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1. Introduction

- 1 Driving into Bangalore from the airport one cannot miss the endless billboards advertising gated homes—promising security, homogeneity, space, greenery, luxury living, privacy and exclusivity. The post-liberalisation economic boom in India in 2001 has led to a massive influx of people migrating to Bangalore, ‘the Silicon Valley of India’. This economic restructuring led to a mirroring of certain Western models of housing and lifestyle choices that were transplanted into new ‘global cities’, where gated communities are ‘seen as exclusive sites where local and global elites organise their consumption and production as well as social and leisure activities’ (Pow, 2009, 21). The rise of gated communities is closely linked to the rise of the new middle class, with Western aspirations, models and modes of living. Houses modelled on American suburbia but using European architectural styles and well-tended green spaces have sprung up on Bangalore’s outskirts along with what some scholars see as a growing insularity derived from strong social differentiation.¹

- 2 Much of the literature on gated communities addresses the issue of their social sustainability, arguing that they exemplify the social segregation (Townsend, 1979) of the privileged few, who live sequestered from the poorer masses. This idea resonates with the 'global city, dual city' discourse (Marcuse, 1996; Webster et al., 2002), where the privileged and the poor live side by side, interconnected in their dependence on each other. However, relatively little has been written on how sustainable such gated communities in effect are and what kind of new norms, behaviour patterns or urban networks they foster.
- 3 This paper addresses the changing practices related to water and waste management in these enclaves from the perspective of their residents and of their 'communities'.² The changing flows of resources, investment and people into Bangalore have seen a number of modifications made to its built environment, linked to its metamorphosis into India's 'Silicon Valley', and this makes it a particularly interesting research site. The increased demand for housing has been met by the building of residential enclaves that accommodate large numbers of people, providing them with security, control over the management of common areas, conveniences like a back-up power supply and continuous water supply, gyms and leisure areas, among other amenities. This has led to the emergence of what Marcuse (1996) has called the 'gentrified city' populated by professional, managerial and technical groups. He points out that this division has paralleled the division of economic activities with the expensive gated enclaves catering to an advanced services sector with 'many ancillary services internalised in high rise office towers, heavily enmeshed in a wide and technologically advanced communicative network' (1996, 197).
- 4 The global outsourcing of advanced services to Bangalore gave rise to a new middle class that shuttled between India and Euro-America/Australia/Hong Kong/Singapore, transporting ideas and lifestyles. The movement and expansion of new middle classes in India, in conjunction with global labour flows in the services sector, created a specific kind of interaction for the new middle classes, with ideas of 'Westernisation' and 'globalisation', one that also involved tensions with 'Indian' cultural and social traditions. While some celebrate modernity and a new global metropolitan culture, others emphasise that this is at odds with traditional culture and family structures (Dwyer, 2000).
- 5 The identity of this new middle class in India has been the subject of considerable debate. Discussion has also focused on the social responsibility and civic participation of this expanding urban group. Some scholars (Gupta, 2000; Varma, 1998) have posited a link between growing civic indifference and an expanding middle class. It has been argued that the relationship of an 'emerging middle class' to an expanding market for consumption goods has been responsible for new state policies that incorporate a materialistic world view in contradistinction to Gandhism and Nehru's socialism, which had emphasised other ideals in post-independence India (Varma, 1998). Others, such as Chakrabarty (1991) and Kaviraj (1998), have discussed the role of the middle class in shirking responsibility for issues like waste, pointing out that middle classes have taken little responsibility for the world outside their homes including the rubbish they throw onto those streets. Fernandes suggests that middle-class neighbourhood organisations primarily mobilise to 'regain their control over public space and regain a clear socio-spatial separation from groups such as street vendors and squatters' (2006, xxxi). Chatterjee (2004) contrasts mobilisation by the poor for access to city space and services, what he terms 'political society', with the 'civil society' that mediates the

relationship between the middle classes and the state in India. Similarly, though based on an entirely different set of theoretical approaches, Das and Randeria (2015) also analyse the political and legal activism of the urban poor in comparative perspective. By comparison, the growing political activism of the urban middle class in India seems to be a rather neglected topic of study, a lacuna that this paper attempts to fill.

- 6 We call into question the contention that the new Indian middle class displays little social and political engagement. Admittedly, its concerns have often been limited to urban issues of immediate interest to improving its own lifestyle and thus linked to particular grievances, without questioning the impacts, both social and environmental, of its patterns of resource consumption (Lange et al., 2009). Our material nuances the idea of 'consumerist predators' (ibid.) by delineating specific forms of individual and collective engagement for improving the environmental sustainability of gated communities. The material we have collected shows the existence of a vibrant community life within these gated enclaves but also an interest among a specific, committed group of individuals in broader questions of urban governance (see also Lutringer and Randeria, 2017a, this issue). We argue that this phenomenon is tied to the double failure to provide infrastructure and services, by both the state and the residential enclaves' developers, whose legal responsibility includes the increasingly privatised infrastructure deployed there. In this context, the role of Residents Welfare Associations (RWAs), which have a formal responsibility to organise some service provision, is of particular significance. However, our study suggests that practices of civic activism are not limited to these RWAs but encompass various forms of individual and community engagement. Developing our argument based on material regarding water and waste management, we examine how certain 'communities' of residents within gated enclaves frame their responsibility towards environmental sustainability while adopting more sustainable practices of water and waste management in their own daily lives. After presenting our methodology and conceptual framework, the text explores how residents and residents' associations have addressed issues related to the use of water resources. The next section develops the case of community-led initiatives for on-site waste management. Finally, examining the differentiated level of engagement and commitment to environmental questions in gated communities, the paper reflects on the emergence of community-level leadership around projects aimed at a more sustainable management of the urban environment. It thus points at the different responsibilities within and beyond gated communities when it comes to addressing unsustainable practices and initiating corrective efforts.

