

## Master of Science in Geography

### Gendered household waste management practices Case study: Boralesgamuwa, Sri Lanka

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## Abstract

Waste management is a growing concern since negative impacts on health and the environment are severe when waste is mis-managed. The world's population grows continuously, which produces a lot of waste every day. The purpose of this study is to see in what ways household waste practices are gendered. Feminist Urban Political Ecology helped to approach the relationship between waste and homeowners via a lens of differences in gender in everyday practices at the household level. Household questionnaires and semi-structured interviews with waste collectors were combined with direct observation sessions, which allowed this study to address these questions in the urban context of Boralesgamuwa in Colombo (Sri Lanka). The study revealed a major contribution on the part of women as compared to men in completing household chores, and as a result in the storage and disposal of different waste types at the household level. This gendered role in the responsibility for waste management at the household level indicates that men and women are involved in and affected by waste management differently. As women usually manage the household waste, their work burden increases with the difficulties associated with the waste management situation in the country. Women should therefore be enabled to formulate and express their views and to participate in decision-making concerning sustainable waste management practices.

Keywords: Household waste management, gender, household chores, household division of labour, urban space, Sri Lanka

## Resumé

La gestion des déchets est une préoccupation croissante. En effet, leurs effets négatifs sur la santé et l'environnement sont avérés et la population mondiale ne cesse d'augmenter, produisant toujours plus de déchets chaque jour. L'objectif de cette étude est de voir de quelle manière les pratiques de gestion de déchets ménagers sont genrées. La Feminist Urban Political Ecology a permis d'aborder la relation entre les déchets et les habitants à travers le prisme des différences de genre dans les pratiques quotidiennes au niveau des ménages. Des questionnaires auprès des ménages et des entretiens semi-structurés avec des collecteurs de déchets, combinés avec des séances d'observation directe, ont permis d'adresser ce questionnement dans le contexte urbain de Boralesgamuwa - Colombo (Sri Lanka). L'étude a révélé une contribution majeure des femmes par rapport aux hommes dans les tâches ménagères et ainsi, dans le stockage et l'élimination des différents types de déchets. Ce rôle et cette responsabilité genrés des déchets au niveau des ménages indiquent que les hommes et les femmes sont impliqués et touchés différemment par la gestion des déchets. Comme les femmes s'occupent généralement des déchets ménagers, leur charge de travail augmente avec les difficultés de la situation de la gestion des déchets dans le pays. Les femmes devraient donc être en mesure de formuler et d'exprimer leurs points de vue et de participer à la prise de décision concernant la gestion durable des déchets.

Mots-clés: Gestion des déchets ménagers, genre, tâches ménagères, division du travail au sein du ménage, espace urbain, Sri Lanka

## Acknowledgements

First, I want to thank Professor René Véron for his supervision and his precious comments, which allowed me to challenge myself and improve my work over the months.

Then, I want to thank each person in the field who guided me, accompanied me, and translated for my research. Special thanks to Professor Nishara Fernando, to Hemanthi Goonasekera, to Shivantha Goonasekera, to Yohan Wickramsekara, to Rajeev Vincent, to Gamage Don Thushitha Chathusanga and to the Mayor of the Urban Council Deshabandu K.D. Aruna Priyashantha.

Furthermore, I would like to thank all the people who participated in my study and completed questionnaires, your responses shaped this work and I am thankful for your willingness to participate. Thank you for your precious time, your explanations, and openness.

Last and not least, big thanks to my family and friends, who supported me in the best and the worst moments of my fieldwork and my writing. Thanks also to Carrie Polston and Gaetan Buscaglia who proofread my thesis.

## Table of Contents

<b>1.</b>	<b>INTRODUCTION</b>	<b>1</b>
1.1	MUNICIPAL SOLID WASTE MANAGEMENT CHALLENGES IN THE GLOBAL SOUTH	1
1.2	THE SRI LANKAN CASE	3
1.3	THE MUNICIPAL SOLID WASTE MANAGEMENT OF COLOMBO	6
1.4	PERCEPTIONS AND SOCIAL ISSUES IN WASTE MANAGEMENT	7
1.5	GENDERED RESEARCH GAP AND RESEARCH QUESTIONS	8
<b>2.</b>	<b>THEORETICAL AND CONCEPTUAL FRAMEWORK</b>	<b>10</b>
2.1	EXISTING LITERATURE ON GENDERED HOUSEHOLD WASTE PRACTICES	10
2.1.1	GENDER ROLE IDEOLOGY	10
2.1.2	EXCHANGE OR RESOURCE PERSPECTIVE	13
2.1.3	EQUITY THEORY AND DISTRIBUTIVE JUSTICE THEORY	13
2.1.4	CAPABILITY THEORY	14
2.1.5	GENDER AND WASTE PRACTICES AT HOUSEHOLD LEVEL	14
2.1.6	GENDER AND WASTE WORK OUTSIDE THE HOUSEHOLD	16
2.1.7	IMPACT OF WASTE WORK	16
2.2	FEMINIST POLITICAL ECOLOGY	17
2.3	MAIN CONCEPTS MOBILIZED	20
2.4	HYPOTHESES	21
<b>3.</b>	<b>METHODOLOGY</b>	<b>23</b>
3.1	METHODS OF DATA COLLECTION	23
3.1.1	HOUSEHOLD QUESTIONNAIRE	23
3.1.2	SEMI-STRUCTURED INTERVIEWS	24
3.1.3	DIRECT OBSERVATION	25
3.2	SAMPLING METHOD	26
3.3	METHOD OF ANALYSIS	31
3.4	METHODOLOGICAL CHALLENGES AND LIMITATIONS OF THE STUDY	32
<b>4.</b>	<b>CONTEXT OF THE CASE STUDY</b>	<b>34</b>
4.1	BORALESGAMUWA	34
4.2	OFFICIAL WASTE MANAGEMENT IN BORALESGAMUWA	34
4.2.1	OFFICIAL WASTE COLLECTION	38
4.2.2	OFFICIAL DISPOSAL METHODS	39

4.3	INFORMAL WASTE MANAGEMENT	45
5.	<u>RESULTS</u>	<u>48</u>
5.1	DESCRIPTION OF THE SAMPLE	48
5.2	HOUSEHOLD WORK	55
5.3	HOUSEHOLD INVOLVEMENT DISCOURSES	62
5.4	GENDERED WASTE MANAGEMENT	73
6.	<u>ANALYSIS AND DISCUSSION</u>	<u>78</u>
6.1	GENDER AND HOUSEHOLD CHORES	78
6.2	GENDERED HOUSEHOLD CHORES DISCOURSES	80
6.3	GENDER AND HOUSEHOLD WASTE MANAGEMENT	84
7.	<u>CONCLUSION</u>	<u>87</u>
8.	<u>REFERENCES</u>	<u>89</u>
	<u>APPENDIX</u>	<u>1</u>
	APPENDIX 1 : HOUSEHOLD SURVEY	1
	APPENDIX 2 : UC : WASTE COLLECTORS : INTERVIEW GUIDE	6
	APPENDIX 3: INFORMAL WASTE COLLECTOR INTERVIEW GUIDE	8
	APPENDIX 4: OBSERVATION SHEET	10

## Table of Figures

Figure 1: Waste generation per capita	02
Figure 2: The provinces of Sri Lanka	06
Figure 3: Gender role/Responsibility Framework	11
Figure 4: Map with GN Divisions indication of Boralesgamuwa	28
Figure 5: Samurdhi data of the Urban Council of Boralesgamuwa	29
Figure 6: Bodhirajapura	29
Figure 7: Egodawatta	29
Figure 8: Sampling area of Bodhirajapura	30
Figure 9: Sampling area of Egodawatta	30
Figure 10: Waste composition in Boralesgamuwa	34
Figure 11: Green bin for decayable waste	36
Figure 12: Open ruck of the UC	36
Figure 13: Closed truck of the UC	36
Figure 14: Leaflet to educate the population	37
Figure 15: Leaflet to educate the population	37
Figure 16: Waste disposal in 2019, UC data	39
Figure 17: Waste disposal in 2019	40
Figure 18: Dumped waste on the roadside	40
Figure 19: Burning place on the roadside	41
Figure 20: Burning place on the roadside	41
Figure 21: Fire in the garden of a house	41
Figure 22: Boralesgamuwa in Colombo District	43
Figure 23: Karadiyana landfill site	43
Figure 24: Karadiyana landfill	44
Figure 25: Karadiyana landfill	44
Figure 26: Karadiyana compost soil	44
Figure 27: Karadiyana compost soil	44
Figure 28: Karadiyana project: Generation of electricity	44
Figure 29: Informal waste collector with trolley	45
Figure 30: Informal waste collector with trucks	45
Figure 31: Egodawatta, First Lane	48
Figure 32: Bodhirajapura, Cemetery Road	48
Figure 33: Sex per GN Division	49
Figure 34: Household's respondent's age	50
Figure 35: Sex percentage per age category	50
Figure 36: Sex per age category	50
Figure 37: Respondent's GN Division per age category	51
Figure 38: GN Division respondent's percentage per age category	51
Figure 39: Households member configuration	52
Figure 40: Household's size	52
Figure 41: GN Division respondent's percentage per household configuration	52
Figure 42: Household members configuration per GN Division	52
Figure 43: Number of residents per household per GN Division	53
Figure 44: Number of residents per household number per GN Division	53
Figure 45: Sex percentage per education category	54
Figure 46: GN Division per education category	54
Figure 47: Employment	54
Figure 48: Occupation categories per GN Division	55

Figure 49: Sex percentage per income category	55
Figure 50: Member regularly fulfilling the 7 household chores	57
Figure 51: Women puts garbage outside	58
Figure 52: Household members giving waste to the UC	58
Figure 53: Household members giving waste to the UC	58
Figure 54: Women gives garbage to informal waste collector	59
Figure 55: Waste burning in the garden of a house	59
Figure 56: Opinion on gender performing more household work	59
Figure 57: Member performing regularly the 7 household chores	60
Figure 58: Regular taking care of waste member of the household	60
Figure 59: Regular taking care of garden member in the household	61
Figure 60: Tasks carried out by domestic workers in households	61
Figure 61: Tasks carried out by domestic workers sex	62
Figure 62: Domestic worker percentage per GN Division	62
Figure 63: Reason of regular cooking person	64
Figure 64: Reason of regular cleaning person	64
Figure 65: Reason of regular household shopping person	65
Figure 66: Reason of regular laundering clothes person	66
Figure 67: Reason of regular garden care person	66
Figure 68: Reason of regular child care person	67
Figure 69: Reason of regular waste management person	68
Figure 70: Reason of regular household chores person	68
Figure 71: Household work division between men and women	69
Figure 72: Household work division between men and women	71
Figure 73: Satisfaction about household work division	71
Figure 74: Satisfaction about household work division per sex of the respondent	71
Figure 75: Reason of household division rating	72
Figure 76: Reason of household division rating per sex of the respondent	73
Figure 77: Regular storage person of different waste types	75
Figure 78: Regular waste storage person	75
Figure 79: Regular waste disposal person	77
Figure 80: Household waste disposal person	77
Figure 81: Household waste person	76

# 1. Introduction

## 1.1 Municipal solid waste management challenges in the global South

Urbanization has increased worldwide in recent decades from 33.6% in 1960 to 54.9% in 2018 (United Nations, 2017). This rapid growth is particularly observable in less-developed regions. Asia and Africa are the least urbanized regions in the world, in stark comparison to Europe, North America, or Japan, where around 75% of countries are urbanized. This urbanization is expected to continue into the next century (UNESCO, 2010).

Urbanization enhances productivity, increases gross domestic product per capita, and has turned into a major source of economic strength (UNESCAP, 2013). Economic growth has improved people's living conditions, which has also affected their consumption behaviour. The result is that cities not only have to support more people, but also a higher per capita rate of consumption. Consequently, the production of waste has increased, particularly in urban areas of the global south. This means the removal and disposal of waste has become particularly problematic there (Bandara, 2011; Vidanaarachchi, Yuen, & Pilapitiya, 2006).

Solid waste management is defined by the OECD (Organization for Economic Co-operation and Development) as the following:

*“Solid waste management refers to the supervised handling of waste material from generation at the source through the recovery processes to disposal” (OECD, 1997).*

Solid waste management includes the whole cycle of waste, from waste generation through collection, treatment, and disposal until resource valorisation (Hoornweg & Bhada-Tata, 2012).

The improvement of solid waste management is necessary to reduce negative impacts on the environment, health, and social inequalities (Bandara, 2011; Marshall & Farahbakhsh, 2013). The problem of waste management is therefore part of a large number of the Sustainable Development Goals (SDGs) (ONU, 2016). First of all, waste generation increases with economic growth and urbanization in urban areas as explained above (Vidanaarachchi et al., 2006). This issue is related to SDG 12 (Sustainable Consumption and Production), which calls for a reduction of waste generation as well as sustainable resource management (ONU, 2016). The question of who collects, treats, and manages the garbage in developing countries may expose inequalities in terms of gender and other population-based separations, such as socio-economic class. The impact of this type of issue will be explained later on (Babaei et al., 2015). These inequalities are addressed by SDG 5 (Gender Equality) and SDG 10 (Reduced Inequalities) (ONU, 2016). Additionally, waste in developing countries is often burnt and openly dumped (Matter, Dietschi, & Zurbrügg, 2013). The burning of waste causes environmental impacts by emitting harmful gases in the air and soot into the

environment. Due to a severe scarcity of land, a large amount of waste is disposed of into areas with huge environmental value such as reservation areas, causing these areas to become threatened. Waste dumping in wetlands reduces flood retention capacity (Bandara, 2011). Currently, one of the biggest environmental issues faced by Asian countries is waste disposal. Open dumping also creates impacts such as emissions of greenhouse gases and other gases (Bandara, 2011). These environmental issues are mentioned in SDG 13 (Climate action), SDG 14 (Life below water) and SDG 15 (Life on land) (ONU, 2016). Reduced flood retention capacity due to waste dumping on wetlands contributes to flooding, causing damage to infrastructure and to the contamination of water sources (Bandara, 2011), referred to in SDG 6 (Clean water and sanitation) (ONU, 2016). The contamination of water combined with emissions in the air and the unpleasant smell of the waste contribute to human health problems and cause discomfort, which SDG 3 (Good health and well-being) aims to improve (Bandara, 2011; ONU, 2016). In most countries, solid waste management is the responsibility of the local government (Schübeler, Christen, & Wehrle, 1996). There is widespread consensus that the initiatives undertaken by the government require the participation of the local citizens to ensure the success of solid waste management. Without their participation, waste management technologies are difficult to implement (Bandara, 2011; Marshall & Farahbakhsh, 2013; Vidanaarachchi et al., 2006). That is the reason why partnerships between the government, society, and the private sector are part of SDG 17 (Partnerships for the goals) (ONU, 2016). In sum, many sustainable development goals aim to assist developing nations in implementing small changes that can lead to larger improvements in their waste management systems. By implementing and achieving a wide range of these goals, it can be shown how waste management influences daily life, and how important the improvement of waste management practices are to maintaining sustainable development.

