SYMPOSIUM: MAKING FAMILIES

Land, women and techno-pastoral development in southern Karnataka, India

Sharmila Rudrappa

Department of Sociology, Center for Asian American Studies, University of Texas at Austin, Austin, TX, USA
E-mail address: rudrappa@austin.utexas.edu.

Abstract

Techno-pastoral desires are statist aspirations for orderly, hierarchical landscapes where land, beasts and nature are managed through technical expertise to generate profits. Women and land, I argue, occupy particular places in Indian techno-pastoral imaginaries as the nation-state recalibrates profits that can be harvested from the regenerative capacities of life itself. Through a case study of southern Karnataka, where the megapolis of Bangalore is located, I show that working class women and agricultural land have a shared genealogy in the region's bio-economic development. I study three historical moments where population and food production have vexed state authorities: the South Indian famine of 1875–1876 that left more than 20% of the population dead; the early 20th century efforts at building the Krishnaraja Sagar Dam, and state-sponsored birth control clinics in the 1930s; and the 1950s–1960s population control programmes and Green Revolution interventions. The growing literature on bio-economies focuses on pharmaceutical industries; clinical trials; and commodification of organs, tissues and cells; however, by working with surrogate mothers incorporated not as labourers but with their wombs coded as land, this study attempted to map the long histories of bio-economies, spanning land and living tissue, in and around Bangalore. I argue that rather than bio-economies, the term ‘necro-economies’ might be more useful for describing how land and women are incorporated into techno-pastoral desires.

© 2018 Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

KEYWORDS: bio-economies, surrogacy, South India, clinical labour, gender

Introduction

On a trip to Gujarat, India on 14 September 2015, I toured a hospital being built by Dr. X, who was a leading provider of surrogacy services. The new five-floor hospital revealed Dr. X’s business plans. The ground floor was to house 100 surrogate mothers working for clients from all over the world. No one had proprietary rights over the placentas or cord blood cells in these surrogacy arrangements. They were ‘waste’ materials.
In addition to the unused embryos she could access, Dr. X planned to use this 'waste' in her state-of-the-art laboratories in collaboration with multinational pharmaceutical and medical boutique companies to patent procedures in regenerative medicine.

Dr. X's plans will not surprise assisted reproductive technology (ART) scholars because sites for wholesale in vitro fertilization, such as surrogacy clinics, are primary sources for donated embryos for research (Bharadwaj and Glasner, 2009; Mittal, 2013). I begin with a description of her hospital to show how working class women are conceived, recruited and inserted into India's emergent techno-pastoral development. The word 'pastoral' signifies two meanings: the first refers to an orderly, bucolic and patriarchal landscape where man, domesticated animals and nature exist in balance, and work together in harmony to produce economic surplus through orderly social regulation. In describing pastoral literature, Raymond Williams notes that the word 'pastoral' signifies the 'timeless idea of the tranquility of life in the country...[a] Golden Age [where] there was really peace and innocence' (1973: 19), of an uncomplicated world that fused the 'ideas of the self-yielding earth and a conscious community of property and purpose' (1973: 42). He states that the foundation of pastoral literature lay in the perception of the city as an unruly and alienating space where people had been converted into landless masses. The 'persistent and particular vision of the Golden Age, a myth functioning as memory, could then be used, by the landless, as an aspiration' (1973: 43) for dealing with and changing the conditions of their social and economic disempowerment.

The second meaning of 'pastoral' invokes guidance and counselling, as a priest who steers his people on to rightful paths so that they may attain eternal salvation. Thus, I define 'techno-pastoral' development as the aspiration for orderly, hierarchical landscapes where land, beasts and nature are managed through technical expertise to generate profits. Techno-pastoral is offered up as a seemingly apolitical realm of decision-making because rationality, science and abstract technological considerations drive action. Women and land, I argue, occupy particular places in Indian techno-pastoral imaginaries as the nation-state recalibrates profits that can be harvested from the regenerative capacities of life itself. Working class women and agricultural land, I show, have a shared genealogy in southern Karnataka's economic development.

I examine three historical moments around population and food production to highlight how land and the bodies of working class women are perceived and managed in parallel ways: the South Indian famine of 1876–1878 that left more than 20% of the population dead; the early 20th century efforts at building the Krishnaraja Sagar Dam, and state-sponsored birth control clinics in the 1930s; and the 1950s–1960s population control programmes and Green Revolution interventions.

This article is guided by two motivations: first, for a multitude of reasons, to explain why intended parents from the global North seek cross-border reproductive care, including surrogacy, few ethnographers (myself included) trace the historical specifics of how countries such as India emerge as locales where feminine reproductive labour is cheap, and easily available. Some of us (Pande, 2014; Rudrappa, 2015; Vora, 2015) link surrogacy to India's population control policies, but I suggest that we should look beyond the 1950s–1960s population control programmes to the pervasive anxieties around food production and population beginning in the mid-1800s, where agricultural land and women's bodies become sites for technocratic intervention in colonial India.

My second motivation in this article is to conceive of bio-economies broadly by tying together agronomic and biomedical developments. 'Bio-economies' refers to economic activities related to the research, development, production and use of biological processes and products. There is a growing literature on bio-economies that focuses on pharmaceutical industries; clinical trials; and commodification of organs, tissues and cells. In addition, much has been much written on agricultural developments. By describing how the bodies of working class women become bio-available, I map the histories of bio-economies, spanning land and human tissue, in and around the metropolitan area of Bangalore. I argue that the Green Revolution and what Aditya Bharadwaj (2017) has called the 'red revolution of stem cell technologies' are intimately tied.

