

GREEN JOBS: AN ALTERNATIVE TO NEOLIBERALISM?
RECYCLING IN BUENOS AIRES, ARGENTINA AND TORONTO, CANADA

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Abstract

In recent years, environmental organizations and labour unions have begun to more seriously campaign for the promotion of green jobs as a way to address the twin problems of climate change and economic stagnation, particularly in the aftermath of the financial crisis of 2008. They variously suggest that green jobs will be created through increased investment in ‘green’ sectors; for some, this requires public investment and the adoption of a Green New Deal (GND) policy orientation, while for others this requires only increased private investment in green industries. The former emphasize that since green sectors are more labour-intensive than traditional industries, investment in green infrastructure could thus generate comparatively more employment per dollar invested. At the heart of these proposals is the proposition that capitalist economic growth could be made consistent with social and ecological justice.

This dissertation is a critical engagement with the propositions of the green jobs campaign through the concrete examination of two diverse cases of residential (i.e. post-consumer) recycling, a quintessentially ‘green’ sector, in Buenos Aires and Toronto. Defining recycling as the (global) production of value from waste, the analysis pays particular attention to both the labour process and historical development of recycling. Through a combination of qualitative document analysis, archival research, and qualitative interviews, this thesis argues that purely market-coordinated recycling is not able to simultaneously deliver large-scale employment creation and improved socio-ecological outcomes because of the inherent tension between labour intensiveness and methods of increasing productivity. This tension, in turn, is rooted in the distributive conflict characteristic of capitalist production, the resolution of which requires increased economic growth. From an ecological perspective, then, this is simply a deferment of the problem.

In line with proponents of the Green New Deal, this dissertation argues that mediation of this tension in a direction favourable to both ecological and social concerns requires collective intervention. However, going beyond the Green New Deal, it concludes that commitment to social and ecological justice requires moving in the direction of decommodified, cooperative production and collective consumption.

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Introduction

At the beginning of March 2016, for the first time in recorded history, the average temperature in the Northern Hemisphere briefly rose above the 2 degrees Celsius over the ‘normal’ threshold that climate scientists have been warning cannot be permanently breached without irreversible and devastating consequences (Holthaus, 2016). It would be an understatement to assert that anthropogenic climate change, as the most obvious and serious symptom of a dysfunctional relationship with our natural habitat, stands as the defining issue of our generation. Despite the now long-standing scientific consensus, precious little has been done to address the situation.

The financial crisis that blanketed the globe in 2008, however, brought together a new initiative at the international level to propose a joint solution to the environmental and economic crises at hand, representing a collaborative effort between trade unions and environmental organizations. Given the necessity of applying fiscal stimulus across the globe, particularly amongst G20 nations, to stop the economic freefall and skyrocketing unemployment, labour and environmental groups sought to ensure that this stimulus would be directed towards a ‘Green New Deal’ (GND) to reduce greenhouse gas emissions and create ‘green’ jobs.¹ At the heart of these proposals lay the contention that economic growth could be made compatible with ecological sustainability while promoting employment creation.

This dissertation is a critical engagement with specific propositions of the green jobs program, and by extension, a critical engagement with broader debates about capitalism and the

¹ The ‘Green New Deal’ refers to a set of policies modelled explicitly after the New Deal policies implemented in the United States in the 1930s, but with the addition of an emphasis on environmental outcomes and policies. Chapter 2 will elaborate more on this concept.

environment. It is a critique of ‘green capitalism’. My contention is that the commitment to capitalist growth and private enterprise found in the green jobs paradigm, whether implicit or explicit, is self-defeating of the laudable goal to create a sustainable and just world. This is because, as I will show, the anti- social and ecological tendencies of capitalist production (i.e. the addiction to growth, the impulse to externalize costs) are rooted in the distributional conflict that obtains in the capitalist workplace as a result of the competitive drive to amass profits. Above all, it is my contention that the ‘environment’ – rather than a thing or issue separate from and outside of us, outside of the economy – is a crucial arena of distribution *within* our economic relations that materially makes life possible. By distribution, I refer broadly not only to ‘goods’, in terms of income, appropriations of nature, or other not strictly economic benefits flowing from productive activities, but also the ‘bads’ like pollution, degraded habitats, dispossession, and the like. Environmental policies are not just about trees and non-human nature (though these are important!): they are also about politics and power.

Environmentalists are often told that to be effective, that if they want to ‘save the trees’, they must pay more attention to economics (Igoe, Neves & Brockington, 2010). But of course, those who dispense such advice never really mean for environmentalists to pay attention to radical political economy! Inevitably, they mean for environmentalists to accommodate themselves to the neoliberal economics of free trade, to ‘more markets’ and ‘less rules’ (of a certain kind) as the only practical way forward. Yet to the extent that the environmental movement has acquiesced to this demand towards a ‘neoliberal turn’ (McCarthy & Prudham, 2004; Mansfield, 2004; Bailey & Wilson, 2009; Gareau & Dupuis, 2009), of which the promotion of individual ethical consumption (Muhammad, 2016; Carrier, 2010; Hawkins, 2011) is but the tip of the iceberg, it has also unwittingly acquiesced to the normative and ethical

framework, power relations, and patterns of production that underpin capitalist social relations. This dissertation is, first and foremost, a reply to and a many-sided critique of this market-based approach to ecological issues, of which the ‘green jobs’ project is but one of its newest incarnations. In doing so, I add my voice to a growing chorus of critical scholarship on green capitalism and the neoliberalization of nature (Fairhead, Leach & Scoones, 2012; Prudham, 2009; Corson & MacDonald, 2012; Büscher, Sullivan, Neves, Igoe & Brockington, 2012; McAfee, 1999).

However, while this scholarship tends to focus on the governance and discursive aspects of green capitalism, my thesis focuses relatively more on labour processes and the production of value within green capitalism, placing questions of politics, power, inequality and class struggle more explicitly within ecological projects and at the centre of analysis.² The question, then, is not simply: Can capitalism be compatible with nature? Does market-based governance work? But also: At whose expense? With what effects?

This thesis is neither purely a comparative project of labour markets in recycling, a historical exposition of the development of modern recycling, nor an investigation of global chains of value in waste. Rather, it is an engagement with all of these things, rooted in an analysis of the production of value from waste, to arrive at a many-sided socio-ecological critique and engagement with ‘green capitalism’. In anchoring my critique of green capitalism on

² In this respect, in contrast to theses of the ‘neoliberalization of nature’ that understand neoliberalism as simply “one possible ‘shell’ for the capitalist mode of production” that is “about conservation *and* its two antitheses of destroying existing and creating new biophysical resources” (Castree, 2008, p. 146, 150), I locate neoliberalism as a particular class project of capital accumulation (Panitch & Gindin, 2012; Harvey, 2005; Gill, 2011, 1991). Insofar as it is a project of capital accumulation, it is neither essentially ‘about’ the conservation nor the degradation of nature, these being means through which capital accumulation occurs rather than its ‘goal’. And insofar as it is a class project, it is not just a ‘shell’ that just happens to be in vogue, but the result of sustained political mobilization and class struggle (albeit from ‘above’).

the subject of green jobs in waste and recycling, within definite sectors (post-consumer residential recycling) and localities (Toronto and Buenos Aires), I am also consciously grounding my analysis in a more concrete level of abstraction than is typical of many works of ecological political economy (Foster, 2010, 2000; Burkett, 2006, 1999; Kovel, 2007; Moore, 2015).³

In other words, I focus on green jobs, in part, as a way of anchoring the discussion of political ecology and ecosocialism within the real concrete of proposals that are forwarded rather than conducting the conversation at a high level of abstraction. Indeed, given that the GND or the ‘green jobs’ project is posited as a global project and also as a ‘universal’ set of policy prescriptions, it is all the more necessary to interrogate what its propositions and prescriptions really mean and whether they make sense in concrete, divergent contexts (for a more detailed discussion of method, refer to Appendix A).

Why Waste?

By virtue of being a process that deals with the transformation of wastes into productive inputs, recycling occupies a strategic place in efforts to render capitalist production sustainable, promising to keep production in a forever ‘closed’ loop. In many ways, recycling has become one of the most quintessentially ‘green’ industries, with participation in recycling programs widely seen as a basic litmus test of modern, environmentally-friendly behaviour. In this respect,

³ In drawing this contrast, I do not wish to imply that there is anything inappropriate with engaging at this level of abstraction; indeed, my own work is deeply indebted to these prior theoretical engagements. However, I also concur with James McCarthy and Scott Prudham (2004) that historico-geographically specific engagements with neoliberalism and nature are necessary and fruitful, not least because neoliberal discourse continually asserts itself as a timeless, placeless, and abstract truth.

investigating the socio-ecological conditions and effects of recycling is a particularly fruitful way of interrogating the adequacy of a market-based, green jobs approach to waste management.⁴

A ‘closed loop’?

Catharine Alexander and Joshua Reno (2012, p. 5) note that an interesting aspect of “contemporary recycling discourse is the extent to which the *idea* of a perfect cycle is taken for reality. Material recycling necessarily involves physical degradation and uses energy to make things into other things.” They highlight, therefore, that not only can materials not be infinitely recycled, but also that the process of recycling itself is productive of wastes. Scrap journalist Adam Minter (2013) similarly concedes that recycling is just a way of ‘keeping the garbage man away’ for a little while longer. In this respect, they show that recycling is perhaps better understood as a form of partial temporal and geographical deferment of the problem of waste rather than a kind of final accounting. Regardless of its actual efficacy in dealing adequately with waste, however, Maarten de Kadt (1999) observes that focusing on recycling as an individual problem of the household serves to shift responsibility away from waste as a problem of production.

Indeed, as a particular way of framing the problem of the overproduction of waste, recycling has, in many places, arguably become hegemonic in a properly Gramscian sense, in that it has truly trickled down into the pores, habits, and morality – i.e., the common sense – of everyday life. This is so to the extent that we can now speak of the household separation of

⁴ David Pellow, Allan Schnaiberg, and Adam Weinberg (2000) make a similar case when they evaluate the claims of ecological modernization through an empirical case study of the labour processes of recycling in Chicago. Post-consumer recycling, in their view, should have been an “ideal case” of ecological modernization, yet a close examination of post-consumer recycling in Chicago instead revealed the inadequacies of ecological modernization theory (p. 110).

wastes as having gained currency as a ‘moral economy’ (Wheeler and Glucksmann, 2015), as a material force underpinning the commodification (and continued production) of waste. In this respect, the promotion of recycling as an individual responsibility dovetails quite nicely with the reliance on ethical consumption in formulations of ‘green capitalism’.

Entering the Hidden Abode of Production

In an extensive overview of the literature on waste, Nicky Gregson and Mike Crang (2015) observe that research on wastes in the Global North overwhelmingly focus on environmental psychology (i.e. what leads households or firms to engage in recycling?), while waste research in the Global South tends to focus on ‘waste-picking’ as a crisis of urban waste governance. In some sense, then, this research posits recycling in these different spaces as incomparable, involving entirely different sets of issues, logics, and contexts. Even those who do make a comparison between the ‘North’ and the ‘South’, like Kathryn Wheeler and Miriam Glucksmann (2015), do so to highlight the distinctiveness of the waste economy in the ‘North’.⁵ However, without denying the specificities of recycling in these different spaces, it is also true that the global market in scrap materials already posits recycling in the ‘North’ and the ‘South’ as directly comparable. Though the labour processes and the contexts within which recycling occurs differ significantly, they are nonetheless made to compete with one another on the market.

This dissertation attempts to bridge the gap, then, by centering the analysis on its point of convergence: that is, on the production of value from waste, or on recycling as the *capitalist*

⁵ Perhaps because of their insistence that waste management is “radically different” in the Global South, Wheeler and Glucksmann (2015, pp. 141, 191) also come to a curious position in their analysis where the task of bringing wastes to the curbside is considered as consumption work in England and Sweden (as ‘distribution work’ – this is also the basis on which they claim that men are often also responsible for the consumption work of recycling), whereas this same activity “can hardly be considered ‘work’” in India.

commodification of waste – as a social relation, as a pattern of production, as a chain of value, as a particular production of nature, and as a labour process grounded in time and space. I insist, furthermore, that the commodification of waste entails *two* moments: that of the production of waste, and that of its subsequent commodification. In this way, I extend the analysis beyond the investigation of individual labour processes of recycling at particular moments in time (Gregson, Crang, Botticello, Calestani, & Krzywoszynska, 2014; Wheeler & Glucksmann, 2015; Pellow et al., 2000) and inquire also into the realm of the systematic production of waste. More importantly, I show how the two are linked. At the same time, in defining recycling in these terms, i.e., as a specifically capitalist production process, I am also giving it a much more restrictive meaning than is often applied – for instance, when recycling is understood simply as “the transformation of matter” (Alexander & Reno, 2012, p. 11) – thus highlighting the very specific characteristics and dynamics that the transformation of waste acquires as a result of its capitalist commodification.

In focusing on the concrete labour processes of recycling, like Alexander and Reno (2012) and Gregson et al (2014), I seek to divest recycling of its inherently ‘clean’ and ‘green’ reputation.⁶ For if the labour process of recycling is, in actuality, such hazardous work, how can we say that it is an equally socially and ecologically beneficial solution to waste reduction?

Furthermore, in locating recycling as a (global) process of capitalist production and accumulation from a Marxian perspective, I also emphasize its unequal nature. For scholars like Alexander and Reno (2012) or Gregson and Crang (2015), the global trade in wastes at times seems to have a kind of leveling effect, effacing old hierarchies and complicating traditional distinctions:

⁶ Indeed, Gregson et al (2014) are quick to remind us that recycling – even in the European Union – is ‘dirty work’, performed by migrant labour under unequal conditions.

Because of improvements in global transport and the rising costs of environmental compliance, it is often more cost effective to dump or recycle waste products in places with less severe environmental and labour regulations. The discards of wealthier countries do more than pollute other places, however; they enter subsidiary markets, create employment and provide materials for construction booms...By tracking these various flows and revealing what happens on the ground, the stories we often hear about the global economy, that it can be divided up into winners and losers, gains and losses, producers and consumers, become untenable. In their place, we offer accounts of global economies of recycling - patchy, tenuous and wondrously creative - that defy simple moral narratives. (Alexander & Reno, 2012, pp. 1-2)

From a Marxian perspective, however, that there are ‘global economies of recycling’ does not neatly replace concepts of inequality and exploitation in the world market. Indeed, global value chains or production networks are also vehicles for the extraction of surplus value (Selwyn, 2013). The issue, in other words, is not the moral status of a particular trade, but the fact that capitalist economies are always based on and generative of ‘winners’ and ‘losers’. The production of (capitalist) value is not just about ‘creating jobs and growing the economy’ (presumably the basis on which global recycling gains its legitimacy versus simple dumping); the production of value is also fundamentally a relationship of inequality.

If easy narratives of dumping are troubled by the reality of Chinese recyclers outbidding their competitors in determining waste flows for these authors, it is also useful to remind ourselves that their competitiveness is founded on the basis of the exploitative working conditions of their workers and their environments. Chinese capitalists may not be ‘losers’ in the trade, but their gains are most certainly made at the expense of those in their employ, be they sorting workers ‘at home’, or informal recycling collectors working piece-rates on a continent far away.⁷ Indeed, as I will show in Chapter 4, informal waste workers in Buenos Aires, though

⁷ The presence of value-added manufacturing in the Global South with wastes (i.e. raw materials) exported from the Global North is not necessarily an indication of the absence of unequal exchange (i.e. there are no ‘losers’ in the global economy), insofar as global finance has become a locus of surplus extraction from the manufacturing sector. In this respect, the rise of

asserting their right to carry out their trade, nonetheless unambiguously place themselves on the side of the ‘losers’ in their struggles to obtain better working conditions.

From Landfills to Green Jobs?

As a market-based activity, recycling, or the capitalist commodification of waste, is not new. Although scholars of waste have tended to treat municipal recycling as a relatively new phenomenon, insisting that “until very recently, recycling, recycled products and secondary materials recovery did not figure prominently within the economies of the global North” (Gregson, Watkins, & Calestani, 2013, p. 2), I stress in Chapter 5, along with Susan Strasser (1999) and to some extent Martin Melosi (2005), that waste segregation and recycling has had a long history even in the ‘Global North’, ‘figuring prominently’ during earlier processes of industrialization in the 19th century.⁸

In light of this history, I contend that what is peculiar is not the ‘rise’ of recycling, but in fact the ‘one-bag’ method of waste disposal (without separation or recycling). This method of waste disposal and relationship with waste that does not seek to recover any value from discarded items arises out of a particular political economy, that is, a particular geography, strategy, and relations of capitalist accumulation, at a particular state of technology in time – in short, it arises with the consolidation of Fordism/Keynesianism, or the ‘affluent society’.⁹ It

manufacturing in the Global South is not so much a straightforward rejection of hierarchy in the global economy as a reconfiguration of the means of surplus extraction and the dominant strategies and patterns of capital accumulation on a global scale. Inequality and exploitation, therefore, is reconfigured rather than erased.

⁸ What is, indeed, new, as Wheeler and Glucksmann (2015) suggest, is the emergence of a ‘moral economy’ of recycling tied specifically to ideas of environmental responsibility.

⁹ Indeed, the end of waste segregation and the shift to the one-bag method of waste disposal in Toronto coincides with Betsy Donald’s (2002) ‘full-swing Fordism’ period of urban governance in the city.

depends, on the one hand, on the extensive (also, expansionary) appropriation of human and non-human natures, including the treatment of nature (along with the people in it) as a sink in the establishment of waste disposal facilities. On the other hand, the possibility of simply burying or burning all unwanted items also presupposes increases in productivity in all branches of production, making ‘waste disposal’ without recovery the relatively more efficient thing to do in capitalist calculations.

In this way, the viability and expansion of the commodification of waste as a *branch of capitalist production* is tied to a number of factors that include productivity, wage, and unemployment levels (i.e. because this is usually not preferred work) within a particular economy as a whole, as well as the strength of secondary materials markets (now increasingly on a global scale). Labour-intensive, purely market-based recycling becomes a lucrative branch of capitalist production, therefore, where official unemployment levels are high and wages are low. Indeed, Martin Medina (2000) notes that informal recycling is one of the most important sources of informal employment in the world. Insofar as recycling and waste work is typically understood as dirty and undesirable work, the examination of the dynamics and extent of market-based recycling is also an interesting way of understanding how capitalist accumulation and labour markets are constituted in particular concrete, historical situations.

The Fordist-Keynesian compromise articulated a very powerful vision of human development, promising to increase economic well-being, social cohesion, and democracy within capitalist relations – in short, an apparent revolution without blood (or at least ‘our’ blood). We are still struggling with its death, even if in reality this promise never reached most of the population on the globe, even in the ‘rich’ countries. And in writing its obituary, let us not commit the common urge to gloss over its faults and catastrophes as appears required of

politeness. Instead, we need to acknowledge and interrogate the ways that this powerful vision was premised upon alienation at work and an incredibly wasteful, callous, and destructive mode of relating to our natural habitat. In the search of a vision appropriate to our times, therefore, let us not be limited to ruing what has been lost by seeking its wholesale revival, but rather endeavour to replace it with something better. This dissertation is a contribution towards this task.

The Argument

The main point of entry of this thesis into the discussion of green work is through the examination of waste and the labour processes of residential recycling in Buenos Aires, Argentina and Toronto, Canada. The investigation involves a combination of literature review, archival research, and qualitative interviews in Buenos Aires and Toronto (for a more detailed discussion of methodology, refer to Appendix A). The main theoretical questions of this investigation are: (a) In what way does the capitalist organization of production and the neoliberal context affect the labour processes found in these ‘green’ jobs?; (b) What can this tell us about the opportunities and limits of green capitalism, in both its Keynesian (state-centred) and neoliberal (market-centred) forms? Here, the case studies serve as the material – in Marxian categories, the real-concrete – through which the thinking and theorizing of this dissertation is done.

The findings of the thesis are twofold. First, both historically and in the present, where residential recycling is coordinated purely through the market – in Buenos Aires, this was for most of its history up until very recently, and in Toronto this was the case before the 1950s – it

does not happen comprehensively except on the basis of exploitative working conditions.¹⁰ This state of affairs is, in turn, related to the conditions of production of value in the sector, in particular the labour-intensive nature of the collection process. In both cases, the viability of a comprehensive residential recycling program as well as improved working conditions required some degree of *decommodification* and *continuous socialization* of costs. This, I maintain, is so in large measure because of the tensions between the socio-ecological foundations of productivity (i.e. mechanization), working conditions, and job creation in capitalist production. In other words, collective investment and state involvement are indeed necessary for green job creation as proponents of green jobs suggest; however, this support extends well beyond initial investments.

Second, attention to the long historical trajectory of recycling (particularly in Chapters 3 and 5) demonstrates that it is not recycling that is a new phenomenon, but rather the extended production of waste as a condition of economic production that is relatively new. Indeed, contrary to popular environmental common sense, there is nothing ‘revolutionary’ about recycling. On the contrary, insofar as comprehensive residential recycling is proffered as an alternative to more serious waste reduction initiatives, it has served primarily to quell public concern over the effects of waste production. To the extent that the viability of recycling is inextricably bound to conventional economic growth and production, it is a woefully inadequate response to the extended production of waste in capitalist society. It is here that we also begin to see the ecological contradictions of a ‘green’ Keynesian project.

¹⁰ The history of peddling, recycling, and waste management in Buenos Aires bears remarkable similarities to that of Toronto and New York. For this reason, it has been omitted from Chapter 4 in favour of a focus on current forms of market-based recycling. For pertinent historical and anthropological work on the subject, refer to: Prignano (2008); Schamber (2008); Suárez (2010).

Recycling and Neoliberal Restructuring

The recent resurgence of residential recycling in Buenos Aires and Toronto has been tied up with neoliberal restructuring in different and complex ways. Although recycling has had a long trajectory of being a market-based activity, it was at its lowest ebb at the height of the social democratic, Keynesian ‘golden age’. When full employment was an economic objective and social safety nets were being built, the number of workers willing to work under such exploitative conditions in the waste sector dropped considerably. With increasingly cheaper primary substitutes, what once was recycled went instead to landfill. In Argentina, where a crushing military dictatorship first paved the road to a dramatic, full-scale neoliberal revolution and ensured ample landfill space near Buenos Aires by force, recycling re-emerged in full swing at the turn of the new millennium as an *economic* response to a social crisis. The severe social dislocation engendered by neoliberal restructuring created a mass of workers willing to accept the exploitative conditions of work found in informal recycling as a means of economic survival.

In Toronto, residential recycling re-emerged and consolidated as a result of a growing crisis of waste disposal as well as neoliberal restructuring in the Ontario soft drink industry in the 1990s. However, as the roll-back of social democratic reforms characteristic of neoliberal development occurred comparatively in a more gradual manner in Canada, the nascent recycling program had to accommodate itself to the institutional restrictions still held onto by workers and proceeded on the basis of partial decommodification.

Yet, by the time this research began, their paths diverged again. In Buenos Aires, it is precisely the struggle against neoliberal conditions over the last decade that has led to some level of decommodification of recycling work. In contrast, in Toronto the previously decommodified work is being increasingly subject to privatization and commercialization within the rubric of the

“competitive city” (Kipfer & Keil, 2002).¹¹ I retain, then, ‘neoliberalism’ as an analytical category because, as I will demonstrate, the changing relationship with neoliberal mores, which is itself mediated by institutional context and political struggle, has a bearing on the labour process of work in recycling – in other words, on the real, lived experience of work. Indeed, much of this history in recycling does not sit favourably with neoliberal claims that market-regulated production does not harm working conditions.

Issues of work intensification and deterioration of working conditions have been long-standing complaints regarding privatization. As early as 1897, striking garbage workers (who doubled as waste sorters) in Buenos Aires charged in an open letter to the press and general public that working conditions had become “inhumane” following the privatization of the municipal dumpsite. Their complaints included: the reduction of daily wages by one-quarter, the reduction of workers at the dumpsite by two-thirds, and the introduction of a new system of monetary fines (worth more than the daily wage) for not meeting quotas set out for sorting different types of recyclables. All of this resulted in an increased workload and the lengthening of the workday up to 14 hours (Schamber, 2008, p. 44). These concerns about work intensification and deteriorating working conditions associated with the privatization of public services expressed so long ago are sadly still relevant today.

Neoliberal Restructuring and Exclusion in the City

Scholarship on the politics of urban restructuring, exclusion, and difference in Toronto has tended not to focus specifically on waste work (Rankin & McLean, 2015; Skaburskis &

¹¹ Karen Bakker (2005) makes a useful distinction between privatization and commercialization, with the latter denoting increasing subjection to principles of cost-benefit analysis and competition, etc. without necessarily transferring public or collective ownership to a single private entity.

Nelson, 2014; August, 2014; Gibson-Wood & Wakefield, 2013; Hackworth, 2008; Teeluksingh, 2007; Goonewardena & Kipfer, 2005; Slater, 2004; Kipfer & Keil, 2002; Keil, 2002; Fanelli, 2014 is a partial exception). The bulk of this work tends to examine processes of exclusion and racialization in Toronto in relation to the urban form and participation, as exemplified in gentrification, changes in policing, etc. that reconfigure and re-imagine the city as a space for (global) capital investment, the urban middle classes, and intellectual elites, though without Richard Florida's (2002) celebratory tone. Work on urban political ecology and its relationship to capitalist accumulation in Toronto similarly tend to focus on how these dynamics work to produce the physical, urban environment, particularly in relation to the waterfront (Desfor & Vesalon, 2008; Hartmann, 1999).¹²

The limited scholarship on waste and recycling in Toronto tends to approach the subject from the perspective of public administration (Mueller, 2013; McDavid & Mueller, 2008; Noehammer & Byer, 1997), environmental psychology/behaviour (Scott, 1999; Berger, 1997; Taylor & Todd, 1995), or tends to be technical in nature (Forkes, 2007; Sahely, Dudding & Kennedy, 2003). While this reflects the fact that work with wastes does not form a main mode of exclusion in the city, since much of this work takes place within the public sector, it should be noted that informal work with recyclable wastes (i.e. dumpster diving, collection of returnable bottles) *does* exist in the city, and *is* largely performed by those with few other economic means. However, this kind of informal work exists on a very limited scale in comparison to the universe of waste work in Toronto. On the whole, then, the restructuring of work in waste and recycling

¹² Though these works do explore how wastes have contributed to the development of the waterfront, principally with reference to the historical use of these areas as landfill, wastes and waste work, as such, are not their principal focus.

tend to be subsumed under studies of the restructuring of public services in the city more generally (Fanelli, 2014).

Earlier work on urban restructuring and globalization in Buenos Aires similarly have tended not to focus on waste work, instead analyzing the fragmentation of the urban form and social exclusion in the era of neoliberal restructuring through processes of privatization and the rise of exclusive shopping malls, gated communities and other forms of privatized infrastructure dedicated to servicing wealthier sections of the city (Saraví, 2004; Pérez, 2002; Schapira, 2001; Torres, 2001; Ciccolella, 1999). North American scholarship on the *cartonero* phenomenon and the urban in Buenos Aires have tended to focus on how discursive framings – of the urban as a modern and hygienic space, of public space as a particular kind of regulated, gentrified space with a limited set of legitimate uses, or of waste as something with no value that belongs elsewhere – structure social space to exclude waste workers as ‘not belonging’ in the city (Parizeau, 2015; Whitson, 2011). The focus, therefore, is on concepts of place and citizenship, and the contradictory, exclusionary, and unequal nature of the urban.

Waste work in Buenos Aires has predominantly been approached from the disciplinary lens of anthropology. And though many Argentine scholars approach waste workers from the vantage point of social exclusion, marginalization, informality, and social vulnerability, they do so not so much through the lens of place-based citizenship or by privileging the ‘urban’, per se. Rather, they tend to locate social exclusion more explicitly in relation to macroeconomic structural adjustment, neoliberal development strategies and social economic policies beyond the scale of the city (Mesa, 2010; Paiva, 2008; Escliar, Lazarini, Rodríguez, & Rodríguez, 2007; Anguita, 2003). Mariano Perelman (2011), for instance, suggests that the breakdown of and shift away from Peronism at the national level changes the city from being a space of prosperity and

integration into a space of inequality and differentiation under neoliberalism that have had significant implications for the formation of individual and social identities of *cartoneros*.

In contrast, in this dissertation, I emphasize, along with scholars like Pablo Schamber and Francisco Suárez (2002), as well as Kathleen Millar (2012), that informal waste workers form part of a particular *chain of value*, and following Chris Birkbeck (1978; 1979), I contend that they are better understood as industrial workers working for piece-wages, even though they are not formally employed. From this point of view, waste workers have been *included* into the formal economy from the beginning; however, they have been included on extremely exploitative and stigmatized terms. The problem, then, in Buenos Aires as in Toronto, is not one of exclusion from the city, but in different degrees one of exploitation within the globalized, competitive city.¹³

Organization of the Dissertation

This dissertation is organized into two main sections: the first section lays out a range of theoretical debates regarding work, the environment, and waste that form the *problématique* of this study, and the second section focuses more sharply on the case studies at hand.

Chapter 1 situates the green jobs debate within wider debates about the environment, locating it within the ecological modernization perspective. In this chapter, I argue that the rise of ecological modernization and market ecology as dominant theoretical perspectives today signalled a departure from earlier forms of environmentalism that were more radical in nature

¹³ This is not meant to deny, however, that Argentine waste workers may nonetheless subjectively experience this as social exclusion and consider waste work as not “real work”. As Perelman (2007) points out, Argentine workers in particular may also attribute a host of positive attributes and meanings to paid work in the formal sphere, particularly since formal waged work has historically been the main institution for social integration.

and that persistently asked critical questions regarding the purpose of economic production and what it means to live a ‘good life’. Reclaiming some of these concerns characteristic of the early environmental movement, I advance an alternative ecological Marxist approach that integrates questions of environmental and social justice in its critique of capitalist production by foregrounding the transformative nature of work and labour. From this perspective, I place additional emphasis on an important distinction to be made between (capitalist) value and wealth.

Through a review of key documents and reports published by trade unions, environmental organizations, and international organizations, **Chapter 2** reviews the specific propositions characteristic of the green Keynesian push for ‘green jobs’ and a ‘Green New Deal’ that form the subject of this dissertation. I focus on two key documents released by the United Nations Environment Programme, which I argue represents a shift from a green jobs paradigm to the more neoliberal one of ‘green growth’. In particular, I critically engage with the propositions that ecological sustainability and social justice can be achieved through investment in labour-intensive, ‘green’ capitalist industries and through the use of market-based instruments.

Chapter 3 focuses more thematically on the question of waste and advances a conception of recycling as the capitalist commodification of waste. I highlight how recycling, as differentiated from other forms of reuse and understood as the systematic commodification of waste to be used as a raw material input, is a capitalist *production* process that is increasingly globalized. In this respect, the dynamics of value production inform the organization of the labour process in recycling, which is itself increasingly informed by competition on a global scale and tied up with the fortunes of global capitalist production more generally (though not in a direct, unmediated manner). Furthermore, I argue that the production of waste is not simply an

individual but a *social* phenomenon that is tightly bound to dominant, gendered forms of economic development and its divisions of labour and time.

Chapter 4 carries on these conversations through an examination of recent struggles around informal recycling work in Buenos Aires, paying particular attention to the way in which labour processes characteristic of this work are structured by market imperatives, especially through the use of piece-wages. Here, it becomes clear that informal recycling, as an example of ‘green’ work coordinated entirely through the ‘normal functioning’ of the market, produces demonstrably socially unjust outcomes. However, as the *cartonero* movement (i.e. the informal recycling workers) is itself quick to point out, the alternative market strategy to coordinate recycling under the auspices of large-scale capital in highly-mechanized sorting plants is a no more socially just outcome given that it would put thousands of the most marginalized workers out of work. This contradiction, I argue, is reflective of the tension between productivity and labour intensity in capitalist production. The state emerges as a crucial arena of struggle in mediating this tension, and doing so in a direction that is more socially just requires collective intervention to partially alleviate the imperatives of market competition.

Chapter 5 continues to explore this tension through an examination of the market-based labour processes of recycling prevalent before the Second World War and the partially decommodified residential recycling program prevalent today in Toronto. The addition of the historical component in this chapter adds another layer of complexity to the analysis of green jobs, this time, from the ‘green’ side of things. In particular, I highlight how the establishment of a comprehensive curbside recycling program was used to justify the production of new classes of waste that contributed to the loss of jobs in the (re-)bottling industry. This raises the question of whether or not it is useful to classify certain sectors as ‘green’ when it is divorced from an

overall context as is commonly done amongst proponents of green jobs. It also underlines how the organization of production is deeply implicated in environmental outcomes, and in this case, the production of waste.

Finally, in the **conclusion** I draw out some of the main implications of the findings for how we might begin to restructure production and consumption in a direction that is more just and ecologically responsible. In particular, I point to three principles: decommodification, collective consumption, and participatory production.

* * *

By the end of this journey, we will have traversed across many disciplines, themes, geographies, and histories. Though the landscapes be varied, the compass of our inquiry will always point to this: that work, both paid and unpaid, forms a crucial interface in the way we relate to each other and to the natural world. Indeed, by the time we reach the end of the road, we will have come full circle to the proposition with which we are about to begin this journey – which is that any serious project contemplating a greener, and more just, future cannot, in the end, avoid the question of the total transformation of work.

Chapter 1 Perspectives on Ecological Change

Written in the 19th century, Henry David Thoreau's influential *Walden* and *Resistance to Civil Government* (also known as *Civil Disobedience*) celebrated the virtues of a return to nature, a simpler life of voluntary poverty, and the right of citizens to engage in strategies of civil disobedience against an unjust state. These notions have had a lasting impact on both the modern environmental movement's outlook and style of political mobilization.¹ A full century later, the publication of Rachel Carson's *Silent Spring* documenting the deleterious effects of DDT and the chemical industry in 1962 marked, for many, the birth of the modern environmental movement. Indeed, much has been written about and struggled for since. Yet environmental malaise and the scale of transformation that the continued development and global expansion of capitalism has wrought on the natural world have multiplied, not lessened.

Although earlier environmentalist writing severely criticized the environmental, social and moral effects of modern industrial capitalism, by the late 1980s and 1990s, the latent radicalism in environmental writing and politics came to gradually be replaced by more reformist and professionalized approaches to and understandings of social and environmental change. Of these later approaches, two significant strands of thinking stand out: (i) ecological modernization, which is closer to many stripes of institutionalist thinking found in sociology and political science, and (ii) 'market ecology', a perspective much more aligned with neoclassical economics and the neoliberal outlook dominant today.

¹ It is often pointed out that *Walden* (1854/1997) is contradictory in that it was not actually written 'in nature' and 'in solitude'. Though this may be true, it nonetheless remains the case that the sentiment and ideas found in the book has had a lasting impact on subsequent generations of environmentalists, particularly those of the anarchist persuasion.

It is necessary to begin this thesis with a critical overview of these two approaches to situate an alternative, ecological Marxist approach that problematises the conceptual separation of the ‘environmental’ from the ‘social’ that has characterized much of environmental thought. This separation, it will be argued, reifies the market as an independent force that purportedly delivers not only economic efficiency but also social and ecological justice by abstracting from the socio-ecological relations that both support and make possible a market-based economy. By ignoring the issue of class and the inequalities that underpin capitalist social relations, both ecological modernization and market ecology fail to understand the fundamental anti-socio-ecological tendencies of capitalist production. For this reason, neither is an adequate theoretical foundation for progressive projects to pursue socio-ecological justice.

Here, I focus on a set of inter-related propositions: (i) the development of capitalist social relations delimits possibilities of socio-ecological organization and has profound, deleterious consequences for socio-ecological well-being; (ii) interventions to address ‘environmental’ problems are at the same time social and distributive questions, and thus always have a political character; and (iii) work, as a significant interface in our interactions with each other and with nature, can be a useful entry point in beginning to think about meaningful, alternative ecological modes of living.

Early Radical Environmentalism

Although the human-nature relationship or distinction has long been a subject of contemplation in the history of political and philosophical thought, dating at least as far back as Plato, the emergence of ‘the environment’ as a sustained subject of study (and the environmental crisis’ as a distinct *problématique*) is a relatively modern phenomenon. With strong ties to the

peace movement, early environmentalism, in one way or another, sought to understand – and indeed, change – the way in which the development of capitalism and modernity had deleterious consequences for the natural world, both human and non-human. For many of these thinkers, modernity (and for some, modern science) was a source of pollution, both (bio)physical and moral, whose treatment of human society as being separate from – indeed, elevated above and in control of – nature was pure *hubris*.

A pioneer of environmental toxicology, Carson's path-breaking *Silent Spring* critiqued the chemical industry for ignoring the interconnectedness of nature, both in its unexpected resilience and fragility. Instead, she proposed that humans were permeable beings with "an ecology of the world within our bodies," whose health reflected the state of the environment in which they lived (1962/2002, p. 189). To pollute nature, she suggested, was also to pollute ourselves – and the effects of this pollution are rarely what we expect. Fritz Schumacher's *Small Is Beautiful* (1973) raged against the modern industrial complex and its love affair with 'gigantism', which he viewed as not only creating environmental havoc but also eroding the moral basis of community. Unending economic growth, in his view, would inevitably come up against natural limits. Arne Naess (1973; 1987/2005) wrote about the need for 'deep ecology' and an ecocentric or ecosophical worldview that recognizes the inherent value of nature independent of its instrumental value for human beings. Deep ecology, he insisted, is concerned with the flourishing of *both* human and non-human nature. This implies not only respect for and identification with non-human nature, but also movement towards an egalitarian and classless society. In this sense, he proposed that deep ecology is about placing limits on growth, decentralization and autonomy, social justice, and a more fundamental psychological and social

development that expands and matures the human personality and understandings of self-realization to include non-human nature.

From a more explicitly anti-capitalist perspective, Murray Bookchin (1977; 1962) insisted that capitalism, with production for profits as its aim, created a host of socio-ecological ills that increasingly replaced the natural world with a ‘synthetic’ environment. As such, he advocated for a ‘social ecology’ of decentralized economies that would reject the profit motive as the overarching goal of production. Instead, production would be rooted in small-scale communities with direct, participatory assemblies that are ‘closer’ to nature. From a feminist perspective, Carolyn Merchant (1989) argued that the ‘Enlightenment’ and the ‘Scientific Revolution’ in Europe was a socio-cultural process through which both nature (constructed as the embodiment of the feminine) and women came to be seen as exploitable and thus subjugated, increasingly controlled by a male science that excluded women. To address the environmental crisis required, then, a more thorough-going cultural shift that simultaneously implied the emancipation of women and the ‘feminine’. Continuing this train of thought, Maria Mies and Vandana Shiva (1993) later influentially advocated for an ecofeminism that would reject this simultaneous subjugation of women and nature by a ‘capitalist patriarchal world system’ and its scientific reductionism in favour of a ‘subsistence perspective’.²

² Mies and Shiva (1993, p. 8) advanced a ‘subsistence perspective’ in response to both capitalist and socialist materialisms, which in their view shared the same roots in the Enlightenment. They argued, therefore, that: “Within a limited planet, there can be no escape from necessity. To find freedom does not involve subjugating or transcending the 'realm of necessity', but rather focusing on developing a vision of freedom, happiness, the 'good life' within the limits of necessity, of nature. We call this vision the subsistence perspective, because to 'transcend' nature can no longer be justified, instead, nature's subsistence potential in all its dimensions and manifestations must be nurtured and conserved. Freedom *within* the realm of necessity can be universalized to all; freedom *from* necessity can be available to only a few.”

These are but a few examples. And to this must also be added a host of Marxist-inspired voices, which will be subsequently explored in this chapter. A thorough analysis of these diverse earlier perspectives is outside the scope of this chapter; yet what can be seen from this cursory glance is that although these early writers adopted a variety of perspectives and political orientations, not all of which were explicitly radical, they were united in their critique of the limitless expansion, endless economic growth, and mass consumption characteristic of modern capitalist society. Even liberal writers like Robert Costanza, John Cumberland, Herman Daly, Robert Goodland and Richard Norgaard included in their influential textbook, *Introduction to Ecological Economics* (1997), critiques of conventional economic analysis, charging that growth of the gross national product was not an adequate measure of human development and well-being, and contemplated limits to unending growth and expansion. Beyond this, and perhaps more importantly, like many classical philosophers, these early writers in their own ways showed an openness to question, interrogate, and redefine what it means to live a 'good life'. Movement toward a more ecologically responsible and sustainable future required fundamental shifts in the structure of modern societies, socially, economically, culturally and existentially. For many, change would come about from people in all walks of life, in particular through the active resistance of grassroots organizations and communities to dominant forms of development the world over. They promoted, to different degrees, active strategies of resistance such as civil disobedience and various other forms of nonviolent direct action.

Ecological Modernization

Ecological modernization as a concept and as a theoretical framework emerged in response to the radical environmentalism of the 1970s and gained prominence in the

environmental movement throughout the 1980s partly in opposition to an increasingly neoliberal context (Buttel, 2000, p. 64; Mol, 2000; Spaargaren & Mol, 1997, pp. 82-4). Here, the initial social, moral, and existential concerns about society, and the questions about human understandings of and attitude towards nature – i.e. our place within it, our self-definitions in relation to it – displayed by early environmentalism become increasingly discarded. According to Frederick Buttel (2000, p. 60), the rise of ecological modernization was not only a political response to radical environmentalism. It was also a theoretical response to the perceived inability of North American environmental sociology to grasp the ecological improvements actually taking place in the industrialized world, given its principal focus on the anti-ecological tendencies of modern industrial capitalism.

Although many different theoretical meanings and political orientations are attributed to the concept of ecological modernization (much like its predecessor, sustainable development), it most commonly revolves around the idea that capitalist growth can be made consistent with environmental protection through the development of *technology* and *institutional reform*.³ Within the wider context of modern social theory, it is most clearly associated with neo-Weberian institutionalism, and thus has an ambiguous, and at times antagonistic, relationship with neoliberal, free-market economics. In this perspective, both capitalism and industrialism are seen as institutional features of modernity, which are understood as analytically distinct and relatively independent from one another. In other words, there is no necessary internal relation between capitalism and industrialism, unlike in the Marxian view. The ecological crisis is

³ Some overviews on the subject also include Maarten Hajer's (1995) work, *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process* (1995), as one of the main strands of theorizing on ecological modernization, which understands ecological modernization as a cultural and political discourse. It is omitted here as I take it to be a (non-friendly) critique of ecological modernization theory that does not subscribe to its assumptions and is not meant to delineate or build upon the theory or to further its research agenda.

conceptualized as a result of the autonomous development of industrialism. However, unlike many radical analysts who conclude that the solution to the environmental crisis is thus found in ‘de-industrialization’, ‘de-modernization’, or ‘de-growth’, proponents of ecological modernization insist that it is only through the further development of industrialism and “altering the major cultural, political, and economic institutions of contemporary society in certain crucial respects” that an environmental solution can be found (Spaargaren & Mol, 1997, p. 63). In this sense, ecological modernization is a response internal to the logic of industrialization. Arthur Mol (1995, p. 394) defines it as a process wherein ecological concerns are increasingly institutionalized in social, political and economic life, resulting in more environmentally friendly technologies, institutions, and modes of being.

Early proponents of ecological modernization, such as Joseph Huber, understood the environmental crisis as a result of a “structural design fault” of industrialism (rather than capitalism) that is characteristic of modernity in its early stages. Here, ecological modernization is proposed as a stage of late modernity, where the process of modernization and technological development ‘turns back’ on itself to restructure the industrial base and correct for its anti-ecological tendencies (Spaargaren & Mol, 1997, p. 78). Similarly, following Anthony Giddens, Mol understands ecological modernization to be the result of the ‘self-reflexive’ nature of late modernity; he writes (1995, p. 394): “Ecological modernization can thus be interpreted as the reflexive (institutional) reorganization of industrial society in its attempt to overcome the ecological crisis.” Although Arthur Mol and Gert Spaargaren (1993) seem to be at odds with much of what they see as Giddens’ (and Ulrich Beck’s) pessimistic analysis of late modernity as self-reflexive modernity or a ‘risk-society’, what they do take from this analysis is the key idea that in late modernity, the environment enters as a central element in social and political life. The

environment moving to centre stage causes institutional change, subjective anxieties/insecurities and a changed attitude towards science and technology. To the extent that self-reflexivity is taken to be a key institutional feature of late modernity, ecological modernization is a necessary feature or result. The task of social scientists, then, is to specify the kinds of institutional changes – political, economic, social, and cultural – that this brings about.

Martin Jänicke, Harald Mönch, Thomas Ranneberg, and Udo Simonis (1989), in contrast, see ecological modernization as an almost accidental outcome of macro-economic structural change. That is, they see the evolution of industrialized societies towards services and knowledge-based industries as having an automatic environmentally beneficial effect (what they called the ‘environmental *gratis* effects’) since these are less materials-intensive industries. In some sense, even though Huber’s technological determinism and evolutionary perspective is increasingly discarded over time, it is nonetheless still possible to detect a certain kind of evolutionary understanding or approach in the major theoretical writing on ecological modernization.

Although the precise understanding of the concept varies significantly, what unites much of the writing on the subject is the retention of Huber’s idea that it is through ‘superindustrialisation’ – that is, the further development of the processes of modernization and industrialization, and the application of advanced, ‘ecologically-sound’ technologies – that the environmental crisis can be resolved. Here, the focus is on increasing eco-efficiency in patterns of production (particularly in manufacturing) and consumption, waste reduction, pollution prevention and intelligent design rather than ‘end-of-pipe’ solutions. However, the kinds of institutional change that are judged as necessary to bring about this transformation varies amongst different analysts. Whereas Huber saw this transformation as being essentially a

market-driven process with little room for state intervention, Spaargaren and Mol (1997, p. 80) suggest that this is perhaps an anachronism; as they see it, a consensus is now being reached in environmental policy where “it seems very hard to imagine an ecological switchover without state intervention at various levels.” Similarly, Joseph Murphy (2000, p. 4) argues:

The prescriptive and normative dimension to the theory [of ecological modernization] suggests that the state should explicitly intervene in the market in order to achieve economic growth and environmental protection. To do this it should establish demanding environmental standards with the aim of communicating priorities for industrial innovation. It should also pursue macro-economic restructuring in favour of less resource intensive industries. Beyond traditional command and control instruments governments should make use of a range of more innovative policy measures including, for instance, environmental taxes, strategic environmental assessment and voluntary agreements.

As this excerpt shows, the apparent consensus around the need for state intervention to play a key, coordinating role in ecological transformation should not be understood as necessarily a substitute for market-based regulation. To be sure, there are some currents that view non-market-based public intervention as necessary in this process (for instance, in the call for the state to set environmental standards so as to spur innovation). Certainly, a focus on the need for state or non-market intervention is entirely compatible with the institutionalist framework.

However, in practical terms, the state intervention proposed in the literature is often quite adaptable to the policy orientation of neoliberal thinking. For instance, the state is often recommended to intervene via market-based instruments; indeed, Spaargaren and Mol (1997, p. 77) famously called for the ‘economization of ecology’ – that is, to place an economic value on nature so that it can be ‘properly valued’ in economic decision making. Murphy (2000, p. 3) suggests that this does not amount to free-market economics because it entails a ‘re-regulation’ of the environment rather than ‘de-regulation’; they are simply “new ways of thinking about the relationship between state and industry.” Yet this is, perhaps, to misunderstand the neoliberal project itself, for even the most free-market interventions make crucial use of the state for its

fulfillment and imply a restructuring of the state rather than its withering away (Vogel, 1996). ‘De-regulation’ never really means complete anarchy but rather a de facto ‘re-regulation’ in favour of corporate interests and capital-in-general.

Perhaps most emblematic of the eclectic yet market-friendly nature of ecological modernization thinking is Paul Hawken, Amory Lovins and Hunter Lovins’s influential *Natural Capitalism* (1999), a text particularly prominent in debates about green jobs. Though they eschew the monetary valuation of nature as such, since they take the position that many aspects of nature have no substitutes and therefore can have no price, they nonetheless advocate for businesses to act – voluntarily – *as if* nature did have monetary value. And though they are skeptical of the supposed beneficence of an unfettered free market, and crucially call on the state to restructure taxes and incentives to favour resource productivity, engage in urban planning and the like, they nevertheless make their case for resolving the environmental crisis based on profitability. They argue, for instance, that it makes business-sense to adopt ‘radical resource productivity’ as a means to address the environmental crisis, since these measures will be profitable even in the short term through the reduction of capital investments and operating costs.

Furthermore, the rejection of class analysis has also meant that perspectives of ecological modernization often pay inadequate attention – if any at all – to distributional issues of social inequality and injustice.⁴ Class is understood to no longer be the main conflict and analytical plane in late modern society, while ecology and environmental risk become an increasingly independent sphere of action that transcends political and ideological lines, endowed with its own rationality (Mol & Spaargaren, 1993, pp. 437-8; Mol, 2000). Indeed, Mol (2006), one of the

⁴ Even relatively sympathetic writers like Murphy and Gouldson (2000, p. 43) point out that ecological modernization theory tends to “divorce social justice issues from environmental issues and [focuses] exclusively on the environmental problems of advanced industrial countries.”

leading proponents of ecological modernization, has recently argued that the key defining feature of ecological modernization theory is the proposition that environmental interests as a whole is gaining independence and importance in social and political affairs, transcending traditional divisions of liberalism versus conservatism, thus triggering institutional transformation and reforms. This is in part because – following theories of post-industrial society – industrialized society is regarded as having solved the problem of material scarcity and entered a new post-materialist era. Issues of distribution and inequality are understood as becoming increasingly irrelevant in political life. As a result, some commentators critique ecological modernization theory as a Eurocentric theory, pointing out that these conditions cannot be said to hold true in the ‘developing’ world.

But this misses the mark. For it is not true that ‘advanced industrial countries’ have solved the problem of ‘material scarcity’, insofar as capitalist society systematically produces great material wealth for some alongside scarcity for others as a condition of its existence. Consider, for instance, that the United States Department of Agriculture estimates that 14.5 per cent of all US households (of which, 3.9 million households with children) faced food insecurity in 2012, a number that did not change from the previous year (Coleman-Jensen, Nord, & Singh, 2013). From the point of view of those who face food insecurity, the problem of material scarcity in ‘advanced industrial countries’ has surely not been solved. Put differently, the problem of material scarcity is *precisely* one of distribution and inequality, which has not been resolved as a result of matured industrialization. Indeed, the dramatic rise in income inequality in recent decades as well as the poverty and unemployment generated following the financial crisis of 2008 brings to the fore the continuing relevance of issues of class, wealth distribution, inequality and economic hardship. Hawken et al. (1999) is a notable exception; though they do not employ

the concept of class, they are explicitly concerned about social inequality in industrialized economies and the social dislocation, moral decay and ‘human waste’ that it causes. In this respect, they echo the earlier theorizing of Schumacher.

Apart from this, the view that the environment is becoming its own sphere of rationality also allows analysts to focus on the environment and bracket (and thus ignore) issues of inequality and politics.⁵ Indeed, it empties the ‘environment’ of its social and political content.⁶ Mol (2006, p. 33) argues that since the 1980s, green ideology “assumed an independent status and could no longer be interpreted in terms of the old political ideologies of socialism, liberalism and conservatism.” However, as can be seen, while the question of the environment has indeed become increasingly prominent as a result of the real, lived effects of environmental degradation as well as better scientific understanding of environmental change, this has by no means been divorced from politics. This is clearly evidenced in the way in which the question of the environment is understood and in the way that environmental solutions proposed are tied to different political orientations and strategies. The assertion of an independent green ideology is, in itself, an act to depoliticize issues of ecology.

Similarly, David Gibbs (2000, p. 17) charges that ecological modernization neglects democratic participation in favour of more technocratic policy orientations that “reduc[e] the rest of society to passive consumers to be provided with enough information to make informed (but market-based) choices.” In a more recent article, Spaargaren and Mol (2008) consider what globalization and the weakening authority of the nation-state means for ecological political

⁵ Again, in this view, there is no internal relation between these different spheres of rationality (i.e. the ecological, political, economic, etc.); there are simply interactions between these spheres.

⁶ This is, in many respects, an extension of the move to empty the ‘economy’ or the ‘market’ of its social and political content under capitalist social relations (Wood, 1995; Polanyi 1944/2001).

action, particularly in the realm of consumption, which they see as an increasingly important sphere for ecological realignment. They claim that the weakening of traditional political power with its basis in the territorial nation-state both opens up and necessitates a focus on the increased power that citizen-consumers (now as a hybrid category) wield in the marketplace to effect ecological transformation. Here, they turn to concepts such as ‘political consumerism’ and ‘lifeworld politics’ as a new key avenue of change beyond the state. However, this hybridizing of the citizen-consumer and the pursuit of political ends through market power (a variant of the neoclassical concept of consumer sovereignty – though they insist that theirs is a more social and not individualized solution) also imply that those without market power (i.e. the poor) are also deprived of political power.

To say that this is a description of contemporary transformations is one thing, but Spaargaren and Mol are not simply treating this as a description; they are also offering this as an alternate route for progressive environmental change. This implies that the only real political agents are the global middle class, elites, and capitalists, since only those with the means to exercise market power can exercise political power (as political consumerism). To take such a position, rather than challenge some of the dominant political economic structures that lead to disempowerment, in this sense, is also acquiescing to disenfranchising a large portion of the population in matters of environmental change and governance.

To be fair, the ecological modernization perspective does have a number of significant differences from free-market approaches. For one, many analysts in this tradition stress the importance of political processes and institutions and give the state an important, active coordinating role in guiding the behaviour of private agents to achieve ecological transformation in the processes of production and consumption. In some sense, to choose market-based

instruments is merely incidental. The pro-market positions commonly taken are not because of a prior commitment to the unfettered market in the theory per se. Being epistemologically and ethically ambivalent towards either states or markets as institutions, coming down on the side of markets is a result of the judgment of the individual analyst rather than anything necessary in the framework itself (the commitment to economic growth notwithstanding). Certainly, the neoliberal climate since the 1980s that has favoured pro-market policies facilitates the dominance of these kinds of conclusions in the discipline and in wider policy-making circles at large. Given this general ambivalence, it is not surprising, then, that Hawken et. al's (1999) highly influential work ultimately features engineers and architects as the most promising agents of a green industrial revolution rather than business-people or politicians.

In addition, the research agenda in the tradition of ecological modernization is also much broader than that of market ecology, with more wide-ranging concerns. For instance, Buttel (2000, p. 63) advocates for investigating how different kinds of state-society 'synergies' and ties affect state effectiveness in promoting environmental regulation and economic growth; Gibbs (2000) uses Jänicke's notion of 'environmental capacity' to understand the institutional possibilities and obstacles to environmental policy implementation in various local contexts; Mol and Spaaragaren (1993) analyze how citizens' subjective perceptions of environmental risk affect the project of ecological modernization, institutional change in the state and in the broader environmental movement.⁷ In sum, this diverse range of research interests notwithstanding, it might be said that ecological modernization is an institutionalist approach to the environment born with a neoliberal midwife. It is a kind of 'neo-neo' synthesis – to borrow a term from

⁷ Buttel (2000) takes the concepts of state-society 'synergies' and 'embedded autonomy' from Peter Evans' work. Evans' theorizing on the state, he suggests, is a more fruitful avenue for the further theoretical (and presumably also political) development of ecological modernization as a social and political theory than Giddens or Beck.

International Relations theory – that is analytically institutionalist while often programmatically compatible with neoliberal mores. The question is, of course, whether or not the conjectures and propositions of ecological modernization are warranted and not just politically attractive. Does environmental regulation bring about economic growth? Can ecological sustainability be achieved within a capitalist framework? These are not simply questions of theoretical orientation, but also empirical questions. Indeed, whether or not ecological modernization is occurring in the sense implied by Mol – and whether or not the environment moving to the fore actually means environmental improvement – might be put into question by recent developments in ‘extreme energy’.

The internationalization of production similarly raises questions about the general validity of ecological modernization. Murphy observes that “ecological modernization’s focus at the national level is problematic. So-called solutions to environmental problems may actually only represent the resolution of the immediate problems facing advanced industrial countries with issues such as ‘regulation flight’ to ‘pollution havens’ not addressed” (2000, p. 5). In this sense, it is quite likely that the environmental benefits of ‘deindustrialization’ and a turn to the service sector in the Global North (which is used as evidence of the dematerialization of economic production) may disappear if we look at the global level.⁸ If this is so, de-industrialization for environmental gains may not be able to be replicated in general if it has been achieved merely by the shift of industry to the Global South rather than any meaningful ecological transformation of production and consumption. Similarly, if the expansion of the tertiary sector is in occupations such as marketing that exist solely to sell more and more

⁸ The continuing importance of the material is perhaps nowhere more stark than when the inability to *physically print* money was an actual (though by no means most important) consideration in the debates of exiting the Euro during the recent Greek debt crisis – this, even though money, as the most fluid form of capital, is often hailed as the most immaterial of all.

products – that is, it has as its end the encouragement of greater resource use – then we cannot truly conclude that the expansion of services implies lessening ecological impact. Ursula Huws (1999) argues that in some parts of the service sector, particularly those that involve the commodification of domestic labour (for instance, meal preparation, health care, etc.), increased commodification is leading to increased materialization through the multiplication of physical goods (e.g. prepared meals, drugs) rather than de-materialization. Finally, we can also observe that the internationalization of production and the ‘information age’ has depended upon the construction and expansion of a vast (material) infrastructure of telecommunications and a steady increase in the production of (toxic) electronic wastes and energy consumption.

Mol (2006, p. 34) cites a number of developments as evidence of ecological modernization. But are we to rejoice on the development of eco-labeling and environmental management departments in firms as a sign of the great ecological transformation while the garbage pile in the Pacific grows, oil spills are an everyday occurrence and greenhouse gas emissions continue to rise at an unabated pace? Of course, there are and will be institutional transformations – the problem of ecological deterioration is very real – yet whether or not these transformations are a sign of real *and sufficient* change is a different matter.⁹ If the immense changes in land use, deforestation and aggregate resource consumption following the opening up of markets and the internationalization of production are said to be compensated for by the

⁹ Mol (and others) will occasionally add the caveat that ecological modernization simply denotes the institutionalization of ecological concerns rather than an argument that it succeeds in ultimately resolving the ecological crisis. This simply renders the argument banal – for what is the point of specifying the institutionalization of something that achieves nothing?

installation of emissions reduction technology in a few large industrial plants and the increase of eco-labeling and certification, then perhaps we are missing the forest for the trees.¹⁰

Market Ecology

Like ecological modernization, proponents of what Greg Albo (2006) has termed ‘market ecology’ share the assumption that the development of technology can make addressing the ecological crisis compatible with continual economic growth; indeed, more than this, economic growth is now rendered to be a *necessary prerequisite* for ecological sustainability. However, unlike ecological modernization theory, market ecology holds that environmental problems stem not from industrialization or modernity but primarily from *distorted or missing markets*. As such, they relatively focus on how the distribution of property rights and the accurate pricing of natural resources can sufficiently manage environmental problems (Helm, 2015; Panayotou, 1993; Schmidheiny, 1992; Anderson & Leal, 1991). The influential *Blueprint for a Green Economy* (Pearce, Markandya, & Barbier, 1989) made just such a case for pricing environmental goods. In much later work, its authors continued to subscribe to the view that “the source of most environmental problems lies in the failure of the economic system to take account of the valuable services which natural environments provide for us.”¹¹ To address the systematic under-

¹⁰ Mol (2006) suggests that the turn to market reforms and the modernization process in China has opened up space for, and is leading to, incipient ecological modernization, implying that the turn to capitalism (and thus modernization) can have beneficial environmental effects. However, what is unclear is whether or not the environmental improvements he points to will be (as they certainly are currently not) sufficient to compensate for the ecological deterioration that has followed market transition and international integration.

¹¹ It should be noted that Pearce and Barbier (2000) do not, strictly speaking, fall solely within the camp of ‘market ecology’, and in many respects are akin to the ecological modernization theorists above. Though they advocate for free trade, they take a more pragmatic position towards the market (for instance, they allow for ‘command-and-control’ to be appropriate in some instances where the acceptable level of certain pollutants is deemed to be ‘zero’, and make

representation of the environment in economic affairs, they suggested that “economic importance can be demonstrated by placing monetary values on environmental assets and services” (Pearce & Barbier, 2000, pp. 1, 2). They propose that the creation and maintenance of private property rights and markets in nature and in pollution will lead to the efficient preservation and allocation of resources, since self-interested individuals will act so as to not squander their own assets (in this case, nature), thus circumventing the ‘tragedy of the commons’.¹² In particular, they insist that “the focus needs to be on market-based instruments such as taxes and tradable quotas” so that ecological considerations can be taken into account in day-to-day economic decision making and the environment is subject to the same kind of cost-benefit analysis as other economic decisions (p. 2). Where there are prices on environmental assets, which they theoretically understand as the sum total of all individual monetized preferences for environmental conservation, projects that would use, deplete, or damage these assets would only go forward when the sum total of all individual benefits from the project exceed that of the preferences for preservation.¹³

the case for dedicated environmental policies rather than ‘letting the market work its magic’). However, they are included here because they provide one of the more sophisticated (and arguably most influential) arguments for monetizing the environment and using market-based policy instruments. For instance, rather than granting absolute private property rights for environmental assets to generate prices within the market itself *tout court*, they recognize that many forms of pricing environmental assets actually constitute a “process of non-market valuation” (p. 2), in that it is the state that sets a price.

