Pros and cons of the formation of waste-pickers' cooperatives: a comparison between Brazil and Indonesia

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Abstract Informal waste-pickers can contribute to municipal solid waste management by significantly reducing the amount of waste that ends up in landfills or lies unattended in streets and watercourses, and they can recover important resources. We want to build on recent studies on the role of informal waste-pickers by highlighting one particular aspect: the degree waste-pickers are organized into cooperatives. Stimulated by the paradox that, despite the apparent advantages of waste-picker cooperatives, not all waste-pickers in the cities are members of a cooperative, we have made a comparative study of waste-picking in Belo Horizonte (Brazil) and Surabaya (Indonesia). We focus on three aspects: waste as an (economic) resource, the low social status of waste-pickers, and their role in urban solid waste management. We shall argue that not only do cooperatives have positive effects on waste-picking but there are also negative consequences.

Keywords Cooperatives · Municipal solid waste · Recycling · Solid waste management · Urban environment · Waste-picking

Introduction

UN Sustainable Development Goal 11—Sustainable cities and communities—calls attention to the safe disposal of solid waste, because per capita solid waste generation is rising, and ‘in many developing regions, less than half of solid waste is safely disposed of’.¹ Various scholars have made the point that high-tech solutions for municipal solid waste management developed in industrialized countries have limited applicability in the Global South, because social, cultural, economic, and legal–institutional constraints have been insufficiently taken into account by governments (Guerrero et al. 2013; Marshall and Farahbakhsh 2013). For instance, the first incineration plant constructed in New Delhi, in 1987, went out of operation after only six months, at a time when informal waste-pickers in Delhi were effectively handling about 17% of the city’s solid waste. Informal waste recycling is not only effective and cost-saving for the municipality, it also offers many people employment. Waste that is not recycled usually ends up in open landfills, from which leachate contaminates groundwater (Agarwal et al. 2005; Kumar et al. 2009; Sharholi et al. 2008: 464–465; Talyan et al. 2008). In a nutshell, informal waste-pickers can make a significant contribution to municipal solid waste management in the Global South.

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¹ Progress of goal 11, <http://sustainabledevelopment.un.org/sdg11>, accessed 22 January 2017.

Earlier studies on informal waste-pickers have concentrated on the possibility of earning an income by sorting out and selling waste (e.g. Huysman 1994; Potter and Lloyd-Evans 1998:172–180; Versnel 1986). Current studies focus on the contribution that the informal sector can make to solid waste management, despite the fact that economic motives continue to be the driving force behind people recycling solid waste (Scheinberg et al. 2011). Informal waste-pickers can significantly reduce the amount of waste that ends up in landfills or lies unattended in streets and watercourses, and they can recover important resources (Suchada et al. 2003; Wilson et al. 2006, 2009). We want to build on these recent studies on the role of informal waste-pickers by highlighting one particular aspect: the degree waste-pickers are organized into cooperatives. Although these cooperatives play only a very modest role in urban governance, they might be important in organizing the work of waste-pickers.

Renowned urban solid waste expert Martin Medina has, somewhat cautiously, argued that ‘the formation of scavenger cooperatives can result in grassroots development, poverty alleviation, and environmental protection’ (Medina 2000: 58). Although the amount of the work done by scavengers is hard to measure exactly and differs from city to city, unquestionably they do play a substantial role in the collection and recycling of urban solid waste in the Global South. Importantly, the scavengers, or waste-pickers, contribute significantly to making cities more liveable and ecologically sustainable. However, despite their good work, in several respects the waste-pickers are vulnerable and Medina contends that cooperatives will help them.

Medina puts forward several reasons cooperatives are beneficial to their members. First and foremost is that any industries processing recyclables collaborate only with waste-dealers who can offer adequate volumes of waste. These waste-dealers operate in a monopsonistic market with one buyer and many sellers; therefore, the waste-pickers have no choice but to accept low prices. Waste-pickers’ cooperatives can collect important volumes of waste, circumvent the middlemen, and deal directly with the industries that process the recyclables. In Colombia, a very dynamic scavenger cooperative movement, in which over a hundred cooperatives are united, provides examples of other benefits. It offers loans, legal aid,

and business assistance and improves working conditions. Cooperatives can also enhance social status. For instance, in Manila, the Philippines, members of a cooperative of waste-pickers wear green uniforms and are called ‘eco-aides’ and in Chennai (India) scavengers who collect waste are called ‘street beautifiers’. Bringing waste-collectors together in a cooperative can also discipline them and stop any illegal dumping of the waste they might have collected (Medina 2000: 59–64; see also do Carmo and de Oliveira 2010; Gutberlet 2009).

Given the alleged advantages offered by waste-picker cooperatives, it is surprising that in Belo Horizonte, a city with a smooth functioning cooperative mentioned by Medina, many waste-pickers have not joined an association. Of the 5000 informal waste-collectors who were estimated to be working in the metropolitan area of Belo Horizonte, only around 500 are organized into cooperatives that are part of the Forum Municipal Lixo e Cidadania (Dias 2011: 5; IBGE 2008: Table 21). It is perhaps even more surprising that in two cities in Indonesia, Surabaya and Semarang, we did not encounter any waste-pickers cooperatives at all, despite the fact that, after Independence, cooperatives were promoted by the state as a business model eminently suited to the economic conditions and culture in Indonesia (Lindblad 2008: 91–92, 215). To this day, many kinds of other cooperatives continue to exist in Indonesia. In another large Indonesian city, Bandung, a waste-picker cooperative eventually collapsed (Nas and Jaffe 2004: 341).

