

The Bill and Melinda Gates Foundation and the necro-populationism of 'climate-smart' agriculture

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ABSTRACT

Agricultural and reproductive technologies ostensibly represent opposing poles within discourses on population growth: one aims to 'feed the world,' while the other seeks to limit the number of mouths there are to feed. There is, however, an urgent need to critically interrogate new discourses linking population size with climate change and promoting agricultural and reproductive technologies as a means to address associated problems. This article analyses the specific discourses produced by the Bill and Melinda Gates Foundation (BMGF) in relation to these 'population technologies' and 'climate-smart' agriculture in particular. Drawing on concepts and approaches developed by Black, postcolonial and Marxist feminists including intersectionality, racial capitalism, social reproduction, and reproductive and environmental justice, we explore how within these discourses, the 'geo-populationism' of the BMGF's climate-smart agriculture initiatives, like the 'demo-populationism' of its family planning interventions, mobilises neoliberal notions of empowerment, productivity and innovation. Not only do these populationist discourses reinforce neoliberal framings and policies which extend existing regimes of racialised and gendered socio-spatial inequality, but

they also underwrite global capital accumulation through new science and technologies. The BMGF's representations of its climate-smart agriculture initiatives offer the opportunity to understand how threats of climate change are mobilised to reanimate and repackage the Malthusian disequilibrium between human fertility and agricultural productivity. Drawing upon our readings of these discourses, we critically propose the concept of 'neco-populationism' to refer to processes that target racialised and gendered populations for dispossession, toxification, slow death and embodied violence, even while direct accountability for the effects of these changes is dispersed. We also identify a need for further research which will not only trace the ways in which the BMGF's global policies are materialised, spatialised, reproduced and reoriented by multiple actors in local contexts, but will also recognise and affirm the diverse forms through which these 'neco-populationist' processes are disavowed and resisted.

Introduction

Reproductive and agricultural technologies ostensibly represent opposing poles within discourses on population growth: one aims to 'feed the world,' while the other seeks to limit the number of mouths there are to feed. The linking of these concerns has a long history within economic and social thought, epitomized by the work of Thomas Malthus who viewed this relationship as a fundamental disequilibrium leading toward crisis (Malthus 1798). This idea that population growth will consistently outpace agricultural productivity was extensively reproduced within dominant strands of 20th century environmental thinking (for example, Hardin 1968; Ehrlich 1968).

Currently, responses to climate change from development actors are reanimating some of these (neo)Malthusian framings by suggesting that the combination of growing global populations and an increasingly agriculture- adverse climate represents the principal threat to 'development' (FAO 2013; IFAD 2011). In particular, the interventions of the Bill and Melinda Gates Foundation (BMGF) relating to both variables in Malthus' original population equilibrium - human fertility and agricultural production - have been highly influential. These are framed as initiatives to 'teach farmers how to increase production sustainably' and 'help women make informed family-planning decisions' (Gates Foundation, 'What we do', n.d.) within the context of an overall mission to 'empower the poorest, especially women and girls, to transform their lives' (ibid.).

In this article, we consider the role of the BMGF's public-facing materials. We argue that these promote the acceptance of dangerous and uncertain fertility management (Hendrixson 2018; Bendix et al., 2019) and Green Revolution technologies (Eddens 2017; Serrano 2018; Lapegna 2014; Otero and Lapegna 2016; Motta 2016; Leguizamón 2016; Caceres 2015) and seek to legitimise the notion that behavioural interventions are necessary and justified in order to produce consumers of these new technologies. We do not seek here to provide a geographically differentiated overview or historical analysis of the Foundation's activities. Rather, the article aims to draw attention to how Malthusian discourses which posit a disequilibrium between human fertility and agricultural production are taking on contemporary forms in the context of climate change. We have focused on the discourse produced by the Bill and Melinda Gates Foundation as a critical actor in these fields whose formulations have been widely influential in shaping the political economy of development and its discourses, but

whose activities and development interventions have been subjected to relatively limited critical scholarly inquiry to date.

Our analysis of the BMGF's discourses relating to 'climate-smart' agriculture in particular, can be understood in the context of 'gender and climate-smart' approaches to development (Arora-Jonsson 2011; Chant and Sweetman 2012), to which philanthrocapitalist 'forgiveness' industries (Kim 2018, p. 56) are central (see also Roy 2012; Mitchell and Sparke, 2016). Drawing on concepts and approaches developed by Black, postcolonial and Marxist feminists including intersectionality, racial capitalism, social reproduction, and reproductive justice (see for example hooks 1982; Gilmore 2002; Mohanty 2003; Ross 2011; Bhattacharya 2017),¹ we argue that 'gender-smart' BMGF discourses on fertility and agriculture mobilise racialised and gendered representations of women as 'risky yet reformable' subjects (Young 2010, p. 41).