This article is organized in the following manner: first, I outline how surrogate mothers are conceived by recruiting agents and doctors. Using data from fieldwork conducted in Bangalore, India (2011–2012), I show that doctors treat working class women not as thinking and feeling beings, but as pure material substance that has life but no volition, thought or consciousness. Such a casting of women, I show, is historically embedded. I turn to the Great Famine of 1876–1878, the 1930s and the 1950s–1960s development programmes to reveal how land and women's bodies have been incorporated into South India's techno-pastoral development schemes to give a sense of contemporary biotech developments in Bangalore.

Home to over 10 million people, Bangalore is presently seen as India's crucible in the 'promissory capital of bio-futures markets in health, regenerative medicine, and stem cell manufacture' (Franklin, 2007: 47) where state funding, private foundations, STEM workers and biological materials, particularly oocytes and stem cells, are forged together towards making profitable products. Concerns over human death, starvation, food production and over-population, I argue, have fundamentally shaped how land and women's bodies have been problematized in different ways, yet emerged over the past hundred years or so as sites for expert intervention.

Pregnancy as a rental process

Sarah Franklin (2006: 173) notes, 'without assisted conception there would be no human embryonic stem cell research. The supply of embryos for this ... global and fast-paced field of scientific research depends entirely on surplus... or spare embryos generated by assisted conception techniques, and specifically super-ovulation'. She observes that just like heliocentrism, gravity and evolution did in earlier eras, embryos are 'reshaping our understandings of life, death, health, kin, progress, hope, sex, capital and cure' (2006: 170), and forming central narratives of who we really are. Thus, she makes a case for an anthropology of embryos.
Central to her descriptions of how embryos merge into techno-scientific endeavours is a ‘small hatch’ that connects human embryonic stem cell derivation laboratories to ART facilities. That hatch is a doorway through which eggs aspirated from women’s hyper-ovulating bodies, embedded in the messy world layered with contradictory meanings, are passed into sterile laboratories where disembodied eggs will be fertilized in Petri dishes and eventually used to develop fetuses or donated for further research. From these ‘dirty descent lines’, always ethnically sourced, emerge ‘colonies of immortalized, regenerative, anonymized and totipotent cells, which will be banked in the aid of an improved human future’ (Franklin, 2006: 177–178).

In this article, I go to that small hatch that Franklin (2006) describes in her richly productive conception of the ‘cyborg embryo’. However, before embryos come through that hatch, where meanings are transformed from the possibilities of a single life to the totipotency of embryonic cells, from woman’s body to anonymous tissue, and from a dirty and overdetermined world to a sterile space of technocratic possibilities, I maintain that women need to first come through as abstract, fungible subjects into a technocratic pastoral scheme. That is, there are prior hatches, portals and doorways that must be traversed before embryos become available for regenerative medicine and stem cell manufacturing. Instead of an anthropology of the embryos as Franklin suggests, being the traditional ethnographer that I am, I gaze back to where those embryos emerge from, to those women whose bodies must pass through a conceptual portal where distinctive, individual life is converted to standardized bodies that provide saleable ova and rentable wombs in order to create cyborg embryos. Women must pass from overdetermined, rich and messy lives to becoming the undifferentiated mass base of egg donors and surrogates.

In my book Discounted Life (2015), I show that Bangalore’s surrogate mothers read surrogacy as an exchange of cash for babies. But what was the nature of this exchange? Was it a gift or was it a commodity? Through contesting whether surrogacy was a gift or commodity exchange, the intended parents and surrogate mothers negotiated the terms of their relationships with each other. The intended parents were unequivocal; although they used the language of gift in describing their transactions, they were committed to the practices of commodity production. That is, they had no interest in maintaining relationships with the working class Indian women who laboured to produce babies for them. On the other hand, surrogate mothers were ambivalent; many spoke of the considerable labour they put into making the babies, and why they should be paid a lot more than what they receive. However, some surrogate mothers had an investment in perceiving surrogacy as a gift exchange because they wanted to maintain social relationships with the babies they had given birth to, and with clients.

However, in my work, a third actor in the whole exchange is missing, namely the fertility doctors and brokerage firms that link clients and workers. Terms that circulate among fertility doctors and surrogacy brokerage firms, reflected in popular media, include: baby factory, India’s back-womb business, rent-a-womb industry, life factory and baby farm. In Kannada, the language spoken by most surrogate mothers in Bangalore, the term ‘badige-thai’ (‘rental mother’) is used as a translation for ‘surrogate mother’. Surrogate pregnancy is understood as the occupation of an empty womb, wherein clients rent space in the wombs of third world working class women in order to grow ‘their’ fetus.

Waldby and Mitchell note, ‘within the body, tissues constitute the biological substrate of the self, the condition of viable human life. Once donated they can sustain the life and health of another’ (2006: 31). In organ donations, stem cells, cord blood cells and other types of biomaterials that find their way into regenerative medicine, the tissue can be extricated from donor to recipient. However, in the case of surrogacy, wombs are only productive within women’s bodies. That is, they operate in vivo. The problem for industry is to disentangle the womb from the woman in order to launch it into other entanglements, namely commercial surrogacy. This disentanglement is achieved by conceptualizing wombs as rental spaces.

Over the course of my fieldwork, doctors and surrogacy brokers constantly disentangled surrogate mothers from their wombs. For example, when I first began my research in 2009, an infertility medical specialist who had travelled from Mumbai, India to Dallas, Texas to recruit clients informed me that all clients needed to do was arrange funds and decide on when they would travel to India for surrogacy; he had any number of women pumped with hormones and ready to be gestational surrogates at any given time. As recently as 2017, a broker who took clients from the USA to India informed me that surrogate mothers were empty receptacles who carried a baby for someone else.

