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NICOLAS SCHLITZ

**Recycling Economies and the Use-Value of Waste:
Scrap Shops in Kolkata, India**

ABSTRACT Informal recycling networks in the Global South have stimulated debates about political economies of recycling in post-colonial contexts. This article retrieves the underrated Marxian notion of use-value to explore how used plastic materials are revalued in the plastic recycling networks of Kolkata, India. Focusing on the role of scrap shops within recycling networks, the relation between informal and formal economic spaces is discussed with reference to Sanyal's (2007) distinction between needs-based and accumulation economies. It is argued that scrap shops perform the crucial role of translating concrete use-value of wasted plastics into new potential social use-value. Thereby, the analysis contributes to understanding the transformation of value between informal and formal economic space in post-colonial political economy of recycling in India.

Keywords *informal recycling, scrap shops, Kolkata, use-value, global destruction networks, post-colonial political economy*

“We must be careful also to distinguish between forms of capital that travel in circuits of expanded reproduction and those that strive primarily for simple reproduction or acutely modest accumulation (petty or simple commodity production). And we must acknowledge frequent scenarios where commons (and the communities that sustain them) are relay points in the social life of commodities, and as such may subsidise and supplement capital accumulation.” (Gidwani/Baviskar 2011: 143)

1. Introduction

In India, as in many countries of the Global South, economic development throughout the last decades was coupled with an exponential growth as well as compositional change in waste generation (Zhu et al. 2008: 10). Notably, the plastic proportion of the total Municipal Solid Waste (MSW) generation in India has been increasing from 0.7% to 4% between 1971 and 1995 (Mutha et al. 2006: 223). Moreover, the average per capita plastic consumption rose further from 0.8 kg in 1990/91 to 3.2 kg in 2000/01 (Mutha et al. 2006: 223) and increased sharply to around 13 kg in 2014 (WBCSD 2016: 7).

This concomitant feature of economic growth has posed serious challenges to urban local bodies charged with the public responsibility for solid waste management. It laid the groundwork for the formation of vast informal economic networks geared toward the recovery of value from used plastic materials, wherever the local state and private corporations proved incapable of handling and valorising wasted plastics. These informal recycling networks¹ created income opportunities for economically deprived urban populations in times of ‘jobless growth’ (as the post-reform period in India is often characterised), particularly for marginalised social groups. The waste generated as a result of neoliberal globalisation in urban India advanced to a form of urban commons (cf. Gidwani/Baviskar 2011) and as a result, India has been able to reach exceptionally high plastic recycling rates (compared to most OECD countries) of around 60% (WBCSD 2016: 8).

This article places an empirical focus on scrap shops in Kolkata, in an effort to contribute to the theoretical understanding of the political economy of recycling. My empirical research was geared toward a multi-scalar analysis of plastic recycling networks in Kolkata ranging from *reclaimers*² and small scrap shops to recycling workshops and plastic processing industries (see section 5). This research focus is aligned with the burgeoning social science literature on waste (Gille 2007; Gregson/Crang 2010, 2015), and is ascribed in particular to the works concerned with recycling economies (Alexander/Reno 2012; Gill 2012; Gregson/Crang 2015; Samson 2017). As part of this literature, recent contributions within economic geography have described the ‘ongoingness’ of wasted materials’ economic life (Lepawsky/Mather 2011; Gregson et al. 2010; Crang et al.

2013) through *global recycling networks* (GRN) as well as their “very real beginnings and endings” determined by “processes of capitalist accumulation” (Herod et al. 2013: 378) in *global destruction networks* (GDN).

While these approaches have provided a number of analytical avenues for the appraisal of economies of waste and recycling, I contend that the analytical framework provided by the GDN approach falls short of explanations of why, how and under which conditions these recycling economies function in countries within the Global South. Moreover, they miss the implications that spatial and material patterns of wasting have for our understanding of the post-colonial political economy of recycling.

I argue, thus, for a resituating of recycling economies within uneven capitalist development and its prolonged dynamics of primitive accumulation (by dispossession [Harvey 2003] increasingly of urban commons; cf. Gidwani/Baviskar 2011). Such a reconceptualization goes hand in hand with a theoretical reframing of waste and recycling under (post-colonial) capitalism. In this regard, I emphasize the Marxian notion of use-value as an analytical tool to understand the passage of value from waste through the dispersed and fragmented economic geographies created by uneven capitalist development. I consider these fragmented economic geographies in terms of Sanyal’s (2007: 209) analysis of urban informal spaces as “needs-based” economies.

The deployment of the notions of ‘use-value’ and ‘needs-based economy’ is the result of an empirically grounded search for theoretical concepts that are consistent with the relevance of plastic waste’s materiality for the passage of value between informal and formal economic spaces that my research has indicated. In this article I intend to shed light on the question of how and why the interrelation between informal and formal realms of recycling functions economically. I will show this interrelation with regard to the intermediary role of scrap shops in recuperating value from plastic waste in the recycling economies of Kolkata.

In what follows, I will first engage in a theoretical elaboration of waste and recycling that emphasizes the Marxian notion of use-value against the background of uneven capitalist development. I will also critically discuss established works on GDNs within economic geography. Then, I briefly outline my methodological approach. This is followed by an introduction of (informal) plastic recycling economies in Kolkata, and India in general.

The remaining parts of this article take the scrap shop as a vantage point for the empirical analysis of the politico-economic significance of wasted plastics' use-values in the recuperation of value in Kolkata's recycling networks and of the social and economic conditions this is predicated on. These delineations give way to the suggestion that recycling economies in Kolkata ought to be understood in terms of their situatedness within the needs-based economies of post-colonial capitalism (Sanyal 2007).

2. Theorising economies of waste and recycling

Although the burgeoning social science literature on waste has focused much attention on informal recycling activities and the role of reclaimers, Samson (2017: 41) notes that “there is little engagement with literature on value theory or interrogation of *how* reclaimers contribute to the generation of new value” in recycling economies. While the sub-discipline of environmental economic geography (cf. Braun et al. 2018) appears well equipped to address this research gap, it has been silent on the relation of waste and value (with the exception of Franz et al. 2018). Two important exceptions have emerged from other fields of economic geography and were both posed as critics of *global value chain* (GVC, see Gereffi et al. 2005) and *global production network* (GPN, see Henderson et al. 2002) approaches: the works on *global recycling networks* (GRN, see Gregson et al. 2010; Lepawsky/Mather 2011; Crang et al. 2013) and *global destruction networks* (GDN, see Herod et al. 2013, 2014).

The works on GRNs have pointed out that recycling economies pose fundamental challenges to the conceptual frameworks of GVC and GPN approaches. They have argued that the presupposed linearity of value chains (which continue to structure also GPN research, see Crang et al. 2013: 14)—from production to consumption—is at odds with the trajectories of recycling value chains. Instead, they have shown how recycling networks follow multiple trajectories, crosscutting “different product and sectoral chains” (Crang et al. 2013: 14), while being oriented to the supply of eminently heterogeneous ‘goods’. The production and capture of value in these recycling networks, therefore, depends upon the ability to assess the quality of complex and heterogeneous materials, and the capabilities to

connect and mediate different production networks, value regimes and regulatory environments. Crang et al. (2013:22), thus, “demonstrate the central importance of materiality to the governance of value capture and extraction”. Lepawsky and Mather (2011) align with this principal direction of inquiry but focus more on the practices, actions and processes of wasting and recycling. They emphasize the “‘on-going-ness’ of economic activity” (2011: 243).