2. Methodology

- 7 This study is based on qualitative interviews and observations made among middle-class households in Bangalore between 2013 and 2014. Two categories of interviews were conducted: 127 interviews around household practices, and 15 interviews around municipal solid waste management policy and three specific community initiatives.
- 8 Using snowball sampling, we identified and interviewed 127 individuals employed in the information technology (IT) sector regarding their household practices around consumption and waste. In a first phase, 100 short semi-structured interviews of approximately 30–40 minutes each were conducted largely in the workplace.³ This was followed by in-depth semi-structured interviews with an additional 27 individuals, usually in their homes. Interviews usually lasted 2–5 hours. Many respondents also

showed us around their buildings or gated communities, especially if there were specific practices and infrastructure around composting and water management in their communities. Both workplace and at-home interviews covered various aspects of people's practices of buying, consuming and disposing of food. Out of the 127 interviewees, some 42 (33 per cent) lived in a gated community, with the rest living in a mixture of smaller apartments, private housing and paying guest accommodation depending on age and marital status.⁴ This paper focuses on those living in gated communities while situating its analysis in the broader context of Bangalore.⁵

- 9 In addition to these 127 interviews, we conducted 15 in-depth individual interviews regarding municipal policy and three specific community initiatives. We used RWAs' blog posts and online platforms to identify people who would be interested in participating in our study, and then used snowball sampling to identify more respondents within the same communities that we could talk to in order to ascertain if there was homogeneity in practice and experience.
- 10 There are no official statistics on gated communities in Bangalore, but a newspaper article in 2013 pegged the informal number at over 75,000 in that year (*Deccan Herald*, 2013). Most gated communities in Bangalore are large residential developments consisting of multiple apartments or houses and restrict entry using physical barriers and security guards. The complexes we visited contained both high-rise apartment buildings and individual houses within gated communities. They usually have amenities like large common areas, clubhouses and well-maintained roads, and dedicated facilities/housekeeping staff employed to manage and maintain these spaces. A total of five communities were studied; they were of differing sizes (ranging from 350 to 1,300 apartments) and one had an open layout. Our pool of respondents came from various gated communities as we accessed them largely through the workplace and not via their residential area. We carried out in-depth interviews in Koramangala, Electronic City (South Bangalore), Kanakpura (South West) and Indiranagar and Whitefield (East Bangalore). Fieldwork was also carried out among residents' associations and community groups engaged in initiatives around waste management within their neighbourhoods. Following Anantharaman (2014, 175), we wanted to explore collective action by groups of residents within these new middle class gated communities around pro-environmental norms and practices.

3. Gated Communities and RWAs

- 11 Blakely and Snyder were first to propose the concept of the gated community in their monograph *Fortress America*, published in 1997. They advance a definition based on restrictive entry in those spaces: 'residential areas with restricted access where normally public spaces are privatised' (1997, 2). This vision of a gated community has diffused to become a global trend shaped by the US model but adapted to local, political and architectural traditions (Le Goix and Callen, 2010). In Bangalore, gated communities often resemble the suburban US. These areas in the south and east of Bangalore are full of people working in the IT sector with either ties to, or aspirations to follow, or both, Western, specifically US models of living. They have private roads within the community and security personnel who monitor movement in and out of the enclosed area. It is a hybrid space, where people maintain individual, often anonymous lives while forming associations known as RWAs to administer the community's amenities, infrastructure and

services, including collecting payments for the maintenance of common resources. Thus, these communities are a particular blend of the individual and the collective.

- 12 The discourse around these privately governed spaces especially in the US and Latin America has highlighted 'security-oriented privatized urbanism' (Low, 2001; Marcuse, 1996). Their critics underline their social and urban segregation as 'cities of walls' (Caldeira, 1999) that make 'no-go zones' of areas that were previously public. While the idea of walls has been well established in most definitions of a gated community, the term came under scrutiny in Bangalore, where in 2012 the civic agency responsible for urban development began questioning the definition of the term 'gated'. In the words of the Commissioner of the Bangalore Development Authority (BDA), Bharatalal Meena, in 2012:

In our rulebook, there is no concept of gated communities. The developers take permission for the formation of layouts and construction of residential blocks. But they cannot block part of the layout from public access. That is not allowed in the laws and amounts to gross violation. (Cited in Rao, 2012)

- 13 In response to the demands of RWAs for such a closed, privatised space, legitimised in terms of the loss of security for residents if such walls were not allowed, in 2016 Bruhat Bengaluru Mahanagara Palike (BBMP) Commissioner Siddaiah confirmed:

There is no concept like a gated community. They shall be part of the city. If gated communities are blocking traffic and causing inconvenience to the public they must be demolished. Is there no safety and security for those living outside the gate? It is not a defence establishment to put up a board that says entry prohibited. (Cited in Patel, 2016)