My observations that wombs become rental spaces are not new. In reproductive technology clinics, Charis Thompson notes that body parts such as wombs are ‘at systematic risk of being alienated from the person’ (2005: 255). Krollekk and Pant quote a Mumbai clinician who explains how she educates surrogate mothers: ‘...the eggs are not hers. The baby is not hers and I am just going to prepare the baby outside and just put it into her uterus. I only need her uterus...’ (2012: 233). Kalindi Vora writes that clinicians ‘train women into a new understanding of their bodies that allows them to conceive of their uterus as an empty space that is not being used, and therefore can be hired out’ (2009: 271). Through this rental relationship, uteri are legally isolated as a component in producing a baby (Vora, 2009, 2015).

The surrogate mothers’ wombs become ideal substrates for the twin production of middle class family values and surplus value. The clients created their family, replete with children, solely through intent. Surplus value is created only through the exertions of ‘skilled’ labour: urologists extract sperm, reproductive endocrinologists administer synthetic hormones to ripen ovaries and uterine linings, embryologists prepare embryos, infertility specialists oversee the entire procedure, and gynaecologists chart fetal development and deliver babies through caesarean sections. The surrogate mother is not perceived to put in any effort.

Until commercial surrogacy was banned in India in 2016, surrogate mothers were routinely implanted with four embryos. In order to increase the odds of positive outcomes, two surrogate mothers were recruited for one single client couple. If all four embryos took, the surrogate mothers underwent fetal reductions. They had no say in the matter. Finally, almost all surrogate mothers underwent a caesarean section between weeks 36 and 38 of their pregnancy.
Biological time was converted to technical time, as babies were delivered just-in-time so that clients could schedule collection of ‘their’ baby (Rudrappa, 2015: 169).

**Crossing the threshold**

I find Franklin’s (2006) description of the small hatch that connects the room where ova are aspirated from women to the laboratory where they emerge as colonies of anonymized and totipotent cells to be richly evocative. Like the ova that travel through the hatch, the working class women in Bangalore must necessarily pass from lush life-worlds into becoming bodies for harvesting ova or renting wombs. They need to be temporarily excised from a rich cultural world in order to be delivered into a natural world where eggs and wombs are abstract, exchangeable and inherently replaceable. My 2011–2012 fieldwork in infertility clinics and a surrogacy dormitory, and interviews with 70 surrogate mothers in Bangalore reveals that the procedure for turning women into fungible subjects with rentable wombs is attended by rituals of counselling in surrogate-only dormitories where women are kept away from their kith and kin. The dormitory acts as that hatch; a guarded transitional space that must be secured against the messiness of life, distant from dirt and disease, and predictable to turn women into wombs for rent for surrogacy.

In her ethnography of surrogacy in Anand, Gujarat, Amrita Pande (2010) states that women are made into ‘mother workers’ in surrogacy dormitories. Through regimens of activities coordinated through scheduling the days, weeks and months over their stay in the dormitory, industrial discipline is inculcated in the women. However, in contradiction to Pande’s observations (and my own earlier work), I argue that, in the dormitory, women are rendered into not-mothers and not-workers. In the dormitory, women are converted into pure substance, with definite and constant composition, and distinct social properties; these distinct social properties being that these are a category of women whose wombs can be alienated from them, where fetuses belonging to clients can be grown through expert medical intervention.

Dipesh Chakrabarty argues that the conception of the house as ‘an inside produced by symbolic enclosure for the purpose of protection’ is ‘an instance of a theme general to South Asia’, in which the inside is sharply distinguished from an ‘outside which can … be rubbed off’ (1991: 22).

Just as the Indian middle class home is produced through the ‘symbolic enclosure for the purpose of protection… in which the inside is sharply distinguished from an outside which can be … rubbed off’ (Dipesh Chakrabarty cited in Dickey, 2000:470), the dormitory separates the inner realm of commercial surrogacy from the outer ‘rubbed off’ life-worlds of the working class women. The dormitory is like a doorway in an Indian household that serves as a zone between the dirt of the streets and the inviolability of the home, from the outer world into the inner sanctuary (Dickey, 2000). The surrogacy agency staff in Bangalore strictly monitored visits from the family members of surrogate mothers. Husbands were especially suspect because heterosexual contact was forbidden for the surrogate mother. The surrogate mothers’ close physical proximity to each other, with beds a mere hand’s length away, acted as prophylactics against heterosexual sexual contact. The women were also watched through closed circuit cameras.

The surrogacy dormitory was imagined as a total institution which Goffman (1961: 11) defines ‘as a place of residence and work where a large number of like-situated individuals cut off from the wider society for an appreciable period of time together lead an enclosed formally administered round of life’. This is not to say that the surrogacy agencies succeeded in maintaining the dormitory as a total institution. Instead, surrogate mothers contested the conditions in the dormitory and, subsequently, their transmutation into fungible objects. They complained about the food they were served in the dormitory, and took over the kitchen (Rudrappa, 2015: 71). They criticized the dirt in the corridors and took it upon themselves to clean their spaces. They lobbied staff to have their young children stay with them, and sometimes succeeded. If their homes were close by, they would sneak out of the dormitory with friends, and spend the day at home chatting, eating mangoes and making cups of tea. The dormitory staff attempted to discipline the women into a type of dormancy; a stillness embodied in mechanistic, atomized societies. However, their pregnancies mattered to surrogate mothers. If no one would celebrate their Seemantham, an important pregnancy-related ritual in South India conducted in the fifth, third or seventh month of pregnancy, they would take on the celebration themselves. A group of surrogate mothers who were residents at the dormitory together shared stories with me of the time they wore their traditional silk saris, carefully applied make up to their faces, and went together to a temple close by to celebrate their fertility and receive divine blessings for safe childbirth. They then visited a professional studio to have their photographs taken so that they would remember the joyous times they shared as they got to know one another in their sojourn as surrogate mothers.