Herod et al. (2014) welcome this GRN critique of the orderly succession of production steps from input to output in GVC and GPN analysis. They however identify a “tendency to ignore the political economy of the passage of value/congealed labour from one product to the next in the recycling process and to focus, instead, on the transformation of commodities’ physical form and their discursive transition from ‘commodity’ to ‘waste’” (Herod et al. 2014: 425). To correct this tendency, they introduce the notion of GDNs “as networks of places where products are disassembled and their constituent parts are extracted for processing and re-use.” (Herod et al. 2014: 427) They also develop the insightful differentiation of devalorisation and devaluation:

“When a commodity literally wears out and its constituent elements cannot be used for anything else, then we might think of it as having been devalorised and the value incorporated within it and its constituent parts used up, with none left to be passed on to new products. However, when a commodity is replaced with a newer model and yet it is either still functioning and/or its constituent parts may be reused (either by taking them out and putting them unchanged into another commodity or by processing them and turning them into raw materials for new products), then we might think of it as having been devalued.” (Herod et al. 2013: 379)

This differentiation of devalorisation and devaluation provides important insights into the economic processes at work in the global trade in waste and recyclables. Moreover, it also improves our understanding of the political economy of formal recycling, especially in the global North. Recycling schemes mitigate environmental costs of capitalist over-accumulation and “create new spheres of accumulation for capital” (Samson 2017: 41), without jeopardizing demand for new products—a

logic epitomised in disposable items and planned obsolescence (Herod et al. 2013).

There are, nevertheless, three interlinked problems in the contributions on GDNs. According to Samson (2017), the first problem concerns the labour process emphasised by Herod et al. (2013, 2014) and their inability to properly account for the supposedly “unproductive labour” (Herod et al. 2014: 439) of informal recycling agents not directly linked to GPNs. The invocation of the term ‘unproductive’ to designate labour draws on the classical Marxian differentiation of ‘useful’ labour on the one hand, which is all labour producing some sort of use-value, and ‘productive’ labour on the other hand, which refers only to that ‘useful’ labour that also creates surplus value and is characteristic for capitalist production. This differentiation runs the risk of economic reductionism (Gough 1972: 72) as it assigns economic and political relevance to workers more or less exclusively according to their position within the production process. Such a position deprives the masses of informal workers of political and economic agency (particularly if they labour outside classical wage-relations). Instead, Samson (2017: 57) emphasises that “it is crucially important to recognise the role of informal workers in determining the conditions for the de- and re-valuation of waste”. For decades, the differentiation of unproductive and productive labour has been subject to considerable critique, particularly by feminist scholars like Federici (2004) who argue that capitalist accumulation is based on the constant exploitation of women’s unpaid reproductive labour thereby producing the most important of all commodities for capitalism: labour power. It is no surprise that these feminist critics have also been at the forefront of a renewed engagement with the “continuous character of capital’s ‘enclosure’” (DeAngelis 2001; Federici 2004; Harvey 2003). This highlights the unabated relevance that the dispossession, exclusion and exploitation of women, nature and the (post-)colonial ‘Other’ has “as a structural and periodically repeating process that is integral to the *longue durée* of the capitalist world economy” (Gidwani 2015: 590).

The second problem identified by Samson (2017) is related to a general tendency within the GPN literature to focus predominantly on the global nature of big capital (Bair/Werner 2011)—epitomized in the transnational corporation—and a subsequent disregard of “the specific nature of the capitalist economy in postcolonial contexts” (Samson 2017: 39). Herod et

al. (2014: 427) claim that GDNs are “indelibly imbricated with, and an indispensable Other to, GPNs”, but they interpret this entanglement of different economies solely in terms of a hierarchy (and thus, implicitly denigrate the supposedly ‘unproductive’ labour within informal recycling circuits). Samson (2017: 43) observes that “all of their examples focus simply on how differing labour costs and health and safety regulations in the global North and global South lead GDNs to take different forms in these locations”. She argues instead that informal recyclers not only “shape conditions for the de- and re-valuation of waste”, but “that the choices they make about how to revalue waste reveal important insights into the deep inner-relations between formal and informal, and local and global aspects of the economy in postcolonial contexts” (Samson 2017: 43).

Moreover, and in addition to this critique, I contend that the works on GDNs underestimate the role of material characteristics of waste, processes of wasting and the social metabolism³ of waste flows in the post-colonial political economy of recycling. The Marxian notion of ‘use-value’ (often neglected by Marxist economists; cf. Rosdolsky 1977) offers a theoretical avenue to attend to the materiality of waste (e.g. bio-physical properties) and processes of wasting, which can be directly related to the Marxian concept of value as congealed labour, deployed by Herod et al. (2013, 2014). In the remainder of this article, I discuss how this notion of use-value enables me to relate the abstract political economy of capitalist production to the material realities of plastic recycling in India. In this way, it is possible to analyse the entanglements between informal and formal economic spaces, which I consider in terms of Sanyal’s (2007) differentiation of needs-based and accumulation economies.

2.1 Capitalist patterns of wasting

In order to understand how the ongoingness of wasted things is connected with the political economy of capitalism, it is vital to take a detailed look at the ‘endings’ of commodities. That implies analysing the spatial and material patterns of wasting and the social processes embroiled in it. This section investigates such spatial and material patterns of wasting beyond and below the differentiation of devaluation and devalorisation put forward by Herod et al. (2013, 2014).

First, the production of (particularly post-consumption) waste under capitalism follows specific spatial patterns, namely spatial dispersion (Trettin 2002: 4–5), for the sake of value realisation through household consumption. This is why those things that could become waste (e.g. plastic waste) and might evolve into recyclable plastic, first and foremost have to be reclaimed from displacement. They have to be collected, differentiated, gathered and compiled before anything else could be done with them—they have to be recognized. This explains the important status of and enormous expenditure for (separate) waste collection schemes within formal waste management efforts in the global North and South alike.

Second, processes of wasting under capitalism do not produce plastic waste per se, but hybrid forms of waste composed of complex and intricate combinations of different materials (Gille 2007: 29). This is why they have to be appraised as things—potentially use-full things—long before they can become recycling plastic, and partly even before they become plastic waste. The Marxian notion of ‘use-value’ offers a useful way to analyse the role of wastes’ materiality within the political economy of capitalism. Horton (1997: 132) identifies the structural source of waste under industrial capitalism as “the priority of exchange value over use-value”⁴. In this vein, he offers an instructive “proto-concept of capitalist waste” (Horton 1997: 130), drawing on the explication of the commodity form in the opening chapters of Marx’s *Capital*. The single commodity, as Marx elaborates, appears as the elementary form of wealth in capitalist societies. He explains, “as use-values, commodities differ above all in quality, while as exchange-values they can only differ in quantity” (Marx 1990[1867]: 128). Marx emphasises that “the exchange relation of commodities is characterized precisely by its abstraction from their use-values” (1990[1867]: 127).

Consequently, Horton (1997: 130) argues that,

“[...] it is only under commodity production that useful things are thrown away. The social separation that commodity production introduces between production and consumption provokes the possibility of waste in the historically pure form of the discard of human use-value.”