- 14 Unlike in France for example, where gated communities are situated on formerly fenced land like forests and hunting grounds (Bastie 1964, in Le Goix and Callen, 2010), in India in general and in Bangalore in particular there is no way to enforce a private takeover of large swaths of public land in cities. Thus, the concept of 'gated communities' is a tenuous one in a context where the term does not exist in law. Builders try to shape space within the constraints of land supply, while residents try to model it from the demand side. The management of these spaces rests on an uneasy alliance and/or tension between local private governing bodies (RWAs) and a host of public authorities.
- 15 Gated communities are a particularly welcome development for local governments, especially in unincorporated peri-urban areas, as developers and the subsequent homeowner association substitute for the public authority and privately provide infrastructure and public services (streets, sidewalks, landscaping, utilities networks, lighting, water, sewage, electricity, etc.) (Le Goix and Callen, 2010; Kennedy, 1995; McKenzie, 1994). In order to do so they incorporate a specific form of organisation, with 'formalised meetings, the adoption of the regulations of an association, the election (or designation) of general secretaries, presidents and other leading figures, and the registration of the association under the Societies Registration Act XXI of 1860' (Zimmer, 2012, 95). It is important to note that in the gated communities we observed, often only owners are eligible for membership of these associations, so tenants have less incentive to participate. However, other factors can and do elicit involvement and interest in the activities of the communities and we shall turn to them in the next sections.
- 16 Class in India is not just a socio-economic category that shapes collective identity; it shapes every aspect of life from education to marriage, consumption and collective

politics as expressed through Residents Welfare Associations (RWAs) (De Neve and Donner, 2011, 12). RWAs lobby for better services at the local level and have gone 'beyond merely confronting and cooperating with the local administration to protecting the quality of life in their areas' (Smitha, 2010, 73). The inability of official public bodies—for example, the ward committees institutionalised through the 74th Constitutional Amendment Act to usher in decentralised urban governance⁶—to provide services is part of the structural conditions that shift power to RWAs.

- 17 The elite RWAs in gated communities have come to be characterised as bodies of consumer citizens with high education and income levels (Harriss, 2005) who focus on issues of property value and security. They are also more likely to use collaborative and active forms of governance, have good access to the media and organise Internet campaigns, involve themselves in consultative policymaking activities, and use their own funds to create or upgrade infrastructure within their gates. However, critics have argued that the participatory politics of RWAs have resulted in the 'sanitisation of the cities'—a trend that excludes lower-income groups from articulating their rights to livelihood, housing and protection in public spaces. Some scholars point to the resulting policing and disciplining of the urban poor (Harriss, 2005), rather than to a shared articulation of rights. While this is true with regard to housing and access, we choose instead to focus here on the development of 'ecological citizenship' (Dash, 2014) in a particular social stratum. Ecological citizenship refers to a post-cosmopolitan and non-territorial form of citizenship that calls for individual 'responsibilisation' with regard to the environment (Dobson, 2006; Anantharaman, 2014; Saiz, 2005). Emphasising citizens' duties, this leads to private actions that are geared towards the public good. As highlighted by Anantharaman (2014), in Bangalore activities such as recycling, composting or buying organic food are also facilitated by networks—hence her suggestion to conceptualise them as 'networked ecological citizenship'. We delineate here some factors that create a sense of ownership of systems created within gated communities.

- 18 In their discussion on the roles of neighbourhood associations in Bangalore, Kamath and Vijayabaskar (2009, 369) contrast 'largely traditional middle class' RWAs in older localities, mainly in the city centre, with RWAs in new housing complexes situated in more peripheral areas:

there are RWAs of the new elites working in globalized service sectors, living in enclaves and largely insulated from the problems of lack of amenities due to their location in gated communities. Enjoying globalised standards of consumption, this transient 'new rich' class often live in gated communities and tend to rely more on the market for their services rather than make direct claims on the state.

- 19 Our material suggests, on the contrary, that many of our informants have not chosen to live in gated communities because of an actual or perceived failure/inadequacy/unreliability in the provision of basic amenities such as water, electricity and garbage collection by the local state and municipal authorities, but rather due to the location of these housing complexes close to the economic IT zones in which large numbers of them are employed.
- 20 In Bangalore, urban environmental issues have attracted increasing attention in the context of the rapid expansion of the city.⁷ Interestingly, the polycentric pattern of urban growth, with the city centre being more and more saturated and new centres developing

at the periphery, has led to pronounced environmental concerns at the periphery too, for example due to tree felling (Nagendra et al., 2012). In these new urban peripheries, how do middle-class residents frame their responsibilities in terms of environmental sustainability and demand their rights? The following sections will explore this question in the context of two areas; namely, water and solid waste management.

