

# One man's trash is another man's treasure

A study of how waste is conceptualised, perceived and handled.

Case study of Mumbai, India.

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Where there are humans there is also waste.

When studying archaeology waste is one of the most important objects to analyse. In our society waste is however far from treasured, or is it? Sweden imports more waste than it produces and turns it into energy. The density of minerals is higher in landfills than at its original source with waste being transported all over the world there is a seemingly never ending business.

But let's leave the larger scale for a second and go down to where the real work is being done. All over the world millions of people make their living from picking, sorting and recycling waste. What happens on lowest level where people are struggling to survive every day and the only mean of survival is picking up and selling trash? The same trash that the middle and upper class gladly disregarded as worthless and foul is now being transformed into something of value.

The road a product takes from resource to final product to waste to resource again is full of emotions, morale, perspectives. Nothing is neutral in this world and nothing, absolutely nothing, is without value.

Key concepts: Waste, Integrated Waste Management, Mumbai, intersectional analysis, dehumanisation, inclusion/exclusion, power dynamics, transformations.

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# 1. Introduction Waste, Nature and Culture

Waste, both as a physical object and a concept, activates association processes and awakens emotions and biased beliefs. The phenomenon of attributing something as essentially necessary for human life as waste with traits such as “unusable, unwanted, left-over, by-product, dirty, disgusting” is both interesting and important to analyse if one wishes to understand how waste is more than a merely technical, environmental or health-related issue. In the daily life of most of the inhabitants of this world it is rather a social one, closely interrelated with power dynamics and societal norms. There have always been left-overs from consumption and production of food and products, and as researchers and thinkers such as Michael Thompson (1979), Guy Hawkins (2006), Mike Davis (2006) and more have reasoned, it is obvious that our perception of waste as concept or product is far from neutral.

In her book, “The ethics of waste” (2002) Guy Hawkins argues that the way we handle waste is symptomatic of how we perceive and treat nature as a whole and that dumping waste, thoughtlessly and without regard for environmental impact, is an act of contempt which reinforces imagined superiority over, and separation from, nature (Hawkins, 2002, p8,). These ideas goes well with established theories stating that the conceptual dichotomy between nature and man-made culture makes possible for, and even strengthens, the idea that culture stands above nature which in turn makes it possible for a paradigm where culture is allowed to dominate and control nature. Science that is being carried out within this framework of imperialistic logic is therefore often biased by the idea of this hierarchy and holds an agenda of dominance and submissiveness, (Plumwood, 1993); hence it often attributes both value and interpretive prerogative to actors who possesses power and authority “the scientific truth we produce comes from what context they are produced in and what the creators want to protect” (Buckingham-Hatfield 2000, p.11). This goes for hierarchy between culture and nature as well as the power dynamics and asymmetries within the human society where women are being considered closer to nature and men as culture; hence a “natural” state of domination is justified (Buckingham-Hatfield 2000, Flynn 1995, Foster, Clark and York, 2010, Agarwal 1998). It can also be seen when looking at the directions and priorities our technological development has taken. Many of the technologies used for “development” are basically technologies and strategies that come from man's wish of, through power, control the environment and increase the efficiency of extracting and exploiting natural resources (Plumwood, 1993; Colby, 1991, p.198). Or as Arthur Young, the agricultural reformist put it “Make two grass-blades grow where there previously only grew one” (Worster, 1994 p.38). It is also telling when looking at the sheer amount of techniques that have been developed with the mere intent of reducing nature’s possible impact on our societies (Colby, 198, 1991). This agenda of

dichotomization and dominance between mankind and nature is relevant to notice and discuss when looking further into our social reality. It is of utmost importance to establish division between actors and agents when carrying out a system or idea that is beneficial to some, and detrimental to many others, and I personally believe that by introducing concepts of unequal worth and rights on some levels makes dominance and exploitation in others easier to legitimise.

One of the foundations of dominance is the notion of unequal power relationship. It is hard to dominate an equal (Flynn, 1995, 353) so some form of differentiation must be established. A rational oppression is always easier to defend than an irrational, hence the need of lowering the worth of your intended victim and one strategy for this that have proven massively successful over the years is dehumanisation. Ideologies which are dependent on the idea of racial superiority use dehumanisation as a method of justifying their agenda (Hodson and Costello, 2007) and similar ideas can be seen when looking at how men traditionally have perceived women as “less human” than men, all in order to uphold a legitimised dominant position (Plumwood, 1988). Concepts like disgust and superiority are awakened and this primal sense of negative attribution towards a target creates a difference between subject and object, one actor remains humane and the other is dehumanised. According to psychologist Nick Haslam, one of the most important aspects of this is to lower the value of a whole group, the out-group, whilst your own group, the group which you define yourself with - your in-group, remains the same. By depriving the individuals of your out-group of their Uniquely Human Characteristics, such as advanced cognition, civility and morality you alter both the power relationship as well as equality regarding human dignity (Haslam, 2006). These processes can be seen through history when looking at Black Americans in the USA, Jews during Holocaust and the ethnic cleansing of Tutsis in Rwanda. It is also noticeable when looking at how we have treated mentally handicapped people, homosexual and indigenous people. When looking at India’s caste system it becomes apparent that the hierarchy is legitimised and carried out through attribution of different traits and value on individuals depending on if they belong to the upper or lower castes (Olwe, Darokar).

### **1.1. Waste and human value, an issue of detrimental and prejudiced attribution**

By constantly being physically present and detested, garbage is among the most evident and obvious things that people are defined against. To lower someone’s relative and absolute value, just compare their efforts or being with waste and voilà; you have attributed another human being with detestable attributes. This categorisation often co-enacts with other individual traits such as race, gender and class (Foote and Mazzolini, 2012, p.8), all in order to lower both the individual as well as that individuals in-group. The normative manner in which we define and relate to waste when

combined with discriminating categorisation of people often causes hierarchical structures. These structures dictate who gets exposed to waste and what effect this exposure ought to have regarding how this individual is perceived and labelled by society. This normative conceptualisation of waste and its consequences for the ones exposed and connected to it is present wherever it is determined that waste pollutes the individuals handling it, not only a short-term physical level but on a level of social and existentialistic value as well.

How we define and regulate waste and waste management can be said being central to the ordering of our environment, our society and ourselves (Blaustein, 2011), and this affects both the social interactions as well as top-down decision making which disfavours actors with low social capital. Depriving humans of power by denying them agency is also a common strategy to impose superiority, something that is emphasised within Foucauldian discourse analysis where power relationships in society becomes visible when looking at use of language and practises. Applying waste related language on individuals or groups that is considered being “lesser” or “worse” or simple “not suitable” in certain social contexts, or the strategically placing of dumping sites in economically subordinated areas are methods that deprecatory power structures can strategically choose to carry out its discriminating and subjugating agenda (Bullard, 2000). This is of relevance when observing and understanding the mechanisms and dimensions surrounding waste management and the ways waste affects people in their daily lives on both a local and a global level. Again it is the social implications of waste management and our conceptualisation of waste that is being analysed rather than the technological aspects of waste management.

In his work “Wasted Lives: Modernity and its Outcasts”, Zygmunt Bauman discusses how synonyms for waste are being used to enforce a negative and power-decreasing label on unwanted people (Bauman, 2004). I argue that the same logic and theoretical framework can be applied when looking at how societies (at least them that haven't fully commodified waste on an industrious level) often takes for granted that waste is something that should be dealt with by the poor, or in other ways subjugated groups of individuals. They are being associated with this task partly through the use of degrading and classifying language which in turn makes it possible for the targeted group to feel bound to perform the given role. This can be considered a form of “attributional ambiguity” where the targeted individuals feel that their social positioning might be handed to them in a correct and legitimised manner, and when this position is connected to traits that are inherited or just physical in general, e.g. gender, sex, physical status, caste etc. the ideas of some individuals superiority and others disprivileged position becomes essentialist and very hard to alter.

What's common for Ideas that dictates that privileged groups carries out certain tasks and disprivileged groups others, and ideas that takes for granted that a less fortunate group should take

care of all the things the privileged groups won't take care of, is the requirement of some form of hierarchy. This hierarchy not only dictates social status of its inhabitants but even their human value, and one of the most visible accessible situations where human value can be defined is contexts or societies where the notion of cleanliness is strongly connected to ones perceived value and where the dichotomist idea "clean equals good and dirty equals bad" is deeply rooted (Darokar) I argue that this deeply rooted judgemental emotional response is inherited from a social notion which seeks to attribute value to individuals as a method of upholding existing social hierarchy. Research being done in this field even suggests that by being clean you attribute yourself with higher moral value; bodily purity implies moral purity (Zhong and Liljenquist, 2006) and you become more judgemental in certain contexts, especially when the ones you judge are perceived as being dirty (Helzer and Pizarro, 2011) especially when feeling disgusted by the perceived person (Schnall, Benton and Harvey, 2008). The saying "cleanliness is next to godliness" is perhaps more than just a saying after all.

## **2. Aim and Research Questions**

This thesis seeks to investigate how a conceptualisation of waste effect waste management and investigate how waste is being handled in relationship to power structures within society. Waste, and its many aspects, will be looked at in a broader context and then the thesis will go deeper into the specific context in Mumbai. The tools for this are literature analysis as well as a ten week field research in Mumbai. In Mumbai observations, discussions and interviews were conducted with the intent of trying to understand how waste is perceived and conceptualized and what effects this might have on people's relationship to waste. It also investigates how these relationships to waste influences the way people perceive and understand each-other, in other words; connecting the conceptualisation of waste with waste management and power structures.

Waste will be treated as a noun and a normative concept and/or phenomenon since I believe this to be essential when trying to understand how waste can affect people in so many different ways depending on setting and societal norms. Shortly put, this thesis is guided by the following research questions, both globally through literature analysis as well as locally in Mumbai through the means of fieldwork. These research questions will primarily be answered for the context of Mumbai.

- *Do social power-dynamics influence how we perceive waste?*
- *What consequences do our approach to waste have?*
- *Are there more dimensions to waste management than recycling efficiency?*
- *Do waste effect people differently?*

- *What can be gained by analysing waste from an intersectional perspective?*

When discussing waste, I will mainly talk about the waste produced on a household level and small-scale commercial waste, e.g. from restaurants, shops etc. Industrial waste and waste from construction and mining are often regulated differently and are handled on both different terms and platforms. The relevance of small scale gatherers and traders are more important in the small-scale waste sector where waste is often produced and handled in the same type of way - unregulated and close to households and living areas. This makes its impact more observable and easier to research and discuss since it affects individuals on a regular basis in their daily life.

By being the multi-faceted product that waste is, I think it is important to understand the situation from a holistic perspective where relevant factors are taken into consideration. Waste does not just magically turn into newly recycled materials, there are so many human lives that are affected and involved on the way from the hand that drops the bottle on a back alley in a suburb of Mumbai to the factory that receives new plastic. From what I have understood before, during and after this project most of today's discussion is focused on either the environmental impact of waste or the possible monetary winnings that can come from waste, this creates a situation where wrong questions are being asked and the answers given risks placing us even further from some other issues that desperately needs to be dealt with. The current waste situation do hold tremendous environmental impact and could in many ways reform how we harvest minerals and materials that today is becoming scarce, no one argues that, but the fact that waste is handled and perceived through judgemental eyes and with absurd power differences between producers, benefiter and victim clearly calls for a perspective which highlights these issues. I believe that this is important looking at both social justice and solidarity with the disprivileged individuals who bears the burden of the privileged ones waste management, but also because the solution to the multi-faceted and global waste problem can't be found if a holistic and inclusive approach is not encouraged, implemented and carried out.

### **3. Theory**

*Brief introduction to the history of waste, the current waste-situation and waste-management.*

Human activities create waste. Whether it is leftovers from eating vegetables or the thousands of tonnes plastic that our habits of packaging and transporting goods across the world yearly produces, it is still waste and it needs to be handled in one way or another to minimize its potentially negative impact. Depending on how this waste is handled, stored, collected and disposed of it can affect and harm the environment and public health, and it is often not the producer of the waste that gets

exposed to the effects from it. When discussing waste management in this thesis I will focus on the procedure of Solid Waste Management (abbreviated: SWM) which is a broad term that includes all activities that seek to minimize the impact on environmental, health and aesthetic from solid waste (Zhu et.al, 2008).

Waste can be categorised and defined in a multitude of ways, all depending on perspective, agenda and knowledge about the product. From a human perspective waste is in general perceived as a product that is to be dealt with and it therefore makes sense to define and categorise products by e.g. degree of environmental impact, it being possibly hazardous or not, what way it can be recycled or stored in etc. A broad and clear first stage definition of waste is the separation of waste established by Michael Jacobs in his book *the green economy, sustainable developments and the politics of future (1993)*. Here waste is categorised into either “flow wastes”, in which waste is being assimilated over time through biological or geochemical processes, or into “stock wastes”, waste which can only be stored, such as nuclear residuals and heavy metals (Keil et al., 1998).

As mentioned previously this thesis will mainly focus on solid waste that's been produced on household or small scale commercial level. But to exemplify and describe waste on a larger scale, here follows a brief introduction to different types of waste, in what sector it is produced and what they contain.

- Residential - single and multifamily dwellings: food, paper, cardboard, plastics, textiles, glass, metal, household hazardous wastes.
- Industrial - light and heavy manufacturing, fabrication, construction sites and power plants: packaging, food wastes, construction and demolition materials, hazardous wastes, special wastes.
- Commercial – stores, hotels, restaurants, markets, office buildings etc.: Paper, cardboard, plastics, wood, food wastes, glass, metals, special wastes, hazardous wastes.
- Institutional – Schools, Hospitals, Prisons, government centres: same as commercial
- Construction and Demolition – New construction sites, road repair, renovation sites, demolition of buildings: wood, steel, concrete, dirt etc.
- Municipal services – street cleaning, landscaping, parks, beaches, water and wastewater treatment plants: street sweepings; landscape and tree trimmings; general wastes from parks, beaches; sludge.
- Process – Heavy and light manufacturing, refineries, chemical plants, power plants, mineral extraction and processing: Industrial Process wastes, scrap materials, off-specification products, slag tailings.

(World Bank, 1999, p.5)

The context of Mumbai is not fully applicable to this and I have therefore chosen to include small scale agricultural waste in this list.