BMGF discourses responsabilise women in low income households in Sub-Saharan Africa and South Asia for not only managing their fields and families but, in the process, adapting to and mitigating climate change. As figures of resilience, 'charged with converting poverty into enterprise' (Roy 2012, p. 136), racialised women are represented as both 'productive bodies' having infinitely elastic capacities for labour (Wilson 2011) and as dangerously reproductive and resource-consuming bodies needing to be controlled – by extension, 'disposable bodies' who can be subject to new extensions of the toxification and displacement inaugurated by the Green Revolution (Moore 2015:19) which are being articulated along new technological frontiers (Eddens 2018). We suggest therefore that these public constructions are consistent

with and reinforce broader populationist production, management and gendered disciplining of racialised lives (bio-populationism) but also the spatially and racially differentiated promotion of technologies linked with uncertain effects, ill health, toxification and even death which can be described as 'necro-populationism.'

The Bill and Melinda Gates Foundation and Trust

The Bill and Melinda Gates Foundation has long been the world's largest foundation, with an endowment of more than 40 billion USD funded through private donations and through the Foundation Trust (Gates Foundation, 'Who We Are', n.d.). BMGF donates more than any other country or foundation to global health and is the fifth largest donor to agricultural development (OECD 2017, p. 2). The Foundation operates by working with grantees and partners through five programmes: global health, global development, global growth and opportunity, a United States division and global policy and advocacy (Gates Who we are n.d.). The Foundation is thus a critical actor within the global development landscape, funding UN organisation such as the International Fund for Agricultural Development (IFAD), World Health Organisation (WHO) and United Nations Population Fund (UNPF) and other major development partnerships and events such as the research consortium the Consultative Group on International Agricultural Research (CGIAR) and the London Summit on Family Planning (Gates Who we are n.d.). The foundation works in more than one hundred countries (Gates 'Foundation Fact Sheet').

Scholars have critiqued the Foundation's lack of transparency (Birn 2014; Gideon and Porter 2016; McGoey 2015; Thompson 2017); its self-generated legitimacy as a result of the magnitude of resources it wields (Harman, 2016); and the fact that few resources are directly

channelled to organisations working in Sub-Saharan Africa and South Asia, the Foundation's main areas of focus (GRAIN 2014; Birn 2014, p. 1; Lancet 2009). For example, research by the not-for-profit organisation GRAIN found that in 2014 nearly 74% of the 669 million USD channelled by the Foundation to agricultural NGOs went to US-based organisations, with only 4% of these funds going to African NGOs (GRAIN 2014).

However, independent evaluation and scholarly critique of the Foundation remains relatively rare (exceptions are Harman 2016; McGoey 2015; Thompson 2017; Kovacs 2011), arguably because researchers are reluctant to risk loss of access to BMGF funds. Similarly, critical media coverage of the Foundation is also sparse, and some major media outlets receive extensive Foundation support (e.g. the Guardian's Global Development section)² (Harman 2016, p. 360). As a result, we have found it necessary to also draw upon reports by civil society organisations on the Foundation's work alongside financial disclosure information (e.g. ACB 2018; Global Justice Now 2016; SEC 2015).

Despite obstacles to obtaining transparent, independent and scholarly information, these sources have effectively exposed and highlighted the contradictions of extensive tax avoidance by Microsoft on a scale which far exceeds the Trust's charitable donations (Global Justice Now 2016). The latter have been characterised as 'philanthrocapitalism': transferring resources from public use and oversight into the hands of 'billionaires who know best' (McGoey 2015) while simultaneously mobilising public sector funds for private profit (Thompson 2017). As scholars argue, the 'gifts' of these "'forgiveness" industries' (Kim 2018 p. 56) bind receivers

into relations of indebtedness (Nguyen 2012) as part of the violent relations of debt engendered by racial capitalism (Kim 2018).

One further tension in the political economy of the Foundation also bears on our analysis of BMGF discourses. This relates to the significant wealth the BMGF generates through investments in fossil fuel, pharmaceutical, agribusiness, food retail and chemical industries responsible for creating some of the climate- and human health problems the Foundation then purports to address (Birn 2014, p. 14; Harman 2016, p. 357; SEC Filings 2015). Specifically, Foundation Trust investments include US retail giant Wal-Mart, extractive industries (Barrick Gold, BHP Billiton, Freeport McMoran, Glencore, Rio Tinto, Vale and Vedanta), agribusinesses (Archer Daniels Midland, Kraft, Mondelez International, Nestle and Unilever), chemical and pharmaceutical companies (BASF, Dow Chemicals, GlaxoSmithKline, Novartis, and Pfizer), beverage companies (Coca-Cola, Diageo, Pepsico and SABMiller) and construction giant Caterpillar and BAE Systems (an arms exporter) (Global Justice Now 2016, p. 22). While some of these initial investments³ have been shed, including unannounced divestment of 1 billion USD in fossil fuel investments, the Foundation maintains significant investments in fossil fuels and carbon emitting industries (SEC Filings 2015).