¹² The ‘tragedy of the commons’ thesis, most associated with Garrett Hardin (1968), refers to a hypothetical situation in which each self-interested individual overuses common property since they do not gain any direct economic benefit from its preservation, thus leading to the ruin of said common property. This overlooks, of course, the diverse non-market mechanisms that have arisen historically to regulate the use of the commons so as to ensure its preservation.

¹³ The authors accuse environmentalists of opposing monetization of the environment for selfish and highly *undemocratic* grounds – that is, they charge that environmentalists are afraid that the result may be something they do not like; namely, that the sum total of individual preferences *for* environmental destruction would exceed that of preservation. However, since they submit that disparities in income could affect how “intensely” one could express their preferences (in short,

Similarly, according to this type of logic, private property rights will create an economic incentive to invest in technology to promote resource efficiency, conservation and pollution abatement since businesses will seek to maximize their economic assets and reduce potential liabilities, and market competition will ensure that property rights flow to the most efficient producers. Market-determined prices, which account for the ‘true’ (market) value of natural resources, will lead, in turn, rational consumers and producers to make eco-efficient choices (Schmidheiny, 1992). Here, the development of technology is assumed to be unproblematic and is understood to be a function of market incentives.

While ecological modernization tends to see market-based instruments as tools, market ecology tends to put primacy on markets as such. Here, nature is conceived of as just another kind of capital – as ‘natural’ capital – and the ecological crisis is seen as a problem of misallocation of capital. Nature, in this sense, has no ‘meaning’ other than as a resource to be used in production or as “a dump for pollutants,” as the Business Council on Sustainable Development so eloquently puts it (Schmidheiny, 1992, p. 9). Of course, they lament that this “valuable service” is not being paid for by the polluters, which results in too much pollution; however, it is nonetheless the case that this outlook seems to imply that it is appropriate to view nature as a sink for wastes, and that in any case if the perpetrator paid accordingly that pollution would be acceptable (albeit in smaller quantities). The problem, in this view, is not capitalism, industrialism, or cultural norms, but simply the mismanagement and inefficient use of the natural capital stock due to the lack of property rights and markets in nature. Without accurate prices, neither consumers nor businesses can make efficient, ‘rational’, utility-maximizing decisions.

giving the rich a greater voice) and given their aversion to the clumsiness of weighting preferences proportionately to income, then the only situation in which this ‘sum total’ of preferences would be truly reflective of a democratic will is in a world where there is equality of income and wealth. This is demonstrably not the world in which we live.

As such, and in line with neoclassical economics, market ecology proposes that the appropriate role of the state in managing the ecological crisis should be limited to creating and upholding property rights and markets in nature and letting the market do the rest (Anderson & Leal, 1991). In contrast to many variants of ecological modernization, investment decisions are seen as best left to private agents and individual consumers without control or guidance from the state. In fact, in this view, it is precisely the state meddling in matters of the economy beyond setting the legal framework that is to blame for much of this misallocation of natural capital (Panayotou, 1993). That is, by providing subsidies to producers and consumers for various natural resources and goods (i.e. for water, utilities, agriculture, and the like) – even if it be in the interests of equity or other social goals – the state artificially lowers the cost of natural resources, leading to its overuse (Schmidheiny, 1992, pp. 17-8). Here, the rate of use is understood as simply being a function of its price. If nature – as natural capital – were priced ‘correctly’, and had a price reflecting its ‘true’ cost, then rational behaviour would ensue to economize on presumably more expensive resources as both consumers and businesses seek substitutes or reduce consumption (Helm, 2015; de Perthuis & Jouvet, 2015, pp. 204-5).

Similarly, rather than the state setting ‘command-and-control’ environmental standards, market ecology holds that, ideally, the acceptable level of pollution should be determined by the market (note, that this can and should be non-zero). An early form of this argument was advanced by Ronald Coase (1960), against Arthur Pigou, who stressed that state regulation to make the polluter pay was not socially costless; it was not an argument against regulation per se, but one that emphasized the trade-offs to be made associated with different forms of ‘social

arrangements'.¹⁴ More specifically, he argued that as long as transaction costs are low, it should not matter to whom property rights are granted, if those experiencing damage can negotiate with those doing damage. If this is the case, then polluters and victims can negotiate up until the point that the price paid to engage in (i.e. polluter pays victims) or to prevent damage (i.e. victims pay polluter to stop) will equalize, and an 'optimal' amount of pollution will result (Helm 2015, pp. 162-4; for a critique of this position, see Burkett, 2006; Muradian, Corbera, Pascual, Kosoy & May, 2010; Norgaard, 2010).¹⁵

Even without negotiation, advocates of market ecology like Terry Anderson and Donald Leal (1991) stress that innovation in establishing private property rights to the environment ensures better outcomes, since owners of private property (who comparatively have the most information about their properties) must bear both the costs and benefits of their decisions, who are liable to be sued by those damaged by their actions. In this view, if markets (i.e. private property owners) are free to determine the prices of natural capital goods, then they will not be overused – as owners would have an incentive to reduce economic inefficiency – and ecologically sound behaviour will naturally follow. However, it is not at all clear that pricing nature and pollution will automatically bring about environmental improvement, nor is it clear that even if this occurred that it would lead to overall socially beneficial outcomes. The proposition that the adoption of market instruments will solve environmental problems assumes

¹⁴ In many respects, Coase's argument was precisely that the ideal level of pollution is often non-zero.

¹⁵ Optimal, in this case, refers to economic efficiency. It is not in itself concerned with questions of ethical and moral acceptability – for instance, in asking victims of environmental damage to compensate polluters. It also does not apply in situations where transactions costs are high or, for example, if the victim of damage is unable to communicate (i.e. future generations, non-human nature).

that the price form is a suitable vehicle for the representation of the qualitatively diverse use-values of natural wealth and for changing individual behaviour along eco-friendly lines.

Nature as Capital

Earlier theorizations of natural capital mainly focused on generating a price for environmental damage that would adequately compensate for environmental loss while allowing production to proceed. According to the BCSD, “the basic equations behind full-cost pricing are simple. For production, whether industrial or agricultural, the full cost is the cost of production plus the cost of any environmental damage associated with it” (Schmidheiny, 1992, p. 17). Here, what is counted as the cost of damage is the cost of repair. However, this standard of measure will likely underestimate ‘true’ costs, as there are often many qualitative, intangible, and emotional costs associated with environmental damage that cannot be quantified, particularly where this concerns human health. The cost of health care for an asthmatic child or a miscarriage due to high toxicity, for example, is only one component of the costs and damages associated with pollution. There is a loss in quality of life and emotional trauma that is not accounted for when we simply count the cost of repair (i.e. medical bills) as representative of the total damage done. Having a healthy child and the quality of life that this represents cannot be priced simply in terms of keeping the same child alive.

It follows that in discussions of full-cost pricing, it is not really the ‘true’ price of natural wealth that is really being represented – it is a price that must, of necessity, exclude the many qualitative use-values of nature. How can we price the cultural value that communities place on the forests and rivers around them? If what is to count as a ‘full’ cost of nature in fact excludes many different kinds of values and qualities, and does not represent a ‘true’ cost, then neither

businesses nor consumers can make rational decisions to minimize damage to the extent needed as the theory suggests. In this case, firms that attempt to take more stringent preventive measures towards socio-ecological destruction above the infamous ‘bottom-line’, while reflecting a ‘fuller’ cost, may in fact end up with a higher final product price. If the lower-priced products are not more environmentally friendly as the BCSD and other proponents of market ecology presume in a situation of ‘full-cost pricing’, then it cannot be assumed that consumers will be sending the ‘correct’ market signals to firms that they desire more environmentally friendly products when they purchase goods with a lower price.

Moreover, what constitutes a ‘full’ cost is not an externally given, invariable, verifiable object, but a continually contested, socially/politically constructed norm. What constitutes a ‘full’ cost is informed by competing definitions of acceptable levels of pollution or damage and health, which also reflect a disparate distribution of power in society. As such, those most affected also tend to have the least amount of immediate, readily available means to contest its definition. In this sense, the determination of ‘damage’ and ‘cost’ in full cost pricing is from the beginning a matter of politics and power, and not simply a function of market behaviour. Paul Burkett (2006) points out that contingent valuation studies that attempt to value ecological goods by surveying how much money people would be willing-to-pay (WTP) and how much they would be willing-to-accept (WTA) for these goods have often found a large gap between these sums. This is in part because unlike WTA, WTP is subject to income constraints. This suggests, in contrast to the Coase theorem, that in fact it does matter to the final outcome *who* owns the property rights to a particular natural area or resource. Moreover, Burkett’s review (2006, pp. 61-73) further notes that many respondents to these contingent valuation studies were not only unfamiliar with placing a price on natural wealth, but often felt anger that it was being attempted

as they felt that there were issues of fairness as well as qualities and values in natural wealth that could not be appropriately represented through monetary valuation.

More recent theorizations of natural capital, however, focus not so much on payment for pollution rights but payment for efforts to abate *future pollution* through financing conservation projects – mostly in poorer nations, on the principle of lower opportunity costs. In other words, it is a proposition to substitute reducing existing pollution *in situ* for preventing hypothetical future pollution (or, in some cases, actually abating pollution) elsewhere. Here, nature is priced not according to potential damage, as such, but priced according to the ‘ecosystem services’ it provides (PES).¹⁶ This is problematic in several respects. For instance, as Richard Norgaard (2010) points out, aside from the stock-flow model (i.e. nature as a capital stock that generates a flow of services) being an overly narrow way of understanding ecosystems, PES schemes depend upon a level of precision and knowledge of ecosystems that the ecological sciences currently do not wield. James Fairhead, Melissa Leach, and Ian Scoones (2012, p. 254) observe that the unpredictable, ‘unruly’, and ‘non-equilibrium’ nature of ecological processes may also work to disrupt the functioning of green markets by failing to be the ‘disciplined’ and orderly commodities that these markets require them to be, as “when tree disease or fire destroys carbon stocks, or when water-based ecosystem services dry up due to unpredicted weather patterns.” Who, they ask, should bear the risks and costs when things go wrong? We can also ask, as a corollary, how can we ensure that pollution abatement truly happens if the means by which this is achieved is not through its reduction or elimination in the originating production process but

¹⁶ These are admittedly related concepts, since ‘damage’ in some cases can be understood as the loss of the ‘ecosystem services’; however, the general point is that in the case of calculating damage, the motivation is to compensate for the damage where it occurs, whereas the focus of PES is premised on substituting damage in one place with conservation in another, thus positing the interchangeability of specific natures.

by substitution of ‘commodities’ that, ‘by its nature’, exhibits such unpredictable and indefinite characteristics?

Furthermore, from a Marxian perspective, the attempt to represent the qualitative use-values of nature as a quantitative price is from the beginning a hopeless task. This is because the formation of prices and exchange value is a process that *must* systematically abstract from and ignore the peculiarity of the use-values of the commodities being exchanged, and by extension, the specific socio-ecological foundations of their production. This constant process of abstraction is necessary in order to render qualitatively diverse commodities and their specific labours commensurable, and therefore exchangeable. In other words, prices do not need to – indeed, cannot – correspond to the qualitative nature of the represented use-values. The qualitative difference and uses of x number of laptops and y quantity of clean water must be ignored in order for these to be represented as an abstract price (i.e. the same interchangeable price). For nature to have a market price implies that it can be traded with other commodities as equivalents on the market. In this sense, it must be made interchangeable, substitutable. Burkett (2006, p. 54) notes that there is a tension between prices and money that are “homogenous, divisible, mobile, and quantitatively unlimited,” and the “qualitative variegation, interconnection, locational uniqueness, and quantitative limits of natural and ecological wealth.” The primacy of the former tends to degrade the conditions of the latter.

This tension between homogenization on the one side and variation on the other, moreover, also expresses itself spatially. Elmar Altvater (1994, pp. 79-80) notes that:

...the staple commodity, while processed under specific spatial conditions, becomes one element of the total amount of raw iron ore on the world market and ‘compares itself’ to the same commodity extracted and produced under completely different spatial conditions. The heterogeneity of physical transformation in real space and time – that is, the particularity of materials, place, and ecology – is at odds with the axiom of general

comparability in the world market imposed by capitalism. Competition in the world market forces capital to converge toward some ‘average’ spatial conditions.

In this sense, the pressures to converge exerted by the world market tends to ignore and thus ultimately degrade the locational uniqueness of production through the process of competition. I will return to this notion of necessary abstraction from space and context in the constitution of a global commodity in subsequent chapters and explore its implications for labour process in the case of recycling.

From this discussion, it follows that the varied use-values of nature cannot truly be made commensurate to a quantitative price. If prices of natural wealth and environmental damage were to actually represent their variegated use-values, not only the intrinsic, aesthetic, emotional use-values, but also their importance for reproduction and the manifold ‘services’ that they provide for both present and all future generations (even assuming the use of shadow pricing or future markets), we would find that these prices would be astronomically high. Were this the case, nobody would be able to acquire any of the necessities of life (e.g. water) to survive and no production process would be able to proceed based on the ‘true’ price of natural wealth. That some portion of non-human nature is very highly valued in the broad, normative sense of the term does not necessarily preclude its appropriation and transformation, since to do so can be a necessity of survival – indeed, it is likely deeply valued because it is essential to life. The logic of placing a monetary value on non-human nature in accordance with its ‘true’ value simply produces the contradiction that that which is the most valued, on account of its absolute necessity in supporting life, will become the most inaccessible. Indeed, while the insistence on ‘full-cost pricing’ (which systematically undervalues natural wealth and health) may be conducive to facilitating the continuance of business-as-usual, the price form is a poor substitute for the complex collective decisions that need to be made in balancing the various competing values,

claims, and needs we may have in relation to non-human nature and each other. These are quite literally some of the most important decisions in life.

In contrast to ecological modernizers such as Spaargaren and Mol who argue that defining nature as ‘capital’ will lead nature to be taken seriously in economic calculations, Marxist commentators point out that this way of conceptualizing nature also brings with it a number of implicit assumptions that can be counter-productive to the goal of maintaining socio-ecological integrity. Burkett (2006) provides a number of useful insights in this regard:

First, he argues that the pricing of nature “carries value judgments, such as ‘more is better’ and the substitutability of man-made and natural wealth, which directly contradict non-market values such as biodiversity and respect for natural limits” (p. 43).

Second, he points out that the conception of nature as ‘capital’ also implies that it can be repaired or reproduced by humans – hence, the often used metaphors of ‘investment in natural capital’ and the like – which is not always the case (p. 118). Alteration of the natural conditions of our existence often produces results that are difficult to foresee and/or are irreversible.

Third, Burkett insists that to view nature as a kind of aggregate capital stock that must be maintained, it must implicitly be conceived more or less as a homogenous mass, since it must be either directly replaceable with human-made technology or with itself (i.e. a non-renewable resource can be substituted by renewables).

However, nature is not an aggregate stock – its qualitative diversity is the very core of eco-systemic health, and its various constituent parts have different functions and relations that are not substitutable for each other. He notes that aside from the impossibility of actually making an inventory of *all* of nature to ascertain whether or not this stock is increasing, it is also the case that the idea of a constant stock of natural capital cannot hold in reality because the composition

of nature itself is constantly changing (p. 116). Furthermore, “constant natural capital requires substitution of non-renewable for renewable natural capital, which is really a variant of the neoclassical distinction between critical and non-critical capital: if non-renewable natural capital can be substituted for, it must not be ‘critical’” (p. 117). He argues that this distinction is misleading because ‘renewable’ species can become extinct. In this sense, the conception of maintaining a constant aggregate stock of natural capital is perhaps in the end also a license to further exploit non-renewables at business- as-usual rates that fail to consider qualitative aspects of socio-ecological health and equity issues within and between generations.

I contend, then, that not only is it difficult to put a price on natural wealth, but doing so often results in its inequitable distribution. That is, those with more monetary wealth are better able to command and control the quality of monetized nature, while those without are left without a say (M. O’Connor, 1994, pp. 140-1). Particularly where this concerns components of non-human nature that are absolutely crucial to human life (such as air and water) the apportioning of private property rights – what Burkett (1999) perceptively saw as, effectively, the imposition of ecological rents – can pose serious obstacles to human survival. And both practically and ethically speaking, can an individual or a corporation really *own* the air? In a situation where nature is fully privatized, those who have more wealth are also in a position to generate more profits from the establishment of these new markets and sites of accumulation.

The establishment of private property rights implies the ability to alienate others from access.¹⁷

The apparent impersonality of the market simply masks the underlying social content and the

¹⁷ This was precisely what happened when Turing Pharmaceuticals raised the price for Daraprim, a crucial antiparasitic drug used by HIV positive patients, from \$13.50 to \$750 per pill in September 2015. Though then-CEO Martin Shkreli swiftly became public enemy number one, he was, in a sense, simply laying bare the full logic of the market. What this company did was legal, and was a commonplace practice in the industry – yet it was only when taken to its extreme that the cruelty and inequity of such a system became blatantly obvious for all to see.

inequalities in wealth and power that undergird the market. Indeed, any attempt to price natural resources cannot escape its simultaneous implications for distribution and equity. Advocates such as Pearce and Barbier (2000, p. 11) reply that though this may be true, those who are concerned about equity ought to focus on addressing income inequality directly rather than oppose monetization. Yet how can one reasonably expect to address inequality while first implementing policies that enable the already rich and powerful to appropriate even more assets and wealth – that is, more power? In this highly uneven landscape, placing generalized prices on natural wealth and environmental damage, no doubt, simply facilitates the displacement of pollution and damage to poorer communities; this is, indeed, the ‘magic of the market.’

It is a singular demonstration of the pervasiveness of market forms that we presume to be able to commodify and express anything and everything in the price/commodity form, even for things that are inherently not commodities, and to value only those things with exchange value. The dominance of market relations has turned socio-ecological relations into simple necessities for production and turned relationships between people into relationships between things – what Marx called ‘commodity fetishism’. Yet is nature to be viewed as just a source of raw materials and a sink for wastes? Are other species of plant and animal life simply sources of medical products or expendable in the search for profits? What sorts of non-market values are ignored in attempting to place a price on nature? Is there really nothing beyond the barren market?

Ecological Marxism

For Marxian enquiries, the analysis of the socio-ecological crisis begins with an analysis of capitalist social relations and the contradictory nature of the accumulation of value as an abstract process on the one hand and as a specific, material (i.e. natural) process on the other.

Jason Moore (2003, p. 450) formulates this as a “contradiction between the accumulation of value as abstract labour (its social form) and the accumulation of value as material process (its spatial form).” The commodity, Marx proposes in the first chapter of *Capital* (1867/1976), is a unity of contradictions. It is the embodiment of both a qualitative use-value and a quantitative value (of which price, exchange value, and rent are forms). Insofar as the commodity is a use-value, its qualities are determined by the quality of the concrete human labour (i.e. the actual act of sewing, cutting, etc.) used in production, the characteristics of the natural material of which it is made, and the general socio-ecological conditions of its production. Insofar as it is a value that is exchanged as economic equivalents on the market and bears a price, as abstract social labour, it must abstract from the specific material foundations of its production, that is, it must abstract from the concrete labour processes anchored in material space and time (this includes ‘mental’ labour and its material requirements) that produce the use-values to be sold as commodities. Value is a quantitative aspect of the commodity that at the same time expresses a social relation specific to capitalism as a system of generalized commodity production for profit.

However, though a commodity is both a use-value and a value, capitalist production organizes social production in such a way as to place primacy on maximizing the quantitative production of value-in-exchange, rather than qualitative value-in-use. In other words, in capitalism, the production of use-values is subordinated to the production of exchange-value. The socio-ecological contradiction lies precisely in that though the use-value/qualitative dimension is crucial to the well-being and flourishing of nature (Burkett, 2003), both human and non-human, the constitution and realization of homogenous exchange value happens only through constant abstraction from and subordination of the realm of use-value.

It is important to note that although commodities must also be use-values, for Marx (1875/1976, p. 131):

A thing can be a use-value without being a value. This is the case whenever its utility to man is not mediated through labour. Air, virgin soil, natural meadows, unplanted forests, etc. fall into this category. A thing can be useful, and a product of human labour, without being a commodity. He who satisfies his own need with the product of his own labour admittedly creates use-values, but not commodities. In order to produce the latter, he must not only produce use-values, but use-values for others, social use-values.

In other words, use-values exist in a much wider range and scope than commodities. He makes a similar critical distinction between ‘value’ and ‘wealth’ in his *Critique of the Gotha Program* (1875/1978). Here, value (and its general equivalent as money) is understood as being a kind of material wealth that is the product of human labour that is *specific to capitalism*. Wealth, however, need not be either of those things. The many variegated aspects of natural life – the aesthetic, intrinsic values of nature, of forests, streams, wetlands, etc., while having inestimable use-value for the reproduction of social and natural life (and even in its own existence) and constitute a kind of wealth, need not have any (exchange) value.¹⁸ Labour, Marx insists, “is therefore not the only source of material wealth” (1867/1976, p. 134). This distinction between value and wealth becomes crucial in the ecological Marxist approach because it allows us to specify and analyze the dynamics of value production and social valuation characteristic of capitalist society while at the same time maintaining a critical distance and vocabulary from

¹⁸ Burkett (1999, p. 82) builds on this distinction when he asserts that the contradiction between use-value and exchange-value is one “between wealth's specifically capitalist form and its natural basis and substance. Nature contributes to the production of use values; yet capitalism represents wealth by a purely quantitative, socio-formal abstraction: labor time in general. Capital's 'free-appropriation' of natural conditions (occurring whenever nature contributes to capitalist use-value production without adding to value production) manifests this contradiction insofar as it is enabled by the system's valuation of nature according to the social labor time necessary for its appropriation in commodity production, not according to the real contribution of nature to wealth or human need satisfaction.”

which to evaluate its processes, assumptions, and outcomes. Indeed, I will return to this distinction throughout the dissertation.

Perspectives in the Marxian tradition are diverse. Earlier ‘stagist’ views took the position that the ‘productive forces’ developed in capitalism (i.e. forms of industrialism and technologies) were themselves neutral and suitable ‘as is’ in socialist production, thus eliciting the contempt of environmentalists the world over. However, Marxist theorists today who are concerned with the question of ecology tend to stress how the development of industrialism and its socio-ecologically destructive tendencies is internally related to the development of capitalism. That is, rather than seeing industrialism and capitalism as representing two different dynamics as in neo-Weberian institutionalism, the development of particular patterns of industrialism and the systematic and organized application of technology – and in particular, fossil fuels – to a continual increase in productivity and output is understood to be a direct result of the necessity for the endless accumulation of capital (i.e. the profit motive) and the social relations of (re)production, distribution, and property characteristic of capitalist society.

Andreas Malm (2013; 2016), for example, highlights how the conversion from water to steam power in the cotton mills of England throughout the 1830s that decisively locked-in the path towards a fossil economy had as its aim controlling labour militancy rather than technological efficiency. In this sense, technology is understood as always embedded within power relations, unlike in ecological modernization where it is seen as a socially neutral tool with its own autonomous logic of scientific development and application.

Enrique Leff (1995) points out that technological development that is overdetermined by processes of capitalist value formation and production often leads to unsustainable technological choices that overexploit natural resources, such as the application of agricultural technologies

developed in temperate regions in tropical areas. He similarly suggests that the maintenance of the productive rationality and patterns of development in the 'North' have been facilitated by the overexploitation of resources and labour-power and the 'net loss' of productive potential in the 'South'. Therefore, at heart, issues of ecological sustainability cannot be divorced from issues of inequality. In this sense, inequality is manifested not only in the kinds of proposals put forward for ecological improvement, but is constituted as part of the ecological problem from the outset (p. 27). Indeed, David Harvey (1993) highlights how conceptions and understandings of nature itself – no matter how much they present themselves as 'neutral' – are inescapably imbued with social values, assumptions, interpretations, and political and class interests. The invocation of a particular nature, he points out, often serves to legitimate particular political projects.

Writers in this tradition, even if widely varying in their analyses and proposals, tend to stress how the expansionary character of capitalism is inherently socio-ecologically damaging, since it leaves dislocation and destruction in its wake by treating people and nature as simply means in the quest for profits (Kovel, 2007; Burkett, 2006; Harvey, 2005; Foster, 2010; J. O'Connor, 1998; Gorz, 1980). James O'Connor (1998), for instance, famously theorized environmental degradation as the 'second contradiction' of capital, as the "contradiction between capitalist production relations (*and* productive forces), on the one hand, and the *conditions* of capitalist production, or 'capitalist relations and forces of social reproduction,' on the other" (p. 160, emphasis in original). That is, as capitalist expansion degrades the conditions of production (e.g. nature, labour), it tends to raise the costs of production over time both as a consequence of the deterioration itself and as a result of social struggles that fight back to restore the conditions of production. The result of this is a cost side profits squeeze and economic crisis.

André Gorz (1980) similarly theorized that capitalism would reach ecological limits of its own making through excessive degradation and resource exhaustion. He argued that ecological deterioration would increase costs of production (since capital has to restore the conditions of production that were previously free, resulting in a rising organic composition of capital and a falling rate of profit), and absolute scarcities created by overuse would also act as a physical barrier to growth. More recently, Jason Moore (2010; 2015) theorized that the ability of capitalism to produce cheap natures and deliver the ‘Four Cheaps’ of food, energy, raw materials, and labour (also referred to as the ‘ecological surplus’) underwrites capitalist expansion and capital accumulation over the *longue durée*, the petering out of which leads to crisis.

Instead of ecological limits triggering crises, Harvey (2005) theorizes the increasing privatization and enclosure of nature (or ‘the commons’) as a response to the overaccumulation of capital, a method of ‘accumulation by dispossession’ to expand opportunities for profitable investment. Other writers like Paul Burkett (2006) and John Bellamy Foster (2010) stress that although capitalist production degrades the conditions of production, neither physical degradation nor scarcity need, in themselves, inevitably pose a limit to capitalist production per se. It may simply mean that distribution becomes more and more unequal and our natural habitat becomes more and more inhospitable for the vast majority of living beings as capital ceaselessly accumulates. Burkett (2006, pp. 136, 53) particularly draws a distinction between the requirements for the reproduction of capital and the requirements for human development. He argues that “many elements of natural wealth that are critical for human development are not critical for capitalism” and that “the material, use-value requirements of value and capital...are

obviously quite minimal compared to the requirements of a healthy and sustainable interchange between economy and nature.”

It should be noted that this is not the same as saying that there are no natural limits at all, that anything and everything is possible, without restriction. From the standpoint of materialism, to assert that there are natural limits is simply another way of asserting that nature and the material side of accumulation matters. However, what Burkett highlights is that the existence of ‘natural limits’ – or the reality of the material – does not in itself directly and inevitably translate into capitalist economic crisis; in fact, in his view, this precisely accounts for why capitalist production is so ecologically destructive. Put differently, capitalist development is capable of causing multiple ecological crises and severe human misery before any kind of ultimate ‘natural limit’ (i.e. ecological collapse and possible human extinction) actually sets in. In a similar vein, urban geographers Niklas Heynen, Maria Kaika and Erik Swyngedouw (2006) argue that “there is no such thing as an unsustainable city in general, but rather there are a series of urban and environmental processes that negatively affect some social groups while benefiting others” (p. 9). Like Neil Smith (1984/2008), they eschew the problematic of the ‘environmental crisis’ as such, and instead tend to concentrate on the uneven production of nature and space in capitalism.

In this respect, the question of ‘limits’, formulated as inevitable or insuperable barriers leading to the collapse of capitalism (or at least severe existential crisis), is perhaps a bit misplaced. On the other hand, if a natural ‘limit’ is understood as defining the contradictions, opportunities and impossibilities of particular forms or projects of development within particular historical moments and social relationships in all of its complexities and richness, then the notion of a limit is simply a way of taking a materialist standpoint as noted above, a way of bringing the ecological back into political-economic analysis. In any case, although the question of natural

limits (Benton, 1989, 1992; Grundmann, 1991) has perhaps been an excessively dichotomous debate, its interlocutors nonetheless advanced the development of an ecological Marxist, materialist form of analysis. Ted Benton's (1992, p. 58) formulation of 'limits to growth' is a good example of this:

'limits to growth' should be conceptualized neither as social limits nor as natural limits *simpliciter*, but as consequences of definite forms of combination of human social activity and the natural forces and mechanisms deployed and encountered in the course of it. Natural limits cannot, in other words, be adequately conceptualized independently of the social processes through which they are approached.

In a similar move, Moore (2011, p. 37) highlights how from a world historical perspective, the analysis of capitalism as a world ecology that develops through "ecological revolutions in the dynamics of accumulation" encourages an analysis in which "the 'limits to growth' give way to the conditions *and* limits of accumulation."

Growth as Mediating Distributional Struggles

Whatever their specific propositions, for many Marxist writers, the anti-ecological tendencies of capitalist production and expansion stem from the basic relationship between capitalists and workers. From this perspective, capitalist social relations is characterised by a general situation in which workers, stripped of all non-market means of reproduction, are dependent on the market to reproduce themselves and their families in daily life. That is, they must sell their labour-power for a wage, which they then use to buy the necessities of life as commodities on the market. In this sense, the collective interaction or metabolism with nature constituted through work becomes increasingly mediated by the market. In capitalist society, the goal of investment and production is to realise profits (that is, the accumulation of value), not the satisfaction of human or ecological needs. Both workers and non-human nature enter into the

production process simply as inputs, as ‘factors of production’ and a means to another’s end. In this process, workers lose control over the products of their labour, the labour process itself, and the interaction with nature that this entails. In short, work is an alienating experience.

Furthermore, the social surplus that results from production is owned privately and alienated from workers in the form of surplus value. As such, decisions on the direction that this social surplus should take – for instance, investment – lie in private hands rather than democratic deliberation.¹⁹

The drive for unending expansion and profit is an intrinsic character of capitalist competition and survival, which implies a constant pressure to lower costs of production and accelerate capital accumulation. This has a number of consequences. First, as a part of production costs, socio-ecological integrity/quality and its reproduction sit in constant tension with profit accumulation, since lowering production costs is a regular feature of competition. Strategies of planned obsolescence aside, the competitive struggle tends towards over-production and thus the continual production of waste in the form of unsold commodities.

Second, the drive to accelerate capital accumulation by compressing time and space is both enabled by and characterizes capitalism’s dependence on fossil fuels as an energy source (Altvater, 2006). Malm (2013) points out that capital is also dependent on fossil fuels as a disciplinary force. Fossil fuels enable the ‘untying’ of capital in space in a way that ‘renewable’ fuels that are more locationally fixed cannot; the flexibility in choosing production sites that this allows acts as a powerful disciplinary force on labour to quell militancy and place downward

¹⁹ For an extended discussion on metabolic relations with nature in capitalism, see John Bellamy Foster, *Marx’s Ecology: Materialism and Nature* (New York: Monthly Review Press, 2000), chapter 5.

pressure on wages and working conditions. Needless to say, this dependency on fossil fuels constitutes a serious obstacle towards strategies to mitigate climate change.

Third, there is a continual incentive for the capitalist firm to increase the length and intensity of the workday, lower wages, or increase the productivity of labour through technological development in order to reduce costs. Relatively speaking, increasing productivity implies using less labour for the same amount of output. To maintain (or even increase) employment with technological advancement, then, either the market or the market share of the firm in question must grow.²⁰ Similarly, demands for better wages, working conditions, or environmental quality all increase the costs of production. Within capitalist social relations, these demands can only be met through lowering profits or – wait for it – more growth. What we see, then, is that the pursuit of growth becomes a preferred way of mediating social and distributional conflicts necessarily engendered in capitalist production without also changing its underlying social property relationships.²¹ However, this apparent solution is itself the source of very serious problems. The unrelenting quest for economic growth has caused unsustainable resource use and pollution, leading to climate change, the degradation of human and non-human habitats and a host of other socio-ecological issues. In this sense, growth is only a means of displacing the conflict through time and space.

What is important to note here is that growth and the distributional struggle is not an arbitrary or voluntary sphere independent of the relations of production; rather, they form a unified whole. In the third volume of *Capital*, Marx writes (1991, p. 1023):

²⁰ These concepts are developed in Marx (1867/1976); for a brief discussion, see Lebowitz (2003), Chapter 1.

²¹ For a critical discussion of the contradiction of trade unions adopting growth-based strategies, see Felli (2014).

The so-called relations of distribution, therefore, correspond to and arise from historically particular and specific social forms of the production process and of the relationships which men enter into among themselves in the process of reproducing their human life. The historical character of these relations of distribution is the historical character of the relations of production, and they simply express one side of these. The capitalist distribution is different from those forms of distribution that arise from other modes of production, and every form of distribution vanishes along with the particular form of production that it arises from and corresponds to.

In much of his writing, Marx was at pains to emphasize, against the views of his contemporaries, that since forms and structures of distribution (e.g. of the ‘means of consumption’) follow from that of production (i.e. the ownership of the means of production as private property), it was thus a mistake to focus solely on changing the distribution of the social product as if this could be done without regard to changing the underlying relations of production.²² In this view, questions of distribution cannot be divorced from questions of productive relations. This is not to say that there is never any room for manoeuvre in changing the division of the social product (i.e. distribution) or that this is a useless task; rather, it is to say that, in practice, there is not an unlimited freedom to change distributive relations unless one is also prepared to change its

²² Marx remarks in the *Grundrisse* (1978b, p. 228): “Nothing is more common than the reproach that the political economists view production too much as an end in itself, that distribution is just as important. This accusation is based precisely on the economic notion that the spheres of distribution and of production are independent, autonomous neighbours. Or that these moments were not grasped in their unity. As if this rupture had made its way not from reality into the textbooks, but rather from the textbooks into reality, and as if the task were the dialectic balancing of concepts, and not the grasping of real relations!” In his *Critique of the Gotha Program*, he argued (1875/1978, pp. 531-2) at length: “Any distribution whatever of the means of consumption is only a consequence of the distribution of the conditions of production themselves. The latter distribution, however, is a feature of the mode of production itself. The capitalist mode of production, for example, rests on the fact that the material conditions of production are in the hands of non-workers in the form of property in capital and land, while the masses are only owners of the personal condition of production, of labour power. If the elements of production are so distributed, then the present-day distribution of the means of consumption results automatically. If the material conditions of production are the co-operative property of the workers themselves, then there likewise results a distribution of the means of consumption different from the present one.”

associated relations of production. Conversely, it is also to say that the extension of capitalist relations of production into new spaces is also an extension of its distributive relations, but with consequences that are more than merely distributive. It is to these consequences that we now turn.

Alienation as the Condition of Work in Capitalist Society

To make earth an object of huckstering — the earth which is our one and all, the first condition of our existence — was the last step towards making oneself an object of huckstering.
-Friedrich Engels (1844/1964, p. 211)

In the Marxian view, the production process lies at the heart of the human relationship and interchange with nature. In attempts to overcome a dualistic understanding of nature, theorists like Neil Smith (1984/2008) stress that it is through the production process that nature – both human and non-human – is produced. This is what he refers to as the ‘production of nature’ thesis. Many writers in this tradition (e.g. Lebowitz, 2003) begin by highlighting that Marx posits labour-in-general – understood as involving an interaction with and a transformation of nature – as a necessary condition for humans to (re)produce ourselves as social, cultural, and natural beings. That is, it is through labour and the relationship with nature that this necessarily entails (our ‘metabolic relations’ with nature) that we develop and realize our selves, our capacities, our ‘human nature’ and sustain ourselves as physical beings. (In this most abstract and general sense, labour is understood as including both ‘reproductive’ and ‘productive’ labour.)²³ As such, human

²³ Here, I understand the division between reproductive and productive labour as one that arises and becomes relevant in a capitalist division of labour. Through the commodification of labour-power and nature, capital takes hold of an important portion of the means of social reproduction and places these on the market to work in the service of surplus value production. From the point of view of capital, then, this commodified work on the marketplace is ‘productive’ of surplus value, while necessary but uncommodified work falls to the realm of ‘reproduction’.

labour constitutes a particularly important nexus for shaping both our relationship with the non-human natural world and with each other. However, at a lower level of abstraction, this labour takes on particular characteristics and definite social forms embedded in time and space. In the context of capitalist social relations, labour takes on an alienated character – that is, it becomes *work*, and our metabolic relations with nature become regulated by criteria set by capital accumulation.

One of Marx's gravest critiques of capitalist society is that it is a deeply alienating and unequal society. The interrelated alienation of labour and nature in capitalist society refers in the first instance to the fact that those who are directly producing commodities, that is, workers, are separated from the means of production and must acquire the necessities of life as commodities of various producers in order to survive. Here, the fruit of their own labour confronts them as the property of another, i.e. a capitalist (Marx, 1867/1976, p. 182). Historically, this has been achieved by the establishment of private property, which entailed dispossession and the loss of direct access to nature – in particular, land – as a means of social (re)production for the majority of now nominally 'free' workers. If the existence of a class of workers who have nothing to sell but their labour-power is not an intrinsic, eternal character of human society, but an act of dispossession, as Marx suggests, then dispossession, and hence the alienation of people from nature, is a condition of generalized commodity production in capitalist society. Indeed, neoliberal attempts to deal with the growing ecological crisis further alienate nature from regular citizens through establishing private property rights to water, air, and other parts of the commons.

The consequences are two-fold. The separation between the moment of production and the moment of consumption that obtains in capitalist social relations implies, on the one hand,

that as consumers, people are alienated from production and the point of production of the goods they buy. In their capacity as consumers, the ability to influence their (re)productive relations to nature, in this instance, are reduced to indirect relations between things, of consuming certain ‘environmentally friendly’ goods. As direct producers of commodities, workers nonetheless do not wield direct control over the labour process, and are thus alienated from control over the metabolic relations with their natural surroundings in their productive activity. That is, workers cannot make decisions about how they wish to relate to nature in their work – for instance, workers in forestry do not have effective control over the methods of logging or the areas where work takes place. Even if workers do not personally hold an instrumental view of nature, the conditions and incentives of their work can still dictate such a relationship in practice. Workers may not agree with production practices, but failure to comply could result in unemployment. As commodified labour, workers’ instrumental relationship to nature as practiced through the labour process is externally defined in the immediate sense, even if they may collectively struggle to change the conditions of their work – yet even this struggle generally takes place outside of the immediate labour process proper. In this context, the development of technology in the workplace, insofar as it has as its aim the pursuit of profits through increasing productivity, is often experienced as disempowerment and degradation of working conditions (Braverman, 1974/1998).

In sum, what is at stake in the Marxian perspective is not only that capitalist society produces socially and ecologically undesirable actions and outcomes. Capitalist relations and alienation imply a systematic loss of power for the majority of the population to determine the trajectory of their productive lives, both in relation to each other and in relation to the natural

world. Benton (2009, p. 229) highlights how the alienation engendered by capitalist production and property relations implies:

...the fully human, practical, cultural, cognitive, and spiritual forms of interaction with nature are denied under conditions of wage-labour, and replaced by a more instrumental compulsion to work in order to meet one's most basic – and, by that fact, debased – needs. For the early Marx, alienation from nature was the most fundamental form of alienation, and its ultimate source.

To be alienated from nature, in this sense, means that the potential for labour-in-general to be a source of self-development and fulfillment, i.e. the positive content of labour, is lost in capitalism, as work takes on a fragmented and alienated form. What does it mean, then, and what are the material, psycho-emotional implications, to be thus alienated, to lose control over significant portions of everyday life, our productive capabilities, and the way in which we interact with our natural conditions? What does it mean to experience oneself as simply a disposable, replaceable means of production in the quest for profit?

Conclusion

Thus far, I have presented a critical assessment of two of the most prevalent views on the environmental crisis – that of ecological modernization and market ecology. I have argued that these represented a significant political shift from earlier radical environmentalism, reorienting the discussion of the environmental crisis in a direction much more amenable to the interests of the powerful. In this respect, we can understand both of these as variants of capitalist responses to ecological crisis. I have also argued for a Marxist, ecosocialist perspective that engages questions more typical of earlier radical environmentalism. Proposals to address the environment are not simply issues of technical expertise: they are, from the beginning, questions of social distribution and politics, perspectives on what it means to live a ‘good life’. Furthermore, if, as I

have argued, relations of inequality, exploitation and alienation with both human and non-human nature are constituted through work – more specifically, capitalist labour processes – then the struggle for sustainability and justice cannot avoid the task of the utter transformation of work. In the following chapters, the contradictions of these capitalist responses to environmental crisis will be further explored. It will be contended that while they have been politically expedient, they are nonetheless inadequate to the task of ensuring socio-ecological integrity and justice for both present and future generations.

Chapter 2

Green Jobs and the Keynesian Green New Deal

The global financial crisis that hit the world in full force in 2008 has become a watershed event, putting an end to the exuberant and optimistic (though also brutal and violent) growth of a fast expanding global capitalism of the previous two decades. The ‘Great Recession’ that followed unleashed a series of global and localized protests and unrest, ushering in what many label a period of permanent austerity. The responses to an ailing global economy, soaring unemployment rates and increasing poverty have been varied. Most are preoccupied with how to kick-start the global growth engine. One interesting intervention by a number of trade unions and environmental organizations as the financial crisis broke out was to call for a global ‘Green New Deal’ (GND) in international policy circles to curb the excesses of neoliberal development while at the same time addressing climate change and environmental degradation (Pollin, Garrett-Peltier, Heintz & Scharber, 2008; UNEP/ILO/IOE/ITUC, 2008; UNEP, 2009; Green New Deal Group, 2008).

In many ways a project of ecological modernization, the GND called on governments around the world to target stimulus funds – disbursed by national governments as emergency measures in the aftermath of the financial crisis to stave off economic collapse – towards ‘green’ sectors. Advocates of a GND proposed that the pursuit of a green industrial revolution could act as a new engine of growth to revive the world economy and generate ‘green’ employment (i.e. green jobs).¹ Indeed, though the immediate crisis is now over, with continued economic

¹ The term ‘Green New Deal’ will be used interchangeably with a ‘green jobs’ strategy in this dissertation. The GND is a Keynesian macroeconomic strategy that has the creation of green jobs as its aim, while the term ‘green jobs’, on its own, tends simply to refer to jobs that are environmentally friendly or low-carbon. A ‘green jobs’ strategy will be used mainly in

stagnation, the policy orientation of the GND continues to persist at the margins of anti-austerity movements today.² Notably, unlike most projects of ecological modernization that have tended to overlook issues of social inequality, the GND has made a point of including issues of workers' rights and social justice into proposals for ecological transformation. Indeed, a major theme running through much of this work emphasizes the need to move beyond the 'jobs versus environment' debate to more seriously consider ways in which questions of employment and quality of work can be integrated into green industrial policy (McBride & Lipsig-Mummé, 2015). This is, no doubt, a result of the (much needed) collaboration between trade unions and environmental organizations.

Although much has been made about 'green jobs' and by some accounts many governments included a significant 'green' component in their initial fiscal stimulus programs shortly after the financial collapse (see the much cited report by HSBC Global Research, 2009), it is clear that this newest project for ecological modernization has far from taken hold. Indeed, amidst renewed and ongoing austerity, in recent years the international discussion has imperceptibly shifted into one of 'green growth' and the 'green economy' (UNEP, 2011; UNEMG, 2011). Gone are the calls for fiscal stimulus; instead, what we see is the emergence of an austerity-friendly "environmentalism", one that favours the commercialization of environmental policy and sees the environment as simply another arena for neoliberal capitalist development. It is, in short, the rise of a competing strategy to address the twin problems of

distinction to a 'green growth' strategy, which treats the creation of green jobs only as an incidental benefit. The differences between these various terms will be developed more fully in this chapter.

² For instance, in the Canadian context, the Broadbent Institute continues to argue for focusing on conversion to 'green' energy as a way to reinvigorate the economy without the specific references to a 'green' fiscal stimulus that was central to arguments for a GND in the immediate aftermath of the financial crisis (Jackson, 2016).

economic stagnation and climate change – or perhaps a slow neoliberalization of the green jobs project in the direction of market ecology – that coincides with the re-consolidation of neoliberal orthodoxy and the narrowing of what constitutes acceptable environmentalism.³

In this chapter, I will provide a brief critical assessment of the major elements of both of these strategies towards ecological transformation and economic crisis. Through this assessment, it will be contended that neither the ecological modernization strategy of the GND nor the green growth strategy of its neoliberal cousin is adequate to the task of ensuring both ecological sustainability – not the least of which is containing climate change – and social justice. In particular, I focus on how the commitment to capitalist growth and competition as well as the endorsement of market-based instruments in environmental policy found in both strategies constrains the possibilities of promoting labour-intensive, gender-equitable development in green industries. At the same time, I also highlight the need to move beyond simply promoting employment in apparently ‘green’ industries and thus the need to broaden our notion of green jobs if the goal is to achieve broader socio-ecological sustainability. Finally, I argue that despite the absence of an explicit analysis of politics, both the GND and green growth programs *do* have political commitments and distributive implications. The consequence of not acknowledging the internal relatedness of social relations of production, distribution, property and political power, especially in the case of neoliberal ‘green growth’ strategies, is that it leads to the contradictory support for political forces that are most likely to inhibit the implementation of the regulations and taxes central to their strategies for a ‘green transition’.

³ In this view, buying ‘green’ bonds is an acceptable form of ‘environmentalism’, for instance, while protesting mining operations is not.

The Green Jobs Debate: A Keynesian Green New Deal?

Although perspectives within the green jobs debate are diverse, the dominant one that arose in the wake of the financial crisis can be characterized as Keynesian, modelled after the 1930s New Deal policies of the United States. The concrete positions taken by various organizations and analysts do not strictly adhere, of course, to this sketch, and many also take internally contradictory positions, as will be shown below. Most often, like many projects of ecological modernization, a broad Keynesian or institutionalist perspective is taken in combination with more specific concepts or policy proposals that are more in line with neoliberal approaches and discourse.⁴

Broadly speaking, calls for a Green New Deal proposed that job creation could and should be combined with improving environmental sustainability and containing climate change. Along Keynesian lines, proponents of the GND argued that global fiscal stimulus was necessary to offset the worst impacts of the crisis and to boost employment and growth to enable economic recovery (Pollin et al, 2008). The reasons were two-fold. First, in the most immediate sense, the collapse of effective demand following the financial crisis meant that stimulus was necessary to avoid excessive economic contraction and further collapse – maintaining effective demand was thus crucial for restarting growth. Second, many analysts also understood the crisis as resulting from longer-term structural imbalances (for example, BlueGreen Alliance/Economic Policy

⁴ For instance, the Pembina Institute (2011) and Blue Green Canada (2012; 2013) tend to have specific proposals that are more in line with market ecology (i.e. in the promotion of market-based mechanisms, exports, etc.), while the Green New Deal Group (2008; 2009) and the Canadian Labour Congress (CLC) and Council of Canadians' (CoC) position (2009) is closer to Keynesianism. The first two are still included here as part of an ecological modernization/green jobs perspective mainly because of their more favourable orientation towards state intervention and subsidies than more neoliberal visions would allow. Much of the diversity of views with respect to neoliberal principles in the green jobs debate mirrors that within ecological modernization theory.

Institute, 2011). For researchers at the International Labour Organization (ILO), these aggregate imbalances were caused by insufficient global effective demand – owing to cheap wages in Asia and stagnating real wages worldwide – that was masked by (and fuelled) cheap credit and increasing consumer debt (ILO/IILS, 2011a).⁵

For these and other reasons, then, fiscal stimulus and public spending (as well as promoting or sustaining higher wages) was understood as a crucial tool in managing and exiting the economic crisis. Given this, it was essential from an environmental perspective to ensure that stimulus funds would be spent on building infrastructure in renewable energy (e.g. solar, wind, tidal, geothermal, biofuels) and other ‘green’ sectors to create green jobs rather than investing in projects that would lock-in high-carbon infrastructure. This commonly included support for public investment in research and development (of energy- and resource-efficient technologies, improving transport) as well as building infrastructure such as retrofitting buildings, expanding public transportation, and building ‘smart grids’. In the broadest sense, this is an ecological modernization perspective that proposes that market expansion, economic growth, and environmental improvements can be achieved through the mobilization of non-market institutions (for instance, state intervention, cooperative R&D networks) and technological development.

The landmark UNEP/ILO/IOE/ITUC report, *Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World* (2008), provides one of the broadest and most quoted definitions of green jobs as “work in agricultural, manufacturing, research and development

⁵ The BlueGreen Alliance/Economic Policy Institute report (2011) has a similar analysis of the crisis as being caused by stagnating real wages in the US, with credit and the housing bubble driving consumer spending in the absence of real wage increases. For them, re-orienting the US economy from debt-led to investment-led growth is key to economic recovery and long-term stability.

(R&D), administrative, and service activities that contribute substantially to preserving or restoring environmental quality” (p. 3).⁶ The *Green Jobs* report further adds that the criteria of ‘decent’ jobs also need to be fulfilled in order for a job to be considered ‘green’. The idea, then, is to encourage the growth of green jobs as a means to improve environmental quality. Note, however, that according to this definition, recurrent oil spills could lead to a *rise* in green jobs because employment in environmental remediation counts as ‘green’ employment. In this sense, the quantitative growth in green jobs may not be a proxy for improving socio-ecological health as is assumed. Attempts to take into account this kind of perverse outcome by classifying jobs into various ‘shades of green’ are insufficient for dealing with this problem. This is because the ‘greenness’ of an action or job is not necessarily an intrinsic attribute or property but is determined by the overall context in which an action or job operates. I will elaborate more on this in Chapter 5.

As a result of the difficulty in classifying green jobs, some studies (for instance, Pembina Institute, 2011) take an alternate strategy of simply looking at the employment effects of enacting policies to reduce greenhouse gas emissions. It is generally argued that these will have a positive effect on employment because of the labour-intensive nature of environmental industries. The Pembina Institute report further recommends focusing on greening all existing work across the economy rather than on the definition and creation of green jobs per se.⁷ To be

⁶ Narrow definitions of green jobs often define these simply as jobs that reduce carbon emissions (i.e. rather than approaching pollution and environmental problems more broadly as in the UNEP definition above), as is the case with an ILO/IILS report (2011b).

⁷ This perspective coincides with that of a statement released by the Business and Industry Advisory Committee to the OECD (BIAC, 2010, pp. 2, 4), which similarly favours ‘greening’ all jobs rather than make a distinction between ‘green’ and ‘brown’ jobs. However, one gets the impression that this has more to do with protecting the interests of ‘brown’ industries and retaining the primacy of the power of global markets against increased public involvement and planning rather than any theoretical environmental concern per se. They caution, for instance,

sure, as a long-term approach, this strategy has the very crucial advantage of focusing on actual improvements in environmental quality (although a sole focus on greenhouse gases is also too narrow). However, it does not necessarily address the important need to generate significant additional employment to offset jobs lost during the crisis, which a more specifically ‘green jobs’ approach has as its goal. This kind of model is also likely to be much less useful once we begin to look at ecological transformation that involves more than just a switch to ‘greener’ industries, but one that entails the dynamic structural transformation of physical, social, and cultural space. In more concrete terms, both the *Green Jobs* report and the CCPA (2012) point out that reducing GHG emissions implies not only more efficient production processes or a switch to renewable energy, but also requires changes in urban planning that reduces distances between work, home, and play and/or the distances required for food to travel. These kinds of changes, all involving an actual re-configuration of space as well as integration and interaction *between* different industries and activities, are not accounted for in proposals that solely focus on the employment effects of investing in renewable energies and increasing efficiency *within* enterprises. As I will show in subsequent chapters, this is particularly the case with waste reduction.

As is typical of a Keynesian perspective, the GND proposes a central role for the state in the transition to a green economy. In addition to environmental regulation and investments, the state is tasked with direct employment creation and ensuring a ‘just transition’ for workers through the provision of social safety nets, skills re-training and other services. In this sense, it is public policy and state intervention that ensures that a green transition is just. The Green New Deal Group (2009), for instance, advocates for the state to take a key role by using public

against governments “choosing winners and losers,” urging them to “refrain from using regulations that benefit certain sectors to the detriment of others” and to recognize that “short-term public sector support measures should not be seen as a substitute for long term job creation through the market.”

spending to invest in renewable energy and other green infrastructure. They propose that this can be financed through a combination of ‘green quantitative easing’ (monetary policy lending from the central bank directly to the government rather than to commercial banks, as in standard quantitative easing), tax reforms (i.e. introducing a Tobin tax, addressing tax evasion/avoidance, aligning taxation to green objectives, etc.) and the selling of ‘green bonds’. In addition, since they take the position that “an unbalanced global economy and inadequately controlled financial markets” lie at the heart of the recent financial crisis, they also insist that reining in financial capital through increased regulation and reforms is essential to the success of a GND (p. 2). To a lesser degree, a report by the ILO/IILS (2011a) similarly agrees that financial regulation is key to a green recovery.

More recently, Robert Pollin (2015) advocated for the need for public policies to ensure the investment of 1.5% of global GDP above the business-as-usual scenario into low emissions renewable energy (solar, wind, geothermal, small-scale hydro) and energy efficiency over the next 20 years as a necessary step towards ‘greening the global economy’ and reducing global carbon emissions to 2.3 tons per capita. Like others in the GND camp, he emphasized that investing in renewables and energy efficiency would be a net generator of employment, since these sectors are more labour-intensive, but that a ‘just transition’ for displaced fossil fuels workers would be necessary nonetheless to make a green transition politically viable. In a similar vein, he argued (p. 98) that in order for such a climate stabilization program to be inclusive and affordable for those with low-incomes, it would be necessary for “the financing terms for clean energy investments [to] be affordable for borrowers – that is, not always yielding high returns for lenders – [which] suggests a major role for public investment banks to play.” In addition, he maintained that community and other alternative forms of ownership of renewable energy

infrastructure can be beneficial in supporting a clean energy transition, since these kinds of owners often have lower requirements for profitability to consider projects viable compared to large-scale capital; community-based projects can also lower transmission costs as a result of the proximity of energy generating infrastructure to end-use communities, amongst other benefits (pp. 99-101).

In stronger Keynesian formulations of the GND such as that advocated by the New Green Deal Group, regular state intervention and management is seen as a necessary feature of avoiding future crises and maintaining a healthy economy beyond the initial green transition phase and crisis management. Similarly, the promotion of public employment, social services and workers' rights in 'normal' times is justified as a way of boosting aggregate effective demand to maintain stable economic growth. For instance, the Canadian Labour Congress (CLC) – a long-standing advocate for green jobs – released a report in 2009 in conjunction with the Council of Canadians arguing for investments in energy efficiency and retrofits and the expansion of renewable energy production on the basis of public ownership that caters to local community needs as a long-term national energy strategy. In this view, expanding public employment and extending democratic control in the energy sector is not just a temporary response to crisis but also a desirable long-term strategic goal. Within this strategic orientation, the CLC recently launched a campaign with the Green Economy Network to lobby for public investment into 'One Million Climate Jobs' (2015) focusing on renewable energy, energy efficient housing, public transit and high-speed rail in Canada to achieve both emissions reduction and a just transition.

Weaker versions of the GND, in contrast, recommend state intervention that relies relatively more on the use of market-based instruments. The *Green Jobs* report, for example, recommends a mix of public investment, environmental regulation, market-based instruments

such as carbon markets and payment for ecosystem services (PES) schemes, eco-taxes, and subsidy reforms that redirect subsidies from ‘dirty’ to ‘green’ industries to encourage the creation of green jobs (UNEP/ILO/IOE/ITUC, 2008, pp. 5, 20). Indeed, the promotion of market principles as a strategy of transition in many variants of the GND is what the latter shares in common with neoliberal versions of the ‘green economy’ and ‘green growth’. In many ways, the inclusion of market-based instruments and principles in the GND also lends credibility to the more neoliberal versions of ‘greening’, since the latter simply takes these propositions to its logical outcome.

These differences notwithstanding, the advocacy for increased state intervention, public funding, and the promotion of labour-intensive ‘green’ industries and a ‘just transition’ are what I consider the core elements of a Green New Deal or green jobs perspective. I explore some of the complexities and contradictions of these themes below.

A ‘Just Transition’

As early as the 1990s, trade unions in Canada and the United States began to incorporate environmental issues into their strategic thinking and campaigning under the concept of a ‘just transition’ for workers when taking action for environmental protection (Rosemberg, 2013, p. 19; Snell & Fairbrother, 2013, p. 147). Indeed, many in the trade union movement consider the concept of a ‘just transition’ to be the most significant contribution that the labour movement has brought to the climate debate. Although interpretations of what counts as a ‘just transition’ vary greatly, the basic premise is that workers and socially vulnerable groups should not

disproportionately bear the costs of a transition to a greener economy.⁸ For instance, the BC-CCPA (2010, p. 6) points out that one of the biggest social challenges of a transition to a green economy is that the most polluting jobs tend to be well-paid, unionized jobs whereas those with the lowest carbon footprint tend to be low-paying service sector jobs. As such, they view a just transition as one that ensures that green jobs are also decent jobs and that they “be actively linked to gains for traditionally disadvantaged populations, including women, visible minorities, immigrants and Aboriginal people, as well as low-income households in general” (p. 6).⁹ They recommend, for instance, that apprenticeship programs to train skilled workers in various green jobs be targeted to these groups in addition to various income-support, income transfer and educational programs.

In the same vein, the Labor Network for Sustainability in the US recently published a manual (2012) with examples of how a ‘just transition’ had been achieved in various coal plant closures through dialogue and collaboration between communities, unions, and environmentalists. The manual outlined some key demands to a just transition, some of which were achieved in the case studies and others that they suggested should be struggled for. These included demands like education and retraining packages, pension and health benefits for those retiring (or those who do not want to retrain), full wages and benefits for employees who are laid off, preferential hiring for workers at the new cleaner energy plants, and funds for community economic development, amongst others.

⁸ Felli (2013, p. 8) points out that within the trade union movement, what counts as a ‘just transition’ ranges from “a concept demanding workers’ (and, more often, trade union officials’) involvement in discussions over the implementation of environmental or climate-related measures” to its most radical incarnation where it “is equated with Trotsky’s transitional programme or even with ‘revolution’.”

⁹ Although they state this rather diplomatically, when we add up all the various groups listed, they amount to much more than half the general population. In short, the majority of the population is traditionally disadvantaged.

The UNEP *Green Jobs* report similarly recognizes that the transition to a low-carbon economy could adversely affect employment in highly polluting industries such as oil and gas extraction. As such, it advocates for a ‘just transition’ in which workers displaced by climate change mitigation policies are protected by social safety nets and offered compensation and skills re-training so that they can gain employment in emerging ‘green’ sectors.¹⁰ Indeed, despite some substantial political differences, a number of ILO (ILO/IILS, 2011a; 2011b; ILO, 2012) and OECD reports (Bowen, 2012; OECD/Martinez-Fernandez, Hinojosa & Miranda, 2012; OECD, 2012) equally stress the importance of ‘active labour market policies’ (e.g. skills re-training, general education in science and technology, employment search programs, temporary income support) in enabling a ‘just transition’. In particular, these reports stress that revenues from imposing various eco-taxes should be used to reduce payroll taxes (such as the employer contribution to social security) in order to boost employment, thus producing a ‘double dividend’ (i.e. of achieving both employment and environmental gains).

However, the suggestion to cut taxes on employers and fund social security out of pollution is dubious, particularly in the long term, if the goal is for such emissions to be reduced.¹¹ On the one hand, it theoretically implies a constantly diminishing revenue stream (if environmental policies succeed), since reduction in emissions or effluents would reduce the

¹⁰ Interestingly, a new organization, Iron and Earth, was launched in 2015 in Alberta, Canada by a group of tar sands workers to promote investments in renewable energy (www.ironandearth.org) in the wake of declining global oil prices and related job loss in the industry. While Iron and Earth encourages investments and retraining for displaced tar sands workers to switch to renewable energy production, they do so not with a view to encourage a wholesale energy transition, but rather as a form of energy diversification while reaffirming a legitimate place for the ‘oil sands’ in the energy mix.

¹¹ It is true that some of these reports (for instance, ILO/IILS, 2011b) also specify that eco-taxes should be revenue neutral and not used for general government spending. However, if tax revenue is being reduced in one area and replaced by another, the effect is the same as depending on this new stream of revenue for existing government spending and obligations. What is prevented is *new* government spending, and hence, a position in line with fiscal austerity.

revenue available for social security and social services, creating an incentive to allow emissions to continue or increase.¹² On the other hand, this supply-side solution falls prey to the neoliberal fallacy that unemployment is ultimately due to the high cost of labour and that job creation can be achieved by cutting taxes. In many ways, the push to promote science and technology in education and to tailor higher education to the needs of industry and commercial interests is not very different than standard neoliberal attitudes on the subject. From the perspective of organized labour, Felli (2013, p. 13) notes that the emphasis on active labour market policies and particularly the concept of ‘flexicurity’ promoted by the *Green Jobs* report can be “self-defeating”. He argues that the effect of implicitly accepting the neoliberal push to increase the flexibility of labour will likely further undermine the position of labour in the future through increased precariousness and weakening union membership.

Taking a different angle, Robert Pollin and Brian Callaci (2016) recently argued that in the case of the United States, much of the necessary contractions in the fossil fuel industries over the next twenty years (60% for coal, 40% for oil and 30% for natural gas) as part of a clean energy transition could be satisfied through attrition and early retirement for workers in the industry only one year away from the official retirement age. In this sense, they argued that the contraction of fossil fuel industries would not require mass lay-offs of active workers in the industry. A ‘just transition’ program, in this case, would mainly require supporting and

¹² Toronto found itself in just such an awkward situation of ‘wanting more pollution’ when the super-revenues from tipping fees at its Keele Valley landfill suddenly dried up as private haulers began to ship wastes to cheaper Michigan landfills instead in the early 1990s. City council had dipped in to the significant waste revenues to prevent property tax increases during the recession to pay for welfare and police services (Crooks, 1993; Gilbert, 1991). When the revenues dwindled, the city was put in the uncomfortable position of wanting to court more waste to be dumped at the landfill for financial reasons but unable to publicly do so since it was at odds with their purported desire to reduce wastes and conserve precious landfill space.

guaranteeing funding for pensions for retiring workers rather than job training programs, income supports for workers in transition, or the like.