Increasing waste generation is seen as a challenge in various cities throughout the world, but scientific literature has identified differences between developed countries and developing countries (Asase, Yanful, Mensah, Stanford, & Amponsah, 2009). One such difference can be identified in the process of waste generation: in general, the developed countries show a high per capita waste generation; while the developing countries have a low one (Figure 1) (Kaza, Yao, Bhada-Tata, & Van Woerden, 2018).

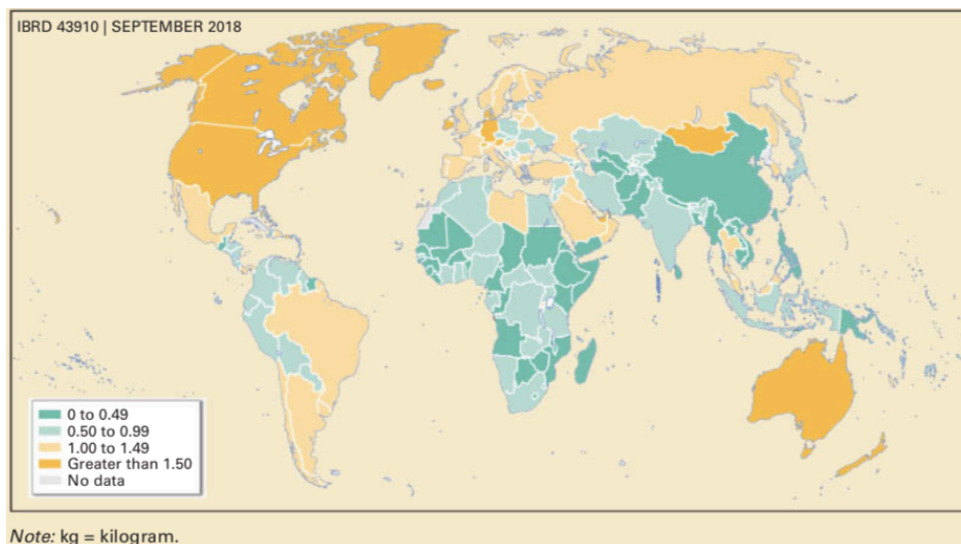


Figure 1: Waste generation per capita, (Kaza et al., 2018)



A second difference between developing and developed countries can be observed in their waste management approach. Integrated waste management approaches are well known and often applied in developed countries. Integrated waste management is an overall approach of managing waste in a socially, environmentally, and economically acceptable way. It integrates different treatments and takes into account the whole solid waste stream. This approach is recognized as leading waste management processes towards sustainability (Asase et al., 2009).

Third, financing solid waste management systems represents a crucial challenge, especially for lower-income countries as compared to higher-income countries. The difficulty is related to development and operational costs, which need to be taken into account upfront. Even if lower income countries spend less on waste operations, they have more difficulty in recovering these costs. The user fees in low-income countries average only \$35 per user per year, as compared to an average of \$170 per user year in high-income countries. This difference mainly represents the full system cost recovery being limited to high-income countries (Kaza et al., 2018).

In addition, the socio-economic, cultural, and institutional contexts in developing countries are specific and need a locally adapted solid waste management solution (Zurbrügg, 2018). Indeed, tradition and the socio-economic status of people separate the population into different social groups, where certain groups handle the waste and are affected by it compared to other groups, who remain more distant to waste management. These aspects will be further developed in the following chapters concerning the case study.

## 1.2 The Sri Lankan case

Sri Lanka, considered a newly industrialized nation, is facing the effects of their rapid urbanization and economic growth as described above (Bandara, 2011; Vidanaarachchi et al., 2006).

Local Authorities in Sri Lanka are mandated to remove and dispose of all the waste within the boundaries of their municipalities without causing any nuisance to the public (Fernando, Silva, & Véron, 2020; Vidanaarachchi et al., 2006). This means that the department of public health of the Local Authority (municipality) is responsible for solid waste collection and disposal in addition to their other responsibilities of health and sanitation. Unfortunately, not much funding is given to waste management, as it is considered a lesser priority than other public health matters (Bandara, 2011). Ultimately, only 3.15% of the total budget of Local Authorities (LAs) are allocated for municipal solid waste management (MSWM) (Visvanathan & Trankler, 2003). Of this limited funding, more than four-fifths is used for the collection and transportation of solid waste, leaving only a small amount of the budget available for the treatment and disposal of the waste (Visvanathan & Trankler, 2003). Even if the cost of waste management is covered by a property tax to the government in Sri Lanka, only 41% of the local households pay this tax (Vidanaarachchi et al., 2006).

In addition to the lack of sufficient financial resources (see quotation below), other factors which contribute to poor waste management include inadequate technical expertise and basic legal frameworks for municipal solid waste management (Fernando et al., 2020; Vidanaarachchi et al., 2006). The waste management authority of the Western Province formulated a five-year Action Plan for 2015-2020. This Action plan

included aims like improving the collection rate to 72% by 2020 from 61% in 2015, increasing the recycling rate up to 38% by 2020 from 17% in 2015 or increasing the recovery rate by compost and incineration up to 71% by 2020 from 14% in 2015 (Fernando et al., 2020). In 2008, a national program called 'Pilisar program' was introduced (Fernando et al., 2020). This program promotes the 3R approach. 3R means reduce, reuse, and recycle. This 3R approach includes educational programs on reducing waste production, reusing materials, and recycling. Other aims of the program include the introduction of a formal market for material reuse and recycling, and programs which will encourage the private sector to engage in recycling (Urban Council of Boralesgamuwa, 2018b). In 2016, a new governmental policy has been introduced. What exactly this policy's orientation is remains unclear, but according to the urban newspaper, the Colombo Gazette, it is a severe policy which requests from residents that their waste be segregated into organic waste, inorganic waste, and recyclable waste and that non-segregated waste be ignored by collectors (Fernando et al., 2020). In addition to the lack of specific laws or policies, only a few LAs make an effort to minimize waste generation because many of them have the intention of making compost manufacturing a profitable business, which encourages people produce more waste. Therefore, it is important for the country's legislature to focus more on developing a Municipal Solid Waste policy which addresses the issues of source segregation and reducing waste generation, as the 3R approach suggests. (Kuruppuge & Karunarathna, 2014) .

*"Municipal solid waste issues in Sri Lanka has reached a level of catastrophe in the country today primarily due to lack of public participation. The entire burden of solid waste handling has been left to Local Authorities most of which are incapable of handling the total amount of waste generated in its area due to financial and resource constraints." (Bandara, 2011, p.9)*

The success of an integrated solid waste management system relies on the attitudes and the willingness of the local citizens to adopt these practices (Bandara, 2011). Indeed, it has been recognized that waste systems that have ignored the social component have failed (Marshall & Farahbakhsh, 2013). The acceptance of the local population and their participation in the planning and implementation of waste management is necessary, and their collaboration increases their acceptance and their involvement in the waste management system. Their participation in the planning and implementation of good waste management is as important as its technical and economic aspects (Marshall & Farahbakhsh, 2013). Thus, the focus of this thesis is on the participation at the household level in Solid Waste Management.

Households are the primary source of municipal solid waste (MSW) in Sri Lanka (Bandara, 2011). Waste generation surveys in Sri Lanka indicates that more than 70% of households exceed 2kg of waste production per day (Warunasinghe & Yapa, 2016). The majority (57%) of the household waste in Sri Lanka is food and other organic waste, followed by 10% of paper and cardboard waste (Kaza et al., 2018).

The LAs, which are responsible for the collection of waste in the country, seem to have difficulties. A study on the willingness of residents to separate waste for collection and improvement of waste management in Sri Lanka (Madhushan & Fujiwara, 2011),

revealed that only 47% of the respondents have access to the current waste collection system in their living area (Madhushan & Fujiwara, 2011). There is a demand for household collection, but the LAs do not have sufficient capacity to handle this demand (Vidanaarachchi et al., 2006). Despite this lack of access to municipal waste management in Sri Lanka, informal waste management opportunities exist. Resource recovery is practiced in an informal manner for paper, glass, and metal. Informal workers collect the waste and sell it for recycling. These informal efforts are successful even in the countryside, where paper and glass are successfully recycled at high rates. However, this type of resource recovery is only successful with door to door collection, because there is a lack of community participation as previously mentioned (Bandara, 2011).

Regarding waste treatment, the most important part is the treatment of biological waste, because this represents the majority of the waste generated. Two types of biological waste treatments exist in Sri Lanka: anaerobic digestion<sup>1</sup> and composting (Bandara, 2011). Anaerobic digestion can be used to produce biogas as well as digestates, which are used in Sri Lanka (De Alwis, 2002; Thenabadu, Abevyweera, Jayasuriya, & Senanayae, 2015). Both treatments have been practiced, which signifies that the knowledge and the resources are available to carry out these methods. In contrast to the difficulties of implementing biogas production, the composting method is more popular due to its simplicity. However, the public protests against this method due to the mal-odour produced as the waste decomposes, and the contamination of water bodies has also recently decreased the success of this method. Hence, several agencies have been introduced which promote composting at the household level in affected areas. The results of these projects have shown that the participation of the citizens depends on four factors: first, participation is higher when citizens are property owners; second, those with a high income are less motivated to participate; third, participation increases proportionate to the area of the property that the landowner holds; and fourth, increasing the education level of the local populace increases the likelihood of successful implementation (Bandara, 2011).

Waste disposal is one of the biggest environmental issues in Sri Lanka (Bandara, 2011). The most common way of disposing of waste in Sri Lanka is open dumping (littering), which occurred 85% of the time in the state in 2003 (Visvanathan & Trankler, 2003). Other methods employed in the country and favored by the government are landfilling, incineration and waste composting (Fernando et al., 2020; Visvanathan & Trankler, 2003). Sri Lanka's first sanitary landfill<sup>2</sup> implementation, which was planned in 2009 in Dompe (situated in the east of Colombo, Western Province), was met with strong protest by the local citizens. Finally, it started functioning officially in 2015 (Fernandopulle, 2018). There are currently no prescribed standards for disposal of MSW in landfills in Sri Lanka, but these standards are urgently needed (Vidanaarachchi et al., 2006).

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<sup>1</sup> Anaerobic digestion is the process by which organic matter such as animal or food waste is broken down to produce biogas and biofertiliser. This process happens in the absence of oxygen in a sealed, oxygen-free tank called an anaerobic digester (Biogen, 2020)

<sup>2</sup> Sanitary landfills are sites where waste is isolated from the environment until it is safe. This method is a controlled disposal, introduced in England in 1912 (Fernandopulle, 2018)

Sri Lanka was chosen for this thesis for several reasons. First of all, population growth in the region combined with consumption increase generated more waste in recent years (Wijesekere, 2015). Waste management has therefore become a major challenge in Sri Lanka as an industrializing, middle income country with an emerging economy. Second, tourism is a contributing factor due to its waste generation and to its attendance of a clean city (Kaza et al., 2018). The evolution in Sri Lanka indicates an increase from 2007 where 494,008 tourists arrived to 2016 where 2,050,832 tourists arrived in Sri Lanka (Department of Census and Statistics -Sri Lanka, 2016; Vidanaarachchi et al., 2006). This increase might be due to the end of the civil war in 2009 (Thiranagama, 2011). The timely implantation of good waste management practices can help to maintain this growth in tourism long-term (Department of Census and Statistics -Sri Lanka, 2016; Vidanaarachchi et al., 2006). Finally, the media shed light on Sri Lanka and the collapse of the dumpsite in Meethotamulla in 2016, which destroyed local infrastructure and killed 28 people (Véron et al., 2018). This disaster emphasised the need for an improved waste management system (Kotelawala, 2017; Petley, 2017).

### 1.3 The Municipal Solid Waste Management of Colombo

Colombo is part of the Western province, which is one of eight provinces in Sri Lanka (Fig.2). The Western Province contributes more than 50% to the national GDP. Colombo is the political and economic capital of Sri Lanka and its biggest city in terms of population. Prosperity in the Western Province has improved living standards throughout the nation. More than 650,000 people who live in Colombo were born in other parts of the country (World Bank, 2008).

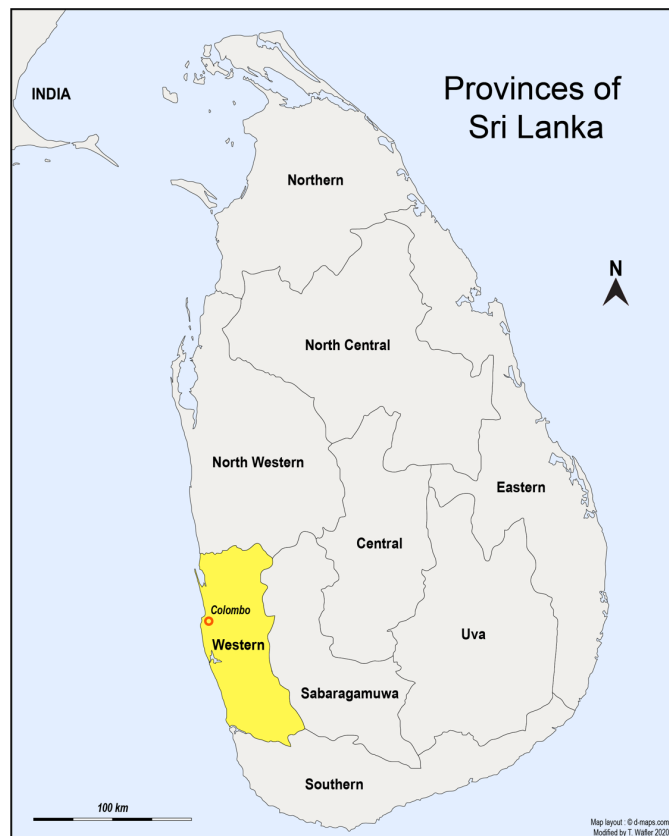


Figure 2: The provinces of Sri Lanka

Sri Lankans generate approximately 0.34kg of solid waste per capita per day on average (Kaza et al., 2018). This rate varies depending on the income level of citizens and on the degree of urbanization of settlements. Colombo, the commercial capital and most urbanized city is the largest producer of solid waste in Sri Lanka (Gunaruwan & Gunasekara, 2016). The population density and economic impact of the region illustrates the importance of analysing this urban area in-depth in this thesis. Compared to the other Municipalities in Sri Lanka where waste management is considered to be part of health and sanitation (as explained in chapter 1.2), Colombo has a separate Management Unit for solid waste (Bandara, 2011). This already illustrates a distinct difference when comparing Colombo to the other Municipalities, and provides a reason to analyse this urban area. To have a separate Management Unit shows there is governmental awareness of the importance of the waste management problem in the area.