In addition to generating wealth from investments in the industries causing the climate, environmental and human health problems targeted by BMGF philanthropic work, the Foundation also re-invests this wealth into 'solutions' developed by some of the same pharmaceutical and agribiotechnological industries. The paradoxical circularity of these investments is well exposed by attention to the agriculture-reproduction nexus highlighted in

the introduction. In particular, pesticides produced by chemical industries and used in agriculture can act as endocrine disrupting chemicals (EDCs) linked with reproductive health problems, increased rates of breast cancer, changes to immune systems and neurodevelopmental and growth problems in children (WHO, 'EDCs'; Bergman et al. 2013; Combarrous 2017). And yet agricultural technologies such as genetically modified seeds, chemical fertilisers and certain pesticides are part of the suite of technologies the BMGF⁴ supports under its Climate-Smart Agriculture work. Not only are such investments contradictory, but they emphasise technological 'quick fixes' which obscure and detract attention from deep-rooted political and structural causes of inequalities and the intensification of these processes with the growing centrality of the private sector in development (Gideon and Porter 2016).

BMGF has financed the promotion of technologies and procedures that have uncertain benefits, unknown effects and in some cases have been proven unsafe (see for example Vashisht and Puliyeel 2012). BMGF drug trials have been found to be unethical (Sarojini and Shenoi, 2010) and the Foundation has rebranded existing technologies in spite of their known dangers, as in the case of the injectable contraceptive Depo-Provera (relaunched as Sayana Press) (Hendrixson 2018; Bendix et al., 2019). As we will see in the next section, analysing BMGF discourses in relation to agricultural and fertility-related technologies and associated behavioural interventions exposes some of the otherwise obscured relationships between contemporary philanthropy, racial capitalism (Robinson 2000; Melamed 2015)⁵ and (re)animated populationism. We suggest that an analysis of Foundation discourses is

particularly critical given the magnitude of resources the BMGF wields and the related dispersal of accountability generated through the Foundation's wealth and through the promotion of third-party, corporate technologies.

BMGF climate-smart agriculture (CSA) initiatives

Climate-smart agriculture (CSA) combines climate mitigation and adaptation with agricultural intensification (World Bank 2011; 2015; 2017; FAO 2013; Taylor 2018, p. 2) and has been widely taken up by international organisations and private foundations such as Gates, with a focus on the African Region (World Bank 2015; also cited in Taylor 2018, p. 2). BMGF frames its climate-smart agriculture initiatives as bringing new Green Revolution approaches to Sub-Saharan Africa, where 'some Green Revolution approaches were tried but failed' (Gates Foundation, Agricultural development, n. d.). BMGF locates its support in the context of concerns about population growth, as in this description of changes since the first Green Revolution or what Patel has called the 'long Green Revolution' (Patel 2013):

Meanwhile, in the intervening years, [since the first Green Revolution] population growth, rising incomes, dwindling natural resources, and a changing climate have caused food prices to rise and agricultural productivity has once again become strained (Gates Foundation, 'Agricultural Development', n.d.). Because CSA works simply as a guiding framework, any activity which contributes to any of its three principal goals – reducing greenhouse gas (mitigation), promoting resilience (adaptation) and sustainable intensification – can be termed 'climate-smart' (Taylor 2018, p. 7). Thus, older technoscientific approaches to food production which promote mechanisation, hybrid seed use and the use of chemical inputs to drive

increased output continue to be propagated by the Gates Foundation in Sub-Saharan Africa and South Asia (Taylor 2018, p. 7, World Bank 2015; Patel 2013) despite extensive critiques about their effectiveness (Eddens 2017; Serrano 2018; Tandon, 2010; Glaeser 2010; Patel 2013; Gengenbach et al. 2017; Schurman 2017; Holt-Gimenez 2008).

Critics have highlighted that even while ostensibly aimed at supporting smallholders, CSA lacks participatory, farmer-led approaches and tends to benefit corporate agribusiness (Whitfield 2015; also cited in Taylor 2018, p. 3). This is not surprising given the corporate and food industry involvement in CSA initiatives themselves – for example, Pepsi, Monsanto and Syngenta, along with other food and agriculture industry giants, play a central role in the global World Business Council ‘Climate-Smart Agriculture’ working group which defines and promotes the CSA framing (Taylor 2018, p. 8; World Business Council for Sustainable Development).