Social scientists offer contradictory theoretical support in favour of the more or less formal organization of marginalized workers like waste-pickers into cooperatives or trade unions. In fact, the concept of ‘social capital’ initially focused on the positive aspects of the institutionalized forms of the social and economic cooperation of individuals (Coleman 1988; Lin 1999; Somerville 2011: 51–63). Cooperatives have been hailed as a culturally appropriate way of organizing social capital to underpin the development of informal African economies and have become a model for economic production in communist countries in Asia (Meagher 2005; Porter and Lyon 2006; Rigg 2007: 173).

However, it did not take long to realize that various forms of cooperation, all dubbed ‘social capital’, could also have negative consequences, prominent among

them the exclusion of outsiders and the exploitation of marginalized others. Free-riders are another less than felicitous consequence of cooperatives (Beall 1997; Portes 1998; Porter and Lyon 2006). Peasants in Vietnamese cooperatives showed their scorn by saying: ‘Everyone work [sic] as hard as two, so that the chairperson can buy a radio and bicycle. Everyone work as hard as three, so that the cadre can build a house and courtyard’ (Rigg 2007: 174). Such mockery is a fine example of ‘everyday resistance’ to the oppression of marginalized workers. James Scott says that such resistance benefits from a lack of formal organization, because it allows the workers to evade control and surveillance more easily (Scott 1985).

Stimulated by the paradox that, despite the apparent advantages of waste-picker cooperatives, not all waste-pickers in the cities we know best are members of a cooperative, we have made a comparative study of waste-picking in Belo Horizonte (Brazil) and Surabaya (Indonesia). As we shall see shortly in more detail, Belo Horizonte and Surabaya form a perfect pair for comparison because of the different degree of formalization in the waste-picking in each city. In a follow-up study, we hope to reach an understanding of why individual waste-pickers join a cooperative, and to study the vicissitudes of cooperatives over time. However, in the current explorative phase of our research, our aim is to offer a synchronic analysis of the question how formalization impacts on the work of waste-pickers.

In our study of waste-pickers who are or are not organized in cooperatives, we shall focus on three aspects. Michael DiGregorio (cited by Nas and Jaffe 2004: 339) states that waste-picking throughout the world has only two common characteristics: ‘a recognition of waste as a resource and a varying degree of social opprobrium.’ In our comparison, we focus on these two common aspects: waste as an (economic) resource, hence income, and the low social status of waste-pickers. We shall also add a third aspect, namely: their role in urban solid waste management: what is their contribution to the cleansing of the cities? The question we are attempting to address is: how does the formalization of waste-picking into cooperatives, or lack thereof, impact on the efficiency of waste collection, the income and the social status of waste-pickers in Belo Horizonte and Surabaya? We shall argue that not only do

cooperatives have positive effects on waste-picking, but there are also negative consequences.

Brazil and Indonesia as comparable cases

For a good comparison, it is essential to search for cases that have similar fundamental aspects, a prerequisite for comparison, but are dissimilar in other aspects. These cases allow a better understanding of how certain factors might make a difference. Brazil and Indonesia form such a pair. Both countries are large, respectively, the fifth and fourth most populous in the world. Both are considered part of the Global South. Each is resource-rich, and each has a colonial past.

Both countries are emerging economies, but in this respect Brazil has made more progress than Indonesia. The economy in Brazil is bigger, the per capita incomes are higher, and the urbanization process is also more advanced (Table 1). However, in the past five years, economic growth in Brazil has slowed down, whereas Indonesia has continued to grow.

One important difference between the two is social inequality. The Gini index of Brazil is 52.9 (2013), one of the highest in the world, whereas Indonesia has a more egalitarian society with a Gini index of 39.5 (2013).² Nevertheless, perhaps this figure hides more than it reveals. Both countries exhibit conspicuous signs of extreme wealth and poverty, such as gated communities, luxurious golf clubs, shopping malls from which poor people are banned and beggars. Although both countries have a large middle class with high consumption levels, they also have many waste-pickers.

Belo Horizonte and Surabaya are in many ways comparable. Belo Horizonte (fourth largest city in Brazil) has 2.5 million inhabitants, and Surabaya (second largest in Indonesia) has 2.9 million inhabitants. Although Belo Horizonte is a city in the interior, planned at the beginning of the twentieth century as the new, centrally located capital of the federal state of Minas Gerais, and Surabaya is an old port city, like all large cities, both have developed mixed economies. For our purpose, the most important difference between the two cities is the presence of waste-pickers

² <http://wdi.worldbank.org/table/2.9>, accessed 25 January 2017.