Waste collection in Colombo is to 50% privatized (Visvanathan & Trankler, 2003). This means that the Colombo Municipal Corporation has engaged Burns Environmental Technologies (Pvt.) Limited (BETL) and Abans Environmental Services for waste collection. Thanks to these collection services the ratio of waste collected to waste generated ranges from approximately 93% in Colombo Municipal Council to as little as 5% in some of the smaller urban areas (Liyanaige, Gurusinghe, Herat, & Tateda, 2015). Thus, in some areas collection rates still remain very poor (Bandara, 2011). As already explained in chapter 1.2 the main reason for this is the lack of awareness among the community members in regard to collection practices and bringing waste to the centres. In areas with door to door collectors, collection is more successful (Bandara, 2011).

The issue of disposal explained in chapter 1.2 has been identified to be the most acute in the Colombo municipal area and the suburbs of Colombo (Bandara, 2011). Current waste disposal practices in and around the suburbs of Colombo have been revealed to be a danger to many ecologically valuable habitats such as the conservation areas of Attidiya and Muthurajewela wetlands, which are used for MSW dumping. Flood retention capacity is consequently reduced due to the MSW dumping, resulting in temporary floods and local groundwater contamination, which leads to health problems such as diarrhoea and other waterborne diseases as well as damage to properties and roads (Bandara, 2011). The effects of this waste disposal on the wetlands are particularly severe in the Western Province of Sri Lanka, and have caused ongoing pollution of potable ground water. Samanaraja & Bandara (2005) showed that the areas located within one km of landfills exceeded the standards set by the Central Environmental Authority (CEA) for inland water quality, especially with Pb, Cu, and Cr content. This indicates that there is considerable contamination of water by leachate (Bandara, 2011). This contamination was another reason to analyse this particular area in this thesis.

#### 1.4 Perceptions and social issues in waste management

Perception of waste can differ vastly between different social population groups. On one side, modern society describes itself as clean, elegant, beautiful, and tidy. However, modern society produces a large amount of waste, and their perception of waste is negative. This is the reason why waste is collected frequently in the city centre

and deposited far away from the centre (Moore, 2008). The poorer population of a city is more likely to be located closer to the areas where the waste is disposed of. The poor population is therefore associated with that negative perception of waste. They are often perceived as outsiders, and considered to be dirty, and dangerous. Thus, this segment of the population that lives near waste or treats waste is marginalized and linked to lower social status (Moore, 2008; Yates & Gutberlet, 2011).

On the other side, in the Global South, women, men, and even children depend on waste for their livelihoods. They collect, sort, and sell items of solid waste, which they depend on for survival. Many of the urban poor are involved in this recycling chain. For them, solid waste is not merely “rubbish”, but seen as a resource (Beall, 1997; Gutberlet, 2012).

Consequently, while waste is seen as a resource by some, it is seen as “rubbish” by others. The consequence of this opposing perception of waste is the marginalization of a part of the population as shown by a spatial and social segregation of those members of society closely associated with waste handling and waste management (Moore, 2008; Yates & Gutberlet, 2011).

As discussed above, people working with waste are often marginalised groups of ethnic or religious minorities as shown in Beall, (1997) with Christian minorities handling waste in Pakistan. In South Asia this cultural segregation can be identified by caste or class segregation (Beall, 1997). The caste system plays a large role in societal structuring in India and Nepal, and to a lesser degree as well in Sri Lanka. According to the caste system, people of the lower caste should occupy low-paying, low-status jobs. People of the lower caste are therefore more likely to work as agricultural labourers, clothing washers, or with waste, as compared to people in the higher caste who have many other options of occupation (Rao, 2010).

### 1.5 Gendered research gap and research questions

Social class and caste differences concerning waste as shown in chapter 1.4 (Beall, 1997; Gutberlet, 2012; Moore, 2008; Yates & Gutberlet, 2011) are also analysed in many other studies. Some examples include the following: income differences in waste composition and waste generation as well as on collection method types (Asnani, 2006, 2006; Kaza et al., 2018; Ragazzi, 2016; Troschinetz & Mihelcic, 2009); influences of income and age on recycling behaviour (Troschinetz & Mihelcic, 2009) and the impact of education on more environmentally friendly behaviour concerning waste (Kaza et al., 2018).

Only a few studies on the impact of gender in waste handling practices in South Asia have been conducted aside from the primary work by Beall (1997). First, Liang and Sharp (2016) analysed the knowledge of environmental impacts of e-waste disposal among different gender and age groups in China, Laos, and Thailand. The results indicated that female respondents were less knowledgeable about how to improve environmental conditions than male respondents in the three countries (Liang & Sharp, 2016). A second study conducted in Bhutan, Mongolia, and Nepal revealed that most men hold upper-level administration roles, from planners to landfill operators and managers of waste collection companies, while women are more involved in informal, household and neighbourhood activities related to waste (Ručevska, Seager, Schoolmeester, Gjerdi, & Westerveld, 2019). These activities, in comparison to men’s activities are

typically voluntary, unpaid or minimally compensated (Ručevska et al., 2019). And finally, Rahman (2019), analysed the gender division of labour for waste collectors in Bangladesh. Only a very few studies were conducted to analyse the gender dimension of waste management in South Asia at the household level. Three articles were found concerning waste management practices at the household level with an aspect on gender. The first (Abeyewickreme, Wickremasinghe, Karunatilake, Sommerfeld, & Axel, 2012) analysed the waste management's influence on dengue vectors. This research pointed out, that women do not only spend more time at home than men, but are also the key actors in solid waste management and cleaning of homesteads at the household level in Sri Lanka. The second, (Thirumarpan & Dilsath, 2016) examined the willingness of Sri Lankans to pay for improved waste management. This study showed that women are more willing to pay for improved solid waste management than men, since traditionally cleaning the house and waste disposal is women's role. The final article (Deyshappriya & Kumari, 2019) investigated the influence of the composition and behaviour of households on the recycling of e-waste. They pointed out that gender is the most crucial variable among the demographic variables to explain this behaviour<sup>3</sup>. In sum, the literature on the gender dimension of waste in South Asia at household level is limited to different aspects like dengue, payment for waste management and on one recycling waste type. Gender differences in household waste practices in Sri Lanka seems to be lacking.

Thus, the waste practices at the household level will be analysed in this thesis with a special focus on gender. This dimension has been chosen because of the lack of the literature mentioned before and because of the necessity of considering this issue has increased in recent years. Knowledge about these practices and their gendered dimension could also be useful for awareness programs or to increase local participation (in segregation at source, etc.). Further analysis on waste collectors will not be in a special focus, because the focus is on the household.

This leads to the following general research question: **In what way are household waste practices gendered?**

To answer this general research question some sub-questions are established:

1. How are different household chores, including waste management tasks, divided between men and women?
2. What are the gender-specific discourses on the division of household chores, including waste management? How do men and women explain their (unequal) involvement in household chores, including waste management?
3. What is the gender division of labour regarding different activities related to waste management?

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<sup>3</sup> Unfortunately, the author did not reveal whether women or men are more involved in recycling of e-waste.

## 2. Theoretical and conceptual framework

### 2.1 Existing literature on gendered household waste practices

Waste generation is most abundant at the household level, and men and women are the primary actors at this unit level. In this unit, the division of labour among men and women has to be analysed. This labour combines work conducted outside of home and housework. Traditionally, under capitalism, people require money for work. Therefore, when mentioning labour, people think of market labour, which is intended to make money (Surinya, 2000). In this way of thinking, housework is not considered to be labour, as it is unpaid. The definitions of housework vary (Surinya, 2000; Teerawichitchainan, 2008). Oates & McDonald (2006) use in their paper two different categorizations of household work of two different authors. Among these two categorizations, I chose the most relevant activities and added the waste management as household work activity, as they suggested. Using this system, seven activities make up the totality of housework: cleaning, cooking, household shopping, clothing maintenance, gardening, childcare, and waste management (Oates & McDonald, 2006). Housework is done for the care and maintenance of a home and its occupants. Globally, household division of labour may be unequal between men and women (Surinya, 2000). In general, this inequality is shown by the major contribution to household work being performed by women (Adebo & Ajewole, 2012; Attygalle et al., 2014; Obadina, 2016; Surinya, 2000; Teerawichitchainan, 2008; Vithanage, 2015), with the exception of garden work, where a study in New Zealand showed that this activity was done by both men and women (Tiwari, 2001). Different theoretical frameworks can help to explain this inequality; gender role ideology, exchange or resource perspective, equity theory, distributive justice and capability theory (Robeyns, 2016; Surinya, 2000). In the following sub-sections these theories are explained. Subsequently, the aspect of gender in waste management at the household level, the aspect of gender in waste management beyond the household, and finally the impacts of waste handling are examined and discussed.

#### 2.1.1 Gender role ideology

Men and women have different role attributions, which are usually influenced by cultural and societal beliefs (Obadina, 2016). In general, there are three main categories of roles: productive, reproductive, and community roles (Obadina, 2016). An established framework called “gender roles/responsibilities framework” was used for reference in this study, pulled from (Wickramasinghe, 2000) a book called “From Theory to Action: Women, Gender, and Development” categorizing the three different roles. This framework is presented in the following figure 3:



### Gender Roles/ Responsibilities Framework

Women	Men
<p><b>Women's productive roles and responsibilities</b> Include women's roles and responsibilities that yield economic remuneration whether for manual labour; professional labour; subsidiary activities; part-time work or casual labour etc.</p>	<p><b>Men's productive roles and responsibilities</b> Involve men's roles and responsibilities that yield economic remuneration whether for manual labour; professional labour; subsidiary activities; part-time work; casual labour etc.</p>
<p><b>Reproductive roles and responsibilities</b> Include women's roles and responsibilities within the household and family: inclusive of bearing, nurturing, rearing children; cooking; cleaning; washing; fetching water/ fuel-wood; marketing; caring for sick and the elderly, etc. <i>(Women are principally identified in relation to these roles and responsibilities).</i></p>	<p><b>Family roles and responsibilities</b> Involve the occasions and the degrees to those men who are involved in household/ family maintenance. Depending on the many variables of culture, community, geography and or area men might contribute in the provision of travelling; protection to the family; trifling household tasks, etc.</p>
<p><b>Community roles and responsibilities</b> Include women's role and responsibilities in the community: inclusive of maintaining kinship relations; religious activities; social interactions and ceremonies; communal sharing and caring activities; community survival strategies; etc.</p>	<p><b>Public roles and responsibilities</b> Involve men's public roles and responsibilities that are inclusive of their visibility in the public and powerful spheres- of politics; in decision making bodies; in 'status' building activities; in international forums, etc.</p>

Figure 3: Gender roles/Responsibilities Framework, (Wickramasinghe, 2000)

As seen in figure 3, men are mainly engaged in the productive and in the community roles, while women's burden is before anything else the reproductive role (Obadina, 2016). Households are mainly male headed, which means that the major source of income comes from the man in the household (Adebo & Ajewole, 2012). The role conceptualization in which males are often considered head of households is referred to as the gender division of work. A difference between the productive and the reproductive category can be found in their payment. The productive category is paid for their work and the reproductive category is not paid for theirs, and even requesting money for its completion (Obadina, 2016). Part of the cause of the difference in payment is that women tend to do more informal work, which means that their work is conducted in the household or neighbourhood (Ručevska et al., 2019). Compared to the productive role of men, the reproductive role includes child care and domestic tasks (Obadina, 2016).

Gender role ideology refers to the definition about what is female and what is male with a regard to marital and family roles that are traditionally linked to gender. According to this concept, the more conventional their gender ideology is, the more likely employed wives will perceive unequal division of household work as just, while the less conventional the ideology, the more likely the same division will be defined as unjust (Surinya, 2000).

Another study also refers to gender ideology. Gender roles refer to socially constructed gender roles, and housework is divided accordingly (Simulja, Wulandari, & Wulansari, 2014). This gender role ideology is also shared in another work which (Teerawichitchainan, 2008) explains further, that when men and women have more egalitarian attitudes, they tend to have more equal divisions of household tasks.

A study showed that within a household men and women have different responsibilities: furniture, electricity, and structural repairs are men's work while clothing maintenance and waste management are women's responsibility. Most men in these studies may believe that women are the primary care takers of homes (Adebo & Ajewole, 2012). A study conducted in Sri Lanka confirmed this belief, with a majority of men agreeing with the following statement:

*"Women's primary responsibility is taking care of the family and household."*

*A majority of interviewed men agreed with this statement in (Darj, Wijewardena, Lindmark, & Axemo, 2017)*

In an investigation of the way different genders view different household tasks, it was revealed that women and men view about one third of the tasks differently. Women consider baby care, laundry, and meal preparation especially good and important. In comparison, men feel better about auto work and yard work than women do. In general, individuals consider the chores that they perform higher in goodness and power. But in some cases, individuals do tasks out of choice or out of obligation, which influences their evaluation. Men are more likely to be doing the task out of choice compared to women who are more likely to do domestic work and child care out of obligation. However, in general even though women do more housework than their spouses, they are usually satisfied with the housework division, considering the division fair without noticing extra work. This tendency does not preclude that women may consider some tasks relatively unpleasant and disempowering. The difference in the way women and men view these tasks, may be explainable by gender differences in paid and unpaid work patterns and cultural expectations that hold women more accountable than men for housework (Kroska, 2003).