- Small scale agriculture – urban farms, animals e.g. chicken, goats and cows: Biodegradable waste in the form of organic matter, offal (left-overs after slaughter) and manure.

### 3.1. A very brief history of waste management

The need of having a functional and adequate technique as well as strategy when dealing with waste is something that first became relevant when mankind decided that being scattered across vast areas in smaller groups is less desirable than settling down and staying together as a community. When settling down the amount of accumulated waste in a fixed area increased, and a problem that called for a collective effort to solve it was created. For example, around 500 BC in Athens, Greece, waste became such a nuisance for the citizens that a law was issued which banned throwing rubbish on the streets. It was instead decided that waste was to be handled and transported by scavengers, out of the city's perimeter and into an open dump one mile outside of the city (Williams, 2005, p.2), a process that haven't been developed that much during the last 2500 years.

Originally waste has consisted mostly of different biodegradables that were produced on a household level (Williams, 2005), e.g. green waste, food waste, human waste, slaughterhouse waste and manure. Tools were made out of wood or metal that either could be re-used or passed on to the next generation and very little non-organic waste was produced, simply because of the substantial value held by manufactured tools. Repair, reuse and the concept of using as much as possible was most often a superior alternative to getting new equipment or using more materials and this clearly affected the amount of accumulated waste (Strasser, 1999 p.12). With the industrial revolution this changed and the amount of goods and waste produced by the blossoming industry both matched and surpassed household waste. This new form of waste was far more diversified and multi-faceted which put a higher pressure on both humans and environment regarding both environmental impact, amount of land needed for storing and recycling as well as increased dangers health wise (UNEP1 2011, Williams, 2005)

Other than making it possible for a general population growth, technological development have enabled both increased consumption as well as increased population density - two factors that are highly detrimental to an area's waste situation (Melosi, 2005). The amount of produced waste is however not linearly connected to population growth, it more often exceeds it. Take for example the growth rate of Municipal Solid Waste in Mumbai, it outgrows population growth (Rathi, 2007) but

follows financial development (Darokar). Having a massive amount of poverty, but also a significant amount of wealth, the situation in Mumbai follows established theories that clearly points out that the lower classes produces significantly less waste than the middle and upper classes. A quite intuitive relationship since most of our produced waste comes from an increased consumption per capita, but also a general tendency to more willingly define leftover food and surplus materials as garbage (Strasser, 1999, p.125)

In 2012 it was estimated that the world's cities produced approximately 1.3 billion tonnes of solid waste and by 2025 this number is expected to exceed 2 billion tonnes, an increase of ~53% (World Bank, 1999). UNDES: United Nations, Department of Economic and Social Affairs, foresees that the global population by 2015 will have increased from today's 7.2 billion to approximately 8.2 billion by 2025, an increase of ~14% (Esa.un.org, 2015) If both of these predictions are correct they clearly point out that it is not increased population that's our major concern when looking at the waste situation, it is the amount of waste we produce per person. In other words, our way of living.

“Economic growth during the twentieth century has been fuelled by waste”

(Strasser, 1999, p.15)

One reason for the rapidly increased amount of waste during the 20th century was the economical savings long way transports brought the trade sector. Inventions that suited the new demand for long transports saw the light and the use of packing in plastic as well as in tin-cans increased heavily, cellophane and aluminium foil was invented during this time and by introducing more and more materials to the household sector the trash produced was more diversified than ever and therefore distinctively harder to handle. Increased efficiency when extracting and preparing materials decreased the cost for finished product and materials that was previously regarded as special and were to be economised and conserved were now freely dumped on to the market. This could especially be seen in the marketing business where advertising and newspaper skyrocketed the consumption of paper (Strasser, 1999). The easy access and lower production costs for materials also made it possible, and sometimes even cheaper to buy a new product when the old one broke, instead of as before trying to repair and re-use.

Other than changing the habits of people on household level, industrialization brought with itself a paradigm shift regarding how waste was handled within the industrial sector. From considering waste as an integrated part of the chain where left-overs from one place were used for something else in another part, waste was now transforming into something that held no value. With mass production the use for by-products which could differentiate within themselves and be used in



more than one way was no longer needed. The flow in the industrious cycle was now changed from being dynamic and holistic to becoming fundamentally one-way oriented. Materials are extracted from the earth and then converted through labour and capital into industrial products which then are sold, and without a second of thought transformed directly into waste. This waste is burned or dumped and by this returned to nature - only this time without nourishing it (Strasser, 1999).

Dumping and thoughtless incineration was for a long time daily practise for waste management (Williams, 2005). A sudden change of mind in the western world did however arise during the 70's when a series of severe toxic dumping in the United States, Germany and Japan with dire consequences finally turned industrial pollution and toxic waste into something prioritised. The "incident" in Germany contained of 3000 tonnes arsenic and cyanide that was simply dumped in a lake, in the US 20.000 tonnes of toxic chemicals and waste were dumped in an abandoned canal close to New York with birth defects and public health issues as a result and in the UK it was found out that toxic cyanide had been indiscriminately dumped in an area that was known as a playground for children. These heinous acts caused such a public upset that in 1972 the legalisation "Deposit of Poisonous Waste Act" was introduced and in 1974 it was followed up by Control of Pollution Act which controlled and regulated waste disposal on land through monitoring and licensing (Williams, 2005 p.3). These two acts were in their time a direct response to the uncontrolled dumping that was taking place around Europe, and in the early 90's and onwards new legislations from the EU that governed the European countries were developed (Williams, 2005, p4).

This change of paradigm meant that the waste management that began as a way of relocating the accumulated waste away from either the society as a whole or away from certain privileged groups, now had transformed into a system that both had to relocate waste but also take into consideration different environmental factors and aspects. Environmentally, the activities have switched objectives from reduction of landfill to global ecological survival, (Hawkins, 2006, 31) and market-wise the changes brought with itself a re-inclusion of waste, left-overs and by-products back into the production chain. Reusing and recycling paper, steel, cement, steel and chemicals connects the industry and society and they form a form of industrial ecosystem (Berkel et al., 2009). Where technological assets and theoretical knowledge is present, dumping on landfills and incineration (burning) is no longer necessary nor considered optimal from neither an environmental or economical aspect (Sahu).

These objectives, or rather crucial necessities, are however not being met nearly enough. Landfills is still predominant when it comes to handling waste, and both landfills and incineration is often placed close to where people have their home with detrimental effects to their surroundings, both environmentally and health wise (Sayamev Jayate 2014).

### 3.2. Waste, health and sanitation through the eyes of a social scientist.

“Every day, around the world, "illnesses related to water supply, waste disposal, and garbage kills 30,000 people and constitute 75 percent of the illnesses that afflict humanity”

(Eileen Stillwaggon, 1998, p.95)

The common conception of waste as something negative and unclean does not only derive from the foul stench it often produces or its repelling aesthetics, waste holds serious threats to human health and it is more multidimensional than just waste + exposure → illness. The dangers come from both the waste itself as well as effects from mismanagement, and when combined with other factors such as natural phenomenon e.g. heavy rain the effect increases.

World Bank (1999) listed some of the immediate dangers of improper handling and disposal of solid waste. The effects are multidimensional and they can pollute air, soil and water, they are often interactive and if mismanaged they possess a great threat towards human and environmental well-being.

- Pollution of air, soil, and water
- Contamination of surface and ground water supplies
- Clogging of drains, causing floods
- Creation of stagnant water for insect breeding
- Breeding grounds for rodents
- Uncontrolled burning of wastes and improper incineration contributes significantly to urban air pollution
- Greenhouse gases are generated from the decomposition of organic wastes in landfills

World Bank (1999)

These are some of the direct effects that can come from improper waste management, but as mentioned the problems are often less causal than these and they tend to work interrelated with other factors. The waste itself may not cause direct harm on the ones exposed to it, but it prohibits accessibility to clean water by polluting the ground water and provides excellent breeding grounds for rodents and insects. Depleting humans from water, the single most valuable pro-active and active remedy in the world, clearly has its severe impact on the exposed individuals (Davis, M. 2006 p.143). The effects that this has on the inhabitants in the slums are horrendous. The slums in Mumbai have 50 percent higher death rates than in adjoining districts and a staggering 40 percent of all mortality can be attributed to infections and parasitic diseases that thrive in the contaminated

sewers (Jacquemin, 1999, p90-91). Different forms of intestinal parasites and cholera thrives there as well and without proper sanitation diarrhoea, one of the most lethal diseases by its weakening effects for the sick, will never be eradicated (Davis M., 2006).

The waste that is being dumped on the streets are always searched for valuables and left behind are the components that not suitable for selling to mainstream recycling or incineration. Syringes, rotten wet waste, human waste and other contagious products are left behind and they form a strong foundation for upholding poor sanitary and health conditions and by both being created and left behind in areas of poor economic status as well as mainly affecting individuals of low economic and social status, the waste – health relationship is clearly an issue of power-relationships (Davis M. 2006, Stillwagon, 1998). When looking specifically at the condition in Indian cities there is a clear tendency from the growing middle-class to actively participate in processes of excluding large sections of the population from access to the very basic of urban services. Environmental problems are frequently discussed and targeted by this group and the monopolization of state resources and benefits targeting only the issues relevant to this groups causes the situation to be altered towards improving convenient-oriented infrastructure, urban air-pollution and communication rather than working on curing and prohibiting the spread of epidemic and endemic diseases among the poor in the lower classes (Chaplin, 1999) An example of this is how infectious and contagious diseases are always predominant in poor areas. One of the reasons for this is that in a malfunctioning waste management system, syringes and other hazardous and polluted medical supplies when being dumped directly onto the streets creates a possibility of infecting others, be it children playing without shoes or ragpickers going through the waste for recyclables. Even if they do not contaminate anyone by direct exposure they still possess a risk by being a commodity in the hands of an informal waste trader who sells it to small manufacturers of e.g. syringes, and without adequate cleaning the infectious and contagious diseases goes directly back to the poor through the market (Redkar, Upendra).

Even if hazardous products are removed safely from the garbage the compromised sanitation around it causes severe impact on health and well-being. Take for example the pneumonic plague in September 1994 that struck Surat, Gujarat India. It was a highly contagious disease and the outbreak caused a panic so big that within four days one quarter of the 1.5million inhabitants in Surat had abandoned the city. Surat, whose population had tripled over the last two decades stood without a well-functioning infrastructure or waste management system was a haven for the masses of rodents that fled a nearby earthquake. After a monsoon and flooding of a nearby river lots of cattle died and floated the city and without a functioning institution for removal of these cadavers the rat could freely feed and breed (Byrne, 2008). Two natural disasters combined with a

dysfunctional waste management system was simply too much, the plague erupted from the rat population that by now was out of control and when analysing the situation afterwards it was considered that it all was an effect from poor waste management and lack of governmental interest for sanitation and well-being for the inhabitants in the slums (Maclaren and Nguyễn, 2003)

Waste has a clear tendency of being dumped and handled in areas where the inhabitants hold low social status (Bullard, 2000). All over the world the tendencies are similar, waste and garbage gets dumped or processed in areas that hold low economic and/or social power and Mumbai is far from an exception. It is a highly dangerous process with harmful effects on both health and environment for individuals living close to these areas. Out of a humanitarian and ecological perspective it is surprising how both dumping and incineration of waste can be carried out in such a clearly calculated way it is, but power asymmetries speaks for themselves in these situations and it is not only locally this phenomenon can be seen. The process of dumping e-waste in the form of selling recyclable waste or donating functioning (but hard to recycle) electronics from the western economies onto developmental countries is very common (Nnorom, and Osibanjo, 2008., Osibanjo and Nnorom, 2007). These countries often holds weaker jurisdiction protecting its workers and definitely lacks the capacity of handling the dangerous activity of recycling e-waste with severe negative effects both health wise and environmentally (Robinson, B. 2009, Nnorom and Osibanjo, 2008). The same chain of exploitation of another's exposed situation is in other words both a global, national and local problem. It is always the weakest and/or the ones most in need that ends up in the losing end of the deal. The idea of trickle-down economics might be correct after all, with the slight modification of replacing wealth with waste. "It is they that generate the waste, but it is us that cleans it up" (SWaCH, Saru).

### **3.3. Integrated Solid Waste Management**

In 1972 the book "Limits to growth" (Meadows et.al 1972), was published and it turned out to be a best-seller. Describing the consequences from interactions between Environment and human systems with factors such as world population, industrialization, pollution, food production and resource depletion it argued that earth's material and energy resources was finite and that, not only was raw materials being used faster than they were being replaced but also that no suitable alternatives were to be found.

A decreased accessibility to resources would not primarily target the global top consumers but rather the already poor since limited resources would increase the imposed gaps between rich and poor and it would intensify the inequalities and hardships in both relative and in absolute numbers (Meadows et.al 1972, Meadows, Randers and Meadows, 2004, Marshall and Farahbakhsh 2013). The idea of unlimited growth as an unregulated force of its own was at the time of the

release of “limits to growth” almost something sacred (Meadows et.al, 2004), the concept of unlimited growth was however finally examined and over time it got more and more criticised. Especially the dysfunctional relationship between extraction-production-consumption and how it affects nature became a hot topic and with an increase of relevant research and reports the concept of Sustainable Development was introduced (McDougall and White, 2008)

With Sustainable Development came Sustainable Waste Management which has its foundation in the idea that thoughtless and inadequate production and disposal of waste risks attribute to a unnecessarily big loss of earth's resources if not carried out in an adequate manner. A mechanistic view on development and the industrialisation process in general have created a situation where the blind chase for productivity and profit causes exhaustion of resources, a build-up of pollution and waste and the destruction of people, communities and cultures (Shiva, 2008, p,140). More specifically Sustainable Waste Management means that all political decisions are to be formulated and carried out whilst accounting for long-term environmental, social and economic effects (Naturvårdsverket, p.9).

From the notion that long-term effects must be taken into consideration when planning and executing projects regarding sustainability another theoretical framework was developed: Integrated Solid Waste Management, first articulated and refined in the Urban Waste Expertise Programme of the Netherlands. Its main agenda is that when trying to understand a situation and coming up with solutions to a problem one should not adopt a technocratic approach since this can merely see technological issues and solutions. The problem is much larger than this and when trying to carry out waste management in a constructive manner it is often the other aspects of waste and waste management that most likely predicts the success or failure of the intervention (Scheinberg, 2001). All technical and non-technical aspects of Solid Waste Management must therefore be analysed as a whole. they are interrelated and changes in one factor will affect practices and activities in other areas (UNEP, 2005).