One of the most interesting propositions in this debate comes from Lars Henriksson (2013), a Swedish trade unionist. In the context of the Swedish auto industry, he suggests (unconventionally in the context of this debate) that a ‘just transition’ ought to involve more than income support and re-training/re-skilling, as legitimate as those demands might be. Instead, he argues for a program of ‘industrial conversion’ where workplaces are kept intact and converted and re-tooled to produce more environmentally sustainable and socially desirable goods and services rather than disbanding workplaces that are environmentally unsound to create new ones in other sectors and geographical locations. In this sense, he points out that each workplace also represents a political unit and community, and that to dismantle such a unit is not costless from the point of view of the workers and the local community. Indeed, even if workers in disbanded industries could be retrained, it does not necessarily mean that they will succeed in gaining new employment even if they possess the skill sets required in the prospective workplace. This is especially true for older workers. Recent research in China shows that employers in the renewable energy sector, for instance, often prefer to hire and train younger college graduates who have longer working lives ahead of them rather than older workers displaced from the closure of dirtier thermal energy plants (Chan & Lam, 2012, p. 195).

Promoting Labour-Intensive Industries

Proponents of the GND argue that transitioning to a green economy will lead to a net gain in employment even if employment is lost in polluting industries, since ‘green’ industries tend to be more labour-intensive industries (Jackson, 2016; Pollin, 2015). For renewable energies, it is

further added that jobs in these sectors tend to be higher skill jobs than in the conventional energy sector. For example, in the Canadian context, an Alberta Federation of Labour/Greenpeace/Sierra Club Prairie (2009) joint report argued that in light of increasing unemployment and recession, the Alberta government should eliminate subsidies to the oil and gas sector and instead invest in areas of energy efficiency, renewable energy, public transit and high-speed rail to create green jobs. It pointed out that while oil and gas extraction only creates 3.5 jobs per million dollars invested, for transit this number rises to over 25 jobs per million dollars invested (p. 3). This is in addition to the observation that tar sands development will become increasingly *less* labour-intensive (and thus more capital-intensive) over time (p. 17). The BC-CCPA (2010, p. 6) similarly issued a report recommending investing in energy efficiency, building retrofits, public transportation and public services, arguing that investment in these sectors creates more jobs than similar levels of investment in the fossil fuels industry.¹³

However, many within the green jobs debate also recognize that a significant portion of the jobs found within ‘green’ sectors are informal, non-unionized jobs with poor working conditions that cannot be regarded as decent. This is particularly true of the recycling industry in the Global South – think, for instance, of the informal work of so-called ‘waste pickers’, or electronics recycling in China.¹⁴ Even in the case of the EU, the ‘greening’ of the waste management system through increased recycling does not carry any implication of better

¹³ A number of reports take a similar line of argument, advocating for removing subsidies to the fossil fuels sector so as to reinvest in renewable energies, arguing that this would generate more employment (as with Blue Green Canada, 2012; Pembina Institute, 2011).

¹⁴ Or, for that matter, consider employment in the manufacture of solar panels or mining for the minerals used to make PV cells. While the jobs created in the installation, design, and repair of solar panels or in energy efficiency might well be higher-skilled, well-paid jobs, they can also be dependent on cheap component parts manufactured in the Global South to remain economically competitive. This international division of labour, in which high value jobs remain in ‘core’ capitalist countries and low wage jobs migrate to the Global South need not be challenged by a mere ‘switch’ to renewable energies and energy conservation.

working conditions (Gregson, Crang, Botticello, Calestani & Krzywoszynska, 2014). Vassil Kirov and Jerry van den Berge (2012) observe that if sorting does not take place in the home, increased recycling can also mean more fast-paced, repetitive, and dangerous conveyor-belt work for sorting workers. In this sense, they stress that the *way* in which greening takes place has important consequences for working conditions. A recent World Bank report circumvents this problem by simply arguing that the requirement of ‘decent work’ should not be applied to the developing world when planning for green jobs, since apparently even near subsistence wages contribute to ‘poverty reduction’ (Bowen, 2012, pp. 4-5).

The ILO (2012, Ch. 7), on the other hand, tends to consider that low wages and poor working conditions are actually what constitutes the poverty of these workers (rather than their alleviation), and calls for the formalization of these sectors so as to improve working conditions and transform these into decent jobs. In this perspective, the transformation of such employment into decent work is precisely the challenge to be tackled. Indeed, the resurgence of informal, precarious work in both ‘green’ and ‘brown’ industries is a very serious challenge for trade-unions pushing for a Green New Deal. For without addressing decreasing union density or alternatively fighting for goals and policies that are broader than the union movement itself, even if unions achieve a ‘just transition’ for their members, it will remain limited to a very small portion of the working population given the trends towards decreasing union density.

To be sure, the defence of decent jobs is a commendable position. However, what is unclear is whether this can be achieved within the framework of a neoliberal marketplace without substantial state involvement in the economy beyond simple initial investments or rule setting. As this thesis will illustrate later, the struggle for decent work in the informal recycling sector in Buenos Aires has implied substantial continuous state support. Furthermore, a recent

study into green jobs policies initiated by the South Korean government (much praised by the UNEP and other organizations) indicate that the actual program pursued was environmentally questionable, displaced existing livelihoods and furthermore did not produce the number of jobs predicted, with much of the employment created being precarious employment with low wages and poor working conditions (Chang, Han & Kim, 2012, p. 160).¹⁵ Janice Fine (2011) details how despite federal stimulus spending earmarked for green jobs in the residential ‘weatherization’ sector (i.e. home retrofits for energy efficiency) through the 2009 American Recovery and Reinvestment Act (ARRA), the creation of well-paying, decent green jobs did not proceed at the scale expected due to the generally decentralized nature of the sector that tended to rely on small-scale contractors with very tight margins and lower wages. That NGOs or community development organizations were very active participants in this sector did not necessarily alter this overall trend; however, the presence of many different actors with entrenched interests made efforts to organize the sector along the lines of high-wage, decent jobs a difficult task. In this sense, even substantial state investment, without meaningful reforms that fundamentally transform the nature of the neoliberal labour market itself, will continue to deliver precarious employment.

One of the more interesting proposals in the green jobs debate – that available jobs should be equitably ‘shared’ amongst the working population by reducing each person’s work hours while productivity gains similarly be used to decrease working time rather than increase wages and consumption – would run up against enormous obstacles in a neoliberal capitalist context. Rather, to be more precise, the neoliberal labour market promotes its own form of ‘job-sharing’ in the form of precarious, part-time, and casual work with low wages and poor working

¹⁵ According to this study, this was particularly the case for construction sector jobs.

conditions that is neither socially just nor particularly environmentally friendly. An intensely competitive environment focused on profit maximization, and without the countervailing power of a strong and organized union movement exerting pressure both in the workplace and in the broader political arena, cannot 'afford' to promote secure and decent jobs with fewer working hours for all, as it would raise costs and reduce profits (Gorz, 1989). To truly achieve job-sharing in a socio-ecologically equitable manner beyond reducing work hours for a select group of workers in select industries would require a transformation of both the form and the objective of the firm itself.

Indeed, the pursuit of labour-intensive employment within a capitalist context favoured by the GND often ignores the constraints of profitability and competition that this context implies. While labour-intensive industries are favourable from a social point of view, they may not necessarily be capitalistically sustainable – in other words, competitive – typically, unless wages are low. Many of the occupations that are said to be labour-intensive and favoured in a green economy, such as the small repair shops of the past, precisely went out of business because that level of labour intensity was no longer profitable. It is capitalist competition itself that tends to produce pressures to adopt labour-saving technology (thus fewer labour-intensive enterprises) and precarious work arrangements as a function of cost-cutting and profit maximization. For instance, one EU study on waste management practices found that privatization and the introduction of competition into waste management led to work intensification in both the public and private sectors, since “the providers of waste collection services are asked to do the job with fewer people” (Kirov & Van den Berge, 2012, p. 183).

Left to its own devices, even industries that are labour-intensive at the beginning are likely to become less so with technological development over time. As the research for this thesis

in Buenos Aires and Toronto shows, the labour processes found in ‘green’ sectors like recycling are not immune to these pressures towards work intensification, mechanization, and precariousness. Furthermore, within this neoliberal context, a labour-intensive enterprise need not generate employment for more people if existing employees work longer hours. The aforementioned study on the Chinese wind industry suggested that employees in this sector on average were more likely to work overtime than their counterparts in conventional thermal power plants (Chan & Lam, 2012, p. 197).

In this sense, it is even more problematic for proponents of the GND to embrace (and thus legitimize) the language – and the fact – of competition. For instance, the UNEP/ILO/IOE/ITUC *Green Jobs* (2008, p. 5) report sells ‘greening’ as a desirable goal in and of itself from a business point of view because “[g]reen innovation helps businesses stay at the cutting edge, retaining existing jobs and creating new ones.” The Pembina Institute (2011) similarly insists that the Canadian government needs to aggressively promote renewable energies so as not to lose valuable export markets and ‘first mover’ advantages. The justification for adopting more environmentally sound behaviours, in short, is that this will allow them to compete more successfully on the market.¹⁶ Yet what if these innovations do not prove to be competitive on the market? Sean Sweeney (2013a), for instance, notes that the danger of

¹⁶It is frequently argued that the economic costs posed by climate change makes mitigation and adaptation measures more competitive as demand rises. However, in the absence of concerted collective effort, market-driven processes will probably only lead to ‘economically’ driven competitive advantages for adaptation technologies rather than preventive measures, because people experience the costs of climate change as an increase of natural disasters and the like. The costs that are incurred involve adaptation – it will not necessarily spur expenditures in prevention (like reducing emissions and switching to renewables) in and of itself. Gaining an edge in renewables only matter in terms of economic competition if renewables eventually become cheaper than conventional energy or if conventional energy runs out – and by the time this happens, we may already be in a state of severe global warming.

developing ‘extreme’ energy such as tar sands oil and natural gas recovered from ‘fracking’ shale formations (aside from its enormous embodied emissions, which is no small matter) is that it makes the development of renewable energies much less economically attractive and viable. Yet even if renewable energy is not competitive, it does not negate the actual necessity of moving towards renewable energies (and a reduction of energy use more generally) if we are to address climate change and other ecological problems – this need is not defined by its economic profitability. If successful competition is admitted as the primary goal of production (as is the case in capitalist society), we are inadvertently also admitting the kinds of socio-ecological choices that it makes viable and accepting the pressure to cut costs that adversely affects working lives and socio-ecological health. Indeed, promoting labour-intensive industry does not in itself do away with the distributional conflicts between employers and employees, and the gendered and racialized forms that these take, particularly if profit-seeking competition is also promoted as the organizing principle of economic production. In other words, promoting labour-intensive production is a necessary but not a sufficient strategy to achieve ecological transformation and social justice.

Gender, Neoliberalism and Green Jobs

The past few decades of neoliberal globalization has in fact depended on the promotion of labour-intensive industries such as electronics assembly and garment making in the export processing zones (EPZ) of the Global South. An abundance of studies detail the exploitative working conditions and harmful ecological impacts of these EPZs the world over, which have depended on the continued gendered and racialized (re)production of expendable, docile (often sexualized), and therefore cheap, female bodies to labour in its factories. If it is precisely the

policies of austerity, export-orientation and dispossession inherent in the neoliberal project that have created this pool of readily available, cheap female labour to be exploited, then liberal proposals to promote gender equity by promoting education in science and technology for women and breaking down gender stereotypes so that women can be better represented in green jobs within the neoliberal order is limited at best and in part quite misses the point.

Protagonists in the green jobs debate are surely correct to observe that the industries most commonly targeted in green jobs proposals and programs tend to be male-dominated industries like energy generation and construction, and that the prevalence of patriarchal norms mean that women are still more likely to face a ‘double workday’ and lower pay for equal work compared to their male counterparts (Rustico & Sperotti, 2012). However, ensuring that more women enter some of the better paying jobs in nascent ‘green’ industries does nothing to change the precariousness and dispossession engendered by neoliberal transformation that pushes millions of women into the low wage sectors. Indeed, it does nothing to change the fact that these low wage sectors predicated on exploited female labour exist. To narrowly focus on having more female representation in green jobs simply tries to place more women at the top of an exploitative and hierarchical labour market, without questioning the nature of that labour market itself.

Yet it is also true that neoliberal austerity has increased the demand on women’s time in the form of unpaid labour as the state downloads ‘caring’ work onto individuals and families. If we do not challenge the gendered division of labour, the legitimacy of austerity and the competitive imperative of firms, then we are only left with the option of promoting more flexible work hours to accommodate for ‘home-life’. Although this may be necessary, and might enable more women to enter the labour market, it does nothing to decrease the workload placed on

women's shoulders. At the same time, neoliberal austerity has also meant that the cost of education has been steadily rising. In this context, even if training and educational programs are targeted towards women as suggested, they may still face time and income constraints that prevent them from pursuing these educational opportunities, since women are disproportionately responsible for this downloaded 'caring' work and on average have a lower income than men.¹⁷ Some families have 'solved' this problem through the commodification of reproductive labour, hiring domestic workers (typically female migrants) to take care of the work at home in order to make time for both 'heads' of the household to pursue better-paying careers. In this scenario, gender 'equity' within the individual household is bought at the expense of the gendered (and most often exploited) labour of racialized others. If we are to value 'reproductive' labour and recognize the necessity of sharing this work equitably between the genders, then not only do work schedules need to become more flexible in all lines of work, but the *absolute* amount of time spent at work needs to decrease more generally while collective provision of 'caring' labour and other basic necessities increases (Adkin & Abu-Laban, 2008, p.70). This, of course, runs against the prevalent trends of the neoliberal labour market. In this sense, the struggle for gender equity and green jobs cannot be divorced from a struggle against austerity and models of development based on neoliberal globalization.

Furthermore, we might also ask why women are encouraged to enter the higher-paying 'male' occupations rather than questioning why the 'caring' industries (which typically have a

¹⁷ This refers to training and education programs initiated by the state. Although some campaigns (Labor Network for Sustainability, 2012) seek to have employers pay for tuition and living expenses for workers in the transition away from coal, which would remove these kinds of income and time constraints, these are incentives offered only to existing employees of utility companies as part of a 'just transition' package. Given that these sectors tend to be male-dominated, it also implies that these incentives may often bypass women. In this sense, it is difficult to see how women could more broadly benefit from such programs unless such incentives are made more publicly available.

much smaller ecological footprint), where women are more prevalent, are systematically valued less.¹⁸ If these occupations conferred similar wages and social status, would we be as concerned about women needing to enter the construction industry? Why not encourage men into ‘caring’ industries? Indeed, the gendered landscape of capitalist society consistently undervalues what is deemed ‘feminine’. In the drive to increasingly commodify all areas of life, what becomes valued is commodified, ‘skilled’ labour on the labour market, while decommodified (i.e. reproductive), so-called ‘unskilled’ labour is devalued, even if the latter is an essential and meaningful prerequisite for human flourishing. Feminists have often noted how the former is constituted as a masculine realm while the latter is seen as feminine, as belonging to the home. Encouraging women to move into the labour market and men to take more responsibility in the home does not in itself address the fact that work that is not directly capitalistically productive is not sufficiently valued, despite its real worth to social and ecological well-being. In the terms laid out in the previous chapter, it does not address, in other words, the cultural and economic primacy of the production of value (as exchange-value) over that of use-value in capitalist society.

While a thorough investigation of the ways in which gender plays into wage formation from the outset and the determination of what constitutes ‘skilled’ and ‘unskilled’ labour is outside the scope of this chapter, a few general points in this regard are noteworthy. In a study of US census data over a 50-year period, Asaf Levanon, Paula England and Paul Allison (2009) note that relative pay decreases as women enter previously male-dominated occupations – that is, as they become ‘feminized’. The implication is that ‘up-grading’ women’s skills may not lead to higher wages, since the entrance of women into a male-dominated industry may lead to lowering

¹⁸ Here, the ‘caring’ industries refer to work such as childcare, elder care, social work, etc.

of average wages. According to this line of thought, if it is the predominance of women that leads certain jobs and sectors to be classified as ‘low-skill’, then it is not the lack of skills that leads to low wages but rather an assemblage of other social characteristics and structures (based on gender, race, class, sexuality, active political struggle etc.). Yet a question that is often not asked is: why should so-called ‘skill’ be the only metric by which to judge whether or not a worker is deserving of decent wages (Hahnel, 2005; Bregman, 2016)?

Cynthia Cockburn (1981) observes that the gendered definition and regulation of ‘skills’ is, in many ways, part and parcel of strategic economic struggles to protect male bargaining power with respect to their employers. In a competitive labour market, the generalization of once ‘scarce’ skills also decreases the strategic bargaining power of those possessing those skills and their claims to higher wages. In this sense, the concept of ‘skill’ with respect to remuneration in the labour market has less to do with qualitative, concrete abilities, and rather more to do with relative abilities within the labour market. The irony of promoting skills upgrading without challenging the competitive and hierarchical nature of the labour market or the legitimacy and power of the ‘employer’ leads precisely to the conundrum that particular skills that are highly valued and command a better wage become devalued as there are more competitors in the market possessing those skills. In this way, the (gendered, racialized) construction of ‘skill’ can also be understood as a way to justify inequality and facilitate the extraction of surplus work.

With respect to the green jobs debate, it also underscores the need not to narrowly conceptualize ‘greening’ as only investment in renewable energies and gender equity simply as women entering male-dominated industries, as important as it may be. Rather, ‘greening’ needs to entail more broadly transforming work in ways that allow for more ecologically and socially responsible (which also implies here not gender-oppressive) ways of living. For one, this would

imply challenging the workings of the labour market, particularly in its neoliberal form. It would also imply promoting the expansion and the economic and cultural recognition of socially useful work (like the ‘caring’ industries) that already have a smaller ecological footprint, even if it is not directly related to environmental protection and clean-up or resource conservation.¹⁹ In broader terms, it implies challenging the production of value as the only valid metric for organizing social production.

An Addiction to Growth

Beyond this, the call for improving workers’ rights, wages, and ecological sustainability in the green jobs model has the combined effect of increasing costs of production. The refusal to seriously question capitalist social relations means that these demands can only be met by a commitment to more economic growth. Indeed, repeated references to the original New Deal policies as a model to follow (for example, Green New Deal Group, 2009) overlook the fact that the success of Keynesian policies in the so-called ‘golden age’ was underpinned by an explosion of mass consumption and material throughput. The program to boost profitability while increasing wages for workers within capitalist relations was enabled by dramatic economic expansion, not to mention imperialism, on a world scale. In other words, the spread of mass consumption was not just an incidental effect but lay at the very heart of this model of economic development.

Bill Blackwater (2012), for instance, highlights how the multiplier effect and other green Keynesian propositions ultimately rely on economic growth of the traditional sort to succeed as an economic policy, thus thwarting the ‘green’ intentions of those same policies. This is because

¹⁹ A report by the CCPA (2012) also makes this point, although it does not feature prominently in its recommendations.

more growth will likely result in greater aggregate resource use and carbon emissions, even if relative gains in resource and energy efficiency are achieved, the so-called Jevons Paradox.²⁰ Certainly, our historical trajectory has shown that significant technological advance in resource efficiency has nonetheless failed to curb overall resource use over the past two hundred years. Even the production of solar power (i.e. in the manufacture of PV cells), as necessary and desirable as it may be, has an environmental impact. Its unbridled production and expansion would equally lead to environmental damage. Indeed, equitable production that takes into account the finite (not to be confused with scarce) nature of the planet cannot be premised on unending expansion, but rather requires democratic management of common resources and economic production as well as moderation of material consumption.²¹

One exceptional example that goes against the general trend of the green jobs debate is a recent climate change discussion paper by the International Transport Workers' Federation. The proposed strategy not only rejects the commitment to limitless growth, ecological modernization, and the privatization of nature, but also accepts that doing so implies that "there is no alternative but to progressively liberate key sectors of economic life from the imperatives of profit and consumption," and to expand "social and democratic ownership of industries that produce emissions...to prevent further damage to people and the environment and to plan an equitable and orderly transition to a low carbon economy" (ITF, 2010, pp. 42-3). Dealing specifically with

²⁰ As long as production uses any amount of resource or energy (which it always does, as we know from the laws of entropy), no matter how small, it is a matter of logic that unending expansion of this production will require more and more units of resources or energy. Even if efficiency means that the same level of production uses less resources and energy than current use and thus reduces consumption in the short-term, it will inevitably be outstripped in the long-term if production levels grow over time.

²¹ Taking inspiration from the British war effort, the Green New Deal Group (2009) refers to this reduction of consumption as 'demand management'; however, in this case the need for this management to be democratic in character is not asserted. Rather, the management is more top-down and 'scientifically' determined.

the energy sector, the recently formed Trade Unions for Energy Democracy (TUED) similarly campaigns for increased social ownership in energy production. However, going further than simple calls for de-privatization, they additionally insist on the need to ‘re-socialize’ public enterprises so that they operate according to criteria defined by social and environmental needs rather than by market principles (Sweeney, 2013c).

Though encouraging, to be sure, these types of documents are still few and far between in the green jobs debate. Much more common are proposals to use market-based mechanisms to facilitate a ‘green’ transition in discussions of green jobs and a GND. It is this commitment to capitalist production and market mechanisms that makes the GND (and also the trade unions that promote it) particularly vulnerable to challenges from the neoliberal quarter in the form of ‘green growth’ or ‘green economy’ models of development. It would, however, be a mistake to see these two models as diametrically opposed. Though they have significant differences, it would perhaps be more accurate to see the ‘green growth’ model as a logical extension of the pro-market orientation already present in discussions of the GND. Indeed, even subsequent reports on ‘green growth’ and the ‘green economy’ do not present themselves as a break from earlier discussions of green jobs. Although they certainly steer the discussion onto a different political path, they nonetheless frame their proposals as a further development and refinement of the concepts already proposed in previous debates on the GND.

From Green Jobs to Green Growth

While the context of crisis opened up policy space for green Keynesian proposals, in recent years, economic stabilization has brought on the re-entrenchment of neoliberal politics and austerity. Indeed, we see a subtle shift in the debate from one of ‘green jobs’ to one of ‘green

growth' and the 'green economy'. By the time of the publication of the UNEP's *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication* (2011) and the broader United Nations report *Working Towards a Balanced and Inclusive Green Economy* (UNEMG, 2011) in the lead-up to the Rio+20 summit in July 2012, most aspects of the UN proposals were brought into line with conventional neoliberal views. Gone are the calls for fiscal stimulus and public investment. Instead, the vision is one where the vast majority of investments in the green economy will be financed by private sources, with the role of public investment simply to leverage private funds. This is, on all counts, a step backward from the green jobs debate for progressive projects to address the environmental and economic crisis.

While the *Green Jobs* report at least dared to question the fiscal priorities of governments – such as budget commitments to military spending – in seeking funding for a Green New Deal (UNEP/ILO/IOE/ITUC, 2008, p. 306), these later reports focus on ways to raise and attract private investment. The UNEMG (2011, p. 15) report argues in its introduction that:

...with its capacity to invest and innovate, the private sector is uniquely positioned to create solutions that can reduce emissions and resource use while generating growth and employment opportunities including for the poor. The bulk of green investments will come from the private sector.

Rather than calls for 'reining in' big business, which were considered to be part of the problem in previous reports, the private sector is now seen as part of the solution, a protagonist on the road to a green economy. Similarly, while the growth of transnational agribusiness is recognized to be responsible for much of the environmental destruction (monoculture, deforestation, chemicals, etc.) and displacement of people in agriculture in the first UNEP *Green Jobs* report (2008), its iteration three years hence, *Towards a Green Economy* (UNEP, 2011), uncritically sees agribusiness as agents of positive change in a green economy without looking at the ways in

which they effectively block such change.²² Where there is talk of ‘fair trade’, it does not refer to decent working conditions for workers but in fact refers to avoiding ‘unfair green protectionism’ (UNEP, 2011, p. 629). Fair trade is now free trade (!) – an astounding display of doublespeak, to be sure. Indeed, this new turn towards market ecology, neoliberal austerity and the privatization of nature is even more problematic for achieving socio-ecological equity.

In these reports, the full suite of familiar neoliberal recommendations reappears in new ‘ecological’ clothes: removal of subsidies in agriculture (since these make fossil fuel inputs cheaper); encouragement of privatization of public utilities (such as water and waste management) and public-private partnerships with full-cost recovery in the guise of ‘polluter pays’ and seeking ‘green’ investment; promotion of free trade and intellectual property rights to encourage trade and growth in ‘green’ products and technology transfer; to name but a few (UNEMG, 2011, pp. 19, 22-3; UNEP, 2011, pp. 23, 145, 319-20, 622).²³ Perhaps most incredible, in light of the recent financial crisis, is the proposal to encourage *more*

²² *Towards a Green Economy* (2011, p. 53) points out that “a small number of corporations control a large share of the global agribusiness.” This leads them to conclude that “by greening the core business operations and supply chains, these corporations can play a major role in supporting a transition to greener agriculture. In addition, they can provide investments to develop and implement viable strategies for ensuring global food security based on optimal use of inorganic inputs and building capacity to recycle on-farm nutrients.”

²³ To encourage research and innovation, the report has this to say: “a solution to a problem of resource scarcity identified locally (via R&D investments) may have applicability and hence more global marketability. The first solution to a widely experienced problem can be patented, licensed and marketed widely” (UNEP, 2011, p. 23). While it is clear how this would preserve corporate power and profits (and ensure that foreign exchange will continue to flow out of developing countries in royalty payments), it is unclear how this would lead to technology transfer and equity. The patent system has been widely criticized for being a barrier to technology transfer, both because it makes producing low-cost versions difficult (the most publicized case being that of anti-retroviral drugs for the management of HIV) and because the cost of proprietary technology increases the costs of technological development more generally. Technology transfer does not, in and of itself, require trade. Although sometimes trade may be necessary for procuring equipment, supplies, and components, much of technology transfer requires the transfer of knowledge.

financialization through the creation of more innovative ‘green’ financial instruments to raise funds for green investment, and the conclusion that the insurance industry is in fact a very important driver of the green economy since it is seen as the most rational ‘risk manager’ (UNEP, 2011, pp. 608-611, and particularly the chapter ‘Financing’). The insurance industry, it is argued, is the most knowledgeable agent because it regularly deals with risk management as part of its core business – the task is to determine how to most accurately *price* environmental risks, so that these prices will accurately guide investment decisions and lead to appropriate prevention of costly risks.²⁴ This glowing assessment of the insurance industry so soon after its most catastrophic failure is truly an astonishing example of ideology prevailing over analysis.

As a whole, then, the environmental crisis is seen as a problem of a ‘gross misallocation of capital’ (UNEP, 2011, p. 14). Conceived in this way, nature and pollution become primarily new areas of accumulation, and the role of the state is to create markets and property rights (in nature, in pollution) where none existed before. The hope is that the creation of new markets will promote sustained capital accumulation, growth, and ‘green’ employment. ‘Consumer education’ becomes simply an exercise in raising consumers’ willingness to pay for environmental goods – that is, a marketing exercise in creating demand and markets for new commodities such as new “green” insurance products to sustain capital accumulation (UNEP, 2011, p. 612). Rather than real environmental education or addressing overconsumption, we are asked to consume *more*. The problem, so it goes, is not that we are consuming too much but that we are simply not

²⁴ The report argues, for instance, that “it is important to understand that insurance is not only a risk transfer mechanism to compensate financial losses, but also a risk management mechanism because insurers carry out loss prevention and loss mitigation measures in conducting their business. The insurance industry, therefore, has an unparalleled capacity to understand and engineer approaches and mechanisms to manage emerging ESG risks...The insurance industry has long been in the vanguard of understanding and managing risk, and has served as an important early warning system for society by amplifying risk signals” (UNEP, 2011, p. 609).

consuming the right sort of goods and services. (Never mind that having 10 televisions is excessive, as long as they are all energy efficient.) If the prices are right – and the market can best set the ‘correct’ prices – then environmental amelioration will follow naturally. The distributional consequences (beyond assistance for the poorest of the poor) and the ethical implications of privatizing nature are simply ignored. Unsurprisingly, the contention is that the solution to both the economic and the climate crises lies in *more* neoliberal globalization.

What is ignored is that it is precisely the growth of global trade that leads to increased use of fossil fuels. This is not only in terms of shipping and transport, but also because the overproduction of goods (and the energy and resources embodied therein) is enabled by export to world markets and made necessary by global competitive pressures. An intensely competitive environment makes planned obsolescence, chemical industrial farming, and a host of other wasteful and socio-ecologically harmful practices core corporate strategies. Arguably, the extension of IPR regimes has been the basis for guaranteeing the profitability of many of these harmful practices, such as the global expansion of pesticide-resistant GMO monocultures that have serious effects on biodiversity, soil depletion, environmental toxicity (through the use of proprietary pesticides), and human health, in addition to issues of displacement and dispossession (Pengue, 2005; Richard, Moslemi, Sipahutar, Benachour & Séralini, 2005; McMichael, 2006). Finally, to presume that the financial industry, with its notoriously short-term horizon and turnover times, can be the central coordinator of a green transition that requires long-term planning and investment far beyond a 10 or even 20 year span seems not only highly unrealistic but utterly fantastical.

Politics and the Pitfalls of Market-Based Instruments

It is in the nature of the capitalist firm, under the pressure of market competition, to reduce costs so as to maximize profitability. It is widely recognized that efforts to reduce costs of production have often led to deleterious consequences to environmental and human health, since measures to protect environmental quality and human health (for instance, for treating waste products) tend to raise costs of production. Kovel (2007), for example, illustrates how the environmental disaster in Bhopal, India was caused by systematic cost-cutting measures taken by Union Carbide. Examples such as this one abound, and ‘green’ industries need not be exempt from this dynamic. The *Green Jobs* report documents how some Chinese firms producing polysilicon (used in producing solar PV panels) are dumping toxic silicon tetrachloride into the environment in order to reduce production costs by up to three-quarters (UNEP/ILO/IOE/ITUC, 2008, p. 111).

Proponents of green growth argue that it is not the cost-cutting imperatives of the firm that lead to undesirable outcomes, but rather that a lack of property rights and prices leads to environmental ‘externalities’ – that is, costs of production that the firm does not have to pay. These externalities, they argue, can be internalized by assigning property rights and pricing environmental resources and pollution to reflect their ‘true’ cost. However, as argued in the previous chapter, it is highly doubtful that a quantitative, monetary price can ever really reflect the qualitative ‘true’ cost or value of nature or environmental harm. Rather, the price that is attributed to an environmental resource or harm will always be less than its ‘true’ value. On the other hand, it is not clear that raising prices of resources to reflect their “true” costs will necessarily result in their preservation, since a higher price also makes resources more economically viable to exploit. Given a high enough selling price, environmental degradation

can be profitable, regardless of whether or not a resource is privatized. The UNEP report (2011, p. 21) itself notes that most of the “underexploited” commercial fish species – i.e. species that are still abundant – are those with low market prices. Sweeney (2013b) points out that although low prices for solar panels are supposed to encourage its wider use, what it has actually meant is that firms have gone under because low product prices have made production economically unviable; the solar PV industry is now in a situation of productive overcapacity relative to demand. Furthermore, if the resource in question is a necessity (that is, with an inelastic demand) – for instance, electricity – rising prices may simply lead to a transfer of income rather than reduced use. For electricity, this is particularly the case for low-income households that may not have the financial resources or legal authority (i.e. for renters) to improve energy efficiency in the home. The ability for individuals and communities to make particular ecological choices or respond to prices is not truly ‘sovereign’, but is constrained by income and other social factors. In this sense, adjusting price signals alone does not necessarily lead to automatic environmental improvements.

What proponents of eco-taxes and other market-based instruments overlook is that although firms seeking to reduce overall production costs might react to the rising costs of inputs by investing in innovation and systematically using less resources or reducing pollution, they can also seek to reduce these costs *politically*, by reducing or stopping altogether the imposition of such costs in the form of taxes or tradable permits from the beginning.²⁵ Despite the repeated comparisons, unlike the industrial revolution, where structural change was the result of economic competition and firms had to adopt technological change as a response to competitive pressures

²⁵ Similarly, the production of carbon credits can also happen through the production of dubious or inflated *claims* to reduction rather than actual reduction itself. This is particularly the case when credits are for ‘avoided’ emissions or when the actual amount of carbon reduction is difficult to estimate due to fluctuating factors (Bumpus & Liverman, 2008).

that were internal to the logic of capitalist production, a green transition is necessarily *politically imposed*. That is, there is nothing within the nature of the firm and the logic of market competition that would cause firms to spontaneously internalize environmental costs unless such costs are imposed from without – on the contrary, they have very direct economic incentives to reduce and externalize costs, both human and environmental. Peter Rossman (2013) reminds us that technological change and ecological transition is not just about rational arguments, but also about power relations.²⁶ Although both the green jobs and the green growth strategies advocate for levying taxes and pricing environmental costs to internalize these externalities, they fail to account for how this can be politically achieved. Worse still, neoliberal strategies for green growth propose to give *more* power to transnational corporations and private capital – precisely those forces that have an incentive to avoid such costs – a classic scenario of ‘letting the fox mind the henhouse’. If large-scale capital is given more collective resources and power as these proposals suggest, it is difficult to see how regulators can gain enough leverage to impose costs and ‘green’ policies that are against their interests.

More importantly, as argued previously, the apportioning of property rights and attempts to monetize nature are not simply matters of economic efficiency, but a distribution of resources, which has a social and political character. Private property implies – indeed, is premised on – the ability to exclude others from access. Contrary to neoliberal scripture, where this concerns resources crucial to human survival, control over access has profound implications for its distribution and the exercise of political power. In this sense, the privatization of nature is in the

²⁶ For his part, he sees agricultural workers’ struggle for their rights as a crucial part of a green transition that involves at the same time addressing environmental working conditions in the field and the reclaiming of power. Here, he sees workers as protagonists in struggling for and bringing about ecological transformation rather than as “passive suppliants at the end of a hypothetical transition in which they have played no role” (Rossman, 2013, p. 58).

first instance an act of dispossession, physically, politically, and culturally. In a world where all aspects of nature have a price and are subject to private property, those who have more wealth have a disproportionate say on the quality of and how we can relate to or interact with non-human nature – indeed, over life and death itself.

Pricing pollution via tradable permit schemes, carbon markets and other market-based measures (e.g. REDD+) have a similar effect of disproportionately favouring large-scale capital, making it possible for such firms to simply buy up a larger share of credits in lieu of making any actual environmental improvement. Some authors have pointed out that the anticipation of cap-and-trade schemes have possibly created perverse incentives for firms to pollute more in hopes of capturing a larger allocation of permits in the future (Davis, 2010, p. 35). Many countries of the Global South have pointed out that these increased costs can preclude their possibilities for industrial development. Yet at the same time, the West would be largely unbothered in their existing developmental trajectories.²⁷ To coordinate emissions reduction via the market implies that mitigation and abatement efforts can take place without disturbing (and arguably reinforcing) existing relations of inequality, both globally and locally (Bumpus & Liverman, 2008).²⁸ Furthermore, measures to offset emissions – be it through the development of agrofuels or creating tree plantations – not only often come with a host of environmental problems (i.e. straining freshwater resources, toxic pesticides and herbicides, etc.), but also lead to ‘land-

²⁷ It is true that unbridled industrialization is not desirable from either a social or an ecological point of view. However, the general point to be made is that the further privatization of nature reinforces existing inequalities in a way that does not allow poorer communities and states to determine their own developmental trajectories. It is also possible to imagine a more moderate form of industrialization that could be compatible with maintaining ecological integrity at the global level when matched by substantial reductions on the part of over-consuming and over-polluting societies.

²⁸ They argue, for instance, that the lower price fetched per tonne of carbon produced in the Global South through the Clean Development Mechanism of the Kyoto Protocol as compared to that produced in the Global North is a form of unequal exchange.

grabbing’, i.e. competing with and usurping the lands of marginalized groups in the Global South, leading to dispossession and food insecurity (Global Forest Coalition/Global Justice Ecology Project [GFC/GJEP], 2008; Kovel, 2007, pp. 48-9). *The Guardian* recently reported escalating violence and murders in the Bajo Aguán region in Honduras over land conflicts between peasant farmers and large palm oil plantations producing raw materials for biodiesel production (Lakhani, 2014).²⁹ In this sense, the use of market-based measures facilitate the continuation of business-as-usual and reduces the available ecological space for the survival and human flourishing of marginalized groups. That is, it is bought at the expense of the environment of the poor (Fairhead, Leach & Scoones, 2012; Corson & MacDonald, 2012; Büscher, Sullivan, Neves, Igoe & Brockington, 2012).

Gill (1995, p. 413) has argued that neoliberal structures of global governance, as embodied in international trade agreements, “confers privileged rights of citizenship and representation on corporate capital” vis à vis ‘normal’ citizens, putting important aspects of economic policy out of reach of democratic control. To advocate for privatization and more neoliberal globalization as do proponents of market ecology, then, is also to advocate for particular relations of power that reduce the power of the state to exert collective control over how, when – and if – an ecological transition occurs. This implicit distributional and political choice is masked by the apparent impersonality of the market and the price mechanism. In this scenario, it is much more likely that corporate capital will ‘cherry pick’ only those parts of the transition program that are favourable to corporate interests (i.e. in the transfer of assets or certain limited improvements in efficiency), abandoning those measures that threaten their interests, but which nonetheless are crucial for bringing about emancipatory and equitable socio-

²⁹ In fact, *The Journal of Peasant Studies* (2012, Volume 39, Issue 2) dedicated the entire issue to the processes and politics of ‘green grabbing’.

ecological change (i.e. curbing consumption, favouring local, cooperative production networks). In short, by failing to account for – or precisely because of – the political dimension of their proposals, programs for ‘green growth’ and the ‘green economy’ will likely fail in achieving their stated goals of containing climate change and ensuring ‘socially inclusive’ growth.

Conclusions

The green jobs perspective has the advantage of understanding that achieving specific socially desirable goals like an ecological transition will not ‘naturally’ happen as a consequence of market functioning, but requires specific policies and collective planning. Yet as this chapter has highlighted, as a strategy to ensure socially equitable and ecologically sustainable production, it still suffers from a number of serious limitations, the most important of which is a commitment to unbridled capitalist expansion and growth and the uncritical promotion of market-based instruments for environmental management. If improving the conditions of socially useful and environmentally desirable jobs cannot be achieved simply through market mechanisms but requires regular state subsidies and support, which will be explored in subsequent chapters, then simultaneous support for austerity-friendly fiscal policies and green jobs becomes untenable.

Although for the most part the GND does not recommend fiscal austerity (even if some specific proposals can be compatible with austerity), it also does not seek to reverse the overall trend towards an increasingly regressive structure of taxation and the reduction of the state’s revenue-raising capacities through the sell-off of productive public assets that have resulted from decades of neoliberal transformation. To add insult to injury, this upward redistribution of income has intensified as a result of the recent financial crisis and its aftermath. In this sense, it is

unclear how the expansionary policies advocated by the initial GND will be funded, since it is highly doubtful that eco-taxes alone can pay for the substantial collective investments and interventions necessary to generate and maintain decent green jobs and fuel a socially equitable green transition in the long-term. Financing this expansion through public deficit as recommended is only practicable if all of it is spent on productive investments that then encourage general economic growth. However, as I have argued in this chapter, not all of the necessary spending for such a socio-ecological transformation will fall in the category of economically productive activities, while depending on conventional economic growth in the long term is detrimental to ecological sustainability.

Though proponents of the GND are certainly right to point towards the crucial role that can be played by public spending, what is required in this regard involves much more than initial stimulus spending to foster private sector growth. In the following chapters, I will more concretely explore the theoretical tensions in the green jobs paradigm highlighted here using examples from the recycling sector in Toronto and Buenos Aires. In particular, I focus on two questions. In what way does the nature of the capitalist enterprise and the neoliberal context affect the socio-ecological conditions of work in these ‘green’ jobs? What does an examination of the waste sector tell us about the opportunities and limits of ‘green capitalism’, in both its Keynesian and neoliberal forms? The next chapter begins this inquiry with a theoretical exploration of waste and its status as a commodity in circuits of recycling.

Chapter 3

Waste as a Commodity

Recycling is a dirty business. Elizabeth Royte illustrates this quite poignantly in *Garbage Land* (2005) as she follows the trail of her trash and recyclables to junk metal scrap yards, materials recovery facilities, plastics recyclers, landfills, incinerators, and sewage plants. On one such trip to a scrap metal yard, she witnesses the dismantling of cars and contemplates the hazardous effects of leaking battery acids and other toxics that inevitably spill out in the process of reclaiming the scrap metal for recycling.

We are trained to think of recycling as ‘green’. And indeed, materials recycling *does* tend to produce less pollution and use less energy than virgin material production (for example, mining). As municipal programs the world over emphasize to encourage participation, recycled aluminium uses 95% less energy than manufacturing the same from ‘virgin’ material.¹ However, like other methods of waste management, recycling operations are not without their environmental impact: de-inking paper for recycling releases toxic effluent into the environment; re-smelting aluminium produces chemically active wastes that are often openly dumped (Rogers, 2005, p. 178).² When accidents occur in recycling yards, the results could be severely polluting, like the toxic Plastimet fire in Hamilton, Ontario in 1997 that released the equivalent of 5% of all dioxin emissions in Canada for that year (Ali, 2002), or the infamous ‘tire fire’ in Hagersville, Ontario that burned for 15 days, leaving residues of dioxins and furans on surrounding vegetation that were still detectable 200 days after the fire (Steer, Tashiro, Mcillveen & Clement, 1995). Indeed, Scott Prudham (2009, p. 1604) reminds us that the systematic production of toxic

¹ Minter (2013, p. 224) puts the estimate closer to 92% less energy.

² Rogers points out, for example, that one paper recycling mill in Wisconsin is the second largest individual polluter in the state (2005, p. 178).

compounds like PCBs for industrial use from “formerly wasted by-products,” though an example of recycling, can hardly be said to have had ecologically beneficial effects. Moreover, as will be demonstrated in the chapters that follow, workers in these ‘green’ jobs often work in hazardous conditions.

I contend that although recycling is considered ‘green’ because of what it saves in comparison, there is nothing inherently ‘green’ about the recycling process and ‘green’ capitalists in the scrap trade are no more environmentally committed nor more morally upright than their counterparts in other industries. In fact, scrap dealers are often just as in favour of unbridled free trade as other global corporations.³

In this chapter, the implications of waste (and waste management) as a commodity and, more particularly, recycling as a *specifically capitalist* method of waste management will be explored. Here, recycling is understood as the process through which waste materials are reinserted into the process of capitalist production *as a raw material*, as distinct from different forms of repurposing and reusing, in which the reworked waste materials are taken out of circuits of capitalist production and accumulation. This latter is the case, for example, when one takes a piece of broken furniture off the street and repairs or repurposes it for use in one’s own home. This conceptual distinction is necessary, as being inserted into capitalist processes of production – that is, transforming waste into a commodity – has particular ramifications for the patterns of

³ See, for instance, this pamphlet arguing for the free trade of scrap metals issued by the Institute of Scrap Recycling Industries (2010), an industry association representing scrap dealers and recyclers in the United States and some parts of Canada. Or consider this prominent US scrap exporter’s response to the Chinese government’s Operation Green Fence, essentially arguing that exporters will simply choose other ‘barrier-free’ countries like Malaysia and Vietnam to take their scrap in response to environmental regulations (Taylor, 2014). Operation Green Fence required all scrap imports into China to have no more than 1.5% contamination per bale. Those containers that did not meet the standard would be returned to its country of origin, and the associated importers would risk losing their licenses and/or face potential criminal charges.

ecological and labour processes found in recycling as well as wider socio-ecological implications.

Through the examination of the socio-ecological foundations of recycling, this chapter will argue that recycling is not an adequate solution to the problem of waste in capitalist society, and not only because the capitalist market constrains the extent of recycling to what is economically profitable rather than what is socially or ecologically desirable. In particular, an inspection of the recycling sector reveals that:

- i) Historically, the systematic production of waste and the concomitant decline of practices of recycling and reusing are inextricably tied up with the advent of the mass market and the attendant shifts in the division of labour and labour processes as more areas of social life become commodified.
- ii) As a production process for which the product is a raw material, sorting and collection emerges as the most important and labour-intensive component of this process. Without this foundational work, no recycling is possible. As such, this stage of the production process is particularly subject to pressures towards the adoption of labour-saving technology. This is further exacerbated by tendencies towards the centralization and concentration of waste markets that is accelerated in the context of neoliberal expansion.
- iii) The realization of value produced in these preparatory stages of recycling is dependent on secondary materials markets, which are becoming ever more globalized. This implies that the viability of municipal recycling programs, regardless of collection method, is dependent on fluctuating world market conditions. This informs not only what kinds of materials are collected for recycling, but to some extent also the kinds of

technologies employed and the labour conditions that prevail. This latter, of course, is mediated by institutional and collective arrangements and social struggles.

iv) Purely market coordinated chains of recycling (i.e. including collection and sorting) of municipal household wastes is not capable of producing large numbers of good jobs with decent working conditions based solely on the sale of recyclables alone without some form of state subsidy or additional payment for ‘waste management’.

v) Insofar as recycling depends upon more ‘traditional’ forms of production, the recycling industry does not necessarily have any incentive towards supporting waste reduction at a broader level (i.e. including that of recyclables) since growth of the consumer market creates greater demand for raw materials. However, if recycling itself can also have serious environmental impacts, then we may want to limit waste production in general, rather than just that of un-recyclable goods.

To the extent that recycling is tied up with conventional economic growth and has its own socio-ecological impacts, it can, in itself, play only a limited role within broader strategies for waste reduction. Serious consideration of waste reduction and the need for reuse implies broader restructuring of production and labour processes beyond just the waste management and recycling sector, and a greater role for state and community coordination. Indeed, if the rise of a throwaway society entailed by the mass market led to significant cultural shifts and the total transformation of work at home and in the workplace as I will demonstrate below, then we can expect no less from the planned demise (obsolescence?) of such a society.

This chapter is structured in three parts. It begins by conceptually fleshing out a relational approach to waste, advancing a notion of recycling as the production of waste as a *commodity*

that entails two moments: the moment of wasting and the moment of commodification. The second section takes up the moment of wasting, historically outlining the ties between the extended production of waste and the rise of the mass market. The third section explores the socio-ecological consequences of this commodification in the recycling sector, paying particular attention to the tension between mechanization, improving working conditions and ecological impact, especially with respect to global circuits of capital accumulation. It concludes by considering what this implies for strategies to promote green jobs and for waste reduction.

Recycling and the Production of Waste as a Commodity

The growing scholarship on waste in the social sciences has explored ‘waste’ in various ways. Mary Douglas famously defined dirt as “matter out of place” in *Purity and Danger* (1966/2002, p. 44), positing dirt and waste as a purely social category in her study of ritual pollution. In response, scholars like Martin O’Brien and Zsuzsa Gille propose that waste is not simply socially constructed, but also has a materiality. Gille (2007) contends that waste must be understood as a ‘hybrid’ category, that is, one that is simultaneously social and material, and that therefore, waste also has an ‘agency’. O’Brien (1999, p. 271) defines waste as “dirt put back in its place”, and insists on an analysis of the process of wasting, defined as a “social process of value-transformation”, rather than an analysis of waste as such. For scholars who study the definition of wastelands in the context of early English enclosures like Tim Cooper (2010) and Jesse Goldstein (2013), waste (and wastelands) is a foundational conceptual category to practices and processes of modernization, colonization, and capitalist development.⁴ The definition of

⁴ In an earlier version of this paper given at a virtual conference (<https://compassconference.wordpress.com/2009/10/22/conference-paper-recycling-modernity-towards-an-environmental-history-of-waste/>), Cooper insists that the concept of waste as it

spaces as waste, they argue, is what justifies capitalist intervention and transformation of those spaces. Goldstein (2013) emphasizes that defining waste as capital-in-potential is not inevitable, but is an essential element in the production of nature as a condition of capitalist production, what he refers to as '*terra economica*'. Similarly, Vinay Gidwani and Rajyashree Reddy (2011) consider 'waste' to be the 'political other' of value, and thus an integral component of the colonial gaze. For them, as the 'outside' of modernity, dynamic relationships to waste constantly underwrite the production of surplus value and drive the dominant form of urban development in contemporary India that they conceptualize as 'eviscerating urbanism'.

More pragmatically, in a study of the value struggles of urban reclaimers in South Africa, Melanie Samson (2012, p. 8) defines waste as that which is deemed to be of no use- or exchange-value by the discarder. Like Gidwani (2013), Samson regards struggles over the valorization of waste and privatization in the waste sector as forms of modern enclosure. Waste, then, is understood in a multiplicity of ways – as a conceptual category, as a discarded object, as an unwanted by-product of capitalist production and accumulation, as pollution and taboo, as a production of space, and so on. All of these different interpretations of waste help us to understand different aspects of waste as a cultural, political, economic, and natural category – and, as O'Brien (1999, p. 273) astutely reminds us, as also a field of social struggle. Both drawing on and departing from these various analyses, I primarily focus on what I consider to be the most salient aspect of waste in contemporary capitalist societies – that is, in its status as a commodity.

pertains to modernity is peculiarly European; however, in the subsequent version of this paper, this emphasis was dropped in favour of a historical materialist approach that analyses waste as an ideological category of capitalist development. John Scanlan (2005) similarly regards 'garbage' as a product of Western culture, specifically the metaphysical and material residual or remainder of enlightenment reason, its shadow.

A commodity, as Marx reminds us in *Capital*, is both a use-value and a value-in-exchange. As a use-value, waste has an objectivity, a body, a materiality – that is, it has physical characteristics and qualities of heavy, light, metallic, wet, dry, and the like. As a value, waste has a price and is also a product of labour and an embodiment of social relations. It is instructive to recall that in the Marxian schema, use-values – for instance, in the form of natural wealth – need not be commodities. Similarly, wealth need not be in the form of capitalist value. In the discussion of wastes, it is particularly important to make this distinction between ‘wealth’, understood in its broad and normative sense of something of worth, and its capitalist form as ‘value’ (or more colloquially, ‘economic value’). O’Brien (1999, pp. 280-1), for instance, begins to posit a similar distinction between use-value and exchange value when he asks:

If Shanti's house is constructed from the discarded and unwanted materials that have undergone their 'final consumption' phase, does this mean that her house is waste in the common-sense meaning of this term: a superfluous and pointless nuisance? Or does it mean that the meagre construction materials of her home are not *valuable enough* for organized exploitation? (emphasis in original)

He implies that though ‘waste’ may not command sufficient exchange value for ‘organized exploitation’, it can continue to live on by retaining its use-value. However, he then quickly collapses this distinction by ultimately defining waste as a consumption good that “*never* loses its consumption value,” since it generates economic value for someone, somewhere at all stages of its handling, recycling, transport or disposal (pp. 281-2, emphasis in original). And indeed, the solid waste management industry in the United States alone is worth over \$40 billion (Rogers, 2005, p. 188). Though O’Brien is correct to point out that the commodification of waste means that it is now inserted into a political economy that seeks to continually “extrude value” from waste at every turn, it seems a stretch to characterize *all* wastes, even highly toxic wastes, as a ‘consumption’ good simply because its disposal comes with a price tag. Though toxic wastes

may generate profit for the owner of a landfill, the waste itself cannot properly be said to be ‘consumed’ as a ‘good’; though having a price, what is being commodified in waste management facilities like landfills is the ‘disposal’ (i.e. storage space) or ‘treatment’ of waste rather than the waste proper.⁵ Contra O’Brien, then, I contend that waste is not always innately a consumption good, nor “simply another raw material” (1999, p. 281). Waste must be *made into* a raw material by someone expending his/her labour into making it so; indeed, some wastes have such hazardous properties for human and ecological health that they cannot be turned into a raw material at all. As Lindsey Dillon (2014) points out, in the case of very toxic wastes, not only can the wastes in question not be used as raw material, but they may not even be capable of treatment or neutralization – environmental remediation of such ‘brownfield’ sites may consist not so much of actual remediation as simply having the toxic wastes moved about to other spaces (i.e. to landfills elsewhere), posing hazards to both the waste workers and to the communities where they are ultimately placed.

To return to O’Brien’s question above, depending on how and by whom the materials were reclaimed, Shanti’s house could have been a form of capitalist value, or it could have been an instance of non-commodified reuse. In fact, those construction materials *could* have been economically valuable enough for someone to organize its collection, sorting, cleaning and selling on the market. On the other hand, it could have also been possible for Shanti to expend her own labour in the search and preparation of those same materials, in which case it would be an instance of non-commodified reuse. Why should this matter? It matters because the labour expended in the task can be of a different quality and not subject to the same constraints – that is,

⁵ It should be noted, however, that wastes are never truly “disposed” of in landfills, as they continue to persist, change form, and ultimately interact with its surroundings long after the initial burial. Rogers (2005, p. 21) points out that landfill liners are typically only guaranteed for fifty years or less.

the labour process involved can differ. For example, one who chooses to reclaim waste as a use-value in an uncommodified manner can spend as much time on it as s/he wishes and subject the task only to an aesthetic standard if s/he so desires. This is, of course, not necessary; it is only possible. However, the same cannot be said when the task is undertaken by commodified labour in a capitalist marketplace, 'informal' though it may be. In this case, the worker is obliged to work as much as possible in the least amount of time possible; that is, the worker is obliged to produce as much value as possible during his/her working hours recovering waste materials. Maintaining the distinction between use-value and value, therefore, allows us to be more attentive to the different labour processes (and their possibilities) involved in reclaiming waste.

Are the materials for Shanti's house a waste, then, or a good? For O'Brien, the answer is both. The materiality of waste is for him inherently ambiguous – that is, it is matter that is “*in and out of place at the same time*” since the point of “‘exit’ of value from systems of exchange through their consumption and use by individuals is the immediate 'entry' of value into systems of exchange as materials for the generation of goods and services” (pp. 281-2, emphasis in original). However, the above analysis suggests that waste is, inherently, neither. This is because the designation of 'waste' or 'good' is not an intrinsic attribute of the object itself – that is, *pace* O'Brien, it is not part of its materiality as such. They are characteristics that are acquired as a result of becoming entangled in specific social relationships. In this sense, both 'waste' and 'good' are relational categories.

We can distinguish, then, two moments in the making of waste as commodity. The first involves the process of wasting – that is, the production and designation of matter as waste; the second consists of turning waste into a commodity. Though the moment of wasting can and has been a common element in non-capitalist societies (providing fertile ground for archaeological

studies), the centrality of waste production to social life as well as its concomitant commodification is a peculiar feature of capitalist societies. Samson (2012, p. 8) notes that although the act of wasting may in the immediate sense be individual, in that matter is being designated to be of no use- or exchange-value to the owner, this seemingly individual decision is informed by a host of broader social processes such as cultural norms, economic status, and the discarder's knowledge of and access to secondary markets. Gille (2007) argues, for example, that in early socialist Hungary when the 'metallic regime' of waste prevailed, the moment of wasting, as such, was in some sense bypassed. This is because surplus materials were culturally, politically and economically defined not as 'waste', as unwanted material, but rather were defined as 'free materials' with which to use in production to meet quotas. In practice, this meant that these became materials worth collecting and storing rather than throwing away.

We will return to this question of wasting shortly; for now, suffice it to say that the designation of matter as waste is a separate and prior moment in the production of waste as a commodity. In this moment, the newly designated waste is not commodified. Insofar as it is not in capitalist circulation, it can be said to have no value (in the sense of capitalist value, not use-value) if indeed it had any to begin with (that is, if it was at first purchased as a commodity). Should this waste persist in circuits of non-commodified reuse, it can be said to maintain (or even gain in) its use-value, though not its value. Put differently, it can add to someone's wealth without therefore also producing capitalist value.

To re-infuse waste with (capitalist) value requires a second moment: it must be put back into circuits of capital accumulation. If waste flows as a commodity through all of the stages of its handling, it is not because waste itself is inherently commodity-in-potential but because it is made into a commodity. To view nature and matter as inherently a potential commodity is,

following Goldstein (2013), not a ‘natural’ or inevitable state of affairs but rather the result of the production of nature as a condition of capitalist production. Indeed, Samson (2012, p. 10) points out that there are always human agents who decide into which commodified or non-commodified circuits to place wastes, though these decisions depend on a range of contextual conditions. And though ‘value’ does not inhere in the materiality of wastes as such, the materiality of wastes nonetheless does inform the ways in which it can be used and mobilized; it affects the concrete ways in which value can be produced. As Gille (2007) suggests, the materiality of waste *does* matter and our interactions with this materiality often lead to unexpected consequences; in the case of the ‘metallic’ regime in Hungary, this meant that stockpiled ‘wastes’ often lost use-value in storage.⁶

In other words, this second moment, this transition of value from its point of ‘exit’ to its point of ‘entry’ is not immediate – it is *mediated by labour* and the materiality of the wastes at hand. For wastes to become a raw material, labour must be expended in collecting, sorting, transporting, and preparing the materials for its use as a raw material. Finally, the possibility of this second moment, far from being simply the product of an individual act, presupposes that an entire infrastructure for the commodification of waste already exists. The existence of such an infrastructure not only concretely enables the commodification of waste, but also opens up the possibility of viewing waste as ‘capital-in-potential’, that is, as an obvious embodiment of commercial value, as ‘*terra economica*’. In this respect, the existence of waste-as-commodity is a *social* phenomenon and an expression of social relations.

⁶ Though I agree with Gille that the materiality of wastes does matter, I would not go so far as to suggest that it therefore has ‘agency’, since agency usually denotes some kind of active volition, which cannot be said to be true of wastes.

Modern Enclosure or Concentration and Centralization?

I have argued above that recycling is already a thoroughly commodified form of waste. Therefore, rather than the ‘enclosure of commons’ thesis adopted by writers like Gidwani and Reddy (2011) and Samson (2012) who study the work of informal waste reclaimers, I conceptualize the trends towards privatization in the waste management industry as part and parcel of the inherent tendencies towards concentration and centralization of globalized capital.⁷ This is particularly so in the case of informal workers’ struggles to maintain control over the ability to sort and sell recyclables. Their struggles are not so much about *whether* to commodify waste as was the case in classical examples of ‘wastelands’ and the feudal ‘commons’, but *under whose control* it becomes commodified. It is not a question of whether or not common property should become private property, but under whose aegis it ought to become private property – that of large-scale capitalist enterprises, or the urban poor?

Unlike earlier commoners who were gathering fruits, plants, firewood or hunting fresh game from the unenclosed commons that enabled them to subsist apart from the market, contemporary urban reclaimers are intensely inserted into the market: though they may find means of direct, non-market subsistence from the trash heap as Samson suggests, as a general rule, they *sell* recyclables to dealers up the chain to make a living. Anthropologists who study the *cartoneros* of Buenos Aires like Pablo Schamber (2008) are quick to emphasize that what these informal workers deal with are ‘merchandise’. Though they appear to be nominally independent, their gaining access to ‘the commons’ does not enable them to be independent from the market in the way that earlier commoners could be, since their work is intensely dependent on prevailing

⁷ On the other hand, and perhaps ironically, the privatization of collection services previously provided by municipalities can more appropriately be conceptualized as a kind of modern enclosure or David Harvey’s (2003) ‘accumulation by dispossession’, since these are, indeed, previously uncommodified domains that are being enclosed as private property.

market conditions. In this respect, contemporary urban reclaimers' work resembles more that of a putting-out system than that of a marginal survival outside of the market, and attempts to 'enclose' wastes resembles more a process of large capitals devouring their smaller competitors to consolidate the market rather than one where a market is created out of the commons, as such.

However, it is important to note that conceiving of this process as part of the 'regular' functioning of capitalist competition rather than as a new 'enclosure' does not mean that workers are not being dispossessed – dispossession is also a regular feature of capitalist competition. Certainly, in common with struggles over enclosures, these struggles are still fundamentally about distribution and the socio-material conditions of work, reproduction and survival. Rather, it implies that the gains that can be made by workers and the manner in which they can be made differ from these early enclosures. Here, the struggle is over the social conditions of subordination to market imperatives, since merely retaining access to the 'commons' is insufficient to guarantee subsistence, much less improving working conditions. Informality here denotes more that workers are not sharing in the gains made by organized labour through regulations and legislation upheld by the state rather than that they hold some special 'non-wage' status per se; they are not unemployed, they are employed under extremely exploitative conditions on the market. Indeed, the *cartonero* movement in Argentina emphasizes that they are not illicit characters, but legitimate workers, as part of their campaign for recognition. In other words, informal workers like urban waste reclaimers are not 'outside of the system' so much as they are incorporated into markets on highly exploitative terms. I will explore this more closely in the next chapter when we examine the working conditions typically experienced by informal *cartoneros* in Buenos Aires. For now, suffice it to say that even in the case of informal recycling, market forces – in particular, secondary materials markets – exert a great deal of pressure on the

working conditions prevalent in the field. Before we proceed with the argument concerning the commodification of waste, however, let us first take a brief but necessary step back and inquire into the production of waste itself – that is, back to the moment of wasting.