A Sri Lankan study about gender roles in society revealed that the role attributions reinforced through patriarchal values are still accepted, and therefore the structure of society consists of fixed roles for women and men (Darj et al., 2017). Sri Lankan history shows that regardless of ethnicity or religion, the traditional role of woman in the family circle has been central to their culture. Women are considered to be the reproducers and upholders of their traditions. Women made the decisions regarding household matters and men supported them by giving the family financial security. The patriarchal ideas about societal structure came through colonialization of Sri Lanka and started to change the roles of women (Vithanage, 2015). The idea of gender is linked to patriarchy, where a separation in roles of women and men are made in a society (Darj et al., 2017). These patriarchal structures did not question women's subordination, but amplified it as a pervasive feature of social structure (Ruwanpura, 2006). The values and traditions in Sri Lanka recognize the father as the head of the family, and he makes all of the decisions for the family. Despite the prevalence of masculine and feminine roles and patriarchal hierarchies, women in cities are more educated than their rural peers and therefore have a greater societal status and more independence (Darj et al., 2017). Sri Lanka has made a lot of effort to bridge the gap between men and women in regards to education in recent history, and according to a 2015 study (Vithanage, 2015) education is the only path for women to leave the backward moral ideas that have chained them in their traditional roles and to begin to move forward. But even with a good education, after marriage, most women stayed at home as housewives (Vithanage, 2015). This is

largely because Sri Lankan women's access to employment opportunities is weak: women's labour force participation rates at only 35.9% compared to 75.1% for men (Department of Census and Statistics, 2016; Jayasinghe, 2019). According to another study (Dissanayake, 2011), urban educated women have enough economic reasons to refrain from being employed until they find a good job (Dissanayake, 2011). One other study explained it by the role and responsibility framework above (Fig. 3). This division of labour places a "triple burden" on females created by productive responsibilities, reproductive responsibilities and social responsibilities. The unequal share of family and household responsibilities due to traditional domestic and social expectations are found to be the main reasons that hinder women's participation in the more productive role (Attygalle et al., 2014). Thanks to the recent push to facilitate to better education for women and gender awareness, a slow gender role transformation in the society can be seen where even the household responsibilities begin to be shared between the husband and wife (Dissanayake, 2011; Sikandar, Ahmad, Maqsood, & Maqsood, 2019). Furthermore, this results in an increase of women in the labour force (Sikandar et al., 2019).

### 2.1.2 Exchange or resource perspective

The exchange perspective is a view in which the division of household labour is the result of a bargaining process between husbands and wives. In this view, those with fewer resources will then perform more housework in exchange for access to their partner's resources. The power in this relationship structure comes from the resources, which can be earnings, income, status and education, or time availability (Surinya, 2000; Teerawichitchainan, 2008). This exchange perspective may refer to the productive category of gender ideology (Surinya, 2000). Time availability can be a part of the resources in the exchange perspective, or it may also be seen as a concept itself in two different studies. First, (Simulja et al., 2014) time availability was presented a concept in which the focus is time allocation. According to this concept, the amount of time spent in domestic labor depends on the available time for housework (Simulja et al., 2014). Time availability according to the next study (Teerawichitchainan, 2008) signifies that the division of household labour is a result of the time availability of a husband and wife. The spouse who is employed for less hours is expected to contribute more to housework, as they have the available time to contribute (Teerawichitchainan, 2008).

### 2.1.3 Equity theory and distributive justice theory

Equity theory defines the distribution of household work as a feeling of justice and fairness. Meaning that when the couple feels that they contribute the same amount as the relation, then justice exists. Justice signifies that the ratio of inputs to outcomes for one person is equal to the input/outcome ratio for the other (Surinya, 2000).

Distributive justice refers to the fairness of the allocation of resources among people in a relationship. In comparison to equity theory, distributive justice includes more than just the equity value of the system of justice. In this framework justice depends on three elements: outcome values, comparison referents and justifications because "need" is the dominant value for distributive justice compared to equity theory (Surinya, 2000).

#### 2.1.4 Capability theory

Another framework to explain the difference in the participation of men and women in household activities is provided by Amartya Sen and Martha Nussbaum (Robeyns, 2016). The capability of a person is an evaluation of his or her ability to be able to do and to be, whatever he or she would like. Capability includes “beings and doings”. Example for beings are to be well educated, well nourished, being illiterate or being part of a criminal network. Example for doings are caring for a child, voting, taking drugs or taking part in a debate. Not every human being has the same capability to be or to do what he or she would like to. The difference of their participation in household activities is rooted in their different capabilities (Nussbaum & Sen, 1993; Robeyns, 2016).

#### 2.1.5 Gender and waste practices at household level

At the household level, waste treatment is considered to be part of domestic chores (Beall, 1997). The waste treatment includes different practices at household level. Concerning the waste management practices that may be found in Sri Lanka some indications in studies indicate the following. As the majority of the waste generated is organic waste, biological treatment methods are the most commonly used waste disposal methods in Sri Lanka (Hewa & Madusanka, 2018). To consider how this is managed, the first consideration is regarding compost bin usage in the country. A study revealed that the compost technology is only understood to a small extent by the compost bin owners (Lekammudiyanse & Gunatilake, 2009). Another study in Sri Lanka showed that a problem of composting arises from the absence of source separation of waste. Household anaerobic digestion often involves poorly implanted processes which are based on bad designs, and these systems lead to poor results. To get a maximum use of these methods in terms of waste management, proper technical guidelines, regulations, and assistance by the government are necessary (Hewa & Madusanka, 2018). Although composting and anaerobic digestion are known methods in the country, they are found in a lesser degree in Colombo for several reasons. First of all, in urban areas the product of composting cannot be used as home-garden fertilizer, as there is not much space available for gardens. Second, the population rarely accepts mal-odour generated by composting (Bandara, 2011). Last, anaerobic digestion is culturally not well accepted in the country (De Alwis, 2002). Aside from composting, other commonly employed practices of waste management might include selling recycled items at household level, burning, open dumping, or participation in community waste collection. Informal waste selling of recycled items exists in the country and has been documented by Bandara (2011), therefore it can be imagined to be found in Colombo as well. Similarly, door to door collection has been shown a successful resource recovery technique in several studies (Bandara, 2011 ; Mohanty et al, 2014 ; Zia & Devadas, 2008). As shown by Matter et al., (2013) waste in developing countries is often burnt or openly dumped. These methods are anticipated to be found as well in Colombo as well due to their simplicity and lack of sufficient space to recycle (Boonrod et al., 2015 ; Sri Lanka, 2009).

All these different practices require different steps in waste management at household level. The role division concerning the waste management at household level specifically will now be examined.

Household work in general is devalued, and waste work brings with it its own heavy measure of stigma. If a household can delegate a household task, the first one will be the garbage work. This shows the dirtiness and negativity associated with waste (Beall, 1997). According to a gender stereotype survey, women are linked to dirt and disorder. Consequently, existing gender divisions of labour attribute the majority of dirty and demeaning tasks to women. Studies in Bangalore and Faisalabad showed that men never got involved in waste management tasks at the household level, because:

*“Men have one thousand tasks to do and they leave their houses early in the morning... this is petty selling and not a man's job”, said an interviewed man in Faisalabad in (Beall, 1997, p.79).*

Men do not want to be seen doing waste work in front of neighbours as it is considered demeaning. Thus, women do the waste tasks at the household level (Beall, 1997). In addition to the link of women to dirt and disorder, there is a current societal belief held by men that women stay home often and not only generate most of the waste, thus they should be responsible for its disposal (Adebo & Ajewole, 2012). This statement is underlined by another study which found that women have the sole responsibility of managing household waste with the help of their children, partly because they are the managers of the home and consequently they are the key generators of waste (Amugsi, Mwangi, Haregu, Aboderin, & Mberu, 2016). Another study took this concept even further by saying that the household maintenance is women's role, therefore she controls the consumption of the members of the household and by implication, the volume of waste generated in the household (Adewoyin, 2017; Tiwari, 2001).

But if women do not do the waste tasks at household level, then domestic workers or even children will do it. In spite of the societal declaration that waste handling is not a man's job, domestic workers can be men, because all men are not equal in society either. The division of waste tasks is therefore not only based on gender, but depends on the caste and class of people as well (Beall, 1997). Social differences are not only a consequence of gender, but they intersect with race, class, and ethnicity (Nightingale, 2011). Despite this aspect of intersectionality, this thesis focuses only on the impacts of gender in waste practices.

The major involvement of women in waste management can be identified in four types of marginalities. First, economic marginality, where men are the head of households and the owner of properties. Second, cognitive marginality, which refers to health awareness, hygiene knowledge and education. In reality, women collectors are considered having less health awareness and hygiene knowledge due to their lack of education. Third, decisive marginality refers to the decision making at household level, which is mostly done by men. Finally, the permissive marginality is about the decision of going out and/or take someone home. This decision is also in most cases done by men and women even need even to ask to go out (Rahman, 2019).

### 2.1.6 Gender and waste work outside the household

The household division of labour can also be represented by gender boundaries. Traditionally the household boundary was considered to be a gender boundary, but this has increased from the household to the municipality (Rahman, 2019). Women keeping their communities clean is merely an extension of their conventional domestic role (Ručevska et al., 2019). Thus, the roles which are played by women and men in the household can also affect the waste works further along in the process. In Haiti, for example, no woman is employed for garbage collection, because they work with trucks, where workers drive to load and unload the garbage. Women are believed to be more useful in roles as street sweepers due to their 'expertise' in sweeping compared to men. In South Africa a municipal authority even identified street cleaning as being the best job for women (Obadina, 2016). Women's conventional domestic role serves thereby the justification for excluding women from certain waste management jobs such as truck drivers or managers (Ručevska et al., 2019). When it comes to the difference between paid and unpaid waste management activities, the role difference between men and women is starkly visible: women tend to have subordinated status when it comes to paid work. This affects their access to, and control of, resources. and also exposed women to more health and environmental risks (Amugsi et al., 2016).

### 2.1.7 Impact of waste work

As women play the major role in waste management activities, by collecting, sorting out, recycling and treating for reuse, they are heavily impacted with health problems, because of the daily contact with toxic waste. This impact is especially high on dumpsites (Maclaren & Thu, 2003). At the household level some waste activities can also have a negative impact on health, like, for example, ones related to waste burning has or certain activities with broken glass. The handling of waste as explained above also has negative stigmas in society, does not generate income, and gives a low social status (Maclaren & Thu, 2003). Furthermore, women and men have different roles in society, and this implies a difference in their needs. It is often the women who are the most affected in the absence of basic amenities like water, good roads and energy as they are responsible for the reproductive role, which requires the use of these amenities (Obadina, 2016). Such challenges may be an extra burden for women and finally affect not only their productive roles, but also the whole household (Attygalle et al., 2014; Obadina, 2016).

In addition to these challenges due to the unequal share of family and household responsibilities, women have limited mobility, lack of access to finance and other invisible structural barriers varies from traditional customs, domestic and social expectations, which prevent them from taking the role of entrepreneur to improve the basic amenities they need (Attygalle et al., 2014).

In the case of waste management at household level the access to its collection or other its disposal activities may be considered as representing the same difficulties as an absence of other basic amenities like water or energy for cooking has.

But this major role concerning waste played by women at household level, informs as well about the willingness to pay for an improved solid waste management. In reality, women are more willing to pay for an improved solid waste management than men in Sri Lanka. This difference was related to the role difference between men and women

(Thirumarpan & Dilsath, 2016). In addition, women tend to express higher level of concerns for environment than men do (Vineeshiya & Mahees, 2017).

Women play the main role in household waste management practices as revealed a study conducted in New Zealand (Tiwari, 2001). Thus, initiatives should enable men and women as well to formulate and express their views and participate in decision-making concerning sustainable waste management (Tiwari, 2001).

## 2.2 Feminist Political Ecology

As solid waste management at household level is in the focus of this thesis, concepts and frameworks addressing the gender division of household activities alone are insufficient to address this issue. Thus, in this thesis the Feminist Political Ecology (FPE) is chosen as the theoretical framework. In the 1990s FPE appeared as a subfield of Political Ecology (PE) bringing feminist and Political Ecology together (Elmhirst, 2011; Rocheleau et al.; Sundberg, 2015). Feminist theory and perspective, objectives, and practices are in this way brought together with Political Ecology (Rocheleau et al., 1996; Sundberg, 2015).

Political Ecology is a theoretical and conceptual framework for the empirical study of socio-environmental problems. This means that the focus of this framework combines ecology and political economy concerns. The analysis encompasses changing society and land-based resources as well as changing classes in society (Blaikie & Brookfield, 2016). The aim of Political Ecology is defined as follows:

*“Political Ecology seeks to understand the complex relations between nature and society through a careful analysis of what one might call the forms of access and control over resources and their implications for environmental health and sustainable livelihoods.” (Sheppard, 2008,p.257-258)*

Feminist movements in the 1970s inspired researchers to begin to approach nature-society issues with a feminist sensibility (Sundberg, 2015). FPE opens the understanding of the nature-society relationship via a lens on differences in gender as well as class and ethnicity (Hovorka, 2006; Truelove, 2011a). Thus, FPE is useful for analysing everyday dimensions of resource inequalities which are produced and product of gender, class, or other social power relations (Truelove, 2011a). FPE focuses on the micro-level to highlight the specificity and complexity of men’s and women’s relationships to their environment in different contexts (Hovorka, 2006). In their analysis they extend the PE analysis to the household level to permit the examination of gendered relations of power at that level (Elmhirst, 2011). Indeed, Feminist theories shed light on the sphere of “everyday life” and labour within the “global household”, which was too often ignored in masculinist production analysis (Doshi, 2017). FPE brings into a single framework a feminist perspective combined with the analysis of ecological, economic, and political power relations. It does not simply add gender but builds on the analysis of identity and differences as well as of different meanings in relation to the complexity of sites of environmental struggle and change (Rocheleau et al., 1996; Truelove, 2011a).

While some believe that the gendered experience of environment is a difference rooted in biology, Feminist Political Ecology suggests that:

*“there are real, not imagined, gender differences in experiences of, responsibilities for, and interests in “nature” and environments, but that these differences are not rooted in biology per se. Rather, they derive from the social interpretation of biology and social constructs of gender; which vary by culture, class, race, and place and are subject to individual and social change.” (Rocheleau et al., 1996, p.3)*

Sex refers to biological differences between males and females according to their physiology and reproductive capabilities or potentialities. Gender, as compared to sex, does not refer to biology. Gender refers to social, economic, political, and cultural attributes associated with being woman or man. What it means to be women or men vary depending on culture, economic relations, ecologically based struggles, and change over time and scale. Gender is therefore an expression of particular characteristics and roles assigned to people with reference to their sex (Hovorka, 2006; Jhpiego, 2018).

This thesis aims to examine these “constructs of gender” in the specific urban context of Sri Lanka. In the FPE approach gender is a critical variable, because it interacts with class, caste, race, culture, and ethnicity in processes of access or control to or over resources and the knowledge of natural resources as well as in the fight for sustainable livelihoods (Agostino, 2018; Rocheleau et al., 1996; Sundberg, 2015). This approach seeks to understand and interpret local experiences of which this case study shows an example. FPE analysis questions rights over property and resource management as well as responsibilities.