The reason for this is that the “value of a commodity is finally dependent not on its (individual) use but its (social) ability to be sold” (Horton 1997: 129-130), which pertains to its (abstract) social⁵ use-value: “Waste under commodity production, therefore, assumes the conceptual form of the discard of abstract [social] use-value” (Horton 1997: 130), which is itself highly dependent on markets and societal conditions. This points to Marx own explication that “use-value itself – as the [social] use-value of a ‘commodity’ – possesses an historically specific character” (Marx [1881] in Rosdolsky 1977: 76).

While Herod et al. (2013, 2014) are right to claim that there are very real ends to a commodity’s life, this differentiation of concrete and social use-value is integral to understand capitalist processes of wasting in general. It implies that the devalorisation of commodities put forward by Herod et al. (2013) does not necessarily wreck things of all their concrete use-value, but largely affects its social use-value moulded by societal conditions across space and time. To quote Moore: “whether or not something is considered trash depends on time and place more than any inherent characteristics of the object itself” (2011: 135). Thus, what is not, and can never really be lost in processes of wasting, is the concrete use-value of a thing (it can only be changed). Also Marx ascertains that such a concrete thing “is a whole composed of many properties; it can therefore be useful in various ways” (1990[1867]: 125).

Gille (2007: 25) has forcefully argued that we also have to consider “negative use value, that can harm nature and human health”. Gille (2007: 29) goes on to highlight “the complexity of linkages, both among different scales and among different materials in circulation”, which constitutes “waste itself is a hybrid entity, [...] simultaneously social and material”. To understand how recycling networks function economically, we have to pay attention to the relation of the social and the material embroiled in waste, the difference and margin between concrete use-value and social use-value, and the potential abstraction into quantitative exchange value this involves. The Marxian notion of use-value constitutes a useful conceptual tool to analyse how the material and discursive transformation as well as spatial trajectories of waste are related to the passage of (exchange) value in the political economy of recycling. My empirical analysis of scrap shops in Kolkata illustrates this difference and margin between concrete use-value

and social use-value, and exposes its relevance for the passage of value—particularly in post-colonial contexts, where the contentious expansion of capitalist social relations exhibits its exclusionary and often violent character.

2.2 Informal recycling as need economy within post-colonial capitalism

A focus on on-going processes of primitive accumulation⁶ provides a good vantage point to attend to “the specific nature of the capitalist economy in postcolonial contexts” (Samson 2017: 39). Gidwani and Reddy (2011) emphasize that our understanding of ‘waste’ is deeply entrenched in the early history of capitalist development and associated processes of primitive accumulation and the enclosure of the commons. They show how the concept of waste evolved to “designate the unenclosed common, the external frontier, and the ethical horizon of civil society” (2011: 1626), which ought to be organized properly and used productively. Thus, they consider ‘waste’ to be “the political other of capitalist ‘value’, repeated with difference as part of capital’s spatial histories of surplus accumulation” (Gidwani/Reddy 2011: 1625).

In present-day urban India, “‘waste’ has become society’s internal and mobile limit [...] a fiercely contested frontier of surplus value production” (Gidwani/Reddy 2011: 1625). Moreover, critically drawing on Sanyal’s (2007: 208) notion of the “need economy”, Gidwani (2015: 2) argues that this makes it necessary to consider informal recycling as an “infra-economy [...] that is denied recognition [but] that is conducive for capitalist accumulation”.

Sanyal’s (2007: 209) elaboration of the “post-colonial economic formation” exposes the historically specific character of use-value in the relations of production implied by informal economies, which are geared towards the satisfaction of needs. Far from being remnants of pre-capitalist petty commodity production, informal economies should be understood as products of uneven capitalist development: “The most important aspect of the informal sector is that its producers are estranged from the means of production as a result of primitive accumulation” (Sanyal 2007: 209). They are also not able to find work in the formal sector.

In order to survive, they have to engage in some kind of productive activity in “the space of the dispossessed, of those who are excluded from the space of capital, a wasteland created by capitalist development” (Sanyal 2007: 193). The inhabitants of this wasteland “engage in a variety of economic activities for their survival” (Sanyal 2007: 194). This involves different forms of labour, from self-employment and family labour to wage labour, “where in most cases the employer himself is a worker who uses hired labor as a supplement” (Sanyal 2007: 214), but the main “purpose of production is consumption for the satisfaction of need” (Sanyal 2007: 212):

“[T]he need economy is the space of all consumption driven production activities irrespective of their modes of labor, relations of production and organizational forms. These activities are entirely embedded in the circuit of money and exchange. They can generate a surplus for ploughing back and therefore are capable of self-expansion. In contradistinction, the accumulation-economy refers to the space of production activities that are driven by the logic of accumulation and are based on capitalist production relations with strict separation between capital and labor.” (Sanyal 2007: 215)

With the help of Sanyal’s differentiation between needs-based and accumulation-centred economies, it is possible to think of more than one social use-value in the post-colonial political economy of India, specifically to conceive of the existence of different economic spaces with different social use values. Yet, and in line with Gidwani (2015), I would contend that the need economy is not exactly located “outside” of capitalist accumulation, as Sanyal (2007: 209) argues, but rather describes the manifold corridors through which “workers are thrown out and drawn back into [capital’s] embrace” (Gidwani 2015: 590). Recycling economies demarcate one of these corridors and a particularly vibrant one, which also marks the flux of concrete and social use-values in relation with capitalist patterns of wasting. As outlined above, capitalist processes of wasting deprive wasted commodities of their abstract (social, and historically specific) use-value (Horton 1997) within the space of the accumulation economy, which potentially also foregrounds the reversal of the abstraction from concrete use-values entailed in the exchange relation of commodities.

Therefore, it is necessary to consider the use-value of waste, and “the transformation of commodities’ physical form and their discursive transition” (the latter is important to assess the social use-value inscribed in things) in order to understand “the passage of value/congealed labour from one product to the next in the recycling process” (Herod et al. 2014: 425). I argue that the economic function of informal recycling economies (as need economies), lies in the recognition of the remaining concrete use-values and subsequent recuperation and rehabilitation of (abstract) social use-values for both need and accumulation economies. In what follows, I will illustrate how recycling agents within the labour-intensive realms of Kolkata’s informal recycling networks are translating wasted plastics’ concrete use-value into social use-value within both, informal needs-based and accumulation-centred economies.

3. Researching recycling economies in Kolkata

The previous sections have argued for a more comprehensive theoretical perspective on informal recycling economies in the context of post-colonial capitalism, and emphasised the significance of spatial and material patterns of wasting for the ongoingness of economic life. This implies considering wasted (devalorised and devalued) plastic materials in Kolkata as urban commons/end-of-life commodities with multiple remaining use-values. Moreover, this requires framing the collection, sorting and processing of wasted plastics as well as their reinjection into commodity circuits in terms of a “need economy” (Sanyal 2007: 208.). This section introduces the methods and sample of my empirical research to prepare the empirical analysis.