Regardless of how the women in Bangalore thought of themselves, for the clinicians and brokers, the women became fungible or interchangeable beings. All that mattered were their uteri for the purposes of surrogacy. As they resided in the dormitory, sequestered from their life-worlds, women also underwent a change in the eyes of the dormitory staff. The role of the surrogacy dormitory as a hatch emerged through daily repetitions of prophylactic measures towards maintaining constancy, and ultimately anonymous, unmarked replicability.

This expunging of humanity and specific realness from working class women is not unique to the surrogacy industry in India. There is a longer history of how the poor in southern India, especially women, have been inserted into the economy. In the following section, I trace one such instance, namely the South Indian famine of 1876–1878, which subsequently led to state interventions on land and population in and around Bangalore in the 1930s. Under colonial rule, the region I describe was divided into multiple administrative units, but two are important for our purposes: the Princely State of Mysore under the administrative control of the Wadiyars (which included the metropolitan areas of Bangalore, Mysore and Mandy, and surrounding rural areas); and the Madras Presidency adjacent to Mysore State, which was under direct British rule.
The South Indian Famine of 1876–1878

In 1874, rainfall in the Princely State of Mysore, where Bangalore is located, was unseasonably heavy, and flooded the storage pits where finger millet was stored, thereby depleting a staple source of starch for the population. The following year, however, the monsoons failed. With just 22 in. of rain distributed unseasonably over the year, crops collapsed and farmers petitioned for relief from land taxes (Goodall, 1888: 264). That should have signalled to authorities that there was an impending agrarian calamity in southern India, but they missed the signs. It took Madras Presidency’s colonial administrators another year to recognize the crisis on their hands, when the monsoons failed for the second consecutive year in 1876. By then, the rural hinterlands were in acute distress. Merchants had started hoarding grain reserves, and food prices were exorbitant, exacerbating food shortages. While many colonial officials believed that railroads extended relief efforts to stricken areas, observers noted that the newly built railways actually facilitated the movement of scarce food out of famine-stricken areas because victims could not afford to purchase expensive food (Davis, 2001).

Huge numbers of starving migrants arrived in Madras and Bangalore. F. Goodall, a contemporary observer, states that Bangalore’s soup kitchens ‘could not cope with the daily increasing destitution.... Reports came from all parts of the province of the terrible ravages the famine was causing, and number of deaths taking place’ (1888: 266). In order to relieve population pressures and diseases in Bangalore, a ‘relief’ camp was set up 4 miles from the city on the Madras road in order to stop the hungry masses from coming into town. However, migrants ‘evaded the vigilance employed, and the population increased by 25,000 who had come into Bangalore from outside, most of whom were in the most miserable condition’ (Goodall, 1888: 269). Between July and September 1877, search parties were sent out into the city to collect the dead from the streets of Bangalore. In the first 10 days of August 1877, 41 bodies were collected (Goodall, 1888: 269).

Goodall recounts his own observations on Bangalore’s streets:

> Going out one morning, I saw somebody lying down a little way from the road covered with a cloth. Returning about an hour afterwards I saw the same cloth and the person underneath in the same position as before, and I could not detect any movement whatever. I took off the cloth, and to my horror found two young children of about eleven and nine years of age, both dead. I shall never forget the look of those two poor little creatures. Their eyes were wide open, and the look on their poor emaciated faces haunted me long afterwards, and even now their eyes seem to gaze at me from the paper on which I am writing. They had, in all probability, wandered the night before from some neighboring village, and lying down, had died (Goodall, 1888: 269).

Due to death and migration, William Digby (1878), journalist and Honorary Secretary of the Executive Committee of the Famine Relief Fund, states that entire villages were depopulated. In order to receive food aid, famine migrants registered in employment schemes for digging irrigation canals and building railroads. However, many were too weak, young or old to work, and relief camps were set up to house them. Madras’ sanitary commissioner, Dr. Cornish, believed that at least 50% of the people in these relief camps would die. However, Richard Temple, who was part of the famine delegation that recommended decreased state spending, differed. He opined that relief camps ‘contained for the most part professional beggars who would have been unable or unwilling to work under any circumstances’ (Anon, 1877a, 1877b: 37). He believed that coolies on public works were receiving inordinately high wages, which attracted undeserving persons who were not in a state of destitution. Although vehemently contested, food rations to famine victims were reduced to 1 pound of grain per day on the supposition that ‘offering over-generous wages would “demoralise”, and reduce people’s inclination to industry’ (Hall-Matthews, 2008: 1193).

By the time the famine ended, in 2 years, Madras had witnessed 2 million deaths, with a diminished birth rate of another million (Hall-Matthews, 2008: 1197). The Princely State of Mysore usually fared better under monsoon failures because of an extensive network of tanks, wells and irrigation canals (Goodall, 1888: 262). This famine, however, left over 20% of the population dead; 1.25 million people had died in Mysore. However, the death toll from the 1876–1878 famine was fiercely contested. Eventually, the 1880 Famine Commission tallied the death toll for both Madras and Bombay Presidencies as 5.25 million people. However, incredulously, the Commission noted that, ‘this was not necessarily a significant figure when viewed nationally over time and compared with other causes of demographic fluctuation’ (Hall-Matthews, 2008: 1198). The colonial administration concluded that the famine was a natural disaster rather than a crisis precipitated by political reasons. Although persons such as William Digby and A.O. Hume argued for increased famine spending, decreased war expenditures (especially in the second Anglo-Afghan War of 1878–1880), greater Indian self-representation, laissez-faire policies and anxieties about overpopulation emerged as key components to solving the problem of the Indian famine.