The Moment of Wasting: The Rise of Throwaway Society and Planned Obsolescence

Although common truisms like ‘one man’s junk is another man’s treasure’ propose that the definition and recovery of waste is a relative matter of individual taste and preferences, Susan Strasser reminds us that behind the eye of the – typically female – beholder lie skills, knowledge, a culture of handwork, and labour time that enable it to see beauty in ‘waste’. In her illuminating work, *Waste and Want* (1999), Strasser traces out the making and impacts of the American mass market on practices and attitudes towards wasting. Throughout the 19th century, she writes, practices of reuse in the home based on women’s skills in handwork and *bricolage* prevailed in homes of all classes and centred around what she called ‘the stewardship of objects’. The stewardship of objects implied caring for objects and materials in the home and an ethic of keeping waste to a minimum: goods were bought in bulk and transported in reusable containers, clothing was mended over and over again then eventually used as rags, food scraps were fed to domestic animals like chickens and pigs, kitchen grease and fats were saved for soap- and candle-making in the home or sold to ‘swill children’ who then sold these on as pigswill.⁸ A

⁸ This thriftiness in reusing household items prevailed also in Canada. A housekeeping guide published in 1867 for British women emigrating to the rural areas of Canada, aside from the usual advice of soap- and candle-making, had also this advice for worn-out clothing: “Rag-carpets are among the many expedients adopted by the Canadian settlers' wives for procuring comforts at a small cost, and working up materials that would, by the thrifty housewives of England, only be deemed fit for the rag-merchant. Let us see now how a careful settler's wife will contrive, out of worn-out garments, mere shreds and patches, to make a warm, durable and very respectable covering for the floor of her log-parlour, staircase and bed-room: (Traill, 1867, p. 112).

network of itinerant junkmen bought rags, bones, and other recyclable items from households with barter (and later on with cash) who then sold these items on to be used as raw materials in industry. Rags fed the paper mills, bones were made into fertilizer, charcoal for sugar refining, or lubricant for industrial use (pp. 12-13). In this respect, recycling was an inherent part of industrial production. What little that was left that could not be reused in the home or sold was typically disposed of in the family hearth (or on the street). While very wealthy households may have contracted private carters to haul away wastes (such as ashes), for the most part, waste disposal was primarily a domestic affair.

These practices of reuse and recycling centred on the home were underpinned by women's (typically) unpaid labour in the household, particularly in the sorting and categorization of wastes and in the production and reparation of household goods. Though she stresses that "sorting is an issue of class" – indeed, wealthier families tended to create more trash and wealthier women tended to perform less of the labour involved in the stewardship of objects, delegating these instead to female domestic servants – it was nonetheless the case that even very wealthy women commonly contributed some of the labour necessary for the management and reuse of waste in the home, for instance by mending clothing and household linens (p. 9). Being prudent in minimizing waste in the management of household affairs was considered a virtue even in very wealthy households. Throughout most of the 19th century, Strasser writes, the vast majority of women continued to sew clothing for themselves and their families, and women of all classes 'made over' their existing clothing by changing its shape and trimming to follow new fashion trends rather than discard old clothing outright to purchase them anew. That is, even budding consumerism such as the rise of fashion or the desire for new goods made of tin had to be embedded and accommodated within the existing ethic of the stewardship of objects and the

still relatively limited nature of the cash economy. In this sense, she argues that recycling and the refashioning of clothing, though supporting the minimization of waste, was also a vehicle for growing consumerism. Since rural households, in particular, tended to be scarce in cash, it was through the recycling of rags and other recyclable items that new commodities entered the household as barter. In this way, Strasser (p. 73) notes that goods moved in both directions between households and industry – waste reclaimed from households constituted an important part of the raw materials required by industry. Indeed, the need for and limited access to greater quantities of raw materials from an expanding industry enabled the profitable commodification of waste materials. In sum, then, although commodification was not an unimportant part of household waste management, it was only a subordinate part of overall efforts to manage wastes; that is, waste minimization and non-commodified reuse took precedence. Waste minimization and reuse, in turn, was not simply the result of an ethic, but was also the result of concrete work that women performed daily in the home.

However, Strasser writes, all of this changed with the development of the mass market and the expansion of industry. Reliance on domestic wastes limited the ability of early industry to expand, and as industries found other sources of raw materials – such as the paper industry’s substitution of wood pulp for rags – the demand for household wastes declined. Without a market, recycling moved to the periphery of industrial production. At any rate, the budding sanitation movements viewed those working with wastes and recycling with suspicion and disdain, and as these urban reform movements gained ground, older circuits of recycling and the people associated with this work gradually became displaced. Urban reformers succeeded in making waste collection and disposal a duty of municipal governments as the waste stream gradually outgrew the ability of households to manage privately. Although these older circuits of

recycling became replaced by municipal collection, most municipalities continued to require households to segregate their wastes so that some form of recycling or reuse would persist under the aegis of local sanitation departments and their designated private contractors.⁹ Waste disposal, then, was no longer simply a household matter. Strasser (p. 15) insists that:

Toward the end of the nineteenth century, disposal became separate from production, and Americans' relationship to waste was fundamentally transformed. Trash and trashmaking became integral to the economy in a wholly new way: The growth of markets for new products came to depend in part on the continuous disposal of old things.

To be sure, an expanding industry also needed expanding markets and desires to absorb its output. In this respect, older habits of the stewardship of objects were antithetical to industrial expansion and the rise of entire industries in advertising – that is, the selling of desire – and packaging worked at full-speed to replace these with new attitudes of consumerism and disposability. The aggressive promotion of consumerism and a positive attitude towards wasting, then, laid the groundwork for an expanding mass market as well as a growing stream of waste. More elaborate packaging (to be thrown out later) developed to increase the desirability of products. Advertisers promoted disposable products as a way for middle class households to achieve levels of hygiene and convenience previously only available to those with many servants. And as more women moved into the labour force, some of the products that were once sold as items of luxury and status symbols became more necessary parts of social reproduction as women spent less time in the home. That is, rather than changing the gendered division of labour and redistributing non-commodified work in the home, commodities like prepared foods (and the commodified labour contained therein) and the packaging that came along with it entered the household to make up for lost time, exiting the household as growing packaging waste.

⁹ Strasser (p. 127) notes, for instance, that land around Riker's Island in New York City was filled with ash from domestic wastes.

Changes in domestic technologies also made materials necessary for some forms of reuse less accessible, thus moving the production of some household goods into the marketplace. For instance, the displacement of woodstoves for coal stoves in heating also removed wood ash from the home, this latter being a source from which lye, a necessary ingredient of soapmaking, was extracted; this encouraged the purchase of canned lye on the market, or the purchase of soap made on the market altogether rather than producing these from leftover fats (pp. 31-2). Similarly, the adoption of gas furnaces and radiators made waste disposal at home much less convenient (p. 200). Practices of making clothing over were soon replaced by clothing donations to thrift stores and charities as consumerism gathered pace. As in earlier practices, Strasser argues that donating to thrift stores helped to appease residual ideas of reuse while facilitating increased consumption. By mid-century, planned obsolescence as a regular feature of promoting market growth and cultivating consumer culture was already in full swing.

Planned Obsolescence and the Sales Effort as Economic Necessity

Scholars approached this new phenomenon in a variety of ways. Conservative writers like Vance Packard considered the wastefulness of scheduled yearly stylistic changes in cars, furniture, and other consumer durables to promote sales as a kind of moral decay in his scathing indictment of the advertising industry in *The Waste Makers* (1960). Heterodox economists, on the other hand, tended to analyze the rise of planned obsolescence in terms of its relationship to monopoly and concentration of economic power.

J. Kenneth Galbraith's *The Affluent Society* (1958) argued that as societies become more affluent, material production begins to outstrip self-evident needs so that continued material expansion actually depends on the inducement and formation of frivolous needs by advertising,

social pressure and increased planned obsolescence. Consumer demand, in this sense, is no longer independently formed, but actively moulded and encouraged. The paradox of the affluent society consists precisely in that over-consumption of privately produced goods is necessary only insofar as it provides income and employment to workers, and not because these goods in themselves add to general welfare (given that the desire for the goods have to be created in the first place). In this respect, the production of waste (i.e. overconsumption) is a means of maintaining social welfare (i.e. providing income and employment) within the confines of the distributive relations that follow from capitalist production. The Keynesian model, in other words, accelerates appropriations of the natural world in exchange for social peace and consent.

Yet as a result of social investment in unnecessary private production, Galbraith argued, the production of public goods is starved. In this way, the extended production of waste, though he did not explicitly deploy such a concept himself, is a direct result of inattention to what he called 'social balance' (i.e. the balance between investment in private and public production), which could be corrected through increased public investments in what would now be considered more 'immaterial' sectors of the economy like education. By the same token, 'pure' market competition was also unstable and generative of waste insofar as the mechanism that ensured efficiency operated by inducing the bankruptcy and ruin of less competitive productive units.

Picking up from Galbraith, Paul Baran and Paul Sweezy (1966) theorized the production of waste as an economic category intrinsically tied to the rise of monopoly capital (i.e. the modern corporation) from a Marxist perspective. Since producers ceased to compete along the lines of price under conditions of monopoly capitalism, competitive efforts instead spilled over into and focused on the realm of product differentiation and advertising, what they referred to as 'the sales effort'. Furthermore, they argued that production of waste through planned

obsolescence and the 'sales effort' was one important method of surplus absorption through which the tendency for economic stagnation (as a result of the tendency for the surplus to rise) in monopoly capitalism was countered. In this way, the systematic production of waste was directly tied to economic stability. They insisted: "The question for monopoly capitalism is not whether to stimulate demand. It must, on pain of death" (p. 111).

Writing from a more conventional neoclassical framework and eschewing the question of the creation of unnecessary wants, Jeremy Bulow (1986), theorized planned obsolescence as a competitive strategy of profit maximization associated with conditions of monopoly or oligopoly. Since these firms must compete with regard to future market conditions that they regard as directly relevant to their profit positions (being the only or one of very few firms in that particular market), they have an incentive to produce products that have 'uneconomically short useful lives' in order to secure repeat purchases in the future.

What we can see from this very brief overview is that, first, the moment of wasting is not simply an individual moment, but is tied up with an entire culture and social relations of production. In the contemporary context, the extended production of waste is tied up with the rise of the mass market and the further development of capitalist modes of accumulation – it is thoroughly embedded within wider dynamics of market competition. This expansionary phase of capitalist development, widely associated with a 'golden age' of prosperity and Keynesian economics, was also the beginning of the most wasteful period known to human history, not only absolutely in terms of material throughput, but also relatively in terms of wastes that become reused or recycled. Throughout this period, rates of waste recovery declined in the United States – what used to be recycled instead went to landfill. Matthew Gandy (1994, p. 31) recounts:

The US paper recycling rate fell from 35 per cent in 1944 to around 17 per cent by 1973 and in the case of rubber there was a fall from 19 per cent recycling in 1958 to only 8.8

per cent in 1969. Similar patterns of decline were also noted for aluminium, copper, lead, and ferrous scrap.

In many ways, a culture of wasting and the related production of ‘needy’ human beings have been integral to capitalist expansion. While the promotion of recycling in recent decades does relatively reduce waste, it has not stopped the growth of waste in absolute terms. Indeed, as Chapter 5 will show, the promotion of recycling in Toronto was in fact used as a justification for the production of new classes of waste. Similarly, Takayoshi Shinkuma and Shunsuke Managi (2011) point out that higher GDP per capita is positively correlated with the production of greater quantities of municipal waste, directly contradicting the propositions of the Environmental Kuznets Curve (EKC).¹⁰ If, as scholars like Galbraith, Packard, Baran and Sweezy suggest, the advertising industry exists to sell desire and push goods that would otherwise not be wanted, then what can be said of the real environmental impact of the advertising industry? Even disregarding its impact on packaging, we could not properly regard the advertising industry, even though it can be a form of ‘immaterial labour’, to be ‘green’ in any sense if we take the aims of this work into account

Second, the minimization of waste and successful reuse of objects is not simply an attitude, but is dependent on both skills and time. In the context of a gendered division of labour, practices of reuse and waste reduction have historically been predicated on women’s skills and non-commodified labour in the home. In other words, home production was central to a way of life that produced relatively little in the way of wastes. Similarly, the labour-intensive task of sorting recyclables widely depended on women’s domestic labour; failing this, the task of sorting fell to the commodified labour of immigrant workers and the urban poor. In the contemporary

¹⁰ Indeed, the original Kuznets hypothesis regarding income and inequality has been largely refuted, especially with the trends towards increasing inequality across the globe in recent decades (Palma, 2011).

context, as women increasingly move into the labour market and are no longer as likely to learn the skills necessary for domestic production, the task of sorting and reclaiming wastes, where this is done, also increasingly moves into the realm of commodified labour.

The Moment of Commodification

If labour is central to the reclamation of wastes, in both its commodified and uncommodified forms, then the decline of home production and skills and the transformation of social relations that accompanied the rise of the mass market has meant that the majority of wastes is now reclaimed or disposed of in a commodified form. In other words, the moment of wasting now increasingly implies the moment of commodification. What, then, is the character of this commodified labour? Through what channels does commodified waste flow today?

Waste as a Global Commodity: All Roads Lead to China?

Now, as in the past, much of the profitable sorting of recyclables on the capitalist market is done by hand and predicated on the low cost labour of migrant workers and the urban poor (Gregson, Crang, Botticello, Calestani, & Krzywoszynska, 2014). The difference, however, is that the recycling industry has now become a much more globalized industry. While international trade in scrap rags and metal did exist in the past, the bulk of recycling took place locally or regionally. Now, recycling takes place on a truly global scale; indeed, this is really another way of saying that production now takes place on a global scale.¹¹ Seasoned scrap trade journalist Adam Minter (2013, p. 2) estimates that the global recycling industry has an annual

¹¹ No longer a provincial affair, large scale scrap dealers in the US like Alpert & Alpert need to make use of financial instruments like hedges to manage the risks associated with price and currency fluctuations characteristic of international commodity trading (Minter, 2013, p. 90).

turnover of upwards of US\$500 billion (only a small fraction of which represents the municipal household recycling stream), and the epicentre of much of that recycling and hand sorting takes place in China.¹² This is so not only because of low wages, but because a significant portion of global manufacturing is concentrated in China, which makes it a significant consumer of raw materials, whether they be from primary (e.g. mining) or secondary (i.e. recycled) sources. The flow of scrap materials to China is also facilitated by discounted shipping rates, since shipping containers carrying Chinese goods for export would otherwise return home empty, and scrap serves as ballast. Minter notes that in 2012, it was four times more expensive to ship a container of scrap across the Rockies than it was to ship to China (p. 87). Nicky Gregson and Mike Crang (2015, p. 153) observe that according to UN COMTRADE data, the value of global trade in scrap materials grew between 4 and 10 fold from 2001 to 2011 and the value of global trade in scrap ferrous metals in 2011 (worth some US\$57 billion) exceeded that of diamonds. According to *The Guardian's* Katharine Earley (2013), scrap was the United States' biggest export to China by value in 2011, worth some \$11.3 billion.¹³

¹² The non-municipal stream comprises wastes such as junked automobiles and machinery, decommissioned ships, manufacturing and industrial wastes (for instance, scrap generated in cutting metal parts), construction debris, old infrastructure, etc.

¹³ It should be noted that scrap materials are not listed as a separate and distinct category by the United States Census Bureau in country-specific exports tables, therefore, one must individually aggregate data on scrap exports to compare to these tables. For instance, for the year that Earley cites, soybeans are listed as the highest value export to China for 2011, at \$10.5 billion (i.e. less than the combined value of scrap cited by Earley). In 2013, scrap was the third largest US export to China by value at \$8.8 billion, surpassed only by soybean exports at \$13 billion and civilian aircrafts, engines, and parts at \$12.5 billion (US Census Bureau, 2016; Institute of Scrap Recycling Industries, 2014, p. 23). Overall, although soybeans and civilian aircrafts remain fairly stable as the top US exports to China by value over the last decade, the precise rankings vary from year to year. The same can be said for scrap exports. Heather Rogers (2005, p. 204) reports that as early as 2002, America Chung Nam, a scrap dealer based in California, sent out more containers from US ports than DuPont, General Electric, and Phillip Morris combined. For comparison, a search through individual Schedule B commodities (<http://uscensus.prod.3ceonline.com>) shows that the US exported \$6 billion worth of ferrous

The pattern of physical trade that emerges is that China exports manufactured goods to Europe and North America, and the waste materials that result as well as occasionally some capital goods for the reprocessing of waste returns to China to be recycled into new goods ready for export – though increasingly, some of this material remains in China.¹⁴ As in the past, industrialization – and therefore, industrializing countries like China and India – drives demand for scrap material. Philippe Chalmin (2009, p. 702) observes, for instance, that the waste paper/recovered cellulose fibre market in both Europe and North America is now completely dependent on Chinese demand; as such, the world price for these fibres is based on transactions with (including shipping to) China. Though the flow of scrap to China is ultimately underpinned by low-cost labour, it differs from traditional outsourcing in that it does not occur as a result of the cost-saving measures taken by vertically integrated, globalized, corporations who ultimately retain the profits gained from moving production overseas. In the case of recycling, scrap flows to China in part because Chinese recyclers *outbid* US recyclers to purchase scrap; that is, Chinese capitalists can ‘afford’ to offer a higher price for scrap materials both because of lower shipping costs (which is the result of outsourcing in traditional sectors) and because they can extract more surplus value out of their workers at home.¹⁵ In this respect, the recycling trade to China is as much a product of globalization as it is a product of the particular form of capitalist development in China.

scrap, \$3.6 billion of scrap copper, \$2.97 billion of scrap aluminium, and \$1.24 billion of waste paper and boxboard in 2010 versus \$482 million of refrigerators, \$364 million of domestic electric stoves, and \$404 million of cigarettes and cigars that same year.

¹⁴ A second major route for recycling links Dubai and other Middle Eastern cities with India, the latter being a second major global destination for recyclables.

¹⁵ Nicky Gregson, Helen Watkins, and Melania Calestani (2013, p. 3) note similar reasons when they assert that firms in the European Union “are uncompetitive when bidding for vessels [i.e. decommissioned ships] compared to firms based in South Asia,” where over 80% of the commercially scrapped tonnage from ship-breaking takes place.

On the other hand, the recycling trade is not simply a ‘product’ but also an active force of capitalist transformation in China. It is here that once predominantly rural farming communities like Guiyu turn into major hubs of global recycling and industry and nascent capitalist fortunes are made, along with the incredible exploitation of nature, both human and non-human, that this entails.¹⁶ Minter (2013, p. 78) perceptively observes that the scrap trade also served to undermine the centrally planned economy, since it gave capitalists access to raw materials that by-passed the state controlled allocation of raw materials. Xin Tong and Jici Wang (2012, pp. 105-6) similarly observe that during China’s transition to a market economy, the recycling of scrap was typically carried out by migrant peasant labour (since state employees refused to collect or discard old equipment), who collected industrial discards from state-owned enterprises, refurbished and sold these on to township- or village-owned enterprises. The creation of a pool of free-market inputs, therefore, played an important role in rural capitalist industrialization.¹⁷ In any case, the availability of alternative sources of raw materials enables industrialization to gather pace without being solely dependent on the productivity of global primary extraction industries and the geopolitical rivalries this might entail.

Insofar as recycling is in the business of producing raw materials, then, it is tightly linked to the growth of manufacturing, and scrap flows towards manufacturing centres.¹⁸ This was most

¹⁶ This was famously documented by Basel Action Network (BAN) and the Silicon Valley Toxics Coalition (SVTC) in their ground-breaking report, *Exporting Harm* (2002), detailing the hazardous working conditions, severe ground water contamination and other toxic effects of electronic waste recycling in Guiyu. Minter (2013, Chapter 9) also describes the extremely polluted towns that are the centre of plastics recycling in China.

¹⁷ They note, furthermore, that since recycled, free-market materials carried a much higher price than that produced through official state-controlled avenues, recycling was also a very profitable activity.

¹⁸ For example, Chalmin (2009, p. 700) points to the “near-disappearance” of the paper industry in the UK as accounting for its being the second largest exporter of scrap paper in the world. Indeed, he considers the development of the recovered cellulose fibre market in China as “an

dramatically illustrated in the wake of the financial crisis of 2008, when scrap market prices quickly deteriorated as a result of the collapse in manufacturing and consumer markets. Chalmin (2009, pp. 151, 701) notes that prices for scrap paper had fallen so much in European and American markets due to the withdrawal of Chinese demand that “in some cases, ...they were negative at the stage of collection” and prices for scrap cardboard fell by two-thirds in China in the four months between August and December 2008. In Ontario, the average spot market price for all classes of recyclables fell in 2009 compared to 2008 and 2007, with plastic tubs and lids registering the most dramatic collapse from an average of \$204 per metric tonne for 2008 to just \$22 per metric tonne in 2009 (Reclay StewartEdge, 2015).¹⁹ Similarly, Minter (2013, pp. 233-5) reports that prices for scrap aluminum dropped by half only six weeks after the collapse of Lehman Brothers and some grades of scrap steel fell by 80%. Meanwhile, shipments of scrap waited at Chinese ports uncollected as contracts were cancelled or renegotiated and shipping containers full of recyclables rapidly lost value as they made the six-week trip across the ocean. As a result of the sudden collapse in scrap prices and without a viable outlet to sell to, he observes, many municipalities with recycling programs had to landfill their recyclables (p. 236).

Though scrap markets have since rebounded, the financial crisis highlights the primacy of secondary materials markets for the viability of recycling, which is itself inextricably tied to global production as a whole. Rather than recycling simply ‘allowing’ for the continued growth of production and consumption as some environmentalists fear, it would be more accurate to say that recycling actually *depends* upon the continued growth of production and consumption just

early indicator for the evolution of the global manufacturing industry,” given that recovered fibres are commonly used to make cardboard boxes and other packaging required for the shipping of manufactured goods (p. 702).

¹⁹ These are spot market prices for municipalities based in Ontario averaged over an entire year. Since the crash happened towards the end of 2008, the 2009 prices are much more reflective of the market collapse.

like other capitalist enterprises. The faster products cycle through the stages of production, consumption, and recycling, increasing both the volume and velocity with which wastes (as capital) move through the recycling process, the more profitable it is for the recycling business. While it is true that municipal support for residential recycling can to some degree ensure the continuity of recycling programs through tough economic times by covering the costs of collection and sorting irrespective of market price (if the municipality in question has the financial resources to do so), there must, at a minimum, *be* a secondary market available to absorb the recyclables in question for recycling to take place. And this, in turn, is tied up with the dynamics and patterns of global production more generally.

What does it mean, then, for waste to be a global commodity? For one, secondary materials becoming a true ‘world commodity’ implies that value production out of waste is governed by a global standard – in Marxian terms, the socially necessary labour time for producing raw materials out of waste is determined on a global scale. That is, as mentioned in an earlier chapter, the assemblage of material and social conditions that are necessary to reclaiming waste are compared on a world scale, and as Elmar Altvater (1994) observes, “converge” towards some average spatial and social conditions, regardless of the actual heterogeneity of these spaces and conditions. As a global commodity, the conditions and patterns of production and the division of labour in recycling fit in closely with rather than contradict established global patterns of production and trade on a wider scale. However, this does not imply that all economies or economic sectors are evenly or homogeneously inserted into the world market; as such, the pattern of recycling and the relative attractiveness of using recycled materials in different spaces and geographies are also dependent on how different countries or economic sectors are (unevenly) articulated with global production. As will be seen in the next chapter, in

Argentina, it was the changing relationship to the world market as a result of economic crisis and devaluation that rendered labour-intensive domestic recycling an economically viable option. On the other hand, in Toronto, global competition with lower-waged labour elsewhere has meant that recycling proceeds through increased mechanization to remain profitable. There is, in short, a *mediation* between the global market and specific localities and sectors, which is typically facilitated by the state.

Furthermore, in times of crisis, losses and negative consequences are not borne equally by all. For instance, though the crash in scrap prices meant that recyclables were instead taken to landfill in the US, the results were much more dire in India. The erosion of local circuits of recycling in India following the crash threatened the livelihoods of tens of thousands of informal waste reclaimers. This was so because with lower global scrap prices, Indian recyclers could now purchase cheaper and cleaner imported scrap rather than buy locally (SEWA, 2009).²⁰ Similarly, global crises are not equally borne by those who work in the same sector.²¹ In Samson's (2012) study of a dumpsite in South Africa, she found that in the wake of the financial crisis, scrap buyers were able to pass on the entire drop in scrap prices onto the reclaimers who worked at the dump. Some of these reclaimers in turn reacted by restricting access to the dump for non-South African reclaimers so that they could extend their own workdays in order to partially make up for lost income. Significantly, she emphasizes that the unevenness of these consequences are not the simple result of the crisis impacting an unequal, gendered and racialized social landscape, but

²⁰ Since local sources of scrap were often separated after waste left its source, they were more often contaminated with other items (i.e. paper soiled by food) than imported scrap that often had some form of primary separation at source and also often enjoyed public subsidies for the process of collection and sorting.

²¹ Minter (2013, p.132) notes, for example, that one Chinese scrap dealer who had lost half his personal worth in the crisis had recovered all of his losses within 18 months. Certainly, the same could not be said of the workers in the industry.

that these inequalities are also actively produced by the social actors involved. In any case, the increasingly global nature of secondary materials markets and production in general has an important effect on the labour processes and patterns of recycling found worldwide.

Finally, the conditions of possibility for recycling are peculiarly circumscribed. As a process that turns waste into raw materials, it must compete at both ends. On the one hand, as a raw material, it must compete with primary materials industries like mining, forestry and the like, but it does so with the disadvantage that “secondary materials carry risks, some more than others – of contamination or poor quality control” (Gregson et al., 2013, p. 8). To be competitive on the market, therefore, recycled materials must be cheaper or significantly more accessible, which is no small feat considering the significant state support primary industries enjoy in the form of subsidies, tax breaks, and infrastructure. As a rule, then, secondary materials markets tend to follow that of primary materials, with the latter serving as the upper limit of the former. See, for instance, the following charts on scrap prices over the last decade from the Institute of Scrap Recycling Industries (2011):

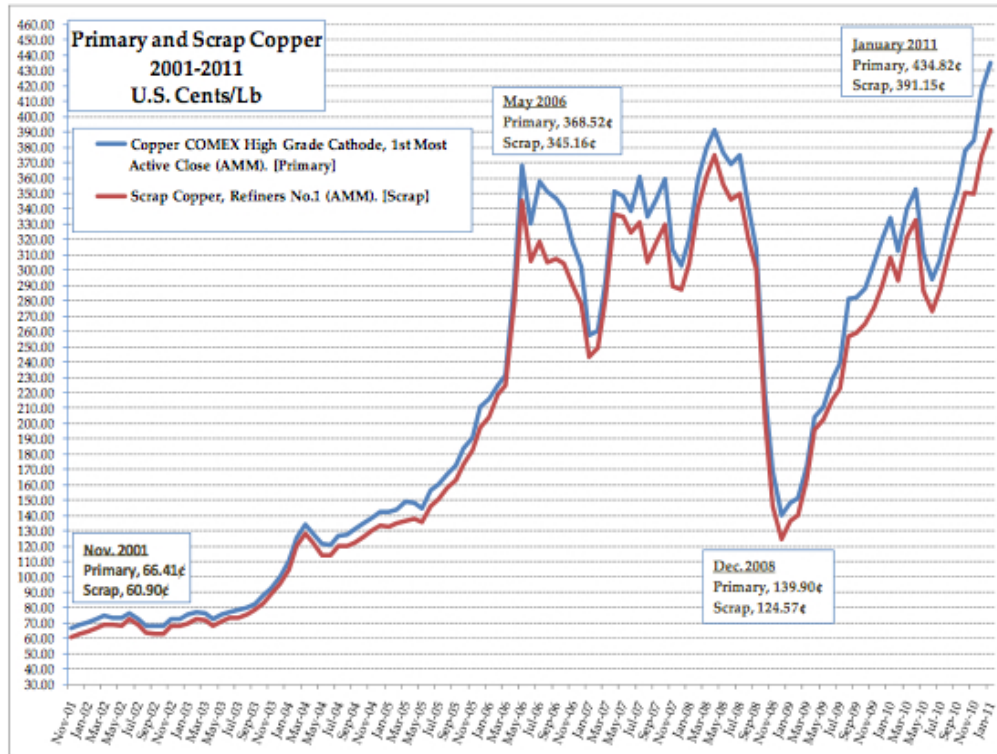


Figure 1.1 Primary and Scrap Copper Prices. Reproduced from: ISRI (2011)

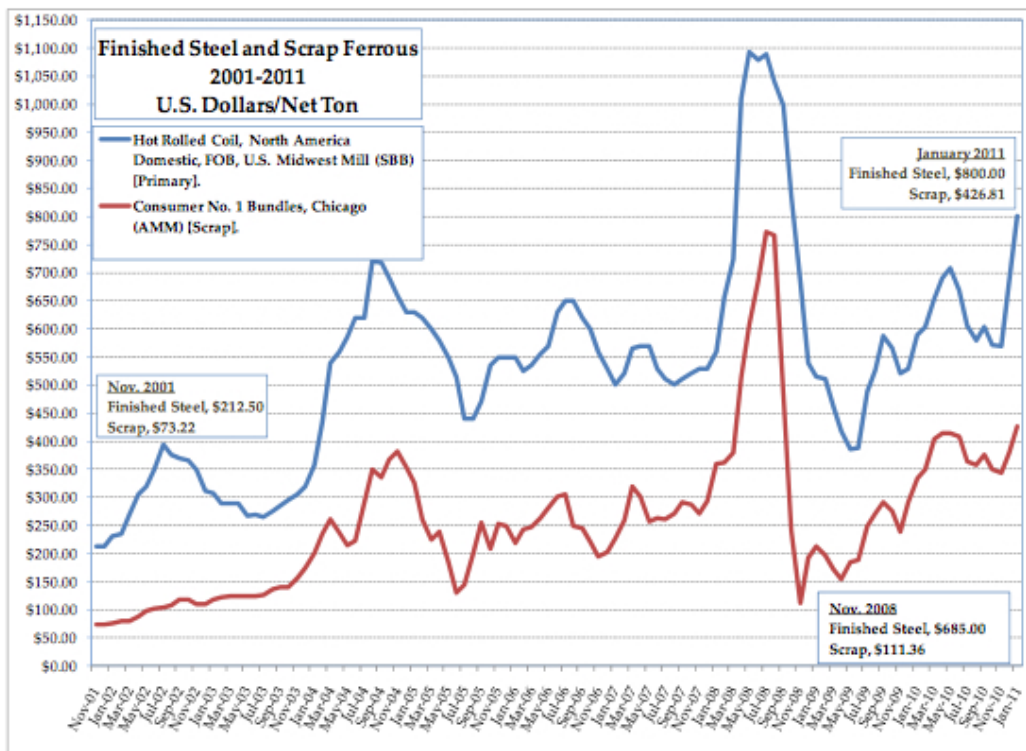


Figure 1.2 Finished Steel and Scrap Ferrous Prices. Reproduced from: ISRI (2011)

As is readily observed, although cheaper than primary materials, movements in the price of scrap very closely mirror the fluctuations in the corresponding primary material.

On the other hand, as waste potentially in need of disposal, recycling also competes with incineration and landfill. If the cost of collecting, sorting, storing and transporting recyclables exceeds that of landfilling or incineration after adjustments are made for the sale of the materials, then pressure towards disposal rather than recycling will always prevail short of other countervailing political and social considerations. In other words, prices for recyclables must be high enough to compete with alternative disposal methods. However, since commodities markets fluctuate and are subject to financial speculation, this creates a rather unstable context particularly for municipal recycling programs that cannot quickly (and credibly) change what is collected according to market demands. Unlike dedicated private junk dealers, municipal programs must collect all of the materials set out at the curb, regardless of its current price. At any rate, the production of a particular kind of household waste cannot be increased in response to market demand like other goods (i.e. households do not produce waste on a capitalist basis), though the collection of what is already produced could in some cases be made more rigorous in accordance with market fluctuations.²² As Matthew Gandy's (1994) study of London, Hamburg and New York attests, the weakness of secondary markets and their fluctuating nature make it difficult to sustain a case for municipal recycling on purely economic grounds, since the price paid for recyclables will not always cover the cost for its collection, storage and separation. For the most part, the systematic and extensive collection and sale of recyclable material from the

²² Though households do not produce waste *for* the market, they may be persuaded, however, to bring in junk materials that have been stored to scrap yards when prices are high. Minter (2013, pp. 175-6) reports that when scrap metal prices were at an all time high in early 2008, US households finally brought out the last of all of the junk automobiles and tractors lurking on their properties to be scrapped.

household waste stream (as opposed to the selective collection of materials by professional junk dealers) is only profitable where it is based on low-wage and typically informal labour or where municipalities make payments for waste management as a service to defray the costs of collection.

There are, of course, other factors that make municipal recycling a viable option. Rogers (2005) suggests that from a manufacturer's point of view, rising environmental consciousness and concern about the wastefulness of increased consumption makes the promotion of recycling to calm public anxiety preferable to calls for reduced production and consumption. This, as will be shown in Chapter 5, was the case in Ontario. Indeed, Jesse Catlin and Yitong Wang (2013) report that resource consumption is often higher where consumers are aware that options for recycling exist. From a manufacturer's perspective, the promotion of recycling is justified primarily as a public relations exercise. Similarly, widespread community opposition to siting new incinerators and landfills in recent decades due to concerns over health impacts and environmental contamination has also made recycling a more attractive alternative as a way to conserve limited landfill space or to obviate the need for new waste disposal facilities. Romain Garcier (2012) points out, for example, that the recycling of spent uranium through re-enrichment is motivated not by strict economic savings but by the lack of adequate storage capacity (i.e. 'disposal' sites) for nuclear wastes. The greater the difficulty of finding suitable disposal sites, therefore, the more attractive recycling becomes. In this sense, whether or not wastes become commodified as raw materials, though ultimately dependent on secondary markets, is thus also generally determined by a complex mix of locationally-specific, as well as global, social, ecological and political conditions.

Recycling as a Production Process

Thus far, I have established that as commodified waste, recycling is a capitalist – and increasingly globalized – enterprise, and that this informs the what, the where, and the how things get recycled. I have also emphasized that the re-entrance of waste into the world of commodities is not immediate, but requires the mediation of human labour. As mentioned previously, before potentially recyclable material can enter the stream of commodities as a raw material again, labour must be expended in collecting, sorting, cleaning, processing and transporting these materials. Whatever the recyclable material in question, be it plastics, glass, metals, paper, or decomposing food, three overall conditions must be met before it can be used as a raw material: (i) the material must be *sorted* or graded and cleaned of contaminants; (ii) with the possible exception of organics, the material must be *accumulated* and sold in quantities large enough for it to be feedstock in manufacturing, which favours large-scale operators and also implies that recyclables must be temporarily stored rather than simply transferred for final disposal like other wastes; (iii) the material must be *in a form suitable for use* in manufacturing (for example, scrap metal that is too large must be cut down to size). These criteria, in part, shape the potential movement of value and the possibilities of how labour processes in these various stages can be organized.

From the rag rooms of the 19th century paper mills to the streets of modern day metropolises, the production processes associated with recycling have long been the home of insalubrious and exploitative working conditions.²³ According to a recent Los Angeles Alliance

²³ Marx had this to say about rag-sorting in the first volume of *Capital* (1867/1976, pp. 592-3): “One of the most shameful, dirtiest, and worst-paid jobs, a kind of labour on which women and young girls are by preference employed, is the sorting of rags. It is well known that Great Britain, apart from its own immense store of rags, is the emporium for the rag trade of the whole world. The rags flow in from Japan, from the most remote countries of South America, and from

for a New Economy (LAANE) report, recycling and waste collectors in the United States have work-related fatality rates that rival that of police officers, and work injuries are among the highest of all occupations. At the same time, wages for materials sorters in Los Angeles, California do not meet the self-sufficiency threshold even though they are exposed to hazardous conditions (dirty needles, chemicals, dead animals, broken glass, etc.) throughout the workday (LAANE, 2011, pp. 13, 21).²⁴ Gregson et al. (2014) similarly note the physically demanding and hazardous nature of recycling work within the European Union, with the ‘dirtiest’ and lowest-paid jobs going to migrant workers. This, I contend, is in large part a result of recycling being undertaken as a capitalist production process. Like other such enterprises, the quest for greater absolute and relative surplus value in the recycling industry often translates into fragmented and alienating labour processes that are subject to speed-up, the adoption of labour-saving technology, and where this is not possible, the extension of the workday. Here, nature is treated as simply a sink for wastes.

However, unlike many other such processes in the current conjuncture, the primary stages of the recycling process – namely, collection – cannot be subject to outsourcing to other corners of the globe where lower wages prevail. Since the production of potentially recyclable wastes is dispersed and localized – and this is particularly so in the case of municipal and household wastes – collection is inevitably, by its nature, tied to place. In the sense that recycling is not possible unless recyclables are collected from its point of production – i.e. factories, households, etc. – collection constitutes the most important and expensive step of the production process. The

the Canary Islands. But the chief sources of supply are Germany, France, Russia, Italy, Egypt, Turkey, Belgium and Holland. They are used for manure, for making bed-flocks, for shoddy, and they serve as the raw material of paper. The rag-sorters are carriers for the spread of small-pox and other infectious diseases, and they themselves are the first victims.”

²⁴ David Pellow, Allan Schnaiberg, and Adam Weinberg (2000) document similar offences and labour practices in their study of a Chicago sorting facility run by Waste Management.

municipal waste stream is also particularly socially significant despite the fact that it represents but a fraction of the entire waste stream – Rogers (2005) suggests only 1 out of every 70 tons of waste produced – because waste management often constitutes a significant portion of unavoidable municipal expenditure. It is for these reasons that the collection and sorting of recyclables is proposed as an ideal candidate for those who support the promotion of green jobs (BlueGreen Alliance/Teamsters/SEIU/NRDC/RecyclingWorks!/GAIA, 2011; LAANE, 2011; LAANE, 2014). It is also why I focus more particularly on this stage of the process in subsequent chapters of this dissertation.

Green Jobs or Labour-Saving Technologies?

A number of curious contradictions between the level of technology and mechanization employed, the quality of working conditions for workers, and the ecological impact of the process of recycling emerge when we examine the recycling sector from the point of view of creating high-quality, labour-intensive employment with decent working conditions as do advocates of green jobs. These contradictions, I maintain, are ultimately tied to the distributional struggles that obtain when the products of social labour are privately appropriated in the process of capital accumulation. The application of technology in capitalist contexts tends to be in the direction of labour-saving technologies because it lowers costs and therefore boosts the profitability of the operation in question. Investment in technologies that improve working conditions for workers would not in itself be profitable. Its profitability is contingent upon its ability to increase the productivity of each worker, its ability to produce a higher quality product capable of commanding a higher price, or its ability to otherwise lower other costs of production, for instance, by using less raw materials. Short of a supremely higher quality kind of product,

then, the application of capital-intensive technology that is also labour-intensive would be unlikely to be profitable and rather counterintuitive if the goal of production is profit.

The collection and sorting of recyclables under the aegis of municipal collection programs by municipal workers (and to a much lesser extent, recycling centres run by non-profit community groups) represents the only link in the chain of recycling that is not a purely market-based affair. And as I will argue in the chapters that follow, it is this subversion of market logic that opens up space for the organization of work that is both labour-intensive and provides higher quality working conditions. Throughout the chain, where recycling is organized along capitalist lines, these two characteristics do not tend to coexist. While labour-intensive operations, most commonly found in the Global South, tend to be based on low-wage labour, handwork and have poor working conditions, capital-intensive operations typical of richer, industrialized nations tend to have (relatively) better working conditions but employ fewer people.

Capital-intensive collection of recyclables where workers operate large trucks, mechanically manoeuvre metal containers (i.e. dumpsters) and other specialized equipment to collect pre-sorted material typically employs far fewer people than labour-intensive recycling collection where informal workers collect pre-separated materials directly from homes and small businesses or pick these out of mixed garbage and transport these using hand-pushed vehicles, horse-and-buggy or light pick-up trucks. Similarly, the capital-intensive sorting of mixed recyclables utilizing expensive multi-million dollar equipment that mechanically sort with magnets, optical sensors, eddy currents, air jets and water floatation devices, employs very few workers. This is the case in facilities that sort municipal recyclables as well as in specialized facilities that sort the non-ferrous components of shredded automobiles. In contrast, labour-intensive sorting employs many more workers, but does so because it involves sorting by hand

either on the street or at dumpsites and landfills in the case of mixed wastes (that is when recyclables are mixed with garbage), or in factories or materials recovery facilities (MRFs) using conveyor belts in the case of mixed recyclables.

Although mechanization improves working conditions in some degree by removing the worker from direct manual contact with wastes, either completely or relatively, and by lightening the physical load on workers, it also achieves a lower level of recycling compared to hand sorting and consumes more fossil fuels. Hand sorting tends to achieve more complete separation of materials (and thus purer raw materials as the end product) and allows for the recovery of more value by preserving more of the previous labour embodied in the object in question.²⁵ For instance, Minter (2013, p. 138) notes that while mechanized recycling of electronics involves shredding the items and then sorting the broken pieces according to its constituent elements, recycling based on hand labour first extracts functioning components from the used electronics and markets them for other uses, as when microchips from old phones are extracted and sold for use in toys or electronic billboards and displays. Similarly, he notes that the dislodging of steel screws from aluminum frames by hand, or having workers cut a computer mouse or steel connector from its cable before recycling these separately ensures cleaner separation of materials and thus the recovery of more value. In their study of consumption work related to municipal recycling schemes in Sweden and the UK, Kathryn Wheeler and Miriam Glucksmann (2015) similarly note that separation at source by consumers tends to produce better sorted, higher value materials with less contamination compared to mechanized sorting in MRFs.

²⁵ Andrew Herod, Graham Pickren, Al Rainnie, and Susan McGrath Champ (2014) forward the notion of value being transferred in the process of reclaiming wastes in their discussion of global destruction networks.

Contrary to popular belief, the hand sorting of recyclables often requires skill and knowledge of the different materials at hand, despite its being a low-wage occupation. Paper, metal, plastics and glass come in many different grades, each of which commands a different price and can be put to different uses. Sorting by hand requires that workers be able to identify different grades of materials by sight and touch, as well as know the composition of items they commonly recycle.²⁶ At one major large-scale processor of metals in China, young women workers (who number some 800) take on average one month of training before they can accurately hand sort the various non-ferrous metal components (like aluminium, zinc, magnesium and copper) found in shredded automobiles after the iron and steel have been picked off by magnets (Minter, 2013, pp. 213, 215).²⁷ Similarly, experienced metalworkers in ship-breaking appraisals are able to identify not only different metals by sight, but also “distinguish concentrations, such as the difference between a 90:10 copper-nickel alloy and a 70:30” (Gregson et al., 2013, p. 14). A shoddy (i.e. recycled wool) blanket mill in India might require a worker to know the fibre content of garments by touch (Norris, 2012, p. 43). If handwork is central to the recovery of value and to a more complete separation of wastes into its constituent elements (and thus better environmental results), capitalist production is only capable of delivering these outcomes on the basis of low-wages and poor working conditions. Conversely,

²⁶ Gregson et al. (2014, p. 9) note that in one textile sorting factory in the UK where used garments travelled on a series of conveyor belts to be sorted into close to 400 different grades, migrant Polish women workers were tasked with sorting higher grade items for the Eastern European market because they were assumed to understand better what types of items would appeal to this destination market. While the authors theorized this as merely an assumption and as ‘essentialized knowledge’, it would be equally fair to say that the employer was simply appropriating specialized knowledge possessed by these women workers as a ‘free gift’ without providing compensation.

²⁷ Minter (2013, pp. 214, 216) reports that Sigma Group, the owner of this plant, is responsible for 40% of all recycled aluminium exports from China in 2012, the likes of its customers including multinational conglomerates like Toyota.

attempts to control labour costs through mechanization and speeding up the sorting line (i.e. speeding up the conveyor belt that carries items to be sorted) do so at the expense of working conditions and sort through items less thoroughly. Partly as a result of sorting lines at materials recovery facilities that run too fast, plastics recyclers in the United States complained of bales of PET or HDPE plastics with contamination rates as high as 35 to 40% in recent years (Verespej, 2014).

Mechanization attempts to replace workers' judgment and skill, but does so only partially: even the most sophisticated sorting plants require human hands and eyes to sort through particular items that are difficult to differentiate by machine. Waste Management Inc.'s Texas sorting plant for single-stream municipal recyclables is a case in point.²⁸ According to Minter (2013, pp. 17-22), though its \$15 million dollar equipment is capable of sorting through various metals, plastics, paper and glass through automation – the sensors and air jets used to separate clear plastic from coloured plastics alone can replace from six to ten workers – the separation of white plastic polyethylene bottles from other colours is still done by hand because there is no straightforward and efficient way for this to be done by machine. Gregson et al (2014) similarly emphasize the continuing importance of (low-waged, gendered) human labour in sorting and grading wastes in resource recovery work as diverse as municipal recyclables, textiles, and ship-breaking in the European Union.

Indeed, automation brings about its own set of challenges for the working conditions of those remaining. The constant swirling of materials in the automated system and the speed with which materials pass through on conveyor belts can cause nausea and vomiting for the minimum wage workers working on the line (Minter, 2013, p. 19). Furthermore, because the universe of

²⁸ Single stream recycling refers to municipalities that only require households to sort between garbage and recyclables without further requiring households to separate paper from metals, etc.

potentially recyclable items is incredibly varied and mechanized sorting is only efficient when the nature of the inputs are predictable, preliminary sorting by human labour to limit the items to be processed is always necessary before mechanical sorting can be possible. In the case of municipal wastes, this sorting is typically carried out by household labour (both commodified and uncommodified) or by the informal labour of the urban poor. Whatever the collection and sorting method, the closer to the original source that primary separation happens (for example, the separation of wet food debris from white paper) the cleaner and more recyclable the resultant materials will be.²⁹ In this way, what Wheeler and Glucksmann (2015) refer to as ‘consumption work’ contributes directly to the conditions under which the production of value from waste takes place, and by extension, the working conditions found therein. I will return to this in the next chapter.

Although it is not possible to completely remove human labour from the equation, nonetheless, capitalist competition and the relentless search of profits is leading to the increasing introduction of labour-saving technology at all stages of the recycling process. At the stage of collection, the dominance of neoliberal politics has entailed not only the privatization of municipal waste collection services, bringing these back into the sphere of capital accumulation, but along with it, the imposition of capitalist discipline in the workplace, taylorization, speed-up of work, and the extension of capital-intensive, labour-saving technology.³⁰ Even in China, where recycling is still overwhelmingly labour-intensive, ownership is dispersed, and small-scale workshops constitute a significant part of the sector, large-scale processors are already acquiring

²⁹ Paper contaminated with food and grease, for instance, cannot be recycled as paper.

³⁰ Increasingly, public-private partnerships in waste management seek to bring not only the collection and sorting stages of recycling under the control of large-scale waste corporations (though these have been its most high-profile forms since they displace either public or informal control over these labour processes), but they seek to bring the entire chain of waste management through to final ‘disposal’ under the umbrella of global capital.

or designing massive sorting machines of the kind used in North America and Europe (Minter, 2013). Though not yet under the thumb of multinational conglomerates, capitalist competition, exacerbated by both the financial crisis as well as the Chinese government's various efforts to clean up the recycling sector, is already leading to the slow rationalization of the Chinese recycling industry, squeezing out smaller players.³¹

In this sense, the proposition that market coordination of recycling and waste management will ensure the creation of green jobs as well as maximum environmental protection by the UNEP's *Towards a Green Economy* (2011) report is mistaken, since purely market-based recycling tends to create either a plethora of low-wage employment with poor working conditions or capital-intensive operations that employ very few people. Indeed, though the LAANE (2011; 2014) reports suggest that workplace regulations can improve safety standards for employees, they fail to show how wages for materials sorters could be improved in the context of private enterprise, committed as they are to a private franchise system for the Los Angeles recycling system. Clearly, to do so would be part of a distributional struggle in the workplace as these measures would reduce profitability. The contradictions between technology, working conditions, and ecological outcomes are inherent aspects of market production and the dynamics of capital accumulation. Furthermore, privatization of the collection and sorting process will not automatically lead to more recycling, since as a commodity, materials recycling will be subject to an economic calculus and weighed against other profitable options. For a

³¹ Since the Chinese government's Operation Green Fence campaign went into effect in early 2013, for example, government officials estimated that 100 Chinese plastics importers went out of business. For context, there are 1167 plastics importers that remain at the end of 2014 (Kanthor, 2014). Similarly, Minter (2013, p. 200) reports that the Chinese government also has plans to clean up the electronics recycling industry in Guiyu, investing \$80 million and requiring contributions of another \$60 million from recyclers to move operations indoors within a designated zone and forcing technological upgrade. This would mean that smaller operations would no longer be permitted to operate.

vertically integrated waste management company, recycling materials of low value may not generate as much revenue as sending the materials to its own incinerator, even if recycling is technically possible and environmentally desirable.³²

Indeed, given that wasting is not simply an individual, but a social, cultural, and structural process, the application of user fees for waste disposal as the UNEP report suggests may not necessarily induce households to reduce waste production, particularly if they do not have any meaningful choices to make when they purchase necessities. Rather, it may simply encourage households to dispose of wastes differently, such as when poor households who could not afford the disposal fees in Bristol, UK burnt their garbage on their lawns instead (Bell & Sweeting, 2013). Similarly, the debate over what kinds of machinery to use is not simply about working conditions and technical improvement, but also about distribution, power, and different forms and models of development. Just as Carolyn Merchant (1989) points out that peasants in the feudal era resisted using the lord's water mills in favour of hand mills not because they were technology-averse but because they wished to retain control over the products of their labour, so modern struggles over the commodification of waste is not simply about whether or not to use technology but about what kinds of technology and under whose control it ought to be used, as the next chapter seeks to show. Class conflict is, in this sense, inseparable from struggles over waste.

³² LAANE does not assume privatization will raise recycling rates; rather they emphasize that it is necessary for the state to set regulations and provide oversight. The matter of how waste haulers can be forced to take losses on recyclables that fetch a low price on the market, however, is not directly addressed, except by way of inducing the state to raise demand by putting in higher recycled content requirements for public purchases and promoting manufacturing in recycled items.

Conclusions

As I have endeavoured to show throughout this chapter, the recycling industry is a capitalist industry just like any other, and the socio-ecological conditions of work and production found therein are just as informed by the dynamics of capital accumulation as other industries. As a commodity, waste flows according to laws of value. In the current conjuncture, global recycling is underpinned by Chinese demand, which is, in turn, tied up with global patterns of production and consumption. To the extent that global consumption is what drives demand for scrap materials, recycling on the capitalist market is not viable without traditional economic expansion and growth. Green Keynesian propositions to seek reflation and the stimulation of effective demand through investments in green sectors similarly fail to break its ties with traditional capitalist growth. If recycling is to take the place of primary materials production rather than expand along with it as is currently the case (rising raw materials prices encourages both primary extraction as well as recycling), and if waste reduction is to become a strategic goal, then focus on boosting the recycling sector alone will not suffice. Proposals to mandate increased recycled content in manufacturing may relatively boost demand for scrap materials, but it will not necessarily curb or stop the use and growth of primary materials and energy. In other words, given how tightly bound recycling is to global production, efforts to reduce waste must happen on a much wider, systemic scale, which are often beyond the means of individual municipalities to address.

Confronting the socio-ecological impacts of the recycling industry further implies that the promotion of recycling can only be an intermediate (though necessary) measure in the search for a green economy. Indeed, if economic growth has been the preferred method of mediating

distributive conflict by displacing it through space and time, then recycling has similarly been the preferred method of displacing the question of the “final” resting place of waste.³³

Ultimately, waste reduction and ending the production of toxic wastes must appear on the agenda. Yet waste reduction involves more than just supporting the reuse and refurbishment of goods. Emphasis on the labour-intensive nature of promoting recycling and refurbishing on the part of green jobs advocates overlook, for example, the fact that modern advertising works to make the planned obsolescence of goods – that is, what Packard referred to as style obsolescence – operate on the level of *desire*: we can regulate the mandatory refurbishment of goods, but that will not cause anyone to desire to purchase such a good. The production of waste, on this level, is entirely tied up with the rise and development of capitalist production, the mass market, advertising, and its associated social, cultural, political, and economic supports. Clearly, very significant transformations are necessary if we consider that over two-thirds of GDP in developed nations is currently founded on individual consumption (Chalmin, 2009, p. 43).

In the same manner, the development of neoliberal forms of production has had its own implications for the production of waste and our collective metabolic relations with nature. For instance, as will be discussed in more detail in the chapter on Toronto, the fierce cost-cutting measures and rationalization carried out in the bottling industry under neoliberal restructuring resulted in the rise in use of disposable bottles, since centralization of bottling proved to lower costs compared to maintaining regionally based distribution systems (which is what makes two-way traffic and reusing bottles possible). To encourage greater reuse and recycling, then, is likely to increase costs of production. Arguing for the adoption of environmentally and socially sound

³³ Garcier (2012) makes a similar point in relation to nuclear waste recycling.

practices on the basis of profitability and economic efficiency as many green advocates do, in this sense, seems misguided.

Similarly, the quickness with which advocates of ecological modernization like Paul Hawken endorse the kinds of ‘just-in-time’ (JIT) production characteristic of neoliberal forms of production as a way to reduce ‘waste’ overlook the larger system in which JIT is embedded that ultimately encourages the unending production of waste and the deterioration in working conditions this entails for workers. What appears as a waste of time and inefficiency from the point of view of capital can be a moment of rest for a worker. In this respect, strategies for waste reduction cannot be separated from democratic and deliberative decision-making and the redistribution of resources and *time* because economic efficiency often must be sacrificed for other goals.

Waste reduction and socio-ecologically sound production requires that we judge not simply by the metric of value production. This, I contend, implies the need to extend discussions of recycling further into the production of goods for decommodified consumption and a movement beyond “regulation” by the market. I will continue on this theme in the last chapter of this dissertation; for now, suffice it to say that advocacy for green jobs must, at a minimum, fight against austerity and the deepening of neoliberal practices, patterns and forms of accumulation if it is to honour its goal to promote social and ecological justice.³⁴

³⁴ Although the BlueGreen Alliance/Teamsters/SEIU/NRDC/RecyclingWorks!/GAIA (2011) report begins to hint at breaking neoliberal patterns of production and distribution when it insists on promoting manufacturing based on recycled materials in the United States, it treats the matter as a sectoral issue (i.e. of the recycling sector) rather than that of the organization of production on a global scale. The fact remains that these manufacturers will have to compete on the market with traditional manufacturers and the scale of change required to make these a viable option extend well beyond the bounds of municipal recycling.

Chapter 4

Informality and Market-Based Recycling: Buenos Aires

The management of recycling in Buenos Aires came under intense public scrutiny following the 2001 economic crisis in Argentina that sent thousands of newly unemployed workers onto city streets in search of a living through commercializing recyclable materials.¹ For many Argentines, the seemingly sudden appearance of *cartoneros* – literally, ‘those who work with cardboard’ – was a sign of severe social dislocation, and the thoroughly informal nature of the work was understood as being emblematic of the economic crisis at hand. Even for those unsympathetic to the plight of the *cartoneros*, the systematic extraction of recyclables from garbage bags on city streets by the ‘newly poor’ and the mountains of waste that lay open on the streets as a result led to a veritable crisis of public hygiene that was difficult to ignore. Indeed, the ubiquitous presence of *cartoneros* and the relatively informal nature of this work is still one of the most conspicuous aspects of waste management in the capital city.

Who owns the garbage? Who ought to have the right to profit from waste? The management of waste and recycling became a point of conflict and heated contention. Clearly, something had to be done. While hardliners called for increased police repression of the activity, seeing it as a form of delinquency, sympathizers called for social inclusion and formalization of

¹ Fieldwork for this chapter was conducted from May 2012 to August 2012 in Buenos Aires, and included qualitative interviews with representatives of 5 of the 6 green centres (sorting plants) operated by *cartonero* cooperatives at this time as well as the department of recycling of the municipal government. All of those interviewed remain anonymous, and thus the cooperatives are not mentioned by name in this chapter. Instead, interviews with cooperative representatives will be numbered and cited as ‘CM’ and the interview with the municipal government as ‘GW’. In addition to interviews, field research also consisted of visiting 4 of the 6 green centres in the city (cited as ‘Site Visit’), non-participant observation, and one occasion of participant observation where I joined one cooperative member on her collection route. For a more detailed discussion of methods, refer to Appendix A.

the activity. For the latter, the *cartonero* phenomenon was a symptom of social exclusion, marginalization, and rampant unemployment. For their part, the private waste collection companies servicing the city who were paid per tonne of garbage handled accused the *cartoneros* of theft, since they maintained that the garbage became their private property as soon as it was placed on the street, and reducing the weight of the garbage they hauled by removing recyclables hurt their bottom line.²

However, as the protagonists at the centre of the conflict began to organize themselves and articulate demands, they also began to assert themselves as *workers* rather than simply as the unemployed.³ In their struggles for legitimacy and ultimately the ability to carry on their work, they emphasized that far from being delinquents, they were engaged in honest employment that provided environmental benefits, despite their exclusion and marginalization. Their struggle, therefore, was one of gaining recognition for their activities as legitimate work (which was, up until then, illegal) and to improve the conditions under which this work was undertaken.

Anthropologist Pablo Schamber (2010) points out that although this line of work clearly became more widespread and much more visible as the economic crisis gathered pace for a number of social, political and institutional reasons that will be highlighted below, the presence of *cartoneros* was not new – recycling and the commercialization of wastes as a profession has had a long history in Argentina, flowing in and out of legality at various points in time. Yet both

² After much public pressure and struggle, as of 2005 garbage collection companies were no longer paid per tonne of garbage hauled but rather for each square area kept clean (Paiva, 2008). However, it is important to note that waste haulers also managed to extract more money for their contracts in this renegotiation with the city, and thus not only maintained but also improved their economic position (Parizeau, 2015).

³ See, for example, this open letter to then President Cristina Fernández de Kirchner circulated in 2012, in which recycling workers demanded that their “rights be recognized, as the **qualified workers that [they] are**” (Appendix B, p. 4. Emphasis in original, translation my own). This open letter was part of a direct action campaign that cut off a main highway into the city by *cartoneros* who worked at the Norte III landfill that services the city of Buenos Aires.

then, as now, this type of work was typically carried out by those with few other options, given the hazardous and unpleasant conditions of work, particularly at the stage of collection and sorting. That so many did not turn to this form of informal employment unless pushed to the brink by economic crisis only attests to the dismal conditions of work in this sector.

The existence of an ‘informal’ sector has been understood in different ways. In earlier debates, it was often understood as a relatively separate and independent sphere from that of the ‘formal’ economy. José Nun’s (1969; 2000) ‘marginal mass’ thesis, for instance, sought to show that the production of a relative surplus population in capitalism was not always synonymous with the production of an industrial reserve army of labour (which was functional to capitalist development) because the absorption of part of this surplus population by the informal (or ‘competitive’) sector could render a portion of this population afunctional (or even dysfunctional) to capital accumulation in the monopolistic sector.⁴ In the debates of the 1970s, the informal sector was sometimes also understood as a non-capitalist sector, as a transitional mode of production as in petty commodity production (for a useful overview, see Moser 1978), or even a separate and subordinate mode of production to the dominant capitalist mode (Davies, 1979).

⁴ Marginality, in this sense, was a relative term, used with reference to the dominant, monopolistic (i.e. formal) sector. For instance, he notes (1969, p. 202, translation my own) that “the unemployed can be, at the same time, an industrial reserve army of labour for the competitive sector and a marginal mass for the monopolistic sector [los desocupados pueden ser, a la vez, un ejército industrial de reserva para el sector competitivo y una masa marginal para el sector monopolístico].” It is unclear, however, how ‘marginal’ the competitive or informal sector really is to the monopolistic sector, since in this same paragraph Nun continues on to note that the informal sector could also be incorporated into a new ‘putting out system’ and thus be functional to capital accumulation in the formal sector. The question, it seems, partially turns on whether or not capitalism is to be equated with the development of the monopolistic sector as such.

In contrast, Hernando de Soto's (1986) influential work on the informal sector in Peru, which subsequently informed much of the World Bank's policies across the globe as well as research within the field of development economics (Tanaka, 2010), viewed the burgeoning informal sector as the essence and force of capitalist change not only throughout the 'developing' world, but also throughout history. Thwarted by an unjust, overbearing and over-regulating mercantilist state, de Soto's informal sector was a relatively independent sphere of capitalist economic activity (sometimes in competition with and sometimes in parallel to the 'formal' mercantilist economy) populated by resourceful entrepreneurs staging a peaceful revolution towards capitalist development.

In response, writers like Alejandro Portes, Manuel Castells, and Lauren Benton (1989) emphasized the interdependence of formal and informal economies across not only the 'South', but also the 'North'.⁵ However, for these writers, by subverting the 'logic of proletarianization' (i.e. as wage labour), a major consequence of the expansion of the informal economy (with its horizontal production networks and self-employment) in response to the structural crises of the 1970s was "to blur the profile of the class structure and alter expected patterns of class relations and struggle...Industrial unions can not [sic] be organized when factories cease to exist" (p. 308). Going one step further, later debates questioned the dichotomy between the formal and informal sectors from a variety of perspectives (Sindzingre, 2006; Guha, Kabur, & Ostrom, 2006; Biles, 2009; Denning, 2010; Palmer, 2013; Munck, 2013).