4. Practices within Gated Communities

4.1 Water

- 21 With a population of 8,686,000, Bangalore is India's fifth largest city. As per the estimates of the Bangalore Water Supply and Sewerage Board (BWSSB), the demand for water amounts to 840 million litres per day (MLD). Bangalore gets water from three main sources with the bulk sourced from the Kaveri river, with around 810 MLD being drawn a distance of 120 kilometres to reach the city. The other two sources of water are the T.G. Halli Tank and the Underground Water Resource, and Bangalore uses 120 MLD from the former and 50 MLD from latter everyday (*My Bangalore*, 2010). The gap between demand and supply is met by groundwater exploitation, with a senior hydrologist interviewed for the *Times of India* reporting 'that estimated 20 lakh [2 million] borewells in the state draw almost three-and-a-half times of the amount (rainfall) received to recharge the groundwater' (Aiyappa, 2015). It is estimated that 40 per cent of the population of Bangalore is dependent on groundwater. The Central Ground Water Board (CGWB, 2011) also estimates that as many as 150,000 'groundwater-extracting structures', or wells, exist and the size of the tanker market to be 2,800 tankers supplying 8.4 MLD. At the level of households and particularly in gated communities, this plays out in different ways. One of our respondents, who lives with his wife in a gated community in Electronic City, points out that:

The maintenance charges are, like, shooting up because the water is [depleting]... we don't get corporation water...in this whole area, there is no corporation water; it is all tankers... The society buys everything, you know, the tankers and water and all; we have the purifier...it is unbelievable... without water, the flat rates are [very high]...it is madness. In our society, the water table is at 1,000 feet, even then they didn't get... some bores actually ran dry... yeah, I forgot...apart from the tankers the only other source is groundwater, and they are all...already you know, half of them have run dry.

- 22 These problems impact residents of different localities on a daily basis as water scarcity and water rationing is becoming a reality in many gated communities. Respondents in several communities in Electronic City talked of severe water shortages over the summer, when water was rationed to two hours in the morning and two hours in the evening or provided during different time slots to different residents during the day.
- 23 Others noted that there was no regular water supply to their buildings at all, with the main source they relied on being tanker water. One young couple living in a gated community in Indiranagar were surprised, upon moving from Delhi to Bangalore, to discover that even their drinking water was provided by water tankers, even though the building had installed its own water purification system. There is an increasing dependence on tanker water, with some communities reporting the use of tankers

delivering 4,000 litres of water every week to replenish the overhead tanks that then provisions water to individual homes once in every three days. This has meant a change in practices, as a household of four living in a prominent gated community in Electronic City notes:

The plants they have started dying because we have stopped pouring the water because it is impossible, where to get the water from. We water just once a week just to sustain them till it starts to rain. Washing cars, buckets again, we don't use hose to wash cars.

- 24 In response to the problem, in 2009 the BWSSB made rainwater harvesting compulsory for houses. The guidelines stipulate that anyone who proposes constructing a building on an area of 1,200 square feet and above must provide for rainwater harvesting. However, our respondents suggested such harvesting is still not widespread in the city. Builders continue to neglect the necessary investment in such facilities.
- 25 Our study shows the importance of interventions at several levels. In some gated communities, we have seen committees managing the installation of water harvesting systems. In other cases, such as one gated community of independent houses, some of the owners had installed their own systems for rainwater collection, and borewells for tapping ground water. One respondent living in a rented house with her husband and children regretted the attitude of the owner of her house:

Yes, our society is doing rainwater harvesting, but my owner he has not done. It is compulsory or you pay a fine of INR30,000 or 40,000 or something like that, so he has just paid the fine and it really bothers us that he is doing this because I think, as a citizen, you have certain responsibilities [...] this is not my house so, I can't do much about it, but when I see that it is raining and all the water is going down the drain, I feel very bad. People need to realize this and I think they will realize only when that push will come.

- 26 Interestingly, this informant emphasised the responsibilities that citizens have towards the environment. Other respondents blamed the short-sightedness of developers, as well as the demand for unsustainable amenities. One respondent complained about water wastage in his gated community:

We have unsustainable things like a swimming pool here, I don't know why residents demand for it and only two per cent use it. And people have six to seven acres of land here and there is a high wastage of water here; they put water in the roots and all of that wastes water. But we don't seem to be learning. If you go to a new complex the people going to buy it they want a pool and a gym.

- 27 This response highlights the link between: i) the types of amenities that builders of gated communities want to include to make properties attractive, ii) their environmental impact, and iii) the practices of residents. In the same gated community of independent houses referred to above, another respondent explained that she used mineral water for cooking, while using normal tap for washing dishes as it arrives unfiltered in her house. The water sources in this case were the borewells of the gated community, supplemented by water tankers in the summer due both to seasonal water shortages and the inadequate management of water supplies by the community itself.

- 28 In order to see these communities run in an environmentally responsible manner, some homeowners have emerged as leaders. In a gated community of 350 flats in South West Bangalore, one of our respondents oversaw the installation of a plant that manages water, recycling grey water to water plants. In 2008, when the builders gave him and other homeowners the so-called occupation certificate⁸ they insisted on having a waste and water management system installed before they occupied the buildings:

They cooperated with us saying that they want to improve the water management here. So if we wanted to change it then it will cost us INR 25–35,000, but then to suit my specification I got filters put up here. I wanted the pumping for the water treatment and recycling of water done, to recycle the wastage of water so that not a drop goes out. So we did a lot of things. And also waste management was promised [and facilities for composting were built]. So the kitchen waste is collected separately and sent to organic waste composters, and then that is used for landscaping.

- 29 Walking us through the compound he pointed out the different components of the water system he had helped set up:

We have made it as sustainable as possible by creating a dip system and there is a drainage system also and so the evaporation is minimized. We have fantastic rainwater harvesting and nobody has what I have out in here; nobody has it. The water is collected in the green water tank which I have divided by barriers and then we remove it by a pump which will remove the bacteria, when it comes down it will come down with proper filters. And then it will go through double filtration system and then it will come to us.