Table 1 Key economic and social figures of Brazil and Indonesia. *Source:* data.worldbank.org/indicator, accessed 22 January 2017

	Brazil	Indonesia
Total GDP (2015) in current 10 ⁹ US\$	1775	862
GDP per capita in current S\$	8539	3347
GDP percentage growth (2011–2015)	0.1	5.0
Urban population, as percentage of total population (2015)	86	54
Percentage population in agglomerations of more than 1 million residents (2015)	40	11

cooperatives in Belo Horizonte and their absence in Surabaya.

Data collection

Data for this article were collected by a selection of ethnographic methods.

Data on Belo Horizonte were collected by Martina Morbidini, who did anthropological fieldwork there from January to March 2014 (and also lived in this city for six months in 2011–2012). She made observations in the sheds (*galpões*) of ASMARE (Associação de Catadores de Papel, Papelão, e outros Materiais Recicláveis), one of the most active waste-pickers cooperatives in Belo Horizonte, followed by waste-collectors in their work in the streets, and made observations in zones of encounter between the urban middle class and waste-pickers: at the local university museum, in the ASMARE restaurant, Reciclo, and during Carnival and other events. She conducted six semi-structured interviews with ASMARE waste-pickers. In order to get an idea of the work of waste-pickers who had not joined ASMARE or other cooperatives, she observed and had informal talks with waste-pickers at markets, festivals, and in weekends. These data were complemented by three semi-structured interviews with key middle-class professionals with close ties to waste-collectors, by informal talks with members of the middle class (found in her own network) and by a regular monitoring study of websites of the municipality, ASMARE, and other cooperatives in Belo Horizonte.

Freek Colombijn has done intermittent fieldwork in Surabaya in three-week stints between 2009 and 2016, plus additional fieldwork in Florianópolis, Brazil (2012), and Semarang, Indonesia (2009–2010). For this article, we have used 35 of his interviews with different waste-pickers, some of whom were

interviewed more than once, on four different dumpsites. He also interviewed four waste-dealers and five labourers who sorted waste for waste-dealers (but had not picked waste themselves). These interviews were semi-structured using topic lists. More information was obtained from talks with five staff members of the municipal sanitary department and the private company that operates the landfill in Surabaya plus several managers of factories that processes recycled plastic. In order to meet the expectations of these higher-educated respondents, the interviews with staff and managers were clothed in the guise of formal interviews, but were actually semi-structured interviews using topic lists. Observations were made at all locations at which interviews were conducted to help fill in the background to the waste-pickers lives.

We have anonymized all our interlocutors, even though many of our informants were proud of their work and happy to have their names mentioned. Coming from a middle class, European background, we are both clearly visibly different from the waste-pickers, but could establish good rapport through our sincere interest, display of respect and ability to speak Portuguese and Indonesian, respectively.

Efficiency of the waste collection

Medina (2000: 52) has estimated that between 50 and 80% of the refuse generated in Third World cities is collected. The wide margin of uncertainty in this estimate and the fact that the figure is cited in many other publications are both indicators that knowledge of exactly how efficiently waste is being collected is very scanty. Wilson et al. (2009) remark that recycling rates in cities in developing countries are perhaps even more unreliable than those in the north, especially because by definition the informal sector does not measure its performance. Be that as it may, they did

come up with a recycling rate in the range of 20–50% (Wilson et al. 2009: 634).

We wish we did have reliable data about the volume of waste produced and the percentages being collected and recycled (and, to measure the efficiency, the effort in time or money invested in handling the waste) but, in the absence of such data, we can only make an impressionistic estimate of the efficiency of the waste collection in both cities.³ As an introduction to our survey, we shall sketch the respective systems of waste collection.

The formal system of solid waste collection in Belo Horizonte is a public–private partnership, in which the municipal waste disposal department is responsible for the collection and transportation of solid waste, but the management of landfills is partly outsourced to private companies and partly still under state management. The SLU (Superintendência de Limpeza Urbana, Department of Urban Cleansing) is responsible for the waste management in Belo Horizonte. Although the SLU itself is a state-owned municipal authority, it has been outsourcing many of its tasks to private contractors. Domestic waste is collected daily in the nine districts (Operational Sections) into which the city is divided, but recyclable waste is collected in only 36 neighbourhoods of these districts on one fixed day every week. In *vilas*, *favelas*, and other urban agglomerates with restricted accessibility, waste collection is carried out using handcarts in the accessible internal alleys, and garbage compactor trucks in the wider, adjacent roads. Undifferentiated waste is taken either to the sanitary landfill (CTRS) in the northern outskirts of the city or to one of the many semi-isolated landfills. The original landfill of Belo Horizonte, opened in 1975, was declared totally full and officially closed in 2007; nowadays, compost materials from the city are deposited there. In 2016, the SLU estimated that the daily collection amounted to around 2.2 thousands of tons of domestic waste, but of this only 18 tons was recyclable waste.⁴

Recyclable waste is separated by households on a voluntary base, a choice that might explain the low rate of collected recyclables. Seven selected cooperatives and associations of waste-collectors receive, separate, and resell the materials. The SLU also covers the expenses of the machinery and the rent of the depots.