Within the recent green jobs debate more specifically, the informal sector is alternately defined primarily by its low-productivity (underemployment) or its lack of basic social provisions and labour rights. In a working paper for the World Bank, for instance, Alex Bowen

⁵ It should be noted that the theorization of informality in this edited volume is broad enough to also encompass Soviet economies.

(2012, p.29) suggests that the requirement for green jobs to also be ‘decent’ jobs would be inappropriate in a ‘developing’ country context with segmented labour markets, since increasing employment in low-productivity, unskilled work, even if wages are barely above subsistence (that is, in the informal sector), contributes to greater “equity and poverty reduction” even if it “does not increase the productivity of the employed labour force.” Although he is correct to observe that different kinds of investment may have differing impacts on different sections of labour and different distributive outcomes, what his position overlooks, of course, is that those occupying these ‘unskilled’ jobs would beg to differ that the requirement of decency is one that should be exempted in their cases. Indeed, as I will show, the demand for decent work has been central to the organizing and struggles of the *cartonero* movement in Buenos Aires.

The International Labour Organization (Poschen et al, 2012, p. 111) takes a similar stance with respect to protecting the employment of informal recycling workers insofar as it cautions against “ill-conceived privatization efforts that do not take local realities into account.” However, they are nonetheless concerned that much of this work is undertaken in the informal sector with poor working conditions, outside government regulations and benefits. They recommend, therefore, that a green jobs policy in this sector will need to encourage formalization through cooperativization, organization, and recognition by municipal authorities as in the Brazilian model (also an apt description of the model in Buenos Aires).⁶ In this way, the promotion of a “green economy offers an opportunity to create decent work and improve social inclusion – if the right policy mix is put in place” (p. xxi). Informality, in this sense, is defined by the lack of state

⁶ More specifically, they recommend that “necessary policies include legal recognition, local and national organization, entrepreneurial development, municipal government contracts and facilities (sorting stations), modern recycling methods, skills training and occupational safety and health instructions, as well as measures to prevent and discourage child labour” (Poschen et al, 2012, p. 122).

protections, the solution to which is active policies towards *formalization*. To a large extent, this focus on formalization or registration of the informal sector has also been a key policy orientation of the Kirchner governments. For the ILO, the principal question is one of finding the right ‘policy mix’ rather than one of struggle over power, resources, or patterns of production.

In this chapter, I take the position that informal recycling (also commonly known as ‘waste-picking’) should be considered as work, and not simply as a peripheral survival strategy or as unemployment.⁷ Despite its appearance of lying outside of or being separate from the ‘labour market’ and the ‘formal’ economy (hence the commonly used phrase that informal workers are ‘excluded’ from labour markets), recycling is a capitalist enterprise that is part and parcel of the so-called ‘formal’ economy. In this I am in essential agreement with Chris Birkbeck’s assessment (1979, p. 161) when he writes:

what is strange is that we tend to look at this occupation as an expression of poverty and not as a cause of it. We see the garbage picker as being forced into this activity by lack of opportunities elsewhere in the urban economy, whilst we tend to forget that he *is* working... We have been more interested in the fact that the garbage picker is *not* working in something else, rather than in looking at why he is poor, and how his present activities contribute to that poverty... rather than view the garbage picker as a vagrant who should really be working in a factory, we should see him as a worker who is part of an industrial system, and furthermore that it is often not possible for him to be working in ‘something else’ because there is no something else available to him. (Emphasis in original)

In this chapter, therefore, I locate informal recycling work within capitalist economic relations, and informal recycling workers as, first and foremost, *workers* more akin to Birkbeck’s (1978) ‘self-employed proletarians’ or Alejandro Portes and Kelly Hoffman’s (2003) ‘informal proletariat’ (though I do not conceive of this as a separate class in and of itself) rather than capitalist micro-entrepreneurs. In this respect, I emphasize that *cartoneros* in Argentina have

⁷ Denning (2010) provides a useful overview of the way in which the slum dweller is invisible to or alternatively read as excluded, as Giorgio Agamben’s ‘bare life’, etc. in political economy and political science.

already been produced as part of the working class, which is underscored by the fluidity with which *cartoneros* interchange waste work with more obvious forms of waged employment. For as Michael Denning (2010, p. 80) so succinctly puts it, “capitalism begins not with the offer of work, but with the imperative to earn a living.”⁸

Indeed, Marx’s (1976, p. 590) own discussion of the system of ‘domestic industries’, “whether carried on in the private dwellings of the workers, or in small workshops,” and ‘modern manufacture’ places these squarely within the sphere of capitalist production and those who toil within it (overwhelmingly women and children) as workers. That these workers are paid ‘piece-wages’ (as in informal recycling) rather than ‘time-wages’, he insists, “in no way alters their essential nature [i.e. as a wage]” (p. 693). Going further, he claims that in fact, “the piece-wage is the form of wage most appropriate to the capitalist mode of production” (p. 698). He similarly locates the ‘micro-entrepreneur’ of the informal sector as a worker (albeit, the “most important worker”) by describing the “sweating system” of the domestic industries as one in which “the exploitation of the worker by capital takes place through the medium of the exploitation of one worker by another” (p. 695).

In this sense, although informality has its peculiar institutional features – i.e., it *does* make a difference for working conditions and modes of organization – it nonetheless follows the logic and dynamics of capital accumulation, if not more vigorously and ruthlessly than other kinds of employment regulated by the state. It is also work that is completely embedded *within* rather than separate from the ‘formal’ economy as a whole. This is particularly the case since the

⁸ It is instructive to recall that in the third volume of *Capital*, Marx argues (1991, p.1022, emphasis mine): “Even though the form of labour as wage-labour is decisive for the shape of the entire process and for the specific mode of production itself, *it is not wage-labour that is value-determining*. What matters in the determination of value is the overall social labour-time, the total amount of labour which society has at its disposal and whose relative absorption by the different products determines, as it were, their respective social weight.”

product of recycling is a raw material: it is a commodity that must be sold to others as an input in production in order to realise its value. In the Latin American context, Birkbeck (1979), demonstrated that informal recycling workers in Cali, Colombia effectively worked for the large paper factories without being explicitly employed by them; indeed, their informality and precarious working conditions directly contributed to capital accumulation in formal industries. Similarly, Schamber (2010, p. 152, 132) noted that the work of informal recycling enabled industrial conversion in the formal paper industry in Argentina and pointed out that production specifications in end-use industries in the formal economy can concretely shape work in the informal realm – for instance, the diameter of the opening of a commonly used furnace in metallurgy influences the price of scrap steel on the market according to its size, since pieces larger than this diameter would need the additional work of cutting.

Therefore, rather than conceptualizing informal recycling workers as outside of the labour market, it will be argued that they should be considered as *part of* the labour market, even if they are not incorporated into the labour market via a traditional wage relationship and do not appear to have a formal employer. I will elaborate on this question in more detail in the section on the labour processes characteristic of informal *cartoneros* below. Furthermore, far from being apart from the market and ‘normal’ economic relations, the working conditions found in informal recycling are overwhelmingly structured by market imperatives. In many ways, the exploitative, hazardous, and precarious conditions of work found in the recycling sector are reflective of being too intensely *included* in pure market relations.

At the same time, it is important not to fetishize the idea of informality, considering it in abstraction from actual working conditions that obtain. Indeed, working conditions deteriorated across the board for those with ‘formal’ employment in Argentina during the period of neoliberal

restructuring, leading scholars to focus on the phenomenon of precarious work across the formal-informal divide (de la Garza Toledo, 2001; Lindenboim & Pérez, 2004). Labour market reforms changed hiring and firing practices, making indefinite probation periods legal, and increasing contract and informal work. Benefits for pensions, insurance coverage and compensation for work accidents were changed and employer contributions to social security were reduced (Paiva, 2008, pp. 76-77). By the end of the 1990s, real salaries had declined by 23% in comparison to 1986 and by 30% when compared to 1980 (Patroni, 2008, p. 205). With economic recovery, a new commodities boom, and renewed state interest in tackling informality, rates of formal employment and working conditions improved in the new millennium. However, Argentine scholars have pointed out that the mere fact of formalization or registration of previously informal work, though perhaps lowering nominal rates of informality, does not automatically imply that jobs therefore become 'good' or 'decent' jobs nor change the nature of the work performed. For instance, in some cases, social assistance and work programs to address unemployment in Argentina under the Kirchner governments, though lowering the official unemployment rate and providing registered, 'formal' employment, have had the effect of casualizing work previously performed by better paid state employees (Patroni, 2008, p. 207). The deterioration of working conditions in all of these ways, then, cannot be captured simply by looking at the proportion of formal employment in an economy. Rather, it is necessary to also analyse how concrete working conditions change.

I contend that an examination of the working conditions in the recycling sector as well as the evolution of the *cartonero* movement and their struggles around waste demonstrates that purely market coordinated recycling does not tend to lead to decent jobs on a large scale due to the contradictions between labour intensity, productivity, capitalization, and working conditions

inherent to capitalist production. On the contrary, improving working conditions and the creation of decent jobs requires collective struggle, cooperation, planning, and state intervention.

Furthermore, discussion of green jobs creation in this sector cannot simply be limited to an analysis of work characteristics that is disembodied from the social landscape in which it is inserted and from questions of distribution, particularly if the goal of the green jobs project is to foster greater equity and social and environmental justice. Similarly, an insistence on green jobs creation alone will not ensure that environmental improvements will result unless it is made an express goal from the outset.

This chapter is structured in three parts. First, I provide a brief background of waste management in Buenos Aires and the economic and institutional context that led to the increasing popularity of informal recycling as an employment of last resort. The second section concretely examines the working conditions and dynamics of struggle in the sector, with emphasis on the stage of collection and preliminary sorting. Finally, the last section concludes with an analysis of the lessons that can be learned in formulating strategies for green jobs.

Historical Background

Sitting on the shores of the Río de la Plata, Buenos Aires houses some 3 million inhabitants – this figure rises to 14.5 million people if its greater metropolitan area is included, which makes it the second largest metropolitan area in South America, after São Paulo.⁹

⁹ The official title of the city proper is *Ciudad Autónoma de Buenos Aires* (CABA); that is, the Autonomous City of Buenos Aires. The city is designated as autonomous in the sense that it does not fall under the jurisdiction of the Province of Buenos Aires, though it is still subject to national laws. Its metropolitan area, however, still falls under the jurisdiction of the provincial government. In practice, then, matters like waste management involve cross-jurisdictional coordination. Together with its metropolitan area, Buenos Aires is referred to as *Área Metropolitana de Buenos Aires* (AMBA), and accounts for more than 36% of the total

According to CEAMSE (*Cinturón Ecológico Área Metropolitana de Estado*), the state corporation responsible for the final disposal of wastes in Buenos Aires, the city landfilled 1.5 million metric tonnes of waste in 2013 (CEAMSE, 2015b).¹⁰

Like other big cities, waste management in Buenos Aires has historically gone through several phases as both the size of the population and the waste stream expanded, from dumping into waterways, open burning, home incineration, to municipally managed industrial incineration, and finally to the current use of the ‘sanitary landfill’. Practices of reuse and recommodification of waste, both public and private, commonly existed in parallel with all of these methods of waste disposal, much like in New York and Toronto. In this sense, waste, though seen as a menace to health, was also a resource.

Ashes from incineration served to pave city streets as well as fill in low-lying land prone to flooding in the first few decades of the twentieth century (Prignano, 1998). Going back to the mid-nineteenth century, prices for recycled materials were high enough that waste entrepreneurs found it profitable to *pay* the city to dispose of municipal wastes in return for the right to first sort through the wastes and commercialize the recyclables so recovered. This enterprise turned a handsome profit despite complaints from the businessmen that the volume of recyclables was reduced by informal collectors who sorted through garbage laid out on the street before the official waste haulers came by (Schamber, 2010, pp. 9-10). In addition to those who bought recyclables from households and businesses, informal collection and recycling also concentrated

population of the country. AMBA produces roughly 17 thousand metric tonnes of garbage everyday, which represents roughly 40% of the wastes produced in Argentina (CEAMSE, 2015a).

¹⁰ This figure is down significantly from previous years, from a high of 2.27 million metric tonnes in 2011 and 2.13 million metric tonnes in 2012 (CEAMSE, 2015b). This is most likely the result of the gradual implementation of the *Basura Cero* (Zero Garbage) law and the increasingly organized work of the *cartoneros*.

around municipal dumpsites where wastes from the city were brought to be buried or burned. The most notable of these was dubbed *La Quema*, where informal recycling activities continued and informal settlements grew right up until the 1970s when the dumpsite was permanently closed under the military dictatorship (Prignano, 1998).

The legal and institutional parameters of the current system of waste management in Buenos Aires is in large measure inherited from the period of military dictatorship, whose modernization projects and sanitary reforms in 1977 established the ‘sanitary landfill’ as the sole legal destination for wastes, displacing (and prohibiting) municipal incineration as the main method of waste management.¹¹ These reforms also decreed the creation of CEAMSE as the institutional body responsible for the final deposition of wastes in landfills. Created as a state enterprise, jurisdiction over CEAMSE was shared between the city and the provincial governments of Buenos Aires, though in its daily operations it functioned as an independent corporate entity.¹² Land was cleared and transferred to CEAMSE to create the sanitary landfills, often in poor and marginalized suburban areas or shanty towns (*villas de emergencia*) outside of the city boundaries, in some cases displacing their residents, so that all waste would be taken outside of the city core itself. In this model, garbage collection and street cleaning both in the

¹¹ While municipal incineration plants had been one of the main methods of waste management in the city since the beginning of the 20th century, it was eventually found to be inadequate not only because it was causing air pollution, but also because the volume of waste generated consistently exceeded the operating capacities of the incinerators, which meant that dumpsites, both clandestine and official, were never really done away with (Prignano, 1998; Schamber, 2010).

¹² The reforms were enacted through Provincial Law 8782/77 in the province of Buenos Aires, and Municipal Ordinance 33.691 in the City of Buenos Aires (Paiva, 2008, p. 67).

city and in the metropolitan region was privatized, including the three waste transfer stations to be built in the city (Suárez, 2010).¹³

In the city core, garbage collection was designated as the responsibility of CEAMSE, and subsequently contracted out to a private waste management company, Manliba S.A.¹⁴ After municipal reforms in 1997, the city directly took charge of managing garbage collection, dividing the city into five districts and contracting out collection to private waste management corporations in four of these, leaving the last serviced by the city's Entity of Urban Hygiene (*Ente de Higiene Urbana*) under the jurisdiction of the city's Secretariat of the Environment, an arrangement that persists today (Paiva, 2008, pp. 67-68, 85). In addition, all recycling was strictly prohibited by law in the suburban areas of Buenos Aires, as was the presence of *cartoneros* both at or in the surrounding areas of the waste transfer stations, where garbage was compacted before being sent off to landfill.¹⁵ Within the downtown core of the city proper, only the private garbage collection companies had the legal right to recover recyclable materials, and this was limited to *no more* than 10% of the total wastes under their charge – the rest had to go to landfill (Paiva, 2008, pp. 86-7).

The outright prohibition of recycling and recovering wastes under the new waste management model in the 1970s was aimed ostensibly at eradicating informal 'waste-pickers' – then known as *cirujas* – who went through the garbage at dumpsites and sold recyclable

¹³ The waste transfer stations, as well as the transport of waste from the transfer stations to landfill, were the responsibility of CEAMSE, though actual service and operations were contracted out to private contractors (Paiva, 2008, pp. 85-7).

¹⁴ This was governed by Municipal Ordinance 33356/79 (Paiva, 2008, p. 67). Manliba was owned by the family of the current right-wing president of Argentina, Mauricio Macri.

¹⁵ This was regulated by Law 9111/78 in the province of Buenos Aires (Paiva, 2008, p. 67).

materials to middlemen, since they were seen as social delinquents and vagabonds.¹⁶ To this end, dumpsites were closed and waste management facilities like waste transfer stations were policed. The closure of municipal dumps like *La Quema* and the liberalization of the economy under the dictatorship led to a significant weakening of local circuits of recycling (Schamber, 2010). Yet despite these considerable efforts, informal recycling was never totally eradicated, and the presence of informal recycling collectors persisted throughout the years of military rule. The framework of waste management established by the dictatorship did, however, have significant consequences for the evolution of recycling and waste management for decades to come, particularly as conflicts over waste came to the fore at the turn of the twenty-first century.

First, the prohibition of waste recovery meant that all recycling activity – collection, sorting, storing and processing – became clandestine activities that by definition could only be realised in the informal sector. In many ways, this made an already precarious form of work even more so – in addition to all of the physical hazards associated with this work, informal collectors now also had to face increased police repression of the activity. Second, the closure of municipal dumps that were focal points of waste recovery meant that small-time collectors now had to work on the street or had to sneak into landfills to gather recyclable material, this latter being much more hazardous and risky. At the same time, the displacement of this line of work onto city streets brought issues of recycling and marginalization much more into the public eye. Third, the creation of a multi-jurisdictional state corporation (CEAMSE) relatively insulated from the

¹⁶ In this dissertation, the term ‘waste-picker’ or ‘scavenger’ will generally be avoided because it often has a derogatory connotation. It is used here to denote what they were seen as. Instead, terms such as ‘informal collector’, ‘informal recycler’, ‘informal recycling worker’, ‘urban reclaimers’ or ‘*cartonero*’ will be used, the last because those who work in the trade often self-identify as such, even if in some cases it can be used as a derogatory. The term itself, however, simply refers to those who work with cardboard. Similarly, in Buenos Aires, a *botellero* is one who works with bottles, a *metalero* is one who works with metal, etc.

public to manage waste, combined with the prohibition of recycling, brought the *cartonero* movement's struggle for decent work more directly in confrontation with the state, making public policy and legislation a focal point of political struggle.¹⁷

Macroeconomic Context for Rise of Cartoneros: Decline of ISI and the Neoliberal Turn

Given this institutional backdrop that made recycling activities illegal and increasingly difficult, why was *cartonero* activity on the rise throughout the 1990s and why did it surge particularly in the aftermath of the 2001 economic crisis? Virtually all analysts on the subject concur that growing structural unemployment resulting from neoliberal restructuring and austerity is what underpins the growth in informal recycling activities, since people tend to resort to this line of work only after all other economic options have been exhausted (Schamber, 2010; Suárez, 2010; Perelman, 2007; Paiva, 2008; Escliar, Mutuberría Lazarini, Rodriguez & Rodriguez, 2007; Mesa, 2010). A decade of privatizations, market liberalization, convertibility (i.e. US dollar parity) and labour market reforms in the direction of 'flexibility' had more than tripled unemployment rates in the country from 6% in 1991 to 18.3% in 2001 (Patroni, 2008, p. 206).¹⁸ Significantly, at all points in time between 1992 and 2004, the unemployment rate in the metropolitan area of Buenos Aires (also called the 'conurban' area), where most of the *cartoneros* working in the city reside, was consistently higher than the national average as well

¹⁷ Francisco Suárez (2010) notes, for example, how residents living in the vicinity of the CEAMSE landfills protest the lack of transparency of CEAMSE's operations, charging that it continues to operate with the same impunity as it did during the military dictatorship, withholding information and not taking responsibility for health impacts on residents caused by the landfill operations. The aforementioned open letter circulated by *cartoneros* working at CEAMSE's Norte III landfill similarly link CEAMSE with the military dictatorship (see Appendix B).

¹⁸ Privatizations occurred across a diverse range of industries, from telecommunications, gas, hydroelectric utilities, trains, airlines, resource extraction to iron and steelworks in the early 1990s (Paiva, 2008, p. 76).

as the average in the capital city (Paiva, 2008, p. 81). Indeed, surveys of *cartoneros* suggest that not only did most have lower educational attainment (with 75% not having begun high school instruction), the majority were also previously employed in manufacturing and construction, sectors that were hit the hardest by trade liberalization and economic adjustment (Escliar et al., 2007, p. 32; Paiva, 2008, p. 83).

Convertibility and trade liberalization resulted in the net expulsion of manual labour from the labour market as over 10,000 industrial plants went bankrupt in the 1990s, while those firms that were able to compete internationally did so through rationalization and increasing capital investment in labour-saving technologies, achieving higher productivity with fewer employees (Paiva, 2008, pp. 78-9, 83-4). At the same time, export sectors that experienced growth during this period tended to be in primary industries that were capital intensive and unable to absorb workers expelled from other forms of economic activity (Felder & Patroni, 2011). As formal employment with better working conditions dwindled, workers increasingly turned to informal recycling as a source of income, many travelling from the conurban area into the more affluent city core in search of recyclables either in garbage bags left at the curb by city residents or approaching residents and small businesses directly for pre-sorted recyclables. By 1999, the number of *cartoneros* descending upon the city was so numerous that a dedicated train service (dubbed the White Train) transporting some 400 to 600 *cartoneros* was running everyday (Schamber, 2010, p. 12; Paiva, 2008, p. 137).¹⁹

¹⁹ The separate train line was created as a result of complaints by commuters who did not wish to share space with the *cartoneros*, and also as a result of the struggle of *cartoneros* themselves, who wished to secure continued access to the same train services. A compromise was thus struck to segregate these two groups by providing a dedicated train service for the informal waste collectors.

However, the number of *cartoneros* working on the street did not truly explode until the economic crisis reached breaking point in December 2001, when mounting social unrest and protest led to the ousting of President Fernando de la Rúa from office, default on the external debt, and removal of the Argentine peso's peg to the US dollar. In the chaos that ensued, a full 53% of the Argentine population fell below the poverty line in May 2002, unemployment rates soared to 21.5% by July 2002 (Felder & Patroni, 2001, p. 269; Paiva, 2008, p. 80), and the number of informal recycling workers on the street increased on a massive scale. On one of the main bridges that connects the capital city to its metropolitan area, the Puente Alsina, 101 trucks carrying *cartoneros* were observed to enter the city on a single day in October 2002, compared to an average of 18 per day (measured over one week) just a year earlier in October 2001. While 158 bicycles with carts were observed to enter the city on a single day in October 2002, only an average of 13 per day did so in October 2001 (Schamber, 2008, p. 118). By 2003, a second train line began running a dedicated service for *cartoneros* travelling to work in the city, and in 2004, one UNICEF study counted more than 8700 *cartoneros* entering the city (this number did not include those arriving by bicycle or horse-and-buggy) and estimated that nearly half of all *cartoneros* in the city were under the age of 18 (pp. 87, 89).

There is significant consensus among scholars that while the rationalization of industry and sustained structural unemployment in the formal sector over the long term was undoubtedly foundational to the *cartonero* phenomenon by creating a pool of surplus labour willing to accept poorer conditions of work, the emergence of informal recycling collection as a viable source of livelihood for so many people was also the result of the end of the Convertibility Plan (Schamber, 2008; Suárez, 2010; Paiva, 2008; Mesa, 2010). The massive devaluation of the peso that followed from the end of convertibility severely restricted imports, since these became

relatively much more expensive. Unable to access imported inputs, Argentine industry scrambled to find domestic substitutes, and scrap prices on the domestic market skyrocketed. The price of scrap newsprint doubled while that of scrap cardboard increased by more than ten-fold in the first few months of 2002, this latter rising from 4 cents per kilo before devaluation to 57 cents per kilo after devaluation (Paiva, 2008, p. 95). Similarly, the price paid for scrap paper on the street increased 8-fold (Koehs, 2007, p. 188).

In this context, collecting and commercializing recyclables on an individual basis became a viable, though certainly not by any means lucrative, source of income. In this respect, this surge in recycling activities, which had by default been coordinated through the market due to the peculiarities of the institutional framework around recycling, relied on both rising scrap prices as well as workers who were willing to accept very little compensation for their work. In other words, labour processes that were not worthwhile or competitive at the prevailing scrap prices on the world market became so as Argentina's relationship to the world market and available opportunities for workers changed. Yet as more and more people (often entire families) resorted to informal recycling to weather the crisis, many of whom had no previous experience in the activity and were accustomed to better working conditions in the formal sector, resistance to the dismal conditions and police repression of the activity also grew.

By the end of 2002, as a result of sustained mobilization, protest, sit-ins, and organization on the part of informal recycling workers and cooperatives, often in conjunction with allies in the *piquetero* movement, academia, and some labour unions, the city government of Buenos Aires eventually passed Law 992, which resolved to integrate *cartoneros* (now formally referred to as urban recuperators) into the waste management system and to formalize their work. As a first step towards formalizing the sector, the Program of Urban Recuperators (PRU) was created,

which administered a voluntary registry of *cartoneros* working in the city. Those who registered were given formal credentials and work clothes (such as protective gloves and a reflective vest) for free. By 2005, continued pressure led to the passing of the Zero Waste law by the city that finally legalized recycling activities in CABA and established a timeline for the increasing diversion of recyclables from the waste stream. Here, the passing of city-level environmental legislation was overwhelmingly the result of sustained workers' mobilization to legitimize their work in a time of economic crisis by engaging with an environmental discourse rather than the result of a comprehensive environmental policy initiated by the state. *Pace* ecological modernization theory, it was not perceived environmental risk by the general citizenry that brought the environment into the realm of politics as an independent force, but the deliberate mobilization of workers on questions of distributive and social justice that pushed environmental concerns into the public sphere.

By 2008, *cartonero* cooperatives in the city had succeeded in signing a contract with the city government, in which the latter agreed to guarantee access to warehouse spaces for sorting and/or storing recyclables (also known as *centros verdes*, or green centres), trucks, and equipment for the cooperatives as well as protective clothing, transportation, a monthly stipend, and social security benefits for its members. Clearly, continuous struggle by the *cartonero* movement has brought about real gains and improvement in working conditions for a significant number of workers in the city. At the same time, it is important to remember that although the struggle for better conditions continues collectively through the political organizing of the *cartonero* cooperatives in the city, the work itself remains a very individualized and market-oriented activity.

Labour Process of Recycling

Recycling in the city of Buenos Aires begins as an intensely market-regulated activity, not only because market collapse and neoliberal structural adjustment forms the foundation upon which informal recycling proliferates, but because market imperatives decisively determine the labour process of the work in a much less mediated way than other lines of work in the ‘formal’ sector. Indeed, many of the gains achieved by *cartoneros* that have improved their conditions of work have involved limiting the reach of pure market logic.

Although the commodification of wastes requires an infrastructure of buyers, sorters, warehouses and the like to proceed, at the level of collection and preliminary sorting, the bulk of the work is still overwhelmingly individualized. That is, it depends on individual *cartoneros* searching out items of commercial value on the street and then selling these items to scrap dealers as a source of income. An estimated 25% of all scrap paper and cardboard used in the pulp and paper industry in Argentina comes from the street in this way (Schamber, 2010, p. 19).²⁰ While this is not a majority of the recycled fibres used by industry, it is a significant quantity considering that it represents the only sustained effort to recycle residential wastes in the city, which are far more dispersed and thus more difficult to collect and accumulate in profitable quantities than is the case for point-source, large-scale generators like factories, printing houses, offices, or supermarket chains, which constitute the source of the bulk of scrap paper recycled.

For the most part, the collection and sorting of residential recyclables in Buenos Aires is based on handwork and is directly influenced by the price of scrap material on the market. As an individualized task, the actual methods and strategies of collection and commercialization

²⁰ Although official statistics do not exist, this estimate was based on the lower grade of recycled paper trims used in industry, since trims coming directly from point-source generators tend to be of a higher grade, i.e. ‘white’ paper.

pursued by *cartoneros*, and thus the concrete situation of work, are highly heterogeneous within the sector, and depends on the individual resources and economic situation of each *cartonero*.

Anthropologist Pablo Schamber (2010, p. 15) sums up the considerations facing the typical *cartonero* in this way:

To be picked up, the object [i.e. the recyclable item] should pass a mental calculation that entails criteria associated with the effort involved in its loading and transport, the space it takes in the cart, and, most importantly, its economic valuation. The type of transport used constitutes a substantial factor in this equation. Those using a supermarket cart will probably avoid glass bottles, because they represent an important weight for the cart, which would not be compensated by the sale value of the material. On the other hand, bottles made of polyethylene terephthalate (PET), which are commonly used for sodas, are also avoided because, despite being lightweight and having a relatively high value, take up too much space and the collection of 1 kg of material requires more effort.

In other words, both the personal situation of the worker – which affects the type of cart s/he has access to – as well as the current value of scrap determine the kinds of materials that get recycled on a daily basis. Verónica Paiva (2008, p. 94) observes, for instance, that *cartoneros* did not start to pick up plastic until after devaluation in 2002, when import substitution became substantial and the price of plastic rose. By the end of the decade, however, with economic recovery, 80-90% of all scrap PET plastics were now exported to China, as by this time the local market only bought higher quality scrap plastics (Suárez, Sardo, Miño, & Parodi, 2011, p. 212). Overall, scrap cardboard and paper constitute the bulk of what is recycled in the city – hence the colloquial name *cartonero*. In general, we can identify two broad groups of *cartoneros* working in CABA: first, those who work independently and informally, and second, those who work as members of a cooperative that either holds a city contract or is recognized by the city government of Buenos Aires.

Informal Cartoneros

At the time of the economic crisis in 2001, all *cartoneros* fell into this category of independent, informal work.²¹ Indeed, this is still the case for the vast majority of *cartoneros* working outside of the limits of the capital city. Although sustained economic recovery since 2002 and incipient formalization of the sector in recent years through *cartonero* cooperatives have substantially reduced the number of workers in this category in downtown Buenos Aires, informal recycling workers are still a relatively common sight within the city limits. It is not known how many informal recycling workers still operate in the city. Formal registries of those working as *cartoneros* in the city exist, although these are not regularly updated and do not include those who either are not aware of the registry or intentionally avoid registration. As of the last registry in 2009/2010, there were 9021 people registered with the city as *cartoneros* (Interview, GW1, July 30, 2012). However, the number of people working in the sector fluctuates substantially, and those who find other forms of employment after registering would not be removed from the list.²² Given that the PRU registries are not updated on a regular basis, the figures should be taken not to be an exact representation of the *cartonero* population but rather as indicating the rough magnitude of people working in the sector.

During fieldwork in 2012, although most respondents (all of whom belonged to a cooperative) concurred that the majority of the sector within the city limits had been formalized through the cooperatives, actual estimates of the proportion of informal recycling workers active

²¹ Some recycling cooperatives did exist at this time, but for the most part, these became cooperative scrap dealers and its members ceased to operate in the collection process on the street (Schamber, 2008).

²² An earlier study by Escliar et al. (2007, p. 39) found that even two years after the passing of Law 992 and the creation of the *cartonero* registry, 62% of those interviewed were not registered with the city, and 81% were not even aware of the law. Of those interviewed who were registered, they reported that a significant portion never received their city-issued credentials or protective work clothes.

in the city outside of the cooperatives given by each interviewee ranged from 25% to 50% (Interview, CM2, June 22, 2012; Interview, CM4, July 17, 2012). In other words, although there is substantial agreement that there has been a significant formalization of the *cartonero* sector through the cooperatives, the actual number or proportion of workers continuing to work in conditions of absolute informality are not known even to those actively working to encourage formalization. Casual observation in central areas of the city would seem to confirm the lower range estimate, while a comparison of the number of financial incentives given out by the city (to be elaborated in the next section) to the number of people registered in the 2009/2010 list would correspond to the higher estimate. In any case, what is clear is that the number of people who continue to work informally in this sector is not a trivial amount – even assuming the most modest figure, that is, if only 25% of recycling workers are not represented by cooperatives, there would still be close to 1500 people working informally in the city. Though complete informality affects an important part of the workers in the sector, taking into consideration that at the time of the first thorough PRU registry in 2004, 98% of those registered were not members of any cooperative (Schamber, 2008, p.100), significant strides have clearly been made in terms of organization and affiliation in the space of a few years, even if the higher estimate of informality (i.e. 50%) is assumed.

As mentioned previously, the concrete working conditions within this group of workers can vary considerably in terms of working hours and strategies, hazards and risks, access to equipment and transportation, and prices paid for recyclables. The vehicle used to transport recyclables found on the street – one of the most important means of production in this line of work – can range from grocery store shopping carts, various kinds of self-constructed wooden or metal push carts, to horse-and-buggies. This latter, though it allows for a greater range of more

valuable recyclables to be collected (for instance, scrap iron and metal), also typically entails considerable friction with the police since transportation using live animals (i.e. horses) are not permitted in the city. Similarly, methods of transportation into the city amongst *cartoneros* vary from travel by commuter train (although the dedicated trains have since been replaced by truck fleets paid for by the city), to the backs of pick-up trucks, to travel by bicycle or on foot. Though most have a fixed route or general area of work, some may have regular ‘clients’ who set aside recyclable materials for them while others must rely solely on searching through mixed garbage bags on the street. Some may sell their sorted material once a week, while others must sell daily to make ends meet.

Those in the most precarious situations may not have the money to pay for their transportation to the city core and may not even own the carts they use at all. Where this is the case, the *cartonero* will typically rent a cart from a scrap dealer (who will sometimes also organize transportation, with or without payment, or provide advance funds for ‘their’ *cartoneros* to travel to the city core); in return, s/he will also be obliged to sell that day’s worth of recyclables at a price set by the scrap dealer (Mesa, 2010). At the time of the economic crisis, it was not uncommon for scrap dealers to engage *cartoneros* as day labourers, skipping all pretensions to nominal independence altogether (Grabois, 2009). Furthermore, Schamber and Suárez (2002) point out that scrap dealers often take on a role of patronage to secure loyalty, sometimes additionally providing the *cartonero* with emergency funds in the case of accidents or other unforeseen events, or offering loyal *cartoneros* who regularly deliver recyclables higher prices per unit for the same kind of material than others who sell them recyclables more sporadically. In the same manner, scrap dealers will also offer familiar *cartoneros* who are known to more thoroughly and precisely sort their material higher prices than those who do a

less thorough sort, since this last requires the scrap dealer to expend more time and money into the sorting process.²³ In this respect, the prices paid to *cartoneros* for their scrap material are much more akin to paying piece rates for work, especially when the means of production (i.e. the cart) is owned by the scrap dealer. Varying buying prices for materials then become a way of controlling for or inducing productivity amongst different workers who are nominally, though not practically, independent.²⁴ That is, it is a form of market discipline in a situation where the workers (with varying degrees of facility or difficulty) can choose to valorise their labour-power elsewhere. In practice, this ‘freedom’ depends to a large degree on both the general economic situation of the *cartonero* in question as well as, relatedly, access to other scrap dealers in the neighbourhood where s/he lives or works. This implies that in general, the poorer and thus most probably also the farther away one lives, the more practically dependent one will be on a particular scrap dealer.

Similarly, clientelistic relationships serve to enhance the market power of scrap dealers vis à vis other scrap dealers. Rather than being a means of extracting surplus outside of the market per se, as in feudal relationships, they are a means of ensuring continued market access to materials and of consolidating one’s competitive position in the market in the face of intense competition. In any case, the extraction of surplus primarily takes place *through* the market, through rents (i.e. for carts, transportation, etc.) and scrap purchasing prices.

²³ For instance, garbage and other sources of contaminants must be removed, like staples and tape from paper and cardboard; if paper and cardboard have been delivered in plastic bags by the *cartonero*, the bags will have to be removed, etc.

²⁴ Indeed, Marx (1976, p. 695) notes that with piece-wages, “since the quality and intensity of the work are here controlled by the very form of the wage, superintendence of labour becomes to a great extent superfluous.” His observation (p. 697) that “the wider scope that piece-wages give to individuality tends to develop both that individuality, and with it the worker’s sense of liberty, independence and self-control, and also the competition of workers with each other” is particularly apt in this case, in the sense that *cartoneros* are often noted for valuing their independence (despite exploitation by scrap dealers) as well as being competitive.



Figure 2.1 A typical DIY cart full of recyclables. Buenos Aires, 2012. Author's photo.

Despite these many variations, extensive ethnographic studies by Suárez (2010) and Schamber (2008) and many others suggest that *cartoneros* who have no other source of employment must generally work six days a week collecting recyclables to make ends meet, selling the sorted materials on the seventh day – usually Saturday, when there is no formal waste collection in the city. The ‘workday’ typically begins in the evening when residents put their garbage on the curb.²⁵ Hours are long and the work physically demanding, as *cartoneros* must walk around the city with their cargo in tow, finally returning home with the goods in the wee hours of the morning to store and sort. Paiva’s (2008, pp. 111-3) study, for instance, estimates that *cartoneros* travelling on the White Train work on average 6 to 8 hours a day (from 5 pm – 1 am, not including time spent sorting materials at home), walk roughly 90 blocks in total during each workday (including to and from the train station), and carry a maximum load of 200 to 250

²⁵ Garbage collection is a daily service in Buenos Aires.

kilograms of recyclables in their carts.²⁶ Of course, the weight that can be carried around will differ depending on the type of cart used and the above figure is a maximum; estimates given by interviewees over the course of research in 2012 regarding the amount of recyclables actually retrieved in one day fall closer to an average of 100 kilograms.

Given that recycling collection tends to be a nocturnal activity, since this is when residents put out their garbage for city collection, those without other means of childcare must take their young children along on their daily route. Indeed, at times when police repression of the activity was more intense, children were also brought along on the route as a means of guaranteeing that the workers would be able to return home at night, since the incarceration of minors required special judges and paperwork (Interview, CM3, June 30, 2012; Fajn, 2004, p. 23). The storing and sorting of recyclables thus collected typically happen in the home, and it is not uncommon for all family members (even those who do not actively collect recyclables on the street) to participate in the task of sorting.

Incomes amongst *cartoneros* are significantly varied. Kate Parizeau's (2011, pp. 299-300) study of informal recycling workers in Buenos Aires in 2007 found that daily incomes differed substantially, ranging from 1.25 ARS to 112 ARS per person. On average, those surveyed earned roughly 614.18 ARS per month with the median monthly income at 520 ARS, sitting well below the national and city-wide averages (see Figure 2.2 below).²⁷ In 2007, the average income in Argentina was 1305 ARS, while the average in the city of Buenos Aires was 1985 ARS (INDEC, 2015). The poverty line fluctuated between 295.89 ARS to 311.20 ARS for

²⁶ This is corroborated by Escliar et al.'s study (2007, p. 34), in which 85% of respondents worked between 5 to 7 days per week in informal recycling collection, 60% reported working between 6 to 10 hours per day and a further 9% worked over 11 hours per day.

²⁷ For comparison, during this same period, it was estimated that a sorting worker belonging to one of the 'social plants' by CEAMSE's Norte III landfill earned roughly 1000 ARS per month (Ruggerio, 2011, p. 169).

an ‘adult equivalent’ (i.e. an adult male) in 2007, averaging at 302.22 ARS over the year; for a family of four with two young children under age 9, the poverty line was roughly 933.86 ARS (INDEC, 2014).²⁸

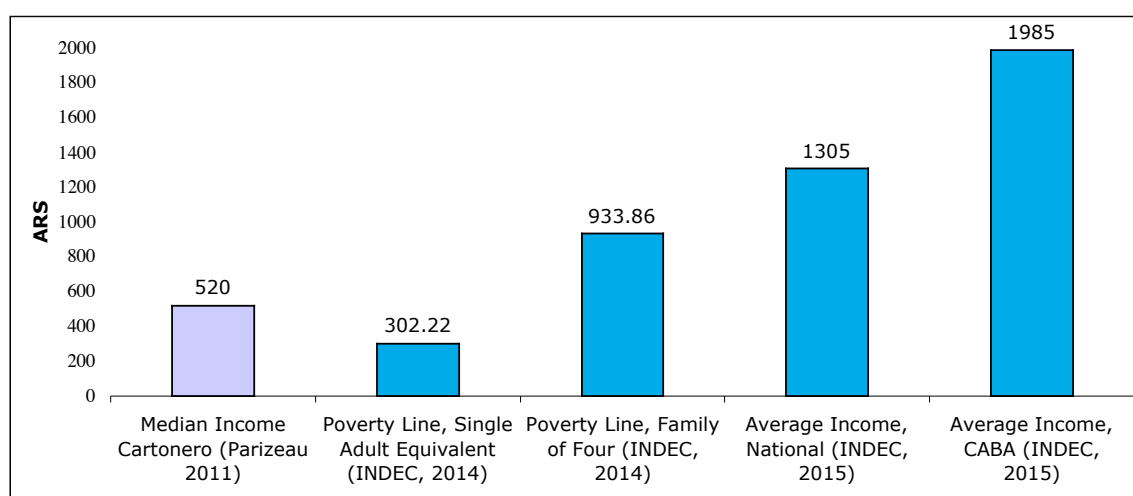


Figure 2.2 Comparison of median monthly income (ARS) of *cartoneros* in 2007 with national income statistics. Graph elaborated from data cited above.

This implies that even those earning close to the median would fall under the poverty line if s/he had dependents and would be barely above the poverty line in a family where two adults performed this work, keeping in mind that the poverty line threshold is already generally set at a fairly austere level. Indeed, this same study found that of those surveyed, 25.4% fell under the poverty line despite their long hours of work (Parizeau, 2011, p. 300). Furthermore, the incomes of informal recycling workers are particularly sensitive to changes in market prices. Since

²⁸ The poverty line is calculated and adjusted monthly by the national statistical agency in Argentina, INDEC. The average for the year for an adult equivalent was obtained by calculating the mean of the monthly figures for 2007. For the sake of consistency the family average was obtained following INDEC’s (2012) guidelines by multiplying the adult equivalent ratios specified with the adult equivalent average – for instance, a woman between 18-59 years old is considered 0.74 of an adult (male) equivalent by INDEC. This particular example was calculated for a family consisting of 1 adult male between ages 30-59, 1 adult female between ages 30-59, and two children aged 4 and 9.

recyclables are bought and sold by weight, when prices fall, workers will often extend the length of the workday to collect more materials in order to make up for the shortfall in unit price.

Finally, the risks and hazards associated with this work are many. Sorting through mixed garbage – typically with bare hands – exposes workers to sharp objects, hazardous materials, and medical wastes such as used needles, broken glass, knives, batteries, CFL lightbulbs (these contain mercury), aerosols, dead animals, moldy foods, soiled diapers and sanitary napkins, bloody bandages, and even fetuses and human body parts. Indeed, Parizeau's (2011, p. 293) above-mentioned study found that of those surveyed, 45.5% had been cut by metal during their recycling activities, 58% had been cut by glass, and 9.5% had been pricked by a needle; more than half of respondents also reported that they burned materials (thus breathing in fumes) to dispose of leftover garbage after sorting at home or to extract metals like copper. While the effects of some of these hazards might be reduced with adequate protective clothing, Paiva (2008, p. 116) notes that even when items like protective gloves are provided, they may not be used because it slows down or impedes the process of identifying recyclables. This is particularly the case when workers attempt to determine whether or not there is something of worth inside a plastic bag without opening it, but simply patting it down first. In any case, it is worth noting that the refusal to use protective equipment is not always the result of ignorance, but rather the response to market discipline and its pressure on time.

Working on city streets exposes workers to exhaust from passing traffic as well as potential traffic accidents, theft, and physical disputes with other *cartoneros*, while exposure to the elements and the constant lifting of heavy objects can often lead to back trouble, aches and pains, ear aches, and worsen symptoms of arthritis (Bijlsma, 2011, p. 242; Parizeau, 2011, pp. 293-5). In addition to such hazards, informal recycling has also had a history of conflict with the

police, encompassing both legal and illegal behaviour. Complaints from *cartoneros* regarding the police have ranged from corruption – in which police demand bribe money, or *coimas*, from informal workers to allow them to work undisturbed – to conflicts in which police, suspecting *cartoneros* of illicit behaviour, confiscate their goods, carts and vehicles, or at the extreme throw them in jail. Similarly, *cartoneros* complain of more subtle forms of discrimination by police, in which they are arbitrarily stopped and asked for identification on the street while they are working or targeted for questioning when there is a robbery in their vicinity (Bijlsma, 2011, p. 241). While issues of corruption have diminished substantially in recent years after the legalization of the activity and sustained protest by *cartoneros*, Bas Bijlsma notes that the relationship of mutual suspicion often also translates into increased vulnerability for *cartoneros* outside the sphere of work, who as a result may not have sufficient access to the justice system in practice.

Cartonero Cooperatives

The second group of *cartoneros* in the city are those who belong to cooperatives that are recognized by and hold contracts from the city of Buenos Aires, formed for the most part during the economic crisis through interactions and collective mobilization between informal recycling workers and the neighbourhood associations and assemblies active in the city (Interview, CM1, June 21, 2012; Interview, CM2, June 22, 2012).²⁹ As mentioned previously, more than half of the

²⁹ There is one cooperative that is recognized by the city and does receive recyclable material from the routes of ‘large generators’ organized by the city but by choice does not hold a city contract. The cooperative in question refuses the model of providing financial incentives to individual workers, and instead insists that the city government ought to pay for the environmental, social, and practical services that the recycling cooperatives provide, akin to the waste management fees paid to private waste haulers who have contracts with CABA (Interview, CM3, June 30, 2012).

recycling workers in the city fall into this category, and as a result of both their numbers and level of organization, the cooperatives constitute the main interlocutors between the local state (that is, the city government) and recycling workers. In an important sense, the formation of cooperatives was used as a legal tool to gain recognition for the work informal recycling workers performed and as a means to gain access to resources that would allow for incremental formalization of the work.

As a result of sustained mobilization, protest, and organization, including marches and sit-ins in government offices, the *cartonero* cooperatives finally managed in 2007 to push the city government to comply with previous promises to provide ‘green centres’ (*centros verdes*) for the cooperatives to sort waste and provide their members with uniforms, work equipment (such as machines, trucks, etc.), transportation (i.e. truck fleets to replace the discontinued train service), basic social security contributions like health care (*obra social*), work accident insurance, and pensions, as well as a monthly wage-like ‘financial incentive’.³⁰ Since then, the terms of the contract (such as the number and monetary value of financial incentives to be made available by the city) have been subject to renegotiation every year (Interview, CM2, June 22, 2012), until a four-year contract was signed in 2013. At the time of field research in the summer of 2012, roughly 3500 workers were incorporated into this system (with an additional 270 plus on a waiting list), six ‘green centres’ administered by 8 separate cooperatives were operational,

³⁰ It should be noted that an individual *cartonero*, working informally, would not be able to access these resources made available by CABA, since they are disbursed under the rubric of a concession for a public service and individuals cannot be purveyors of services to state entities (Interview, CM2, June 22, 2012). Given that individual *cartoneros* are not represented by a corporate entity and are not owners of legal businesses, the only option available for them to be eligible to receive state funds in this way would be to form a cooperative or a civil association. This is, in large measure, why the cooperative form has become the dominant form of organization for informal workers such as *cartoneros*, irrespective of the actual work structures and organization within each cooperative or whether its members have a commitment towards cooperativism.

and one more green centre was in the process of being constructed in the northern part of the city in the neighbourhood of Nuñez.³¹ The financial incentive was set at 1000 ARS per person per month, to be raised to 1100 ARS in September 2012, and was individually deposited into each worker's bank account as long as s/he showed up to work (Interview, CM1, June 22, 2012; Interview, CM2, June 22, 2012).³² In this period, the official poverty line averaged at 502.67 ARS per adult equivalent and 1553.25 ARS for a family of four (INDEC, 2014).³³ The financial incentive on its own, then, was sufficient to bring a single worker without dependents above the official poverty line (see Figure 2.3 below).

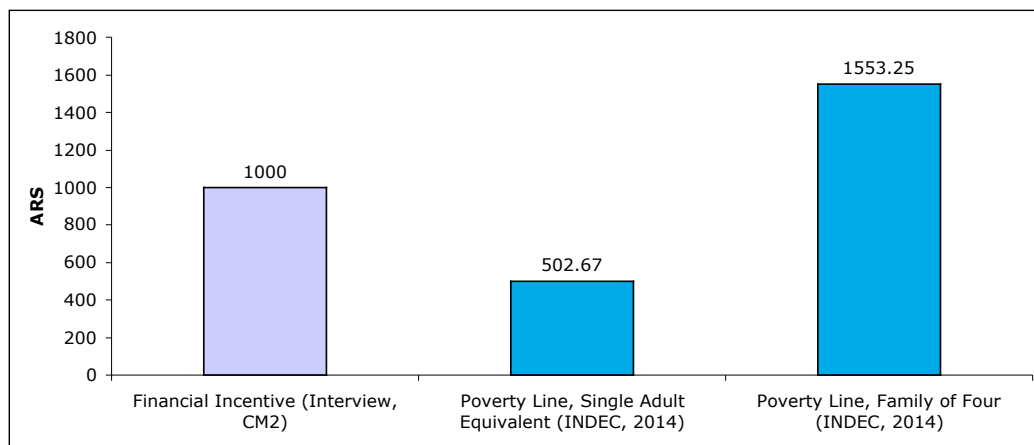


Figure 2.3 Comparison of financial incentive with national poverty line statistics for June 2012. Author's calculation.

³¹ The actual number of workers covered by this system was not available at the time of research, as even official sources gave differing figures. The above cited figure given by one of the key informants over the course of research (Interview, CM2, June 22, 2012) most closely resembles the figure tabulated by my own research visiting and interviewing the green centres, which would place the number between 3500 – 3700 people.

³² At one of the larger cooperatives, this was set to a minimum of 3 days of work per week, with exceptions made for illness (both for the worker and the worker's children), etc. (Interview, CM2, June 22, 2012).

³³ The adult equivalent was obtained by taking the mean of the poverty line figures for the months of July, August, and September 2012. The estimate for a family of four assumed a family of an adult male, an adult female and two children aged 4 and 9. The poverty line set by INDEC is notoriously low, and a frequent target of critique by social organizations. For comparison, my own food costs as a single student during this period averaged 950 ARS (approximately CAD\$210) per month.

However, beyond this commonality of basic wages and benefits provided by the city, there is also significant heterogeneity within this group of worker cooperatives in terms of work organization, structure, income, and concrete working conditions. In the summer of 2012, individual recycling cooperatives within the city ranged in size from 11 people to 2300 people, with organizational structures that encompassed democratic elections of the leadership on one end of the spectrum to full control by administrators of the cooperative akin to traditional business on the other. While smaller cooperatives tended to have most or all members working in their designated ‘green centre’ either as sorters/operators or in an administrative role, larger cooperatives tended to focus on organizing support and logistics for the individual collection work of its members.³⁴

Sorting Plants: ‘Green Centres’

For the most part, green centres are sorting centres that process recyclable materials separated at source from collection routes organized by the city (the *grandes generadores*, or large generators, program). The recyclables are collected from establishments designated as ‘large generators’, including four and five star hotels, government offices, and buildings with more than 19 floors. Within this framework, the city government pays for the logistics of the collection and transport of the recyclables (including the vehicles, gas, and wages for drivers and collectors), provides the warehouse space for the green centre (through obligating private waste haulers with contracts with the city to build one in the area where they have a concession), and

³⁴ This generalization is based on a synthesis of information from all of the interviews and site visits conducted.

pays for the electricity bills (Interview, GW1, July 20, 2012; Interview, CM2, June 22, 2012).³⁵ Other maintenance costs for equipment (and often the purchase of equipment itself) were borne by the cooperatives themselves, which for many constituted a financial barrier and challenge towards further development and cooperativization of the work (Interview, CM1, June 21, 2012; Interview, CM4, July 17, 2012). At one of the larger cooperatives, for instance, the lack of sufficient machinery (i.e. more balers and presses) meant that they did not have the capacity to process all of the materials collected by their own members on the street to commercialize in bulk, even though they had the desire to organize such a system. As a result, most members of the cooperative continued to sell their materials to small scrap dealers at lower prices in the metropolitan area, just as they had always done as informal workers (Interview, CM4, July 17, 2012).

At the time of fieldwork, roughly 120 to 150 people worked in the green centres – in other words, less than 5% of all ‘formalized’ *cartoneros*.³⁶ Despite the small number of people who actually work in the green centres, they remain a very important strategic asset for *cartonero* cooperatives because commercializing recyclable material as a group to obtain better prices requires both space and equipment. That is, moving up the value chain involves not simply selling in bulk (i.e. increasing the volume of materials sold at a time), but also requires

³⁵ The contract separately provided funds for hiring drivers and collectors belonging to one of the cooperatives (the largest) to service these routes, whose wages were 4700 ARS and 3900 ARS per month respectively, with a further wage increase of 21% just agreed to at the time of research. This can be compared to the wages of a driver for CABA, which was 4400 ARS at the time, and that of a driver for a private collection company, which could be up to 10 000 ARS per month (Interview, CM2, June 22, 2012). While one cooperative had been responsible for the delivery of recyclables from large generators to the various green centres, the logistics of servicing was being gradually decentralized so that personnel from the cooperatives administering each of the green centres would service their own routes.

³⁶ This was tabulated based on numbers given by representatives of each cooperative estimating workers in each sorting plant in interviews, and then compared to estimates of the total number of workers receiving the financial incentive.

further processing and sorting of the materials; for instance, through compressing materials into bales. A more thorough and detailed sorting of materials into its various grades for a more uniform and specific product is also necessary as one moves higher up the value chain. For example, paper can be separated not only into white and coloured paper – white paper can be further sorted into completely white/blank paper (typically only found in trimmings in the manufacturing/printing process), that with writing on only one side and that with writing on both sides. This kind of more refined sorting requires sorting workers to be able to accurately identify by sight and touch the different types and grades of materials as they are sold and used in the industrial process.

In four out of the six green centres, sorting workers typically drew monthly salaries financed from the sale of the recyclables, in addition to the monthly financial incentive paid by the local state. Wages could thus vary from month to month, depending on the price and quantity of recyclables processed at that time. Some of the larger cooperatives, however, were able to maintain a stable salary for sorting workers. Including the incentive, wages could vary between 2300 ARS to 4000 ARS depending on the size of the cooperative, prices paid for recyclables, and whether or not the cooperative had providers of recyclables beyond the city collection routes.³⁷ Since collection routes organized by the city under the *grandes generadores* program bring in a relatively small amount of recyclables – between 2 to 4 tonnes of material per day to each green centre, not all of which can actually be commercialized – reliance on the large generators program of the city produced very few jobs absent an aggressive expansion of the

³⁷ Average wages were tabulated for each cooperative interviewed based on information given on how sorting workers or operators (*operarios*) were paid: i.e. wages only, sale of materials plus incentive, etc. – and the reported estimated average quantities of recyclables and their prices received at the plant. Because of the diversity of incomes both within and between cooperatives, I opted to give a high/low wage range here instead rather than an average that would hide this variability.

number of commercial participants to the program. Indeed, each of these green centres typically only supported between 11 and 30 sorting workers.

A fifth green centre did not operate as a sorting centre, but rather as a clearing house for members of the cooperative working within two designated areas of the city to sell their recyclables to intermediaries at the end of each night (Interview, CM2, June 22, 2012). The last green centre, with roughly 50 sorting workers, was the notable exception in that while the cooperative received materials from the city collection routes, it did not adhere to the general program offered by the city; indeed, materials from the city routes represented a small portion (roughly one quarter) of the total materials processed by the cooperative. That is, workers did not receive benefits or the financial incentive from the city government; rather the cooperative paid for the benefits (i.e. health and work insurance, immunizations) out of its own revenue. At the time of research, this particular cooperative was in the midst of changing to a new wage scheme in an attempt to address issues of low productivity. Whereas before sorting workers were paid a monthly salary starting from 2300 ARS (those working with the balers, for example, earned more), they would now be paid according to the number of bales of recyclables produced; that is, they would be paid a percentage of the value of each bale made plus a small baseline wage, i.e. 500 ARS (Interview, CM3, June 30, 2012).

As can be seen, incomes and working conditions continue to be very uneven even within these 'formalized' spaces. The prices obtained for recyclables varied significantly between cooperatives, which in part reflected the disparity in terms of volume of materials handled by each cooperative as well as differing abilities to deliver materials to the buyer (i.e. access to adequately sized vehicles and funds to employ a driver). Between June and July 2012, the price of cardboard obtained at three different green centres ranged from 0.90 ARS/kg, 0.82 – 0.75

ARS/kg, to 0.65 ARS/kg, respectively (Interview, CM3, June 30, 2012; Interview, CM5, July 17, 2012; Interview CM1, June 21, 2012). Though the city delivered on average 3 tonnes of cardboard everyday to each green centre, the revenue actually obtained from selling this same quantity of material delivered could therefore vary amongst the cooperatives by as much as 750 ARS per day, or 15000 ARS per month (assuming 20 working days), the equivalent of the wages for 3 to 4 sorting workers (see Figure 2.4 below).

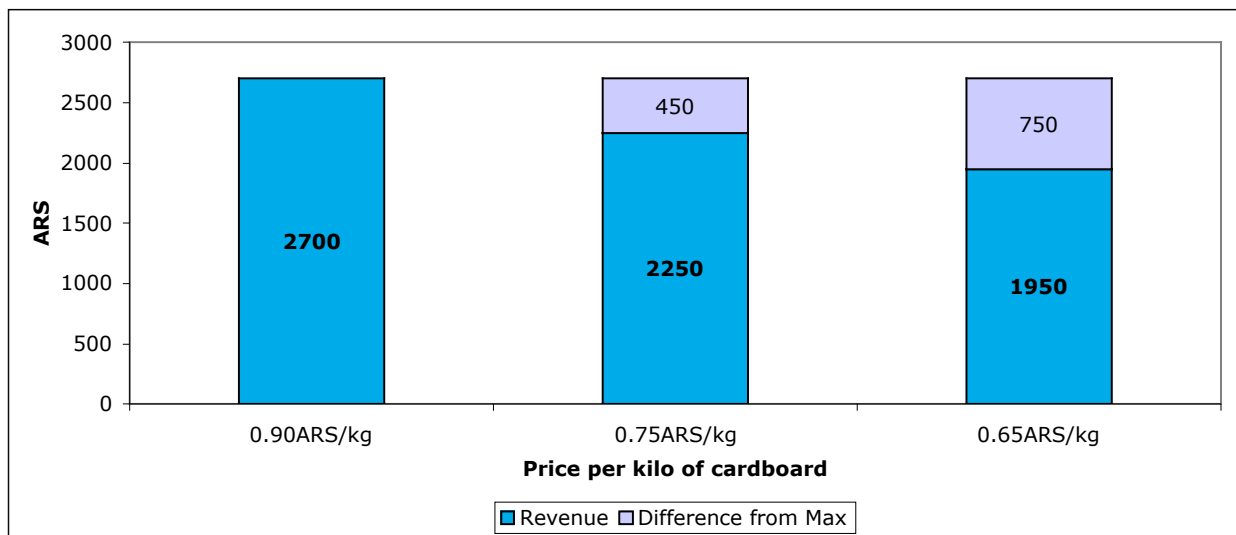


Figure 2.4 Revenue obtained from 3 tonnes (3000 kg) of cardboard at different purchase prices. Author's calculation.

Similarly, the organization of work in the green centres varied from cooperative to cooperative. For instance, while in one cooperative preliminary sorting (i.e. into cardboard, paper, plastic, etc.) was done by the individual workers who collected the recyclables from the street – that is, they sorted their ‘own’ recyclables collected from residents along their specified route – in another cooperative the preliminary sorting of mixed recyclables was carried out by dedicated sorters.



Figure 2.5 Workers sorting through recyclables at one of the cooperatives. A woman worker can be seen in the middle of the pile of materials. Author's photo. (Site Visit, SV2, June 30, 2012).



Figure 2.6 Bales of cardboard under a sorting station at a different cooperative. Author's photo. (Site Visit, SV3, July 17, 2012).

As seen in Figure 2.5, sorting workers at one of the green centres are physically immersed in wastes. In this sense, the fact of taking sorting and collection ‘off the street’ does not automatically imply that concrete situations of work necessarily improve drastically. Insofar as the cooperatives fundamentally continue to compete on the market, differences in working conditions reflect their differing capacities and strategies to compete successfully. For instance, were they able to acquire recyclables to sell beyond that delivered by the city? Were they able to acquire the appropriate equipment in relation to their needs, either through the city or by their own means?

In this respect, what the system of financial incentives and formalization has done is provide workers in the green centres with a common bottom-line safety net rather than a ‘decent’ and ‘good’ job in and of itself. That is, it provides a kind of minimum wage and benefits, and some improvements in working conditions. For example, workers are no longer exposed to the elements and are for the most part sorting through recyclables that have been separated from organics and other sorts of garbage, thus substantially reducing, though not eliminating contact with hazardous materials. The acquisition of machinery like forklifts also eases the loads that workers must physically carry.

However, beyond these basic items, wages and working conditions can differ significantly amongst the formalized cooperatives according to their relative successes competing on the market. It is likely for this reason that a number of interviewees from smaller cooperatives expressed over the course of research that they did not feel that working in green centres significantly improved their incomes or working conditions, although they did feel that it provided some concrete benefits (Interview, CM1, June 21, 2012; Interview, CM5, July 17, 2012). Chief amongst these was the improved ability to bargain with government bodies to

demand resources and improvements – in other words, the increased ability to demand extra-market support. Indeed, all of those interviewed, even those satisfied with the state of formalization achieved thus far, agreed that much more had to be done in the way of making work in the recycling sector truly decent jobs and that to do so either directly or indirectly required intervention from and cooperation of the state (i.e. in terms of monetary payments or legally allowing the formation of a union for the ‘self-employed’). Currently, it is not possible under Argentine law for those who are not working in a relationship of dependency (i.e. those without a ‘boss’, the self-employed) to form a trade union. However, the overwhelming consensus amongst the cooperatives that the formation of a legally recognized labour union was a necessary step towards improving economic security and labour rights attests to the fact that cooperative members conceived of their relationship to large scrap dealers and industry as more akin to that of a ‘traditional’ worker.