The empirical research was conducted in Kolkata, India, from September 2016 to February 2017 and was designed as a multi-scalar case study of plastic recycling networks. The analysis is mainly based on research interactions with recycling agents directly involved in the plastic recycling process and focuses on thirteen interviews with scrap shop owners. These thirteen interviews are part of a larger qualitative methodical set of 43 semi-structured interviews and ethnographic accounts in the form of 26 waste walks (participatory observations while moving through public

space, with the aim to systematically explore the spatial articulations of waste management systems and recycling networks) and eight participant observations. I worked with two research assistants, Deborshi Chakraborty (PhD candidate at Jadavpur University) and Subhasish Bandyopadhyay (post-grad student at Jadavpur University), who supported me in establishing relationships with recycling agents, interpreting during research interactions and translating and transcribing interviews.

4. Setting the scene – situating plastic recycling networks in Kolkata

Kolkata is the capital of West Bengal and one of the three major metropolitan regions in India along with Delhi and Mumbai. Once the prosperous industrial hub of Eastern India, this metropolitan region has experienced extensive divestment following the period of intensified integration into globalized production since liberalisation. Nevertheless, in 2011, Kolkata City generated above 5000 tonnes of municipal solid waste per day (Das/Bhattacharyya 2013: 147-48). The plastic fraction of Kolkata's municipal solid waste has been rising from 1970 to 1995 from 0.64% to 3.22% and reached close to 5% in 2005 (Chattopadhyay et al. 2009: 1450), thus, constituting the second largest recycling fraction after paper. Despite this, the predominant mode of formal waste management by the municipal authorities is disposal (Bagchi/Mitra 2017; Das/Bhattacharyya 2013). As there is only one official and registered (apparently unoperative) plastic recycling plant (Int34) and, compared to other metropolitan areas like Delhi (Chaturvedi/Gidwani 2011) or Bangalore (Reddy 2015), hardly any effort by big capital or NGOs to profit from the formalisation of recycling collection schemes and valorisation of wasted plastics, virtually all plastic recycling in Kolkata is taking place in the so called 'informal sector'.

Kolkata's plastic recycling networks branch out into specific recycling areas that are entangled with the spatial history of the city. Kolkata is bound by the Hoogly River in the West and by vast wetlands in the East. Thus, urban sprawl was long confined to the South, where most of Kolkata's emerging affluent middle and upper class settled, and the North, where significant industrial development took place. Interestingly, big pockets of

the central and northern parts of old Kolkata where taken over by bustling merchandise and labouring classes. This partly explains the peculiarity that one of the oldest recycling hubs of the city is located very centrally, in and around an area called Kolabagan, and right next to some of the oldest and most renowned academic institutions of West Bengal and India.

The eastern Wetlands have only recently become the frontier of urban development. Kolkata's main dumping site 'Dhapa' (Das/Bhattacharyya 2013) has been marking out the eastern frontier like an arrowhead into the wetlands. With the reclamation of the wetlands, Dhapa has also moved eastwards over the course of the 20th century, making way for poor neighbourhoods and small industries, including the plastic recycling hubs of Tangra, Topsia and VIP, which are now surrounded by real estate development (Int34).

Such plastic recycling hubs and their networks are spread throughout urban India and constitute a complex societal coherency. They are shaped by differences and hierarchies related to gender, caste and class as well as communal belonging and religion (Gill 2012; Bagchi/Mitra 2017). Furthermore, they are highly specialized with respect to different waste fractions and their value chains (Gill 2012). Recycling value chains are characterised by a large number of intermediaries on different scales. The profit margins of recycling agents depend on a complex interplay of access to high-quality supply, tacit recycling knowledge, and economies of scale and trade contacts. All of these dimensions are permeated by social difference, resulting in highly unequal terms of trade for the biggest and most marginalized proportion of recycling agents (Gill 2012; Gidwani 2015) in the labour-intensive realms.

5. Wasted plastics' use-value in Kolkata's needs-based recycling economies

Kolkata's recycling networks are composed of a number of different hierarchically integrated recycling agents directly involved in the recovery and recuperation of value from used plastic materials. Their relative position within the plastic recycling value chain is depicted as a structural heuristic in Figure 1. The actors directly involved in plastic recycling include first

of all *reclaimers*, who retrieve recycling-materials in public space and at dumping sites. Then there are mobile *hawkers* (*Kabbadi Walas*, often also referred to as *itinerant waste buyers*), who buy recycling materials directly from households and shops to resell them to scrap shops. They constitute, together with *workers* in scrap shops and recycling workshops, the basic workforce of plastic recycling networks.

The next up-scaled actors are *scrap shops*, which buy, sort and store recycling materials in order to sell them afterwards in bigger quantities of more homogeneous plastic materials to *wholesalers*. As an essential part of the recycling system the scrap shop represents an “engine of arbitrage: the node where ‘raw’ waste is purchased, segregated, and stored, before being channelled into secondary circuits of value” (Chaturvedi/Gidwani 2011: 132). Scrap shops are of crucial importance for the reversal of capitalist patterns of wasting. Accordingly, the rehabilitation of social use-value from concrete use-value arises during the passage of wasted plastics from scrap shops and wholesalers (who are engaged in intense sorting, thus homogenizing the wasted plastic materials into type-wise plastic input fractions) to cleaners and cutters. Wholesalers (also called *Mahajans* or *apex traders*), who are basically bigger scrap shops, function as gatekeepers for plastic wastes’ passage into secondary circuits of value. These are characterised by the comparably technology- and capital-intensive processing of recycling plastic.

The recycling agents in the more capital-intensive realms of plastic recycling value chains are, to a varying extent able to make profits, and (in pursuit of surplus value) to invest into their businesses, while still being (to different degrees) subject to conditions of informality (regarding land titles, legal status and labour relations). *Cleaners and cutters* are intermediate up-scaled actors for the pre-processing of homogeneous plastic recyclables, and they seem to have emerged in the last decade from bigger wholesalers. They are cleaning and cutting the plastic waste to produce flakes, which is a tradable intermediate plastic recycling product (called *cutting*) that later serves as main input into the actual recycling process in *recycling workshops*, where *dana* is produced. *Dana* is plastic granulate and the final product of the recycling process, which is traded by *dana traders* afterwards, or directly sold for further processing to plastic manufacturers.

The final transition from concrete use-value to social use-value within the “accumulation-economy” (Sanyal 2007: 215) appears to be performed in the processing of *cutting* into *dana*. While cleaned and chopped plastic *cutting* still bears the marks of the wasted plastics it was derived from (in terms of colour and texture, and wear and tear), *dana* is already processed (dyed and melted) to an extent that its qualities only reflect the aggregated properties of a whole tonnage of *cutting* (which was already a mix of particular wasted plastics). This is a form of abstraction also reflected in increasing scientific denotations and related quality grading.