Alongside the formal collection of recyclable waste, the informal sector of waste collection involves scavengers, waste-collectors organized in cooperatives, waste-dealers, and resellers. Many scavengers look for recyclable materials, mostly tin cans or PET bottles, in bins, along the streets or in landfills, to resell to entrepreneurs who act as intermediaries with private factories. Waste-collectors operating in cooperatives or associations either work for the SLU in depots or, using their handcarts, collect the recyclable materials themselves from the undifferentiated waste put out for formal collection. The most lucrative materials are cardboard and plastic, since these are easily portable and better quality. Importantly, associations collaborating with the SLU are often provided with compression machinery that allows them to skip the agency of middlemen, and gives them a more competitive edge in the bargaining process. Nevertheless, most associations are loosely structured and recognize individual responsibility for the collected/selected materials to be resold. Informal waste collection, or waste collection operated independently of the formal SLU, is highly stigmatized, teetering on the brink of illegality, and hence discouraged. This attitude has hardened because of the inclusion of associations in the SLU system. In an interview, a waste-collector working at ASMARE for the last fourteen years commented that the materials collected by the SLU were poorly separated, dirty, and often virtually beyond recycling. This woman explained that people often want to help but lack the expertise to select what is and is not recyclable. Therefore, they end up making the waste-collectors' job more complicated than it used to be, even if physically less challenging.

In Surabaya, waste collection of solid waste commences at the RT level. An RT is the smallest municipal administrative unit and is usually composed of a neighbourhood consisting of around 100 households. These households jointly pay a man or woman to go from door-to-door collecting waste, usually several times a week. This collector accumulates the waste in a pushcart and dumps it at a Tempat

³ For what it is worth, Medina (2010: 7) cites an unspecified estimate that waste-pickers in Indonesia reduce the volume which is finally disposed, hence is recycled, by one-third.

⁴ [http://portalpbh.pbh.gov.br/pbh/ecp/comunidade.do?evento=portlet&pIdPlc=ecpTaxonomiaMenuPortal&app=slu&tax=42830&lang=pt_BR&pg=5600&taxp=0&,"](http://portalpbh.pbh.gov.br/pbh/ecp/comunidade.do?evento=portlet&pIdPlc=ecpTaxonomiaMenuPortal&app=slu&tax=42830&lang=pt_BR&pg=5600&taxp=0&,) accessed 24 January 2017.

Pembuangan Sampah Sementara (TPS) or ‘Temporary Waste Disposal Site’, of which there are around 170 in Surabaya. At this point, the municipality takes over and municipal waste disposal department trucks transport the waste from the TPS to the final waste disposal site, a landfill on the fringes of the municipality. Initially, the municipality ran the landfill itself, but since 2012 it has hired a private company, PT Sumber Organik, to manage the landfill. Hence, the formal system of solid waste collection in Surabaya is a public–private partnership consisting of a simple chain from thousands of neighbourhoods, via the municipal waste disposal department, to a company that manages the landfill.

Composed of dozens of formal and informal roles in the waste treatment system, this practice is infinitely more complicated and varied than a formal system (Colombijn 2015). Waste-pickers (*pemulung*) and waste-dealers (*pengepul*) operate along the chain. Some waste-pickers might go from bin to bin along the thoroughfares searching for saleable waste, often specializing in one item, plastic cups for instance. More importantly, the people who collect the waste from the neighbourhoods divide their time between collecting waste and sorting it at the TPS. Other *pemulung* operate at the landfill or final waste disposal site. Some strongly environmentally aware neighbourhoods have erected a waste bank, at which household rubbish is collected and sorted. Directly reusable objects, like perfume and beer bottles, constantly rotate on their own circuit. Cows are herded onto the landfill to help processing organic waste.

As said, there is no way we can measure the efficiency of either the waste collection or the recycling rate in either Belo Horizonte or Surabaya.⁵ However, from what we have observed, we have a good basis to surmise the following. In Belo Horizonte, the recycling rate is lower than in Surabaya, precisely because waste collection and the role of the waste-pickers in it are more formalized. In Belo Horizonte, the bulk of the materials from which the waste-pickers work is what has already been separated by the households.

Naturally, this ‘proto-separation’ in the households is dependent on the goodwill of citizens and the upshot is that the majority of recyclables are only separated from the other waste on the day that the latter is collected by the municipal waste disposal department. On other days, residents tend to throw recyclables away with the rest of the rubbish instead of keeping them in their homes until the next date on which the Department of Urban Cleansing collects recyclable waste. We observed the same ‘selective selection’, occurring only on the days the municipal waste disposal department collected recyclables, in the Brazilian city of Florianópolis. As a consequence, most of the day’s recyclable waste that could have been sorted out is thrown away with the rest of the waste and never reaches the waste-pickers at all.

In Surabaya, in contrast, with the exception of the transportation of the waste from the TPS to the landfill, the state has almost totally withdrawn from waste collection. At every step in the movement of waste, somebody will be searching through the waste and selecting what can be sold. This search for recyclables by informal waste-pickers begins in the waste bins in front of the houses, even before the waste is collected. This widespread lack of regulation in Surabaya must be presumed to be the factor that makes the recycling rate there so much higher than in Belo Horizonte. Every movement of waste in Surabaya is open to market-driven private initiative.