Genetic engineering in particular has been positioned by proponents as key to managing a ‘booming world population’ while ‘mitigating climate change impacts’ (Ricroch and Henard-Damave 2015) by engineering seed to increase production volumes, crop yields, nutrient values and climate-change resistant features of particular crops (i.e. drought resistance, salt tolerance etc) (World Bank 2017; IFAD 2011; Thompson 2017). BMGF CSA initiatives strongly promote genetic engineering, agribiotechnologies and their associated inputs through support for research, development and promotion of hybrid and genetically modified seeds and chemical fertilisers and pesticides (Gengenbach et al. 2017; Schurman 2017). BMGF has also lobbied extensively for the introduction and strengthening of intellectual property regimes on which genetically modified seeds and their associated inputs rely,⁶ even while critics have

highlighted the racial logics ((Eddens 2017; Goldberg-Hiller and Silva 2015) and intensification of inequalities (Whitt 1998) associated with genetic appropriation and modification of plants and seeds. Biotechnologies such as GM seeds and their associated petroleum-based⁷ inputs such as fertilisers⁸ form the bedrock of the BMGF CSA approach –investments which are likely to favour large transnational corporations (Global Justice Now 2016; Thompson 2017), extend the reach of petrochemical and pharmaceutical markets (Otero 2013) and enhance agglomeration in seed and agricultural input industries (Bonny 2014; UNCTAD 2006; Fuglie et al. 2012).

In addition to their racialised history (Eddens 2017; Serran 2018) and the central role GM technologies play in processes of accumulation and agglomeration (Schrager and Suryanata 2018), questions have been raised about their overblown scientific claims (Gengenbach et al. 2017; Schurman and Munro 2010), lack of independent biosafety data and inappropriateness for smallholder farmers (ACB 2018). For example, BMGF is promoting Monsanto- developed genetically engineered, insecticide-producing (BT-tolerant) and drought-tolerant – so-called ‘stacked’ – maize varieties as part of its solutions to climate-change in Southern Africa (Lynas 2017; Gates Foundation 2008). However, genetically modified insecticide-producing maize has, in South Africa, led to pest resistance and inefficacy (Van den Berg et al. 2013) and yet Monsanto has ‘donated’ this variety (MON810) to the BMGF-co-financed Water Efficient Maize for Africa (WEMA) project. These kinds of ‘donations’ represent another example of BMGF-support for inappropriate⁹ and ineffective technologies (ACB 2018) that facilitate accumulation through the sale of supposedly ‘pro-poor technologies’ (Ignatova 2017).

Furthermore, BMGF promotion of Green Revolution tools in Africa and South Asia raise major concerns based on experiences elsewhere of regions with large concentrations of GM corn and soy monocrops. While the relationships between the use of genetically engineered seeds and pesticides can vary by seed-type (e.g. Perry et al. 2016), massive fertiliser and pesticide inputs associated with GM corn and soy have been linked to displacement, infertility, birth defects, increased cancer rates and other health and environmental problems in Argentina, Paraguay, Brazil and the United States (Serrano 2018; Lapegna 2014; Otero and Lapegna 2016; Motta 2016; Leguizamón 2016; Caceres 2015; Alain 2017; Davies 2018; Murphy 2013; Benbrook 2016). Ezquerro-Canete (2016) calls these processes of ‘accumulation by fumigation and dispossession’ – forms of toxification, slow death and corporeal attrition that reduce populations through ill health, infertility and furtive modes of displacement. That these harms are not always directly attributable to agribiotechnologies results from a combination of scientific uncertainty, the abandonment of precautionary principles (Seager 2003), ‘undone science’ (Frickel et al. 2010) and the ‘spatiotemporal ambiguities’ (Davies 2018, p. 2) of toxic pollution itself. While the exact human health and environmental impacts of BMGF-promoted Green Revolution tools require further investigation, the documented impacts of these same technologies used in other locations point toward the Foundations’ reliance on what have been shown to be dangerous or uncertain ‘solutions’ to both production and reproduction. More research is thus needed to investigate systematically how this BMGF approach to CSA, framed through dubious and contradictory technoscience, is being mobilised in particular contexts.