If there was any acknowledgment of the social causes of the famine, it was the Indians’ fault. Although rice and wheat being grown elsewhere in India were exported to England during the famine, leading Mike Davis to caustically observe that, ‘Londoners were in effect eating India’s bread’ (2001: 26), the problem with famine was not understood as distributional, but as over-production of people. As the famine began making headlines in the British popular press, some commentators turned to Malthusian explanations. Annie Beasant, for example, claimed that the famine ‘offered a glimpse of a dystopian global future’, prompting her to ‘call for birth control as a British imperial responsibility to the world’ (Sreenivas, 2015: 512). Thus, in the context of ‘Britain’s expanding empire in the 1870s ... when global inequalities in wealth and resources were being reconfigured, the public advocacy of birth control acquired a new, perhaps even patriotic, sheen’ (Sreenivas, 2015: 512).

Post-famine development in the Princely State of Mysore

In 1878, C.A. Elliot was tasked with writing the official report on the Mysore famine. He recommended that land tenure should be more firmly secured so that agricultural enterprises could attract capital; that courts should not fine
indebted farmers for taxes; scientific methods of soil improvement should be followed; and, finally, the planning of large-scale irrigation. It seemed that the Wadiyars, the ruling family in the Princely State of Mysore, took Elliott’s endorsement of modernization to heart. Krishna Raja Wadiyars IV’s plans to alter the rural and urban landscapes of Mysore were concretized by M. Visvesvaraya who was recruited in 1909 from colonial employment into the Princely State to exercise his engineering genius.

In his memoirs, M. Visvesvaraya (1951: 46) wrote that as he had visited large dams such as the Aswan in Egypt, worked on hydrological projects in Aden in Yemen, and designed reservoirs in the Bombay Presidency and Hyderabad for the colonial administration, he was able to come up with plans for irrigation and hydro-electric power generation in the Cauvery Valley of Mysore. The Mysore Government had never undertaken such an expensive endeavour, and Visvesvaraya faced considerable scepticism. Moreover, Madras Presidency colonial administrators worried that the reservoir would negatively affect their own plans to dam the Cauvery River 60 miles downstream (1951: 48–50). Overcoming protests through deft political manoeuvring, Visvesvaraya commenced construction of the Krishnaraja Sagara Dam in November 1911 with 10,000 workers. Ironically, many of these workers were displaced farmers from Mandya and Mysore who suffered because the monsoons had failed once again in 1910–1911. In order to feed themselves and their families, they came as coolies to build the dam that was supposed to deliver them from the vagaries of the weather.

The Krishnaraja Sagara Dam was completed in 1931, and was the largest such reservoir in India at the time. Visvesvaraya described the dam as a miniature Tennessee Valley Authority Scheme, which supplied electricity to the Kolar gold fields; power to run cotton mills and other industries in Bangalore and Mysore; electricity for homes in a large number of towns and villages in southern Karnataka; irrigation for an additional 100,000 acres of land, which led to the extensive cultivation of sugarcane; and establishment of the Mysore sugar mills industry, which was one of the largest mills of this type in India (1951: 51–52). If the Krishnaraja Sagara Dam was to succeed, it had to be accompanied by wider social and political modernization. The Wadiyars strove to make Mysore a modern state. Historian Janaki Nair (2008) writes that Mysore boasted of an impressive list of firsts among Princely States. It had the first Representative Assembly (1881) and the first Legislative Council (1907). It was the first to use electric power to illuminate cities (Bangalore in 1905), establish a state bank (1913), start a university (1916), found a Chamber of Commerce, (1916), initiate affirmative action for backward classes (1918), set up a Serum Institute (1929), and send a trade commissioner to London (1930). Nair writes that, ‘its policy of state aid to industries became the envy of South India, inasmuch as it paved the way for the location of major public-sector industries in the immediate post-independence period. Above all it introduced many caste and gender inequalities...’ (2008: 211).

In Mysore, policy also focused on the education of farmers. As Krishnaraja Wadiyar IV, the Raja of the Princely State of Mysore, noted: ‘the first step to improvement in agriculture is to learn the lesson of selection. When the raiyat [farmer] learns that it pays him better to feed one good cow than two poor ones, when he learns to select his seed, his poultry, his fruit trees and his implements, we shall be one great step forward on the road of rural reconstruction’ (cited in Gowda, 2017). Population management too was on the state agenda. As early as 1881, Dewan Rangacharlu, in the service of the Wadiyar royal family, tied overpopulation to hampered production in his address to the first session of the Mysore State Representative Assembly. Growing apprehension about population eventually led to the establishment of three birth control clinics in 1930 in the towns of Bangalore, Mandya and Mysore, making Mysore the first government in the world to establish state-sponsored birth control clinics (Rao, 1983).

Newspapers from 1930, however, claim that there were four birth control clinics. For example, The Glasgow Herald (20 September 1930) notes: ‘... the Government of the Indian State of Mysore... has given official approval to the establishment at the four principal hospitals ... birth control clinics. The innovation is the outcome of the conviction... of the senior surgeon in Mysore – himself an Indian – that facilities for instruction in birth control are ... in the interests of many women in the State’. Although I am unable to say for certain, it is not a stretch of the imagination to posit that these clinics operated within a network of eugenic societies because early 20th century birth control and eugenics in India were virtually inseparable (Nandkarni, 2014). The Indian Eugenics Society, the Sholapur Eugenics Education Society and the Society for the Study and Promotion of Family Hygiene were concerned with bringing eugenic education and birth control to their members (Nandkarni, 2014: 80).