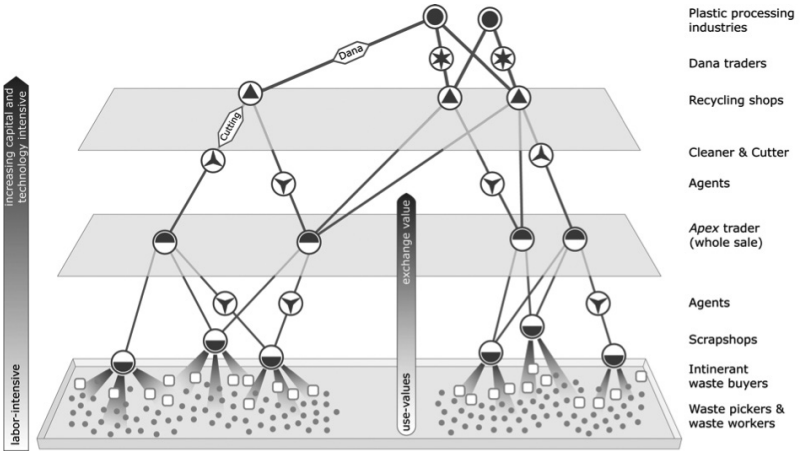


Figure 1: Structural heuristic of plastic recycling networks
 Source: own elaboration, prepared by Christoph Reichel

Trettin (2002: 69-86) has argued that the economically most relevant recycling agents in Kolkata are hawkers and neighbourhood-based scrap shops, because they supply enormous quantities of relatively clean and homogenous recyclables sourced directly from households. My interrogation of the ‘ongoingness’ of the economic life of used plastics in the

recycling networks of Kolkata, therefore, centres on those recycling agents who are spread throughout the city and who do not necessarily collect and compile plastic waste *per se*, but all kinds of potentially useful materials. This includes reclaimers, hawkers, and especially the scrap shops, where useful materials accumulate. These actors in the labour-intensive realms of recycling networks are often differentiated according to their hierarchical position along recycling value chains. This is usually reasoned in the interconnection of value capture and economies of scale (see Figure 1), thus distinguishing, for example, scrap shops and wholesalers due to the higher turnover of the latter. Alternatively, they can be analysed according to the “difference in potential rents to be extracted from particular locations”, or territories of collection, as proposed by Bagchi and Mitra (2017: 158). Such an approach already points to the economically crucial aspect of supply and sourcing (see Crang et al. 2013) in recycling networks.

In a slightly related manner, I am going to analyse scrap shops with regard to the spatial, material and discursive trajectories and transformations of wasted plastics implied by capitalist patterns of wasting. That way it is possible to identify three (ecological) economic functions of the labour-intensive realms of recycling networks—epitomized in the role of scrap shops—and foreground the implications of distinct sources of wasted plastics for the recuperation of social use-value through the appraisal of their concrete use-value:

1. The collection and spatial agglomeration of dispersed waste that accrues along different nodes of production, distribution and consumption. This pertains to distinct socio-metabolic points as well as social-institutional frames of access.
2. The appraisal of concrete use-values (predicated on socio-metabolic points of access) and subsequent anticipation of potential social use-values of used material.
3. The segregation and allocation of sufficient amounts of recyclables according to their suitability for further processing and remanufacturing (which pertains to the interconnection of value capture and economies of scale).

These functions indicate how scrap shops in Kolkata facilitate the actual plastic recycling processes, and thus enable the passage of value

from wasted plastics into secondary circuits of value in the accumulation economy. The next sections first offer a detailed analysis of the distinct ways in which three different types of scrap shops attend to capitalist patterns of wasting. Second, the social and economic conditions of recycling economies in Kolkata are analysed in line with the characteristics of Sanyal's (2007) need economy.

5.1 Looking, touching, feeling – scrap shops' translation of plastics' concrete use-values

In what follows, I will first attend in detail to the appraisal of concrete and social use-values in Kolkata's plastic recycling networks. Then I will turn to the reversal of spatial and material patterns of capitalist wasting in the agglomeration of dispersed and hybrid wastes that accrue along different nodes of production, distribution and consumption, in order to differentiate between three types of scrap shops according to their source of wasted plastics. This differentiation serves to illustrate the intermediary role of scrap shops and relevance of wasted plastics' use-value for the passage of value between needs-based and accumulation driven recycling realms.

The presence of concrete use-values in recycling networks reveals itself in mundane practices, namely in the way recycling agents in Kolkata attend to the different wasted items available to them. Concrete use-values are contained in the labour of sorting, dismantling, segregating and compiling, which involves a lot of 'sensing'. They sort according to the physical forms they encounter and differentiate between types and colours of plastics. They meticulously distinguish plastics just by seeing the reflections of light in them (Int6), by crushing and hearing their sound (Int14) and by feeling their texture, or, in case of uncertainty, by tearing (Int6) and breaking (Int30) them, by plunging them in water (Int22) or by burning them (Int13). This practice, the differentiation of types of plastics, is performed through the ordering capacities of a vernacular language of valuation (Martinez-Alier 2008) and the tacit recycling knowledge encoded in it. The discursive order of things in this language is necessarily in conversation with, but never reducible to, the scientific denominations aligned with recycling commodities' exchange value.

Scrap shops translate concrete use-values into social use-values with the help of this language of valuation, which draws on the colour (like

in the case of “*kalo*”, which means black, to describe black plastics), the utility (like in the case of the “*delivery*” function of water pipes) or sensible attributes (like in the case of “*hard*” or “*krystal*”) of things, or on specific products that shape the perception of these things (like in the case of “*mother*” or “*dairy*” derived from the milk pouches of the dairy company *Mother Dairy*). Yet, the concrete use-values contained in this practice and performed through this language don’t appear from nothing but are predicated on capitalist processes of wasting.

Scrap shops in Kolkata do not only process street and household waste but also all kinds of production and commercial wastes. The material and discursive transformations and spatial trajectories of wasted plastics in Kolkata differ according to the respective nodes along conduits of production, distribution and consumption where they accrue. This has implications for the potential recuperation of value by scrap shops.

In the following, I introduce and distinguish three types of scrap shops (see Table 1), differentiated according to their source of recyclables.

1. *Reclaimer-sourced scrap shops* (Int2; Int5; Int7; Int9; Int17; Int25; Int26) attend to the most dispersed and hybrid source of wasted plastics. The recovery of recyclables from mixed municipal solid wastes by reclaimers (c.f. Trettin 2002; Ghosh 2017; Bagchi/Mitra 2017) is a particularly clear example of the reversal of spatial and material patterns of capitalist wasting. Plastics are recovered in an often decomposed or ‘dirty’ state, which has implications for their concrete use-values and for further processing. Muhammad Aziz⁷ (Int5) runs a reclaimer-sourced scrap shop in Kolabagan in Old Kolkata. He inherited this business from his father and grandfather. Reclaimer-sourced scrap shops buy all kinds of scrap materials, compile them and sell them for further segregation to *Mahajans*. These scrap shops are often located in and around recycling hubs (Seabrook/Siddiqui 2011) or low-income neighbourhoods where reclaimers live.

2. *Household-sourced scrap shops* (Int8, Int13, Int22, Int30; c.f. Trettin 2002) also draw on highly dispersed, mostly post-consumption waste, but bypass its trajectories of wasting (often with the help of mobile hawkers) before it enters municipal solid waste streams. Amita Ray (Int8) runs a typical neighbourhood-based scrap shop with her family in the South-East of Kolkata and explains their supply base:

“We buy waste from different places. The sellers sometimes come down to sell them or as we have our own van, my brother goes to their respective places and collects the material [...] from households mainly. We rarely deal with offices, only if they come and ask us to collect. Most of the sellers live in the nearby locality.”

The area covered by Farhan Laskar (Int30) and his mobile hawkers is much larger and stretches throughout the vast middle-class neighbourhoods of southern Kolkata, although their suppliers are also households. Farhan Laskar explains that “every kind of material comes here” (Int30), like paper, plastics, glass bottles and metals. By virtue of their source of waste, household-sourced scrap shops receive already pre-sorted and comparably clean recyclables and their variety of reclaimed materials is much greater compared to reclaimer-sourced scrap shops.