The exact technicalities that distinguish Integrated Solid Waste Management from regular Solid Waste Management and Sustainable Waste Management strategies are a bit vague. Whenever used in literature they all discuss sustainability but one thing that stands out is the clear focus of holistic solutions with an inclusion of social dynamics when reading about Integrated Solid Waste Management. Not only the long-term social objectives that's present in most approaches but rather the insight and realisation that without the understanding of, acceptance for, and inclusion of the community when analysing waste and planning waste management, progress will be hard to achieve and success close to impossible. (E.P.A USA, McDougall and White, 2008) In practise it is often carried out according to the three big R's in SWM; reduce, reuse and recycle, so the approach is from both ends of the problem, decrease the amount of produced waste and recover as much of the

materials and/or energy from waste (UNEP-ISWM 2011).

In other words, integrated solid waste management defines strategies for sustainable waste management of solid wastes. It highlights the need of covering all sources of waste, all aspects of it, and it includes both mechanics of gathering, segregating, transferring, sorting, treating and disposing of waste as well as the social aspects of public participation and understanding. Shortly put it seeks to maximise resource use, recycling efficiency and carry out public interests.

These strategies and goals are also in line with number seven of the eight Millennium Development Goals that were decided upon on the World Millennium Summit in 2000. Goal 7; “Ensure Environmental Sustainability” holds four different targets, three of them touches upon problems related to waste management and unequal accessibility decent living conditions.

- 1: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources. (Waste related)
- 2: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss
- 3: Half, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation (Waste related)
- 4: Achieve, by 2020, a significant improvement in the lives of at least 100 million slum dwellers (Waste related)

UN Millennium Development Goals 2000, #7

In general it can be said that modern solid waste management today wishes to achieve these three goals.

- Protect human health and the environment through adequate treatment of waste
- Decrease the amount of possible resources that is upheld by inadequate waste management, such as materials, energy and physical space.
- Handle the waste in an adequate way before disposing them to landfills, reduce the need of aftercare after disposal and reduce the amount of land used for this

(Brunner and Rechberger, 2004, p. 270)

#### **4. How waste is defined and conceptualised - One mans' trash is another mans' treasure!**

As mentioned before, waste as a noun is often being described as something without value or something that is to be discarded. Oxford dictionary describes it as “Unwanted or unusable material, substances, or by-products” and Cambridge dictionary as “unwanted matter or material of any type, especially what is left after useful substances or parts have been removed”(Cambridge 2015). If approaching waste and waste management from solely this angle one would miss out on the many other crucial aspects and factors, for example the simple idea that the process of a product can go from rubble, to raw material, to refined raw material, to fabricated pieces, to a complete product, to waste, and then back to becoming a product again through either repair, re-use or recycling. The circle of life for a product is not finite as many of the inhabitants of the world seems to believe, it is rather an ongoing process of remaking and re-shaping physical objects into something that we can benefit from and see value in (McDougall and White, 2001). It is also of utmost importance to remember that after all, *one man's trash is another man's treasure*, and this adds some ambiguity and complexity when trying to define waste.

Waste in our daily life is often seen as a product surrounded by negative traits. It may often hold a foul smell, be unhealthy or even toxic and it is generally considered as being without real value. These are all traits that we do not wish be represented in our daily life, and therefore waste is by many regarded to be, if not by natural laws, then at least intentionally separated from ourselves. But when does waste become problematic? By primarily being an urban blight which strikes predominantly towards the poorest/the ones most exposed, (funny how these two categories always seem to coincide) the notion that there is a problem often does not get raised on governmental level before it affects the middle class. It is therefore recommended that “a refuse problem must be understood by those affected by it to have negative effects on human life” (Melosi, 2005). It is them who notice it first, and a situation that first might be considered as a minor nuisance or mildly annoying can later transform into a health hazard or act as a part of a broader environmental crisis. To increase our resilience and broaden our understanding we must learn to narrate the situation in a way that uses every possible perception of it and as Guy Hawkins describes in his book “The ethics of waste” (2006); when waste no longer is ignorable there is a shift in the way society perceives both itself and waste. Concluding these two notions clarifies the idea that only when we change our perspective and approach to this issue. Only by changing perspective from groups who hold some sort of power in society to a broader and more inclusive perspective including all participants, especially the ones that actually experience the situation, only then can we begin to understand the situation for what it really is.

When discussing waste there are certain questions that must be asked. Questions of how waste is defined affect the way we relate to it and how we carry out waste management. It also affects the way waste affects people on other levels than just the physical one, e.g. stigmatisation and altered self-image. These are questions and ideas that opens up for the possibility that waste is something more than just a product without value, something that holds no trait other than being worthless. At what point are stuff waste, and at what point are they commodities? Things that are waste to one person might be considered as prime time second hand by another, and when that individual decides that the commodity is now no longer valuable to him and that it is now to be considered as waste, it can still hold value for a third part. The line between commodity and waste is both thin and highly subjective. It depends both on what ideas the owner has of the item but also whether or not society decides to attribute the item with value, be it monetary or status. And with the globalised world and market, the line between commodity and waste becomes even smaller.

There is definitely a cultural norm to be seen when observing how waste and trash is being handled and to a high degree there is also a notion of class. Second hand and charitable thrift stores are often dependent on richer people to discard of their belongings, surplus creates a possibility of discarding and replacing with freshly new products. What is rubbish to some is useful or valuable to others, and when there is a material or monetary shortage it can easily be seen as a sign of power to be able to discard things and belongings (Strasser, 1999, p.9). The identity of the product changes as its purpose is being re-defined, and with it the people that handles it. In its original state a certain product can be used to express wealth and social status but when the same product is used when it is worn out it can mediate something entirely else.

#### **4.1 Waste and our self-image.**

Waste is considered as foul and unclean, and not being able to hide it is unworthy to cultures that considers themselves as technologically advanced (Hawkins 2006, p1) as well as/or spiritually and/or religiously enlightened (Preston and Ritter, 2012). The way a society handle its waste is also often traceable back to how we perceive ourselves and other individuals in our society. The ethics that surrounds the practises regarding waste management can often be seen as directly linked to how we conceptualize cleanliness, and waste management is merely a mirror of how we attribute normative values to waste, and depending on how we define it we are forced to act accordingly (Hawkins 15, 2006). By letting groups that are not being exposed to the waste (usually an issue of class or other forms of privileges) dictate the conditions for how waste management is supposed to be carried out it is not a big surprise that the amount of shared personal experiences, narratives and experienced pain from being exposed to waste in different manners have increased side-by-side



with how the both detrimental waste situations in urban environments as well as pollution in general have increased. Richard Newman argues the need for toxic autobiographies to build their foundation within the deep sense of crisis among the marginalized groups of people who first handily experience the backside of an often dysfunctional waste management system (Newman, in Foote and Mazzolini, 2012, p.22). People from working class communities, ethnic minorities, socially misfortune and others have despite previously having different social, cultural and political realities realized that they in many ways are part of something similar, they share a common marginalisation and vulnerability and it is more often than not the same reality as the one being proclaimed in mainstream agenda.

Even if the practical assets for having a functional waste management system would be present the personal effects on one's self-image would still be negative when working with waste if waste is still attributed with negative traits. These traits transfer themselves onto the person handling the waste since negative values around waste projects themselves upon on the actor which risks posing a detrimental effect for one's self-image. This is one of the reasons why persons who can afford it often try to pass responsibility of their waste on to servants (Scheinberg, Müller and Tasheva, 1999).

## **5. Methodology**

“The success of ethnographic fieldwork is in large measure determined by the ability to establish good rapport and develop meaningful relations with research participants”

(Robben and Sluka, 2007 p.137)

### **5.1. Reasoning before departure**

In the early stages of the project, relevant research regarding waste management was conducted and to a certain extent the specific circumstances in Mumbai were looked in to. This phase contained mostly literature studying and, speaking out of hindsight, not enough contact making with established organisations and representatives from MCGM (Municipal Corporation of Greater Mumbai). I reasoned at the time that I did not want to risk my neutral ground when approaching my field studies and I wanted to be in a position of full control where I personally could decide everything without being influenced by organisations or individual's personal agenda.

### **5.2. Arrival**

I landed on Chhatrapati Shivaji international airport, Mumbai, the 18th January with no pre-made

meetings or contacts and when looking back it could have ended in any way possible. A bit foolish perhaps but at that moment I felt a bit like Hunter S. Thompson or a young Malinowsky (before he turned bitter). The safest way would of course have been to plan ahead, but I sincerely believe that both my trip, my experiences and my research could not have gone any better if I would have planned ahead, perhaps it might even have gone worse. Elijah Anderson puts the words better than I could ever wish for:

“As I began my field work, I had no absolute idea where the research would lead, nor where each possible direction might take me. In part, this open-ended approach was a conscious act; in part it was a sensible and natural way to proceed. “

(Andersson, 2003, p.18).

My first 3-4 weeks consisted of navigating the seemingly ungraspable physical reality of Mumbai, trying to get a personal understanding of the situation and try to observe how people interacted with waste depending on (perceived) class, gender and social status in general. My original plan was to spend approximately two weeks of doing this and then smoothly transgress to a more research oriented part with interviews and meetings with officials and then wrap it up with interviewing stakeholders on different levels, e.g. waste workers, waste traders, rag-pickers etc.

However, since the first week was nothing more than absolute chaos my schedule had to be severely revised. I thought I was mentally prepared for the hectic lifestyle that Mumbai brings to the table but I quickly realized that I had overrated both my own capacity regarding urban mobility as well as underrated the difficulties of observing the same situation more than once. The city is in constant movement and without understanding either language or culture all my observations had to be regarded as unique. Contextualisation was hard since I did not have any way of deciding what is normal and what are unique, connections and resemblances could of course be seen but not strongly enough that I could make strong assumptions regarding connection or distinctions between different experiences and situations. By not being able to do this I think I observed my surroundings more carefully since I had not developed any mental filters yet. It was however an exhausting activity constantly trying to find patterns and systems in what I saw and it was especially obvious in the beginning when I would fall asleep absolutely exhausted from the mere sensory overload that followed from jumping straight into the chaotic everyday life of Mumbai.

Despite my shortcomings I learned surprisingly much from observing and small talking with regular citizens about all and nothing, and this general knowledge about Mumbai from the eyes of a regular citizen is something that meant very much when I finally got to meet and interview officials and

professionals. In a way the two groups told the same story but from different perspective. There was the side of waste that included policymaking, logistical and juridical aspects of waste management and theoretical analysis through the eyes of a social scientist. And then there was the hard reality shared by the lower classes where waste is not something you discuss, it is something you take care of and make money from or you will not survive.

Even if my accumulated knowledge from being in the field is not mentioned to any large extent in the thesis it still provided extensive general knowledge for me that made it far easier understanding what I saw, the situation in general and academic writings on the subject.

I believe that by broadening my field of study to both the social everyday perspective as well as the scientific I understand the situation from a more critical and problematizing view than I would have with only a literature analysis. Without my everyday casual strolls around Mumbai where I visited for example small informal recycling business, washing areas, temples and mosques, sub-urbs and city centre, slums and high-end shopping malls, small-talked with strangers at cafes and just tried to exist among the citizens of Mumbai, I do not know if I would have been able to ask the right questions or understand the answers from my main informants, Dr Amiya Sahu, Seema Redkar, Sheilish Darokar, Chandrakant Tambe or Sudharak Olwe. All of the experiences I gained from casually strolling the streets of Mumbai and talking to people would however not be relevant (except for amazing personal experiences) if it were not for the thorough interviews and long conversations with people I now consider as good friends. Without the knowledge from scientists and professionals I would not be able to see the larger picture, and without being able to talk to people and friends in Mumbai who could answer my sometimes infinite amount of questions I would not have been able to see or understand the little things that were before my eyes all the time.

Without this feedback and assistance I fear I would have ended up in something that would resemble a poor attempt at a “thick description”, an anthropological approach to fieldwork where the truth lies in the detail. Studies are to be made on a microscopic level where the researcher interprets the flow of social discourse (Geertz, 1973). Without my contextual knowledge I would however have end up with just an informational overdose without any patterns to be seen and I would probably never realised when and where to look and when to go on to the next topic (Cyrenne, 2006).

### **5.3. Participation, observation - participatory observation.**

During my time in Mumbai I had some sort of personal agenda; I did not want to lie. When talking to normal citizens, officials of different kind, waste workers and ragpickers I always made sure that they knew who I was, what I was doing in Mumbai and why I wanted to talk to them. It would perhaps have been more fruitful if I had kept my intentions secret, at least when talking to people at

e.g. a pub. By knowing my reason for speaking to them there was always a risk that I was getting the answers they thought I wanted to hear, or that the persons I was talking to answered untruthfully since the topics sometimes were sensitive and personal. The risk of *social desirability bias* is always present when conducting research that holds elements of required truthfulness even when discussing issues that are controversial or when expressing a view that might not be popular (Engel & Schutt, 2009). The other risk, one I found to be of equal danger are risks connected to the broad term *demand characteristics*. It is a conscious or unconscious change in behaviour after the participant interprets the purpose of the interview and alters their response (Orne, 1969). In short it can be described as; willingness to either comply by responding in a manner that confirms what they believe I want to hear, a risk of answering in a way that's coherent with their ideology rather than reality, an intent to disprove my hypothesis, or simply just having bad intentions (Nichols, Maner 2008). I do however not believe that any of these were acted out, at least not on a level where it interferes with my results. This belief comes from the fact that many discussions and interviews ended out being quite passionate, personal and lively, something I believe speaks for their truthfulness. If there was something that seemed unusual I also double-checked during the conversations, and by asking other professionals about things I was uncertain of I could always verify or falsify it in retrospect.

#### 5.4. Interviews

My interviews with representatives from local government, NGO's and scientists, were all semi-structured and intended to be conducted in an informal manner. My intention was to create an open and allowing environment where thoughts, ideas and experiences could exist freely and to achieve this I mainly used open-ended questions and tried to stay away from (at least initially) revealing my own position in the subject.