Schamber (2008) has observed that *cartoneros* who form cooperatives, for the most part, cease to perform the work normally associated with *cartoneros*, but rather begin to do the work of scrap dealers. That is, that they are not so much ‘*cartonero* cooperatives’ as they are ‘scrap dealing cooperatives’. In this sense, they are attempts to better working conditions by moving up the value chain, which as Chamber argues, though may be a legitimate aim in and of itself, does not necessarily imply that the cooperatives have a qualitatively different relationship to *cartoneros* further down the value chain or improve the lot of the latter per se. To some extent, this is still the case for the smaller cooperatives running green centres who predominantly sort, bale, store, and sell recyclables delivered by the city or provided by their particular larger-scale clients. However, the same cannot be said for the larger cooperatives with over 100 members. Though they may not necessarily engage in the work process cooperatively, they cannot be said

to be performing the work of scrap dealers. Since the capacity of the green centres and large generators program cannot support a large work force, large cooperatives by necessity have to continue working in collection.

Individual Collection

Indeed, the vast majority of those included in the system of financial incentives in the city of Buenos Aires work in individual recycling collection. Like workers in the green centres, the organization of the labour process, incomes, and working conditions vary between different cooperatives. However, on account of the much more individualized nature of the work, working conditions and incomes can additionally vary greatly even amongst members of the same cooperative. This is because incomes continue to depend on the recyclables that each worker is able to individually collect and commercialize, and for the most part, workers continue to sell their materials to their own particular scrap dealers in their neighbourhood. As such, not only does the type and quantity of recyclables collected vary amongst members of the same cooperative, but also the prices at which different types of materials are sold. Estimates of average incomes earned solely from the sale of materials ranged from 1000 ARS to 6000 ARS per month in July of 2012 (Interview, CM2, June 22, 2012; Site Visit, SV1, June 28, 2012; Site Visit, SV3, July 17, 2012). Those who managed to sell their materials collectively (as was the case in one green centre and for a small part of the members in another) earned on average 3000 ARS per month from the sale of materials alone.³⁸

³⁸ This was the case for the green centre that it was not possible to interview or visit during the course of research. In this arrangement, individual members typically bring the recyclables collected during their route to the green centre/cooperative, where the materials are sorted and weighed. The cooperative then further sorts and bales the materials to be sold together and proportionally reimburses its members according to their contributions. A promotional video

Here, the prices obtained for recyclables have a significant impact on income. If, on average, a worker collects 100 kg of cardboard per working day (a commonly estimated quantity), working six days a week would yield a monthly income from selling alone of 960 ARS at a selling price of 0.40 ARS/kg (the most likely price paid in the province in July 2012), 1560 ARS at a selling price of 0.65 ARS/kg (the lowest price paid to a green centre in July 2012), and 2160 ARS at a selling price of 0.90 ARS/kg (the highest price paid to a green centre in July 2012). During this period, the average individual income in Argentina was 3832 ARS, whereas the average individual income in the city of Buenos Aires was 5458 (INDEC, 2015).

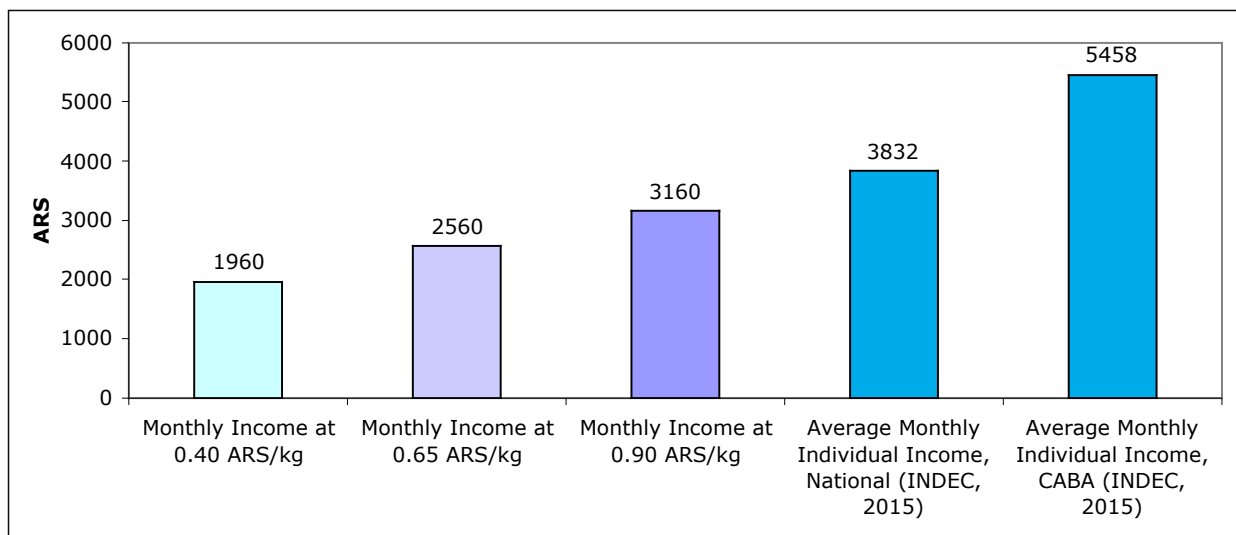


Figure 2.7 Comparison of monthly incomes at various prices of cardboard with national income statistics. Assuming: 100 kg collected per day, 6-day workweek, *plus* 1000 ARS financial incentive. Author's calculation.

This means that while the income earned from the lower selling price plus the financial incentive would have been enough to bring wages above the poverty line for a family of four (estimated at 1553.25 ARS as mentioned above), the higher selling price would have brought wages up to be

made by this cooperative to encourage source separation also describe their work organization and can be found here: <https://www.youtube.com/watch?v=VNgbR4-zQYo>.

close to the national (though not city-wide) average. This latter is the case for the single green centre that managed to sell the materials gathered by its members collectively.³⁹

Non-Monetary Aspects of Working Conditions

As mentioned above, recycling workers almost exclusively reside outside the city centre and commute to the city for work; transportation of both workers and their merchandise has been a continuous point of conflict and an important aspect of working conditions. During the crisis of 2001, it was not uncommon for workers to travel with their carts and small children on the backs of pickup trucks in their daily commute, a rather hazardous affair (Interview, CM2, June 22, 2012). In this regard, formalization has brought some very concrete improvements. At the time of fieldwork, there were two principal modes of transportation (of both workers and their merchandise) funded by the city's waste management system, all of which were associated with and in part administered by the various cooperatives. That is, a *cartonero* cannot access the transportation arranged by the city without first joining one of the cooperatives recognized by the city government (Interview, GW1, July 30, 2012).

The first mode serves as a replacement for the *cartonero* trains that had been cancelled by the train companies. In this scheme, trucks sent by the city pick up the carts of workers at a designated stop in their neighbourhood in the evening to transport to the city, while workers

³⁹ Those who are on the waiting list would benefit from improvements in non-monetary aspects of working conditions like improved transportation arrangements, but not the financial incentive or social security contributions. Given that the financial incentive likely represents half of the income of a worker selling individually to a scrap dealer in the metropolitan area, those on the waiting list are at a serious financial disadvantage compared to their peers. From this estimate, income from sales of materials alone would be able to bring a single worker above the poverty line, but not if the worker has dependents. The gulf in income between an informal worker on the waiting list and one who is formalized and sells materials collectively can be as much as four fold.

travel individually by public transit (e.g. train) to their work area where they pick up their carts and begin their daily route. At the end of the night, the trucks transport the carts and the merchandise back to the original stop outside the city for workers to pick up to take home, store in some designated area as a group, or sell as they please (Interview, GW1, July 30, 2012).

The second scheme is similar to the first, except that workers (all from the same cooperative) travel together in buses paid for by the city, and their carts are dropped off at their homes at the end of the night (Interview, CM2, June 22, 2012).⁴⁰ Both of these schemes do reduce the time needed in the daily commute and do meaningfully decrease the amount of heavy lifting and walking required of workers; however, some cooperative members in the first scheme may nonetheless still be required to walk long distances home with their merchandise, if their homes are far from the final stop. Similarly, improving transport logistics does not necessarily obviate the need for workers to store waste materials in their own homes, as was the case before when they were working informally.

The vast majority of individual workers in the system are covered by one of these two transportation schemes, with two important exceptions. The first involves the green centre previously alluded to as a ‘clearing house’ and accounts for roughly 600 individual workers. Here, since workers sell off their material every night to a scrap dealer of choice at the green centre, they do not store wastes at home nor are they required to walk home with a cart full of merchandise (Site Visit, SV1, June 28, 2012). The second exception is the only green centre that had managed to pool together individual workers’ merchandise to sell in bulk at the time of

⁴⁰ Members of this cooperative also have access to a childcare centre that runs from 5pm to 2am where their children can be placed while their parents are working in the city, since this cooperative prohibits child labour as a requirement for membership. Though it is unclear whether this has yet been fulfilled, the last contract negotiated in 2014 stipulated that the city should provide for a childcare centre to be attached to every existing or planned green centre so as to widen access to childcare in the sector.

research and represents roughly 60 workers. Since individual members worked on a designated route near the green centre and the materials were then weighed, processed and stored together in the warehouse, their work schedules were much more akin to a standard, formalized job. They worked during the day, and did not need to transport carts or merchandise home.⁴¹

Finally, the frequency with which workers must come into contact with hazardous or unpleasant materials are in part dependent on promotional activities undertaken by their respective cooperatives to encourage residents to separate their recyclables. In other words, it is dependent on previous labour either in the home or in the workplace, at the point of waste generation. The more careful is this labour in terms of separating and cleaning, the less hazardous are the materials that recycling workers must subsequently handle. In this respect, Wheeler and Glucksmann (2015) are quite justified in pointing out that consumption work undertaken in the home have a direct impact on working conditions and the realm of paid work. On the whole, then, cooperatives that manage to succeed in this kind of promotional and educational activity to induce greater ‘consumption work’ by residents secure safer working conditions for their members. Failing this, workers who take on this kind of educational activity on their own and secure regular ‘clients’ (i.e. residents or businesses who agree to set aside recyclables for them) fare better than their peers who do not (or cannot), who must therefore continue to sort through bags of mixed garbage. In any case, this aspect of the work environment depends upon the individual goodwill of households and businesses, or the mobilization of a ‘moral economy’ in the words of Wheeler and Glucksmann, since the pre-sorting of wastes is not in any way regulated or guaranteed.

⁴¹ The information here is gleaned from a promotional video mentioned in a previous footnote (<https://www.youtube.com/watch?v=VNgbR4-zQYo>) as it was not possible to visit this cooperative. However, some of the information here is also corroborated in passing by other interviewees (i.e. CM2).

To be sure, though working conditions in the sector are far from ideal and the field remains highly uneven, significant gains have been made as a result of the sustained mobilization and resistance of *cartoneros*. It should be noted that most of the gains made by the *cartonero* movement – particularly those that reach the most people, such as the financial incentive, social security and subsidized transport – involved *socializing* the costs of recycling collection and limiting the reach of market logic in determining the incomes and conditions of work of informal recyclers. This is an important point. Where these costs were (and in many cases, still are) paid ‘on the market’, they were paid at the expense of individual workers who paid for these ‘costs of production’ by being obliged to work in extremely exploitative conditions and for very low wages.

Significantly, much of these gains were achieved during the tenure of a conservative Chief of Government, Mauricio Macri, who was among those most vehemently opposed to *cartoneros* given his family’s significant stake in the private garbage business.⁴² Indeed, this stands as a testament to the effectiveness of mobilizations sustained by the *cartonero* movement.

Green Jobs and Informality

As the discussion above shows, although the increase in informal *cartonero* activity is a direct result of rising unemployment in the formal – or, monitored – economy, it would be inaccurate to therefore characterize *cartoneros* as unemployed. Of course, many engage in this activity as part-time and sporadic employment, but for thousands of *cartoneros*, this is work that they perform for upwards of 7 hours per day, five to six days a week. In other words, it is full-

⁴² As mentioned in a footnote earlier, the city of Buenos Aires exists not as a municipality but as an autonomous city that is not under the jurisdiction of the provincial government of Buenos Aires; therefore, the city does not have a mayor, but rather a Chief of Government (*jefe de gobierno*).

time employment. In this context, the effect of market collapse and soaring unemployment in the formal economy has been to enable more intense exploitation of workers, forcing them into ever more precarious forms of employment, obliging them to accept significant deterioration of their working conditions and to work for very meagre returns, often barely above the poverty line.

Indeed, as I have shown above, these apparently ‘free’ and ‘independent’ workers are in practice not free from the compulsion to toil, nor even always particularly free from the need to toil for a specific scrap dealer: they are simply free from the responsibilities that employers have towards them under the law. To name such work as ‘self-employment’ is, in some sense, a euphemism. The seeming consensus amongst *cartonero* cooperatives for the need to establish a sectoral trade union on a national basis so as to gain better leverage in negotiating prices (i.e. piece-wages) with end-use industries underscores their conviction that their labour and working conditions directly contribute to capital accumulation in these industries. For being free from the legal (though not practical) relation of dependence that would entitle *cartoneros* to the protections and obligations that the state requires of employers simply means that they are instead intensely subjected to the vagaries of the market.⁴³ They are, as Marx reminds us, doubly ‘free’. Here, conventional notions of formal (within the law) and informal (outside of the law), by conceptualizing these as two distinct and independent spheres (as in the ‘dual’ economy), erase the commonality of dispossession, compulsion and market dependence that undergird both spheres (Denning, 2010).⁴⁴ Furthermore, as the discussion of the diverse working conditions that

⁴³ And insofar as informality implies a rejection of regulations and responsibilities on the part of capital, the growth of informality and precariousness can be understood as a class war in which the working class has been unable to exert decisive restrictions on capital under prevailing conditions of production. In this sense, I associate the regulations and protections upheld by the state not with ‘modern capitalism’ as such, but with the fruits of workers’ past struggles.

⁴⁴ Denning (2010, p. 81) notes: “Unemployment precedes employment, and the informal economy precedes the formal, both historically and conceptually. We must insist that

exist in the ‘formalized’ *cartonero* cooperatives above shows, it is also important not to fetishize the concepts of ‘formal’ and ‘informal’ in discussions of green jobs. The mere fact of ‘formalization’ in the sense encouraged by the ILO (2012) does not in itself guarantee that jobs become ‘decent’ across the sector – indeed, much more remains to be done. This underscores the need to move beyond ‘counting’ job growth in the ‘formal’ sector and towards an analysis of working conditions that actually obtain.

For Marx (1867/1976), the distinction to be made between domestic industries or modern manufacture and a factory system subject to the regulations of the Factory Act in England was not one between informality and formality – though he noted (p. 595) that only 10,000 of the 150,000 employed in lace-making in England at the time fell within the ambit of the Factory Act. Rather, the distinction was one between two modes of organizing capitalist production that differed in terms of scale, technology, productivity levels, and the like. For Marx, these two methods of organizing production both competed and cooperated (for instance, when lace was produced in a factory but finished in domestic industry) with each other, although he predicted that the factory system would eventually prevail. Indeed, for some time this did seem to be the case, particularly with the rise of Fordist production practices; however, it seems equally true that under neoliberalism and with the further development of electronic technologies, there has been a resurgence of domestic industries in a superior technological form. In any case, along these lines, it is perhaps useful to make a similar distinction between the ‘formal’ and the ‘informal’ as being two different modes of organization or strategies of accumulation within the

‘proletarian’ is not a synonym for ‘wage labourer’ but for dispossession, expropriation and radical dependence on the market. You don’t need a job to be a proletarian: wageless life, not wage labour, is the starting point in understanding the free market.”

sphere of capitalist production rather than theorizing the ‘informal’ as somehow outside of, foreign, or marginal to modern capitalism.⁴⁵

In a review of informality in the Argentine context, Marta Novick, Ximena Mazorra, and Diego Schleser (2008, pp. 27-8) propose that a portion of informality is in some sense involuntary, as it is a result of low productivity and profitability in the enterprises involved, who therefore find it difficult to produce enough of a surplus to comply with taxes and regulations required to operate in the formal sphere.⁴⁶ This is, to some limited extent, true of the informal recycling circuit, particularly towards the lower end of the value chain. Indeed, *cartonero* cooperatives trying to overcome informality by moving up the value chain have found the need to increase productivity in the areas of collection and sorting as well as increase capitalization at sorting plants (i.e. purchase balers, forklifts, and other machinery) so as to generate a greater surplus to distribute amongst its members. However, as cooperatives increasingly take on the work of scrap dealers and seek to increase productivity, they must also seek out larger waste generators that are capable of providing larger quantities of recyclable materials that are better sorted and of higher quality in comparison to domestic sources of recyclables. That is, they gradually move away from an emphasis on domestic recycling as a function of improving productivity, since large point source waste generators comparatively reduce the per unit collection and sorting – i.e. labour – costs of getting these commodities to market. In other words, they are finding that the collection phase of domestic recycling, due to its dispersed and

⁴⁵ The concept of marginality is particularly inapt given the substantial size of these apparently marginal sectors in many countries. In many of its usages, it would be more accurate to speak of increasing immiseration than increasing marginalization.

⁴⁶ They also suggest that informality within formal enterprises that are profitable and productive is the result of deliberate tax and regulatory evasion, since the underfunding and dismantling of state agencies tasked with regulation and tax collection meant that the costs of non-compliance were significantly reduced (Novick et al., 2008, p. 28).

labour-intensive nature, is not profitable without any kind of subsidy or payment for waste management services.

In this sense, the financial incentives paid for by the city government plays a crucial role in ensuring the viability of formalization efforts for individual *cartoneros* who continue to work in collection. As a purely market-coordinated endeavour, the situation of low productivity in domestic recycling is only made profitable (for scrap dealers) through extensive workdays and low wages – that is, through the informality of the *cartoneros*. To the extent that comprehensive domestic recycling is labour-intensive and not profitable without additional payments by the state, promotion of privatization in waste management is simply a transfer of assets from the state to waste management companies, who then hold these assets in the form of a private surplus (i.e. profits).⁴⁷

At the same time, improving productivity through increasing mechanization also tends to be labour-saving. Indeed, it is precisely for this reason that *cartonero* cooperatives oppose plans to build highly automated and mechanized waste-sorting plants as part of the city's waste management strategy, as they rightly perceive that such plants would employ far fewer people and be in direct competition with their means of livelihood.⁴⁸ In this respect, it is important to remember that different models of development and waste management are not simply technocratic choices, but also involve different distributions of resources that are also embedded

⁴⁷ Although cost reduction is often cited as the reason for privatization, Suárez (2010, pp. 44-5) points out that private collection in the metropolitan area of Buenos Aires has actually increased the costs of collection compared to state provision of services, and that in some municipalities, privatized collection and cleaning took up to 40% of the municipal budget, forcing local governments to raise taxes.

⁴⁸ At the time of research, one such waste-sorting plant that would receive mixed wastes and recyclables was in the process of being built at the Norte III landfill. The following year, CEAMSE issued a press release announcing that construction of the plant had been completed (<http://www.ceamse.gov.ar/primera-planta-de-tratamiento-mecanico-biologico-mbt-en-argentina/>).

in specific contexts and broader social relations of (re)production. Similarly, choices of technologies are not seen as socially neutral. *Cartonero* cooperatives may wish to adopt technologies and machinery that enable them to generate greater value while rejecting others that threaten their livelihood. This renders de-contextualized judgements of what constitutes a good green jobs program and a narrow focus on job conditions within particular firms problematic, because what may appear to be the creation of green jobs – for instance, the creation of formal jobs in mechanized sorting plants ‘off the street’ – can in this context actually imply unemployment and dispossession for many more workers. In this sense, *who* owns and controls ‘green’ investments have an important impact on distributional outcomes – investments in ‘green’ sectors alone do not ensure the creation of decent jobs or equitable outcomes.

The paradox is that market-led residential recycling is capable of providing so many jobs of emergency to the poor and newly dispossessed precisely because of its low productivity and meagre wages. Once productivity improvements, increasing scale and capitalization take place, as in the proposals for automated sorting plants, the number of jobs created plummets, even as the surplus available to support more jobs increases. At the same time, mechanization also has its own environmental implications. First, it substitutes human labour (thus raising productivity) with the use of machines powered by fossil fuels. Second, particularly in the context of mixed-stream recycling (i.e. without separation at source), it tends to produce lower rates of recovery, since contamination can render some materials un-recyclable (for instance, white paper soiled with food).

Productivity in a capitalist context is inherently contradictory. Since assets – that is, the means of production – are held privately, productivity gains are also controlled privately. At best, gains are distributed equally amongst workers in a cooperative, but even then, not across

the social collectivity as a whole. A scrap plant that increases mechanization to process greater quantities of recyclable material to realize a greater profit is not, in this situation, under any obligation to distribute this surplus to their current workers, nor to workers who are displaced (be it actually or potentially). These superfluous workers are left to find jobs elsewhere, on their own. Job loss as a result of productivity gains is, in some sense, externalized. Productivity gains could, of course, be shared amongst workers in the form of fewer work hours while maintaining hiring, but that would be contradictory to the pursuit of profit.

Conclusions

The analysis of the *cartonero* movement in Buenos Aires thus far suggests an important point of reflection for advocates of green jobs – the tendency towards reducing labour intensiveness through mechanization is not unique to ‘traditional’ industries. It is also a part of ‘green’ industries – it is a function of capitalist competition. Although the initial switch to more labour-intensive ‘green’ industries can boost employment, over time, the emphasis on labour intensiveness within a purely capitalist context is not tenable, since to do so would be to ask industries to not seek to maximize profits. Supporting labour-intensive industries over the long term because of its ecological and social benefits and the generation of decent work requires not simply initial investments by the state, but continuous state investment, cooperation, and collective planning. They require redistribution beyond the confines of capitalist competition, profitability, and fiscal austerity. I will return to this issue in the final chapter of this dissertation.

Indeed, organization and struggle in the informal recycling industry has developed substantially since Chris Birkbeck’s (1979, pp. 182-3) dismal prognosis that it was difficult to see informal recycling workers being able to organize collectively to better their position as a

result of the individualized and competitive nature of the piece-work system. Even if organizing were possible, his assessment suggested that it would be difficult to do so without eroding the basis of their employment either through increasing scrap prices to an uncompetitive level or through increasing mechanization and productivity. What he emphasizes, then, is that the poor working conditions of informal recyclers are the result of the *normal* functioning of the market rather than market failure. Many of the structural constraints he outlined (i.e. the need for scrap prices to remain competitive with that of primary raw materials) remain true today. Yet perhaps what he did not foresee was that sustained organization and mobilization could also lead *cartoneros* to resolve the dilemma by focusing their efforts on making the *state* responsible for guaranteeing decent work. However, if the state is to be made responsible for guaranteeing decent work – or to take it one step further, for *providing* decent work – then the question arises as to why it should only be confined to this sector and not in other areas as well.

Furthermore, if recycling is the capitalist commodification of waste as I have suggested, then socializing the costs of collection and preliminary sorting is but one link in the chain. For this waste must ultimately meet a buyer in the market in order for it to be recycled, and this is now dependent on not only overall macroeconomic policy as I have shown (as import substitution boosts local recycling circuits), but also on overall development patterns and a range of global market conditions beyond just the waste sector or commodities markets. Insofar as recycling is tightly tied to global capitalist accumulation, the promotion of recycling also depends on an expanding world market – that is, precisely on expanding the systematic production of waste – and thus has an ultimately dubious relationship to efforts of waste reduction. The tensions between waste reduction and recycling will be more fully explored in the next chapter.

Finally, the examination above also suggests that though a crucial first step, changing the mode or form of ownership of an enterprise is, on its own, not enough in the way of building more equitable workplaces. Insofar as the cooperative form is imposed from without by the legal-institutional context, the principles of cooperativism are not necessarily practiced by all of the *cartonero* cooperatives active in the city, and this is reflected in the highly uneven working conditions amongst the various cooperatives. In this respect, increasing democratic decision-making in the workplace about the labour process is also a crucial aspect of ensuring equity. However, cooperatives that are embedded within capitalist economies must also compete on the market. Even if decision-making is democratic, market pressures and competition will place some constraints on what is practically possible in terms of the labour process. For this reason, in the context of the worker-recuperated factories in Argentina, Josefina Martinez (2002) makes the argument that demanding the socialization of productive enterprises by the state while maintaining workers' control of individual units of production as does Zanón (an important worker-recuperated factory) is ultimately more true to the spirit of worker-led struggle and collective production since it must seek to challenge and transform state power. For her, the mere formation of cooperatives does not guarantee 'independence', since cooperatives must still compete on the capitalist market like any other private enterprise. That is, it does not challenge capitalist social relations or power dynamics on the whole. A prominent activist in the *cartonero* movement similarly underscores the importance of the state in the struggle for decent work:

...The form in which [the cooperative] receives resources to achieve its social goals, the dignification of the activity, and the eradication of child labour, is through the subsidy [i.e. the financial incentive]. It can be disguised as a contract, but it will continue to be just cosmetic. There are no autonomous cooperatives within the popular sectors that can guarantee dignified working conditions. Obviously saying this will make you a lot of enemies with promoters of cooperatives and others who try to privatize social expenses...we believe in the State. (Grabois, 2009, p. 12, translation my own)

Cooperativism within the *cartonero* movement in Buenos Aires can, in many ways, be seen as both a fight against and a development within neoliberalism. It is a survival strategy undertaken by marginalized workers that nonetheless contain within it the possibility of a more profound transformation. On the one hand, by making demands of the state to take financial responsibility for the working conditions and welfare of *cartoneros*, it is a (thus far) successful challenge against neoliberal restructuring. Similarly, their activism, militancy, and political orientation towards the establishment of a sector-wide labour union as a way of coming to terms with and moving past the neoliberal reality of casualized labour goes against the grain of anti-union rhetoric characteristic of neoliberal mores. On the other hand, this model also reinforces market-based recycling, and in some sense also depends on continued consumption – albeit of recyclable containers to thrive. That workers continue to derive the bulk of their income from individually selling commodities on the market relieves the state of responsibility for public services and cheapens state expenditure at the expense of workers who must face greater income instability. Similarly, though the *cartonero* cooperatives have managed to make the state responsible for social security and benefits under the rubric of the *monotributo*, the benefits provided are nonetheless not as extensive or generous as that of formal state employees. To be sure, the battle is not yet over and which of these tendencies will prevail is still an open question. In any case, the outcome will most certainly depend on the kinds of mobilization that can be sustained by the *cartonero* movement.

Chapter 5

Lean Production and Privatization in Municipal Recycling: Toronto

With a population of 2.8 million, the City of Toronto handles roughly 1 million tonnes of garbage every year.¹ Of this, 47% is sent to landfill while the rest – that is, 53% – is diverted through the city’s single-stream recycling and composting programs. Recycling accounts for roughly 27% of the waste stream (City of Toronto Budget Committee, 2015).² At first glance, municipal recycling in Toronto seems to fit the bill of ‘green jobs’ – it is well organized, comparatively clean, and modern; there are health and safety regulations and standards; workers earn a living wage, enjoy health benefits, and have access to workplace accident insurance. Indeed, the Solid Waste Management Division of the city prides itself on being “a North American leader in solid waste management” (Long-Term Waste Strategy, hereafter LTWS, 2014, p. 1). For many Toronto residents, municipal recycling represents a kind of linear development towards more environmentally friendly practices and a shift in attitudes towards treating waste as a ‘resource’ rather than a liability. Without exception, younger denizens are always surprised when informed that neither recycling nor the requirement to segregate wastes is a ‘new’ phenomenon in Toronto.

¹ Archival research for this chapter was conducted at the City of Toronto Archives from June 2015 to September 2015. This was complemented by three qualitative interviews with key informants in the sector as well as two site visits in November 2015. It should be noted that it was much more difficult to gain access to key informants directly involved in municipal recycling in Toronto, as potential participants were much more wary. For a more detailed discussion of research methods in Toronto, refer to Appendix A.

² This is based on 2014 figures. It does not include waste generated by some residential apartment buildings, large institutions or private/industrial trade waste (also known as IC&I – Industrial, Commercial, and Institutional sources of waste), but does include some waste from small businesses and non-profit institutions like schools and churches.

It is the contention of this chapter that waste – at least up until the 1960s – has always been viewed as a ‘resource’, and this is precisely why municipal recycling – i.e. the commodification of residential waste – has never managed to become a permanent and sustained feature of waste management in the city until other intervening factors made it an attractive option. As a potential resource, the value of recycling, on its own terms, was always evaluated according to its contribution to administrative economy. That is, recycling was evaluated according to whether or not it would reduce the operating costs of the street cleaning department as whole after factoring in the additional labour and capital necessary for materials separation, and at different times also in comparison to the costs of hauling the waste to landfill. As such, recycling efforts fluctuated with the volatile scrap market, engaged in when prices were high and discontinued when prices were low. Paradoxically, residential recycling became a permanent fixture in municipal programs only when it ceased to be ‘just’ another resource and became partially decommodified.³ As was argued in Chapter 3, this is in part due to the dispersed nature of recyclable residential wastes, making purely market-coordinated collection unprofitable unless carried out under very exploitative conditions.

What were those intervening factors? The first – and the most important – was a looming crisis of waste disposal in Ontario that set the context for waste reduction appearing on administrative and political agendas at both the provincial and municipal levels. The second, less well-known factor was a determined soft drink lobby keen on steering provincial policy away from mandating a return to reusable beverage containers for their own reasons of industrial restructuring. As will be elaborated below, the result was the institutionalization of the Blue Box

³ Even today, the revenue obtained from selling recyclables represents but 5% of the operating budget of the solid waste department (City of Toronto Budget Committee, 2015, p. 16). Furthermore, some classes of recyclables like mixed coloured glass do not bring in any revenue at all; on the contrary, the city must pay dealers for these items to be recycled.

program. In many ways, the adoption of municipal recycling programs represented a definitive shift towards a focus on end-of-pipe management and individual responsibility rather than on the upstream reduction of wastes. To this extent, neither the employment nor ecological impacts of the Blue Box program can be simply understood as a linear progression towards more environmentally friendly green jobs as is commonly assumed. Rather, comprehensive multi-material residential recycling can be better characterized as a capitalist response to increased environmental awareness and demands; as such, it was also an initiative that furthered the agenda of neoliberal restructuring.⁴ The history of the Blue Box program is a particularly pertinent story for the discussion of green jobs, as it highlights the importance of considering employment effects as a whole, beyond specific target ‘green’ sectors as well as beyond particular municipal boundaries.

Furthermore, an examination of recent trends in solid waste management and recycling in Toronto also reveals that the city is itself moving towards more neoliberal forms, emphasizing efficiency, productivity improvements, user fees, and privatization. Indeed, the latest budget submission from the solid waste department in September 2015 reaffirms its commitment to move solid waste towards a utility model (akin to electricity), seeking to eventually completely fund its budget from collecting user fees as opposed to general taxes (City of Toronto Budget Committee, 2015).⁵ The contracting out of waste collection (encompassing garbage, recycling,

⁴ Here, Gramsci’s (1971) notion of *trasformismo* is particularly on point.

⁵ Residential user fees is expected to fund 68% of the operating budget submission of \$389 million for solid waste for 2016; the budget submission proposes a further 3% increase in user fees across the board *every year* for the next 10 years (City of Toronto Budget Committee, 2015).

and organics) in the west end of the city in 2012, coupled with the emphasis on efficiency, has had significant implications for working conditions in the sector.⁶

From its beginnings in lean production to current trends in privatization, recycling has been tied up with neoliberal restructuring in Ontario in complex ways. Issues of speed-up and precarization are just as relevant for these ‘green’ sector jobs as it is for other sectors. And in a situation where public sector employers are increasingly emulating the private sector, even if the ‘profit’ motive is not immediately given, these issues become increasingly relevant for the public sector as well. In this respect, considering actual labour processes dynamically – that is, as it changes through time – significantly complicates the notion of municipal recycling in Toronto, and in the ‘Global North’ more generally, as obvious examples of green jobs.

This chapter is organized in three chronological parts. The first gives a very brief history of early efforts at recycling, or ‘salvage’, in the city and the working conditions found therein. Here, it is apparent that market-based recycling performed primarily by junk peddlers proceeded predominantly on the basis of poor working conditions, especially by the turn of the twentieth century. Conversely, the requirement to provide decent working conditions for city workers often led the city to abandon recycling initiatives, since this constraint meant that the costs of recycling to the street cleaning department exceeded the revenue they could extract from selling recyclables on the market. The second section details the rise of the Blue Box recycling program and the intense corporate lobbying effort that succeeded in partially socializing the costs of recycling, thus shifting the costs of waste management away from capitalist producers. The final section focuses on the current labour processes found in residential recycling, in particular the

⁶ This refers to the municipal/residential sector; trade waste has historically always been handled by the private sector in Toronto, and continues to be so in spite of the public sector union’s (failed) attempt to urge the city to expand into private waste hauling in the 1990s.

trend towards increasing mechanization (i.e. capital-intensiveness), and analyses its implications for the discussion on green jobs.

Early History

The first collection of garbage and refuse organized by the City of Toronto (formerly Town of York) appears to have begun a year after its incorporation in 1834, when council moved that “the Board of Health be requested to employ one or more Cartmen with their Carts as Scavengers to remove the filth and other Nuisances from the Streets to the Public Receptacles pointed out by the said Board of Health” (Council Minutes, May 16, 1835, item 177).⁷ These acceptable places included: the foot of Church and York streets as fill for road-building, the Old Parliament building where a “Dung heap” could be made and auctioned off to the public as in previous years, or “the Field at the rear of Jesse Ketchum’s House” provided that he was given the manure for free or else he would take only the manure (not the rubbish) and pay seven pence and half penny per load for it (Council Minutes, May 12, 1835, item 168). Indeed, during this period and throughout the 19th century, the waste stream was predominantly composed of organic matter (both animal and vegetable) and ashes – wood and coal stoves for heating and cooking in the home also doubled as domestic garbage incinerators. Early efforts at waste management, in this sense, tended to view waste as not only a ‘nuisance’, but also as a resource – it was both sold

⁷ Actual minutes from Council sessions for what is now the downtown core of the City of Toronto and its former corporate predecessors (i.e. Town of York, etc.) will all simply be referred to as ‘Council Minutes’ and listed by the date of the Council session. Reports from various committees included as appendices to Council Minutes will additionally bear the name of the report in the citation. Minutes and appendices for Metropolitan Toronto, which included the downtown core and its neighbouring municipalities and existed as an entity from 1954 until amalgamation in 1998, are referred to as ‘Metro Toronto Council Minutes’. This distinction is made because there are years for which there are minutes for both Metro Toronto as well as the City of Toronto as an area municipality. All of the minutes and reports are available at the City of Toronto Archives.

(i.e. recycled) and reused (repurposed). Manure was sold to farmers or mixed with wood chips to make ‘cedar block’ pavement to pave roads,⁸ while ashes, rubbish and trade waste were used as fill for harbour development and to level off low-lying lands, swamps, and ravines.⁹

Like many other cities of the time, itinerant peddlers, junkmen, or ‘rag-and-bone’ men – typically non-English speaking immigrants, and particularly later on, Eastern European Jews – wandered the streets collecting and buying glass bottles, rags, bones and other scrap items from households. Recycling – that is, the commodification of waste for use as an input in production – is a very old profession in Toronto, as elsewhere, and in the mid-19th century was sometimes even considered respectable. As in New York, peddling supported commercialization since it enabled (particularly rural) households to purchase commodities and manufactured goods even if cash was scarce by trading in recyclable goods.¹⁰ Later on, peddlers also extended credit,

⁸ The annual report of the Medical Health Department to city council in 1890 condemns this practice as completely unsanitary thus: “For what is it of a warm sunny day more than a fermenting mass of decaying wood, saturated with horse excrement, emitting foul odors and dampness, productive of disease” (Council Minutes, 1890, Appendix, p.2559, item 1663).

⁹ The shoreline used to sit just south of present day Front Street and the Esplanade – all of the land to the south was filled in with ashes, rubbish (i.e. tin cans and non-burnable rubbish) and trade waste generated in the city. As late as 1924, the shoreline in the St. Lawrence Market area lay just south of the Esplanade; now it has been extended down to Queen’s Quay (see Goads Fire Insurance Plans 1924,

<http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=04ab757ae6b31410VgnVCM10000071d60f89RCRD>).

¹⁰ *The Female Emigrant’s Guide and Hints on Canadian Housekeeping* counsels the housewife who keeps sheep: “The pedlars that travel the country with tins are always willing to trade for skins of sheep or calves: they give you no ready money, but sell tinware, and also buy rags, old iron, bottles, and many other things. These pedlars penetrate into the country in every direction: many of them are respectable men and fair dealers; the housewife often supplies herself with tin milk-pans, pails, strainers, mugs and many other conveniences, by selling such things as would otherwise be lost” (Traill, 1854, pp. 171-2). By the end of the 19th century, however, peddlers were predominantly Jewish immigrants and peddling became a decidedly not respectable – indeed, possibly deviant – profession. The derogatory term for a Jewish person, ‘sheeny’, comes from this period and refers to a Jewish peddler. A biography of Alan Grossman (the first Jewish Tory MP in Ontario), whose father was a peddler, recalls the mistreatment he suffered working on the streets of Toronto everyday: “It was an almost daily occurrence for father to have stones

allowing households to purchase commodities in instalments (Baker, 2004/2005; Nathanson, 1993). Indeed, the distinction between retail and junk dealing (or recycling) was not so clear throughout much of this period, witnessed by the fact that the term peddler (or ‘pedlar’) simply referred to people who bought and sold door-to-door, be it fruits and vegetables, manufactured items, or second-hand goods and wastes; a peddler could concentrate on only one or a number of these things simultaneously. In any case, early peddlers represent the first systematic attempts at recycling and formed a regular part of city life. In 1887, for instance, the issuance of hawking and peddling licenses by the city accounted for roughly 10% of the revenue received for all licenses issued by the Markets and Health Committee that year (Final Report of Markets and Health Committee, Council Minutes, 1887, Appendix, p. 1636).

Although this method of waste management sufficed for some time, by the end of the 19th century, the continued expansion of the city and the proliferation of organic wastes that this implied – in particular, manure and human wastes – began to outstrip the city’s capacity to manage; coupled with growing awareness of sanitation, organic wastes in particular came to be seen as a real menace to public health. The mayor’s inaugural address to council in 1887 alluded to the direness of the situation, as sewage and wastes released into the harbour contaminated the drinking water supply at the water intake pipes (Council Minutes, 1887, Appendix, pp. 3-4). The Local Board of Health reported in 1890 that manure from city-owned stables were no longer accepted by farmers and market gardeners because they were already getting enough from the outskirts of the city. Without these outlets and lacking adequate dumpsites, the Board repeatedly urged city council to build garbage crematories (i.e. incinerators) to dispose of wastes in a

thrown at him or have his beard pulled by young hoodlums, sometimes encouraged by adults. The usual expressions were ‘dirty Jew’ or ‘sheeny’ and sometimes father would come home with a bloody face” (Oliver, 1985, p. 5).

sanitary manner (Report No. 5 of the Local Board of Health, Council Minutes, 1890, Appendix, p. 1074, item 697). Indeed, it is telling that a discussion of proper methods of garbage collection and disposal is carried on under the heading “typhoid fever and diphtheria” (ibid., pp. 1076-77, item 704).¹¹ Refuse collection (i.e. ‘scavenging’) and the cleaning of laneways was seen as an issue of public health and was the responsibility of the health department for many years, even after the creation of the Streets department in 1888 (whose initial responsibilities, though including street cleaning, were mainly related to road repairs and paving).¹² Even though untreated organic wastes were seen by city officials to be carriers of disease, it was nonetheless contemplated (and considered appropriate) by the Board of Health to reuse the ashes resulting from the burning of organic garbage as fertilizer since they were considered to be rich in potash and phosphate (Annual Report of the Medical Health Department, Council Minutes, 1890, Appendix, p. 2559, item 1663).¹³

¹¹ However, it is also clear from these reports that wastes were not yet universally seen as a menace to health by the general populace. The reports complain that residents do not always make use of the refuse collection services offered by the city, instead opting to throw garbage “over the yard and into the laneway” such that in some places a full two feet of garbage and ashes had accumulated over the years and in others the laneway itself had been gradually raised from the compaction of garbage and soil “to form the bed of the lane” (Report No. 5 of the Local Board of Health, Council Minutes, 1890, Appendix, pp. 1074-6, items 697, 701 and 704). A house-to-house inspection carried out in 1890 found, furthermore, that 1764 households threw slops into the yards and lanes and an additional 3872 households burned their refuse (Annual Report of Medical Health Department, Council Minutes, 1890, Appendix, p. 2562). How to compel – and police – residents to use designated methods of garbage disposal was a constant concern of these reports.

¹² Responsibility for garbage collection was finally transferred to the Streets department in the middle of 1892 (Twenty-second and Final Report of the Committee on Markets and Licenses, Council Minutes, 1892, Appendix C, p. 620)

¹³ In the event, ashes from the crematories were not sold as fertilizer, but rather used as fill. Although subsequent reports do not clearly indicate whether or not the fertilizer plan was actually carried through, no revenue is listed in the city treasurer’s returns from the sale of ashes for the years immediately after the first crematory was built. A line item did exist, however, for the sale of manure for \$450 under the category of scavenging in 1894 (i.e. the department sold

Early Incineration

Finally, two years later in 1892, the first garbage crematory in the city was put into operation and a second was built in the west end in October of 1893 (Forty-third and Final Report of the Committee on Works for the Year 1893, Council Minutes, 1893, Appendix A, p. 711).¹⁴ The crematory burned “all kinds of house and store garbage and refuse, rotten fruit, meat, fish, oysters, hide cuttings from tanneries, and all other kinds of refuse with the exception of night-soil” (Twenty-second and Final Report of the Committee on Markets and Licenses, Council Minutes, 1892, Appendix C, p. 621).



City of Toronto Archives, Series 372 s0372_ss0100_it0089

Figure 3.1. “Eastern Crematory by the Don Roadway.” City of Toronto Archives, Series 372, Sub-series 100, Item 89

manure cleaned off of streets and lanes). It is thus reasonable to assume that ashes from the crematories were ultimately used as fill like ashes and refuse collected from households.

¹⁴ Annual reports from the street cleaning department date the first crematory as having been operational since 1890. However, although city council certainly discussed the need and set aside money for a crematory to be built this year, reports from the Medical Officer of Health for this year continue to complain of the lack of a functioning crematory in the city as injurious to public health, despite the crematory already being approved by council in principle. In 1891, construction costs for a crematory appear in the detailed treasurer’s return, and it is not until 1892 that the operational costs of the crematory appear as a line item in the city estimates and returns.

Ashes and other refuse continued to be used in filling land, particularly in Ashbridges Bay and harbourfront development, while itinerant peddlers continued to buy and gather recyclable refuse from households and businesses.¹⁵ Although the city began to prohibit some aspects of the profession by the turn of the century – such as the practice of looking through garbage receptacles on the street or accumulating their goods (i.e. rags and bones) in residential areas, and eventually even shouting ‘Rags! Bones! Bottles!’ on the street – the profession continued to thrive (*The Toronto Daily Star*, August 12, 1905, p. 5; October 24, 1905, p. 4; June 22, 1912, p. 1).¹⁶

By the eve of the First World War, there were some 200 ‘rag-and-bone’ men working in Toronto. Most of these men were based in ‘The Ward’ and had even formed an association to advance common interests, the Hebrew Pedlars’ Protective Association. The junk trade in the city was reported to be worth some ten million dollars a year (*The Toronto Star Weekly*, October 4, 1913; Nathanson, 2015).¹⁷ In contrast, the budget of the entire street cleaning department for this same year, including the costs of running the crematories amounted to just \$851,696; of this budget, refuse collection accounted for \$308,961 (Estimates, City of Toronto, Council Minutes,

¹⁵ Indeed, the use of Ashbridges Bay as landfill continues to this day. Beginning in 1959, the foot of Leslie Street in the east end of Toronto has been used as a dump chiefly for construction waste and debris, so-called “clean” fill. Over the decades it has been built up into a 5-kilometre stretch of land that is now known as the Leslie Street Spit (Hartmann, 1999, p. 218).

¹⁶ Under the direction of then Medical Officer of Health, Dr. Sheard, the city began to earnestly crack down on rag peddlers who were searching for recyclables in garbage bins placed out for collection. *The Toronto Daily Star* (August 12, 1905, p. 5) reported that 13 such people were caught searching through garbage bins for leftover foods to use as hogfeed or rags to sell and were arrested and fined \$5 each; one person was sent to jail for ten days because he did not have the money to pay the fine. The following year, Dr. Sheard was once again embroiled in controversy when he revoked a permit for the storage of recyclables by peddlers on sanitary grounds (*The Toronto Daily Star*, August 2, 1906, p. 11; August 9, 1906, p. 11).

¹⁷ The Ward was a working-class immigrant neighbourhood bordered by Queen, College, University and Yonge Streets with predominantly Jewish, Italian and Chinese residents and subsequently considered one of Toronto’s first ‘slum’ areas.

1913, Appendix A, p. 741). Although some successful peddlers managed to accumulate enough capital to open small stores, garment factories, scrap- and junk- yards, or invest in real estate, for the most part the earnings in the trade were very meagre. By 1916, the number of Jewish rag peddlers in Toronto had mushroomed to 600, and competition was so tough that they offered to pay the Red Cross ten dollars each to stop collecting rags for funding to ease the competitive situation (Speisman, 1979, p. 73).



City of Toronto Archives, Fonds 1244, Item 616

Figure 3.2 “Jewish rag picker, Bloor Street West”, 1911. City of Toronto Archives, Fonds 1244, Item 616.

However, despite the sizable private trade in recyclables, waste production in the city continued to expand beyond the capacities of the two crematories and various dumpsites. Debates about how best to deal with the wastes generated in the city once again resurfaced. Although the view that wastes were a potential source of disease had by this time become firmly

entrenched, it was simultaneously still viewed as a potential resource. According to the *Report on the Collection and Disposal of Waste* (1914) produced by the street cleaning department under the direction of Street Commissioner Wilson, two principal methods of disposing of refuse were considered: high-temperature incineration and garbage-reduction (in combination with incineration).¹⁸ Garbage-reduction involved separating out organic garbage from rubbish (rubbish being paper, metal, etc.) and cooking the garbage to extract grease and ‘tankage’ (the dried solids) to be sold as industrial lubricants and animal feed.¹⁹ Despite the fact that the costs of differentiated collection and initial capital investment were higher with the reduction plant, the street commissioner argued that net annual and overall costs would decline over time since the reduction plant would generate revenue from the sale of its products; as such, he recommended that the plan of reducing garbage and incinerating rubbish be adopted. After much debate in council, in the end it was the plan of building an incinerator for the disposal of all garbage and refuse that was finally chosen. Letters and memos from the street cleaning department during this year suggest that considerations of sanitation and potential foul odours from the reduction plant ultimately outweighed the potential benefit of extracting revenue from the waste stream; the street commissioner reversed his position but a few short months after the submission of the report (City of Toronto Archives, Fonds 200, Series 1234, File 122).²⁰ The decision to adopt the

¹⁸ Ashes, in either case, would continue to be collected separately and used as “filling for low lands” (Department of Street Cleaning, 1914, p. 7). This report was itself based on an independent study commissioned by the department.

¹⁹ Although the generation of electricity or steam from incineration was initially also considered, the *Report* notes that it was found to be not economically feasible because the price of electricity produced by the Hydro Electric Commission was too cheap to warrant the installation of equipment, while the demand for steam where the incinerator could be sited was not consistent (Department of Street Cleaning, 1914, p.12).

²⁰ Indeed, by 1929 the street commissioner definitively asserts that “it is now universally established that the proper plan for the disposal of organic and vegetable waste is to destroy it by fire, and not to attempt to use it for hog feed, burying it for manorial purposes or making any

method of ‘total incineration’ would set up the basic model of waste disposal for the city for decades to come – that is, to burn all garbage and refuse, while ashes from households and the incinerators were used as fill.²¹



Figure 3.3 “Woodville Avenue Dump”, June 11, 1914. City of Toronto Archives, Fonds 200, Series 372, Sub-series 70, Item 25. As can be seen, wastes were still predominantly transported by horse and wagon to these ravine fills/open dumps.

In July 1917, Toronto’s first high-temperature incinerator – the Don Destructor – went into operation; three more would be built in the ensuing decades, with the last built in 1955 on Commissioner’s Road (Bradley, 1956, p. 8). Despite the emphasis on incineration as the

attempt at reduction. The stench which emanates from any of these three methods is a menace to the public health of any neighbourhood, and highly unsatisfactory” (Department of Street Cleaning, 1929, p.44)

²¹ It should also be noted that right up until the end of WWII, ashes constituted the bulk of the residential wastes produced in the city, consistently accounting for double the tonnage than that of garbage. See Figures 3.11 and 3.12 below. The production of ashes particularly spiked in the winter from household heating (see Department of Street Cleaning, 1926–1956).

preferred method of disposal, mostly as a result of ever-dwindling dumpsites close to points of collection and the increased costs of transporting wastes over longer distances that this implied, possibilities for recycling part of the waste stream – particularly tin cans – to provide a more economically efficient service was a recurring topic of investigation for successive street commissioners right up until the mid-1960s.²² In particular, H. D. Bradley, who was the head of the street cleaning department from 1935 to 1956, was particularly keen on investigating alternative methods of waste diversion, commissioning ongoing research projects with the Ontario Research Foundation, and was convinced that the future of waste management lay in composting to support organic agriculture (he devotes considerable attention to this subject in the *1952 Annual Report of the Street Commissioner*).

Although households were required to separate their garbage in much the same way as is now required for municipal recycling programs throughout the 1910s to the 1950s, actual

²² This issue of dwindling dumpsites and increased costs from long transport distances is a recurring theme throughout the history of street cleaning in Toronto. A Markets and Health Committee final report for 1887 complains: “For this large amount of material we have only for dumping places the River Don, the Garrison Creek, the Tannery Hollow and the Esplanade. A large portion of the material has to be carted a mile and a half; this makes the cost of removal very heavy” (Council Minutes, 1887, Appendix, p. 1632). A few years later, to stress the necessity of a second crematory, the Local Board of Health writes: “The Street Commissioner has also written your Board on this subject [building another crematory], and points out that unless action is taken in this connection without delay, serious trouble may arise, as the places used as dumps are rapidly filling up, and there are no others in sight” (Report No. 24 of the Local Board of Health, Council Minutes, 1892, Appendix A, p. 711). In 1926, despite the addition of the second crematory and a high-temperature incinerator, the street cleaning department still notes that “through the development of large vacant ravine areas, available ground suitable for this purpose [i.e. dumping] is rapidly diminishing and in many central districts the haul has increased beyond the travel of horse and wagon,” thus leading to increasing motorization of the department’s fleet (Department of Street Cleaning, 1926, p.29). Two years later, the department notes: “The growing scarcity of available land suitable for the disposal of ashes, street sweepings, culvert cleanings and non-combustible material, is making the situation very acute in Toronto at the present time...The harbor development has for many years provided dumping grounds for enormous quantities of refuse, particularly serving the central section of the City. This is, however, near completion, and it is anticipated that the dumping privileges will not extend beyond another season” (Department of Street Cleaning, 1928, p. 42).

recycling programs and pilot projects within the department were intermittent and fluctuated with prices paid on scrap markets.



City of Toronto Archives, Series 372, s0372_ss0070_it0019

Figure 3.4 Garbage collection day. Picture taken by the street cleaning department on collection day on April 21, 1914. City of Toronto Archives, Fonds 200, Series 372, Subseries 70, Item 19.



City of Toronto Archives, Series 372, s0372_ss0070_it0021

Figure 3.5 Garbage collection day. Picture taken by the street cleaning department on collection day on April 21, 1914. City of Toronto Archives, Fonds 200, Series 372, Subseries 70, Item 21.

Correspondence from the street cleaning department between 1917 and 1918 reveal, for instance, that some limited salvaging activities did occur at the western crematory and at the Don destructor – mainly of paper, boots, mixed rags, milk and whiskey bottles, and iron scrap.²³ However, ongoing investigations into the feasibility of recycling tin cans regarding potential markets and needed equipment were ultimately fruitless as tin recycling was deemed to be economically unsound. At the time, de-tinning plants did not yet exist in Canada, and the prices offered for tin scrap would not sufficiently cover the costs of shipping the tins to plants in the United States (aside from the issue of an embargo on tin during that period due to the First World War) plus the costs of extra city-employed labour, which was, in the estimation of the street commissioner, employed at a very high wage rate. Despite continued interest on the part of the street cleaning department, the street commissioner definitively concluded to a prospective equipment supplier in 1926 that: “it is not likely that we shall seriously consider this proposition [i.e. purchasing a scrap metal baler], in view of the trifling revenue derived from baled scrap metal” (City of Toronto Archives, Fonds 200, Series 1234, File 109). Indeed, for the next ten years, this same company would make yearly inquiries to the city to no avail. This situation would not change until the beginning of the Second World War.

For the first half of the twentieth century, Toronto households (meaning, in practice, women) were regularly required to separate wastes into ‘ashes’ and garbage. A notice card handed out to Toronto residents reproduced in the 1927 *Annual Report of the Department of Street Cleaning* (hereafter, simply *Annual Report*) reads thus:

²³ The most salvaged item was paper. For instance, in a letter dated February 25th, 1918, the superintendent of incineration reported that the amount of paper salvaged amounted to 50 bales (or 10,000 pounds) while the number of quart sized milk bottles separated at the crematory was only 300 (City of Toronto Archives, Fonds 200, Series 1234, File 109).

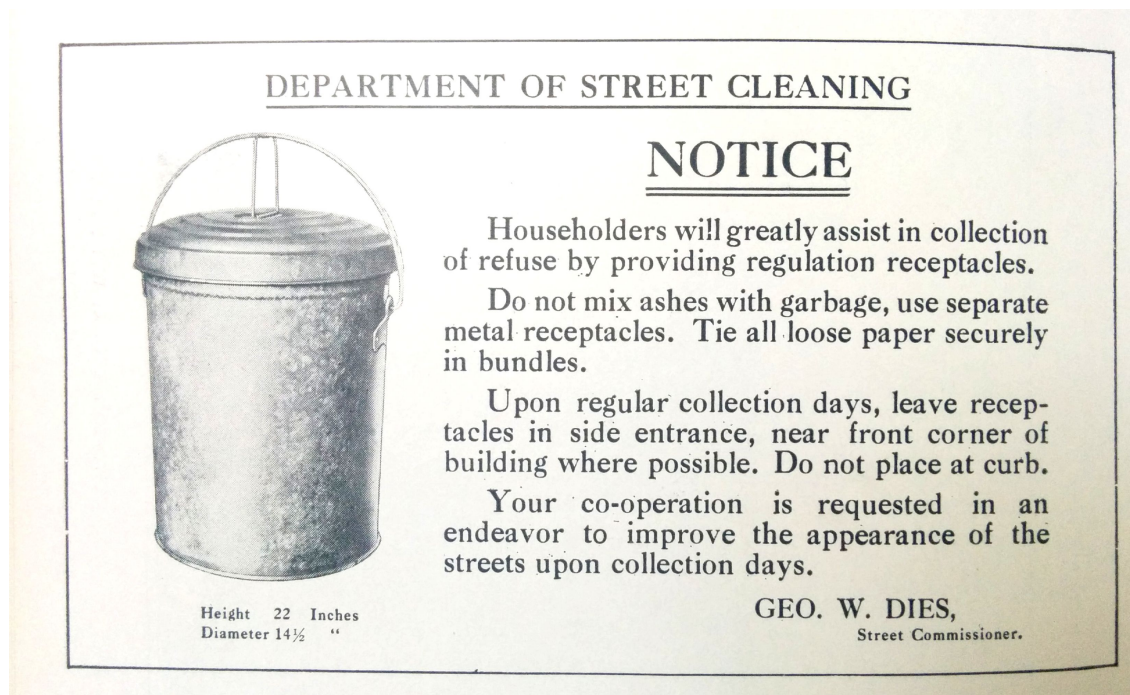


Figure 3.6 Department of Street Cleaning notice. Reproduced from the *Annual Report of the Department of Street Cleaning* (1927), p. 28.

Ashes, however, included not only the ashes from stoves but also other incombustible (and highly recyclable) materials like tins, and later on, also bottles.²⁴ The 1926 *Annual Report* indicates that “the residue of any household fuel, and tins, bottles, metals, crockery, and glass” were considered as ‘ashes’ (p. 17). The separation of wastes had to be made “owing to the fact that 90 per cent of the garbage collected is disposed of by incineration...[the separation] affords a higher degree of efficiency at the disposal plants, and a minimum of nuisance at the dumps [i.e. owing to the absence of organic matter]” (Department of Street Cleaning, 1929, p. 28). Similarly, paper had to be bundled up not to facilitate differentiated collection, but was required for aesthetic reasons – the proliferation of loose paper flying about on collection days (particularly if

²⁴ Letters from the street cleaning department from 1917 indicate that it was standard practice for citizens to be required to place tins with the ashes when placing wastes out for collection; this is most likely because incombustible materials increase the operating and maintenance costs of incineration (City of Toronto Archives, Fonds 200, Series 1234, File 109).

the receptacles were uncovered) was considered by the street commissioner to be a serious eyesore. By 1929, the enforcement of regulations requiring households to put out pre-sorted waste had taken enough hold that the street commissioner would partly attribute the increased tonnage of garbage collected that year to the better separation habits of city residents (p. 30) and even as late as 1955, annual street cleaning reports would continue to refer to the “strict enforcement of the Departmental By-law which provides that householders and merchants shall separate garbage and combustible refuse from ashes and incombustible waste material” (Department of Street Cleaning, 1955, p. 22).

In the absence of official recycling efforts, peddlers continued to ensure that at least some portion of residential wastes were recycled. Although the extent of the informal trade in household recyclables is not known, references to peddlers in the annual reports of the street commissioner – albeit often in a negative light – appear time and again over the years, particularly throughout the 1930s. The 1926 *Annual Report* complains that waste “receptacles are often disturbed by peddlers and lane prowlers before they are emptied,” leading to the unsightly appearance of the lanes (Department of Street Cleaning, 1926, pp. 17-8). Peddling was clearly also on the rise during the Depression, so much so that it began to make a perceptible impact on the amount of refuse collected, as the street commissioner comments at length:

The unrestricted collector, who has developed within the past two years has also contributed to this reduction in refuse [i.e. a 6% reduction in garbage and ashes collected for that year]. He usually works at night, prowling the streets with push cart and bag, removing paper, rags, bottles and other salvable material, from receptacles which have been placed out for collection the following day. The growth of these collectors has been very rapid during the past year, and the amount of light combustible material which is removed from the refuse is being reflected in the operation of the refuse disposal plants. (Department of Street Cleaning, 1932, p. 13)²⁵

²⁵ The reduction in refuse is also attributed to the use of “coke and Welsh anthracite coal, which contains a much lesser ash residue than American anthracite” in the home (Department of Street Cleaning, 1932, p. 13).

Again, in 1938: “The greatest menace to clean streets is prowlers who precede the refuse collectors, removing paper, cardboard and bottles from the containers, oftentimes scattering the contents on the ground in their search for saleable material” (Department of Street Cleaning, 1938, p. 18).²⁶ Despite the peddlers’ efforts, however, many recyclable items still made its way to the garbage bin. For instance, at the request of a special committee set up to regulate the distribution of milk in Toronto in 1941, the street cleaning department conducted an investigation which found that 23,147 milk bottles were disposed of with ashes and garbage in the city over a period of 12 days. This led the committee to conclude that the loss of milk bottles was indeed partly responsible for the increased cost of milk to the consumer as the Toronto Milk Distributors’ Association had claimed, and thus they resolved to apply a bottle deposit on milk bottles sold in the city to address the situation (City of Toronto Archives, Fonds 200, Series 1910, File 76).

Salvaging in the Second World War

The first truly coordinated residential recycling effort in the city began with the dawn of the Second World War and the various local salvage campaigns coordinated through the salvage division of the Department of National War Services. In addition to the collection services offered by private scrap dealers and voluntary organizations from October 1941 to December 1944, the street cleaning department included a regular collection service for fats, bones and grease as well as periodic collections of other recyclables saved by households, the proceeds of which were donated to war charities.

²⁶ Of course, whether or not peddlers were the real ‘culprits’ behind the mess is not entirely clear, as later on in the same paragraph, it is also acknowledged that the waste “receptacles are overturned by children and stray dogs, resulting in the very unsightly appearance of the thoroughfares” (Department of Street Cleaning, 1938, p. 18).



Figure 3.7 “Red Cross Salvage – eastern yard”. October 18, 1940. City of Toronto Archives, Fonds 200, Series 372, Sub-series 70, Item 551. Material from a voluntary salvage campaign was stored on the property of the Department of Street Cleaning.

During this period, households were advised to place tin cans with the garbage for incineration rather than with ashes as normal so that the resulting burned cans could be screened from the ashes and sold as scrap. Wartime restrictions on metals had finally forced Hamilton steelmakers to include some low-grade scrap (such as burned tin cans) in their production, thus raising its scrap price in 1942 to a level high enough for the street commissioner to deem screening it an economically viable option.²⁷ Even so, there were still periods during the war

²⁷ That year, the city sold its burnt tin cans to Frankel Brothers (City of Toronto Archives, Fonds 200, Series 1234, File 109), an established local junk dealing outfit owned by two German-Jewish brothers that would later on grow large enough to be steel suppliers for many of the skyscrapers built in the downtown business district. By October 1943, the market had dwindled so much that cans were once again thrown to fill, not to be screened, sold and recycled again until the market picked up in April 1944, this time sold to Hydraulic Metals Ltd (City of Toronto Archives, Fonds 200, Series 1234, File 105).

when scrap prices for burned tin cans were so low (the steel mills had stockpiled enough low-grade scrap) that the street cleaning department had to landfill the saved cans since no scrap dealers were willing to buy the cans (City of Toronto Archives, Fonds 200, Series 1234, File 105).