Thus, rather than political change, the threat of famine was dealt with by technocracy, where the state facilitated the husbanding of land by forward-thinking farmers, and the husbanding of women by modern men. As a response to the famine, the Mysore region launched into its techno-pastoral development schemes. The vagaries of nature were tamed; small farmers were exhorted to rationally manage their crops, farm animals and soil; and women’s bodies were to be managed through birth control, where optimal numbers of children, with optimal spacing between births, was to be the centre for family planning.

Demographic deluge

The realization of the techno-pastoral ideal, however, was short lived. India’s independence in 1947 was accompanied by a series of ‘natural’ disasters. Bengal suffered a famine of staggering proportions in 1943 because of England’s war policies (Mukherjee, 2015). There were food shortages in Bihar in 1950 (Siegel, 2016), and India suffered monsoon failures in the early 1960s. US national security officials asserted that food shortages coupled with India’s overpopulation made conditions ripe for the rise of communism in the region. Between 1954 and 1965, India had received $30 billion in agricultural assistance from the USA, underscoring India’s food crisis and also the country’s vital importance for US Cold War policies. Robert Komer, then staff in the National Security Council, asserted: ‘If India goes Communist, it will be a disaster comparable only to the loss of China’ (cited in Ahlberg, 2007: 673). Under the threat of growing communism, Lyndon B. Johnson believed that
'children in poor countries could be a net liability' (Connelly, 2006: 647), and followed a ‘short leash’ protocol, personally approving every shipment of food aid to India on a monthly basis only when certain parameters, including progress on population control, were met (Ahilberg, 2007; Connelly, 2006).

India’s food and population, now a Cold War problem, would be dealt with through technological fixes rather than tackling redistribution. Food production was met through USAID initiatives on grain production, especially wheat and rice, through developing high-yielding varieties through the indefatigable efforts of plant geneticist Norman Borlaug. American agronomist and subsequent Nobel Laureate (Peace Prize, 1970) for his work on high-yielding food grains, Dr. Borlaug began his career by working with the Rockefeller Foundation on increasing maize yields in Mexico. By 1963, 95% of Mexico’s wheat came from seeds developed by him, and the harvest was six times that harvested in 1944 when he had first arrived in Mexico. These new varieties required incentives in cash or in kind (e.g. kitchen utensils). The director of USAID, William S. Gaud, announced in 1968 that these programmes, ‘something like a war’ was unleashed on working class women. The first large-scale effort at desisting sterilization as a form of birth control. From being the cause of India’s demographic deluge and an economic hindrance, the working poor were being transformed into cash cows who would generate foreign exchange for India, and revenue for their families through surrogacy.

Green Revolution interventions were accompanied with population control policies. By the 1960s, with the support of the Population Council, the Ford Foundation and the Rockefeller Foundation, India had instituted the largest state-sponsored family programme in the world (Ledbetter, 1984). Through these programmes, ‘something like a war’ was unleashed on working class women. The first large-scale effort at desisting birth through the provision of intra-uterine devices (IUDs) proved disastrous. In spite of cash incentives, Indian women were unwilling to risk the poor facilities and inadequate training of medical providers that resulted in large numbers of acceptors suffering intense pain, prolonged bleeding, severe pelvic infections, ectopic pregnancies and infertility (Chadney, 1987; Connelly, 2009; Ledbetter, 1984).

By the 1970s, tubal ligation replaced IUDs as the go-to method in population control programmes. The South Indian states of Karnataka and Tamil Nadu were highly successful in providing effective sterilization compared with other Indian states. They accomplished this through coordinating the efforts of the Public Health Department with agencies such as the Revenue Department in setting up sterilization camps. Public health administrators in Bangalore described to me how these camps operated: government-run schools in small towns were converted into temporary medical camps for 50–100 women, who were then bused in from surrounding villages. To increase acceptance rates, women were given incentives in cash or in kind (e.g. kitchen utensils). The women were sterilized serially in temporary operation rooms that were essentially classrooms for schoolchildren. Generators were also busied in to provide the electricity needed in the makeshift operation rooms. After surgery, the women rested at the camp for a couple of days in order to be observed for any complications, and then bused back home. The camps were then disbanded and re-opened elsewhere to access a new group of rural women (Barge and Ramchander, 1999).

In 2005–2006, sterilization accounted for 90% of birth control among married women in Karnataka (Rudrappa, 2015). It seemed that Karnataka’s techno-pastoral development ideal was almost within the realm of possibility. Land and working class women were managed through seemingly apolitical decisions where rationality and science drove action. By 2012, the state had achieved replacement level fertility (Lingaraju and James, 2012: 9). Most of the surrogate mothers I interviewed in 2011 had opted for sterilization as a form of birth control. From being the cause of India’s demographic deluge and an economic hindrance, the working poor were being transformed into cash cows who would generate foreign exchange for India, and revenue for their families through surrogacy.