3. *Commercially-sourced scrap shops* (Int6, Int14) draw on plastic wasted in the circuits of production and distribution. The small shop of Jabbar Rafiq (Int14), who runs a family business in third generation as well, also located in Kolabagan, stands in stark contrast to reclaimer- and household-sourced scrap shops. He is specialised solely in plastics and his business is built on a privileged source: he purchases relatively unspoiled and homogenous discarded plastic packaging materials in bigger quantities from commercial areas. He also already sorts plastics according to scientific denominations of plastic types. He deals mainly in polypropylene (PP); three different types of low-density polyethylene (LD) differentiated into white, coloured and soft; high-modulus polyethylene (HM); and *dairy* (milk packets). There is a lot of ‘sensing’ involved in the process. During our interview, he was cutting out the printed parts of plastic packaging foils to separate them from the untainted transparent main parts. He was meticulously differentiating between hard, soft and colour types of plastics and explained how to distinguish plastics just by seeing, crushing and hearing their sound and feeling their texture.

The social-institutional frames of access to wasted plastics, particularly the extent to which a property status is ascribed to them, further elucidates this three-fold differentiation of scrap shops. Commercially-sourced and household-sourced scrap shops generally access waste plastics as a form of

private property, although households sometimes also give away recyclables for free as reward for the collection service or as a gift. In contrast, reclaimer-sourced scrap shops deal with waste plastics that have been obtained by reclaimers as urban commons.

Types of scrap shops	Spatial patterns and socio-metabolic points of recovery	Material properties, compositions and hybridity of source	Social-institutional character of supply
Reclaimer-sourced	Highly dispersed in public space and at MSW disposal sites	All kinds of mixed, often dirty and partly decomposed wastes	Wastes recovered by reclaimers as urban commons
Household-sourced	Highly dispersed, generally derived at place of consumption	All kinds pre-sorted and comparably clean recyclable waste	Waste accessed as private property, exchanged as commodity or received as gift
Commercially-sourced	Less dispersed and derived at different points of production and distribution	Only comparably clean and homogeneous plastics materials	Waste accessed as private property, exchanged as commodity

Table 1: Source-wise differentiation of scrap shops.

Source: own elaboration

The different economic position of scrap shops is always also related to economies of scale (the third of the above-mentioned functions of labor-intensive recycling realms). Nevertheless, this threefold differentiation of scrap shops in Kolkata reveals a general tendency. The reversal of capitalist patterns of wasting and the appraisal of concrete and social use-values of waste plastics by scrap shops intersect in a way that exposes their intermediary

role in the passage of value between informal and formal, between needs-based and accumulation economies. Recyclers in the labour-intensive realms of Kolkata's plastic recycling networks are not only anticipating the social need for recycling *dana* in the accumulation economy. On the contrary, they are always also anticipating the social need for reusable and repairable plastic things in the needs-based economy. However, they do so differently with respect to the specific access-point to capitalist patterns of wasting they can draw on, as exemplified by the household-sourced scrap shop of Farhan Laskar (Int30) and his hawkers. They acquire not only recyclables like paper, plastics, glass bottles and metals, but also collect all kinds of things that could be refurbished, repaired and used again in one way or another. As Farhan Laskar clarifies: "We do not sell them, we take them ourselves. [But,] nothing fixed. If someone comes and asks for them against a good price, we sometimes sell them" (Int30). Like Farhan Laskar and his hawkers, Amita Ray and her family are taking "almost everything" (Int8), including all kinds of useful things that could be repaired, refurbished and passed on against remuneration. Muhammad Aziz (Int5) recounts that "there are things which can be reused" and that reclaimers "get them [and] directly sell them" (Int5) on the market for reusable items (WasteWalk3).

Recycling agents in Kolkata recover value starting from the most direct and concrete way and proceed with the recuperation of value through aggregation and segregation, which makes used plastic materials valuable for accumulation-centred manufacturing again. Kolkata's recyclers are highly skilled translators of different material worlds and they translate differently according to the source of wasted plastics they can draw on and the concrete use-values they obtain from it. The general premise of the appraisal of concrete use-values of plastics remains the same. This clarifies scrap shop's intermediary role in the passage of value from wasted plastics between needs-based economies and the accumulation-centred processing and remanufacturing of recycling *dana*.

The closer wasted plastics accrue to the spheres of capitalist production and circulation of commodities, the easier the re-establishment of social use-value for the accumulation economy, and the higher the value captured by scrap shops. Jabbar Rafiq's (Int14) commercially-sourced scrap shop illustrates the economic relevance of different sources of recyclables.

This is also always related to the homogeneity, quality, colour and contamination-level of waste supply as crucial factors for further processing. While being firmly situated within the need economy (as typical example of an “owner worker” [Sanyal 2007: 238] with one employee in a rented place), his source of recyclables ascribes him a privileged economic position. This is demonstrated by the difference in profit margins. With the sale of their plastic items, reclaimer-sourced scrap traders like Tanveer Sayed (Int2) are making a marginal profit of 0.50 to maximum 2 Rupees (Rs.)⁸ per kg. This is less than the profit made by household-sourced scrap shops like the ones run by Farhan Laskar (Int30) and the Family of Amita Ray (Int8), which amounts to an average of 2 to 3 Rs. per kg of plastic material. Jabbar Rafiq (Int14), in contrast, is making an average 5 to 7 Rs. profit per kg of sold plastic. His profit margins are up to five times that of reclaimer-sourced scrap shops and more than double compared to those of household-sourced scrap shops. The resulting capability for “acutely modest accumulation” (Gidwani/Baviskar 2011: 143) gives him hope for social upward mobility, at least in the next generation, as he pledges that his children “will be educated and will do better jobs” in the formal realms of the accumulation economy.

While the analytical distinction of devalorisation and devaluation of Herod et al. (2013) does reverberate in the differential (exchange) value recuperated from used plastics according to their source, this distinction does not serve to explain the passage of value from informal to formal economies of plastic recycling and remanufacturing. It does not explain why, how and under which conditions these recycling economies function in countries of the Global South. I contend that the passage of value in the post-colonial political economy of plastic recycling in Kolkata is predicated first and foremost on scrap shops’ reversal of capitalist pattern of wasting through their appraisal of use values *within needs-based economies*.

5.2 Social and economic conditions of the retrieval of wasted plastics in Kolkata

The appraisal of concrete use-value and anticipation of the potential social use-value of used plastic materials by scrap shops (for both reuse within the need-economy and recycling for the accumulation economy) is enabling the achievement of exceptionally high plastic recycling rates

of up to 60% (WBCSD 2016: 8) in India. However, the appreciation of concrete use-values of wasted plastics is economically only feasible at the needs-based informal fringes of capitalist relations of production, as it is particularly labour intensive. It is built on the extreme exploitation of informal labour, and Kolkata's plastic traders and manufacturers are well aware of this fact and of the 'competitive advantage' they gain from it within global recycling networks (Int42; Int37; cf. WBCSD 2016). In this section I discuss how Sanyal's (2007) depiction of the need economy is reflected in the social relations governing labour-intensive realms of recycling economies in Kolkata.