[Gender- and Climate-Smart agriculture](#)

Climate-smart agriculture initiatives are critically also 'gender-smart' interventions (Arora-Jonsson 2011; Chant and Sweetman 2012), and analysis of BMGF materials shows that the Foundation represents itself as intervening to change the behaviour of poor households and specifically poor women in the Global South, to make them more responsive to new or not-so-new technological fixes. This is explicit in the case of descriptions of BMGF agriculture programmes that aim to 'ultimately help farmers develop more profit-oriented behaviour which are necessary to enhance adoption rate, production and food security in the long run' (Ghimire et al. 2015, p. 35, emphasis added); it is also implicit within the framing of BMGF Family Planning initiatives as seeking to 'address reasons for [contraception] non-use, with a focus on improving acceptance and continued use among priority user groups' (Gates Foundation, 'What We Do', n.d., emphasis added). In this way, BMGF discourse represents women in low income households in Sub-Saharan Africa and South Asia as potentially entrepreneurial adopters of technologies aimed at increasing agricultural productivity and managing fertility as ways of adapting and mitigating climate change.

These references to 'improving acceptance' and 'profit-oriented behaviour' (Gates Foundation, 'What We Do', n.d.) serve to emphasise that the project of producing neoliberal subjectivities geared to self-improvement, efficiency and profit-making and, critically, toward producing consumers for new technologies is inseparable from BMGF activities promoting the 'discovery, development, and distribution of new technologies' (Gates Foundation, 'What We Do', n.d.) and thus the expansion of markets for the corporate actors with whom the BMGF is closely associated.

A term originally put forward by the World Bank in 2009, 'climate-smart agriculture' was closely connected to the Bank's strategy of 'Gender Equality as Smart Economics' (World Bank 2006; 2011; Chant and Sweetman 2012). These 'smart' discourses specifically frame change as a positive sum game in which climate change adaptation and mitigation and women's empowerment, respectively, are constructed as consistent with, and indeed as contributing toward, increased productivity and economic growth (Taylor 2018, p. 5; Chant and Sweetman 2012; Elson 2012, Roy 2012). As BMGF formulates it:

When women farmers are meaningfully included in agricultural development opportunities, not only do farms become more productive but adoption of new technologies increases and overall family health improves.

Evidence shows that if women farmers across the developing world had the same access as men do to resources such as land, improved seed varieties, new technologies, and better farming practices, yields could increase by as much as 30 percent per household and countries could see an increase of 2.5–4 percent in agricultural output.

Women have also been shown to be more likely than men to reinvest income in the health of children and other family members and in a more varied and nutritious family diet (Gates Foundation, 'Creating Gender Responsive Agricultural Development Programmes', n.d.).

Within the 'Smart Economics' framework utilised in promoting BMGF agriculture programmes, gendered inequalities, both material and ideological, which make women 'more likely than men to reinvest income in the health of children and other family members' are not questioned, but rather celebrated and instrumentalised (Wilson 2011; Murphy 2017). At the same time, emphasis on addressing women's 'access to improved seeds, better techniques and technologies, and markets' to increase their productivity marginalizes gendered questions of land rights, intra-household inequalities, and the political economy of hunger (Agarwal 2010; Barrientos et al. 1999; Sen 1997). Instead, the Foundation argues that women farmers 'are the keys for improving their and their children's nutrition: when women are better nourished, they

enjoy better health and are more productive child caregivers and labourers' (Gates Foundation, Agricultural Development, n.d.). Thus, the BMGF presents its agricultural strategy as directly linked to the intensification of the social reproductive and productive labour of poor women in Sub-Saharan Africa and Asia, a focus which echoes and complements the logic of the BMGF-led Family Planning 2020 agenda (Hendrixson 2018) wherein 'investing in reproductive health is smart economics' in part because lower fertility rates increase 'female labour supply' (Grepin and Klugman 2013).

The productive and reproductive elements of this story are brought together in a 2008 speech by BMGF CEO Catherine Bertini:

Consider the daily life of a woman in an African village. She rises before the sun. She spends many hours laboring in the fields... She does all this while caring for her children. She may, like many women, work all day with a baby strapped to her back. Then she is responsible for preparing her family's meals, which means she must gather firewood and collect water... And finally, at the end of the day, she will feed her husband, she will feed her children—and then she will eat last, from whatever is left Some days that means she doesn't eat anything at all. . Eighty percent of smallholder farmers in Africa are women. Sixty percent of smallholder farmers in Asia are women. They carry the burden of feeding most of the world ... We demand so much from the women who grow the developing world's food. We should give them support, to help them shoulder the burden. That would be fair. It would also be smart (ODI 2008, pp. 5–8).