Although workers in the street cleaning department also engaged in the sporadic salvage of rags, paper, milk bottles, glass and scrap metal from the garbage put out for collection by households in 1942, this practice was not continued after that year. It was most likely the case that the revenue derived from the recovery of this scrap material was not deemed to be worth the labour time spent on salvage. Indeed, the total revenue derived from all of these avenues over the course of three years amounted to just \$99,436.86 (representing roughly 4.3% of the department's expenditure for the same year or 8% if counting only refuse collection and disposal), more than half of which was derived from the sale of the burned tin cans alone (Department of Street Cleaning, 1944, p. 34).

Concerted advertising and educational campaigns, voluntary collection drives as well as regular salvage collections by the city and the scrap trade did manage to make a very modest reduction in the amount of garbage collected. Street Commissioner Bradley attributed the reduction in garbage destroyed by incineration during the years 1942 to 1944 entirely to the salvage operations; this amounted to roughly 13,000 tons less in 1942 and 1944, and 21,000 tons less in 1943 when compared to 1941, representing a 7.5-12.5% reduction respectively (Department of Street Cleaning, 1944, p. 32).

A cursory glance at the promotional literature and advertisements produced as part of the salvage campaigns give us a number of interesting clues regarding who was expected to

participate in the recycling campaigns, the extent of materials collected, and the status of those in the waste trade:



Figure 3.8 Pamphlet issued by the Director of Public Information for the Department of National War Services, salvage division. (City of Toronto Archives, Series 361, Sub-series1, File 706)

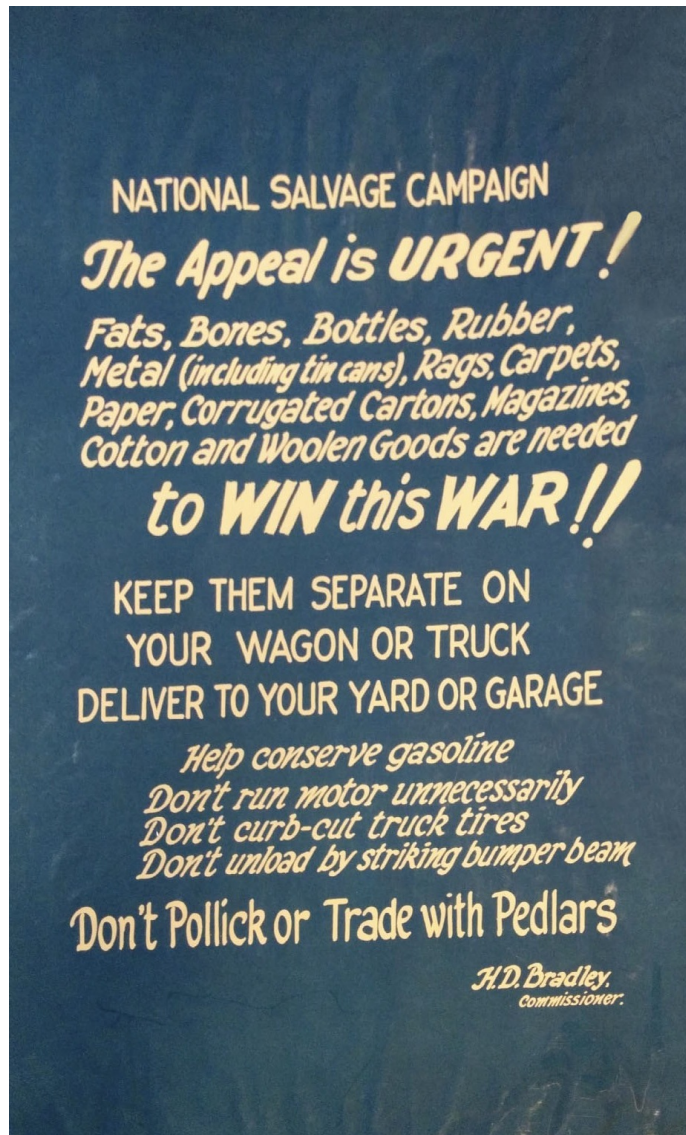


Figure 3.9 “National Salvage Campaign”, City of Toronto Archives, Fonds 2, Series 236, File 170. The exact date of publication of this poster is unknown, though it was certainly during the war.

HOUSEWIVES
Canada Needs Your Help

SAVE FATS & BONES

For EXPLOSIVES and Other Materials
for WAR INDUSTRIES



1. The Need is Still Urgent.
War in the Pacific has disrupted Canada's normal supply of Oils and Fats from the Far East. Fats make glycerine, and glycerine is required for explosives to bomb enemy war factories, to down their planes, sink their submarines. Canada needs millions of pounds of Fats and You Housewives can help supply them.

2. Save every possible drop of used cooking fat — bacon grease, meat drippings, frying fats — every kind you use. After you've got all the cooking good from them, pour them through a kitchen strainer into a clean, wide-mouthed can. Keep in a cool place.





3. Take Them to Your Meat Dealer when you have saved a pound or more. He will pay you for your waste fats and get them started on their way to war industries. IF there is either a Voluntary Salvage Committee or Municipal Collection in your Community, you can dispose of your Fats and Bones through such system.

Hang This Up in Your Kitchen
(See Over)

Figure 3.10. “Save Fats and Bones”, City of Toronto Archives, Fonds 70, Series 340, Sub-series 8, File 75. Pamphlet produced by the National Salvage Division of the Department of War Services in Ottawa between 1939 and 1945, exact date unknown.

There are two things of note in the advertisements above. First, it is clearly women, as housewives, who are expected to contribute the (now unpaid) labour required for the initial separation of recyclable materials needed. Since women tended to *sell* these materials to peddlers before the advent of war, they were in some sense paid for their labour in sorting and storing

materials.²⁸ Indeed, a 1943 national salvage bulletin goes so far as to call soap-making – that is, the uncommodified reuse of fats – unpatriotic, because glycerine, a by-product of the saponification process, is lost to war industries when it is not separated out in commercial establishments.²⁹ As a result, women were encouraged to ‘recycle’ their fats and buy commercially produced soap for the home rather than reuse waste fats. Indeed, that this was a subject of a national salvage bulletin suggests that this form of reuse was still quite a common practice.

Second, despite the peddlers’ longstanding role in recycling, they were still viewed with suspicion: hence, “don’t pollick or trade with pedlars!”³⁰ With the advent of the voluntary salvage campaigns and collections, the peddler’s role in the business during this period became more ambiguous. For many Toronto residents, particularly in contrast to voluntary organizations, peddlers were seen as unpatriotic hucksters who were profiteering from the war, buying low (or getting free) and selling high. Never mind that the Wartime Prices and Trade Board set

²⁸ Across many different contexts, from 19th century New York (Strasser, 1999) to turn of the millenium South Asia (Beall, 1997), revenue from the sale of household wastes constitutes (sometimes the only) money women could autonomously dispose of. Indeed, Jo Beall notes that whether this money is disposed of by domestic workers or the householder is often an indicator of class. Given the gendered division of labour, it is reasonable to assume that this was also the case in Toronto – i.e. that women controlled and could appropriate the money flowing from the sale of waste materials, especially those originating from the kitchen like fats and bones.

²⁹The newsletter in question was released on April 21, 1943 by the Department of National War Services Salvage Division with the subject title “Glycerine lost by Housewives, restaurants and military establishments, who make soap” and advised local voluntary salvage committees to publicize to the press and households that “amateur soap-making is not patriotic at this time. These people will have to cut their saop [sic] making desires for the duration” (City of Toronto Archives, Series 361, Sub series 1, File 705).

³⁰ Considering H. D. Bradley’s longstanding disdain for peddlers, expressed repeatedly in the annual street cleaning reports mentioned above, it is not surprising that promotional literature produced by the department would advise citizens not to deal with peddlers. Indeed, city correspondence shows that this view was shared by many citizens of Toronto who wrote letters of complaint (many racist) regarding peddlers in their neighbourhood (City of Toronto Archives, Series 361, Sub-series 1, File 706).

maximum prices for scrap and that as the lowest rung of the scrap ladder, peddlers were often the ones being squeezed, barely making ends meet. So it was that though the United Hebrew Pedlars' Association, representing some 500 Jewish peddlers, began the war pledging their full support for the salvage effort at the organizational meeting of the Toronto chapter of the National Salvage Committee in April 1941 (City of Toronto Archives, Fonds 200, Series 1910, File 80), by mid-1942, the situation had gotten so bad that the peddlers were lobbying the mayor and other government agencies for relief, stating that they would have no other choice but to withhold merchandise from the market if conditions did not improve.³¹ This, however, was not their preferred course of action, since they also felt that it would be 'unpatriotic'. Chief amongst the complaints were the extremely low prices paid by scrap dealers; in this same letter from the peddlers' association, the dangerous nature of the work is also highlighted, the writer citing a case of a peddler hospitalized due to injuries sustained on his collection route (City of Toronto Archives, Fonds 200, Series 361, Sub-series 1, File 707). Although it was not stated whether the cause was an accident or due to mistreatment by other residents, subsequent responses to this complaint by the Director of the National Salvage Campaign, Charles LaFerle, suggest that the incident was indeed due to intentional aggression.

Peddlers were a crucial part of the scrap trade, for even though voluntary collection campaigns 'competed' with peddlers for scrap, collections by voluntary groups (and the city) were too sporadic to ensure a constant flow of materials. For this reason, officials were indeed concerned to ensure that these workers continued to toil. However, this did not necessarily extend to concern over their economic welfare. For though officials were ready to issue press

³¹ Although it was the United Hebrew Pedlar's Association that had representatives at the organizational meeting, subsequent lobbying to the mayor was done in the name of the Hebrew Pedlars' Protective Association (representing 100 fewer people than the former organization). Nonetheless, in both cases, the representative for both organizations was H. Futerman.

releases and advertise on behalf of peddlers to the general public to dispel prejudices and to solicit the cooperation of the police regarding aggression against peddlers, they were reluctant to establish floor prices for scrap on behalf of peddlers, for fear of reducing the flow of scrap to industry. In other words, although the Wartime Prices and Trade Board established maximum prices to protect industry from profiteering, scrap dealers could nonetheless increase their profit margin at the peddlers' expense by offering them a lower price, effectively reducing their piece-wages.³² The priority was to get scrap to market; the people who had to carry out the work to make this possible were secondary. Overall, then, the working conditions of scrap peddlers were very poor. Indeed, a newspaper article reporting on the meeting between officials from the Department of National War Services, scrap dealers, and peddlers in Toronto noted that peddlers on average made only \$10 per week after deducting for expenses (in some cases, prices offered by scrap dealers were even lower than what peddlers paid to households either in cash or in 'script').³³ In comparison, even a few years earlier, a 1938 street cleaning report indicates that city street sweepers/patrolmen were paid \$30 per week – that is, at least three times as much (City of Toronto Archives, Series 361, Sub-series 1, Files 705, 707; Department of Street

³² In this regard, some scholars of Jewish history and peddling in Toronto perhaps miss the mark somewhat by focusing on whether or not Jewish people were able to gain social mobility through peddling (with those able to establish businesses in various fields as marks of 'success') or whether peddlers were individualistic or relied on community ties and networks (for example, Nathanson, 1993). The focus on 'Jewish-ness', perhaps, glosses over substantial 'internal' class conflicts. In this case, for instance, both the associations for scrap dealers, the Canadian Secondary Materials Association and the association(s) for peddlers, were headed by Jewish firms and individuals; however, their material interests were clearly in direct conflict.

³³ The National Salvage Committee had a program whereby peddlers could buy books of script (i.e. coupons) from the committee and pay these denominated scripts to households rather than cash in exchange for scrap. This was to assure households that their donated goods were generating income for the war effort, since peddlers would have to purchase script books with cash in advance. This system thus aimed both to provide cash advances to the salvage committee as well as to give peddlers some moral authority when dealing with households, since the script symbolically distinguished them as part of the national salvage effort.

Cleaning, 1938)!³⁴ Similarly, according to Statistics Canada (2015a), average industrial composite weekly wages in Ontario for 1942 was \$29.83. Despite these harsh conditions, peddling as a profession survived beyond the war. As late as 1951, memos in the street cleaning department refer to the practice of city-employed refuse collectors separating and saving milk bottles thrown out with ashes and garbage on their routes to sell to peddlers (City of Toronto Archives, Fonds 200, Series 1234, File 442).³⁵

With the end of the war and the national salvage campaigns, recycling and salvage once again resumed being principally an issue of administrative economy rather than patriotic duty. For the first time in 1949, the forward-looking street commissioner, H. D. Bradley, clearly laid out the distinctly modern problematic of the need for recycling and other waste-reducing initiatives as a way to conserve dwindling dumping space close to points of collection, preserve natural resources, and reduce pollution emanating from dumpsites (Department of Street Cleaning, 1949, pp. 7-9, 11-2). During the immediate post-war period, the department continued to screen and sell tin cans from the city's incinerators and sometimes also from dumpsites when market conditions were fair. By now, however, the screening was no longer done by city workers. Rather, subcontractors for Hydraulic Metals Ltd, a scrap dealer who won the tender to

³⁴ Although city workers certainly enjoyed much better working conditions than the scrap peddlers, the working environment for those engaged in the salvage or recycling arm still left much to be desired. After several years of screening burned tin cans from incinerator ashes, the street commissioner comments in a Board of Control report in 1945: "In this connection I desire to say that the Department has found it extremely difficult to retain men to screen the ashes and load the trucks due to the excessive dust created by this operation" (City of Toronto Archives, Fonds 200, Series 1234, File 444). He noted further that the installation of a conveyor belt system would alleviate this condition somewhat, but that it was not possible to obtain the equipment at that time; no doubt, that possibility was also informed by the fact that the market for burned tin cans was then quite weak.

³⁵ This was a practice the Department was desirous of stopping since the official salvaging of glass bottles was being contemplated, with revenues to accrue to the city, rather than individual employees.

buy the city's burned tin cans, were now responsible for screening the ashes for cans. An interview with the subcontractor by the street cleaning department in 1948 revealed that six workers were employed in the screening of ashes, each making \$1 per hour for the screening work, recovering over 200 tons of metal per week (City of Toronto Archives, Fonds 200, Series 1234, File 444).³⁶ This same year, the department also began to separate corrugated and waste paper at the incinerators (this was done by city employees), recovering 1600 tons of corrugated paper in 1948.

According to street cleaning department files (City of Toronto Archives, Fonds 200, Series 1234, File 442), throughout the early 1950s, the department continued to actively investigate alternative methods of waste management. In 1950, the department began to compost leaves collected every fall, selling the resulting leaf mould as a soil conditioner to residents for \$10 per ton. A pilot project to sort bottles and glass at the Symes Road Incinerator as well as one to collect cardboard from merchants and small businesses along Bloor/Danforth and Yonge streets was launched in 1951; the latter was terminated early in 1953 due to high collection costs. Although the recycling of tins, paper and leaves did generate a revenue of \$40,000 for the department in 1952, Street Commissioner Bradley was quick to point out that the revenue in and of itself was not the principal saving. Here, it is useful to quote at length from a letter sent by the commissioner to his peer in Montreal in 1953:

The City of Toronto is placed in a peculiar situation with regard to dumping areas, inasmuch as it is completely surrounded by twelve other municipalities who do not want the refuse from the City of Toronto dumped in their ravine lands

The Department has, under construction, a fourth incinerator which will have a capacity of 900 tons per day. This incinerator will destroy all combustible waste now being disposed of in land fill, [sic] There, however, remains approximately 300,000 tons

³⁶ For comparison, a construction worker paid by the hour earned on average \$36.89 per week in 1948, while a miner, the highest paid group amongst those with an hourly wage, earned on average \$49.93 (Statistics Canada, 2015b).

of ashes, incombustible waste, street cleanings and other refuse which must be disposed of in land fill. It would appear that the round-trip haul will eventually be approximately forty miles, in order to dispose of the material beyond the boundaries [sic] of the adjoining municipalities...

The Department is endeavouring to conserve on dumping space, due to the long hauls which will eventually occur and at the same time is producing a slight revenue. It is not possible to evaluate the cost of collection against the revenue derived from the sale of the material. This must be regarded as a direct profit against a cost which cannot be avoided. (City of Toronto Archives, Fonds 200, Series 1234, File 442)

The economic viability of recycling, then, was determined not only by the price of scrap on the market but also by the cost of transportation and disposal of waste, which was itself informed by the availability of dump sites.

Despite the keen interest of the street commissioner, by 1957 there was no longer a market for low-grade scrap like burned metal cans, and departmental salvage of tin cans was finally discontinued (City of Toronto Archives, Fonds 200, Series 1234, File 445).³⁷ Paper salvaging at the incinerators was similarly discontinued by October of 1960 due to low prices in the waste paper market, while the production of leaf mould from composting – the last of the city's recycling efforts – had ceased by 1968 (City of Toronto Archives, Fonds 200, Series 1234, Files 453, 590). Indeed, as prices on the waste paper market dropped, so the amount of garbage put out by small businesses with access to waste collection services from the city increased, as the paper that was left uncollected by private scrap dealers found its way into the merchants' permitted weekly ashes and rubbish quota (Department of Street Cleaning, 1949, p. 23). By the beginning of the 1960s, the separation of ashes became much less enforced (Department of Street Cleaning, 1956), and the figure of the peddler gradually disappeared as formal

³⁷ Although the city did engage in talks with metal companies in the mid 1960s to recycle metal from the Commissioner's Street incinerator, negotiations ultimately fell through. Changing city plans in anticipation of Toronto assuming responsibility for waste disposal for all of Metro made feasible arrangements for ash screening not profitable enough for scrap companies to take on (City of Toronto Archives, Fonds 220, Series 11, File 85).

employment grew.³⁸ By the end of the decade, with the initiation of pilot studies testing the use of plastic bags for garbage disposal to replace the metal containers then required by departmental regulations, waste disposal became an increasingly single stream affair (City of Toronto Archives, Fonds 200, Series 1234, File 590).³⁹ As new incinerators and landfill sites came online, the subject of recycling would not resurface until more than a decade later.

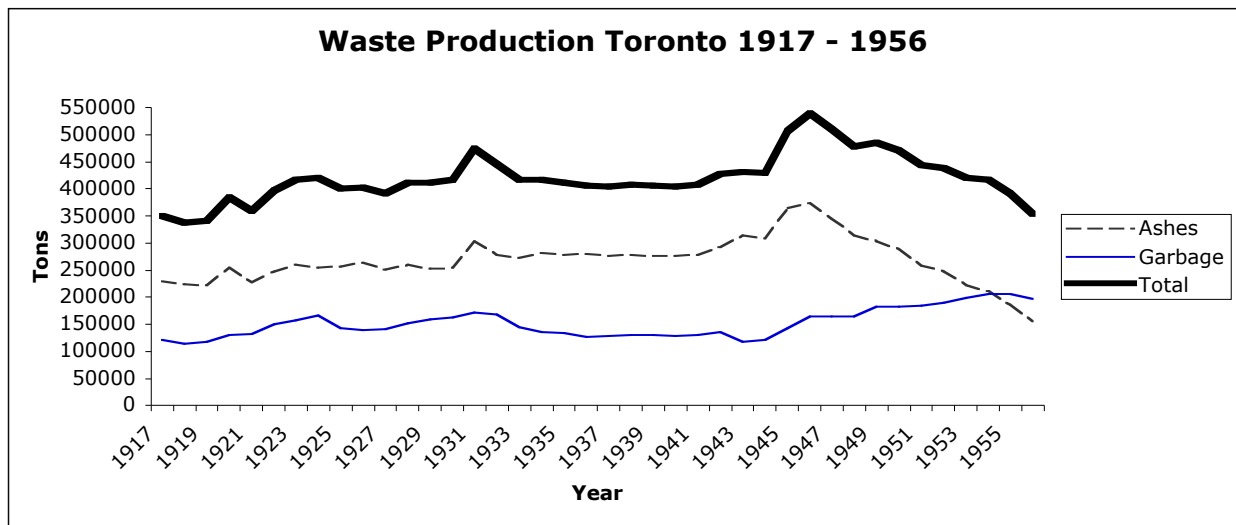


Figure 3.11 Waste production in Toronto (imperial tons), 1917 – 1956. Graph elaborated from data gleaned from *Annual Report of the Department of Street Cleaning* (1926–1942) and *Annual Report of the Street Commissioner* (1943-56).

³⁸ The last annual street cleaning report produced before civic restructuring in 1957, which dispensed with the Department of Street Cleaning, amalgamating its services more generally under that of Public Works, has appended to its last page a table documenting garbage and ashes statistics for the years 1957–1965 with a footnote explaining the mixture of garbage and ashes in later years. It was most likely appended by H. D. Bradley, who authored the annual reports for 30 years beginning with its first issue in 1926. This last issue is available at the Toronto Reference Library.

³⁹ In 1967, waste disposal (i.e. landfilling, incineration, etc.) became the responsibility of Metro, while area municipalities continued to be responsible for waste collection (and later on, recycling collection). This arrangement persisted until amalgamation.

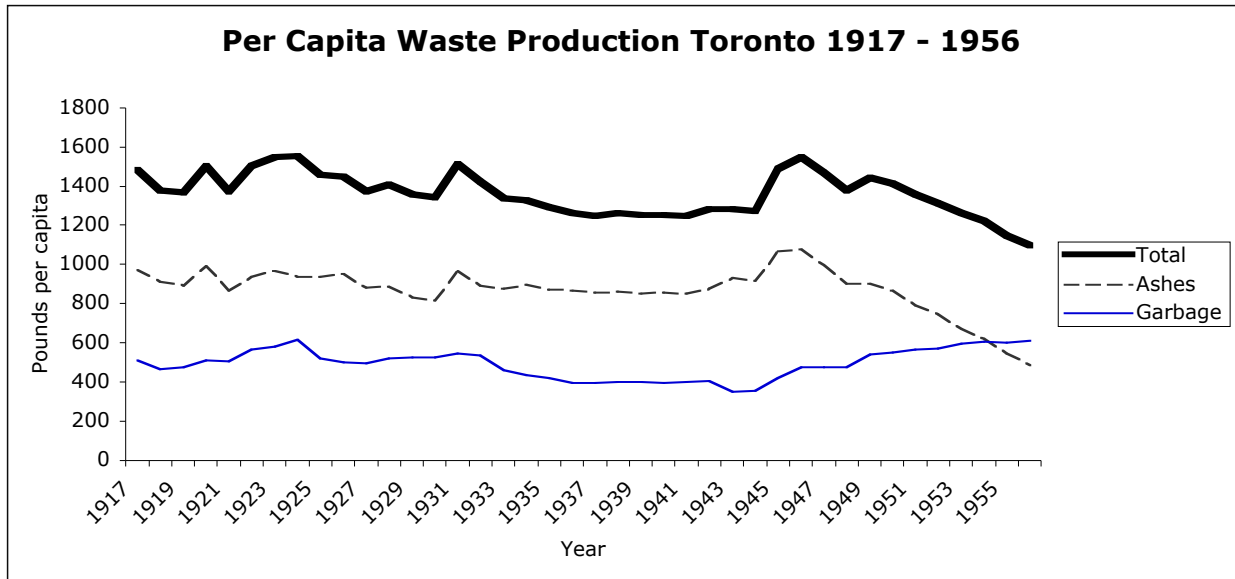


Figure 3.12 Per capita waste production in Toronto (in pounds), 1917 – 1956. Graph elaborated from data gleaned from *Annual Report of the Department of Street Cleaning* (1926–1942) and *Annual Report of the Street Commissioner* (1943-56).

Enter the Blue Box: Environmentalism Meets Neoliberal Restructuring

The three decades that followed the Second World War witnessed an incredible expansion of the waste stream – that is, in the quantity and diversity of things now deemed unwanted – as mass production, consumer culture and disposability became the norm. Growing environmental awareness and activism – particularly around anti-incineration – along with increasing provincial regulation (for instance, the *Waste Management Act* of 1970) made the siting and operation of landfills and incinerators a more expensive and difficult process. An expanding waste stream coupled with dwindling disposal sites meant that by the 1970s, Toronto was once again faced with another looming garbage crisis. As in the past, recycling once again emerged as a means to reduce the amount of waste requiring ‘final disposal’. After a decade hiatus, efforts at residential recycling resumed in 1972 with monthly (and later on, weekly) old newspaper pick-up by city sanitation workers; the following year, various recycling depots were

set up throughout the city for residents to bring in recyclables like glass and metal cans (Department of Public Works, 1989). It would take more than another decade before a more comprehensive multi-material recycling program, in the form of the now familiar Blue Box, would be rolled out.

Like the salvaging programs in previous decades, the nascent recycling programs struggled with high collection and sorting costs as well as volatile scrap markets. A 1990 city report observed, for instance, that colour sorting glass bottles by collection workers in Etobicoke at curbside would increase labour time by 45 minutes per every 10-hour shift (Report No. 3 of the Management Committee, Metro Toronto Council Minutes, 1990, Volume 1, Appendix A, p. 252). However, unlike the salvage campaigns of the past, the municipal recycling programs were opposed by many in the scrap industry like the Canadian Secondary Materials Association (renamed Canadian Association of Recycling Industries, CARI, in 1973) and other individual scrap dealers who lobbied the streets department.⁴⁰ This time, rather than offering to buy scrap from the city like they did during the Second World War, CARI issued a pamphlet arguing that city-wide collection of recyclables by the streets department would lead to an oversupply of scrap on the market and send scrap prices plummeting (City of Toronto Archives, Fonds 1684, Series 1383, File 411).⁴¹ Why, then, did the Blue Box come into being and persist despite the many obstacles that in the past had led to the termination of similar recycling efforts throughout the history of the street cleaning department?

The history of how the Blue Box program came to be is a particularly pertinent one for the discussion about green jobs. Let us begin by first clarifying that in the debates of the 1970s, it

⁴⁰ One such individual lobbying effort by a metals dealer in 1972 can be found at the City of Toronto Archives (Fonds 200, Series 1234, File 663).

⁴¹ In this pamphlet, they implicitly took the position that municipal collection constituted unfair competition for the recycling industry.

was not self-evident that multi-material curbside recycling was the most economically or environmentally efficient way of managing and reducing the waste stream. This was particularly the case with respect to new classes of waste coming on-stream. Specifically, the end of the 1960s saw the emergence and rapid growth of non-refillable soft drink containers. While in 1965, 10% of soft drinks were sold in non-refillable containers composed of glass, in the space of five years, the number of non-refillable containers – that is, meant to be discarded after use – grew to 40% of the market (of which 25% were steel cans and 15% were glass). A year later, in 1971, 55% of all soft drink sales were made in non-refillable containers (City of Toronto Archives, Fonds 200, Series 1234, File 663; CIELAP, 2008, p.1). The Ontario government responded to this new source of garbage through *regulation*, amending the *Environmental Protection Act* to require soft drink companies to completely phase out the use of non-refillables over a period of five years, beginning in 1977. In other words, it was a response that favoured reuse as a method of waste reduction.

However, as a result of intense lobbying, the regulation was never implemented; instead, it was replaced in 1977 by a voluntary agreement with the soft drink industry, wherein the latter promised that 75% of its products (by volume) would be sold in refillable containers. Although this quota was never met, the soft drink industry was nonetheless wary of impending legislation requiring the abandonment of disposable (i.e. non-refillable) containers. To avoid this outcome, the soft drink industry, along with other materials and container suppliers, aggressively promoted the possibility of recycling as an equally environmentally-sound alternative to enforced reuse. Alcan, for example, began lobbying the provincial government in 1983 to allow aluminium to be used for beverage cans, arguing that since aluminium had a high scrap value, its presence in the waste stream could fund the cost of maintaining a multi-material curbside recycling program,

supporting the collection of other recyclable materials that might otherwise be uneconomic to pick up. As one Canadian Union of Public Employees (CUPE) pamphlet put it, it was a proposal that suggested that the way to reduce the waste stream was to create more garbage (City of Toronto Archives, Fonds 1684, Series 1383, File 411). Indeed, despite the opposition of Ontario municipalities as well as labour and environmental organizations like CUPE and the Toronto Environmental Alliance (TEA) who campaigned for a deposit-return system on non-refillable soft drink containers, the newly elected Liberal provincial government decided to accept the industry's proposal for recycling. In December 1985, the *Environmental Protection Act* was amended to require the soft drink industry to bottle only 40% (subsequently reduced to 30%) of their products in refillable bottles as long as 50% of the non-refillables were actually recycled by recycling programs by December 1988. This, of course, also implied that the provincial government was ready to accept an increase in the waste stream (since 50% of non-refillables did *not* have to be recycled) in comparison to previous legislation requiring the phasing out of non-refillables entirely. By 1993, the share of soft drinks sold in refillable containers had fallen to just 3% (CIELAP, 2008, p. 2). Disposability as a principle, then, was here to stay.

In return, the soft drink industry and their packaging suppliers set up the Ontario Multi-Material Recycling Inc. (OMMRI) in 1986, and pledged \$20 million in funding over 4 years to Ontario municipalities to subsidize the capital costs of setting up a curbside recycling system. The provincial government also promised to fund one-third of capital costs and subsidize half the operating costs incurred by municipalities, but the latter on a declining basis of 10% per year, such that it would be phased out completely in five years. In November 1988, the Blue Box program was rolled out in Toronto, collecting glass containers, metal cans, PET plastic bottles, and newspapers, though the latter had to be separated from the rest; HDPE plastic bottles and

corrugated cardboard were added the following year. The contents of the Blue Box were either sold to local scrap dealers by the city, who then sorted, processed and sold the materials, or in some cases the city paid scrap dealers a processing fee to sort and sell the recyclables, receiving a 'rebate' only when market prices for that particular material rose. For instance, Metro received money for paper, from which processing fees for handling magazines were deducted (Report No. 27 of the Management Committee, Metro Toronto Council Minutes, 1992, Volume 4, Appendix A, p. 3460-1). According to a Works committee report in 1992, the collected materials were for the most part recycled within Ontario in these early years, with the exception of telephone books, which were recycled in New York and a portion of cardboard, which was recycled in Québec (Report No. 8 of the Works Committee, Metro Toronto Council Minutes, 1992, Volume 2, Appendix A).

Over the next few years, Metro Toronto continued to expand its waste reduction and recycling programs, initiating pilot studies for composting organic materials, adding more items to the programs (i.e. new plastics, telephone books, etc.) and increasing coverage. Later on, when prices for scrap paper fibre on the market rose substantially in 1995, the city added more paper fibre such as boxboard, egg cartons, and writing paper to the Blue Box program (City of Toronto Archives, Series 1371, File 56). Although the initial public response to the Blue Box program was encouraging, the operating costs of the program were very high. This was made worse by the fact that Coca-Cola decided to switch back to using steel cans shortly after the launch of the Blue Box program due to the lower cost of steel cans (15 cents per case in 1990). According to an Association of Municipalities of Ontario (AMO) briefing note in February 1990, aluminium cans represented 43% of the value of all materials in the Blue Box at the time (City of Toronto Archives, Series 1680, File 797). Metro Toronto alone stood to lose half a million

dollars a year in revenue from the switch (City of Toronto Archives, Fonds 301, Series 1680, File 71). Metro insisted that industry needed to either increase subsidies to cover the operating expenses of the recycling program and provide markets for scrap material or be required to implement a deposit-return system so that the costs of handling waste would fall back onto industry itself. Smaller Ontario municipalities with fewer resources to implement the Blue Box program wanted the program ended altogether, and lobbied the provincial government to keep the quota for refillable bottles and institute a deposit-return system for the non-refillables (City of Toronto Archives, Fonds 211, Series 1620, File 4695). The Recycling Council of Ontario, on the other hand, released a discussion paper arguing that 80% of operating costs for recycling should be born by the industries that produce them because the cost burden of recycling was disproportionately falling on municipalities, given price instability in the market and the removal of aluminium from soft drink cans (City of Toronto Archives, Fonds 211, Series 1620, File 4696).

One astute Toronto councillor observed that politically, the corporate lobby had managed to gain control over the waste management policies of municipalities, since as a source of funding, OMMRI could now dictate to cash-strapped municipalities what they had to collect to qualify for funding (i.e. to include PET collection, which at the time was significantly more expensive to handle compared to other materials). This was so even as municipalities were now in reality forced to subsidize the costs of the soft drink industry, amongst others (City of Toronto Archives, Fonds 301, Series 1680, File 71). The industry lobby had succeeded, in short, in *privatizing* environmental policy – rather than being an object of regulation, they were now in a position to set policy for municipalities.

In response to the complaints about cost and the deposit-return lobby, the soft drink industry (after seeking out other equally 'responsible' industry culprits to include), via an expanded OMMRI, promised in 1990 to contribute another \$45 million over five years to the Blue Box program (City of Toronto Archives, Fonds 211, Series 1620, File 4696). Even so, this was not enough to stave off financial crisis of the Blue Box program in Ontario. In January 1991, CUPE issued a report accusing the city of reducing garbage collection service down to once a week from twice a week service (thus doubling the workload of city sanitation workers) in order to pay for the growing costs of popular recycling programs (City of Toronto Archives, Fonds 1372, Series 1250, File 780). Eventually, by the end of 1991, increased criticism and pressure led the soft drink industry (through the Ontario Soft Drink Association) to agree to increase funding by providing top-up grants (per tonne) to cover the average net operating losses sustained by municipalities for the total tonnage of beverage containers recovered through the Blue Box program (City of Toronto Archives, Fonds 301, Series 1680, File 796).

Although Toronto was already faring better than other municipalities in terms of costs (including the area municipalities comprising Metro), as recession set in, the issue of program costs once again resurfaced and by mid-year in 1992, Metro commissioners recommended slowing down the expansion of (i.e. delaying new materials recovery facilities) or ending some diversion programs, since lower revenues from landfill tipping fees could no longer finance the waste diversion projects (City of Toronto Archives, Fonds 1372, Series 1250, File 780; Crooks, 1993, pp. 221-2).⁴² Over the next decade, the problem of Blue Box program costs continued to be

⁴² Lower overall revenue coming in from the Metro-owned Keele Valley landfill was due to garbage from private haulers being shipped to Michigan instead. Harold Crooks (1993) provides a fascinating account of the conflicts and controversies surrounding garbage privatization, corporate consolidation in the waste industry and Metro Toronto's eventual acquisition of the Keele Valley landfill site.

a recurrent one; however, a change in provincial regulations in 1994 mandating all communities with a population greater than 5000 people to implement the Blue Box program as well as leaf and yard waste systems made these costs unavoidable (CIELAP, 2008).

In the end, the lobby for a deposit-return system was defeated and industry was forced to provide more financing for the Blue Box system. With the passage of the *Waste Diversion Act* in 2002, OMMRI was replaced by Stewardship Ontario as the industry organization responsible for funding half of the program costs of the Blue Box (CIELAP, 2008). Scrap prices improved as newly industrializing countries like China entered the world market. And though recovery rates for the Blue Box program had not been very high over the last decade, the closure of the municipally-owned Keele Valley landfill in 2002 and the lack of an alternative disposal site within Ontario provided a significant impetus to the city to pursue its waste diversion programs in earnest. That same year, the city introduced the Green Bin program for the composting of organic waste and its Dufferin Green Bin Organics Processing Facility (using an anaerobic digester) went into operation. Three years later, in an effort to encourage participation and reduce costs, the Blue Box became a single-stream recycling system in 2005, and in 2007, an ambitious goal to divert 70% of all residential wastes was established (LTWS, 2014). Recycling, in an important sense, definitively won out over reuse.⁴³

Why was the soft drink industry so adamant about not continuing to use refillables, preferring to “subsidize” recycling programs for the privilege of expanding the use of non-refillable containers? The obvious answer is, of course, that the industry saved more by using

⁴³ The concept of recycling has, it seems, become hegemonic. On a personal note, as a child growing up in the late 1980s and early 1990s in the GTA, it is perhaps difficult to exaggerate the degree to which recycling has been equated with ‘doing the right thing’, as something that any self-respecting environmentalist or responsible citizen ought to support. That an environmentalist might oppose recycling programs *for ecological reasons*, or that recycling programs could have been ‘the short end of the stick’ was for some time quite unfathomable to me.

disposables than they paid out to support the Blue Box program. More importantly, however, non-refillable packaging was crucial to neoliberal restructuring within the industry.

To maintain a system of refillable packaging, it is necessary for bottles to return to facilities where products – in this case, soft drinks – are bottled. In other words, bottles must return to its point of origin. This implies that bottling plants must be relatively localized – that is, close to the point of consumption – to maintain economically efficient shipping costs, which are incurred both ways. In the past, rather than maintain such a vast system of production and distribution, multi-national soft drink companies instead contracted with local, independently-owned bottlers (who therefore took a share of the profits) to expand into new markets.⁴⁴ This spatial ‘tie’ between production and consumption – and in this case, also the distribution of profits amongst capitals – would be necessary so long as refillable packaging was used.

However, in an increasingly competitive environment (for instance, from the entrance of grocery store brand generic soft drinks into the market), soft drink companies sought to boost profitability through intensive cost-cutting, consolidation, and rationalization. Disposable (i.e. non-refillable, one-way) packaging became a necessary tool in this process of neoliberal restructuring not only because disposal packaging was cheaper, but because it allowed the spatial ‘tie’ between production and consumption to be loosened, a story that is by now familiar.

The strategy of Coca-Cola during this period is emblematic in this regard. To implement these cost-saving changes, the company began an aggressive program to acquire independent

⁴⁴For instance, in 1986, roughly half (45%) of all of Coca-Cola’s production in Canada was carried out by independently owned bottlers (Coca-cola Annual Report, 1991, City of Toronto Archives, Fonds 301, Series 1680, File 71).

bottlers across the country in 1986 (Coca-Cola Annual Report, 1991).⁴⁵ In the company's own words:

After acquiring 9 soft drink operations in 1989 and 2 in 1990, we concentrated our efforts on consolidating these operations into our existing system in an efficient manner. Additional new management was introduced where necessary and centralization of purchasing and administration was undertaken to take advantage of economies of scale. (Coca-Cola Annual Report, 1990, p.10)⁴⁶

Similarly, it reported that the construction of a new distribution centre in Barrie “will allow us to serve this market from a central location and phase out smaller, less efficient operations in the region” (p. 13). In Sudbury, nine bottling plants had been amalgamated down to one, which was now servicing all of Northern Ontario (City of Toronto Archives, Fonds 301, Series 1680, File 71). Indeed, consolidation had gone so far that by 1990, 96% of the Ontario market – Coca-Cola's largest Canadian market – was now serviced by company-owned facilities (Coca-Cola Annual Report, 1990, p. 13). By 1992, Coca-Cola was producing 98% of its product in its own facilities across the country (Annual Report, 1992). Centralization and consolidation as well as the application of principles of lean production and just-in-time technology, taken as a whole, was a core competitive strategy.⁴⁷ The 1990 Annual Report concludes:

The Company plans to continue its growth through acquisition of Coca-Cola bottlers wishing to sell their business or operations to the Company. The Company also plans to achieve increased production, distribution and marketing efficiencies, including those that may result from the *integration of various aspects of its operations in contiguous and proximate territories*. (p. 20, emphasis added)

⁴⁵ The aforementioned Coca-Cola Annual Reports can be accessed at the City of Toronto Archives, Fonds 301, Series 1680, File 71.

⁴⁶ On the cost front, the same shareholder's report notes: “In 1990, the cost per unit case decreased 4.8% from 1989 cost levels, largely due to a decrease in cost for cans and non-refillable plastic packaging and a package mix shift to lower cost per unit case non-refillable plastic packages from refillable bottles and cans” (Coca-Cola Annual Report, 1990, p. 18).

⁴⁷ The application of electronic technology to process customer orders ‘on-site’ and the virtues of the ‘just-in-time’ system, for instance, are prominently featured in both the 1990 and 1991 shareholder's reports.

Centralization and mechanization, as embodied in these newer canning ‘superplants’, enabled significant shedding of labour from the production process both in terms of plant production and transportation services. Disposable packaging, then, was not merely an issue of convenience or aesthetics, but a core element of neoliberal restructuring and capital concentration in the soft drink industry. And insofar as municipal curbside recycling was aggressively pushed (against resistance from the recycling industries proper!) as an alternative to a more ecologically-sound – and at the time still quite feasible – method of waste reduction, it has also been the unlikely handmaiden of neoliberal restructuring in Ontario.

The Labour Process of Recycling in Neoliberal Times

From the itinerant junk peddler or rag-and-bone man of the 19th century to today’s highly mechanized and municipally coordinated recycling program, the trade in household wastes in Toronto has undergone a profound transformation over the last century and a half. The overwhelming trend has been one of greater mechanization at *all* stages of the production process, from collection through to sorting. The systematic application of more capital-intensive and labour-saving technology is not new; indeed, this pattern can be seen throughout the early history of the street cleaning department from the introduction of horse-powered street sweepers at the turn of the last century to the gradual replacement of the city’s fleet of horse-and-wagons to the automobile throughout the late 1920s and 1930s. However, while mechanization in the first half of the 20th century was more a practical attempt to manage increasing haulage distances and to provide expanded services in terms of greater coverage and improved sanitation (i.e. using closed trucks) without drastically increasing budget costs, mechanization over the last decade has

been more directly related to reducing existing labour and other operating costs.⁴⁸ The phasing in of a bin-based collection system in 2007 by the city, for instance, has permitted the reduction to one-person crews in waste collection on automated routes since wastes are not thrown into the trucks manually; instead, these designated bins are latched onto collection trucks by the driver and its contents tipped into the truck mechanically.

As noted in the previous section, residential recycling in Toronto is the responsibility of the municipality, and presently consists of a regular single-stream collection system for ‘dry’ recyclables (i.e. packaging wastes such as paper, plastic bottles, metal cans, etc.), the ‘Blue’ bin; a composting program for household organic wastes (i.e. food waste, dirty diapers, etc.), the ‘Green’ bin; as well as special drop-off depots (or special pick up in some cases) for household hazardous wastes, electronic wastes, and ‘white goods’ (i.e. heavy appliances such as old stoves, refrigerators, etc.). Preliminary sorting into these various streams begins in the household by (typically unpaid) domestic labour. These roughly separated materials are then collected at curbside by city employees in the east end of the city and privately contracted labour in the west end and transported to city-owned waste transfer stations. From here, garbage is sent to landfill, organics are sent to city-owned (but privately operated) anaerobic digesters to be turned into compost and ‘Blue’ bin items are sent to a private processing facility to be sorted, baled, and sold to end-use industries.⁴⁹ In this last case, the city pays the private operator for sorting and

⁴⁸ The former situation also has the effect of reducing per unit labour costs, but its main goal is to control costs from escalating rather than to directly reduce costs or produce ‘savings’.

⁴⁹ Blue Box items were previously sorted at the Dufferin Materials Recovery Facility (MRF), which was owned by the city but privately operated. This facility was closed in 2014 for expansion and redevelopment of the Dufferin facilities. Since then, recyclables have been diverted to the operator’s private facility where recyclables from other municipalities in the Greater Toronto Area are also sorted.

processing the materials; some of the sorted materials are then marketed (i.e. sold) by the city itself, while others are marketed by the processor.

Collection

The collection of domestic wastes and recyclables is, for the most part, physically gruelling and hazardous work.⁵⁰ Shift work and long hours (a standard shift being 10 hours, plus applicable overtime) are common, workers are paid per hour, and performance is measured in terms of the weight of material hauled per hour. Workers are expected to continuously lift heavy objects throughout the workday and are exposed to hazardous substances. Work-related injuries to the back, shoulders, and arms are common, while contracting diseases like Hepatitis C from being punctured by used syringes protruding through garbage bags is not unheard of (Interview, UR1, November 25, 2015).⁵¹ Although automated collection does significantly reduce injuries (and thus sick days) by removing some sources of harm – the most recent statistics suggest a 22% reduction in lost-time injuries and 35% reduction in medical aid injuries since the introduction of automated collection trucks – it does not eliminate the risks completely

⁵⁰ A 1989 sanitation report describes it thus: “Collection of garbage is difficult, potentially hazardous, and demanding and is a service that, regrettably, we all take for granted. On an average day a Sanitation worker may lift and load 4.2 metric tonnes of garbage while working with large and powerful compacting trucks, in heavy traffic and in all types of weather.” (Department of Public Works, 1989, p. 21). By 1991, a CUPE research brief noted that the average worker was lifting 12 tonnes of garbage per day, while some workers had lifted as much as 18 tonnes per day (City of Toronto Archives, Fonds 1372, Series 1250, File 780). More recently, one interviewee estimated that a worker in privatized collection on the west end of the city may regularly lift up to 16-17 metric tonnes of garbage per shift (Interview, UR1, November 25, 2015).

⁵¹ Injuries to the back and neck have historically been the most common injury in this line of work as a result of continuous heavy lifting. In 1991, just over 60% of all accidents that incurred a cost to the Department were to the back and neck (Occupational Health, Safety, and Rehabilitation Division, 1993, Appendix).

(TCEU/CUPE416, 2015a).⁵² Similarly, waste collection from high-rise buildings also reduces some of these risks through automation as collection trucks directly tip large metal containers mechanically. Even so, the city estimates that when automation is completed, 30% of city routes would still need to be serviced by manual collection since in some sections of the city, road and other conditions would not allow the use of these automated trucks. Indeed, whether or not automation would be fully pursued with partly privatized collection remains to be seen, since automated trucks also tend to load wastes more slowly compared to manual collection.

Although municipal waste workers have some modicum of control over working conditions through the process of collective bargaining to establish baseline wages (currently ranging from \$23.86 per hour to \$27.86 per hour), benefits, and other terms – such as, significantly, redeployment language requiring the employer to transfer staff to other positions within the city if his/her position is eliminated – the same cannot be said of private sector waste workers (TCEU/CUPE Local416 Collective Agreement 2012 – 2015; Interview, UR1, November 25, 2015).⁵³ In this latter case, many waste collectors and drivers are not directly employed by the private waste contractors, but contracted through employment agencies, rendering it easier to dismiss workers who become less efficient as a result of age, sickness or injury (Interview, UR1, November 25, 2015).⁵⁴ This observation is corroborated by a recent

⁵² For instance, overflow garbage bags would still need to be handled and placed in a bin before it can be tipped mechanically into the body of the truck. The statistics quoted above are comparisons of first quarter WSIB claims from 2010 to 2014 for solid waste management as a whole. On an annual basis, WSIB claims for lost time injuries decreased by 53% from 2009 to 2013 and by 17% for medical aid injuries (TCEU/CUPE416, 2015b).

⁵³ Whether or not this language will survive subsequent rounds of negotiation is an open question, since the city has already clearly highlighted that this language constitutes one of the most significant financial barriers to privatizing collection east of Yonge Street.

⁵⁴ The city also employs temporary (seasonal) workers; however, this is on a much smaller scale in comparison to the private sector. The 2016 Solid Waste Budget shows that the collections and litter operations section employs 100.18 temporary workers and 615 permanent staff.

search for job postings in garbage collection within downtown Toronto and the GTA on a popular online employment listings website (Indeed.com); multiple listings for garbage collection work (both temporary and permanent full-time) were posted by employment/temp agencies.⁵⁵ Even though these listings frequently described the work as “physically demanding” and involving “repetitive tasks” like “lifting maximum 50 pounds for a continuous 10 hour shift,” with availability for overtime work either required or highly encouraged (from minimum 40 hour to 60 hour workweek), the wages on offer ranged between \$12 to \$15 per hour for a garbage loader (i.e. the person who throws garbage bags into the truck) and \$16 to \$20 per hour for a garbage truck driver.⁵⁶ In both cases, wages at the lower hourly range were more common.⁵⁷ In this respect, the privatization of garbage collection in the city appears to have resulted in a significant deterioration of working conditions in the sector. This is so not only in terms of the differences in working conditions between public sector and private sector workers, with some of these jobs now being barely above minimum wage (currently \$11.25 in Ontario), but insofar as privatization is also used as a tool of labour discipline to extract productivity and efficiency gains.

Indeed, the most recent solid waste report from city staff in September 2015 effectively promotes the maintenance of a mixed public-private system of collection as a way to create a

⁵⁵ The city does not keep statistics related to wage levels paid by its contractors (though this was common practice in the past for the streets department).

⁵⁶ One listing from Brampton advertised an extra dollar per hour for those who complete the full first week, suggesting that working conditions are such that many do not survive a whole week on the job.

⁵⁷ Although a previous unionization drive at these private waste contractors did not succeed (allegedly due to employer intimidation), enough employees had signed union cards to get the process to move forward to a vote (Interview, UR1, November 25, 2015). This implies at a minimum that a significant section of the workers felt that improvement in working conditions was necessary in order to proceed with a potentially risky unionization drive in a less than union-friendly climate.

competitive environment to increase productivity and efficiency.⁵⁸ The competitors, in this case, are the public and the private sectors.⁵⁹ However, in a labour-intensive and physically demanding sector like waste collection, it is difficult to see how ‘productivity gains’ are not extracted at the expense of the health and well-being of its workers. Automation is not the only way to improve productivity – it can also be achieved by increasing pressure on workers to work at a faster pace for lower wages. In some cases, even unionized workers have continued to work while injured for fear of jeopardizing performance measures and facing disciplinary action (Interview, UR1, November 25, 2015). Of course, these kinds of pressures are not necessarily new. Indeed, an internal health and safety audit conducted by the city in 1993 (incidentally, also a time when the privatization of garbage collection was up for debate) found that:

...safe work procedures are not practised or enforced due to pressure placed on workers and forepersons to get garbage off the street. The perception that safe work procedures slow this process was frequently stated by workers and forepersons and was evidenced by observations of work practices which revealed multiple and repeated safety violations. Some violations were actively encouraged by forepersons (e.g. lifting overweight bags). (Occupational Health, Safety and Rehabilitation Division, 1993, p. 26)

If even unionized workers are faced with this constant pressure, then non-unionized private sector workers who have even less protection against disciplinary action or dismissal are even more susceptible to such performance pressures from the employer.⁶⁰

⁵⁸ What is most surprising about this report, however, is that comparisons of costs in similar districts shows that in some sections of the city, city-collection is in fact more cost-effective than private collection despite higher hourly wages.

⁵⁹ A similar tendency can be noted in the city’s Long-Term Waste Strategy planning process. In the materials presented for public consultation both in town halls and on the city’s website, references to financial or economic sustainability emphasize cost savings or efficiencies without any mention of the economic well-being of waste workers. Similarly, when residents are asked to rank priorities for waste management in a survey conducted by the LTWS, the working conditions of waste workers does not appear as one of the listed priorities that survey takers can choose (although there is an ‘other’ option for residents to list other priorities).

⁶⁰ A more dubious method of increasing productivity that was captured on camera by residents earlier in 2015 was the practice of ‘garbage mixing’ by the private contractor; one such video

Sorting and Processing

The sorting and processing of residential recyclables in Toronto is a highly mechanized process and is currently carried out under contract at a privately-owned and operated facility.⁶¹ Here, recyclables are sorted according to its different material components (i.e. metal, paper), and each type of material is then baled and prepared for sale.⁶² At the time of its recent expansion in 2013, this facility was touted as the most technologically advanced facility of its kind in Canada by *Solid Waste & Recycling Magazine* (2013), featuring “10 optical sorters and 20 vacuum hoods in addition to bag-breaking and disk screen technology” capable of processing 60 tonnes of material per hour at an expected 97% recovery rate.⁶³ Indeed, it is the use of these

showed the organics bin being dumped into the garbage bin to be tipped together later, thus saving time (<http://globalnews.ca/video/1882157/gfl-garbage-collectors-caught-allegedly-mishandling-waste-twice-in-one-day>). Although many collection trucks are ‘split-body’ trucks with an internal separating barrier within the truck body so that what mistakenly appears to be dumping into the same truck is actually kept separate, this particular video clearly showed the mixing before its contents were tipped into the truck itself. Following the uproar, the company in question responded by firing the worker involved. However, even if it is assumed that this was the initiative of an individual worker rather than a covert company policy, what is unclear is whether or not workers would engage in this practice if they were not under considerable pressure to perform.

⁶¹ The landscape in the sorting and processing of trade and commercial recyclable wastes is much more varied in terms of scale, level of mechanization, cleanliness, and other non-wage elements of working conditions.

⁶² It should be noted that this level of sorting could, though need not be the ‘ultimate’ one before the materials are finally used as an input. Since scrap commodities are sold on an open market, depending on the buyer of the scrap material and the needs of the production process, the baled material may need to go through a secondary and more refined sorting process (likely by manual labour in a low-wage zone) before it is actually used as a raw material. One metal processing scrap yard intimated, for instance, that while the local market tends to buy higher quality scrap metal, lower-quality scrap is often bought and exported to places where low-wage labour exists to further clean and sort the baled material like India, Pakistan, and the Middle East. The same dealer once visited the yard of a client in China whose workers processed such low-grade scrap for \$2 per day, but now that wages have risen to \$10 per day, China is also tending to purchase higher-grade material (Interview, PR1, November 24, 2015).

⁶³ A subsequent article a few days later changed this to being the largest facility of its kind in North America, with 22 vacuum hoods rather than 20, and a recovery rate of 95% (<http://www.solidwastemag.com/recycling/new-canada-fibers-toronto-mrf-using-van-dyk-baler->

technologies at the stage of sorting and processing that has enabled the transition into a single-stream collection system for Blue Box items in Toronto, obviating the need for households to do more refined sorting in the home. Without extensive mechanical separation or home sorting, it would be too costly (in terms of increased paid work time) to employ enough labour to sort out all of the items by hand either at curbside or at the sorting facility.

Although it was regrettably not possible to gain access to this facility over the course of research, information about how this facility works in the form of promotional videos released by both the City of Toronto as well as the company in question is available in the public domain.⁶⁴ What is clear from these sources, ‘airbrushed’ for public viewing though they may be, is that the sorting of recyclables in this facility is a highly automated process. However, this does not mean that human labour is not required. Workers on sorting lines are tasked with picking out particular items (i.e. oversized items, garbage, or particular materials) as they pass by on a conveyor belt. Here, manual labour is required to both limit the universe of items that can be dealt with by sorting machines as well as catch any ‘mistakes’ that are made. Sorting is a repetitive task that requires workers to be on their feet all day and, like other kinds of conveyor belt work, the pace of work (i.e. how fast to run the line) is set by management. At the same time, workers are also potentially exposed to hazardous objects, despite the fact that the materials are theoretically supposed to be pre-sorted before arriving at the facility. In May 2016, for

[system/1002458556/](#)). Therefore, these statistics should not be taken to be exact. The main point, however, is that this is a very technologically sophisticated facility.

⁶⁴ A promotional video made of the actual sorting process at this private facility can be found here: <http://bit.ly/137kxGz>. The sorting process at the recently closed Dufferin facility owned by the city but operated by this same company can be found here: <http://www.rogerstv.com/page.aspx?lid=237&rid=16&sid=5175&gid=104818>. The closed Dufferin facility is currently undergoing redevelopment.

instance, this sorting facility had to be closed for a police investigation for a day when a sorting worker found what appeared to be a human hand on the sorting line (Doucette, 2016).⁶⁵

Although exact wages are not known, a search for employment listings for sorting work at recycling facilities in Ontario to approximate market wage levels on 'Indeed.com' produced advertised wages that tended to range between \$13 and \$15 per hour (many provided health benefits).⁶⁶ As a reference, the median total individual income in Ontario in 2013 (the most recent year available) was \$31,820; averaged over a 40-hour work week, this would be the equivalent of \$15.30 per hour (Statistics Canada, 2015c).

Even though this company prides itself on offering rewarding 'careers' rather than mere 'jobs', this does not necessarily imply that it does not engage in many of the labour practices typical of the neoliberal world of work. For instance, a promotional video in the careers section of the official company website intended to underline this aspect of company policy through interviews with employees nonetheless reveals that they make use of temp agencies to hire workers for the sorting line.⁶⁷ Similarly, the company advertises that it is looking to employ

⁶⁵ David Pellow, Allan Schnaiberg, and Adam Weinberg (2000, p. 129) similarly document the case of a Chicago recycling worker who had been traumatized by the appearance of a dead body rolling off a truck onto the sorting floor in front of him. Later on in the year, they write, the same facility saw the appearance of two dead infants on the recycling sorting line. Though not quite as gruesome as the Chicago case, Gregson et al. (2014) similarly document the hazardous conditions of work municipal recycling sorting facilities in the European Union.

⁶⁶ Within the GTA, there were 5 listings for materials sorters and metal processors, the lowest offering \$12 an hour (for a manual sorter working on a conveyor belt sorting line in Scarborough) and the highest \$17 an hour (this particular company advertised a range, with \$17 being at the top and the lowest \$13). The other three listings offered \$13, \$13-15, and \$15-\$16 per hour. An additional two listings in recycling sorting work, one in British Columbia or Nova Scotia and another in Alberta, advertised for \$11 per hour and \$13-15 per hour respectively (this last also offered profit sharing).

⁶⁷ This is at (2:36) in the video (<http://www.canadafibersltd.com/about-us/careers/>). This video also shows clips of how the sorting process works in the facility. The 'Vanley' facility referred to by some employees is the Dufferin materials recovery facility owned by the City of Toronto at Vanley Crescent.

container and trailer drivers who are “Owner/Operators”, a very typical neoliberal development within the transportation industry that shifts some of the costs and risks of operation onto workers. An article from *Recycling Today* posted on the company website highlights to potential clients that they provide “warehousing that allows customers just-in-time inventory access” (Toto, 2012). This careers section also indicates that some positions at this facility involve shift work – comprising a day shift, a night shift, and an ‘over-lapping’ shift from 10 am to 9:30 pm (that is, an 11.5 hour shift). It would be reasonable to assume that sorting work would fall into this category of shift work considering that it is essential labour for keeping the machine running.

All of this is not to suggest that this is a particularly “bad” company with appalling labour practices. Quite the contrary, this is a reputable materials processor that seeks to emphasize (at least publicly) that it values its workers and that it is keen on complying with health and safety regulations; the company video even makes a concerted effort to portray a racially- and gender-diverse workplace.

What the above does suggest, however, is that work in ‘green’ industries does not necessarily break with labour practices prevalent as market norms. ‘Green’ work can also be physically exhausting, precarious work. This is, in no small part, because ‘green’ work that is organized as a capitalist production process must of necessity organize work in such a way as to produce a profit and is subject to competitive pressures on the global market. This is particularly true of recycling. As an industry dedicated to the production of secondary raw materials, it is an intensely globalized industry where shipping routes are determined by constantly changing global market conditions (i.e. where is there a discounted container?) and sales are priced by the second on global commodities exchanges (Interview, PR1, November 24, 2015). Here, in contrast to the stage of collection, mechanization and the application of labour-saving

technologies is a prerequisite for rendering a labour-intensive operation profitable and *globally* competitive in a context where labour has made historical gains (i.e. in the form of minimum wage laws, health and safety regulations, etc.). The application of technology is a means to profitably compete with companies who employ low-waged, super-exploited workers.⁶⁸ In other words, the replacement of human labour by capital- and energy-intensive machinery is a function of competitive pressures and the imperative to produce profits characteristic of capitalist production.

Conclusions

It should be clear by now that recycling – as the commodification of wastes to be used as a raw material in production – has had a long and complex history in Toronto, quite far from the straightforward, typical ‘feel-good’ green label that it now enjoys. Indeed, as we have shown in this chapter, this particular notion of recycling as the obviously environmentally friendly choice is itself the product of concerted campaigning not only by environmentalists, but significantly by a committed corporate lobby eager to sway public policy and opinion in a direction advantageous to their own projects of capital accumulation. To the extent that recycling has been tied up with neoliberal restructuring in Ontario, it supports the argument of this thesis that the mere promotion of ‘green’ sectors does not, in itself, guarantee more jobs with dignified working conditions. Although it is true that the recycling of wastes creates more employment when

⁶⁸ One interviewee commented, for instance, that the “technology” to effectively separate the copper wiring from Christmas tree lights is not yet here and this is why these items do not get recycled locally. Instead, they get shipped to countries where low-waged workers exist to profitably extract the metal by hand (Interview, PR1, November 24, 2015). Incidentally, this is the same item Adam Minter opens with in his book *Junkyard Planet*. What this clearly highlights is that the application of technology in this sector is in many ways a response to constraints set by workers (both historically and currently) by insisting on a minimum level of wages and working conditions rather than a move to directly control labour costs per se.

compared to simply disposing of all wastes by landfill or incineration, considering the history of the Blue Box allows us to see that its overall employment effects are not so clear cut. This is because the options were not simply to recycle or landfill – there was also reuse. Here, the increase in recycling workers (sorters, balers, forklift operators) with the advent of municipal curbside recycling programs replaced those working in bottling facilities and local transport work, and it is not at all clear that the former represent qualitatively or quantitatively better jobs compared to the latter. Arguably, these jobs in the bottling and transport industry provided much better working conditions and contributed to more ecologically desirable outcomes even though they do not, on the surface, appear to be ‘green’ jobs.

This brings us to a second point. The recycling industry is, for the most part, organized as a capitalist industry and this has been so since the earliest years of the rag- and junk- peddler. In this respect, the labour practices and working conditions found therein, as well as the competitive dynamics that inform how the labour process is organized do not represent a break from existing practices in other industries. The application of labour-saving technology and the use of more precarious forms of labour is not an exclusive feature of “dirty” industries. Though recycling is “green” work, it is also “dirty” work that is physically demanding.