- 30 This system allows the community to replace at least six to eight tankers of water per year (96,000 litres). He continued, explaining that even the borewell receives 90 per cent of its water from rain due to main lines that are connected to it. Each of the 11 towers has rainwater harvesting filters. The water runs through several filters and then undergoes activated filtration. After this, it goes through a line to the water treatment plant. Importantly, as we will also see in the case of waste management, these initiatives—which are meant to improve sustainability—need themselves to be sustained through the continual participation of residents. This, however, may be difficult, as our respondent concluded:

We would like to use this treated water for car washing, extra and then the final thing that I want to do here before I retire is install meters in every household—that is, water meters; [but that means] big protest because that means that every household is going to spend money. So big, big protest.

4.2 Waste Management

- 31 Similar residents' initiatives can be observed in the area of waste management. As one of our respondents, a 50+ manager who returned from Germany and settled in the aforementioned gated community of 350 flats in South-West Bangalore pointed out, 'charity begins at home'. He was involved in the water and waste management initiatives community right from the beginning, even pressuring builders/developers to follow guidelines on water harvesting at the time of construction.

See, there are four to five of us who get involved in this [waste segregation]. But when it comes to water it is me and another gentleman. The builder is supposed to do something if you see the builder has not even taken care of the basic requirement of the buildings. And the thickness of the breadth and length of the copper stick that goes down and the requirement of charcoal and slat that has to be filled in there to make sure that the earth is conductive otherwise the earth will have a leaking current. It's a horror story. And this supposed to be one of the better builders, so you can imagine.

- 32 Beyond the role of builders, the public debate has focused especially on the responsibility of municipal authorities with regard to an effective solid waste management system.⁹ Our research, which took place during a time of institutional and policy change in solid waste management,¹⁰ tried to analyse citizens' awareness of and their active participation in decentralised systems of waste management. The past decade has seen a significant growth in the rhetoric surrounding waste in Bangalore. While thrift has always been practiced in terms of recycling paper and glass, with these materials being sold to hawkers or *kabbadiwalas* (scrap dealers), the middle class has often been negligent with regard to food waste thrown away in public spaces (Chakrabarty, 1991; Ghertner, 2011; Kaviraj, 1998). To some this is associated with caste-based values, where a particular caste at the bottom of the hierarchy was responsible for cleaning and clearing all waste from the streets (Beall, 1997). However, with growing models of community initiatives and the failure of the state to manage the waste produced by a burgeoning population, recycling and composting initiatives have emerged led by citizens, local NGOs, RWAs and community groups. This trend has recently been supplemented by policies aimed at penalising the owners of houses that do not practice waste segregation at source. In this context, we aimed at exploring how this significant change of attitudes and practices has taken place.
- 33 In our research, which coincided with the start of the implementation of these policies of segregating at source, by the government in 2013, we found initiatives for managing waste at the level of gated communities, housing complexes, or neighbourhoods. These initiatives all required waste segregation at source; primary segregation occurs at the level of the household, where dry and wet waste is collected separately. In some instances, primary segregation also included sanitary and electronic waste. We found that domestic helps, who sell the recyclables and keep the nominal sums generated, now segregate many of the items that households would previously have sold to *kabbadiwallahs*. Dry waste was in most cases given to the BBMP, while wet waste is either composted or sent to a landfill.
- 34 In most cases, households are given different containers for waste, often colour-coded or made of specific materials like jute. In some cases, individual houses' waste is picked up directly at the doorstep and in others it is thrown in a larger drum that serves the entire complex and is picked up by the BBMP. Often, wet waste is collected every day, while dry waste is collected on specific days of the week. While not all the gated communities had composting pits, two out of the three did and one had run into problems. Our respondent confirmed that 'for the wet waste, they had started compost, but I think they got mixed garbage, and now they have stopped...I think they are giving it away now these days.' Other communities began using transparent bags so that any households handing over mixed waste could be directly reprimanded.

5. Community Initiatives and Ecological Citizenship

- 35 Our study led to two interconnected findings: first, we found that citizen-led waste initiatives were more likely to flourish in gated communities—as opposed to individual housing—largely because of strong social networks and peer pressure. Women most often initiated these projects, although we found two instances of men, both retired, in two separate gated communities who have emerged as community leaders. Second, for these initiatives to be sustained, they need to closely integrate several components—technical, organisational and sociocultural. The case of one gated community located in South West Bangalore is used here to illustrate these points. Spread over 33 blocks, with each block having around 12 to 16 flats, the community is composed of 500 flats. In October 2011, one resident we interviewed took the initiative to set up a system of waste segregation.
- 36 The resident's story is telling, both in terms of her personal engagement and of the different dimensions that she progressively integrated into the project. Her narration of the design and implementation of the system was shaped by her own professional background in IT and project development:

Then we said let's do a pilot and then we started in two blocks. We told [the residents] these are the different types of waste. And based on my learning, I was in product development for a long time, so you know I am used to working in factories and translating you know, what do you call that, pilot scale, so on and let me try and use that learning and what we did was, let's put colour coding.