**Concluding remarks: on necro-economies**

Theorizing on necro-economies, Haskaj (2018) notes that certain phenomena have been excluded from the accumulation of surplus value. One such phenomenon is death because it is the ‘loss of a human who possesses labor power, the very antithesis of living labor’ (2018: 2). However, Haskaj says that, at present, death itself has become a source of value where profits are accrued in killing. Death does not produce commodities, but death is a commodity. I use necro-economies differently from Haskaj (2018), because in surrogacy and sex cell markets, profits accrue while ‘donors’ are still living. Devalorization of certain people’s lives and living labour, I argue, creates conditions where their body parts and bodily processes become accessible for biocapital development. Inspired by Mbembe’s (2003) idea of necropolitics, I ask, under what practical conditions do people become analogous to land, their body parts alienable and subsequently harnessed for development? What does the emergence of markets in kidneys, wombs and ova tell us about the person whose body is harvested? Who are the subjects of such interventions, and who are the beneficiaries? What place is given to the lives of those who are incorporated into these markets in life? Through looking at the 1876–1878 famine, subsequent economic development in the 1930s, and the Cold War policies of the 1950s and 1960s, I map the land–human body insertions into a techno-pastoral imaginary to think through a more expansive notion of reproductive justice by conjugating people and land, both incorporated into southern Karnataka’s bio-economy in very specific ways.

Bangalore’s working class women have, for a few decades now, sought waged work as domestic help in upper middle class homes and small manufacturing firms, notably garment sweatshops (Rudrappa, 2015). However, with the neoliberal Indian state recalibrating its spending priorities and welfare responsibilities, working class women in Bangalore are facing increasingly precarious lives. Jobs are unstable, rents are
exorbitant, and the price of grains and vegetables is high. Under these circumstances, working class women perceive surrogacy as a stop-gap measure to pull them out of precarity.

As social and cultural beings, women in Bangalore have circulated within extended families as daughters, wives and mothers in the gift economies of hierarchical exchange that make up kinship networks. Within these networks, their sexuality and reproductive capacities are strictly regulated. Surrogacy, however, unloads their bodies from patriarchal familial control, and casts them as the sole proprietors of their bodies. Now it is their right to use their uteri as they see fit, which then allows them to ‘rent’ out their wombs. Their bodies disentangled from patriarchal kinship networks, their uterus are further disentangled from themselves in order to enable other types of medical and market entanglements.

Cooper and Waldby call surrogacy a form of ‘clinical labour’, which is the conversion of concrete, bodily, material reality into ‘abstract and temporal imperatives of accumulation ... at the level of the body’ (2014: 12). However, I argue that the women are not perceived as labourers. Through fieldwork in Bangalore, I came to understand how women’s bodies are perversely valorized as natural resources. Once they have birthed their own children that nurture patriarchal kinship networks, their now fallow wombs can be harvested once again for middle class families and markets. Their in-vivo uterus are analogous to alienable land.

Bangalore, at present, is a critical site for India’s bio-economy; almost 40% of India’s capabilities in enzymes, biopharma, bioinformatics, plant genetics and genomics, bioprocessing and bioinstrumentation are located there (Ahuja et al., 2008). Various state–private partnerships animate these facilities, which emphasize collaborative research in stem cell biology with private, academic and state-funded research organizations around the world. In addition, they facilitate the rapid marketization of research through incubation services and seed funds for start-ups and in and around Bangalore. Finally, they work on human embryonic stem cell lines. Two hESC lines, BJNhem19 and BJNhem20, are currently approved for research by the US National Institutes for Health. These hESC lines are jointly owned by state research enterprises and the Bangalore Assisted Conception Centre (BACC), which provided the embryos required for developing the hESC lines. BACC is owned by Dr. Kamini Rao, who provides ART and arranges surrogacy contracts. Many of the women I interviewed in Bangalore in 2011 were recruited for surrogacy arranged through BACC. In 1999, Dr. Kamini Rao set up the International Institute for Training and Research in Reproductive Health for promoting teaching and research in ART with a grant from pharmaceutical giant, Merck. Merck manufactures key fertility drugs such as Folliclim and Pregnyl. In 2017, Dr. Rao’s BACC was the first in India to receive permission from the Indian Council of Medical Research to conduct uterine transplantations.

Coda

I talk to Roopa, who lives in Bangalore, regularly. She is a former surrogate mother, and recruiter of egg providers and surrogate mothers. In our conversations, I learn that the economic circumstances of many of the 70 mothers I interviewed in 2011 have not changed. They still struggle because surrogacy has not made a difference in their lives. Roopa is a single mother; she tries to make enough money to send her daughter to a vocational college with the hopes that her child will have far better economic options than she herself had over the course of her life. In November 2016, the Indian Government declared that commercial surrogacy was illegal. Roopa says that in spite of the ban on commercial surrogacy, some clinics continue to recruit surrogate mothers surreptitiously. She does not recruit surrogate mothers anymore because she has come to believe that such work is dangerous. However, there are agents looking for egg donors, and she is considering becoming a recruiter once again. ‘If there is no surrogacy why do they need so many eggs, akka?’ she quizzes me. I have no answers for her.