Rights, either legal or by custom, define the access to resources and influence gender diversities. Often, women’s rights are embedded within rights controlled by men. Gendered uses of resources that result from this are part of the FPE analysis. Gender division into public and private spaces where women’s domain is the private one can be recognized spatially. But the strength and visibility of those differences vary by culture. Furthermore, all kinds of knowledge have to be examined and taken into account in FPE approach (Rocheleau et al., 1996). The importance of their recognition is explained by the ignorance of essential feminist knowledge based on experiences, responsibilities, and their daily practices (Rocheleau et al., 1996; Sundberg, 2015). For example, women have unique skills and knowledge in relation to the kitchen, as it is their domain (Sundberg, 2015). FPE demonstrates the construction of social identities through relations with nature and everyday practices (Sundberg, 2015; Truelove, 2011b). For feminist geographers “home” or “household” are central sites of analysis, because it’s the place where the relations between human and the natural environment are formed, negotiated, and challenged (Shillington, 2008). The traditional role of women in the domestic sphere results in gendered perceptions and experiences. This perspective of environment differs from that which is considered the norm. According to the patriarchal model the household sphere is the place of women, whereas men are the heads of households and major decision-makers (Rocheleau et al., 1996). This ideology creates gendered access to information, knowledge, and resources, and separates responsibilities. Women’s work in this model is therefore devaluated. Whatever the cause of gendered social structures, the outcome is an uneven relation of power which



characteristically disadvantages women (Rocheleau et al., 1996). Feminist Political Ecology highlights the complex (re)negotiation of gender roles, responsibilities, spaces, and environmental interactions that take place at the local level (Hovorka, 2006). Furthermore, FPE treats gender as a critical variable in shaping resource access and control, which interacts with class, caste, race, culture and ethnicity (Heynen, 2018).

An example for a woman's work is given (Truelove, 2011b) in a paper about feminist political ecology in India, where women usually carry out the water retrieval practices to ensure the needs of the household. The responsibility to gain and manage water for the household leads to access water. Accessing water represents a real danger for certain social groups like women in some countries, including India. Indeed, there is a socio-spatial division of spaces, which excludes or includes certain social groups. Such exclusions and experiences, particularly by women, are causes of stress and anxiety (Truelove, 2011b, 2019).

Rapid urbanisation in Botswana caused significant changes in settlement patterns and population distributions as result. Such rural-urban transformations over the globe have led to the call for an Urban Political Ecology. The research conducted by Hovorka (2006) claims to be the answer of Rocheleau's call for a future work on gendered urban environments, which complements Freidberg's challenge to the rural bias of political ecology. Such researches fills the research gap of political ecologists in urban agriculture and gives the opportunity to examine the gender relations in this specific context (Hovorka, 2006). Indeed, Urban Political Ecology shifted from its predominantly rural focus to cities (Truelove, 2011b; Tzaninis, Mandler, Kaika, & Keil, 2020). While for a long time, different ideas and logical processes sounded like UPE, it was in 1996 that Erik Swyngedouw named "urban political ecology" as such. Swyngedouw's words to explain UPE were the following (Heynen, 2017):

*"In the city, society and nature, representation and being are inseparable, integral to each other, infinitely bound-up, yet simultaneously this hybrid socio-natural "thing" called the city is full of contradictions, tensions and conflicts ... Only over the past few years, a rapprochement has begun to assert itself between ecological thinking, political-economy, urban studies and critical social and cultural theory. This may provide the ferment from which a new and richer urban ecology or urban political-ecology may germinate." (Swyngedouw, 1996, p.65–66)*

UPE is the answer of Lefebvre's call for an "urban science for an urban world". The lack of attention given to the contribution of social power relations is given by UPE. UPE focuses on the way social power relations contribute to uneven development, especially focusing on how political and cultural economy shape and are shaped by urban environments. In this sense, topics like access to water, food, and green space within uneven matrices of class, race, gender, age, and physical ability are part of UPE's investigations (Heynen, 2017).

Feminist Urban Political Ecology gives an appropriate framework to address gendered household waste practices. First, because waste management is a variable which is a nature-society issue. Indeed, solid waste management is one of the most pressing

environmental problems, faced especially in the global south. But solid waste is not simply an environmental issue, it is in many ways highly political (Cornea, Véron, & Zimmer, 2017). The household level is of high interest not only because this is the source of most of the waste generated in Sri Lanka, but also because at this level, the relations between human and the environment are formed, negotiated, and challenged (Shillington, 2008). At this same level the first decisions concerning the management of waste generated by the household are also made. Thus, decision-makers at that level are interesting people to interview. Literature shows that women are often deal with household waste and that men are the head of the household and decision makers (Darj et al., 2017; Maclaren & Thu, 2003). As presented by one source (Truelove, 2011b), when foraging for the water for their households, women struggle with their obligation of being responsible for the water needs of the family, because the access to this resource is difficult for females to obtain. In the case of waste, Sri Lanka struggles to conduct proper waste management. Thus, lacking collection options or with irregular access to services, waste management may also represent a challenge for the women of Sri Lanka. As women are usually taking care of the waste management at household level, their work burden increases with a difficult waste management situation (Bandara, 2011; Truelove, 2011b; Vidanaarachchi et al., 2006). Such challenges require more time and involvement from women to be solved. The large amount of household labour required to achieve this holds women back from entering into in their productive role. Furthermore, waste work is dirty and can be dangerous in cases where waste is burnt or broken (Maclaren & Thu, 2003; Moore, 2008; Yates & Gutberlet, 2011, 2011).

### 2.3 Main concepts mobilized

Feminist Urban Political Ecology permits to the analysis of waste as a socio-environmental problem (Blaikie & Brookfield, 2016). This framework provides the possibility to understand nature-society via a lens of differences in gender (Hovorka, 2006; Truelove, 2011b). Thus, the concept of gender will be mobilized through this work (Hovorka, 2006). This concept will be analysed in the sphere of everyday life, at home. This is a space where gendered urban spaces can be analysed thanks to FUPE (Doshi, 2017; Heynen, 2018; Shillington, 2008). The analyses of gender at the household level concerning waste management aims to reveal social power relations, which contribute to uneven development (Heynen, 2017). Furthermore, FUPE gives the framework to analyse gendered differences in experience, responsibility, and interest concerning waste management influence on the environment (Rocheleau et al., 1996). At the household level, waste management is considered to be part of domestic chores. These were defined by (Oates & McDonald, 2006). The different roles and responsibilities of women and men are represented in the works by multiple different authors who previously explored such concepts (Obadina, 2016; Wickramasinghe, 2000). This concept is used to some extent in this work: the reproductive role is in the centre of the analysis, because it consists of household level activities. Moreover, the productive role is analysed with education and employment. Education is an important point, because it seems to be the path for women to change stereotypes (Sikandar et al., 2019; Vithanage, 2015). To explain the gendered differences, some specific concepts will be discussed. The gender role concept, capabilities, exchange perspective concept, and time availabilities will be important concepts to investigate (Nussbaum & Sen, 1993; Robeyns, 2016; Simulja et al., 2014; Surinya, 2000; Teerawichitchainan, 2008). Other

explaining concepts like equity theory, distributive justice<sup>4</sup> and the four marginalities<sup>5</sup> will not be utilized for this research.

## 2.4 Hypotheses

### 1. How are household chores, including waste management, divided between men and women?

Concerning this first hypothesis, the literature suggests that an unequal division of household work will be found (Surinya, 2000). Several studies revealed, that most of the household tasks of interest are fulfilled by women (Adebo & Ajewole, 2012; Attygalle et al., 2014; Obadina, 2016; Surinya, 2000; Teerawichitchainan, 2008; Vithanage, 2015) except for gardening (Tiwari, 2001).

### 2. What are the gender-specific discourses on the division of household chores, including waste management? How do men and women explain their (unequal) involvement in household chores, including waste management?

To answer this second hypothesis, several concepts and frameworks of explanation are found in multiple studies. The involvement can be explained by the gender role ideology. This ideology attributes productive, reproductive, and community roles and responsibilities to women and men. The reproductive role is principally attributed to women, while the productive role is more often attributed to men. These roles are kept through traditions and reinforced through colonialism (Adebo & Ajewole, 2012; Darj et al., 2017; Obadina, 2016; Wickramasinghe, 2000). This leads to the cultural belief of men that women stay home often, and women are therefore responsible for waste disposal (Adebo & Ajewole, 2012; Amugsi et al., 2016). Another way how the different involvement of women and men is explained is the time availability, which says that the less the person is employed, more she or he does the housework (Teerawichitchainan, 2008). The concept of capabilities provides factors of different capabilities between men and women. In the case of household chores, this might be knowledge differences or physical capacity differences (Nussbaum & Sen, 1993; Robeyns, 2016). All of these explanations might be found in the discourses in Colombo, but the main discourse anticipated to contribute to differences in distribution of tasks is the gender role ideology. This way of explaining things seems to be most strongly anchored in local history by traditions and reinforced by colonialism.

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<sup>4</sup> Equity theory and distributive justice are not used in this thesis, because they require in-depth surveys, where more psychological insights are provided.

<sup>5</sup>The four marginalities are not used in this thesis, because they include a wider analysis of the whole household decisions and beyond, whereas this work focuses on the domestic chores only.

**3. What is the gender division of labour regarding different activities related to waste management?**

Specific literature about the gender division of specific waste activities in Sri Lanka is missing. The existing literature suggests that the major role is played by women (Thirumarpan & Dilsath, 2016; Tiwari, 2001). Thus, an uneven division of labour is anticipated to be found in Colombo.

## 3. Methodology

This chapter is composed of four sections. The first part explains the different methods employed for the data collection of this thesis. The second explains the sampling methods used in the field. The third explains the method of analysis of the collected data. The fourth section describes the methodological challenges and limitations of the study.

The field work for this thesis was conducted from the 11<sup>th</sup> of January to the 11<sup>th</sup> of March in 2019. During this period of data collection, an iterative method was followed, allowing a continuous restructuring of the problem and periodic of adaptation of the questionnaire.

### 3.1 Methods of data collection

For this research two different methods were employed: questionnaire and direct observation. The combination of these two methods was chosen in order to address each dimension of the specific research questions adequately and to complement each other's lacks.

#### 3.1.1 Household questionnaire

For the collection of information about the specific research questions, a questionnaire was employed. The chosen type of questionnaire contained quantitative aspects as well as qualitative aspects. The questionnaire included open-ended and closed questions. The aim of the qualitative part was to assess tendencies, opinions and practices (Guerrin & Ferrari, 2016), whereas the quantitative part aimed to measure these practices (Apuke, 2017). All questionnaires were conducted using the physical presence of the researcher (McGuirk & O'Neill, 2016 ; Steckler et al. , 1992).

The qualitative questionnaire aims to answer the question "why", whereas the quantitative part aims to answer the question "who" (Apuke, 2017) . Some data confirm and provide information regarding the hypothesis; other data added new ideas, reasons, or further information beyond the scope of our original hypothesis.

The open questions allowed the interviewee to answer whatever they felt like. This option gave the possibility to gain new information, particularly about the reasoning behind household decisions. In every questionnaire the same questions were asked, which allows for comparison. This method also enabled the display of trends in phenomena of practices and opinions (Guerrin & Ferrari, 2016; Northeastern University, 2002).

##### 3.1.1.1 Interviewees

#### Household questionnaire

The household questionnaire was the most important questionnaire (Appendix 1) of this thesis, because the research question was asked on a household level. A total of 51 household members were interviewed, including 11 households where a man and a

woman from the same household were interviewed. The description of the sample is in chapter 5.1.

### **Household couple questionnaire**

After each household questionnaire the interviewer asked if a person of the other gender than interviewed, with a preference for the husband or wife of the interviewed, would be motivated and available to do the same questionnaire. As noted previously, this was achieved for 11 households. After both genders completed the surveys, their answers were analysed to determine if there was a significant difference between their responses. In the three cases where the answers diverged significantly, a new questionnaire composed of the questions with the divergent answers was developed. The aim of this new questionnaire was to confront both people at the same time, which means both were present at the time the survey was conducted, with these specifically chosen questions to discover how they react when presented with their different point of views. Contrary to the expectations of the reactions at that moment, husband and wife were not discussing, negotiating, or showing any kind of reaction concerning their divergent or even contrary answer concerning the same household. In front of the questions, they answered both one after another (sometimes first the women, sometimes first the man) different answers, without reacting on this difference. Through the observation, even no domination of one could be identified. Although three households did complete these secondary surveys, the results did not provide any additional information that was of use for further analysis, so the results are not included in the final discussion, and it will focus on the results of the preliminary round of surveys instead.

### **Domestic worker questionnaire**

Waste management is part of the household tasks. It was considered that in households where domestic workers are employed, it might be useful to also investigate the household worker for their opinions concerning tasks. Throughout their work they need to know the best methods to employ, how they conduct their duties, and why. The domestic worker questionnaire is functionally the same as the household questionnaire. Unfortunately, only one domestic worker could be interviewed for this thesis. The low number of respondents interviewed was due to two reasons: first, it was the only time, where a domestic worker was present during our visits; and second, women and men of the household were preferred for an interview over domestic workers.

### **3.1.2 Semi-structured interviews**

The method of semi-structured interviews was employed for the interviews with the waste collectors. This method combines prepared questions as well as questions that arise during the interview. To use this method, interviewers generally use an interview guide, which includes a list of topics and specific questions about this topic. This method aims to gather systematic information about some central topics, while allowing some exploration when new issues or topics emerge (Bird, 2016; Wilson, 2014).

### 3.1.2.1 Interviewees

#### **Formal waste collectors**

This thesis focuses on the household level which has two sides: the point of view of the homeowner, and the point of view of the waste collectors. In Sri Lanka, there are two ways that a homeowner may conduct waste disposal – through formal routes, or informal routes. It was essential to interrogate both of the types of waste management provisioners in order to see what their point of view is concerning household waste management.

First assessed was the formal waste collection system of the Urban Council, where five collectors could be interviewed (Appendix 2). All of them were men, as there were no women waste collectors. All were aged between 30 and 40 years old, except one who was 48. They were working for the UC between 1 and 10 years, which promises heterogenous answers. They all worked in the sampling area. In this interview the main topics were the tendencies of the Urban Council; which means of what tasks does their job consist, in which area do they collect, and if anything about their job has changed in the past years; and the relation with the household, which means the waste type collected and the attitudes the collectors have towards the households and their difficulties.

#### **Supervisor of waste collection of Boralessgamuwa**

The supervisor of the formal waste collection place chosen consented to be interviewed as well, so data about their opinions and observations was also collected. The purpose of this questionnaire was to get a better understanding of the rules and policies implemented, as well as to better understand the context of these policies.