While we feel confident that the recycling rate is considerably higher in Surabaya than in Belo Horizonte, we are less sure about the collection rate. However, it is plausible to assume that the collection rate is also higher in Surabaya than in Belo Horizonte. It is a given fact that municipal waste disposal departments in Brazil do not service poor areas (considered dangerous) or inaccessible areas (like *favelas* with narrow, winding alleys). Consequently, informal waste-pickers pay less attention to the poorer neighbourhoods in Belo Horizonte, preferring to work in well-to-do areas in which the waste offers richer pickings. In Indonesia, the neighbourhood organization, the RT, that is responsible for having waste collected door-to-door is ubiquitous and the pushcarts can navigate even the narrowest pathways. Judging by the efficiency of waste collection, the open market in Surabaya (the decentralized system of collection and absence of the regulation of recycling) seems to be more effective than the more centralized and formalized waste collection in Belo

⁵ The collection rate is the percentage of total waste generated in a city that is collected and treated in some way (and not burnt or thrown away in canals and other public places). Cities in the Global South collect only 50–80% of the refuse generated (Medina 2000: 52). The recycling rate is the percentage of the collected waste that is recycled or reused in some form and not left in a landfill or burnt in an incinerator.

Horizonte. The flipside of the free market system is very apparent when we focus on the incomes earned by the waste-pickers.

Incomes

The central driving force behind waste-picking is, of course, not environmental idealism, but the market. There is money to be made. Wilson et al. (2006: 801) sum it up nicely: ‘They collect materials when they have been discarded as waste and add value to them by sorting, cleaning, altering the physical shape to facilitate transport or by aggregating materials [...] into a commercially viable quantity.’

Most scholars state that incomes earned by waste-pickers are low, the rub being the low prices paid by middlemen. Waste-pickers at landfills especially earn very little money because the isolated location of the latter usually forces the waste-pickers dependent on one or at most a few buyers (Medina 2000: 53; Wilson, Velis and Cheeseman 2006: 801). Nevertheless, some studies report waste-pickers’ incomes three or five times the minimum wage (Medina 2010: 6).

We believe that, in any attempt to make a meaningful assessment of incomes, it is essential to specify the income of which particular waste-picker is being estimated. In the case of Surabaya, the incomes of waste-pickers tend to decrease the farther they operate from the source of household waste or the closer they are to the destination of the waste, be that the landfill or a factory processing recycled materials (Colombijn 2015). We can demonstrate this general principle with the help of two job descriptions, but hasten to reiterate that the whole waste treatment system is characterized by an infinite complexity and a much larger diversity of roles than the two described here.

The highest incomes are earned by people who collect waste in the neighbourhoods (RT) and take it to a temporary waste collection site (TPS), where they make an initial sorting. This waste is richest, because almost all valuable materials are still there. When sorting the waste, these waste-pickers work very cursorily, because it is not worth the investment of time required to be too precise.⁶ They distinguish

between about six different categories of waste and simply throw a lot of potentially recyclable materials away into the skips, in which the waste is transported from the TPS to the landfill by the municipality.

Not only do these waste-pickers have access to the freshest, hence richest, waste, they can usually also choose to do business with the waste-dealer who is offering the best price. The income from the recyclables is dependent on market prices (of which they are well aware). The sale of recyclables constitutes about half of their income; the other half being the fixed income paid by the neighbourhoods for the from-door-to-door collection of the waste in the RT. Hence, the collection of waste in the neighbourhood offers a stable income and the opportunity of exclusive access to this fresh waste. Waste-pickers at these temporary collection points display visible signs of prosperity, owning such items as motorcycles, mobile phones, or MP3 players.⁷

The situation is quite different for people who are employed by waste-dealers and have only second pickings at the waste. The waste-dealers buy up waste from waste-pickers, have it sorted out more meticulously, and then sell it to others for further processing (but rarely directly to factories that use the recyclables as resource for their products). The added value of this activity is a more detailed selection of the recyclables. The labourers working for the waste-dealers do not sort out the waste into just five or six baskets as the waste-pickers at the TPS do, but divide it more sedulously over about 15 baskets.

Unlike the people working at a TPS, these labourers are not independent entrepreneurs but are employed at piecework rates. They get no pay at all for some of the materials they separate, because their boss claims that the market price is too low, making profit margins so slim he or she cannot afford to pay the labourers a wage. Their reported incomes are considerably lower than those of waste-pickers at a TPS. Farther down the chain of waste, where some people do nothing but tearing plastic bags asunder in order to make it easier to wash them out, incomes are even lower.

In Belo Horizonte, the distinction lies between independent waste-pickers and the waste-collectors

⁶ The only exception is the collection of plastic cups that can easily be separated from the rest and fetch a high price per unit weight.

⁷ For a calculation of their monetary income, see Colombijn (2015) but, given the unreliability of quantitative data and the difficulty in interpreting the value of a monetary income, visible signs of prosperity are perhaps more telling than a round figure.

organized into cooperatives or associations. Independent waste-pickers search for the most valuable waste in the city centre and in the richer parts of the city. On special occasions—at weekends, during street parades, at markets and other events—waste-pickers do travel all the way to the centre to collect lighter materials, mostly tin cans and PET bottles. For instance, we talked to a woman who would take a 2-h ride on three separate buses to reach the city centre on Sunday morning to collect cans. Those waste-collectors who are affiliated with cooperatives but still do the door-to-door collection in the evening have to rip open the rubbish bags put outside private houses, shops, and offices, to make a quick selection of the most valuable recyclables. In their quest to save what is not rubbish from a landfill destination, they are often perceived as those responsible for littering the area. In Belo Horizonte and Florianópolis, we have personally witnessed how waste-pickers going through the main shopping streets after closing time and ripping open the rubbish bags that had been put outside in their search for valuables actually did more harm than good to the waste disposal in the area. Because of the marked social inequality in Brazil, the economic incentive to collect waste informally is restricted to well-to-do areas, where the waste is richest.