As with the broader Smart Economics discourse, this remarkable passage offers no possibility that the global gendered and racialised division of labour which ensures that women small farmers in Africa and Asia not only combine productive and reproductive labour for their households but 'carry the burden of feeding most of the world' could – or should – change. Rather it embraces a racialised vision of these women as innately hyperindustrious entrepreneurial subjects who should be 'helped', as 'investable life' (Murphy 2017) to 'shoulder the burden' more efficiently. The phrase 'we demand so much' with its direct appeal to white

Global North subjectivities implicitly acknowledges racialised global injustice but also underlines its apparent inevitability. This approach is consistent with current sustainable development narratives in which ‘resilience’ in the global South must be strengthened in the interests of socio-spatial containment: the aspirational trope of ‘catching up’ has been abandoned in favour of a celebration of permanent global inequality (Duffield 2005), naturalising global agricultural divisions of labour (McMichael 2009, pp. 148) and other socio-spatial inequalities (Taylor 2018, pp. 9; Rodger Fleming and Jankovic 2011; Hulme 2011).

In a context of climate change, the poor are further responsabilised for the consequences, and for mitigation and adaption:

In an era of increasingly scarce resources and growing impact of climate change, we encourage farmers to embrace and adopt sustainable practices that help them grow more with less land, water, fertilizer, and other costly inputs while preserving natural resources for future generations (Gates Foundation, ‘Agricultural Development’, n.d.).

Via a reformed use of Green Revolution technologies, BMGF CSA dis- courses continue to promote a capitalist agrarian modernisation programme¹⁰ geared towards sustaining the existing distribution of resources. In tandem with global ‘family planning’ policies, CSA initiatives arguably work to shore up spatial inequalities and borders and contain racialised populations (Wilson, 2017) even while sustaining and expanding capital accumulation within ‘planetary boundaries’ (Duffield and Evans 2011). As in earlier phases of colonial and Cold War intervention¹¹ racialised representations of ‘women’ in the global South, their ‘disposable’

labour (Wright 2006) and 'dangerous' sexualities (Briggs 2002; Switzer 2013) become the essentialised locus of this strategy and the embodied violence it entails.

These processes can be viewed through the lenses of reproductive and environmental justice – approaches which stand in stark contrast to BMGF framings of reproductive rights and agricultural productivism as granting choices to individuals within a neoliberal framework. Instead, demands for reproductive and environmental justice make visible the broader structural forces – economic, political and social – which deny people of colour, and women of colour in particular, control over their bodies and over wider processes of social reproduction.

The concepts of reproductive and environmental justice both emerged from the struggles of women of colour and indigenous women in response to racialised experiences such as those of environmental racism (Chioma Steady 2009; Garvey 2011), forcible sterilization and coercive promotion of unsafe contraceptives in the US. Reproductive justice has been defined as 'a shift for women advocating for control of their bodies...to a broader analysis of racial, economic, cultural and structural constraints' (Ross 2011). While there have been attempts to appropriate and eviscerate these concepts (Luna 2011; Sasser 2018), in their original form they can effectively encompass and connect the harmful effects of long-acting hormonal contraceptives promoted by the BMGF's family planning initiatives and the promotion of unsafe and uncertain Green Revolution technologies associated with the Foundation's approach to agriculture which have been linked to endocrine disruption, toxification and dispossession.

Necro-populationism

Populationist strategies focus on targeting the number of humans on the planet (demo-populationism), the containment and shaping of populations in relation to particular spaces (geo-populationism) and the management of life itself (bio-populationism) (Bhatia et al., 2019). As we have argued, the Gates Foundation represents its own work through the lenses of these distinct but often intersecting forms of populationisms: directly managing human population numbers through the promotion of reproductive technologies (demo-populationism), targeting particular areas of the global South as laboratories for new and old technologies in order to sustain and extend racialised socio-spatial inequalities, displacements and dispossessions (geo-populationism) and promoting desirable, market-oriented, 'productive' behaviours and subjectivities as key to what constitutes a valuable life (bio-populationism). The notions of 'improved acceptance' and 'profit oriented behaviour' we observed in BMGF discourses are consistent with a reflexive, antiquated definition of displacement as 'to rid oneself of' (Dictionary.com) – which we might locate at the intersections of demo-, geo- and bio-populationism in relation to ridding oneself of dangerous fertility and of outmoded habits of survival or 'unproductive' agriculture.

Further, BMGF CSA initiatives mobilise demo-populationist framings of 'embodied environmental responsibility' in which women's bodies and labour help to mitigate climate change and population pressures (Sasser 2018, 18), as well as being implicated in the geo-populationist degradation and toxification of landscapes devoted to industrial food production (Moore 2015).

Analysing BMGF discourses relating to both family planning and CSA initiatives, we suggest, has in fact helped to expose a grammar of multiple displacements operating through BMGF discourses wherein: technological solutions displace attempts to address the unequal distribution of toxic loads; philanthropic actors disperse accountability through wealth-generated legitimacy, contradictory investments and corporate partnerships; and a focus on individual choices and potential for behavioural change occludes the extraction of value from racialised women's labour in mitigating and managing climate change.