Questions were asked in different order depending on where the interview was heading and on what the interviewee was specialised in or regarded as most relevant for us to discuss. Flexibility was elementary and by letting the interviewee focus on their personal speciality and interests and then picking up on things I found interesting I believe I created a good environment for a fruitful conversation (Bryman 2008, p.438). Depending on whom I interviewed the interviews were more or less formal where some were conducted in the person's office and others at cafes.

During the interviews I took running notes on my computer, it might seem to be less effective with all the short breaks for writing, but I believe that this was to my favour. These short brakes for writing (never more than 10-15seconds) was used to gather up and structure the information and to clarify what just been said. Instead of asking the interviewee to repeat what he or she just said whenever I didn't grasp it due to either lack of knowledge on the specific subject or due to linguistic

barriers I could simply blame my poor writing skill (which is false, I write quite fast to be honest). I felt that this strategy worked very well, and I'm glad that found a way out of the disfavoured situation of continuously having to ask people to repeat themselves. As a bonus effect I think people talked slower since they saw I was taking running notes, so all in all it was a successful strategy.

The prepared interviews lasted from 45 minutes up to 3 hours and the spontaneous talks anywhere from 5 minutes to 1 hour. These were however without preparation and pre-made questions and notes were taken spontaneously by paper and pencil.

(For names and a short description of my main informants, see Appendix nr1.)

Other than my formal interviews there were dozens of constructive discussions, arguments and conversation and I sincerely believe that my understanding of the subject would be significantly poorer with only academic reading and interviews with officials. Meeting and talking to people became easier for every week and when befriending Narayanan Subramanian and talking to him and his friends as a friend and not as a western scientist, I felt that I could observe and understand the situation at least a bit from within.

By being in a culture where I was constantly being perceived as an outsider, certain liberties and excuses became available when discussing things with people. My ignorance could be regarded as an excuse, or even a reason, for why I was asking questions that according to people I spoke to would be difficult for two locals to speak about, e.g. caste.

## **5.5. Things that affected my study in different ways.**

### Design of the study

Waste management is a multi-faceted activity that holds surprisingly many levels, both social as well as technological, logistical, environmental etc. With the limited amount of time spent in Mumbai and my capacity in general I had to make severe deductions from many of these aspects, especially the technological aspects of this matter. During my interviews with officials from MCGM and NSWAI (National Solid Waste Association of India), technology was brought up for discussion several times and throughout my reading on this subject it became evident that most of the published reports and papers regarding waste management that I found was technologically oriented. It might therefore be reasoned that this would be a more intuitive path to take, but I felt that my interests lie elsewhere than another technocratic report on the matter, something as mentioned there is a massive surplus of.

My thesis is focusing on the social aspects of Integrated Waste Management and it has therefore not gone into depths on matters such as technological evaluations, waste flows, waste

reduction techniques, clinical medicinal aspects of contamination of ground water and urban environment in general or environmental effects from both the waste itself as well as different effects from different waste management methods.

Practical limits and things that could have played an important role during fieldwork phase. Me being a westerner had a tremendous impact on both daily life and my research at large. Doors were opened for me that definitely would have been remained close for an Indian student, just the fact that Mr Yamgar, Chief Engineer at MCGM-SWM department gladly talked with me for an hour without previously arranging a meeting speaks for itself. I do sincerely hope that the same goes for an Indian student who comes here to research since being from the other side of the world sometimes has its benefit. I'm however well aware that being a light-skinned European often counts for a major reason of why I have often ended up in a privileged situation throughout my travels. But at the same time as I got access to individuals that might not have given me their time otherwise I was really in the deep when trying to interact on my own with locals in the informal waste management business. But with a bit of luck and friendly people I always ended up with someone who could interpret and show me around when I got totally lost in the mazes of the slum.

## **6. Mumbai**

Mumbai, previously known as Bombay, is located on the west coast of India. By 2011 it was home to 18.4 million citizen and without counting extended urban agglomeration through continuous urban area to other cities, it is the most populous city of India and fifth most populous city in the world. It is the capital city of the Indian state of Maharashtra (Pibmumbai.gov.in, 2015) Mumbai is the commercial capital of India. It's rapidly expands and hosts extreme diversion regarding class and social power within the population (Blinkhorn & Sen Gupta 2006). A clear example of this is the presence of the most expensive private house in the world, Antilia, and one of the world's biggest slum areas, Dharavi which houses approximately 1 million inhabitants and holds a population density of up to 18.000 inhabitants per acre (Davis M., 2006, p. 93). According to Seema Redkar at MCGM, 53% of the inhabitants of Mumbai can be considered living in a slum, or at least in slum-like conditions. The number is a bit uncertain due to the many individuals who only live in Mumbai for a short time to work and the definition of slum is not always what you would think it is. The line between slum and just "severely poor areas" is often regulated by factors other than the ones one would intuitively think of, e.g. poverty, access to sanitation, etc. In Mumbai an area is officially declared a slum first when responsibility of the area is transferred to the local government. Before this takeover by local government the responsibility for installing water and sanitation lies

on the owner of the land and since the value of land is constantly on the rise in Mumbai it is not uncommon that access to water and sanitation is being held back from being installed, and even sabotaged, as a way to drive people away by “their own free will”. It is first when the inhabitants leave their homes that the ground can be sold to companies etc. that are able to pay a much higher price than the current inhabitants can afford, and since there is money involved many land-owners do not play a fair game when trying to make people leave. It can however not be done too obvious because then MCGM (Municipal Corporation of Greater Mumbai-Municipal Solid Waste) may be given permission to intervene and seize the land and then install water, electricity and sanitation since they are obliged to do so. In other words, the living situation can often be better in areas that are being declared slum than in areas that are not (Redkar).

### **6.1 Cleanliness and human dignity in Mumbai**

The notion of cleanliness was something that was brought up frequently during both discussions and interviews. According to the people I spoke to the idea of cleanliness is almost something sacred in India, it is even mentioned in Mary Douglas famous book “Purity and Danger” where she discusses how it is considered ludicrous that the unclean and the holy could exist in the same linguistic narrative (Douglas, 1966 p. 8). It is however important to notice how the importance of cleanliness is only within clear boundaries. The boundary of what space you keep clean is clearly marked at the boarder of what you call your own, everything outside of that is free to stain (Taguchi, 2013). You keep your home spotlessly clean but you throw your waste on the street, you sweep the street outside your shop but you dump the waste in the alley between your house and the next, and as long as you are clean, dirt on the streets will not bother you. This could also be seen surrounding religious areas (temples, mosques) and in national parks (Appendix 2.1 & 2.3). It has gone so far that certain areas in a street or in a neighbourhood are totally controlled by waste and its inhabitants, a situation made possible by the shared notion that the responsibility for waste is always someone else’s.

The constant focus on cleanliness most surely affects the image people have of individuals that works with waste. As discussed by Preston and Ritter (2012) the impact from religion in the experienced importance of being clean is often very large, and by being such a religious country as India after all is, this definitely has its effects on persons who live under circumstances that prevent them from remaining clean. By denying these individuals the possibility and right to be clean can be said being an active way to suppress and degrade these persons and emphasising where their place is (Olwe). This definitely affects the way people relate to waste and cleanliness and it is the main reason why work given to Dalit’s is highly concentrated to manual jobs and working with dead

animals, bodies, waste, dirt, human waste and cremations; products that are all regarded as very unclean (Darokar). It becomes even more obvious when looking at the process of how you are born into purity by being born a Brahmin and born into impurity by being born Dalit. This is of course something that is highly detrimental for that person's self-image. It is a grave form of de-humanisation and to make it even worse the inherited aspects of it is not only metaphysical, they are directly connected to your living conditions as well.

The idea of having a clear hierarchy when it comes to human value is something that's traditionally been fought for by the upper classes and castes, this since persons of power benefits from a status quo where their elevated position is defended and legitimised by societal norms and laws. In Mumbai there used to be a deal that was made between the city and low caste persons during a time where sweepers and sanitation workers were highly sought for. This contract stated that the worker is given land area and house for his or hers work entrance in the field of sanitation. The contract did however also state that you need to remain a sanitation worker if you want to keep the house, and if your children want to inherit the land and the house they are not allowed to follow any other path than the one given to their parent(s), to keep their home they must also become sanitation workers (Darokar). Even if it is forbidden by law to carry out these practises this is something that still affects the ones afflicted, their position in society and their human value have been clearly defined – they are not equal and they do not deserve equal rights.

## 6.2 Waste Management in Mumbai

Mumbai is divided into 6 zones, each containing 3-5 wards and in total there are 24 different wards. A ward can be described as a district within the city and the different wards have their own local waste management system depending on the specific needs of that ward.

Considering waste management there are 28.821 formally employed sweepers and motor loaders working daily with waste management in Mumbai (MCGM-SWM website) and of these, about 12.000 works for contracts for approximately 6 months at a time (Sahu). Sweepers sweep the streets in the very early morning and after that the waste is either taken away to the either landfills or incineration plants, but not before the truck have stopped a couple of times and have had its possession examined by rag pickers. Waste management in Mumbai is roughly spoken divided in two separate sectors. The formal one; where actors such as MCGM-MSW department (Municipal Corporation of Greater Mumbai-Municipal Solid Waste) and hired private actors are involved, and the informal one; where waste picking and sorting is done by private actors and the waste is sold to the informal recycling market (Redkar). The major difference between these two is that where the formal sector focuses on service-based waste management and approaches waste as a hindrance or



issue that needs to be solved, the informal sector carries out more commodity-based waste management where waste is handled as a commodity and a potential profit. An example how this can differ in outcome can be seen when looking at what type of waste is being handled by the different sectors. MCGM-SWM tries to handle every form of waste since their main agenda is cleanliness rather than profit and this makes their work slow since they target a broader product. The informal sector might work faster since all employees work without fast payment; instead they get paid per unit of waste when they sell it to waste-traders and recyclers in e.g. Dharavi. They do however not gather and recycle waste that's without value, so even if they get rid of most of hard plastics, wood, small scale construction materials, metal and cardboard they do not handle the two biggest sources of waste in Mumbai, organic waste and plastic bags. (Upendra, Redkar)

### **6.2.1 Regulations and P.P.P (Public-Private Partnership)**

The regulations regarding waste management follow “The Indian Municipal Solid Management and Handling rules 2000” that was written by Dr Amiya Kumar Sahu, today President of NSWAI (National Solid Waste Association of India). This policy is created to enforce that; waste is segregated by its source and prohibit landfills to be filled up with biodegradable waste that yet haven't been checked for vermin, declared unfit for composting or undergone appropriate biological treatment for stabilisation. It also dictates responsibility and procedure for collection, segregation, storage, transportation, processing and disposal of municipal solid wastes (Sahu, Zhu et.al 2008). Mumbai works quite extensively with PPP and according to MCGM it have proven itself to be successful in creating partnership between the private sector in waste and recycling business, the municipality and NGO's working with waste (Redkar). One example of this is the Solid Dry Waste Collection Centre in H-Ward. (More of this under “important experiences”)

Producing around 10.000 tonnes of waste every day, of this around 4000 tonnes biodegradables from food and gardens and the rest mainly paper, plastic, metal and waste from the construction sector, Mumbai faces a tremendous challenge with its waste situation and it is not only the sheer amount of waste produced that's problematic. The amount of waste produced might be huge, and it is expected to rise for every year with an increased consumption, the problem lies however in the fact that Mumbai as of today lacks sufficient land to use as dumping areas and that there is a general ignorance regarding waste sorting within the population (Sahu, Redkar, Yamgar, Tambe, etc..). This might appear harsh and a bit unfair, the citizens do after all not hold the final responsibility of creating a functioning system for waste management, but when talking to officials within the MCGM-SWM, scholars and private entrepreneurs it is a shared understanding that the societal agenda regarding adequate waste management is close to non-existent. When talking to citizens this also appears to be the case, no-one is pleased with the waste situation but no-one feels

that their personal actions can make any difference. Trash is therefore often just dumped wherever there is space for it, areas between houses is often used as informal dumping sites and it is unheard of to hold your trash while waiting to find a trash bin (For pictures, see appendix nr2.2). The reason for this is however not solely, if even mainly, due to a common disregard for the waste situation. It is rather a phenomenon that according to citizen I spoke with is simply built into general mentality regarding the daily flow of waste and trash in Mumbai. Without public involvement and awareness the entire solid waste management system is however not capable of developing and progressing, all steps in the chain of SWM, from household to waste storage and segregation, amount of littering, willingness to be involved, being able to pay for the necessary services, collection and recycling - all these steps demands the public to have an active and constructive involvement in the chain, or failure to achieve previously mentioned goals for SWM is guaranteed (Zhu et.al 2008, Redkar). After all, the function of a product being recyclable is meaningless if no-one recycles it.

A problem that is present all over India and definitely in Mumbai is that municipal solid waste often contains human and animal excrements as well as hazardous chemical pollutants and sharp objects. This is an effect of providing inadequate sanitation system as well as easily available and safe dumping sites. This of course creates a severe risk of causing injury and spreading diseases and it mainly affects individuals that are mainly exposed to this waste, namely children, rag pickers and employees in the waste management sector (Zhu et.al 2008 p1, Davis M., 2006).