Paradoxically, the larger volume of rich waste collected in the centre and well-to-do residential areas has an inverse effect on the price of recyclables in Brazil. The closer middlemen and depots are to the city centre, the bigger the volume of waste offered to them will be and, consequently, the lower the revenue per kilo for the waste-picker. Aware of this discrepancy, many waste-pickers choose to take the material collected back to the peripheral area, where they can sell it for a higher price. This strategy of taking recyclables back home is the reason they choose lightweight materials that can be carried back on public transport. Those waste-pickers who are more organized or who possess a cart specialize in heavier materials, such as iron and other metals, and cardboard, and paper. Carts are expensive, and independent waste-pickers often have to sleep under their carts as they wait to sell their product early next morning. Their returns are very low, especially if they are not in a position to accumulate tons of materials all at once and are forced to sell the material in small quantities at a lower rate. Independent waste-

picking still remains the most effective and capillary way of collecting recyclable materials, as Brazil's leading position in aluminium recycling demonstrates—but it is discouraged by officials and citizens for reasons of public health and aesthetics. As it is seldom a very lucrative activity, it is often combined with other informal activities, such as housekeeping or construction work, or used as a transitional step towards organized waste collection and formalization.

Waste-collectors affiliated with cooperatives can either continue to collect recyclables independently or choose to work in depots to which the SLU delivers the recyclable waste already separated by households. The main advantage of membership of a cooperative or association is the guarantee of a monthly basic income. Waste-collectors working independently have their own workspace. They maintain a degree of freedom about what they collect and when to collect it. Most of the cooperatives and associations have their own depot and the basic machinery to compress the material ready to be sold, a repair shop where carts are repaired, wagons, or even furniture, and individual pitches at which each worker can separate the collected waste. Waste-collectors are encouraged to meet a minimum production rate per month, and above that rate bonuses apply.

The task of the waste-collectors working exclusively in depots is to separate and select recyclable materials previously separated by households and collected by the SLU. They have to guarantee to carry out the selection of materials at an efficient rate, since the formal sector delivers twice a week and storage space is usually at a premium. Again, workers maintain a flexible timetable, but have to coordinate efficiently with co-workers to process all the waste in time before the next lot is deposited by the SLU. They usually separate up to 15 different items, and also separate by colour.

Importantly, a cooperative offers waste-collectors additional advantages, allowing them to benefit from educational programmes for themselves and their children, a web of social and political ties and access to municipal and state funding. In Brazil, most waste-collectors working in cooperatives have managed to climb out of extreme poverty by dint of their profession and can now afford a house and a car, plus a smartphone or a Hi-Fi speaker on their own cart.

Social status

The advantages of a cooperative are most evident in the improved social status of waste-pickers. Here, we leave aside the fact that waste-picking still has a low status almost anywhere in the world and that this status has significant consequences for their work and focus instead on the ways waste-pickers deal with this perceived low status.

Cooperatives in Belo Horizonte have been actively engaged in reducing the stigma associated with proximity to waste, and are engaging with middle-class cultural and educational institutions to present an image of waste-collectors as environmental agents who keep the city clean and boost the sustainability of urban waste management. Benefiting from state-level policies encouraging the socio-economic inclusion of waste-collectors, many cooperatives and associations present themselves as professionals in the waste management sector, and encourage workers to take a pride in their occupation.

The oldest cooperative of waste-collectors of Belo Horizonte, ASMARE, has been one of the most active organizations in seeking the collaboration of local universities, artists, and designers to present waste-collectors to the broader society in a different light. Among its many achievements, ASMARE has collaborated with a local university museum of knowledge and science, and has co-curated an exhibition on sustainability and the history of the cooperative in the city, revealing the struggles for socio-economic recognition as well as the environmental impact on the city. Their struggle has been so successful that cooperatives of waste-collectors have been officially contracted to manage waste during special events, such as the 2014 FIFA World Cup or concerts and parades.

An episode observed during fieldwork proves the confidence and pride waste-collectors take in asserting the importance of their profession. In 2014, the municipal government had not renewed its contract with ASMARE to manage the Carnival Parade waste. Responding to this slight, ASMARE waste-collectors signed up to participate in the traditional parade as a *Bloco*—a group of dancers and musicians—and re-vindicated its workers' presence during Carnival by slogans and songs and by decorating their clothes and banners with garlands made from recycled materials.

The ASMARE *Bloco*, like any pride parade, demonstrated the desire for the full acceptance of a still marginalized category. The joyful participation in the parade and the enthusiastic response of the audience indicate that these protests are shifting from a claim on the social level to one on a political and economic level. In a society in which occupation determines a person's degree of respectability, waste-collectors working in cooperatives wear their uniforms with pride and with a sense of belonging to a recognized profession (Brubaker and Cooper 2000: 19–21).