- 37 This initiative, meant to receive segregated waste in two streams—dry and wet, was positively received and the pilot project was extended to eight apartment blocks, which corresponds to around one hundred apartments. She thought of having volunteers acting as 'SPOCS'—an acronym meaning 'single points of contact for a block'—who would go and speak to each family of residents. In our interview, she pointed out the importance of face-to-face conversations with residents, especially in the first stage. She also communicated through specific events with children, whom she considered the best ambassadors for environmentally friendly practices. However, she realised that a constant monitoring of compliance with the rules of waste segregation was needed. Households have to leave the coloured bins outside on their doorsteps, and they are then collected by the housekeeping staff employed by the RWA. Under the system that this resident suggested, the housekeepers were given a segregation card, on which they would report instances of unsegregated waste. This then gets registered in a software system, which leads to text messages being sent to residents' mobile phones. As she explained:

There are two things that you really need to look at: the frontend where you are communicating with residents and what is your entire plan and how do you want to collect. The second one is to know, once you collect them, what you are going to do with that waste. So these are the two things that you really need to look at [...] to be clear as to how you are going to manage the whole thing. Because once it starts [...] the amount of waste that keeps flowing in everyday. If you do not have the proper infrastructure to handle it, it is just going to pile up.

- 38 Planning all the different aspects of waste management is therefore of crucial importance, both at the 'frontend'—to use her words, with communication activities with

residents, and at the 'backend', with the waste handling. The technical equipment required also needed to be purchased: in this case, three years after the start of the initiative the RWA bought an organic waste converter to process its wet waste on site. The decision and the corresponding funding of the machinery by the residents through the RWA was facilitated by the new rules for solid waste management adopted by the municipality of Bangalore, whereby bulk generators of waste (such as large housing complexes) are responsible for managing that waste.¹¹ This context also favoured contact and the sharing of experiences between RWAs and community groups in the city. Our interviewee produced material to be shared, in particular a toolkit intended for people and groups who could use it in the context of their own initiatives. At the time of the interview, she also indicated that she wanted to translate it from English into Kannada to have a version in the local language. Often, community initiatives for ensuring waste segregation in gated communities include different types of awareness-raising activities, targeted at families, domestic helps or children. In particular, our study highlights the key role played by maids and household helps in waste disposal.¹²

- 39 The personal engagement of our interviewee did not derive from her affiliation to the RWA of her apartment complex or to any another organisation:

No, I am not in a committee. I am doing it because I like it. I really want to see that change. Before that, I used to handle the garden. So I used to work with the supervisor and take care of [the] garden. I am really fond of greenery, nature and all that and then I wanted to get awards for the garden. We got awards and I said now is the time, we have got awards, we are doing well this thing, let's now expand it little more, let's now do more [waste] segregation.

- 40 She explained that having travelled widely abroad for professional reasons she was impressed by how clean cities outside India were. She wanted to be active 'at home' and her attending a workshop on sustainability organised at her company, a large Indian multinational, was a milestone:

I attended this workshop in March which was an internal workshop which spoke about the amount of problems that we have in terms of water, waste and so on and so forth and then I realized that I really wanted to do something—at least in my sphere of influence let me try something. That is when we started off and I found another like-minded friend.

- 41 Similar experiences of forming groups of committed residents were narrated to us in other gated communities. Travelling abroad and meeting other environmentally conscious citizens seemed also to play a role in mobilising and organising for collective action with regard to waste management. As explained by the leader of another waste management initiative, in a gated community of 565 apartments:

We kind of got together and I think several of these people had lived abroad and they wanted to replicate some of the processes, at least start with dry waste, so dry waste segregation. So then we got together and planned for that, so split up into teams to research different processes for dry waste, for vendors who are dealing in this waste, and the logistics involved.

- 42 In our interviews, respondents underlined the importance of sharing experiences between groups in the city, through Internet fora or face-to-face meetings. However, these groups have also been facing challenges. Despite spending considerable time

training household helps and hosting workshops on waste segregation, leaders of community groups pointed out the months of persuasion that went into making processes smooth, because of cultural reticence and inertia with regard to changing habits. One household member whom we interviewed recalled that even after going to a workshop on composting she was still sceptical:

We have so much wet waste. Like, per day we have like a kilogram of it. How much can we put into the pots? ... What happens in composting is there will be lot of insects. And smell. And she [her mother] feels scared of those things. And I can't bear those worms and I can't even see that. I saw once inside the pot, full of worms and insects. I can't have that. And you have to handle it, pick it up, turn it.

- 43 To overcome residents' resistance to complying with waste segregation rules and to neutralise protest against the undesirable secondary effects of composting facilities, community groups also emphasise the existence of binding rules at the level of the municipality of Bangalore. In the gated community in South West Bangalore, our respondent, a chemical engineer who lives with his wife and teaches at a local college, displayed what he called the 'Organic Waste Converter' (OWC). He pointed out that these were part of the regulations in Karnataka, where apartments that have more than 20,000 square feet of built-up area have to install their own water-treatment and composting facilities. Compliance and implementation has always been the issue. The dense networks that gated communities foster allow informal regulations and implementation to be more effective. As one respondent summed up:

The really good thing about my apartment building is they are very good about segregation... the organic waste, the dry and all of that.... and the thing is if we don't do waste segregation promptly, and if they find out, they will fine us... till the time the garbage leaves our building, it's all really nicely segregated... after it leaves the building, I have no idea what happens to it, and I have heard there is a scam, there is a landfill scam... the garbage scam.