References

Ahlberg, K.L., 2007. Machiavelli with a Heart: The Johnson Administration’s Food for Peace Program in India, 1965-66. Dipl. Hist. 31 (4), 665–701 (1965–1966).
Ahuja, M., Armanious, R., Arnaud, E., D’Souza, S., Kanehira, N., 2008. Bangalore Biotech Cluster: An analysis of the competitiveness of the biotechnology cluster in Bangalore and opportunities for its development. http://www.isc.hbs.edu/resources/courses/moc-course-at-harvard/Documents/pdf/student-projects/India_(Bangalore)_Biotech_2008.pdf, Accessed date: 1 January 2018.
Anon. A Madras Civilian. 1877a. A Pamphlet: Towards the History of the Madras Famine. London: W. Ridgeway, 169, Picadilly, W. Anon. ’A Mysore Planter on Indian Famines.’ Saturday Review of Politics, Literature, Science, and Art; London. 44 (1533, Dec 1 1877b): 677–678.
Barge, S., Ramchander, L., 1999. Provider and Clients Interactions in Primary Health Care: A Case Study from Madhya Pradesh. In: Koening, Michael A., Khan, M.E. (Eds.), Improving Quality of Care in India’s Family Welfare Programme: The Challenge Ahead. Population Council, New York, pp. 92–116.
Bharadwaj, A., 2017. ‘The ‘red revolution’ of stem cell technologies in India. http://graduateinstitute.ch/home/research/research-news.html//_news/research/2017/the-red-revolution-of-stem-cell.
Bharadwaj, A., Glasner, P., 2009. Local Cells, Global Science: The Rise of Embryonic Stem Cell Research in India. Routledge.
Chadney, J.G., 1987. Family Planning: India’s Achillies’ Heel? J. Asian Afr. Stud. 22 (3–4), 218–231.
Connelly, M., 2006. Population Control in India: Prologue to the Emergency Period. Popul. Dev. Rev. 32 (4), 639–667.
Connelly, M., 2009. Fatal Misconception: The Struggle to Control World Population. Harvard University Press, Cambridge, p. 2009.
Cooper, M., Waldby, C., 2014. Clinical Labor: Tissue Donors and Research Subjects in the Global Bioeconomy. Duke University Press, Durham: NC.
Davis, M., 2001. Late Victorian Holocausts: El Niño Famines and the Making of the Third World. Verso, London.
Dickey, S., 2000. Permeable Homes: Domestic Service, Household Space, and the Vulnerability of Class Boundaries in Urban India. Am. Ethnol. 27 (2), 462–489.
Digby, W., 1878. The Famine Campaign in Southern India: Madras and Bombay Presidencies and province of Mysore, 1876–1878, Volume 1 and 2. Longmans, Green and Co., London.
Franklin, S., 2006. The Cyborg Embryo: Our Path to Transbiology. Theory Cult. Soc. 23 (7–8), 167–187.
Franklin, S., 2007. Dolly Mixtures: The Remaking of Genealogy. Duke University Press, Durham: NC.
Goffman, E., 1961. Asylums: Essays on the Social Situation of Mental Patients and Other Inmates. Anchor Books, NY.
Goodall, F., 1888. The Mysore Famine of 1876-78. Calcutta Rev. 87 (174), 261–277.
Gowda, C. 2017. ‘Farmers in the Modern Imagination,’ Bangalore Mirror Nov 28, 2017. http://bangaloremirror.indiatimes.com/opinion/views/Farmers-in-the-modern-imagination/articleshow/61826057.cms. Accessed on February 6, 2018.
Hall-Matthews, D., 2008. Inaccurate Conceptions: Disputed Measures of Nutritional Needs and Famine Deaths in Colonial India. Mod. Asian Stud. 42 (6), 1189–1212.
Haskaj, F., 2018. From Biopower to Necroeconomies: Neoliberalism, Biopower, and Death Economies. Philos. Soc. Crit. 20 (10), 1–21.
Krolakke, C.H., Pant, S., 2012. I only need her uterus: Neo-liberal Discourses on Transnational Surrogacy. Nord. J. Women’s Stud. 20 (4), 233–248.
Ledbetter, R., July 1984. Thirty Years of Family Planning in India. Asian Surv. 24 (7), 736–758.
Lingaraju, M., James, K.S., 2012. Fertility Transition in Karnataka: Differentials and Determinants. J. Fam. Welf. 58 (2), 9–24.
Mbembe, A., 2003. Necropolitics. Publ. Cult. 15 (1), 11–40.
Mittal, S., 2013. Stem Cell Research: The India Perspective. Perspect. Clin. Res. 4 (1), 105–107 (Jan-Mar).
Mukherjee, J., 2015. Hungry Bengal: War, Famine, and the End of Empire. Oxford University Press.
Nair, J., 2008. Imperial Reason, National Honour, and New Patriarchal Compacts in early-20thcentury India. Hist. Work. J. 66 (1), 208–226.
Nandkarni, A., 2014. Eugenic Feminism: Reproductive Nationalism in the United States and India. University of Minnesota Press, Minneapolis, MN.

Pande, A., 2010. Commercial surrogacy in India: Manufacturing a Perfect Mother-Worker. Signs 35 (4), 969–992.
Pande, A., 2014. Wombs in Labor: Transnational Commercial Surrogacy in India. Columbia University Press.
Rao, S., 1983. Karnataka: Pioneer in Family Planning. Yojana 26-27 (1–2), 39–40.
Rudrappa, S., 2015. Discounted Life: The Price of Global Surrogacy in India. New York University Press, New York, NY.
Siegel, B., 2016. Self-Help which Ennobles a Nation: Development, citizenship, and the obligations of eating in India’s austerity years. Mod. Asian Stud. 50 (3), 975–1018.
Sreenivas, M., 2015. Birth Control in the Shadow of Empire: The Trials of Annie Besant, 1877–1878. Fem. Stud. 41 (3), 509–537.
Visvesvaraya, M. 1951. Memoirs of My Working Life. Printed by F. Burton for G. Clardige &Co., Ltd., at the Caxton Works, Frere Road, Port Bombay and published by M. Visvesvaraya, High Grounds, Bangalore.
Vora, K., 2009. Indian transnational surrogacy and the commodification of vital energy. Subjectivity 28 (1), 266–278.
Vora, K., 2015. Life Support: Biocapital and the New History of Outsourced Labor. University of Minnesota Press, Minneapolis, MN.
Waldby, C., Mitchell, R., 2006. Blood, Organs, and Cell Lines in Late Capitalism. Duke University Press, Durham: NC.

Declaration: The author reports no financial or commercial conflicts of interest.

Received 8 December 2017; refereed 23 November 2018; accepted 7 December 2018; online publication 28 December 2018.