#### **Informal waste collectors**

Second assessed was the informal waste collection system in Sri Lanka. An additional consideration during this assessment was the interaction between this informal system and the formal system of waste collection, intended to better understand the complete functioning of the household waste management system. Five informal collectors were interviewed with a specific informal waste collector questionnaire (Appendix 3). Four male waste collectors and one female waste collector participated. Four of the five respondents were between 30 and 40 years old, and one was 62 years old. None of them indicated to be Samurdhi-card holder, whereas all of them were waste collectors as a full-time profession. This may indicate that these collectors gain enough money through their profession to survive, that they are not aware of the Samurdhi program, or that they are not willing to ask for help. These interviews were principally asked about the topics of their waste collections work and their relations to the households. This includes questions asking about when they collect, where they go, if they have any rivalries or how they reach the households, if they pay, what they expect of the households, and what kind of difficulties they face.

### 3.1.3 Direct observation

This method was employed as a complementary method to the interpretation of the questionnaires (Northeastern University, 2002; Stoddard, 1982). It is complementary because this method emphasizes the results of the household questionnaires, allowing observing researchers to discover details of participant's practices and providing

additional context. The data gained was collected in the “natural” environment of the participant, and allowed the researcher to observe the natural practices and behaviours of the participants (Giroux & Tremblay, 2002). To ensure the most detailed data capture, direct observation was conducted for this thesis, as this type of observation enables the detection of non-official practices in addition to banal behaviours (Arborio, Fournier, & De Singly, 2015). This necessitates the researcher to visually observe the practices when they occur in the streets and in the interviewed houses as much as possible (observation of the storage and disposal method in the households). By noting or photographically documenting the observation it can be registered for further analysis (Northeastern University, 2002; Stoddard, 1982). For these observation periods an observation grid (Appendix 4) was prepared in order to note only the information which relates to the hypothesis of this work (Giroux & Tremblay, 2002).

The decision about the observation period resulted from the answers of the household questionnaires. This questionnaire asked when (day and hour) the formal and informal waste collectors come, and when the homeowners perform the waste management tasks of their household. The days and hours of the majority was calculated for the both sub-regions, Egodawatta and Bodhirajapura, chosen in Boralesgamuwa (see chapter 3.2 for further information about the choice of the sampling places). The calculation resulted in Monday, Thursday, and Saturday for Egodawatta and Monday and Wednesday for Bodhirajapura. Based on this information, four observation mornings were conducted in Egodawatta, two Saturdays, one Thursday and one Monday. In Bodhirajapura, two observations were conducted, one on Monday morning and one on Wednesday morning.

### 3.2 Sampling Method

The aim of a mixed qualitative and quantitative research method is, in general, to provide as much insight as possible about a specific place in order to construct a robust view about the local waste practices. To reach this aim, it is important to choose a region which offers a mix of defined criteria. The data gathered will not provide for a representative survey of the Colombo area, because the resources allocated for this research are limited. To find a suitable place for this research a heterogeneous purposive sampling method was employed (Crossman, 2019). This method is one of the most commonly employed strategies to select areas according to preselected criteria relevant to a research question. In this case, this method was used to choose the best area which included a mix respondents with variation in the following factors of interest: income, education, age, and gender. Furthermore, the area needed to be residential, as the topic of this research is concerning household waste, and the area needed to be accessible for the researcher with a population likely willing to participate in research (Northeastern University, 2002). This method is not free from bias, because it is not only based on the criteria input by the researcher but also on the recommendation of a local expert. Undoubtedly, the need to use expert opinion was essential, because specific data was lacking to rely on (Tongco, 2007). Finally, throughout a conversation with a local expert, Hemanthi Gunasekara, who is the director of the Sri Lankan institute of local government (SLLIG), about the different areas in Colombo and the defined criteria the Urban Council (UC) of Boralesgamuwa was chosen as the research site.



Inside Boralesgamuwa, the first sampling step was to choose a specific zone or zones in Boralesgamuwa. The main interest of this research was to analyse the behaviour concerning waste. This behaviour tends to vary dependent of income, as shown by Jha et al., (2011) where the low income members of the population suffer the most, as they often do not have access to the same facilities as wealthier people. Furthermore, wealthy residents have the opportunity to use a part of their income to avoid direct exposure to environmental issues. Noorman & Uiterkamp (2014) explain that high-income households exhibit higher consumption patterns than low-income households. In sum, the income indicator is an important indicator which draws a realistic picture about waste practices in Boralesgamuwa. The only local household income data which was available was the number of Samurdhi<sup>6</sup> holders per Gramasewaka Niladhari (GN)<sup>7</sup> division. Indeed, the Samurdhi allocation has a biased factor, therefore I established a “Samurdhi test”, which is applied for each participant who receives Samurdhi. This test enabled the verification of the Samurdhi reception, and therefore assisted in avoiding this bias (Appendix 1: Household Survey : last question).

The Urban Council of Boralesgamuwa has 18 (GN) Divisions (Fig.4). Figure 5 shows the Samurdhi data with the two selected GN Divisions according to their Samurdhi-card holders percent difference: Bodhirajapura and Egodawatta, which were selected because the former contained the highest and the latter lowest percentage of Samurdhi-card holders. These two divisions chosen for the surveys are also the two areas where the UC has been piloting new projects for the same economic reason.

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<sup>6</sup> The Samurdhi (or Prosperity) Programm was launched in 1995 with the main goal to reduce poverty in Sri Lanka through development based on public participation. The program has three major components: The first and largest one is food stamps. The second is a savings and credit program and the third is a community infrastructure program. Nowadays it is known that the eligibility to get Samurdhi support is partly biased by ethnic or political membership affiliation (Irigoyen, 2017; Narayan & Petesch, 2009)

<sup>7</sup> Gramasewaka Niladhari (GN) is an administrative subdivision of the Urban Council (Ministry of Internal and Home Affairs and Provincial councils and Local Government of Sri Lanka, 2019)

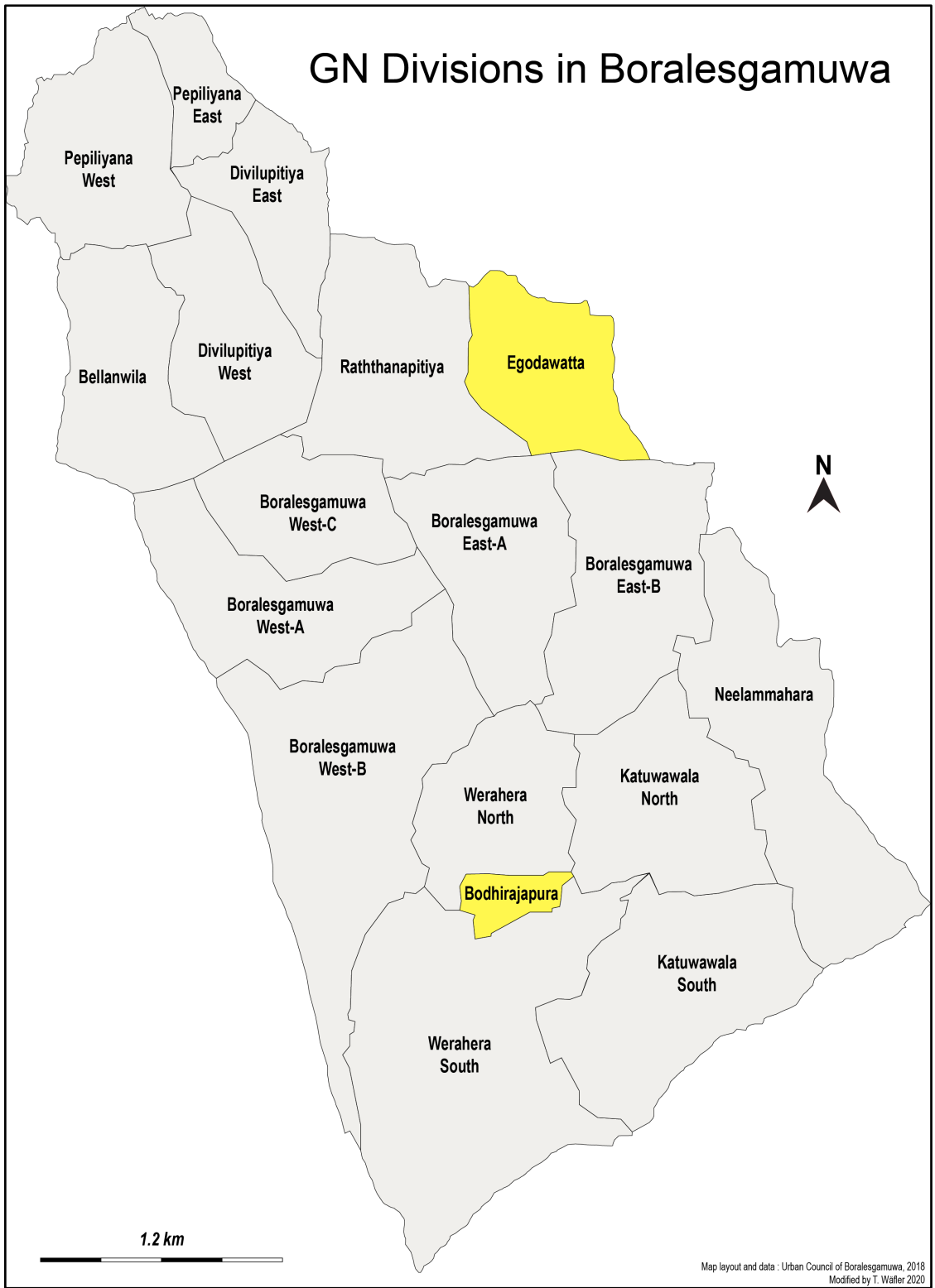


Figure 4: Map with GN Division indication of Boralessgamuwa

Urban Council - Boralesgamuwa				
No:	Name of the Gramasewaka Niladhari (GN)Division	Number Samurdhi of households	Number of households	% of Samurdhi
1	Werahara North	36	525	7
2	Bellanwila	76	899	8
3	Boralesgamuwa West C	18	397	5
4	Bodhirajapura	172	610	28
5	Werahara South	120	1367	9
6	Boralesgamuwa East B	89	1365	7
7	Diwulapitiya West	77	695	11
8	Diwulapitiya East	69	616	11
9	Egodawatta	24	872	3
10	Boralesgamuwa East A	80	1271	6
11	Boraleagamuwa west B	55	745	7
12	Papiliyana West	66	1322	5
13	Raththanapitiya	87	1251	7
14	Boralesgamuwa West A	50	1173	4
14	Papiliyana East	57	470	12
16	Nilammarahara	51	885	6
17	Katuwawala North	29	973	3
18	Katuwawala South	19	398	5

Figure 5 : Samurdhi data of the Urban Council of Boralesgamuwa, (Urban Council of Boralesgamuwa, 2018a)

The second sampling step consisted of choosing which households were asked to participate in the questionnaire. Without any access to a list of addresses of homeowners or other data concerning the population of the two selected areas, a random sampling method which requires a list of the people could not be carried out. Because of this, the sampling design was separated into two steps. First, the streets were selected using a mixed method of random sampling and criteria-based sampling, also called purposive sampling. Based on Google Maps, the two GN-Divisions are shown in figure 6 and 7 (red circles).

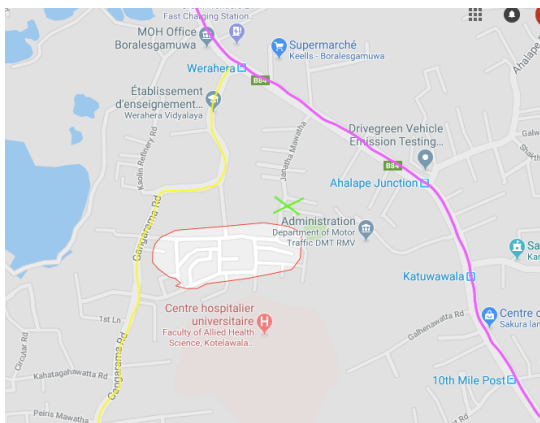


Figure 6 : Bodhirajapura (red circle)



Figure 7 : Egodawatta (red circle)

pink : biggest road in Boralesgamuwa, yellow : first annexe road to the biggest one, (Google Maps, 2019)

The choice of the streets was based on the “moving away from the main road” criteria. The smaller the road is, the worse the access for the collection service is likely to be (Zapata Campos & Zapata, 2014). That is why this criterion influenced the street choice. During data collection, certain transects needed to be added, as the other parts were already done. Additional roads were randomly selected and added to complete the final sampling area used for the thesis (Figure 8 and 9). This was because the roads on Google maps roads did not always match with the on the ground reality. One of these cases was in Egodawatta where there were newly discovered transects (Figure 9: the grey and pink part).

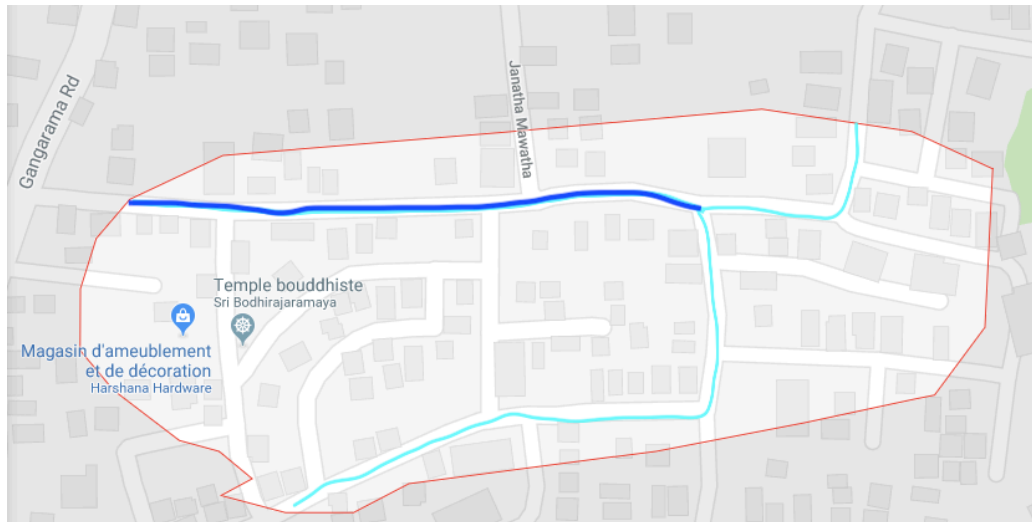


Figure 8: Sampling area of Bodhirajapura ; light blue: transect which moves away from the main road, dark blue : second transect added from East to West (Google Maps, 2019)