- 44 This respondent rightly pointed out the limits of the initiatives launched within gated communities: even when efforts from community leaders, RWAs and residents converge towards a functioning system at the level of the community, the sustainability of the overall system is dependent on the broader context. Proper management and disposal of waste until the end of the waste chain involve a complex set of stakeholders.¹³ Many of our respondents mentioned the existence of a 'garbage mafia' that prevents the whole system from working as planned. Although the initiatives taken by communities in the overall waste management system need to be assessed within the wider context, their absence or non-compliance with municipal rules have a clear impact at the city level. The example given by one respondent, who described a protest by residents from independent houses next to her gated community, is telling:

Earlier there was an issue, apparently right outside our apartment, there is a waste disposal area where all the garbage used to get dumped and only I think very close to the other residential houses outside the community... so they were complaining, and our apartment managers didn't do anything... the management didn't do anything; it's not our fault but the management's fault...so they came and they did a huge ruckus outside, *dharna* [protest], and they locked off the gate from outside, didn't let any residents go out...it came in the paper. They are not allowed to do that because it's obstruction. The

other residents in the area were getting all the stench and everything and mosquitoes and all that...fair enough right, but because they did that, finally action was taken, and the management has sorted it out... so we obviously were, like, what nonsense; how could you let this happen in the first place as residents and owners of the houses? I mean we are paying so much of money for maintenance... they better take care of these things.

- 45 This example serves to highlight two important elements. First, we would like to suggest here that gated communities can be isolated from the outside only to a certain extent: we see from the issue of solid waste management that they are both affecting and affected by the system at the wider city level. It was the protest by residents living next to the dumpsite used by the gated community that led the RWA to adopt a proper waste management system at the level of their community. Second, this example, along with our observations in the field, confirms the importance of RWAs or similar groups within gated communities. In turn, the actions initiated by RWAs are informed by the initiatives of ecologically conscious residents, which have a formal impact: we are referring here to the 'voluntary involvement which then gets institutionalized', as explored by Anantharaman (2014, 175). These initiatives also have a more diffuse influence on practices on varying scales (Enqvist et al., 2014). While for residents this change in practices takes place mostly in terms of waste disposal in their homes, for leaders of community groups there is a commitment not only to *segregate* waste but also to effectively *reduce* the waste generated within their households. More broadly, environmental consciousness influences how waste is handled but also how food is served during social events, as in these two examples:

I would, for instance, when I buy my dog's food I get chicken soup or bones or something for her, even the cover that comes packaged in they have a tiny cover, I gently tend to rinse it out with soap water and dry it out and put it on the recycling machines. I know lot of people who just prefer to dunk it as it is in the reject.

When I have a party [...] we use steel plates and tumblers instead of using plastic and which we could dump easily, right; I sat with my maid and just cleaned up after this, which is a lot more cleaning than if I was using plastic plates, but you would do it because we feel passionate; you know what is happening to the plastic and other things [...] I know lot of my friends would prefer to get the thermocol plates [when] I go there, they believe okay; Meera [the respondent – leading the waste management efforts in her community] is, here, maybe we shouldn't take out the thermocol plates [...] but mostly left to themselves they would prefer to get the other, the thermocol plates.

- 46 Hence, the type of ecological citizenship that we can observe in these gated communities can be situated in the two traditions explored by Dash (2014): on the one hand, in the liberal citizenship tradition, whereby engagement derives from a belief in the right to a clean environment, and, on the other hand, in the 'personal duty approach based on a virtue-based account of citizenship emphasising the responsibility and fulfilment of personal duty to protect the environment' (Dash, 2014, 30). Interestingly, those of our respondents who were leaders of initiatives around waste management pointed out the distribution of responsibilities, not only among residents–consumers–citizens and policymakers but also among agrifood businesses, thereby linking sustainable consumption—and the related disposal of food and packaging—with sustainable production.

6. Conclusion

- 47 The emergence of community-level leadership is a significant factor for securing efficient waste and water management. We found that those communities with strong leadership and that can mobilise support around water and waste management within the community and lobby outside it with external actors were the ones with the most effective systems in place. Most of these leaders were women. Some, who were active in the residents' associations, had moved back to India from the US or Europe, where they were already familiar with waste segregation processes. Individuals committed to environmental causes and sustainability have assembled infrastructure and services for entire communities, tapping expert knowledge, negotiating with local government officials, pressurising builders or property developers and—in one case—attempting to take on what they describe as the 'garbage mafia'. Older practices like the recycling paper and glass, which individual households sold to waste collectors, have been transformed into collective processes, which have been taken over by domestic staff that carry out the actual practice of organising and separating the collected waste and keep the money earned thereby.
- 48 One further interesting characteristic of gated communities is that their changing practices of waste management often have a spillover effect on other issues within the neighbourhood. Some of these community leaders have also turned into environmental activists for the city at large. A group of community leaders near Bellandur Lake (South Bangalore) was also active in the protests regarding the cleaning up the lake, which is located only a few metres from the gated community. Another gated community had several members who were active both within the private space and outside it, becoming part of a citizen movement called 'Whitefield Rising', which deals with issues like water and lake rejuvenation, waste, and traffic, among others. They mobilise citizens, organise protests, deliberate on possible solutions and enter into dialogue with local municipal authorities. Thus we find that citizen mobilisation and activism is not just limited to issues within these citizens' gates, albeit the issues they address are largely the lack of urban services and their regulation and governance, including shared urban environmental resources like lakes, roads, gardens and public areas. RWAs also form pressure groups that, as representatives of their gated community, lobby local authorities and are part of larger neighbourhood RWAs.¹⁴
- 49 According to Le Goix and Callen (2010, 19), 'It is a paradox that gated communities, often perceived as a rejection of public governance models, might indeed seek to become public actors of their own.' RWAs are very active in organising initiatives around waste and water. Community leaders have several strategies in place for ensuring compliance with the segregation of waste. They hold workshops, carry out spot checks on households and have trained all support staff, who also report on households they find are not complying. The law on waste segregation, which foresees heavy fines for residential complexes where waste is not segregated, has helped make citizens more accountable. In this sense, they have the potential to act as decentralised public actors, instituting distinct administrative models. Even when the law is weak on implementation, RWAs play a big role through peer pressure and informal tactics to ensure that their communities comply with internal policies on segregation. The largest limitation on associations' activities seems to be finances. Association members spoke of a lack of involvement caused by the financial