The situation in Surabaya is much less rosy. The municipality has launched a 'Surabaya Green and Clean' campaign and some of its newest garbage trucks are adorned with the English-language slogan 'Be environmentally responsible, BE GREEN', but in practice the focus of this campaign is directed towards parks and other green spaces in the city rather than the disposal of solid waste. Kusno (2011) has argued that in Jakarta an environmentalist discourse has been embraced by the government, real estate developers, middle-class and kampong residents, but only for strategic reasons and not because of any sincere concern for the environment. This 'green governmentality' in Jakarta and the slogan 'Green and Clean' in Surabaya indicate that, although an environmental discourse has been embraced, this acceptance has not resulted in a positive appreciation of the waste-pickers. As it is, the contribution waste-pickers make to the urban environment in Surabaya goes unnoticed.

The waste-pickers in Surabaya are aware of their low social status and search for ways to deal with this. For instance, they change their clothes before they go home because they do not want people to see and smell that they work with garbage. While we have experienced that they talk self-confidently about their own work, they usually hope that their children will find more prestigious jobs. More than once, our interlocutors made an uninvited comparison between their own work and stealing or sex work, stressing that waste-picking is a job that is at least *halal*. *Halal* is an Islamic concept of 'pure' and 'not-polluted', and we have never encountered people in other jobs who were seized by the spontaneous impulse to describe their work in such terms. In sum, in contrast to the waste-pickers in Belo Horizonte who feel that at least some middle-class people appreciate their contribution to

the making of a liveable city, so far the waste-pickers in Surabaya must forego such a positive acceptance.

Conclusion

In this article, we have addressed the question how the formalization of waste-picking in cooperatives impacts on the work of waste-pickers, comparing Belo Horizonte and Surabaya. We have seen that in Belo Horizonte cooperatives like ASMARE offer waste-pickers some protection. The workers receive a guaranteed income and are shielded from the worst societal opprobrium. The drawback of the cooperative is stricter governmental control and limited flexibility and, in this respect, we would like to refer to a waste-picker cooperative in Rio de Janeiro, where the formalization of sales and labour has resulted in taxation by the government (do Carmo and de Oliveira 2010: 1264). Because of their formal organization (with an administration and an address), waste-pickers' cooperatives can be relatively easily traced and supervised by the state.

It is another story in Surabaya where the collection of waste and recycling of resources seems to be being effectively steered by the open market and the best positioned waste-pickers can make substantial incomes. One bonus of the lack of organization is that waste-pickers in Surabaya can steer clear of government control to a large extent by a strategy that Scott (2009) has dubbed the 'art of not being governed'. Their invisibility is, of course, a question of degree and not an absolute difference with the situation in Belo Horizonte. For example, the waste-pickers who go from bin to bin literally leave no trace in Surabaya, but the waste-pickers at the landfill, although they work anonymously, could in theory be stopped at the gate of the landfill. The flipside of the liberal market conditions in Surabaya is the exploitation of waste-pickers in less profitable positions in the waste chain. This is Capitalism in its harshest form. Moreover, the waste-pickers in Surabaya are not shielded from public contempt.

The comparison between waste-pickers in Belo Horizonte and Surabaya helps us reach a better understanding of why many Brazilian waste-pickers choose not to join a cooperative and, at this point, it might be useful to extend the comparison to Brazilian gold-miners. Discussing small-scale Brazilian gold-miners in Suriname, de Theije and Bal (2010: 68) have

remarked that 'the absence of a close-knit community, the lack of attachment [...] allows for individual freedom and opens up various new possibilities.' The gold-miners and unorganized waste-pickers have embraced the general principle that people who willingly forfeit protective bonds can reach 'new levels of freedom' (Lee 2005: 67).

Thomas Hylland Eriksen sums it up succinctly: the opposite to human security is not only, and perhaps not even primarily, insecurity, but freedom (Eriksen 2010). However, just as we should not expect everybody to pursue security as a desirable goal, we should also not presuppose that everybody prefers more freedom, because freedom implies 'engaging risk' (Salemink 2010: 285). The waste-pickers in Belo Horizonte at least have a choice between some form of security offered by ASMARE or Adam Smith's invisible hand of the totally free market. The waste-pickers in Surabaya do not have the luxury of the same choice and are condemned to work under strict capitalist conditions.