The collection of recyclables by municipal workers represents the only link in the chain that is not organized along capitalist lines. Accordingly, these workers – in no small part because of its history of labour organization – also tend to have better working conditions than their counterparts in the private sector or along other parts of the recycling chain. Yet even so, the emphasis on efficiency, productivity, privatization and competition in the management of solid wastes is increasingly eroding past gains and creating more precarious work. Once again, while collective ownership can create the conditions and potentialities to organize work in alternative

ways, it by no means necessarily ensures that it be put into practice. Here, however, it becomes increasingly clear that the failure to do so is manifestly a *political* choice.

I have argued that extensive residential recycling (as opposed to targeted, commercial or industrial recycling), conducted as a purely market-based affair, is not a profitable enterprise unless carried out by extremely exploited workers working for low wages because of its labour-intensive nature. In Toronto, the collection, sorting and selling of residential recyclables with wage levels that at least meet and often exceed minimum wage laws is made profitable (for some) by the fact that its costs are paid for by the city – the revenue derived from the sale of materials represents but a small fraction of the costs of recovery. In other words, residential recycling is made possible because it has been made a *collective responsibility* and not because waste is now being seen and re-valued as a new-found ‘resource’. On the other hand, this chapter has also shown that the collective was *made* responsible for recycling; the shift from reusability to recyclability also constituted a partial shift of management costs from the arena of private capital accumulation into the collective realm. This brings us back full circle to the claim I made at the beginning of this dissertation: that the ‘environment’ is itself an arena of *distribution*. And if this is so, then the fight for green jobs is not merely about an economically prudent or even a technically ‘correct’ policy – it must, in the last instance, be about power.

Conclusion

From Green Jobs and Recycling to Decommodification and Participatory Production

Are green jobs an alternative to neoliberalism, then? As should now be clear, the answer is that it depends on the overall project in which it is embedded. As part of a Keynesian ‘Green New Deal’, the promotion of green jobs could indeed represent an alternative model of capitalist development, while as part of proposals for a ‘green economy’ or ‘green growth’ it would fit in seamlessly with the further elaboration of the neoliberal project. However, as I have argued in this dissertation, both of these variants suffer from some serious limitations if the goal is to achieve social and ecological justice. In particular:

- The distributional conflict inherent in the employer-worker relationship determined by the need to maintain profitability implies that improvements in working conditions tend to be accompanied by investments in labour-saving technology. In other words, labour intensity tends to decrease over time. There is, within capitalist production, a tension between raising productivity, mechanization and job creation, the apparent resolution of which leads to a bias towards economic growth.
- Workers in ‘green’ sectors are just as vulnerable to pressures of speed-up, increasing work intensity and precarization as their counterparts in traditional industries.
- A mere change in formal ownership in and of itself is not enough to guarantee decent working conditions, particularly when practices characteristic of the private sector are emulated either by political choice or as a result of market competition.
- Contrary to the propositions of green growth and the GND, market-based coordination of residential recycling and waste management in contexts as diverse as Buenos Aires and

Toronto is not able to produce large numbers of high-quality, decent jobs. In both cases, some level of decommodification and continuous socialization of costs was necessary.

- Recycling is a capitalist response to waste, and the viability of recycling is tightly bound to the conventional manufacturing industry, given that it is a production process that has raw material inputs as its final product. As such, the recycling industry itself has an incentive to favour capitalist growth.
- Since recycling is now a globalized industry, the dynamics of global production and capital accumulation (both generally and sectorally) inform possibilities, technologies, and strategies of capital accumulation in the recycling industry locally. However, this engagement with the global market does not happen in an unmediated, direct fashion. As shown in both Chapters 4 and 5, outcomes are mediated by the institutional context at various levels of government and are also the result of policy choices and political struggles.
- The “ecological” content of work is not necessarily an attribute of the work itself, but an attribute it acquires as a result of the relationships in which it is embedded. This was particularly highlighted in the analysis of the Blue Box program in Chapter 5. In other words, it is not enough to simply label certain sectors as inherently ‘green’ for the purposes of investment and job creation; rather, a more *contextual* analysis is necessary.

In sum, then, the promotion of green capitalism – and more specifically, recycling, as the production of value from waste (i.e., as a capitalist production process) – is not simply about being environmentally friendly and ‘saving resources’. The commodification of waste is also about power, exploitation, and inequality. It is a pattern of production with particular ethical-normative commitments; it is a set of social relations; it is also ‘dirty’ work. The systematic

production of waste and ‘needy’ human beings, as well as the unequal relations of production in recycling, are part and parcel of the same process of capital accumulation as a model of economic development.

If ‘green’ jobs, as part of capitalist enterprises, can be alienating jobs that are subject to the same kinds of competitive pressures as jobs in ‘traditional’ industries, then the struggle for decent work cannot be divorced from improving workers’ rights and participation in decision-making more generally. That is, to be effective, the green jobs project must be, in the end, about *politics*. Ben Selwyn’s (2012; 2013) critique of the ILO’s Decent Work Agenda for overlooking the role of workers’ struggles and trade union activities in achieving ‘social upgrading’ makes a similar point. Yet workers’ struggles do not automatically lead to demands for a green transition. In this respect, in order for labour movements not to be self-defeating in the long-run by eroding the material basis of life, seriously considering how to shape demands in the present in a way that contributes to ecologically responsible production is an important area of research and terrain of struggle. For David Schwartzman (2011), the GND represents just such a transitional program. The ambition to begin thinking this through is, indeed, one of the major contributions of the debate on green jobs and the GND.¹ However, on a more programmatic level, the analysis advanced in this dissertation also implies the need to move beyond the parameters of the GND – that is, to expand our horizons beyond calls for targeted investments in green sectors, pricing pollution, and encouraging more recycling as a method of waste management.

By way of conclusion, then, I will briefly sketch out what a more adequate response to the problem of waste beyond commodification within a green transition might look like. In this

¹ Recent academic collections on this important subject include Rätzzel and Uzzell (2013) and Lipsig-Mummé and McBride (2015).

connection, I begin by reviewing the more specific arguments regarding waste developed in the previous chapters.

Waste as a Social Phenomenon

If recycling merely extends the time before we are confronted with the need for ‘final’ disposal of the waste in question and depends upon business-as-usual growth, then the question of waste reduction, favouring reusability, and phasing out the production of toxic wastes ultimately cannot be avoided. However, it does not follow that waste reduction is therefore simply a matter of personal choice. This is because the systematic production of waste is never a purely individual phenomenon. In Chapter 3, I highlighted how the production of a wasteful society was integral to the rise and expansion of the mass market. The generation of waste and planned obsolescence – and as a consequence, a massive advertising industry – was part and parcel of sustaining adequate demand to encourage economic growth. The increasing commodification of spaces of social reproduction replaced, as part of this process, women’s skills and labour in the home with commodities (and at the end of their apparently useful life, waste).

Indeed, waste – particularly in the form of disposable packaging – grows as consumption physically takes place farther and farther away from the point of production. Chapter 5, for instance, detailed how the switch from refillable containers to disposables was indispensable to concentration and restructuring in the soft drink industry through loosening the spatial ties between production and consumption. In this respect, I have emphasized how many of the meaningful choices regarding the production of waste are made beyond the parameters of individual choice, not only because of income constraints that individuals face but because an

individual does not have sufficient influence to determine what is available for consumption on the marketplace and in what manner they are produced in the first place. Similarly, individuals often do not have control over the structural conditions under which consumption takes place. In situations such as this, it is not at all clear that the ‘real’ polluter who must be made to pay is the consuming individual.

The reduction of waste, in this context, requires much more fundamental restructuring of circuits of production and consumption, some of which may be radical, some mundane, and some not particularly self-evidently ‘green’. To this extent, though municipal waste management departments may have the most detailed knowledge of the kinds of waste produced and how they are to be handled, they may not ultimately be the ones who are in the best position to encourage waste reduction, simply because the scale of change required falls far beyond their jurisdictions and mandates.²

Waste as ‘Saved’ Time

This dissertation has also shown that the production of waste, in one way or another, functions as a substitute for labour time, both paid and unpaid, in terms of reducing necessary labour time in production or reducing the time necessary for individual tasks of reproduction, housekeeping, and consumption. The paradox of capitalist society is that even as the production of increasing amounts of waste enables a more ‘efficient’ use of time both at work and at home, this has not translated into more ‘free time’ for workers, least of all women workers. Instead, the production of value and its distributional dynamics have meant that all of these various methods

² In the Canadian context, for instance, beyond particular municipal departments, municipalities, on the whole, face constitutional, jurisdictional, and other institutional constraints in pursuing green industrial policies (McBride, Shields, & Tombari, 2015).

of time-saving have translated into the promotion of greater consumption and the simultaneous production of overwork and stress alongside unemployment. Clearly, any serious program of waste reduction cannot avoid challenging and reconfiguring this unequal distribution of waste and time that characterizes contemporary capitalist societies. For instance, if the real demand for convenience products (even absent advertising), including labour-saving devices in the home, is in part driven by the demanding work schedules and commutes that workers now face, then the reduction of demand for waste must also be accompanied by reduced working hours. Otherwise, this ‘reduction of demand’ (if it could happen at all) would simply be experienced as yet another burden onto the (unpaid) workload of people (disproportionately women) already squeezed for time. Concrete proposals taken up by some advocates for a green transition in this regard include the introduction of shorter workweeks, and indirectly, various basic income schemes.

André Gorz, in his *Critique of Economic Reason* (1989), made a convincing case that a socialist politics must necessarily be a radical politics of time to increase autonomous free time and leisure, making room for self-directed productive activities geared towards use-values like artistic or technical projects as a means of self-expression and personal development. As such, he advocated for trade unions to struggle for a coordinated and planned policy of reducing the workweek and redistributing work-time across the population (a ‘target dates’ strategy) without the reduction of income as an alternative way of distributing productivity gains to combat unemployment and address overconsumption. In addition to reduced work time, he also advocated for resurrecting the age-old struggle of the labour movement for the right to intermittent or discontinuous work (or the right to celebrate ‘Saint Monday’) as a way for workers to reclaim autonomy and control over the organization of their own time. While agreeing with the crucial importance of increasing leisure or rejecting work as a politics of time,

Eva Swidler (2016) points out that this necessitates, in tandem, the construction of a cultural commons and community outside of work in order to rebuild a shared culture of leisure, so that the reduction of work is met not with a void, but a rich experience of shared activities and experiences.

It is important to note that, for Gorz, a politics of reducing working time cannot be divorced from that of redistributing work across the population. This differs from basic income schemes, which he viewed not as a solidaristic policy, but as a mechanism to justify unemployment (or the unequal distribution of income and work) that inevitably came at the price of keeping a portion of the population in perpetually humiliating conditions. On the contrary, he argued that workers had a right not just to a guaranteed income, but a guaranteed right to an income derived from the performance of socially useful work in dignifying conditions, albeit in increasingly shorter increments of time. The reorganization of work so as to guarantee everyone both an adequate income and a share of responsibilities in social production, in this sense, is the responsibility of the collective, and not the individual. This differs from conservative formulations of the ‘right to work’ insofar as the guarantee of participation in social production is based on a fundamental redistribution of productivity gains in favour of workers and is embedded within a framework of workers’ rights that does not envision a reduction in wages, working conditions, or bargaining power. Indeed, it is premised on maintaining these standards while simultaneously *reducing* individual workers’ working time.

Without disputing the desirability and necessity of these goals, however, a politics of time that takes into account the systematic production of material waste and the substitution of fossil fuels for human labour also suggests a need to reconsider socially necessary labour time, since the reduction of fossil fuel use or slackening the pace of work in the labour process (an

increase in ‘wasted’ time from the point of view of capitalist production) can lead to an increase in socially necessary labour time – in other words, to a decrease in productivity. In this respect, the ideal amount of social labour necessary in production is not something that can be determined in advance or in the abstract, outside of concrete situations and structures of democratic deliberation. An ecosocialist perspective must therefore develop an alternative politics of time that favours the maximization of leisure and free time without sacrificing the equally important goal of qualitatively transforming the nature of the labour process, or in the words of Michael Löwy (2015), the development of a ‘new technostructure’.

A Green Transition Beyond Keynesian Growth

If the environment is an arena of distribution and capitalist economic growth is a trap for those committed to social and ecological justice as I have argued throughout this dissertation, then the green jobs project must ultimately make its demands on the basis of being a *just redistribution* rather than as a program for reviving economic growth typical of Keynesian propositions if it is to achieve its social as well as ecological goals. Interestingly, in this respect, the level of political discourse is more sophisticated in the *cartonero* movement in Buenos Aires, despite (or because of) their not specifically adopting a ‘green jobs’ paradigm, and despite the conditions of work in recycling being objectively worse (or, from a certain perspective, ‘undeveloped’).

Pushing for a green jobs program as a just redistribution implies a more fundamental demand on the level of politics, as a rejection of austerity, the prevalent income distribution, and the requirement that a green transition be contingent on whether or not it is productive of surplus value. It is to assert, along with Andrew Sayer (2015), that ‘we cannot afford the rich’. On a

more concrete level, it implies demanding increasing (although in the current situation, perhaps more accurately, restoring) taxation on capital and at the top of the income scale as a more stable source of revenue to fund a green transition (including investments in low-carbon and waste-reducing sectors, forms of production, and public services that are not strictly ‘green’ sectors) rather than sole reliance on eco-taxes (though these might, in some cases, reasonably be used to finance capital investments) and ‘green’ finance. This is all the more necessary as emergency fiscal stimulus packages have dried up as potential sources of finance for a green transition as the more acute effects of the 2008 global financial crisis begin to fade.

Challenging ‘Free’ Trade

In the same vein, the struggle for a green transition will ultimately have to challenge the prerogatives of ‘free’ trade that seek to enshrine the rights of global capital to appropriate nature, both human and non-human, over all other claims, and prioritize the organization of social production on a global scale according to the necessities of value production. However, as this dissertation has argued, the organization of social production according to these principles leads to ecologically irrational and socially unjust outcomes both within and between communities and nations. Seriously addressing fossil fuel use and the production of waste requires re-scaling production so that it physically takes place much closer to points of consumption.

Challenging the primacy of free trade does not necessarily imply a return to ‘isolationism’ or autarky. Neither is it a rejection of global solidarity. Indeed, global cooperation and solidarity does not require consuming garlic flown from half a world away that could have been grown a local garden. Rather, it implies rejecting global integration on the basis of competition and recognizing that by prioritizing the rights of global capital to ‘do business’,

these kinds of trade agreements reduce the room for manoeuvre to implement green planning. Scott Sinclair and Stuart Trew (2015), for instance, detail the way in which WTO trade challenges have hampered the ability of the Ontario government to pursue local content strategies under its Feed-in Tariff (FIT) program to encourage manufacturing in renewable energy generation as part of its *Ontario Green Energy and Green Economy Act*. While they suggest how a more traditional public procurement and publicly owned process could circumvent these trade rules, they warn that even more restrictive rules on government procurement coming down the line in new trade agreements like CETA and the TPP will restrict this policy space even further if left unchallenged.

In this respect, challenging free trade agreements to create the policy space to engage in green planning in the first place is a crucial aspect of the struggle for a green transition. It is not enough to advocate for a social clause to be added to free trade agreements, for a change in the rules for establishing GHG quotas, technology transfer between rich and poor nations, or inducing wage convergence globally to obviate protectionism (Lipietz, 2013, p, 139). Even if GHG quotas were allotted more equitably (certainly a desirable outcome), meeting these quotas through the use of trading permits on the market can still lead to significant inequalities and the dispossession of poorer communities, as was argued in Chapter 2. Similarly, it is unclear how global wage convergence (which is already an on-going trend) would settle at a level that is advantageous to workers within the context of competition under free trade.

What is key, then, is a struggle for *control* over the priorities and principles according to which social production is organized. Although global commodity chains, production patterns, and value flows will not be replaced or dismantled overnight (or even in the medium term), it is

still strategically desirable to push for policies and politics that enable rather than restrict the space available to foster more localized/regionalized production patterns.

Extending the ‘Just Transition’

A ‘just transition’, as a strategic principle, is one of the most significant contributions of the green jobs debate in terms of envisioning a socially just transition out of fossil fuels.

However, if, as this dissertation has shown, the ‘greenness’ of productive activities cannot be understood outside of its wider context and there is a need to expand the notion of ‘greening’ production beyond dedicated investments in so-called ‘green’ sectors, then there is a parallel need to extend the concept of a just transition into a more general policy of sectoral planning.

This could imply, for instance, the transitioning of waste workers into other sectors in the longer term as waste is reduced from increased producer responsibility, the favouring of reuse over recycling, banning toxics, and increased collective consumption, or the transitioning of advertising workers into publicly funded, decommodified cultural industries. In this sense, it means remaining open to the possibility that the reorganization of production in ways that are more ecologically responsible and less productive of waste can involve the transition of workers out of apparently ‘green’ industries.

A rudimentary form of this kind of planning already exists in the form of redeployment language negotiated as part of collective agreements, which requires the employer to assign employees who are laid off as a result of restructuring to other departments. This kind of language is already part of collective agreements of city workers in cities like Toronto, and can be an integral part of a planned green transition, especially one that is based on expanding the public provision of goods and services.

**An Alternate Vision:
Decommodification, Collective Consumption, and Participatory Production**

Theories of ecological modernization and the projects for a ‘green transition’ that they have inspired have made significant contributions towards thinking about and planning a more ecologically responsible society in terms of envisioning new kinds of resource-efficient technologies, designs, product stewardship, and urban planning. All of these things are an important component of any green transition. However, this dissertation has argued that they have also tended to ignore the distributive consequences of their proposals when they uncritically endorse capitalist production as the basis of a future green society, just as Greenpeace Argentina ignored the numerous livelihoods that depended on and in fact initiated systematic residential recycling in the first place when they endorsed the plan of private (corporate) management of recycling in Buenos Aires.

One of the most significant critiques made by the early environmental movement was that unbridled economic growth on a finite planet and economic production for profits led to the destruction of nature. Economic growth and the limitless expansion of individual consumption, they charged, was not necessarily an accurate measure of well-being, both human and non-human: *we must rethink what it means to live a good life*. In Chapter 1, this important distinction was made in terms of the Marxian categories of wealth and value.

If production for profit – that is, capitalist production – has deleterious consequences for workers and for the natural environment as I have maintained, then ultimately, to build a less wasteful society that is both socially and ecologically just, it is necessary to move towards production for use that has as its direct aim the satisfaction of needs and rejects the primacy of the production of surplus value. And this, in itself, necessarily implies a redistribution of wealth and productive capacities towards *public ownership* of productive units, so that important

investment decisions no longer rest in the hands of banks and global private capital (Löwy, 2015; Kovel, 2007). Uncoupling investment decisions from criteria of profit-maximization creates the material basis for increasing the decommodified production of goods and services capable of rejecting strategies of planned obsolescence and the systematic cultivation of need, thus carving out a more genuine space for the self-reflexive critique of needs.

Decommodification enables a shift towards a direct focus on socio-ecological well-being as a primary goal rather than as a (hoped for) incidental side effect of quantitative accumulation and competition. Indeed, as we saw in Chapters 4 and 5, it was precisely the partial de-linking of waste work from the imperatives of capital accumulation that enabled improved working conditions and the recycling of residential waste that would not have otherwise occurred on the marketplace. Although a strict return to need-centred production in the home on the basis of women's skills and time is not a desirable outcome (for one, this was a state of affairs that was highly unequal between men and women), there is no reason why need-based, decommodified production could not be the basis of social production.³ There are many who have written on this subject, with a variety of proposals and orientations, not all of whom are in agreement with each other. However, what they do hold in common is the insistence that collective production with human needs as its basis is a practicable project. Indeed, such a re-shifting of focus is

³On the other hand, there is no reason to presume that the development of skills in handwork and decommodified production is inherently undesirable or gender oppressive. Indeed, the development of such skills is also experiencing revival as a craft hobby or as a kind of productive leisure. Consider, for instance, that Ravelry, an online social-networking site for knitters, crocheters and other fibre arts enthusiasts launched in 2007, now has over 6 million members, with close to 1 million of those members active within any 30-day period (<http://www.ravelry.com/statistics/users>). As Strasser (1999) points out, however, the cultivation of crafts, hobbies, and DIY projects has also been tied up with the consumption of new kinds of commodities (i.e. new craft tools and supplies). The more interesting question, therefore, is how this kind of productive leisure can be marshalled into forming a part of decommodified, social production, however small, rather than serving as simply another means of encouraging greater consumption.

unavoidable if we are to reject the ecological implications of unchecked, unlimited economic growth. Robin Hahnel (2005), for instance, outlined one such decommodified alternative to market-coordinated production and competition based on workers and consumers councils that he called ‘participatory economics’. Gorz (1980) advocated for reclaiming some of these craft and ‘women’s’ skills so as to promote community-based workshops and auto-production to supplement social production. This, of course, also implies that such skills need to be re-valued and included as part of general education. Michael Lebowitz (2010) advocated for a focus on many-sided human development as the goal of economic production rather than expanded capitalist economic growth.

A green transition unencumbered from its commitment to capital accumulation and an expanding consumer market makes room for encouraging *collective consumption* rather than individual consumption in order to minimize the unnecessary duplication of goods as well as encourage a qualitatively different kind of community. Some of these, like the need for improved mass transit, green space, and community gardens, have already gained the attention of environmentalists. However, many more could be added to the list: collective workshops, tool libraries, community centres for recreation, cafeterias, theatres, urban fruit parks – the list could go on. Although capitalist production does provide some forms of collective consumption (for instance, movie theatres and gyms), it does so only unevenly and on the basis of unequal access. Indeed, we already have some rudimentary forms of accessible, decommodified, collective consumption – the most notable example being the public library. Yet these forms of decommodified, collective consumption remain woefully underfunded. In addition to the retooling and reconversion of factories and other productive units, then, a green transition could entail the retooling and expansion of the existing infrastructure for accessible collective

consumption. Increasing investments in building new public housing complexes based on principles of energy efficiency, green building, and encouraging various forms of collective consumption, for instance, can lay down important infrastructure to encourage energy and waste reduction as well as a different kind of community for decades to come. Similarly, investments to improve the quality and quantity of spaces for shared consumption closer to the point of production could go a long way to meeting needs in a way that is less productive of waste.

Finally, decommodified production that has as its end the fulfilment of needs and shared consumption must also embrace democracy at the point of production in order to be socially just (Löwy, 2015; Kovel, 2007). As shown in Chapters 4 and 5, a change in the form of ownership, be it as a workers' cooperative or a public service, is on its own not enough to ensure decent working conditions, particularly where this is not accompanied by increased *participation* in decision-making and self-management by the workers involved. This dissertation has argued that many of the decisions regarding the production of waste specifically and our metabolism with nature more generally arise in the production process itself. Insofar as capitalist production places these decisions in the private realm and robs workers of the ability to make decisions regarding the production processes in which they take part, it also robs workers of the ability to determine their relationship with nature in their capacity as productive, transformative beings. This was referred to as alienation in Chapter 1.

Here, Hahnel's (2005) maxim that people should be able to participate in economic decisions to the degree that they are affected by these decisions is particularly useful. For it is, in the end, not only workers who are affected by decisions regarding the productive process. This is made most obvious in the case of waste: there are people who have to live with the consequences of a wasteful society, even if they do not participate in the production or consumption of the

goods that end up in the landfills and incinerators they must call their neighbours. To the extent that decisions about production and the transformations of the natural world that this entails are issues of distribution and involve the ways people materially (re)produce and live their lives and expend their living energies, ultimate solutions are not simply functions of technocratic or theoretical ingenuity and reason – they are decisions that must be arrived at democratically.

In this regard, Sam Gindin (2016) emphasizes the crucial role that the state must play in planning and coordinating economic activities amongst productive units to ensure that they are organized along cooperative rather than competitive lines. However, given the state's crucial role in facilitating capital accumulation, the struggle for an alternative economic program and a green transition thus cannot avoid the question of state power and the attendant need to radically transform and democratize the state.

Last Words

Since this dissertation was begun, a number of campaigns from trade unions and activists along the alternative lines I have sketched above have already been launched. In the Canadian context, there was the recent LEAP manifesto signed by prominent activists, celebrities, academics, and public figures, which also had the virtue of highlighting the need to back away from trade agreements that constrict possibilities for a socially just green transition in favour of a more 'inward'-regarding economic development. The Canadian Union of Postal Worker's (CUPW, 2016) most recent proposal also advocates for these principles in more concrete terms, calling for expanding the public postal service into providing *publicly-owned* postal banking to facilitate and finance a transition to green energy and a low-carbon economy, amongst other things. All of these are indeed promising and important new developments.

However, at the time this conclusion was being penned, and in the same week that the CUPW campaign was launched, some very troubling news also arrived from the countryside of Honduras: Berta Cáceres, an indigenous environmental activist, known for her work fighting ecologically destructive hydroelectric projects to power mining operations (some Canadian) that displaced indigenous rural communities had been murdered in her home following weeks of death threats because of her work.

Yet isn't hydroelectricity and renewable power *good* for us? Isn't it part of the green economy? Isn't it, really, the promised land?

To demand a critical engagement with green politics and to insist on the environment as a realm of distribution is anything but merely academic. It is not just a matter of theory to assert community decisions over the prerogatives of "free trade". It matters because people *die* for this. Unjustly, outrageously so.

This dissertation was planned to end on a hopeful note, as an imaginary of what could be. Yet a sobering reality came knocking on the door. It is not that in this reality there is no hope. It is that in this reality, hope cannot be but sustained by rage.

Appendix A Methods

This dissertation is not a comparative project in the traditional sense in that it does not have as its primary object the direct comparison of two localities so as to account for its similarities and differences in the realm of waste management. Rather, it is a theoretical meditation on the nature of contemporary ‘green’ work within capitalism that does its thinking *through* the comparative element and through the examination of a sector that occupies a crucial position in the analysis of the socio-ecological foundations and effects of capitalist development.¹ Comparison, therefore, is the “substance, rather than the framework, of inquiry” (McMichael, 1990, p. 11). The comparative question to be answered is *not*: why do these cities organize their waste systems differently and what accounts for those differences? It is, rather: how does capital-as-waste operate in these different contextualized spaces, why, and with what effects, particularly with respect to the labour process in the recycling sector? What can this teach us about the possibilities and limits of ‘green’ capitalism to achieve socio-ecological justice?

Theory, Empirical Research, and Method

A dialectical conception of the world, and thus also methodologies of research, differs from the Cartesian system largely in terms of the way ‘parts’ are understood in relation to

¹ As mentioned in the introductory chapter, in many ways, ‘green’ critiques of capitalism turn on its propensity to produce unsustainable quantities of waste in terms of pollution and material throughput. Insofar as recycling promises to make productive use of this waste, diverting it from disposal facilities or direct release into the environment, it emerges as a key component of making capitalism sustainable, providing fresh resources while curbing its tendency towards the uncontrolled proliferation of waste materials.

‘wholes’. While in the Cartesian system, ‘parts’ are understood as ontologically, logically, and thus also causally, prior to ‘wholes’ – that is, wholes are understood as being made up of separate, individual, constitutive parts that one can investigate on its own terms to then build up a picture of the whole – a dialectical conception of the world holds that parts and wholes constitute each other, and that the whole is more than simply the sum of its parts. Paul Paolucci (2011, p. 56) sums up this distinction quite nicely: “The issue, then, is whether we should think of the world as a collection of parts, or, should we first think of the world as a whole that contains mutually defining innerconnections that we must abstract out as the whole’s constitutive parts.” For if reality is a ‘whole’, he notes, then the relevant question of research becomes into “what sort of parts does the empirical evidence allow us to carve”? Here, parts are not simply ‘things’ – parts are relations and processes.

Bertell Ollman (2003, p.12) describes the dialectical method as “a way of thinking that brings into focus the full range of changes and interactions that occur in the world.” Moreover:

Dialectics is an attempt to resolve this difficulty [i.e. that we are trying to understand a world that is constantly changing and interacting] by expanding our notion of anything to include, as aspects of what it is, both the process by which it has become that and the broader interactive context in which it is found. Only then does the study of anything involve one immediately with the study of its history and encompassing system.

Dialectics restructures our thinking about reality by replacing the common sense notion of “thing” (as something that has a history and has external connections with other things) with notions of “process” (which contains its history and possible futures) and “relation” (which contains as part of what it is its ties with other relations). (p. 13)

This notion of extending the study of a ‘thing’ to include its ‘becoming’ (as “process”) and its ‘entanglements’ (as “relation”) has been a key methodological guide in this project.

Hence, it is not only the ‘recycling system’ in each city that is the object of research, but also the historical evolution of the production and commodification of waste and its relationships within the wider context of capitalist production (that is, in relation to home production, expansion of

the mass market, particular forms of accumulation and restructuring, etc.) that constitute the subject matter of this dissertation. This emphasis on context or the “environment”, in turn, lends itself to the use of case studies (Flyvbjerg, 2013. p.170).

Here, the case studies serve as the point of departure, as the “stuff” of life, or in Marxian terms – the real-concrete – from which theoretical elaboration proceeds. In contrast to positivist schools of thought typical of the political science discipline, it is not assumed that the “empirical” evidence, subjected to statistical and mathematical manipulations, will itself yield self-evident, “objective” theoretical results. Rather, I recognize, with more interpretivist approaches, that theory always inevitably informs the research exercise from the outset, in terms of the research questions being asked, the kinds of evidence marshalled, the relative importance paid to different pieces of evidence, and the way findings are interpreted. However, this is also a project of theory-*building*. Although theory informs the parameters of research, the findings in turn inform and change the initial theoretical analyses and premises. In the words of Sayer (2010, p. 144): “empirical studies are theoretically-informed. But empirical research can also be theoretically-informative; though guided by existing theory it can yield new theoretical claims and concepts” (emphasis in original). The relationship between theory and research practice, in other words, is dialectical.² For instance, engagement with the ‘real-concrete’ of informality in Buenos Aires led me to reconceptualize transformations in the waste sector as one of concentration and centralization rather than that of primitive accumulation and ‘enclosure’ and to further problematize the concept of informality itself.

This research proceeds from a dialectical, historical materialist approach that emphasizes *interrelationships* and the mutual constitution of the phenomena under consideration within the

² Wheeler and Glucksmann (2015, p. 55) also usefully conceptualize the research process as an “iterative relation between empirical research and analytical reflection.”

context of its whole – that is, as Levins and Lewontin formulate so elegantly, “part *makes* whole, and whole *makes* part” (1985, p. 272, emphasis in original). This meant approaching important concepts such as ‘waste’ and ‘green jobs’ as *relational* rather than absolute, essentialized categories that nonetheless do take on definite characteristics as they become embedded within specific socio-material relationships. That is, the category of waste takes on definite social-material characteristics when it is produced and sold as a commodity on the market within specific sets of social relationships anchored in physical space and time.

Approaching the study from this perspective at once alerts us to the human agents, their practices and their struggles that give these categories meaning – and thus the necessity of an *analysis of power* – as well as to the ways the materiality of the object or phenomena under investigation informs the universe of practical engagement possible along with their (un)expected consequences. The task of the concrete research of this dissertation, therefore, is to untangle and delineate these specific social relationships and materialities involved in the production of waste as a commodity within definite geographical spaces at multiple scales, and with regard to the way these relationships and materialities change and evolve over time.

The Comparison

For this purpose, I have chosen to analyse two large cities with very diverse experiences and arrangements with respect to recycling: Buenos Aires (Argentina) and Toronto (Canada). The management of residential recycling in Buenos Aires has been marked by considerable informality that has been common amongst many cities across the Global South. The protagonists of this sizable informal recycling sector, who are often seen roaming city streets in search of recyclable goods, have long entered the collective psyche as potentially dangerous

figures, a sign of complete destitution, or perhaps an object of collective pity. However, what is particularly interesting about the *porteño* (referring to those who are or that which is from Buenos Aires) case is that those involved with this informal work began to struggle collectively to improve the conditions of their work, forming cooperatives and rejecting much of this public narrative about their work in the process – they were not ‘human waste’ and their activities were not ‘scavenging’, they were marginalized people performing honest, environmentally beneficial ‘work’. And honest work, in their view, therefore merited dignity and decent working conditions.

In contrast, the management of residential recycling in Toronto occurs as a largely formalized and partially privatized affair under the direction of the municipality, and is underwritten by the cooperation of households to pre-sort their wastes, a situation that is common amongst rich cities across the Global North. Although it would be a mistake to assume that informal recycling does not occur, it is by no means the dominant method of managing recyclables in the present.³ The permanent municipal residential recycling program in Toronto arises not out of economic crisis, but out of a crisis in waste disposal.

What, then, is the point of comparison between these two very diverse experiences? It should be noted that up until this point, the rough description of the situation in both places fits in very well with dominant narratives of environmental, economic, and political affairs in the so-called “developing” and “developed” world. And, indeed, what I have called “traditional” comparative projects of this sort might typically lead to some mixture of various pronouncements of institutional failure, corruption, or lack of capacity in waste management to account for informality, accompanied by a subtle pat on the back or otherwise ‘privileged guilt’

³ Casual observation confirms, for instance, people collecting cardboard and other items in grocery store shopping carts along King St. and around Spadina Ave. and Bloor St. The collection of alcohol bottles from the street or from dumpsters for their deposit redemption value is also common.

for the comparatively efficient (but of course, still not entirely adequate!) and otherwise ‘boring’ and ‘clean’ state of affairs ‘here’.⁴ This common duality was most poignantly captured by a woman I encountered on the street in front of one of the recycling cooperatives in a fashionable part of Buenos Aires during the course of research, who remarked: “What could you (in Toronto) possibly have to learn from us here?” (She proceeded to assure me that in all of the cities she had visited *all over* Florida, large and small, things were always impeccably efficient and clean).

Insofar as this is a narrative that I wish to disrupt and problematize, I am in agreement with post-colonial scholars who point out that the dualities of the colonial project are alive and well and serve a political purpose as well as with environmentalists who point out that the “North” is far from “clean”. I enter the discussion, therefore, from a different vantage point: that of the production of value from waste. The comparative question becomes, then: what are the socio-ecological foundations and effects of the production of value from waste in these different spaces? From this perspective, the production of value from waste – that is, the constitution of waste as a global commodity – is already a unified process that ties together very diverse spaces, histories, and experiences in *fact*, and with very differentiated outcomes. Furthermore, the shift in focus also allows us to explore the socio-ecological contradictions inherent in the production of value from waste in *both* of these spaces rather than falling into comparative binaries like ‘clean’ versus ‘dirty’. This, in turn, has led a to focus on the contradiction between rising productivity (via mechanization) and the ability to deliver increased employment or improved ecological outcomes.

⁴ Sometimes, even critical comparative projects such as that of María Zapata Campos (2013), though eschewing the problematic pronouncements of state failure and the like, nonetheless falls prey to the emphasis of how ‘clean’ and ‘efficient’ waste management is in rich cities (Gothenburg) – indeed, many environmentalists would dispute the characterization of garbage incineration as ‘clean’ energy (p. 51) – versus the dirty state of affairs ‘over there’ (Managua).

From this vantage point, the selection of two very diverse cases becomes a way of challenging the researcher to be more reflexive and precise in her deployment of abstract conceptual and theoretical categories and generalizations. It continually begs the question: is this concept a legitimate abstraction, general principle or policy prescription, or is it simply a projection of what happens in some localities as the ‘norm’ on a global landscape?⁵

Data Collection

The analysis proceeds at different levels of abstraction (Ollman, 2003), and the presentation of the argument becomes increasingly concretized with each successive chapter. As such, even though a critical engagement with the notion and project of ‘green jobs’ is the principal thematic focus of this thesis, it does not make its appearance until the second chapter. In a sense, this dissertation employs an analytical strategy of going ‘backward’ and ‘forward’, both situating the green jobs program within more abstract theoretical debates about the social and natural world, particularly locating it within the tradition of ecological modernization, as well as moving it forward to lower levels of abstraction, asking what it means in more concrete contexts.

Given the relatively wide scope of this project, a variety of sources and methods have been employed in the course of research. In addition to academic literature review (across a range of fields including anthropology, environmental studies, gender studies, history, political economy, political theory, and sociology) and investigative journalistic studies, this dissertation

⁵ This is, in some sense, a variation of Tilly’s defense of using small numbers of in-depth case studies: “With small numbers, the student of a structure or process has little choice but to pay attention to the historical circumstances and particular characteristics of the cases at hand and thus to work harder at meeting the commonsense conditions for effective comparison” (1984, p. 77).

has also relied on extensive qualitative document analysis (Bowen, 2009), anonymous semi-structured interviews with key informants, as well as both participant and non-participant observation as methods of research (Berg, 2001). In an effort to secure participants for interviews (and as we will see, this turned out to be much more important in Toronto), no identifying information was used in reference to these interviews in the text of the dissertation, and in some cases, names of interviewees were not recorded on interview notes. Instead, interviewees were identified by a code, such as ‘CM’ (representing ‘cooperative member’), or ‘PR’ (‘private recycler’), etc.

Data *triangulation* in the more narrow sense of using “multiple data-gathering techniques...to investigate the same phenomenon” has been a key aspect of this research “as a means of mutual confirmation of measures and validation of findings” and “convergent validation” (Berg, 2001, p. 5). For instance, following Strasser’s own methods (1999), I corroborate some of her claims regarding the reuse and bartering of wastes in the 19th century with excerpts of a housekeeping guide intended for women immigrants to Canada during this period in Chapter 3. Triangulation is particularly important because apart from the question of scope, in the context of the available evidence for this research project, the use of any “single research technology” (Berg, 2001, p. 4), on its own, yields only partial sources of evidence. The use of multiple research methods, therefore, has been essential to and is more appropriate for providing a richer, many-sided engagement with the research problem at hand.

The sections that follow focus principally on a description of research methods employed in Chapters 2, 4, and 5. This is because the ‘data collection’ involved in Chapters 1 and 3 mainly took the form of a traditional literature review, synthesizing as well as critically reinterpreting

this literature with a view to exploring the theoretical questions laid out above, and is thus relatively straight-forward in this regard.

The Green Jobs Debate

Empirical research to establish the parameters of what has been referred to as the “green jobs” and “green growth” perspectives in this dissertation mainly involved qualitative analysis of key policy documents published by international organizations, labour unions and environmental organizations (deliberated on in Chapter 2), and was complemented by a review of relevant academic literature.⁶ Research initially began by examining a few of the key policy documents released by the UNEP (2008; 2011; UNEP/ILO/IOE/ITUC, 2008; UNEMG, 2011) and the ILO (ILO/IILS, 2011a; 2011b) on the subject of promoting environmentally-friendly employment between 2008 – 2011. These were chosen both because of the symbolic weight and global scope of these organizations as well as the thoroughness of these reports in developing the subject (some of these reports reaching some 600 pages in length).

These documents were analyzed along a number of dimensions, such as their definition of green jobs, their analysis of the causes of the financial crisis, their strategic responses to the environmental and financial crises, the strategic actors they identify in achieving their program (i.e. the state, global markets, etc.), key themes and propositions, and so on.⁷ Through this analysis, the initial parameters of the two readily identifiable ‘camps’ with respect to the debate

⁶ I also attended one full-day panel on green jobs with Canadian academics, labour and environmental organizations (“Green/ing Jobs: Definitions, Dilemmas, Strategies” on January 20, 2011) as well as one international panel (“Green Work, Brown World: Labour and the Dilemma of Climate Change” on January 25, 2013) as part of the background research for this chapter. While this did inform my understanding of the alliances and propositions common to the debate, these were not specifically used as evidence in Chapter 2.

⁷ This was done manually, on a very large paper chart.

on environmentally-friendly solutions to the financial crisis began to emerge. Subsequent reports and campaigns released by environmental and labour groups were then analysed and categorized according to these initial parameters, after which these initial parameters were themselves revised to more adequately reflect the new elements added to each ‘camp’. Through this exercise, several common elements to the “green jobs” camp were identified, such as the insistence on promoting labour-intensive industries, the importance of a ‘just transition’, and a favourable orientation towards state intervention as a means of achieving a green transition.

The Case Studies

Empirical research for Chapters 4 (Buenos Aires) and 5 (Toronto) focused on investigating: i) the labour process of recycling now prevalent in each city; ii) its mode of organization; and iii) its historical development. Although the questions to be answered were the same, the relative weight of specific research methods and strategies used differed slightly as a result of the differing state of research and availability of evidence on the subject in each place.

Buenos Aires

In Buenos Aires, a substantial amount of scholarly research (both qualitative and quantitative) on the long history of waste and recycling in the city as well as sociological and anthropological studies of the *cartonero* phenomenon already exists. As such, conducting an extensive literature review formed a crucial part of research; this was complemented by qualitative document analysis (of newspaper articles, news segments, websites, social media updates, etc.), participant and non-participant observation, and semi-structured interviews. These latter methods served to both corroborate the information found within the scholarly literature as well as establish more “up-to-date” information on the subject. Because ethnographic research

detailing the labour process of informal collection was already available, data collection focused mainly on the 'new' developments of semi-formalized collection by *cartonero* cooperatives supported by the city of Buenos Aires. Interviews and site visits took place in person from May 2012 to August 2012. At the time of research, there were six official sorting centres (*centros verdes*) operational in the city, out of which it was possible to contact five. Since it was not possible to reach one of these cooperatives, data regarding the workings of this particular cooperative was instead gathered through news segments and videos made by or of them, and corroborated with information provided by other interviewees.

Non-participant observation took place both casually through observation of recycling activities on the street in the city as well as site visits to four out of the six official sorting centres. These site visits were particularly valuable in corroborating information given by spokespersons in the interviews. The main methods of data collection included photographs and field notes, paying particular attention to the conditions of work as well as to the labour processes involved in the collection, sorting, and storage of recyclables.

One instance of participant observation was also conducted in the course of research. In this case, I accompanied one cooperative member on her daily collection route, helping out with the tasks at hand as well as asking questions. This mainly served to get a better understanding of how the cooperative functioned and how work was organized.

Finally, four in-depth semi-structured interviews (audio recorded) and one informal interview (no audio recording) were conducted with key spokespersons of the aforementioned official sorting centres and one semi-structured interview was conducted with a city employee in

a relevant department (no audio recording).⁸ Written informed consent was secured in each of these interviews. Contact information for potential participants was acquired through the snowball method (Berg, 2001, p. 33); initial contact details to potential participants were acquired through informal interviews with academic contacts in the field, and subsequent contact information to spokespersons were provided by interviewees.

Although the interview questions were open-ended, in the main, to allow participants to bring up subjects relevant to them, interviews with spokespersons of the *cartonero* cooperatives nonetheless focused on a few key common areas regarding why and how the cooperative was formed, their relationships with other cooperatives and the city government, the organization and division of work within the cooperative, their membership, wages and working conditions, typical current prices for different kinds of recyclables and quantities recycled, their assessment of the successes and failures of the movement up until then, as well as challenges and future plans. Because of the highly varied landscape even in these semi-formalized spaces, interviews with key informants who were able to provide a ‘bird’s eye’ view as well as organizational information specific to their respective cooperatives proved to be highly valuable in this regard. While the interview with the city employee covered similar themes, the relative focus was more from the perspective of the city government. In this interview, it was also possible to gather some rough statistics regarding the sector that individual cooperatives did not have at their disposal.

⁸ The case of the lone informal interview was the result of a spontaneous site visit; as such, the interviewee in question did not have time to give a formal interview. Instead, written consent was obtained and a short, informal interview was conducted instead and written notes taken of answers. The interview with the city employee was not audio recorded at the former’s request; written notes were taken instead.

Toronto

Unlike Buenos Aires, there is a paucity of scholarly research on the history of waste and recycling in Toronto. As a result, a comparable understanding of the history of recycling required extensive consultation of archival material at the City of Toronto Archives from June 2015 to September 2015. Qualitative document analysis of a large variety of documentation ranging from city council minutes, reports, department letters, receipts, depositions, wartime bulletins and flyers, to internal memos served to build a picture of the evolution of waste management and recycling in the city since its earliest years. Particularly useful as a guide were the annual reports produced by the street cleaning department over the course of 30 years, from 1926 to 1956.

Research methods employed to investigate the present labour processes of recycling and mode of organization had to be more eclectic because it was much more difficult to gain access to key informants involved in municipal recycling.⁹ Qualitative document analysis of publicly-available information on the internet (such as government websites and videos, city council reports, budgets, collective agreements, newspaper and magazine articles, and public health and safety reports or internal memos), informal email and personal communication with a city employee (in November and December 2015), as well as attendance at a public meeting hosted by the solid waste management department for their Long-Term Waste Management Strategy (June 15, 2015) all served to elucidate the current state of organization of municipal recycling in Toronto. Indeed, because of the more formalized nature of the recycling program, it was much easier to access paper (and video) documentation regarding the process. In this respect,

⁹ This is particularly interesting given that formalization and transparency are so often linked in discourse, yet in research practice, it was often impossible to gain access to these ‘formal’ workplaces, unlike in Buenos Aires, where all of the cooperatives were in many ways much more open and transparent in terms of allowing visits, taking pictures, interviewing workers, etc. With the exception of the public workers’ union, most of those contacted in Toronto tended to be much more guarded and wary than their counterparts in Buenos Aires.

qualitative document analysis became a much more prominent research strategy compared to the Argentine case.

Document analysis was complemented by non-participant observation both casually on the street as well as in two limited site visits to commercial recycling facilities. It should be noted that unlike in Buenos Aires, I was not able to gain access to many areas at these sites. These site visits were, nonetheless, enough to establish that considerable variation exists in terms of scale, mechanization, and cleanliness in this sector.

Three semi-structured interviews (no audio recording) were conducted in November 2015, with interview notes recorded by hand. Contact details for two of these were acquired as publicly available information, while the third was the result of a spontaneous site visit. Two interviews were conducted with verbal consent with employees of two different commercial recycling facilities. While these participants were presented with and read through the informed consent form, in each case they indicated that they were wary of signing a form in writing, but nonetheless gave consent to answer questions.¹⁰ Interviews focused more on the circuit of recycling in Toronto, in terms of materials recycled, their destination, and the sorting process.

The third interview, with a representative of the union local representing city workers in the waste management division, took place with written consent but was not audio recorded at the participant's request. As such, extensive handwritten notes were taken instead. The interview focused on the labour process of recycling in Toronto such as wages and working conditions (i.e. occupational health and safety), membership and organization of work in the department, trends and changes in working conditions or repercussions in the sector since partial privatization, and

¹⁰ It should be noted that one of these interviewees displayed reluctance to answer any questions that were not in the nature of basic already publicly available information for fear of potential repercussions. As such, this interview was not cited or used in any significant way in the chapter, although it does inevitably form part of the 'background knowledge' of this research project.

labour struggles in the sector. Although most of this information concerned public sector working conditions, some of this also related to that of the private sector.

Because it was not possible to gain access to the private collection and sorting companies associated with municipal recycling, the working conditions found therein (including some claims made in the interview mentioned above) had to be inferred or corroborated through publicly available information. This principally took the form of reviewing videos of the labour process uploaded by the city government or news media (including “undercover” videos posted by residents), examination of the employment section of the main material sorting company’s website, as well as a search for employment listings in the field on a prominent employment listings website (Indeed.com) in the GTA to gauge average market wages and conditions in the private sector. Due to the partial and fragmented nature of the available evidence, data triangulation became a very crucial way to establish, corroborate and evaluate research findings to build a more complete picture of the situation.

Why Semi-Structured Interviews with Key Informants?

All of the interviews conducted took on a semi-structured form rather than through a set of identical pre-scripted questions. That is, while interview questions followed a number of key common themes, the line of questioning was not rigid. This was to ensure both a more natural flow of conversation as well as to ensure that participants would also be given the chance to direct the flow of conversation. Indeed, this often resulted in participants offering unsolicited, valuable information in the course of the interview. Given the time and resource constraints of the dissertation, a choice was made to primarily interview key informants (such as labour representatives and spokespersons) rather than individual waste workers in Buenos Aires and

Toronto. As was noted above, this was mainly because key informants who had a longer history of working with their respective organizations were in a privileged position to comment on the broader context, beginnings, development, and strategic direction of their organizations.

However, this was also a choice informed by ethical considerations, especially in the case of Buenos Aires. Given that it was possible to maintain the integrity of the dissertation through interviewing designated spokespersons, corroborating the information by direct observation and consulting relevant scholarly work, government audits/reports and other materials, and given that no immediate (or even medium-term) benefits seemed likely to accrue to potential participants – in fact, most of the immediate benefits of the research would fall on the researcher alone – it did not seem justifiable to ask marginalized populations who were already working long hours and pressed for time to further donate their time to this study when designated spokespersons were already available. In short, some of the choices regarding research strategy were made in an effort to be more accountable and aware of my own positionality as a researcher, and as much as possible avoid a situation in which already exploited groups are taxed further in order to advance the interests of another. I do not claim that this was completely achieved; rather I simply note that deliberation on the subject accounted for some of the choices I made regarding research design.

Theoretical Research: There and Back Again

I began this discussion of research methodology by noting that this is not a traditional comparative project, and that comparison was the substance, not the framework, of the inquiry. This has meant that although empirical research for the case studies had the goal of generating evidence and answers to the same questions and themes listed in the previous section, their

relative weights in the exposition of the final argument were not the same. The selection and weighting of evidence depended on the requirements of theoretical development and exposition rather than the formal requirements of strict comparability. Thus, the older history of recycling in Buenos Aires, for instance, though in no way contradicting the theoretical argument advanced, took a backseat in favour of a more detailed exposition of the dynamics of market-based recycling prevalent today, the latter offering more interesting and essential material from the point of view of theoretical development. In short, precedence was given to the many-sided development of the research problem at hand rather than to the symmetry of form in exposition.

Appendix B

*N.B. The following is an exact copy of the letter that was circulated via printed flyers as well as email and social media networks. I have, therefore, kept the original font and formatting.

Carta abierta a CFK

Reinstalar la movilidad social ascendente que caracterizó a la República Argentina requiere comprender que los problemas de la pobreza no se solucionan desde las políticas sociales, sino desde las políticas económicas. (“Discurso del Señor Presidente de la Nación, Doctor Nestor Kirchner ante la Honorable Asamblea Legislativa”, 25 de mayo de 2003)

Grito Cartonero ¡!

José León Suárez, 11 de junio de 2012

Compañera Presidenta.

Dra. Cristina Fernández de Kirchner:

De nuestra consideración.

El objeto de la presente es poner en vuestro conocimiento las circunstancias que desatan el constante conflicto que transitamos los trabajadores de las plantas sociales que funcionan en el predio de el Ceamse, más precisamente en el relleno Norte III. Estas “plantas sociales” son el cobijo donde casi 800 trabajadores desempeñamos la tarea de minimizar y reutilizar los residuos sólidos domiciliarios, los cuales son generados en los millones de hogares ubicados en la Ciudad de Buenos Aires y constituyen la mitad de los residuos que se generan en todo el territorio de la provincia de Buenos Aires. En este sentido, nuestra actividad es la única tarea real en pos del cuidado del medio ambiente. Casi todos nosotros vivimos en los barrios que se erigen alrededor del relleno y del río Reconquista, que le da nombre a nuestra región conocida como el Área Reconquista.

Nuestras casas han sido construidas sobre antiguos basurales clandestinos, por eso esta zona es hoy un territorio que fue recuperado para ser habitado por decenas de miles de familias. Y aunque peleamos cada día por progresar, y no nos resignamos, tenemos que convivir con las consecuencias de ser una zona de enterramiento de basura, lo cual repercute en nuestra calidad de vida, siempre amenazada por las enfermedades crónicas y degenerativas, la contaminación y las plagas, y la falta de infraestructura para atender el daño ambiental que produce la basura que se genera en otros barrios, pero que siempre viene a los nuestros.

Usted, Sra. Presidenta, sabe que nuestra región es reconocida por ser una zona en la que el cirujeo ha sido desde hace décadas un refugio constante frente a la pobreza, habiéndose hecho tristemente célebre desde los fusilamientos de J.L.Suarez.

Las familias que aquí viven transitan o han transitado todas las formas del cirujeo: en la ciudad y en la quema o relleno, en el Tren Blanco (ahora Camión blanco) y con el carro y el caballo. Esta actividad siempre fue un sustento para nuestras economías familiares, para algunas de emergencia, para otras permanente.

Formamos parte de la otra economía, la misma que genera que vivamos en un cuadro de situación social que trasciende lo marginal, y nos coloca al borde de la descomposición social. Somos el espejo donde esta sociedad no se quiere reflejar, lo que se quiere ocultar, como la basura: siempre en el patio de atrás, fuera de la vista y el olfato de la gente bien. Pero nosotros, como todos los habitantes de esta bendita tierra que es Argentina, queremos vivir y hemos luchado incansablemente por ser vistos y oídos. Las plantas sociales fueron, en ese sentido, un importante logro para todos nosotros.

Efectivamente, el programa de plantas sociales que impulsó Ceamse, tuvo como primer objetivo descomprimir el conflicto que se suscitó en los primeros años de este siglo el incremento de vecinos, que en busca de un sustento, llegaban al relleno. Llegaban como víctimas del genocidio económico neoliberal de los años 90, cuya crueldad no solo se expresó en la falta de oportunidades para nosotros y nuestros

hijos, sino en conductas criminales, como la desaparición de nuestro compañero y vecino Diego Duarte en el año 2004.

Las plantas fueron entonces presentadas como una posibilidad de generar fuentes de trabajo genuino y digno para muchos compañeros. Sin embargo, luego de casi 9 años de lucha, este objetivo no se ha concretado. Si bien nosotros trabajamos cada día en la recuperación de residuos enterrando nuestro cuerpo en montañas de basura, no hemos podido concretar nuestro anhelo de ser reconocidos como prestadores de un servicio público y de ser remunerados en consecuencia.

Al contrario, apenas se nos permite vender aquello que podemos recuperar, diciéndonos que eso es una fuente de ingresos millonaria si se la sabe administrar. Mientras tanto, los abultados presupuestos que se destinan a saneamiento quedan en manos de empresas privadas. Justo el otro día preguntábamos a un funcionario porteño ¿Cuántas empresas de recolección estarían dispuestas a brindar su servicio sólo a cambio de vender los materiales que recuperan? Ninguna nos respondió. ¿Por qué tenemos que conformarnos nosotros, entonces? Nadie nos da una respuesta a esa pregunta, pero parece que nosotros debiéramos aceptar y agradecer lo que ningún capitalista estaría dispuesto siquiera a considerar. .

Mientras tanto, las políticas públicas de los últimos años parecen más destinadas a dificultar que a afianzar la actividad de reciclado, la única alternativa social, económica y ambientalmente viable frente al agotamiento del actual modelo de gestión de los RSU.

En tal sentido, vemos que permanentemente se intenta evitar que nuestra actividad sea formalmente reconocida como un trabajo, realizado por trabajadores de oficio calificados y generadora de materia prima industrial. Sabemos que el reciclado es una fuente de recursos estratégica en el marco del camino que ha elegido la Argentina para capear el temporal desatado por la crisis internacional consistente, como Ud. ha señalado, en la industrialización sustitutiva y la restricción de importaciones.

Sin embargo, nuestra actividad –a instancias de CEAMSE y de las empresas prestadoras de servicio de saneamiento ambiental- está enmarcada en la informalidad total, tanto en lo que respecta al trabajo que desarrollamos como a la comercialización de nuestra producción, construyendo cuasi monopsodios, sobre todo en lo que respecta a materiales como papel, vidrio, y PET.

Cuando planteamos y/o reclamamos se nos reconozca como trabajadores de esta nueva actividad los organismos e instituciones nos dicen que no hay recursos para tal cuestión, a lo que nosotros respondemos, lo que no hay es voluntad de lograrlo y/o generarlo. De hecho, una Ley de Envases permitiría en parte comprender este reclamo, como así también considerar los volúmenes no enterrados, prologando la vida útil del relleno e incrementado la posibilidad de contar con recursos financieros para atender nuestros reclamos

Sin embargo, nuestras propuestas nunca son escuchadas, no se nos tiene en cuenta, como decimos en el barrio: nos ningunean. A lo sumo se nos ofrece ayudarnos a tramitar subsidios destinados a poblaciones inempleables o vulnerables. Pero nosotros nos consideramos trabajadores de oficio, pioneros en el reciclado en Argentina, aún cuando esta actividad fue prohibida por un decreto ley de la dictadura genocida.

Nosotros somos los que sabemos acerca de cómo manejar los residuos. El reciclado no llegó a la Argentina de la mano de ninguna empresa u ONG internacional ecologista, que hoy nos invita a admirarlos y a aprender de cómo hacen en Europa, pretendiendo implantar sus conceptos, como "basura cero". El reciclado no llegó tampoco por los millonarios presupuestos de plantas modernas de valoración energética o MTB. -Tratamiento Mecánico Biológico. Ni llegó de la mano de CEAMSE, que fue producto del modelo de gestión de residuos ideado por la dictadura que criminalizó el reciclado. El reciclado existe en la Argentina realmente desde hace más de 130 años, aunque nunca se haya dado un tratamiento adecuado los protagonistas del sector. Esta es la base central de nuestros reclamos: **QUEREMOS SER ESCUCHADOS, TENIDOS EN CUENTA Y TOMADOS EN SERIO. NOS ESTAMOS**

MURIENDO DE HAMBRE, JUGÁNDONOS LA SALUD, MIENTRAS LAS EMPRESAS DEL SECTOR HACEN MAGNÍFICOS NEGOCIOS.

Por eso, le informamos y pedimos a Usted, señora presidenta, que ha hecho de la inclusión social uno de los paradigmas de su gestión, que nos ayude a terminar con más de un siglo de indiferencia hacia nosotros, nuestro saber hacer y nuestros padecimientos.

Lo que reclamamos es que se nos tenga en cuenta al pensar el nuevo modelo de gestión de los residuos. Hoy en día participan de esa discusión diversos actores (Acumar, Ceamse, Greenpeace, Cels, Intercuencas, nosotros) y nos interesa participar para lograr **la potenciación de lo que ya hay**, las plantas sociales y las cooperativas que en galpones, más o menos equipados, públicos o privados, hacen su aporte concreto de recuperación de RSU. Para que así se formalice la inclusión social tantas veces declamada.

Seria de ingratos no reconocer cuánto nos han ayudado a resolver urgencias programas como el “Argentina Trabaja” o la Asignación Universal por Hijo, entre otros. Pero ahora queremos también que se nos reconozcan nuestros derechos **como trabajadores calificados que somos**, con legítimas pretensiones de participar del esfuerzo colectivo que hacen todos los argentinos para mantener limpia su casa, su ciudad, su provincia. **Si CEAMSE cobra por contaminar, nosotros queremos cobrar por reciclar.**

Presidenta: Desde hace años y por generaciones, venimos realizando con nuestras manos la actividad ecologista por excelencia, la que marcará el futuro de nuestra era. Sabemos del potencial productivo de nuestra actividad, solo queremos ser sujetos de derechos por nuestro trabajo y sabemos que Ud. tiene la fuerza y la voluntad para profundizar este modelo, que parió nuestro pueblo y el coraje de Néstor Kirchner y continúa Ud. con la vista y el corazón puesto en todos los argentinos, pero en particular, en los que menos tenemos.

En concreto, queridísima Compañera, le solicitamos acompañe nuestro reclamo de ser reconocidos como trabajadores y sujetos de derechos por la actividad que desarrollamos en beneficio de el conjunto de nuestra sociedad toda. Presidenta, queremos ser artífices de nuestro propio destino y no instrumento de la ambición de tantos.

Aguardando, seguros de que Ud. tomará como propio nuestros reclamos y necesidades, le solicitamos nos permita conversar con Ud. a fin de encaminar esta posibilidad. Aguardando vuestra respuesta la saludamos muy afectuosamente.

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Interviews

*N.B. Names will be given to examining committee members separately upon request at the defense.

Private Recycler #1 (PR1). November 24, 2015. Toronto, Canada.

Private Recycler #2 (PR2). November 24, 2015. Toronto, Canada.

Recycling Cooperative #1 Representative (CR1). June 21, 2012. Buenos Aires, Argentina.

Recycling Cooperative #2 Representative (CR2). June 22, 2012. Buenos Aires, Argentina.

Recycling Cooperative #3 Representative (CR3). June 20, 2012. Buenos Aires, Argentina.

Recycling Cooperative #4 Representative (CR4). July 17, 2012. Buenos Aires, Argentina.

Recycling Cooperative #5 Representative (CR5). July 17, 2012. Buenos Aires, Argentina.

Recycling Government Worker # 1 (GW1). July 30, 2012. Buenos Aires, Argentina.

TCEU/CUPE Local 416 Representative #1 (UR1). November 25, 2015. Toronto, Canada.

Site Visits (Non-participant observation)

*N.B. Names will be given to examining committee members separately upon request at the defense.

Cooperative Sorting Plant #1 (SV1). June 28, 2012. Buenos Aires, Argentina.

Cooperative Sorting Plant #2 (SV2). June 30, 2012. Buenos Aires, Argentina.

Cooperative Sorting Plant #3 (SV3). July 17, 2012. Buenos Aires, Argentina.

Cooperative Sorting Plant #4 (SV4). July 17, 2012. Buenos Aires, Argentina.

Private Recycling Plant #1 (SV5). November 24, 2015. Toronto, Canada.

Private Recycling Plant #2 (SV6). November 24, 2015. Toronto, Canada.

Site Visit (Participant Observation)

*N.B. Names will be given to examining committee members separately upon request at the defense.

Cooperative Collections Office #1 (SV5). July 5, 2012. Buenos Aires, Argentina.