be remedied where one can easily reveal a cognitive error by sharing empirical evidence. But given the highly complex nature of the geo-political issues surrounding global climate justice, and the fact that it is not just empirical data which is at stake (i.e. there are moral questions in play), it is much harder to overcome. This is made worse when it is combined with deeply entrenched perceptions of previous and current injustices perpetrated by the countries leading the way on climate change, and the corresponding resentment towards them felt by developing nations. Tech-R&D-and-transfer, as well as the three fertility reduction aid strategies considered, would be one instrumentally useful way of building the trust between the Global South and Global North that is a requirement for collaborative and sustained climate action. Furthermore, I agree with Gardiner that prioritising emission reduction in affluent countries is 'probably also a politically necessary prerequisite for preventing the developing countries from following a Western path' (Gardiner, 2011: 455). This is not only because 'even without [developing nations'] contribution existing patterns of behaviour in the developed countries would have serious consequences, and must be addressed' (Gardiner, 2011: 455), but observable commitments to radical emission reduction in affluent nations are likely also required for developing nations to trust their climate proposals as fair-minded.

This section has argued that there are at least three general methods for reducing fertility rates, and (at least) one method for reducing emissions from consumption, which do not appear to involve coercion. If the concern motivating the resurfacing charge of climate colonialism is over coercion, then it seems it can be deflated. I shall now consider how the four methods discussed in this section may face challenges, especially in the context of global governance, which may preserve the need for coercion, and thus (potentially) the charge of climate colonialism.

6. Some doubts about non-coercive methods & re-assessing the Climate Colonialism Charge

A strategy to respond to these claims that rapid population limitation can be achieved through non-coercive methods could take two forms. One could show that the choice, preference-adjustment and incentive models are in some way futile for the aims of preventing global warming. Alternatively, one could show that such allegedly non-coercive measures are, after all, coercive in the relevant sense. In what follows I shall present some reasons for thinking that these strategies may each have force for at least some of the fertility reduction models considered, but not all. Moreover, that if they did undermine them and coercion is in fact required to enact the necessary climate action, this would either not be a form of climate colonialism, or (if it is) it would likely be worth the cost of averting total environmental collapse.

The alarming stage of the climate crisis has implications for the relevance of choice-based models. In particular, the main concern is that while they have had tremendous success in bringing down fertility rates, they are slow to bring about results relative to climate change. For instance, average total fertility rates in Singapore decreased from 4.5 in 1966 to only 1.4 in 1988 as a result of choice-based population policies and incentive-based policies (Weeks, 1992; Saw, 1975). Similarly, family planning campaigns in Iran that were introduced in the late 1980s saw the predicted number of births by 2006 fall by around 37 million (Roudi-Fahimi and Mederios Kent, 2007: 8). In both cases the reductions took around 20 years to achieve. Similar time-frames can be observed in cases where choice-based models were combined with preference-adjustment schemes. In Bangladesh, for example, substantial access to contraception and family planning was introduced in the mid-1970's alongside massive media campaigns – via radio and TV – that emphasised the benefits of smaller families. While this saw a successful shift from a total fertility rate of 6.8 to 3.3, the latter was only achieved by the late 1990s (Bongaarts and Sinding, 2011: 575).

Huesemann (2006: 562) describes such methods as 'extremely rapid'. While this may be true relative to prior trends in fertility rates, the luxury of decades is simply not available given the aim of limiting global warming to below 1.5°C or even 2°C and above. One study suggests that even implementing a universal choice-based fertility reduction scheme within the next few years would still result in

approximately reaching moderate existing global population projections by 2050 (9.23 and 9.30 billion, respectively) and 2100 (10.42 and 10.35 billion, respectively), with significant reductions beginning only in the following century (Bradshaw and Brook, 2014: 16612).