contributions that have to be paid if an association's activities—in terms of both with water and waste—are to be expanded.

- 50 The impetuses for engaging in initiatives related to water and waste are different. Activities around water seem to derive from the feeling of scarcity, while waste-related activities are more related to the idea of cleanliness and greening. The vision of a 'sanitised city' as part of an idea of what a global city should be, finds an echo in RWAs' organisation around waste. Pro-environmental practices not only issue from political obligations or notions of justice; they are also a direct reflection of an aspiring middle class's anxiety with regard to environmental degradation and the deteriorating quality of one's immediate environment, along with associated health concerns.¹⁵ Many of these residents have lived in countries where practices such as waste segregation are the norm, and water is never seen as a scarce resource. Changes in water conservation and waste management practices, then, are also a matter of adapting Western standards to the local context. The idea of living in a 'global city' is linked in their perception to their ideas of a specific kind of global citizen—one who is active, informed and environmentally conscious. Moreover, as Lutringer and Randeria (2017b, this issue) also argue, policy changes and better policy implementation have also been a result of middle-class citizens using judicial recourse in Bangalore.
- 51 Activism within gated communities involves owners, who put pressure on, and work together with, builders and developers of gated properties. Given the short-sightedness of many developers, strong lobbying by house owners—streamlining processes and making builders accountable—is an important step to making gated communities more sustainable. Adequate infrastructure for waste and water management, watersheds and the greening of these large properties can go a long way to reducing the carbon footprint of areas that often have as many as 350–500 households living in close proximity. Our account of the changing practices within and beyond the household, as well as of mobilisations for better waste management and water conservation at the community level, deviates from the conventional narrative of the indifference and political apathy associated with the urban middle class. Instead, we suggest that even though gated communities enclose and privatise peri-urban space, their residents can, under certain conditions, be important drivers of change, not only within their own communities but also beyond, through active, individual engagement in green activism.

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NOTES

1. Social exclusion takes place through the existence of segregated living spaces for the affluent (see Srivastava, 2014).
2. The term 'communities' refers here to neighbourhood networks.
3. We identified three large companies located in South Bangalore and two medium-sized IT companies in North and East Bangalore and organised interviews with their employees in collaboration with their Human Resources departments.
4. Unmarried, younger people preferred shared apartments in smaller buildings and paying guest accommodation, and were also less inclined to involve themselves in building management activities.
5. Our methodology and interview guide were not explicitly created to study gated communities, but for understanding changing practices of consumption and waste.
6. Ward committees were instituted as models for neighbourhood governance in urban agglomerations with populations of more than 300,000 inhabitants. They were to act as a medium of exchange between elected representatives and citizens and also provide a space for citizen participation in local-level planning. For a discussion on ward committees in different parts of India, see Baud and de Wit (2008) and Sivaramakrishnan (2006).
7. See Lutringer and Randeria (2017a, this issue).
8. A document issued by a local government agency or building department certifying a building's compliance with applicable building codes and other laws, and indicating that it is in a condition suitable for occupancy.

9. See Biyani and Anantharman (2017, this issue).
 10. See Lutringer and Randeria (2017b, this issue).
 11. See Lutringer and Randeria (2017b, this issue).
 12. See also the paper by Ganguly (2017, this issue).
 13. See Biyani and Anantharaman (2017, this issue).
 14. For further discussion on the structure, advantages and limitations of RWAs in Bangalore, see Smitha (2010).
 15. See also Ganguly (2017, this issue).
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ABSTRACTS

The expansion of the new middle classes in Bangalore, particularly in conjunction with global labour flows in the services sector, has led to the development of gated communities, especially in the new areas in the south and south-eastern parts of the city. How are the responsibilities that citizens have towards the environment perceived by the residents of gated communities? This paper explores this issue on the basis of empirical data collected in five housing complexes. It suggests that changing practices of water and waste management are not limited to the institutions of Residents Welfare Associations (RWAs) but go beyond them to encompass various forms of individual and community engagement. We explore how 'communities' of residents within gated enclaves are framing their responsibility towards environmental sustainability and how they are adopting more sustainable practices of water and waste management in their own daily lives.

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