### **6.2.2 Segregation of waste**

Not only is there problems with hazardous objects in the safe waste, the safe waste it not handled correctly at its source which makes the work for both the formal and the informal waste management sector tremendously much harder, time-consuming and as mentioned before, dangerous. The failure to separate wet and dry waste at its source is something that every professional I spoke to agree upon to be a major problem (Sahu, Reedkar, Yamgar, Darokar, Olve, Tambe etc.), every person I spoke to said that it is not being done and it was a frequent discussion in local magazines. Even the popular TV-show *Satyamev Jayate*, hosted by superstar Aamir Khan, dedicated a whole programme to the waste situation and almost all speakers emphasised the acute need for households to start segregating their waste (Satyamev Jayate, 2014). The problem with failed segregation at household level is a result of a combination of many factors. The agenda regarding waste is negative so minimising contact and time spent with it is a common mind-set, not knowing why, or even if, it is important is also a major contributor and the commonly shared belief that it is someone else's problem are all different reasons for why people do not segregate their own waste before sending it away (Sahu, Seema Redkar, Darokar, Tambe). Information campaigns from MCGM and private waste management companies can be seen around Mumbai, at least in the

richer areas, but its impact is believed to be very little impact (Seema Redkar, Yamgar). What do seem to work is however a tendency that is just growing bigger and bigger, rag-pickers have started to buy segregated and dry waste from the households, wet waste is still being taken care of and fined by MCGM-SWM. They pay around 5rupees per kg and resell this to waste-traders in Dharavi for approximately 40rupees per kg. This have spread to include an informal market around dustbin-cars as well, something that decreases the efficiency of these cars daily work massively (Appendix nr3)

#### **6.2.4 Alternatives to landfills?**

Related to household waste segregation is the potential outcome and usage for the end-product. When talking to Dr Sahu I discussed the fact that many of the articles and reports on waste management in Mumbai seems to criticize the under-used option of instead of dumping waste on land-fills, the biodegradable waste could be turned into compost. About 40% of the produced waste in Mumbai is biodegradable and if processed correctly this would result in 2500 tonnes compost produced daily (Sahu). Mumbai alone produces enough biodegradable waste that, if made into compost, could prove to be a highly beneficial asset for the whole state of Maharashtra (DR S.R Maley – Satyamev Jayate 2014, Rathi, 2007, Yedla and Kensal, 2003). This is unfortunately not possible according to Sahu, the cost of handling and transporting this compost to potential beneficiaries is too high, and even if the receiver would pay for the transport and get the compost for free there wouldn't be anyone interested, the underdeveloped infrastructure makes transportation too expensive and the cost of arranging such a large scale operation is according to Sahu simply too much for the municipality. Arranging hand-outs of compost inside the city to all its urban farmers is neither that an option. Here it is however not a lack of interest behind, there are guerilla-growings everywhere, especially around the train tracks, but since all of them are illegal (the ground they are growing on is not suitable for producing food, for picture: see appendix nr4) the local government could not endorse this by handing out free compost (A third reason why it is not possible is that the separation of harmful ingredients, e.g. batteries etc. from the biodegradable waste is often done so poorly at household level that the sanitary status of the produced compost could not be ensured which disqualifies it for distribution by MCGM (Sahu).

As with every other problem in Mumbai the waste situation is a multidimensional. Approaching the problem from only one direction is often not enough, the problems are both mechanical and structural and without a holistic approach to the situation a functioning solution is hard to achieve.

#### **6.2.3 The situation for formal waste management workers in Mumbai:**

As with most service-based waste management around the world the job is paid very poorly

(Maclaren and Nguyễn, 2003, p. 17). The low social status of municipal sweepers, employed waste pickers and sewage-workers is severely detrimental to working morale which in turn affects the outcome of their work (Yedla and Kansal, 2003). It also affects the workers in extremely negative ways regarding self-image which often projects itself on their family situation and alcoholism, drug-abuse and domestic violence is significantly over-represented in this group (Olwe, Darokar). Their civil situation outside of work is, to put it mildly, often miserable and their work situation is often not much better. Other than being constantly exposed to exhausts, dust and dangerous waste they are often harassed while carrying out their work. Even if you are employed by MCGM you are not guaranteed safety from harassments and discrimination deriving from your social status, caste or gender. According to Sheilesh Darokar it is a conscious decision from MCGM to not give ID-cards and proper employment status to many of their sanitation workers. This lack of protection is detrimental to many of the workers since without this ID-card and proof of employment they basically lack juridical rights. MCGM defend their decisions with saying that they are working on reducing harassment. If enough is being done can only the street sweepers answer, but at least the author chooses to believe Sudharak Olwe; the photographer who has spent a good part of his life documenting the daily life and hardships of these street sweepers and sanitation workers. He told me during our conversation about the dehumanising reality that many of the Dalits' working with sewers and WC-sanitation has to face every day. Since the jobs they carry out are often provided with the lowest possible standard of working tools there is often no way of protecting yourself against the exposure of human waste, syringes etc. from hospitals or the toxic gases generated by the hazardous cocktail of human and industrious waste. The lack of proper working gear and inadequate education makes their job unnecessarily degrading and dangerous. Nothing is however being done about their situation. The combination of holding a highly stigmatised profession, belonging to a discriminated caste and carrying out your labour underground where no-one can see you and dealing with things that society rather forgets creates a situation where these individuals have no-one who speaks for them, they are forgotten and ignored.

*“Urine often falls on our heads and backs, The only protection is the helmet. Even with the helmet, the shit sometimes fall on our face. We complain about our situation but no-one pays attention to this”* Eknath Kandam, sewage worker (Vocativ)

#### **6.2.4 Informal Waste Management in Mumbai**

In developing countries the recycling segment of the waste industry is predominantly controlled by the informal sector, and it is often hazardous, unsafe work. Approximately one percent of the urban

population in developing countries is involved in informal scavenging, most of whom are women and children without legal protection to protect them from being exploited and being forced to work in terrible circumstances. Hence, efforts are needed to provide recognition, respect and appropriate protection to ensure that issues related to health and safety are adequately addressed (UNEP1, 2011).

In Mumbai it is estimated that more than 1% of the population are working within the informal waste sector. The professions within this commodity-based waste management sector can be everything from picking, sorting, treating, supervising, researching and developing new techniques to improve recycling. It is a major business that every year handles hundreds of millions of dollars and the amount of waste it handles every year far outdoes the formal waste sector. The reason why this sector has grown so big is due to a multitude of factors. They are both mechanical as well as structural reasons behind the current situation and the ones I found to be most apparent is the following:

Municipal lack of capacity (Redkar, Yamgar, Sahu, Zhu et.al 2008, Yedla and Kensal 2003)

- Infrastructural problems, many sources of waste (e.g. informal waste dumps between houses in crowded areas) is inaccessible for large scale waste management, this create a need for low scale waste management which opens up the market for the informal waste management sector.
- High density population and large proportion of slum areas prohibits a functioning waste management work.
- Lack of physical land results in a physical incapacity to sort, separate and handle the waste in an integrated and holistic way.
- Technological regarding separating and storing waste results in formal and informal landfills where waste pickers can make a living picking, sorting and re-selling the waste.

Social/human factors (Darokar, Seema)

- The constant flow of people between Mumbai and countryside in combination with poverty and lack of social welfare creates a situation where the working class ends up being without any real power to dictate their wants and needs. Due to an abundance of working force and lack of protection, such as employment contract and juridical rights, a situation is created where people constantly are in danger of being exploited and in turn are forced to turn to rag-picking and dangerous work in sanitation.
- The conceptualisation around waste makes certain groups less willing to manage the waste themselves and the discourse regarding social hierarchies allows privileged

individuals to dump the responsibility on disprivileged groups.

- A general lack of knowledge as well as unwillingness to separate wet and dry waste on a household level affects the chain of waste management from household level to final destination. According to Seema Redkar at MCGM-SWM, **not more than 2%** of the waste on a household level is separated.
- Lack of constructive communication between MCGM and the community results in an absence of correctly carried out public participation regarding waste management.
- Hindrance of being included in society due to membership of a disprivileged caste, class or gender.

Market related factors (Upendra, Sahu, Rishi Aggarwal on Satyamev Jayate 2014)

- Waste being a commodity creates an informal market for both waste collection and recycling. If valuable recyclables such as plastic, metal and paper is not sorted out and used by the government someone else will have a financial motive of doing it, the only difference is that now it is uncontrolled and without any safety regulations for the waste pickers.
- Bribing of officials and the interests from the black market arena for waste management makes it impossible for MCGM to approach the situation in a functional manner.

The tendency of having waste management predominantly run by an informal sector is typical for developing countries (UNEP1, 2011). It is therefore not a big surprise that the informal sector is seen by many in the upper classes or by growth/progress-oriented thinkers as something that's not suitable for a major economic power (Wilson et al., 2009, Sahu). Landfills around the city is being transformed into biogas-producers which results in less accessible waste, social projects are trying to help kids in families of informal waste workers and give them an education, NGO's such as Magic Bus India have ongoing projects that targets specifically low-status groups and projects by MCGM to transform the informal waste workers to employed formal personnel is being carried out (Redkar, Vadai).

Zygmunt Bauman puts it elegantly in his book *Wasted Lives* (2004) “The production of 'human waste', or more correctly waste humans (the 'excessive' and 'redundant', that is the population of those who either could not or were not wished to be recognized or allowed to stay), is an inevitable outcome of modernization, and an inseparable accompaniment of modernity” (Bauman, 2004, p.5).

The main question here is how to approach the hundreds of thousand individuals that are in this highly disprivileged situation that's been constructed by society and which they just happen to be

born into. For the formal sector there are mostly only positive effects for working side by side with the informal sector. Combined efforts that benefits both the formal and the informal sector have proved to be positive for the waste situation at large and by doing this a community can aspire of reaching a functioning, truly integrated waste management system (Wilson 2009, Wilson, Velis and Cheeseman, 2006). The impression I got when talking to Dr Sahu at NSWAI, the MCGM, different NGO's and scholars about it was that they all felt that it was an issue that needed to be solved, but where some pointed out that the issue was that people were falling ill, others were pointing out lack of efficiency, infrastructural capacity and need for technological progress as the main problems that needed to be solved. When approaching a situation from so fundamentally different perspectives it is often of utmost importance to be sensitive for the other sides' knowledge and interest, but when discussing this matter with representatives from different groups and organisations I often found that ideological interests regarding growth and economic development tended to speak louder than the needs of the lesser fortunate ones. I believe that it will be hard to find a suitable solution that brings positive change to both waste management at large, the environmental aspects of it as well as the well-being of the individuals that today work within the informal waste management sector without a general agenda that seeks to include all perspectives, and not only as it is today, all perspectives but the ones that are on the bottom of it all.

## **7. Field Research**

When performing my participatory observations I gained most valuable insights at these two locations. More were visited but it was these two that stood out the most.

### **7.1 Dharavi.** (For pictures, see Appendix 5.1-5.6)

Being one of the biggest slums in the world this area was a temple of quick-fixes, ingenuity and daily life struggles. Dharavi is made up of many different areas and when visited I mostly spend my time in the commercial area where I thoroughly explored the recycling sector. By walking the streets for hour after hour I feel I got a decent understanding of the area. By combing small-talking to passive observations with longer talks about relevant topics I feel that I managed to make my visit there natural and not too intruding. From the start, even before going to Mumbai, I had decided on thinking twice whenever there was a risk that my research would transform into social tourism, and I believe I managed to stay on the right side of that boarder every time but once. I made the mistake of going to Dharavi one day with a group of backpackers, nothing bad happened but it was not a form of tourism that I feel like being a part of with the constant sensationalising of poverty and miserable living conditions. A lesson was learned and the situation did not occur again, at least

not with westerners as company.

My most fruitful visit there was in the company of an engineering student named Rahid Ahmed. I met him while eating lunch at a local restaurant and after talking about Dharavi from his perspective as an engineer he decided that he wanted to properly introduce me to energy and security aspects of Dharavi. These were some insights and knowledge that definitely was not visible without proper knowledge, technological expertise as much as local knowledge. Rahid had grown up and spend his whole life in Dharavi and he believes that he will stay even after finishing his degree and finding a related job. Something not unheard of, rather the other way around since, as he told me “if you have grown up here you want to stay here, it is not the best of places but it is yours and everyone here respects each other without judging”. Being from the slum is stigmatised even when moving away from it, and it is not like Dharavi is a homogenous area, sheds are mixed with proper apartments and it’s a strikingly living and developing area. Rahid told stories about underground refineries and toxic industries that severely polluted the ground were mixed with a passionate introduction to the intricate power network sustaining the energy-intense slum with sufficient power. Since my knowledge of power starts and ends with flipping a switch I did not fully grasp the technological aspects of it, but it definitively sounded like something out of an impressive post-apocalyptic movie á la Mad Max. I would have been sufficiently satisfied with this but before finishing the tour he introduced me to a couple of waste traders that took over from Rahid. I managed to conduct an hour long interview with Shirish Upendra, a waste trader stationed in Mumbai trading paper, hard plastic and cardboard products. Working as a reseller he was the connection between rag-pickers and the industry. Rag-pickers and private companies both sell their paper and plastic and Mr Upendra then sold this forward to refiners. He showed me pamphlets of end products and companies that bought paper from him and Tetra Pak proved to be one of the buyers.

When discussing working conditions for the small-scale industry taking place in Dharavi it was clear that everyone worked as much as they wanted to and fixed conditions or being employed was unheard of. The work in refinement industry is highly seasonal and the majority of workers coming there to work are farmers who travels to Mumbai in times that suits their harvest seasons. They hire place in rooms holding up to 30persons at once but still pay a hefty price for it. This creates a market where people are desperate to work, something that suits the companies.

When moving on I was shown a couple of sorting and processing factories and after a while I was invited to a place where plastic was washed and shred. Firoshaik and Javed, two employees gave me a step by step rundown of the business, describing that since plastic can only be resold if it’s properly washed, dirt and oil and cleaning chemicals are just flushed away since there is no way of taking care of the hazardous remnants, creating a highly toxic situation during flooding. It did



however used to be even worse but according to them the heaviest polluting industry have been forced to move to outside of the city. I was then shown the rooftops of the factories where I for the first time really managed to grasp just how insanely big this informal waste treatment sector really was.

Even if the stories of these people are not directly represented to as a large extent as I would have liked in the thesis, this meetings, the others he introduced me and all the ones like these were of crucial importance for me when trying to understand the situation other perspectives than a bureaucratic or technological. It was strikingly that it was a heavy duty labour going on I Dharavi. According to Firoshaik the work was predominantly being carried out by men here and I guess that it means that women are left to work in even more unsafe environment, the streets of Mumbai where they are not even having the local community to protect them.

## 7.2 Solid Dry Waste Collection Centre in H-Ward

“If waste is not handled properly, it becomes a dangerous nuisance – but when handled properly it becomes a profitable asset!

Chandrakant Tambe. Junior overseer at  
MCGM-SWM H-ward

*F.O.R.C.E: Forum of Recyclers Communities and Environment.* (For pictures, see Appendix 6)

This programme, driven by the principles of Public-Private Partnership seeks to build bridges between rag pickers and the rest of society by employing them. By doing this they intend to increase their safety (by being employed the police wont harass you) and create a feeling of being a part of society and not just discriminated and decrease their feeling of being excluded and marginalised. These centres exist in every ward and whilst they are sponsored by MCGM they are run by NGO's.