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References

- Agarwal A, Singhmar A, Kulshrestha M, Mittal AK (2005) Municipal solid waste recycling and associated markets in Delhi, India. *Resour Conserv Recycl* 44:73–90
- Beall J (1997) Social capital in waste—a solid investment? *J Int Dev* 9:951–961
- Brubaker R, Cooper F (2000) Beyond "identity". *Theory Soc* 29:1–47
- Coleman JS (1988) Social capital in the creation of human capital. *Am J Sociol* 94:S95–S120
- Colombijn F (2015) Getting stuck in a flow: the lack of social mobility of waste-pickers in Surabaya, Indonesia. Paper for the workshop 'Waste and the superfluous: precarious living amidst worlds of waste', Oslo 14–15 September
- de Theije M, Bal E (2010) Flexible migrants: Brazilian gold miners and their quest for human security in Surinam. In: Eriksen TH, Bal E, Salemink O (eds) *A world of insecurity: anthropological perspectives on human security*. Pluto Press, London, pp 66–85
- Dias S (2011) Integrating informal workers into selective waste collection: the case of Belo Horizonte, Brazil. *WIEGO Policy Brief (Urban Policies)* 4:1–12

- do Carmo MS, de Oliveira JAP (2010) The semantics of garbage and the organization of the recyclers: implementation challenges for establishing recycling co-operatives in the city of Rio de Janeiro, Brazil. *Resour Conserv Recycl* 54:1261–1268
- Eriksen TH (2010) Human security and social anthropology. In: Eriksen TH, Bal E, Salemink O (eds) *A world of insecurity: anthropological perspectives on human security*. Pluto Press, London, pp 1–19
- Guerrero LA, Maas G, Hogland W (2013) Solid waste management challenges for cities in developing countries. *Waste Manag* 33:220–232
- Gutberlet J (2009) Solidarity economy and recycling co-ops in São Paulo: micro-credit to alleviate poverty. *Dev Pract* 19:737–751
- Huysman M (1994) Waste picking as a survival strategy for women in Indian cities. *Environ Urban* 6(2):155–174
- IBGE (Instituto Brasileiro de Geografia e Estatística) (2008). <http://cod.ibge.gov.br/31Z>. Accessed 24 Oct 2013
- Kumar S et al (2009) Assessment of the status of municipal solid waste management in metro cities, state capitals, class I cities, and class II towns in India: an insight. *Waste Manag* 29:883–895
- Kusno A (2011) The green governmentality in an Indonesian metropolis. *Singap J Trop Geogr* 32:314–331
- Lee RLM (2005) Bauman, liquid modernity and dilemmas of development. *Thesis Eleven* 83:61–77
- Lin N (1999) Building a network theory of social capital. *Connections* 22:28–51
- Lindblad TJ (2008) *Bridges to new business: the economic decolonization of Indonesia*. KITLV Press, Leiden
- Marshall RE, Farahbakhsh K (2013) Systems approaches to integrated solid waste management in developing countries. *Waste Manag* 33:988–1003
- Meagher K (2005) Social capital or analytical liability? Social networks and African informal economies. *Glob Netw* 5:217–238
- Medina M (2000) Scavenger co-operatives in Asia and Latin America. *Resour Conserv Recycl* 31:51–69
- Medina M (2010) Solid waste, poverty and the environment in developing country cities: challenges and opportunities. UNU-WIDER working paper 2010/23. [n.p.:] United Nations University-World Institute for Development and Economic Research
- Nas PJM, Jaffe R (2004) Informal waste management: shifting focus from problem to potential. *Environ Dev Sustain* 6:337–353
- Porter G, Lyon F (2006) Social capital as culture? Promoting co-operative action in Ghana. In: Radcliffe SA (ed) *Culture and development in a globalizing world: geographies, actors, and paradigms*. Routledge, London, pp 150–169
- Portes A (1998) Social capital: its origins and applications in modern sociology. *Ann Rev Sociol* 24:1–24
- Potter RB, Lloyd-Evans S (1998) *The city in the developing world*. Prentice Hall, Harlow
- Rigg J (2007) *An everyday geography of the global south*. Routledge, London, New York
- Salemink O (2010) Ritual efficacy, spiritual security and human security: spirit mediumship in contemporary Vietnam. In: Eriksen TH, Bal E, Salemink O (eds) *A world of insecurity: anthropological perspectives on human security*. Pluto Press, London, pp 262–289
- Scheinberg A, Spies S, Simpson MH, Mol APJ (2011) Assessing urban recycling in low- and middle-income countries: building on modernised mixtures. *Habitat Int* 35:188–198
- Scott JC (1985) *Weapons of the weak: everyday forms of peasant resistance*. Yale University Press, New Haven
- Scott JC (2009) *The art of not being governed: an anarchist history of upland Southeast Asia*. Yale University Press, New Haven
- Sharholly M, Ahmad K, Mahmood G, Trivedi RC (2008) Municipal solid waste management in Indian cities—a review. *Waste Manag* 28:459–467
- Somerville P (2011) *Understanding community: politics, policy and practice*. The Policy Press, Bristol
- Suchada P, Tränkler J, Cholada K, Schöll W (2003) The role of formal and informal sectors in solid waste management of developing countries. In: *Proceedings Sardinia 2003, ninth international waste management and landfill symposium*
- Talyan V, Dahiya RP, Sreekrishnan TR (2008) State of municipal solid waste management in Delhi, the capital of India. *Waste Manag* 28:1276–1287
- Versnel H (1986) Scavenging in Indonesian cities. In: Nas PJM (ed) *The Indonesian city: studies in urban development and planning*. Foris, Dordrecht, pp 206–219
- Wilson DC, Velis C, Cheeseman C (2006) Role of informal sector recycling in waste management in developing countries. *Habitat Int* 30:797–808
- Wilson DC et al (2009) Building recycling rates through the informal sector. *Waste Manag* 29:629–635