However, while we can locate BMGF discourse in relation to these different forms of populationist regulation of human numbers, socio-spatial containment and life management, the multiple modes through which BMGF displaces accountability highlight aspects of contemporary populationism that are systematically destroying – rather than producing, managing and disciplining – racialised lives. Specifically, the elements we are attempting to delineate here relate to the 'production and exploitation of group-differentiated vulnerabilities to premature death, in distinct yet densely interconnected political geographies' which Gilmore identifies as central to racism (Gilmore 2002: 261) as they are operating within contemporary populationism. In this case, BMGF's promotion of Green Revolution technologies emitting endocrine disrupting chemicals and reproductive technologies linked with adverse health effects – technologies and processes inducing multiple forms of displacement through rising costs and indebtedness, toxification and other forms of violence, is marked by inexorable tendencies to dispossession, biological disruption and death. We would describe this as necropopulationism. Drawing on Mbembe's notion of necropolitics (Mbembe 2003) which reconceptualises contemporary forms of power as exercised through the creation of 'zones of

death' structured through racial and colonial violence (Smith and Vasudevan 2017; Weheliye 2014), necro-populationism operates via systematic deaths of those who are not simply excluded or 'let die' but targeted for specific forms of violence, and sudden or slow deaths, which themselves underwrite and sustain continuing capital accumulation through the promotion of new or not-so-new technologies, whose violent effects remain largely obscured.

Necro-populationism exposes the colonial relations of violence and debt immanent to these philanthropic 'gifts' of unsafe, uncertain and ineffective technologies – a debt which enforces 'a necropolitical social hierarchy', extending the 'suffocating embrace of imperial and gendered racial violence' (Kim 2018, p. 56-57)

Among those subject to necro-populationist interventions are Adivasi and Dalit women who have died in mass sterilisation camps in India (Sama et al. 2014), and those targeted as 'acceptors' of unsafe and potentially debilitating contraceptive technology (Hendrixson, 2018), all within the framework of the BMGF's FP2020 strategy (ibid.), and those smallholders in Latin America and elsewhere enduring the slow deaths through environmental degradation, endocrine disruption, rising costs and multiple dispossessions (Ezquerro- Canete, 2016; Caceres 2015) associated with the agricultural technologies promoted by the Foundation.

Neoliberal, philanthrocapitalist repackaging and climatisation of the Malthusian disequilibrium between human fertility and agricultural productivity is inextricably bound to this racialised and gendered necro-populationism. Colonial framings of appropriately productive subjects and spaces intertwine with Malthusian fears of racialised population growth and running out of food, now intensified and reanimated through their association with

the threats of climate change (Hartmann and Barajas-Roman 2009). By dispersing accountability through self-generated legitimacy, opaque relationships with corporate actors and reliance on 'scientific uncertainty', institutions such as the Bill and Melinda Gates Foundation sustain this deathly dynamic which underpins global capital accumulation in the era of climate change.

However, necropolitical analysis and the closely related notion of 'bare life' conceptualised as life excluded from politics and devoid of rights (Agamben, 1998) have also been critiqued for their tendency to elide multiple forms of resistance in contexts of exclusion from full humanity, 'the ways in which the politics of life as bare life is disavowed/refused' (Madhok, 2018) and the (re) constitution of radical collectivities which challenge this dynamic (Melamed, 2015).

Critical development scholars have highlighted the disjunctures between development discourses and policies, and development practice which is negotiated and remade by multiple actors (Mosse 2005), a notion which Fejerskov (2018) has recently explored in the context of BMGF initiatives, describing how state-level development workers in a BMGF-funded project promoting women's ownership of land in Odisha, India substituted the BMGF narrative of women's agricultural productivity as the fuel of economic growth with an emphasis on the potential for transformation in women's social status (ibid.). This highlights the need for further research into the ways in which the BMGF's global policies are materialised, spatialised, reproduced and reoriented by multiple actors in local contexts.

However, even less scholarly attention has been given to those who directly counter and resist the effects of 'gender and climate smart' initiatives which construct them as 'disposable' - such as those landless, Dalit and Adivasi women whose protests against sterilisation camp deaths (Sama et al. 2014)¹² and coerced hysterectomies (Ananya 2017) have fundamentally disrupted the narratives of 'reproductive choice and responsibility' in India with questions of reproductive justice; or those who are resisting toxification by fumigation (e.g. Madres de Ituzaingo) (Barri 2010) and the false technoscientific fixes of climate-smart agriculture (Taylor 2018).