This particular centre have 2 vehicles that drives around gathering waste, sends it back to the centre where it is being sorted and then sold off to private companies. Only dry waste is being handled and wet-waste is being driven directly to land-fills, it is after all as well as a social programme also a waste management programme that seeks to decrease the amount of recyclable waste ending up in land-fills (Tambe). F.O.R.C.E is unique in the way that they actively try to reach a gender-balanced workforce. Men and women are given equal payment and the social programme tries to help the children of the individuals working there and give them a proper education. Medical aid, counselling and education are also given to the workers. Surprisingly enough they are working without a contract, when asked about this the manager replied “we are all friends, mistakes are okay

so they do not have to worry”. This part seems a bit controversial but I didn’t feel that I could ask the manager to translate that precise question for me. I was only there one time as a guest and I didn’t want to appear offensive or disrespectful and digging into employment issues didn’t feel like an excellent way to create trust and rapport. The manager, a woman named Minall Kathavre, used to be a ragpicker herself and she had worked her way up from being a regular employee to management position. According to Minall gendered issues was unheard of here and she believes it to be because they all work together daily and since everyone needs money there is no time for considering a woman being weaker and less competent than a man. She also stated that there are at least as many men as women who working as ragpickers around Mumbai, something that stroke me as highly interesting because it contradicts the general idea that women and children are the ones who primarily works with this. The idea of women being over represented is considered such a definite truth that it is often not even being referenced in books and papers. Neither MCGM, NGO’s nor scholars would agree with her statement, and my personal observations contradicts it as well. I saw far more women than men picking and sorting waste from the streets, but in relation to her lifelong experience, what relevance do my 10 weeks of observation have? It is however important to notice that no-one could point out any gendered data for ragpickers in Mumbai, but it was still taken for granted. Maybe the situation is changing in Mumbai, maybe she is right or maybe she is not. It does not really matter because talking to her really highlighted how a group’s self-reported reality clearly could differ from academic reports and the words of scholars and professionals talking about the same group’s reality.

## **8. Caste, Ethnicity, Class and Gender – How does this affect the waste situation?**

A discussion about the current situation in Mumbai regarding the relationship between gender, class and ethnicity and how they relate to waste, as well as a discussion on why intersectional analysis is relevant when approaching situations that holds dimensions of power-dynamics.

### **8.1 Intersectional analysis**

A problem presents itself when one seeks to speak for every member of one's highlighted in-group. I will never be capable of speaking for every male individual, neither will I be able to speak for every person my age, all students, all with a background of working at the factory or any other trait that I feel defines me. The same problem became evident within western feminism when white middle class academics sought to speak for all women through a feminist analysis, gender as a single analytical category is far too limited for this. By acknowledging that a person’s situation as

well as oppression in general is more multifaceted than this one-dimensional form of analysis allows for, it is possible to see power dynamics in a more holistic manner (Davis K., 2008). By being highly inclusive for different perspectives and experiences, intersectionality could very well be “one of the most important theoretical contributions that women's studies have made so far” (McCall, 2005).

The term itself was originally coined by legal scholar Kimberle Crenshaw (Nash, 2008) and sought to emphasize the need to acknowledge the multidimensionality of marginalized subjects lived experiences. It originated in the experience that within academia and the contemporary discussion around the unconscious notion within academia that “all women are white and all black people are men”, black women were simply not recognised as individuals with experiences that significantly diverse itself from both experiences held by black men and white women (Crenshaw, 1989). For example, how both feminists and anti-racists failed to notice how women of colour faced structural hindrances that made them vulnerable to domestic violence, public battery and rape. This due to the fact that feminists only saw the black woman as a women and failed to notice her other (in this situation) important trait, her colour, and white anti-racists focused largely on trying to prevent the historically racist idea that rape is something that's carried out by black men and targeting white women, therefore neglecting that intra-race violence against women of colour. (Davis K., 2008, Crenshaw, 1991)

## 8.2 Intersectionality in Mumbai

With caste comes de-humanisation. The pain experienced by someone from the lowest caste is less than my pain. It is all a matter of inclusion, exclusion and discrimination

Sheilish Darokar

Daily life in Mumbai is as with every other place on this earth guided and dictated by societal norms that seek to label and categorise and this certainly makes issues regarding equal rights and equal value harder to actualise. The life of the rich and the poor don't share many denominators and in many ways it is like night and day. The way an individual belonging to the higher castes and one from the lower, or a Dalit, are being treated share few similarities. The same can be said for Men and women who are constantly being evaluated, interacted with and judged on different terms. These different attributes or traits do however not exist and function on their own as sole factors, rather they are often interconnected and when combined the outcome is increased when compared to a situation where only one attribute acts as a causal variable.

It is interesting to notice that ethnicity in India seem to function a bit differently than in other parts of the world. There can't really be said to be any “true” Indian ethnicity, but as in so

many other places being fair is regarded as more positive than having a darker skin. Racism is instead predominantly towards immigrants with darker skin, being dark skinned and not Indian is something that's highly negative for individual with these traits (Darokar).

In western feminist writing you have the idea of double burden; the idea that when given equal standing on her workplace women will still have responsibility of the household is established both academically as well as to a large extent in everyday knowledge. When looking at the multitude of challenges that a low caste woman who works with waste have to face, the sum of all the burdens far exceeds the discrimination on singular basis, e.g. being "only" a man working with waste being "only" a woman holding a normal job or "only" being a low caste man (Muller, unknown date). The sum of all disprivileged traits leads to that not only is she targeted due to her caste, but also her profession and identity of being a woman is targeted. These three are negative on their own and causes the individual to be put in a disprivileged position. When combined she is considered as having so little advocacy that she undertakes a transformation in the eyes of her tormentors e.g. the police (Darokar) where the right of being treated as a subject with identity and integrity is eradicated and she is turned into an object that holds less existential value than any other human being. By simple being who she is she is targeted by a constant campaign of dehumanisation.

An often mentioned idea in the current discourse regarding equality and human development in India seems to be that the rise of an Indian middle class is seen as a natural eradicator of caste. This was an idea that I personally found to be the predominant agenda in many online discussions in forums and much of news commentary that I have come in contact with speaks gladly of this matter. It must however be noted that individuals participating in this can probably not at all be said to be considered as even remotely representative for the majority of people living in Mumbai and India as a whole, and this agenda is especially not of relevance when looking at the least privileged parts of society (Darokar, Olve). This eradication might level out the importance of cast in the middle class (Sheth, 1999), but it is still a determinant factor that affects the power structures in the lower classes and when determining who is to do the job that no one else wants (Darokar, Olwe). Being a Dalit scavenger thus creates precisely the situation of combined oppressions. Due to the discrimination related to both their occupation and their caste they are born into a disprivileged status and forced to remain oppressed. The combination of belonging to the lowest of caste and holding an occupation that's considered to transform the performer into something "untouchable" and "polluted" clearly strikes towards both general well-being as well as creating a negative self-image (IDSN Briefing Paper 2012). And just as much as oppression acts exponentially when adding more than one oppressed category to ones' identity, so does the negative aspects of ones' constructed identity which are based on experienced belonging to different social categories

(Winker and Degele, 2011).

As discussed before there are many reasons and strategies that unequal power dynamics are being upheld. One important phenomenon is the tendency to essentialise human behaviour and connect it to their being/physical body rather than their personal decisions, a form of deterministic causality which establishes illusory connections between a person's social category and their behaviour. By essentialise these concepts of class, caste or gender you inevitable creates a stereotyping narrative that functions as a base for a hegemonic categorisation and discrimination (Yuval-Davis, 2006). On a practical level this vicious and degrading cycle is upheld by in general being paid less than minimum wage and therefore being forced to borrow money from e.g. better off neighbours, and by this the relation of bondage is maintained (Shinde, 2005). When looking at the possible role of market economy and economic rationality it is evident that this traditional form of oppression and social hierarchy regarding who does what have adapted well to the capitalist agenda of exploiting cheap labour and justifying it by pointing out that a job have been created (Mannen 2007, Mongkolnchaiarunya, 2003). Even within local communities this agenda is said to be contributing largely to the situation, people often reason that by doing their own sorting they would efficiently cut the only income for rag pickers (Brunner and Fellner, 2007).

The creation of different categories follow their own logic, e.g. class division has its foundation in the economic processes of production and consumption, gender as a “mode of discourse that relates to groups of subjects whose social roles are defined by their sexual/biological difference” (Yuval-Davis p. 201, 2006 ) and ethnicity, and to a certain extent caste, creates its conceptualisation from “discourses of collectivities constructed around exclusionary/inclusionary boundaries that divides people into “us” and “them” (Yuval-Davis p.201 2006).

The awareness of the ongoing actuality of caste-related discrimination is maybe not publicly discussed in a unbiased and free-from-stigma kind-of-way but it is happening, and efforts of fighting the practical effects of caste and eradicate the normative aspects of it is being done. An example for this is the reservation of seats in the educational system for individuals from the lower castes and this quota also extends to governmental jobs. The idea of caste based reservations and quota in the public sector have however faced a fierce opposition (BBC). This campaign can be said to have faced similar opposition as ideas of gender quota in the western countries, namely that quotas by definition are unfair and that the system needs to be given time to fix itself, in other words, a total disregard of the unequal and discriminating standards today's social hierarchy is built upon. According to Dr Gita Ghadha, a sociologist at the University of Mumbai the reservation policies have failed to reach the largest number of people, it is merely reached the tip of the iceberg (BBC).

The role of caste and class sometimes functions by similar logics but a certain practical

differences are present, namely that although both class and caste are inherited, it is theoretically possible to, through external factors, move between the classes. Class is often inherited due to social structures and actual ownership, and it gives depending on what class you belong to, different theoretical as well as practical accessibility to positions and benefits within a society. A class journey is therefore, albeit often very difficult due to structural inequalities, possible. A caste journey is thus, due to being inherited and essentialist rather than depending on assets or social capital, by definition not possible. The most graspable similarity for a westerner in this case would be to compare it to ethnicity, it is however far more complex and intricate but the aspects of being inherited and disregarding of an individual's personal qualities in the eyes of the society is similar.

The core if one wishes to understand all forms of structural oppression is to search for and identify concrete power-relationships and then analyse how they inter-relate and change depending on combination and context (Yuval-Davis, 2006, Winker and Degele, 2011). In the context of Mumbai one would therefore first need to be able to properly describe and understand the inequality-creating phenomena before analysing the observed reality and mapping out power-relations. It is important to notice that the interrelatedness of the observed power relations are not deducible in a purely theoretical way (Winker and Degele, 2011) First hand data must be gathered and the voices of the one being included in this matrix of oppression must be heard, otherwise the subjective reality of subjugated groups probably remains hidden and you risk re-producing an imperialistic agenda, no matter how good your intentions might be.

### **8.3 Intersectionality when analysing waste**

As mentioned before, waste is a highly normative product that affects individuals exposed to it in different ways depending on the individuals social status “[g]arbage is among the most immediate categories against which people are defined, and against which their identities as raced, gendered and classed subjects are conceptualized” (Foote and Mazzolini, 2012, p.3)

The way waste is being defined and how it affects people in their daily lives are multiple. Societal norms dictate who has the right to produce waste, who is supposed to handle the waste and what should the effects on social status be from this. One clear example when trying to understand the relationship between waste and class is the idea of littering and responsibility. In areas where large class differences exists, littering is often subconsciously as well as openly considered as something being almost the right thing to do since it offers employment for someone else, and this legitimises a general disrespect for the otherwise socially accepted informal rules regarding socially responsible behaviour. (Mongkolnchaiarunya, 2003). This idea of letting someone else take care of your trash is not only a sign of laziness, it is deeply embedded in our social hierarchies. Forcing a specific group of people to “[c]onstantly be intimate with other people's waste is one of the most

profound of social divides” (Davis, M., 2006, p.138,) and a situation where waste is not your own problem but someone else’s both underscores and creates social differences and injustices. Sorting is an issue of class and it is deeply rooted on the foundation of economic status (Strasser, 1999 p.9).

A correlational relationship between gender, caste and class and in individuals’ position in relationship to waste is in other words highly present. Due to limits in my understanding of the multifaceted social power dynamics in Mumbai I can however not point towards any absolute causal relationships other than the one where you inherit your fathers work if you wish to keep the house (Darokar), the tendency of traditional Indian culture to position women in a disadvantaged and subordinate situation (Chakravati, 1993) or connection between living in an area with a high degree of poverty and being exposed to waste in different forms. It is not a new idea that being in a disprivileged position affects your living conditions (Bullard, 2000) and the infrastructure and management around, and the exposure of, garbage and waste can be said to be symptomatic for profound gendered, racial, class-related, and as in Mumbai, caste related injustices (Foote and Mazzolini, 2012, p.8) What can be said however is that the relationship between these social categories and one’s living condition is regarded very differently. This difference of perspective became obvious when comparing the views of different actors and stake holders in Mumbai’s waste situation. When interviewing Dr Sahu at NSWAI it was obvious that technological methods and economical and bureaucratic interests was prioritised over the living conditions for people making their living from the waste situation. The objective of creating a functioning and efficient Solid Waste Management can, according to Dr Sahu, unfortunately not take into consideration the hundreds of thousand unfortunate souls that have ended up in the position they are in. Rag picking is according to him an unfortunate condition but nevertheless a symptom of something dysfunctional for both society and the persons holding this profession. it cannot be allowed or encouraged to continue.

“In a perfect world where the workers are between 20 and 40 years old this system of informal waste management, rag-pickers, could perhaps be fine. But reality does not like that way, children are working the streets and that is simply not acceptable. When talking about waste management then I see no way that rag-pickers are a part of the solution, they must only be given help to get out of it. If they are to exist the must be transferred to proper waste workers”

Dr Sahu

This view that waste management must develop with efficiency as its primary focus is also shared by most of the technological adversaries regarding this matter (Darokar). The issue is seen as a problem that must be solved, not for the persons living in the situation but as a problem regarding

urban development in general. The causal relationship stating that caste is forcing people into these situations is not only being ignored, caste related questions are often being transformed into a matter of class where the solution always is more growth and economic development (Mukharjee, 1999). Gender was to many of the people I spoke to not considered a crucial component to take into consideration when understanding the situation, and possible solutions were always top-down oriented rather than seeing the problem from the perspective of the ones facing it. This view of disregarding social power dynamics when observing and finding solutions to the problems is contradicting both the ideas given by individuals I spoke with working with gender and caste issues, social work on ground level, as well as interviewed scholars at Tata Institute of Social Science who, as mentioned, claimed that the disprivileged social status of many working with waste and sanitation is inherited and based on caste as well as a fusion of caste, class and gendered beliefs. Something that clearly speaks for the need of applying an intersectional analysis when looking at the waste situation in Mumbai.