Tanveer Sayed (Int2) runs a "relay point" (Gidwani/Baviskar 2011: 143) in the social (after-)life of commodities: a small scrap shop on a backstreet sidewalk in Old Kolkata, where he is channelling the concrete use-value of wasted materials into potential future social use-values. He came to Kolkata from the countryside (a village, where he still has his household and family) and since the mid-1980s he has been in this profession. Coming from a village, he found work in a scrap shop with the help of friends. Once he understood the business, he opened his own small scrap shop. He remembers: "our business was more or less mundane and constant and the prices were more or less stable" (Int2). However, during the last years, "all the prices of the daily needs are inflating, all the materials of the scrap dealers [...] have drastically gone down in price, but the prices of new goods remain the same" (Int2). Against the backdrop of this economic downturn⁹ he makes clear that his livelihood is under constant threat. There is now no way to save or invest in his business: "We are poor people, little entrepreneurs, there is no capital for us. Whatever income is there, it's difficult to even run a household with it [...], we earn and spend on a daily basis" (Int2).

In line with Sanyal's (2007) description of the need economy, most recycling agents in the labour intensive realms of Kolkata's recycling networks are not oriented toward capital accumulation, but toward consumption for the simple satisfaction of needs. Additionally, the labour relations that are characteristic for capitalist modes of production are not the norm within Kolkata's plastic recycling economies. Tanveer Sayed is (like Int14), a typical example of an "owner worker" (Sanyal 2007: 238) with one employee who basically performs the same kind of work as he

does. The reclaimer-sourced scrap shop of Muhammad Aziz (Int5), on the contrary, reflects (like Int13) typical capitalist labour relations: he employs four workers in two shifts for sorting and packaging tasks, while he manages the shop. He employs no family labour. The scrap shop of Amita Ray (Int8) is again a different case, based solely on family labour (like Int22). Whenever her father is out to work as a driver (in order to meet the children's educational costs), she runs the shop with the help of her mother and younger brother.

The need economy, which Sanyal (2007) conceptualises to characterise urban informal economies like Kolkata's plastic recycling networks, is the result of primitive accumulation. It constitutes a "wasteland" that is the "the space of the dispossessed" (Sanyal 2007: 194) and excluded. As such, it is predicated on contested, contradictory and often violent histories of rural-(peri)-urban relations and migrations. Like in a classical neoliberal example of the expropriation of subsistence farmers and fishers around Kolkata for state-sponsored land speculations in the name of an urban development project called *Rajarhat New Town Project*: "Most of [the fishers and farmers] now collect, sort and sell garbage for their living" (Seppälä 2014: 95). However, these rural-(peri)-urban relations include also commuting stories, occupational mobility and diversification of income for better livelihood options (Int8; Int22; Int30; cf. Trettin 2002).

Processes of primitive accumulation by dispossession are bound up with and always draw upon existing power relations (DeAngelis 2001; Federici 2004) especially social categorizations along gender, caste and religion in the case of Kolkata, and India in general. In line with previous studies (Trettin 2002; Bagchi/Mitra 2017), my research shows that, while more than half of all reclaimers are women, the share of female workers in scrap shops is already much lower (and confined to sorting activities), and only very few women are found to run scrap shops (and there are virtually no female hawkers and no women among up-chain actors of the recycling value chain). Only two of the scrap shops included in my sample were run by women (Int25, Int8), and one of them, Amita Ray (Int8), did so only in the absence of her father. Amita adds another crucial layer to the interwoven power relations that structure the political economy of plastic recycling in Kolkata when she explains: "Actually, most of the buyers

are Beharis and Muslims. [...] Very few Bengalis like us are associated with this trade” (Int8). Waste and recycling works are done mainly by low-status Muslim (Seabrook/Siddiqui 2011) and low-caste, *Dalit* groups (Bagchi/Mitra 2017; see also Iyer in this issue) who are often considered as “intruding” migrant populations by the dominant social groups in Kolkata, even if they migrated from neighbouring states or rural Bengal generations ago. The low status ascribed by dominant social groups to everything and everybody related to waste and recycling is also reflected in the political negation of recycling economies in Kolkata. This negation by state authorities, government institution and parts of the civil society—for whom local plastic recycling economies either do not exist (Int43) or are to be held responsible for urban pollution (Int31)—has considerable implications for the social, political and economic vulnerability of recyclers (particularly in public space) and the devaluation of recycling labour, as it affirms its societal stigmatization. Amita Ray (Int8) also speaks about the close-knit relationship between sources of recyclable materials and the longstanding stigmatisation of waste and dirt related works. She points out that “all the works are done by the family members only” and that they “do not deal with the waste pickers [...]. The neighbours object to dealing with the waste pickers as they collect things from unhygienic places” (Int8). She affirms that “*kabbadi walas* [mobile hawkers] collect many things from dustbins, which we do not allow them to sell here” (Int8).

Labour-intensive realms of recycling networks in Kolkata reflect how social power relations (particularly along social categories of gender, religion and caste), the stigmatisation of recycling labour and its political negation are entangled with the economic deprivation implied by prolonged processes of primitive accumulation by dispossession. They coincide with the economic inequalities produced by the hierarchical division of labour and economics of scale that structure recycling networks, and are aggravated by the divergent access to differently wasted plastic materials. The result of this is the extreme devaluation of all works related to the collection, sorting, agglomeration, segregation, compiling and purification of waste materials (see also Vallin/Dias in this issue). This has to be taken into account in order to understand the “passage of value/congealed labour” (Herod et al. 2014: 425) in the post-colonial political economy

of recycling. The devaluation of recycling labour conditions, enables and confines the appraisal of wasted plastics' concrete and social use-value, and the interactions between need and accumulation economies configured by it.

6. Conclusion

In this article, I have focused on scrap shops' intermediary role in the retrieval of wasted plastics' use-value through informal recycling economies in Kolkata, India. Based on a critical engagement with recent economic geography scholarship on GDNs (Herod et al. 2013), I have argued with Samson (2017) for a theoretical reframing of the political economy of recycling in post-colonial context. Ensuing from a multi-scalar empirical analysis of plastic recycling networks in Kolkata, I have deployed the Marxian notion of use-value as an analytical tool to account for the relevance of spatial and material patterns of wasting in the recuperation of value by scrap shops in the labour-intensive realms of needs-based (Sanyal 2007) recycling economies. This approach foregrounds the interrelations and entanglements of informal and formal and of needs-based and accumulation-centred spaces in the post-colonial political economy of recycling.

I have analysed scrap shops' intermediary role in the retrieval of wasted plastics' use-value with respect to their supply. The source-wise differentiation of scrap shops in Kolkata elucidates how economies of recycling begin with the reversal of capitalism's spatial and material patterns of waste production. They aggregate dispersed hybrid discarded materials, acquired either as waste-commodity (within the confines of private property) or obtained as urban commons (by reclaimers). They distinguish and disassemble the constituent parts of their purchase according to concrete material characteristics that indicate physical and chemical properties, sensible texture, form and colour, that is, the concrete use-value of wasted things. This is a process that involves a lot of looking, touching and feeling, as well as a lot of knowledge about relative exchange values (premised on potential social use value) of recyclables. However, in this process, they also measure out the re-use-value of things against

their potential exchange value in recycling value chains (c.f. Samson 2017). They take the reusable items for themselves, or re-sell them at second-hand markets. In the case of all three types of scrap shops, the material properties of wasted plastics are the only reliable indicator to assess their potential value, to be either fed as resource inputs into the “secondary circuits of value” (Chaturvedi/Gidwani 2011: 132) in the accumulation economy, or to be kept or sold for direct reuse or repair in the need economy. However, they are translating the material properties of wasted plastics differently according to the waste-source they can draw on and the concrete use-values they obtain from it, thereby extending the “useful life” (Reddy 2015: 168) of things. This differential capability to translate concrete use-values into social use-values designates their abstract economic function as “relay points” (Gidwani/Baviskar 2011: 143) in the interactions between informal and formal, between needs-based and accumulation economies. It elucidates how they “subsidise and supplement capital accumulation” (Gidwani/Baviskar 2011: 143).