In delineating, as we have, the necro-populationism embedded within the logics of philanthrocapitalist investments in productive and reproductive technologies, we must also recognise these forms of resistance. This requires us to affirm, as Weheliye (2014) does through an engagement with Black feminist thought, 'the enduring life force of those subjected to these regimes of rule' and the subjects who make visible the possibilities for social transformation against and beyond the dynamics of global capital accumulation.

Notes

1. We refer here not only to the term coined by Crenshaw (1989) but to the much longer history of praxis developed in the context of Black women's struggles in relation to race, gender, class and sexuality in North America and Europe. More recently feminist critics have noted the appropriation of the concept in ways which displace a focus on racism (Collins and Bilge 2016); legitimise 'funding driven agendas ... for the Global South' (Menon 2015:41); and marginalise structural critiques of capitalism (Salem 2016).

2. BMGF funds go to several prominent media organisations, such as the Guardian, ABC and All Africa (Global Justice Now [2016](#), p. 15). Indeed, such funding of media organisations appears to be raising increasing ethical questions (see American Press Institute [2016](#) for more).
3. For example, in Arcos Dorados, a major franchise holder for MacDonalds (Global Justice Now [2016](#), p. 22).
4. Recipients of BMGF grants in this area include the International Centre for Genetic Engineering and Biotechnology (Trieste, Italy) (13 million USD over nine grants), the African Agricultural Technology Foundation (100 million USD) and The Queensland University of Technology (14 million over six grants), the John Innes Centre in Norwich (10 million USD) and the Biotechnology and Biological Sciences Research Council (Swindon, UK) (8 million USD) (Gates 'Annual Report').
5. Theorists of racial capitalism are among those who have explained how capitalism cannot exist without race and racialisation, which 'enshrines the inequalities that capitalism requires' (Melamed [2015](#)) on a global scale. Of particular relevance to BMGF discourses is Melamed's insight that 'contemporary racial capitalism deploys liberal and multicultural terms of inclusion to value and devalue forms of humanity differentially to fit the needs of reigning state-capital orders' (Melamed [2015](#), p. 77).
6. In particular, in Africa through the Alliance for (a Green Revolution in Africa (AGRA) and support for the International Fertiliser Development Centre. While nominally recognising seed diversity, AGRA has in fact lobbied heavily to change seed policies on the continent (SEC Filings [2015](#); Global Justice Now [2016](#)). In 2017, AGRA received 200 million from BMGF "to undertake agricultural interventions to increase the productivity and incomes of at least 30 million

smallholder farming households, and use data, evidence and technical capacity to support African countries to trigger and sustain inclusive agriculture transformation” (Gates Foundation, ‘How we work’, n.d.). ”

7. Support for the extension of the “fertilizer supply chain has taken place through support for the African Fertiliser Agribusiness Partnership (AFAP) through grants of at least 25 million USD.
8. Hydrocarbons form the basis of some active pesticide ingredients, while petroleum- based products are also used to facilitate spraying.
9. There are indications that the genetically modified versions of maize being promoted in Southern Africa have not been specifically developed for smallholders (ACB 2017) and thus may involve unsustainable increases in input costs such as certified seed, synthetic fertilizers and other infrastructure. Not only may such technologies be costly for small farmers (Fernandez-Cornejo et al. 2014, p. 13; Tandon 2010, Bonny 2014): in India, high costs have been associated with farmer indebtedness and subsequent suicides (Gruere and Sengupta 2011; Desmond 2016).
10. This mirrors the critique of the Gender Equality as Smart Economics approach which similarly focuses on integrating women into global labour markets without questioning the unequal terms on which this integration occurs (Chant and Sweetman 2012). As has been noted extensively, it is the unequal terms of this ‘integration’, rather than exclusion from global markets, which must be problematised (Taylor 2018, p. 16; Stone 2007, p.144; Taylor 2013; Akram- Lodhi 2013).
11. US-backed Green Revolution policies during the Cold War era had the explicit goal of ‘preventing a Red one’ in South Asia and Latin America; pesticides were simultaneously used in agricultural

and military programmes (Verge_s, 2017). They were accompanied by extensively funded 'population control' programmes (Rao, 1994) which were similarly informed by fears of a racially embodied threat to the existing distribution of resources, while intersecting in spatially diverse ways with elite nationalist projects relating to population and fertility in the Global South (see for example Hodges 2017; Briggs 2002). Both these forms of intervention arguably extended and reworked colonial forms of populationism. Increased sterilisation abuses in India have been directly linked to the Indian government's commitments to get 48 million more women to use contraception by 2020 under the BMGF-led global Family Planning 2020 initiative (Human Rights Watch 2012; Singh 2014).

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