#### **8.4 Practical problems with adapting an intersectional analysis when studying Mumbai**

When discussing the daily life for a person living in Mumbai with persons living in Mumbai I quickly realised that approaching the social category of caste was problematic. From discussing the matter with Sudharak Olwe, Shailesh Darokar and persons I befriended I got the feeling that even discussing it internally between Indians could often be considered a stigmatised and loaded topic. I therefore felt that discussing caste with other than the persons I got close to people or people professionally investigated in the matter was problematic for many reasons, e.g. willingness to say what I wanted to hear, nationalistic or cultural pride which hindered a nuanced discussion or even a fear of being judged by me and therefore unwillingness to even touch upon the matter.

It was in other words a sensitive topic which led to a situation where most of my reflections around caste have come from second hand informants such as representatives from scholars, the NGO Magic Bus India, conversations with individuals that held a middle or even high social class or written information from researchers. An idea that however often was fronted was that caste is something of the past and that class, status and gender was the only deterrents for how a person was treated. Only when discussing the matter with individuals working with such matters on a professional level I got the told that caste still is a large problem and massive hindrance for every form of struggle for equality and a decent living.



## 9. Discussion

Something that became evident during my time in Mumbai was the apparent discrepancy between how legislators and professionals wanted the population to handle their waste and how it really was handled. Discussions about how the public constantly shows unwillingness and ignorance in the separation of dry and wet waste was always brought up during my interviews and when speaking to citizens it became clear that this unwillingness both originates in the idea that MCGM SWM sector is “not doing their work, so why should we?” as well as a general ignorance regarding proper waste management.

Waste management on household level is, by being such a gendered activity, mainly an activity for women which makes learning about gendered definitions and knowledge about waste highly important. Both when trying to analyse the situation in a holistic manner but also when formulating and carrying out interventions that seek to increase the practise of separating waste at a source level (Scheinberg, Müller and Tasheva, 1999) On household level there are few judgments being made from working with waste, but once the activity is transferred to a public area (e.g. when carrying out the trash) the activity transforms into something negative which affects the process (Maclaren and Nguyễn, 2003, Scheinberg et.al 1999). By looking at it from this perspective the impact from the idea “handling waste is something foul” could be understood in a new light. The notion that there are structural problems prohibiting individuals from handling their personal waste will never be solved by implementing only a mechanistic, top-down approach.

When discussing waste management with the MCGM-SWM department, Dr Sahu at NSWAI and citizens of Mumbai ideas of information, knowledge and participation was brought up discussed. Apparently no target-specific information campaigns have been carried out nor any personal communication campaigns between MCGM and citizens. Campaigns that have been launched have always been in a written form as public information through posters and signs and so far this technique has proved to be severely inefficient. Ideas of organizing target specific approaches might be discussed but so far no practical efforts to achieve this have been made. I personally believe these two to be of utmost importance since public involvement and inclusion must be present when trying to change a strong cultural norm. Without a proper incitement I fear progress in this matter will be difficult. Incitements can be, as already seen, monetary in the form of households earning money by selling their segregated waste to rag-pickers or a feeling of being relevant for the whole situation. By raising interest and activating some form of personal connection to the topic positive results can be achieved, something that was shown during the aftermath of the social awareness campaign launched by the Indian mega celebrity Amir Khan, on his TV-show *Satyamev Jayate*. This show handled the matter of waste in Mumbai and was made together with

representatives from both MCGM, social and technological scientists, NGO's and Dalit organisations. The weeks after there were a noticeable change of public interest regarding this matter. Before this TV-show the common reaction was often in the line of "it is not being carried out properly by MCGM", "The situation cannot be solved, it is just the way things are" "rag-pickers take care of it, there is nothing to worry about and "whatever I do it won't matter because no one cares". After this show the discussions were however far more energetic and people appeared to show significantly more interest to the matter. By realising that they too played an active role people's interest was awakened.

To me this indicates that there is an interest, not only to see the situation improve but to actually take part yourself. Targeting specific interest groups through aimed information campaigns or organise small-scale public meetings or even door-to-door information campaigns could prove to have positive results. It worked wonders at Augustenborg where target oriented information campaigns and door to door information increased recycling at home and proper disposal considerably (guided tour 2013) and given the right tools I see no hindrances to way this would not work similarly for Mumbai.

The fundamental problem of waste being attributed with negative traits needs to be properly addressed, analysed and solved. Being regarded as something that lowers the status and self-image of the person being exposed to it definitely affects both waste management and individuals working with it negatively. It creates an unbearable situation for the city of Mumbai with its overused landfills and the mind-set that your waste is someone else's problem is creating a very unfortunate and unequal social hierarchy. The problem is multi-faceted and as said throughout the thesis it is both detrimental for social equality, environmentally, economically and for peoples self-image. To solve the situation all these issues must be taken into consideration. Take for example the problem of peoples degrading treatment of Dalit people. Even if they wouldn't be working with waste they would still be Dalit and regarded as close to untouchable. Even if waste would change from be intrinsically foul to something neutral a Dalit would still be a Dalit. The removal of stigma or change of working conditions is simply not enough to reach equality between people. The problem is bigger than this and it needs to be addressed on every level if proper change is to be found.

The whole aspect of how people view each-other became uncomfortably obvious when I visited F.O.R.C.E (recycling centre).

*I was walking around at the centre, awkwardly trying to change a couple of words with the workers on my own when suddenly a luxurious MCGM car turns in from the big road outside, enter through the gates and stops just outside the office. Out jumps three MCGM officers in suits and*

*loudly calls for attention. After a while, when finding out that I am there and what I do, they immediately start talking to me all at once and ask me if I have gotten everything I need from the people working there. I politely tried to explain that everything is going great and that I have been welcomed and taken care of in a more than perfect way. This was however not enough for them, they dragged me along and started barking orders at the people working there to stand and pose by their machines and work-stations so that I could photograph them. It was strikingly obvious that these bureaucrats regarded the Dalit's working there as people they could boss around freely, they might not actively despise them but they were absolutely not equals. The ones who were forced to pose looked painfully unwilling and humiliated and it was only after I had taken a couple of photos that I was able to explain that this was absolutely not necessary. Every form of rapport, how small it might yet have been, between me and the workers was instantly and mercilessly erased on the spot, and righteously so.*

25<sup>th</sup> March, F.O.R.C.E Recycling Center.

This moment removed all doubts I had about my position there and the internal relationship between people living in Mumbai.

Both NSWAI and MCGM are both primarily directing their energy on increasing the efficiency of waste management. Their responsibility is the waste situation and they have enough problems as it is even without taking responsibility for the living conditions of people not even employed by them. It is however precisely this I believe to be necessary for both the waste situation and the humanitarian situation in Mumbai. Bringing in ideas of inclusion and involvement as well as looking at the situation from an intersectional perspective could potentially enable a situation where a more long-term and holistic solution is possible. I believe MCGM-SWM can find solid reasons for why working side by side with the informal sector can become productive and using combined knowledge and competence will prove superior to today's system where the two interest groups remain divided.

## **9.1 Conclusion**

By not being a neutral concept waste cannot be perceived as something static and predictable. This makes looking at waste from a strictly technological or economical perspective where recycling potential is emphasised in many ways a highly problematic approach. Putting up a big sign and introducing more waste-bins won't magically increase the amount of waste being thrown in them, some change is bound to happen but if social dimensions are not included the end result for such a project will be less than it could be. This is because Social Power structures influence how we perceive waste. I might perhaps not be directly but indirectly through projecting attributes on the individuals working with it, and then connecting waste to unwanted groups you directly attribute

waste with even more negative traits. By being both intrinsically negative and handed only by groups that are perceived as worse than you a highly dysfunctional approach to both waste and human beings is created. This causes major problems when it comes to the highly important act of adequately segregating waste on household level and if that is not enough it deeply stigmatizes groups who work with it. By being strictly connected to class, gender and caste waste definitely affect people differently depending on these attributes. Since stigmatization and oppression acts exponentially depending on context and combination of the independent variables (e.g caste, class, ethnicity) it is hard to predict the outcome if not a sufficient amount of variables are known and understood properly.

I believe a perspective needs to be introduced which observes and understands that the way people view and handle waste and garbage are symptoms of something bigger, the waste situation is not a unique problem that exists on its own. The situation of a strict caste and class related normative reality surrounding waste and waste management is not something that just popped out of nowhere and waste do not end up in poor areas all by itself. Waste and garbage tells a story of its own and the only way we can hope to understand it properly is by giving the ones most exposed to it a voice. An intersectional approach to the situation can look at both visible and hidden power structures and understand the situation for what it is, a structural problem that holds both cultural, economic, technological and environmental factors. It could very well be what is needed when trying to solve the problems and decrease the negative social impact of waste for the citizens of Mumbai.

## 10. References

- Anderson, Elijah (2003). "Jelly's place: An Ethnographic Memoir" (Distinguished Lecture), *Symbolic Interaction*, 26 (2), pp. 217-237.
- Bauman, Z. (2004). *Wasted lives*. Oxford: Polity.
- BBC [online] (2013) Yogita Limaye. Caste or Class? Available at:  
<http://www.bbc.com/news/business-23003532> [Accessed on 25 Feb. 2015].
- Berkel, R., Fujita, T., Hashimoto, S. and Fujii, M. (2009). Quantitative Assessment of Urban and Industrial Symbiosis in Kawasaki, Japan. *Environmental Science & Technology*, 43(5), pp.1271-1281.
- Blaustein, J. (2011) *Urban media lab: Waste* New York: The new School University, Department of Media Studies and Film.
- Blinkhorn, T., & Sen Gupta, A. (2006). *Partnering with Slum Communities for Sustainable Sanitation in a Megalopolis*. PS Press Services Pvt Ltd.
- Brunner, P. and Fellner, J. (2007). Setting priorities for waste management strategies in developing countries. *Waste Management & Research*, 25(3), pp.234-240.
- Brunner, P. and Rechberger, H. (2004). *Practical handbook of material flow analysis*. Boca Raton, FL: CRC/Lewis.
- Bryman, A. (2008). *Social research methods*. 3<sup>rd</sup> edition. Oxford: Oxford University Press.
- Buckingham-Hatfield, S. (2000). *Gender and environment*. London: Routledge.
- Bullard, R. (2000). *Dumping in Dixie*. Boulder, Colo: Westview Press.
- Byrne, J. (2008). *Encyclopedia of pestilence, pandemics, and plagues*. Westport, Conn.[u.a.]: Greenwood Press.
- Cambride Dictionary: [Dictionary.cambridge.org](http://dictionary.cambridge.org), (2015). *waste definition, meaning - what is waste in the British English Dictionary & Thesaurus - Cambridge Dictionaries Online*. [online] Available at: <http://dictionary.cambridge.org/dictionary/british/waste> [Accessed 25 Feb. 2015].
- Chakravati, U. (1993) Conceptualising Brahmanical Patriarchal in early India. *Economic and Political Weekly*, (28) No. 14 (Apr. 3, 1993), pp. 579-585
- Chaplin, S. (1999). Cities, sewers and poverty: India's politics of sanitation. *Environment and Urbanization*, 11(1), pp.145-158.
- Colby, M.E, (1991) *Environment Management in Development: The Evolution of Paradigms*. Ecological Economics. 3: 193-213.
- Crenshaw, K. (1989). *Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of*

*Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics*. [online] Available at:  
<http://politicalscience.tamu.edu/documents/faculty/Crenshaw-Demarginalizing.pdf>  
[Accessed 25 Feb. 2015]

Crenshaw, K. (1991). Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color. *Stanford Law Review*, 43(6), p.1241.

Cyrenne, Chad Is Thick Description Social Science? (2006) *Anthropological Quarterly*, (79)2 (2006), pp. 315-324

**Darokar, S.K. Associate Professor at T.I.S.S. Interviewed by Måns Nygren ~ 6<sup>th</sup> March**

Davis, K. (2008). Intersectionality as buzzword: A sociology of science perspective on what makes a feminist theory successful. *Feminist Theory*, 9(1), pp.67-85.

Davis, M. (2006). *Planet of slums*. London: Verso.

Douglas, M. (1966) *Purity and Danger*. re-print by Routledge 2003.

Engel, R. and Schutt, R. (2009). *The practice of research in social work, 2<sup>nd</sup> edition*. Thousand Oaks, Calif.: Sage Publications.

E.P.A USA – Environmental Protection Agency USA. Available at:

<http://www.epa.gov/climatechange/wycd/waste/downloads/overview.pdf> [Accessed 25 Feb. 2015].

Esa.un.org, (2015). *World Population Prospects, the 2012 Revision*. [online] Available at:

<http://esa.un.org/unpd/wpp/Documentation/publications.htm> [Accessed 25 Feb. 2015].

Flynn, E. (1995). Feminism and Scientism. *College Composition and Communication*, 46(3), p.353-368

Foster, J., Clark, B. and York, R. (2010). *The ecological rift*. New York: Monthly Review Press.

Foote, S. and Mazzolini, E. (2012). *Histories of the dustheap*. Cambridge, Mass.: MIT Press.

Geertz, C. (1973). *Thick description: toward an interpretive theory of culture*. New York: Basic Books

Haslam, N. (2006). Dehumanization: An Integrative Review. *Personality and Social Psychology Review*, 10(3), pp.252-264.

Helzer, E. and Pizarro, D. (2011). Dirty Liberals!: Reminders of Physical Cleanliness Influence Moral and Political Attitudes. *Psychological Science*, 22(4), pp.517-522.

Hawkins, G. (2006). *The ethics of waste*. Lanham, Md.: Rowman & Littlefield Publishers.

Hodson, G. and Costello, K. (2007). Interpersonal Disgust, Ideological Orientations, and Dehumanization as Predictors of Intergroup Attitudes. *Psychological Science*, 18(8), pp.691-698.