A contributing factor to such delays is often ideological resistance to crucial elements of non-coercive methods of fertility reduction, and perhaps especially choice-based schemes, namely: deeply entrenched cultural, religious and political beliefs about the importance of the family, the value of the unborn, and of procreation. Access to birth control and family planning services, for example, have historically been puritanically opposed by the Catholic Church, including in (but not limited to) the developing nations that would benefit from them the most, and crucially in those same nations with the highest fertility rates.[10] Given the urgency to limit GHG emissions and prevent further global warming, there is warranted scepticism about the relatively slow impact of all non-coercive models for population reduction. As Bradshaw and Brook (2014: 16613) conclude:

> Even if the human collective were to pull as hard as possible on the total fertility policy lever (via a range of economic, medical and social interventions), the result would be ineffective in mitigating the immediately looming global sustainability crises (including anthropogenic climate disruption), for which we need to have major solutions well under way by 2050 and essentially solved by 2100.

This conclusion, they qualify, excludes the possibility that average global total fertility will decline to 1. The same study found that, drastically opposed to more 'humane' choice-based models, 'more draconian fertility reduction to a global one child per woman by 2100 … resulted in a peak population size of 8.9 billion in 2056, followed by a decline to ~7 billion by 2100 (i.e., a return to the 2013 population size)' (Bradshaw and Brook, 2014: 16612).

10 However, it should be noted that the effects of religious institutions upon family planning efficacy is not straightforwardly negative. Some Catholic countries (e.g. Mexico) have instituted effective family planning programmes (though this is in spite of Catholicism, not because of it). Other countries, such as Iran, have had success by advocating for family planning from an explicitly religious perspective (Roudi-Fahimi and Mederios Kent, 2007: 11).

A different kind of response would be to hold that some of the allegedly non-coercive fertility reduction strategies are coercive after all. This type of response pertains to preference-adjustment and incentive models in particular. Concerning the former, while efforts to influence the beliefs, desires and attitudes of citizens do not look like a direct restriction of liberty, one might be suspicious of them as implicit means of psychological manipulation, and thus an affront to autonomous agency. This is especially pressing in the present context, which concerns international governance and how affluent nations can ensure GHG emissions do not rise in developing nations. Ideology-crafting and cultural dissemination have been effective means of colonial suppression in the past, facilitating an easier extraction of resources. Would an attempt to influence the reproductive choices of citizens in developing nations via preference-adjustment necessarily be pernicious? There are good reasons to think not.

First, the objection that preference-adjustment amounts to manipulation rests much of its force upon the term's connotations of deception, subversion, bias and misinformation. There is no doubt that some campaigns for preference-adjustment embody these features, but they are by no means essential to the practice. Preference-adjustment can involve the purely impartial delivery of the relevant data. It may also go further in delivering this data using rhetorical techniques and emotion-targeting to illicit non-cognitive responses from the subject, 'priming' them for the desired motive. For instance, this could include: celebrity endorsements of the practice in advertising it; the conveying of the desired behaviour as a civic, moral or religious duty; the visual association of the ideal behaviour with prosperity. Both forms of preference-adjustment are already widely used in other domains beyond traditional advertising, with even the latter finding success as fertility reduction strategies in Mexico and East Africa, where norms relevant to the local culture were used to express the value of smaller families (Ryerson, 2012: 244–248).

Second, the objection in question, as it stands, fails for the same reasons given in Section 2 as to why the origins of population engineering does not undermine the evaluation of population engineering now: it risks a genetic fallacy. Just because preference-adjustment has been used as a tool for colonial subversion before, it does not mean that preference-adjustment necessarily continues to be so used, or could not be required now for independent reasons.