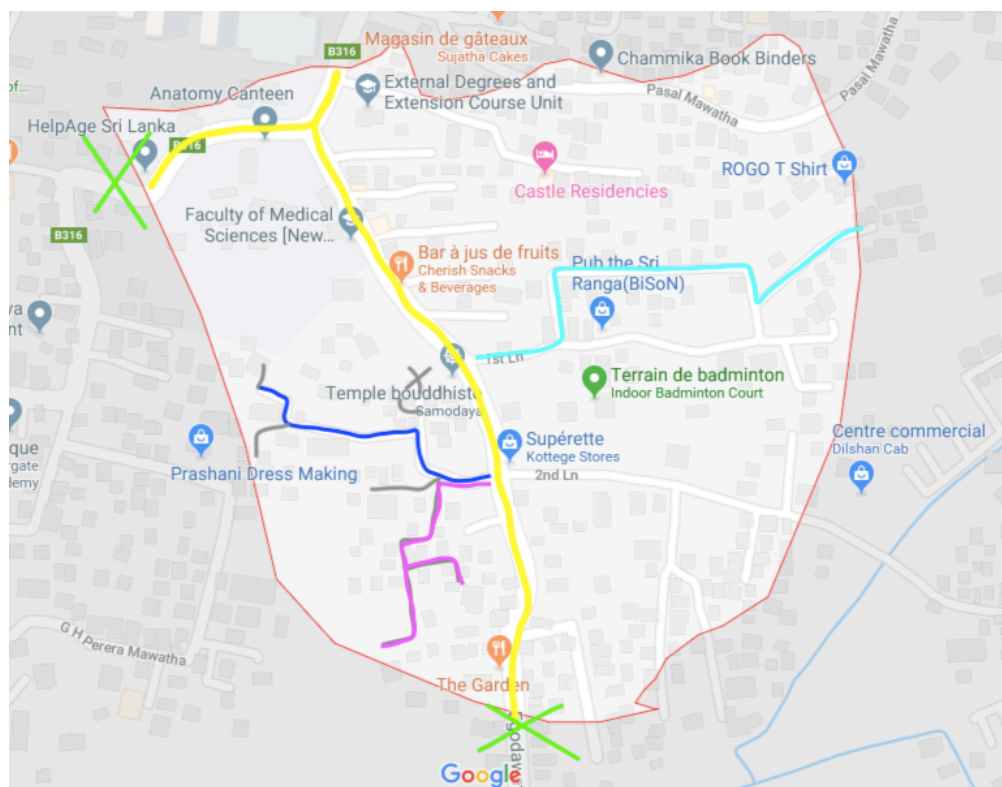


Figure 9: Sampling area of Egodawatta ; yellow : first annex road to the main road, green crosses : access to the biggest road of Boralesgamuwa, blue : transect chosen from West to East leaving the first annex road, dark blue : second chosen transect but not realized, pink : second transect discovered and chosen

The second step consisted of choosing the household to ask to participate in the questionnaire. The systematic sampling method was the best for this step. Systematic sampling, as its name suggests, has a systematic part which consists of choosing subjects systematically with the same interval such that the samples are dispersed among the total population and sampling area (KhanAcademy, 2020). This systematic system assisted in the reduction of bias introduced by the researcher, because the interval is defined before going into field. In this way, the researcher had no influence on the decision of the household. This method is often used by researchers due to its simplicity and its quality (Explorable, 2009; Hayes, 2019). Furthermore, this method assures an evenly sampled population (Explorable, 2009). The interval of three was chosen for the household survey sampling method. When the surveys were conducted, on the chosen transect (sampling street), the count to three was done before knocking on the resulting door to ask for participation in the questionnaire, and this was repeated until the end of the street.

### 3.3 Method of analysis

The household questionnaire included open questions as well as closed questions. Depending on the question type, the method of analysis was adapted to allow for interpretation of the data provided. This resulted in the use of different methods of analysis.

For the open questions, which allowed to the interviewee to answer however they felt, the data were analysed by content analysis. This analyses permits the creation of groups that bring together the answers which are the most similar in content (Mucchielli, 1994).

The closed questions were already grouped in categories. These data were then coded in order to calculate their frequency (Silverman, 1997). Each category (either created by content similarity or known categories) and its frequency are presented in the chapter results. In the chapter discussion, combinations of different categories, or newly created categories (including several old categories) are compared with other findings.

The information from the informal and formal waste collectors' interview were summarized in text form organized by similarity of their answers and so the similarities have been prioritized.

The information from the observations were used to complement and compare with the findings from the different questionnaires and were highlighted with photos.

Finally, the data from the questionnaire of the collector's supervisor, the information from the visit to the dumpsite, and the documents received from the Urban Council were used to explain the situation in Boralesgamuwa in the chapter on the context of the case study.

### 3.4 Methodological challenges and limitations of the study

Only after being presented to the Mayor of Boralesgamuwa, Deshabandu K.D. Aruna Piryashantha, by introduction of Hemanthi Gunasekara, the right to conduct questionnaires in this Urban Council (UC) was granted. The Mayor allowed eight days of data collection while accompanied by an employee of the UC.

Sri Lanka's official languages are Sinhala and Tamil, and these are also the two biggest ethnicities of Sri Lanka. Indeed, 74% (Dharmadasa, Dharmadasa, & Dharmadāsa, 1992) of Sri Lankans are reported to be Sinhalese, which represents the majority of the population (Dharmadasa et al., 1992). There was obvious need of a translator to facilitate meaningful communication with the local population for this study. As this work analyses gender relations in addition to waste management practices, a man was selected as a translator to provide gender equality in the survey. So, a male translator was located thanks to the help of Nishara Fernando, Director of the Department of Sociology in Colombo, Sri Lanka.

The main translator was a student, who was reported to have experience in field work and was male, this translator served as the primary translator for the duration of the study although one additional translator did assist with interviews conducted in Tamil. This second translator had no field experience and was not a University student. Whether the interpreter did or did not have prior experience, and their student status, did have an impact on their performance of the translation tasks. Indeed, the university student who was reported to have experience had a secure expression and a self-assured appearance, while the other one appeared less confident. Because of this, I felt, that I had less influence on the main translator, than I had on the second one. This sometimes caused difficulties when a succession of questions and answers had been established between him and the householder without allowing me the possibility to take the control over the succession of the questions. In such cases, I felt that I received only a summarized part of the exchange. The second translator in comparison gave me more control in asking what I want to do or ask, while the main one guided interviews himself sometimes. This may be due to the difference in the commitment: the main translator did the household questionnaires and the formal waste collectors and the supervisor, while the second one did only some interviews. Thus, the main translator developed a routine how they asked in how to ask the questions and sometimes also got bored, while the second one did only a few interviews, which were more of an experience for himself too. Furthermore, both had no experience in waste management and could not help me devise relevant additional questions. The biggest challenge to working with interpreters is in each case, that one must trust the work of the translator. Since English is neither my first language, nor the first language of the population of Boralesgamuwa who mostly speak Sinhala, this explains some of the difficulties encountered in comprehension and interpretation of the answers acquired during fieldwork. First, because what we communicate is not always understood the way the other one understands it, and the cultural difference is an additional barrier to assure good communication. Some information may be interpreted with my western lens, while a person from Colombo may have interpreted it differently. To avoid a maximum of such issues, I discussed my results with the local professor Nishara Fernando. Furthermore, despite the goodwill of my translators, I have to assume some of the

information was lost or misunderstood, due to cultural differences or to technical problems.

As announced before (choice of the translator), the aim was to conduct the interviews in a gender-neutral form, which means including both a man and a woman during the interview process. This aim could not be achieved during this iteration of the study, as my translator and I were accompanied by an employee of the UC as well.

The questionnaires were conducted in the presence of an employee of the UC, my translator, and myself, which was not a favourable situation as the interviewee was in front of three people and may have felt intimidated. This situation can be overwhelming for the respondent, leaving them feeling that they cannot speak freely, and this is especially likely to occur where there is the presence of two men in the case where the respondent is a woman. Additionally, there was concern that the presence of the UC employee might influence the answers of the respondents. This concern was because of his position. However, respondents seemed to be willing to discuss their true opinions, and even confessed to doing illegal things in front of the UC employee, which decreased the concerns about this probability. The employee was very calm and did not interrupt while we conducted the questionnaires, which was very positive for the interviews.

Another issue encountered during the study was the presence of culturally sensitive questions in the questionnaire. Questions about the different household tasks, especially about who was carrying it out and why this person was doing it, were considered to be a sensitive subject by some respondents, shameful by others, or even a completely new or foreign concept. This could be identified in the moment, where the interviewee showed a confused or questioning face after hearing a question, or by the moment the respondent took to develop an idea on how to answer. Others showed it by beginning to laugh or seeming ashamed.

Finally, being able to stay for more than two months would have helped me gain more precise information and a better, more holistic understanding of the subject. Despite the several factors that limited collection of data, the information obtained during this fieldwork is relevant and sufficient to produce an interesting scientific work, which links two themes of analysis: waste management and gender studies.

## 4. Context of the case study

### 4.1 Boralesgamuwa

The urban council of Boralesgamuwa is situated on the south side of Colombo. It spreads for 13.5 square kilometres and the area is divided into 18 GN divisions (Figure 4: map) (Urban Council of Boralesgamuwa, 2018c). In 2011, Boralesgamuwa counted a total of 62 965 residents (Urban Council of Boralesgamuwa, 2018d). In recent years, the urban council noted a population increase and issues with land scarcity. In Boralesgamuwa there are six schools, six banks, multiple Buddhist temples and churches, a monastery, a library, several medical centres, and some bath places (Urban Council of Boralesgamuwa, 2018d). These data were collected by the Urban Council of Boralesgamuwa. Unfortunately, more data about the socio-economic situation or the ethnic composition of the population of Boralesgamuwa were not available. A presentation of the household sample as well as the two selected areas of the questionnaire will be found in chapter 5.1.

### 4.2 Official waste management in Boralesgamuwa

The data presented in this chapter is out of the data elaborated by the Urban Council of Boralesgamuwa and the interview with the supervisor. This data is discussed with my questionnaire findings and observations, in the cases where I gathered that information.

The general waste composition according to the Urban Council data (their method of data collection remains unknown) is the following:

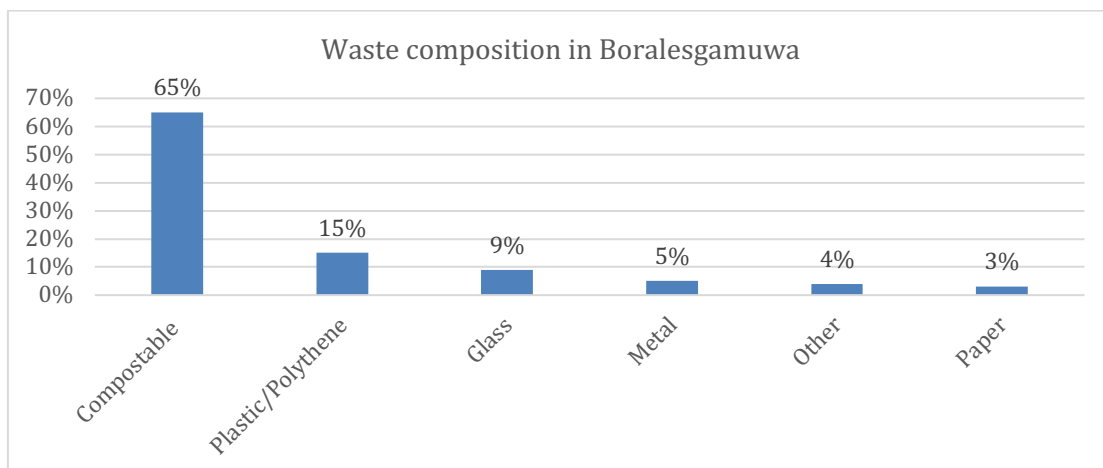


Figure 10: Waste Composition in Boralesgamuwa, (Urban Council of Boralesgamuwa, 2018d)

These data confirm that the majority of the waste generated is organic waste, shown here to be 63% of the total waste generated, as is the case in most developing countries (Bandara, Hettiaratchi, Wirasinghe, & Pilapiya, 2007; Vidanaarachchi et al., 2006).

The Urban Council of Boralesgamuwa is composed of about 58 workers in the waste management sector, of which 40 are laborers, and only one employee is female (Urban Council of Boralesgamuwa, 2018d). The waste collectors are all men. The UC also has



physical resources: nine tractors, ten trailers, three compactors, one tipper, and five hand carts (Urban Council of Boralesgamuwa, 2018d). To finance the waste management sector in the UC, one part of the annual property tax<sup>8</sup> from the region is assigned to the waste management sector since the UC has the obligation to collect the waste.

The municipality developed an official document about their specific waste management for the duration between 2018 and 2022. Three general aims for this time were decided: the first aim is to separate the waste streams into decayable, undecayable, recyclable, and unrecyclable waste; second, the UC has joined hands with private institutes, state institutes, and religious institutes to improve the cleanliness and beauty of Boralesgamuwa; third, to adopt a systematic plan to manage the waste by reserving necessary finances (Urban Council of Boralesgamuwa, 2018d). To achieve these goals, five strategies were established.

First, the segregation of the waste in decayable and undecayable solid waste should be accomplished directly by the waste generators (households, industry, markets, service centres, etc). The Mayor addressed the population in a meeting per GN division. These meetings took place in a common place like the temple for each GN. The meeting aimed to educate the population about the importance of conducting good waste management in their area and to inform them of how to segregate their waste properly and when the UC comes to collect the different waste items. Attendees were encouraged to reduce waste combustion and waste generation as well as to avoid throwing garbage on the roadsides. People who commit such offenses will be punished and trained on recycling and reusing (Urban Council of Boralesgamuwa, 2018d). Indeed, the respondents of the questionnaires confirmed that these meetings took place and that they were informed about the new expectations.

Second, to help with the segregation of waste, the UC decided to provide a free bin to attendees (Figure 11) to use for decaying waste and a leaflet that informs about how to segregate their waste and when the UC collects the different types of waste (Figure 14 and 15) (Urban Council of Boralesgamuwa, 2018d). The respondents of the questionnaires did also confirm the reception of this bin, and sometimes they even showed that they used that specific bin during the questionnaire.

Third, roads and public places are cleaned following an established timetable which allows for the maintenance of the beauty of the city (Urban Council of Boralesgamuwa, 2018d). This strategy of the Urban Council was not observed.

Fourth, waste transport is organized by a daily timetable and the waste is transported in a closed tractor to reduce the damage to public health and the environment (Urban Council of Boralesgamuwa, 2018d). All questionnaire respondents confirmed to be aware of the existence of the UC collection service. The Urban Council's waste collectors could be observed several times, sometimes with a closed truck, sometimes with open tractors (Figure 12 and 13).

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<sup>8</sup> The annual tax is taken according to the square field size of the house. The annual tax contributes to every state expenditure.