This appraisal of use-values of wasted plastics is only economically feasible within the informal sub-economies of India’s post-colonial capitalist formation (Sanyal 2007). It is based on the extreme exploitation of devalued labour at the fringes of capitalist accumulation and deeply entrenched in on-going processes of primitive accumulation by dispossession. In Kolkata, these processes are particularly clear along power relations related to social categorizations of caste, gender and religion that translate into the social stigmatisation of work with waste and its political negation by government institutions, state authorities and the general public. The entanglement of recycling economies within the interlocking power relations that structure needs-based economies in India results in the stark devaluation of recycling labour. Ironically, it is exactly this useful labour of collecting, sorting, aggregating and compiling—the metabolizing labour “inside India’s infra-economy” (Gidwani 2015)—that is absolutely central for the reversal of capitalism’s spatial and material patterns of wasting, and thus, the indispensable premise of any recycling economy. This has implications for the Marxian understanding of value (as congealed labour) put forward by Herod et al. (2013, 2014), because the recuperation of exchange value is not organised solely within the confines of capitalist production but

mediated through diverse societal relations that might be partly aligned to, but in any case exceed capitalist social relations. Thus, from a value standpoint, the congealed labour of waste plastics has been (to varying degrees) already lost *within* capitalist primary circuits of accumulation (be it through devaluation or devalorisation) and is only reincarnated in an accumulation-by-dispossession like manner.

The transfer of value from waste between informal and formal economic spaces of recycling discussed in this article could provide new impetus for the engagement with “socio-economic inequalities and environmental change” (Franz et al. 2018: 201) within environmental economic geography (cf. Braun et al. 2018). The Marxian notion of use-value, particularly the differentiation between concrete and social (or abstract) use-value, might also provide a missing link to the recent, and extremely productive, engagement with the materiality of waste and recyclables from the perspective of new materialism, which is drawing on actor network theory (cf. Gille 2010), and science and technology studies (cf. Lepawsky/Mather 2011). Moreover, it might offer fertile ground for further engagement with the research agenda set by the explicitly political Marxist readings of recycler’s “abstract and concrete labour in the age of informality” (Gidwani 2018) and their agency (Samson 2017) within the uneven geographies of post-colonial capitalism.

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1 I am using ‘recycling networks’ interchangeably with ‘recycling economies’. Yet, the former is pertaining more to geographically situated spatial relations, while the latter is highlighting economic relations.

- 2 The term ‘reclaimers’ is less prone to reproduce the stigmatization of waste work, compared to ‘waste pickers’, see Samson (2017).
- 3 The notion of social metabolism is used here to denote waste flows in terms of the co-constitution of politico-economic processes and “biophysical processes that result as resources are assembled and transformed, and waste is produced” (Demaria/Schindler 2016: 3).
- 4 This is much in line with Herod et al.’s (2013) differentiation of devaluation and devalorization, but located on a different level of abstraction.
- 5 The notions ‘social use-value’ and ‘abstract use-value’ are both used in the Marxist literature. While their distinction makes sense in specific cases, I use ‘social use-value’ for reasons of comprehensibility.
- 6 The term “primitive accumulation” is used instead of “original accumulation” in this article for reasons of conformity with the quoted literature (from post-colonial perspective).
- 7 All names of interviewees are synonyms.
- 8 During the research period, 1 € has been exchanged for approximately 73 Rs.
- 9 The local prices of recyclables are directly related to the prices of fresh plastic (Int37; Int42), and thus, bound up with the global oil price. Virtually all of my informants were aware about this connection, but an overwhelming majority of them attribute their economic hardship since 2015 to the economic policies of the BJP-lead government of Narendra Modi.

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List of Interviews

- Int2: small-size scrap shop; interview conducted in Old Kolkata on Nov. 19, 2016.
Int5: middle-size scrap shop; interview conducted in Old Kolkata on Nov. 25, 2016.
Int6: middle-size scrap shop; interview conducted in North Kolkata on Dec. 3, 2016.
Int7: small-size scrap shop; interview conducted in East Kolkata on Dec. 4, 2016.
Int8: small-size scrap shop; interview conducted in East Kolkata on Dec. 4, 2016.
Int9: middle-size scrap shop; interview conducted in East Kolkata on Dec. 4, 2016.
Int13: middle-size scrap shop; interview conducted in Old Kolkata on Dec. 10, 2016.
Int14: small-size scrap shop; interview conducted in Old Kolkata on Dec. 10, 2016.
Int17: big-size scrap shop; conducted in East Kolkata on Dec. 15, 2016.
Int22: middle-size scrap shop; interview conducted in East Kolkata on Jan. 19, 2017.
Int25: middle-size scrap shop; interview conducted in East Kolkata on Jan. 24, 2017.
Int26: big-size scrap shop; conducted in East Kolkata on Jan. 24, 2017.
Int30: small-size scrap shop; conducted in South Kolkata on Jan. 26, 2017.
Int31: Kolkata Municipal Corporation; interview conducted on Jan. 30, 2017.
Int34: NGO representative; interview conducted in East Kolkata on Feb. 6, 2017.
Int37: Central Institute of Plastics Engineering & Technology; interview in Haldia on Feb. 8, 2017.
Int42: plastic manufacturer; interview conducted in Old Kolkata on Feb. 14, 2017.
Int43: West Bengal Pollution Control Board; interview conducted on Feb. 17, 2017.
WasteWalk3: WasteWalk conducted in Old Kolkata on Nov. 2, 2016.

ABSTRACT Informelle Recyclingnetzwerke im Globalen Süden haben Diskussionen über die politische Ökonomien des Recyclings im postkolonialen Kontext angeregt. Dieser Artikel greift auf den unterbewerteten marxischen Begriff des Gebrauchswertes zurück, um zu untersuchen, wie gebrauchte Plastikmaterialien in den Plastikrecyclingnetzen von Kalkutta, Indien, aufgewertet werden. Mit Blick auf die Rolle von Recyclinghändlern innerhalb von Recyclingnetzwerken wird der Zusammenhang zwischen informellen und formellen Ökonomien unter Bezugnahme auf Sanyals (2007) Unterscheidung zwischen bedarfsorientierter und akkumulationsbasierter Ökonomie erörtert. Es wird argumentiert, dass Recyclinghändler eine entscheidende Rolle dabei spielen, den konkreten Gebrauchswert von Kunststoffabfällen in neue potenzielle soziale Gebrauchswerte, und damit Tauschwerte zu übersetzen. Dadurch trägt die Analyse dazu bei, die Transformation von Wert zwischen informellen und formellen ökonomischen Räumen in der postkolonialen politischen Ökonomie des Recyclings in Indien zu verstehen.

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