But what about incentive-based models? Some may worry that offering benefits and (especially) penalties for certain kinds of behaviour blurs the distinction – or, at least, is difficult to place on a continuum – between coercive and non-coercive policy. As we noted in the previous section, incentive schemes can be coercive where the penalties incurred by refusal are sufficiently severe to effectively leave the subject with no choice but to conform. Moreover, previous incentive models have in some circumstances involved significant moral sacrifices insofar as they have disproportionately affected poorer and illiterate classes of society. Fertility reduction campaigns have, in some societies, led to an increase in abortions and sterilisation without informed consent among specific demographics (see Hickey, Rieder and Earl, 2016: 863). However, as with preference-adjustment models, incentive schemes need not suffer from these problems. First, the risk of a genetic fallacy is again present if we assume that incentive-based models cannot be amended to address the faults of previous attempts (e.g. through more refined data collection; greater transparency about the results, intended outcomes and methods of the policies; and more careful catering of policies to reflect the peculiarities of class, gender, sex, religion and how they intersect). Second, as has been noted (Hickey, Rieder and Earl, 2016: 857), incentive schemes are already routinely deployed – seemingly unproblematically – to influence citizen behaviour in a variety of other areas. For example, positive and negative incentives are used to affect diet, the amount and kind of sexual activity, drug usage, immigration and more. Such schemes have also historically been deployed for the purposes of increasing fertility rates. There are, of course, better or worse ways to do this. But in itself, there does not seem to be anything coercive about incentive models *per se*. One might argue that the moral right to procreation is more fundamental than the moral right to these other forms of autonomy. But this is highly contentious, and would require significant argumentative support.

A final type of scepticism concerns the tech-R&D-and-transfer strategy for emission reduction. This faces two sceptical challenges. First, like the other strategies considered, tech-R&D-and-transfer is a necessary but not sufficient condition for effectively tackling climate change. As Huesemann's comprehensive study shows, 'no single technological approach, such as efficiency improvements, terrestrial, geologic, and ocean carbon sequestration, or renewable or nuclear energy will by itself be able to bring about the drastic reductions in *per capita* carbon emissions' (Huesemann, 2006: 559). Optimism about technological development

is the dominant narrative in the climate debate among policymakers. Recent IPCC reports remarkably neglect both consumption reduction and (even more so) population control methods for reducing emissions, focusing almost entirely on technological and managerial fixes which can accommodate ever larger economic goals.[11] But a significant portion of philosophical contributors to the discussion of climate change increasingly agree that tech-R&D-and-transfer is not the sole solution to climate change, and that both consumption and population are necessary variables to address, given the alarming stage of global warming and the relevance of the I=(PAT) equation. While this does reveal a concerning gap between growing philosophical consensus on the one hand, and government policy and UN climate initiatives on the other, we need not misguidedly place all hope in a solely technological solution to climate change in the first place. Unless we have independent reasons to think other initiatives will concurrently fail, this objection is weakened.

A second sceptical challenge concerns the difficulties inherent to tech-transfer, specifically.[12] For the reasons given in the previous section, collaborative global governance among self-interested and competing states is difficult, not least because of interlocking prisoner's dilemmas at international and inter-generational levels, but also because of deep-seated distrust between affluent and developing nations (Timmons and Parks, 2007; Gardiner, 2011). These are legitimate concerns. But we have also seen reasons for thinking that non-coercive methods of emissions reduction – e.g. financial aid for choice, preference-adjustment and incentive models; and priority of reduction in affluent nations – may collectively go some way towards developing sustained trust to enable climate collaboration. It may turn out to be too little too late, but this is difficult to establish with reasonable certainty *a priori*.

We have seen that the present strategies for deflating non-coercive methods of population limitation, and technological improvements towards consumption accommodation, are, at the very least, not decisive. But what it means if they could be decisive, and if coercive policies are in fact necessary for effective

11 This near-exclusively tech-focused approach is symptomatic of a broader aversion to population engineering in climate policy (Huesemann, 2006: 560; Samways, 2022: 34).