Huy., representing Toxic Link on: Satyamev Jayate - tv-show, Season 2 Episode 3, aired 16th March

2014 “Dont waste your garbage” 32.30

IDSN briefing paper (2012): MANUAL SCAVENGING. Available at:

[http://idsn.org/fileadmin/user\\_folder/pdf/New\\_files/Key\\_Issues/Manual\\_savenging/MANUAL\\_SCAVENGING\\_-\\_IDSN\\_briefing\\_paper\\_2012.pdf](http://idsn.org/fileadmin/user_folder/pdf/New_files/Key_Issues/Manual_savenging/MANUAL_SCAVENGING_-_IDSN_briefing_paper_2012.pdf) [Accessed 25 Feb. 2015]

Jacquemin, A. (1999). *Urban development and new towns in the Third World*. Aldershot, Hants, England: Ashgate.

Keil, R., Bell, D., Penz, P. and Fawcett, L. (1998). *Political ecology*. London: Routledge.

Marshall E.R and Farahbakhsh K., (2013). Farahbakhsh Systems approaches to integrated solid waste management in developing countries. *Waste Management* (33)4 pp. 988-1003

MCGM-SWM (Municipal Corporation of Greater Mumbai – Solid Waste Management) Available at: <http://www.mcgm.gov.in/irj/portal/anonymous/qlcleanover> [Accessed 25 Feb. 2015]

Meadows, D., Meadows L. D., Randers J., Behrens III, W., W., (1972). *The Limits to growth*. New York: Universe Books.

Meadows H. D., Meadows L. D., Randers J. A Synopsis: Limits to growth: The 30-Year Update. 2004

Meadows, D., Randers, J. and Meadows, D. (2004). *The limits to growth*. White River Junction, Vt: Chelsea Green Pub. Co.

Mannen., L. *Dalits in India protest “untouchable” status* Available at: <http://socialism.com/drupal-6.8/articles/dalits-india-protest-%E2%80%9Cuntouchable%E2%80%9D-status> [Accessed 25 Feb. 2015].

McDougall, F. and White, P. (2008). *Integrated solid waste management*. Oxford, UK: Blackwell Science.

McCall, L. (2005) The complexity of Intersectionality. *Signs*, (30)3 (Spring 2005), pp. 1771-1800

Maclaren, V. and Nguyễn, T. (2003). *Gender and the waste economy*. Hanoi: National Political Publisher.

Melosi, M. (2005). *Garbage in the cities*. Pittsburgh, Pa.: University of Pittsburgh Press.

Mukharjee, R. (1999) Caste in itself, caste and class or caste in class. *Economic&Political Weekly: (XXXIV)27*

Mongkolnchaiarunya, J. (2003). Promoting a community-based solid-waste management initiative in local government: Yala municipality, Thailand. *Habitat International*, 2005, 29(1), pp.27-40.

Muller, S. M. “Gender, social inequality and waste management Available at:

[http://www.worldbank.org/urban/solid\\_wm/erm/Annexes/US%20Sizes/Annex%201.2.pdf](http://www.worldbank.org/urban/solid_wm/erm/Annexes/US%20Sizes/Annex%201.2.pdf) [Accessed 25 Feb. 2015]

- Nash, J. (2008). re-thinking intersectionality. *Feminist Review*, 89(1), pp.1-15.
- Naturvårdsverket Available at: <http://www.naturvardsverket.se/Documents/publikationer/620-1249-5.pdf> [Accessed 25 Feb. 2015].
- Nichols, L. Austin, Maner J.K. (2008). The Good-Subject Effect: Investigating Participant Demand Characteristics., *The Journal of General Psychology*, 135(2) 151-165
- Nnorom, I.C, and Osibanjo, O. (2008). Electronic waste (e-waste): Material flows and management practices in Nigeria. *Waste Management (28)*8 pp.1472-1479
- Nnorom, I.C, and Osibanjo, O. (2008) Overview of electronic waste (e-waste) management practices and legislations, and their poor applications in the developing countries. *Resources, Conservation and Recycling (52)*. pp.843-858.
- Olwe Sudharak– Photographer, Interviewed by Måns Nygren ~6<sup>th</sup> March 2014.
- Orne, M.T “Demand Characteristics and the concept of Quasi Controls” chapter in: Rosenthal, R. and Rosnow, R. (2009). *Artifacts in behavioral research*. New York: Oxford University Press. P.p 100>>
- Osibanjo, O. and Nnorom, I. (2007). The challenge of electronic waste (e-waste) management in developing countries. *Waste Management & Research*, 25(6), pp.489-501.
- Oxforddictionaries.com, (2015). *waste - definition of waste in English from the Oxford dictionary*. [online] Available at: <http://www.oxforddictionaries.com/definition/english/waste>. [Accessed 25 Feb. 2015].
- Pibmumbai.gov.in, (2015). *Press Information Bureau: Government of India news site*. Available at: <http://pibmumbai.gov.in/scripts/detail.asp?releaseld=E2011IS3> [Accessed 25 Feb. 2015].
- Plumwood, V. (1993). *Feminism and the mastery of nature*. London: Routledge.
- Plumwood, V. (1998). Women, Humanity, Nature. *Radical Philosophy* 48 p.p 16-24. Available at: <https://nomorelockeddoors.files.wordpress.com/2013/12/plumwood-women-humanity-nature.pdf> [Accessed 25 Feb. 2015].
- Preston, J. and Ritter, R. (2012). Cleanliness and godliness: Mutual association between two forms of personal purity. *Journal of Experimental Social Psychology (48 pp.)*1365-1368
- Rathi, S. (2007). Optimization model for integrated municipal solid waste management in Mumbai, India. *Environment and Development Economics (12)*1, p.p 105-121
- Reedkar, S. Officer on special duty MCGM. , Interviewed by Måns Nygren ~7<sup>th</sup> March 2014
- Robben, A. and Sluka, J. (2012). *Ethnographic fieldwork*. Malden, John Wiley & Sons inc .
- Robinson, B. (2009). E-waste: An assessment of global production and environmental impacts. *Science of The Total Environment*, 408(2), pp.183-191.



- Sahu, K.A Dr. President NSWAI. Interviewed by Måns Nygren ~3<sup>rd</sup> March 2014
- Satyamev Jayate - tv-show, Season 2 Episode 3, aired 16th March 2014 “Dont waste your garbage”  
32.30
- Scheinberg, A., Müller, M. and Tasheva, E. (1999). *Gender and waste*. Gouda: WASTE.
- Scheinberg, A. (2001). *Integrated sustainable waste management -a set of five tools for decision-makers - experiences from the urban waste expertise programme*. Gouda: WASTE.
- Schnall, S., Benton, J. and Harvey, S. (2008). With a Clean Conscience: Cleanliness Reduces the Severity of Moral Judgments. *Psychological Science*, 19(12), pp.1219-1222.
- Sheth, D, L (1999) Secularisation of Caste and Making of New Middle Class. *Economic and Political Weekly* (34)34/34 p.p: 2502-2510
- Shinde, P. (2005). *Dalits and human rights*. Delhi: Isha Books.
- Shiva, V. (2008). *Soil not oil*. London: Zed Books. Stillwaggon, E. (1998). *Stunted lives, stagnant economies*. New Brunswick, N.J.: Rutgers University Press.
- Strasser, S. (1999). *Waste and want*. New York: Metropolitan Books.
- SWaCH; Saru. interview in Satyamev Jayate, “Don't waste your garbage”. Season 2, Episode 3 aired 16th March 2014
- Tambe, C.** Junior overseer for the SWM Department, H-Ward Interviewed by Måns Nygren ~20<sup>th</sup> March 2014.
- Taguchi, Y. (2013). Civic sense and cleanliness: pedagogy and aesthetics in middle-class Mumbai activism. *Contemporary South Asia*, 21(2), pp.89-101.
- UN Millennium Development Goals, Available at:  
<http://www.un.org/millenniumgoals/bkgd.shtml> [Accessed 25 Feb. 2015].
- UNEP (2005) *Solid Waste Management*. Available at:  
<http://www.unep.org/ietc/Portals/136/SWM-Vol1-Part1-Chapters1to3.pdf> [Accessed 25 Feb. 2015].
- UNEP 1, (2011) United Nations Environment Programme “Waste, Investing in energy and resource efficiency” Available at:  
[http://www.unep.org/greeneconomy/Portals/88/documents/ger/GER\\_8\\_Waste.pdf](http://www.unep.org/greeneconomy/Portals/88/documents/ger/GER_8_Waste.pdf) [Accessed 25 Feb. 2015].
- UNEP-ISWM (2011) United Nations Environment Programme, Global Partnership on Waste Management - Integrated Solid Waste Management (ISWM), Work Plan for 2012-2013  
<http://www.unep.org/gpwm/Portals/24123/images/GPWM%20ISWM%20workplan%202012-2013%20final.pdf> [Accessed 25 Feb. 2015].
- Upendra, S., - Owner of S. Upendra & Co, a company dealing with recycable waste in Dharavi.

- Interviewed by Måns Nygren ~12<sup>th</sup> March 2014.
- Vadai, Havovi. Head; Research and Development at Magic Bus India. Interviewed by Måns Nygren ~5<sup>th</sup> March 2014.
- Vocativ, Movie: The Sewer Men of Mumbai. Available at:  
<https://www.youtube.com/watch?v=tWBCsn6pQWc> [Accessed 25 Feb. 2015].
- Williams, P. (2005). *Waste treatment and disposal*. Chichester, West Sussex, England: Wiley.
- Wilson, D., Araba, A., Chinwah, K. and Cheeseman, C. (2009). Building recycling rates through the informal sector. *Waste Management*, 29(2), pp.629-635.
- Wilson, D., Velis, C. and Cheeseman, C. (2006). Role of informal sector recycling in waste management in developing countries. *Habitat International*, 30(4), pp.797-808.
- Winker, G. and Degele, N. (2011). Intersectionality as multi-level analysis: Dealing with social inequality. *European Journal of Women's Studies*, 18(1), pp.51-66.
- World Bank (1999, *What a Waste: Solid Waste Management in Asia*. Available at:  
[http://www.worldbank.org/urban/solid\\_wm/erm/CWG%20folder/uwp1.pdf](http://www.worldbank.org/urban/solid_wm/erm/CWG%20folder/uwp1.pdf) [Accessed 25 Feb. 2015].
- Worster, D. (1994). *Nature's economy*. Cambridge: Cambridge University Press.
- Yamger, Dy.Ch.Eng (Deputy Chief Engineer) operation Solid Waste Management department.  
 Interviewed by Måns Nygren ~7<sup>th</sup> March 2014
- Yedla, S. and S. Kansal (2003). Economic insight into municipal solid waste management in Mumbai: a critical analysis. *International Journal of Environment and Pollution*, 19(5), 516–527.
- Yuval-Davis, N. (2006). Intersectionality and Feminist Politics. *European Journal of Women's Studies*, 13(3), pp.193-209.
- Zhong, C. and Liljenquist, K. (2006). Washing Away Your Sins: Threatened Morality and Physical Cleansing. *Science*, 313(5792), pp.1451-1452.
- Zhu, D. Asnani, U.P., Zurbrugg, C. Anapolsky, S. Mani, K.S. (2007). *Improving municipal solid waste management in India*. Washington, D.C.: World Bank.

## 11. APPENDIX 1-8

### 1 These persons were formally interviewed:

**Seema Redkar** – Officer on special duty MCGM

**Mr Yamgar** – Head officer on Solid Waste Management Department on MCGM. KOLLA NAMN

**Chandrakant Tambe** – Junior overseer for the SWM Department, H-Ward

**Minal Katarhavre** – In charge of the NGO “Forum of Recyclers Communities and Environment” (FORCE)

**Shailesh Kumar Darokar** – Assistant Professor, Centre for Study on Social Exclusion & Inclusive Policies at Tata Institute of Social Sciences, (T.I.S.S)

**Sudharak Olwe** – Photographer, internationally renowned and awardee for National Geographic.

**Dr Amiya Kumar Sahu** – President and founder of National Solid Waste Association of India (NSWAI), Affiliated to international Solid Waste Association (ISWA)

**Shirish Upendra** - Owner of S. Upendra & Co, a company dealing with recyclable waste in Dharavi

**Havovi Vadia** – Head, Research and Development at Magic Bus, an NGO working with changing the lives of children living in the streets through the means of game and improving their sense of self-worth.

These persons played a significant role to either my general understanding of Mumbai, the waste market in Mumbai and the life of a waste worker in Mumbai:

**Narayanan Subramanian** - no connections to any waste-related institution or organisation, just an ordinary guy who meant the world to me when trying to understand the every day life for people in Mumbai.

**Matthew Lane** – Ph.D. in Anthropology, University of California, UC Irvine, specialised in industrial waste trade and dismantling of ships in India.

**Firoshaik and Javed** - Two young men working with recycling in Dharavi, they showed me around and introduced me to their working stations and other important facilities which would otherwise have remained closed for me.

**Sophie and Gustav** – Representatives from the organisation Men’s Against Rape and Discrimination (MARD), an organisation within MagicBus India

**Jordi Vall Lamora** – An actor that's been residing in Mumbai the last 20years.

**Christopher Perera** – An artist that works with waste as both material and concept.

**Kyana Nana** – working with leper projects and education in Mumbai.

**Rahid Ahmed** – An engineering student who lives in Dharavi. He introduced me to the different recycling areas of Dharavi and helped me with translation.



2.1 Just outside the fence at Elephanta Island. Not even a national heritage is protected from waste.



2.2 Between two buildings in Colaba, Mumbai.





2.3 Paper and plastics are dumped just over the wall surrounding the mosque.



3 Waste drivers doing business with three rag pickers.





4 Illegal growing like this can be seen all over Mumbai.



5 Outskirts of Dharavi





## 5.2 Storing space is scarce



## 5.3 The sorting factory where Firioshak and Javed works.





#### 5.4 Plastic is being sorted by colour



#### 5.5 After sorting, washing and cutting it is put on the roofs to dry





## 5.6 Firioshak, Javed and Naranyan



## 6 One sorting area at F.O.R.C.E





### 6.1 Plastics are being compressed



### 6.2 Minall and Tambe supervising the work





6.3 Other plastics are being sliced on spot, here shown by Mr Tambe.



6.4 After slicing some more refinement is necessary, the slices are turned into plastic wool and then re-made into new pet-bottles. Add air pressure and the weird little pieces turns into perfect new bottles.





6.4 A fully loaded truck enters



6.5 It's being thoroughly searched through, and the cycle continues.





7 A man tries to make a living by using the low tide to his advantage



8 No trains? Time for cricket!