12 See Pachauri and Bhandari (1994) for specific difficulties of this kind pertaining to South America and Asia.

climate action, bears upon the alleged link between population discourse and climate colonialism. By that point, where coercion is the only remaining option, there are legitimate reasons to consider whether such coercive measures to curb emissions would be sufficiently bad to warrant non-interference, and thus to incur the horrific effects of climate disaster for all. Restrictions on even fundamental forms of autonomy protected by moral and legal rights may, under some extreme circumstances, plausibly be justified. Even those that place tremendous weight on such rights, like Robert Nozick, take them to be permissibly violated if doing so is the sole means available to 'avoid catastrophic moral horror' (Nozick, 1974: 30). On population restrictions in particular, Onora O'Neill similarly holds that 'coercive population policies can be justified only by the threat of major harm, the threat of the destruction of people and of standards of life' (O'Neill, 1979: 38; cf. Vanderheiden, 2009: 257–258). If there is anything which satisfies these conditions, the multifaceted effects of climate change must surely do so.

On the other hand, it is worth noting that as regrettable and unsettling as such an outcome would be, there are good reasons for thinking that it would not look to be unsettling by virtue of being an instance of climate colonialism. Recall that we defined climate colonialism as a specific type of moral wrong whereby the socio-economic burdens of tackling climate change are disproportionately shifted onto developing, often historically exploited nations that are the least responsible for it, and typically the most vulnerable to its effects, in ways that undermine their autonomy. However, since radical environmental action in developing nations is a necessary but not sufficient condition for averting further global warming, so long as affluent nations initiate their own radical restrictions – which earlier we noted may have to be more demanding – the exploitative disparity in sacrifice inherent to climate colonialism would collapse. The harm that the coercion at hand would incur would be a *pro tanto* moral cost of a more general kind, which would (at some point) be outweighed by the need to avoid global catastrophe; the harms of which would be felt the hardest and earliest by developing nations. Put another way, if developing nations are coerced into enacting change, the badness of this overriding of liberty does not by itself entail an instance of climate colonialism unless it is further shown that either (a) that coercion is not necessary for such change; or (b) that coercion is a means of offsetting burdens in affluent countries.

Conclusion

There is currently a taboo around population discourse in debates about climate change. This article has attempted to articulate what 'climate colonialism' might be, and to clarify the reasons why it may be thought to apply to certain kinds of population discourse, thus vindicating that taboo. It has argued that the charge of climate colonialism does not generally apply to calls for population limitation, once population size has been properly understood as a contributor to GHG emissions. Population limitation may be a necessary condition for preventing environmental catastrophe from global warming, but not a sufficient condition. This means that even with recognising that minimising consumption habits in affluent nations ought to be prioritised, there are reasons to prevent developing nations from raising their emissions, whether that is via increased consumption following growing wealth, or via increased population size, as they are projected to have. However, there are a variety of avenues for initiating these restrictions that do not appear to rely on coercion; the concern of which is likely motivating the resurfacing charge of climate colonialism. Finally, the article has argued that even if these non-coercive methods are together insufficient for the required action on climate change, then either (i) coercion by that point would not obviously be morally impermissible as a means of avoiding climate catastrophe; or (ii) such coercive methods would not be an instance of climate colonialism, even if they would be *pro tanto* bad.

One of the implications of the argument for why population matters to effective action on climate change is that the rhetoric of racism and colonialism embedded within some objections to calls for population limitation can itself be dangerous. Even the most sincere proponents of this particular charge of climate colonialism, out of genuine concern for the just treatment of developing nations, will do harm to all, and especially to those same developing nations that will feel the early effects of global warming the hardest. Given the alarming stage of climate change is now impossible to ignore, as well as doubts about the efficacy of technological fixes and consumption decreases, it would be deeply irresponsible to wholly ignore the real variable of population size in our attempts to reduce emissions. It would be altogether more prudent to begin addressing the uncomfortable question of how to radically curb emissions in developing nations – either in terms of population or consumption – while at the same time rightly prioritising radical de-growth policies in affluent nations. This is compatible with the eminently plausible view

that there are (and have historically been) legitimate ways that both (i) population can be used as a scapegoat for neo-colonial exploitative aims; and that (ii) climate colonialism can manifest in other ways orthogonal to population limitation.

Acknowledgements

I am grateful to Huw Williams, an audience at the University of Reading, the editor David Samways, and the anonymous reviewers for helpful comments on earlier drafts of this paper.

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