Finally, the UC educates the population about the reuse of generated waste, how to recycle, and encourages households to make compost from carbonic waste by distribution of compost bins (Figure 11). To do this, the UC intends to use the support of an NGO. The UC also encourages all institutes to recycle waste items when possible (Urban Council of Boralesgamuwa, 2018d). The interviewed householders did announce several times that the UC told them to separate the waste in the different waste types and to hand the garbage over at the announced times (see below Chapter 4.2.1 second paragraph) , but they seldom mentioned, that they were encouraged to make compost. Indeed, the most common category of response used to justify the disposal method of the respondents of the household questionnaire was “to respect the law and expectations of the Urban Council”, as one interviewee gives an example:

*“The Mayor has asked [us] to do [it] like that.” (Interviewee FD01)*

In sum, some of the strategies could be directly observed, and therefore confirmed their implementation, whereas other parts still remain to be implemented in the remaining years of the project from 2019-2022.



Figure 11: Green coloured bucket to store decayable waste, Tabea Wäfler (2019)



Figure 12: Open truck of the UC waste collection, Tabea Wäfler (2019)



Figure 13 Closed truck of the UC waste collection, Tabea Wäfler (2019)

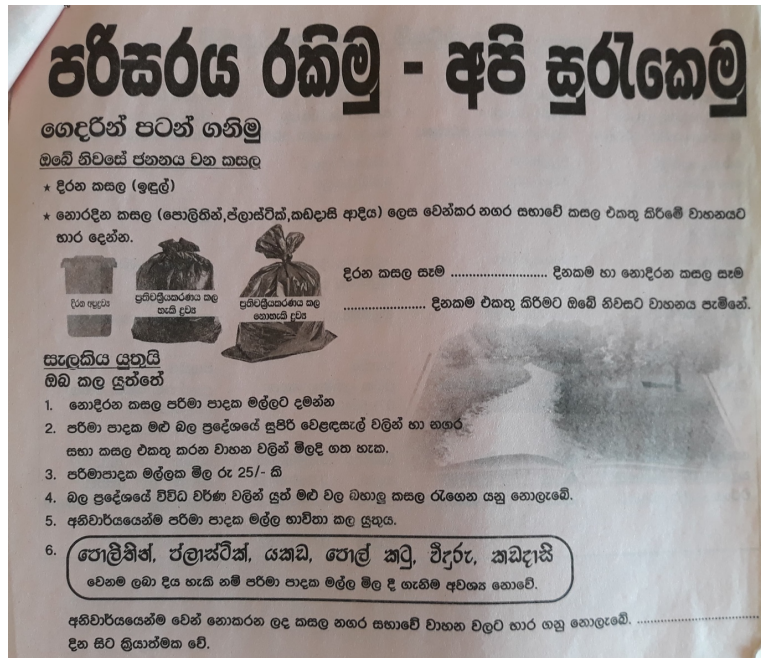


Figure 14: Leaflet to educate the population about the waste management in Boralesgamuwa (Urban Council of Boralesgamuwa, 2018c)

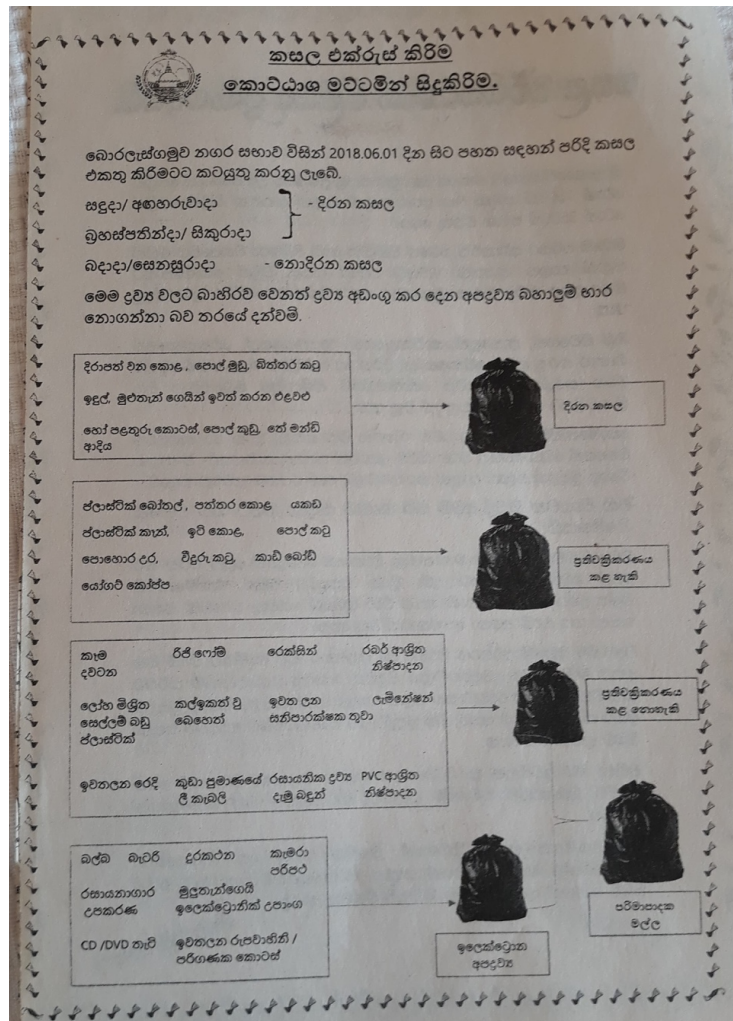


Figure 15: Leaflet to educate the population about the waste management in Boralesgamuwa (Urban Council of Boralesgamuwa, 2018c)

#### 4.2.1 Official waste collection

Among the five Urban Council waste collectors, all were men. This confirms the statements of previous authors (Obadina, 2016; Ručevska et al., 2019) saying that no women are doing the garbage collection in this region, especially not with trucks. According to the waste management supervisor, the activities carried out by the workers of the waste management sector are the following: educating people, collecting the waste, supervising the households and roads, and maintaining the cleanliness of the area. The collectors usually work as a team of two to four people. The collectors say they collect from every household of the collection area by shouting the type of waste they are collecting, and if needed they also notify residents by knocking on doors. The observation times confirmed this statement. The UC reported to collect food waste twice weekly, and collects all other waste items which are generated at the household level aside from human or animal corpses and medicine fortnightly. Since the establishment of the UC in 2009, the UC has also introduced a new goal concerning waste collection, which is to increase the collection frequency from twice a week to three times per week for food waste. This would help to reduce the smell, mosquitos, and consequences to public health produced by the build-up of waste within the affected communities. To implement this change, however, the Urban Council of Boralesgamuwa needs more financial support, which it has requested from the central government but has not yet received.

When the UC collects the waste at the household, they do have some expectations for the homeowners. The household needs to separate their garbage before handing it over to the collectors. Indeed, every household was informed of this expectation during the meeting in the temple as well as via the brochures, handouts, and the leaflet which was given to every household. The expectations communicated through these different panels are confirmed to be known by the majority of the householders interviewed, as they indicated the same expectations as the ones mentioned by the UC. Literature suggested also, that the population should be aware of, and participate in, the community waste collection, which is thus confirmed (Bandara, 2011). According to the supervisor, the most difficult challenge the UCs have faced and continue to face has been to change the mentality of the people. Nowadays, the project supervisor of the waste department is not satisfied with the fulfilment of the expectations of the UC towards the households, because there are still people who do not separate their garbage before handing them over. He noted a request concerning household waste collection in Boralesgamuwa:

*“If you can separate the waste generated in your own household, then that is the best thing. Because you can’t avoid [to produce] waste (which would be the best).”*

The mixed waste cannot be accepted by the UC. If a household does not separate their waste, it will be under observation. Collectors often face difficulties such as mixed waste from households, unsafe conditions because of released dogs during the waste collection process, or even broken glass hidden in the waste.

Despite the dissatisfaction of the UC project supervisor, the households indicated to be generally satisfied with their waste management. In spite of this, households reported



some difficulties. The main difficulties mentioned were due to high waste generation and the fact that the Urban Council collection does not come on time, on the day announced, or comes simply with a too low of a frequency. Thus, this makes it difficult for homeowners to keep their waste stored at home until collection. As a result, homeowners wish that the collection frequency increases, which helps them to maintain better cleanliness, hygiene, and the beauty of the city. This wish may soon become true, as soon as the UC gets more financial support (as explained above).

The UC is not the only collection service in Boralesgamuwa, there are also private people collecting waste (the informal waste management is explained in chapter 4.3). The project supervisor of the waste management department is aware of the co-existence of the private collectors, but says he never has been informed of their actions officially. Indeed, he speaks favourably concerning the co-existence of formal and informal collection, as it reduces the expenditure of the UC and it gives value to the waste. Unfortunately, there is no existing collaboration between the informal and formal systems in the area because the government does not allow these types of collaboration. Indeed, the project supervisor reports, that he would not wish to have only informal collection either, as they do not have the same facilities to collect and store waste that the UC does, nor the same responsibility as the state, and they are therefore not accountable to the population. Also, they admit that to have only informal collection would be a too high of a burden for expenditure for most people to remove their waste from their homes, which would increase the implementation of ecologically damaging and hazardous disposal methods.

#### 4.2.2 Official disposal methods

According to the Urban Council's data prediction in 2018, open dumping was the main disposal method used in the year 2019 in Boralesgamuwa (Figure 16 :89%). This method refers to the disposal of waste on a specific place with the aim of producing electricity from it later (will be further explained below). Other disposal methods from this year were mass scale disposal (Figure 16 :7%), and recycling (Figure 16 :4%) (Urban Council of Boralesgamuwa, 2018d).

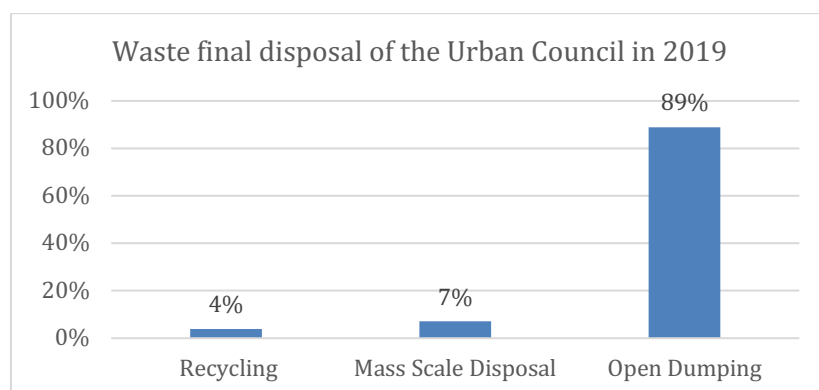


Figure 16: Waste disposal in 2019, (Urban Council of Boralesgamuwa, 2018d)

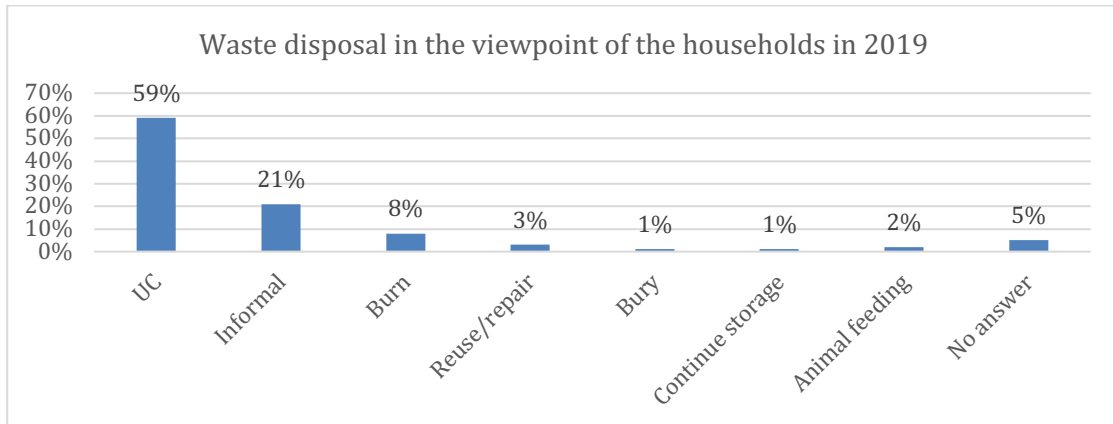


Figure 17: Waste disposal 2019

The findings from the household questionnaire (Figure 17) which was also conducted in the year 2019 do not suggest the same classification. This data was gathered from the household, and thus reflects what is done with the household waste in general; whereas the data from the Urban Council seems to refer to the final disposal after their collection of waste. In reality, their data collection method remains unknown. The difference in the result is visible, for example, by the fact, that open dumping does not even appear in my classification. No interviewee indicated that they currently dump their waste, but on the street sides there was often some dumped waste visible on the grass median or concrete (Figure 18). Observation in Boralesgamuwa revealed that dumping in the streets is practiced in the sampling areas. Literature suggested that we should observe open dumping in Colombo, which was confirmed with the observations in the streets (Urban Council of Boralesgamuwa, 2018d). Thus, although it is forbidden to throw waste on the road, it is done anyway in Boralesgamuwa. This difference in the data between the observation and the questionnaires results can perhaps be explained by the fact that people answered what they mainly do with the different waste types produced in their homes, that no question was asked whether they dump any waste, or because people mostly dump waste when they are walking home. Indeed, in Boralesgamuwa, no community bins in the streets exist, which removes the possibility for pedestrians to put the waste directly in a bin while walking. Furthermore, the most common reason to explain the homeowners disposal method, aside from the category “respect of the law and the UC’s expectations” was “lack of space to dispose of the waste”, which suggests the wish to dump waste. One interviewee gives an example:

*“Because there is no space in the garden.” (Interviewee FW01)*



Figure 18: Dumped waste on the roadsides, Tabea Wäfler (2019)

Furthermore, it is also forbidden to burn any waste. But, according to the figure 17, 8% of the household waste is burned regularly. So even though it is forbidden, 53% of all household interviewees reported to burn some amount of waste. Additionally, according to the data of the Urban Council, no waste burning is indicated (Figure 16). But observation data confirmed the identification of burning places along the roadside (Figures 19 and 20), and one woman was observed feeding a fire in her garden with swept items (Figures 21). Literature had suggested that we could anticipate to observe this practice in Colombo as well (Bandara, 2011; Matter et al., 2013). The principal reason provided for waste burning was the large amount of collected waste, as one homeowner explains:

*“Because the rate [of waste generation] is very high, so we can’t keep it so we need to burn it.” (interviewee MN01)*

Contrarily, other interviewees decided to burn their waste because they collected only a small amount of waste throughout the week. The subset of interviewees that indicated not to burn any waste type was 43% of all interviewees. Their answers to the question why they decided not to burn any waste revealed that 53% of them do not have a place to burn their waste, which might be interpreted as willingness to burn their waste if conditions permit them to. The same interpretation might be done with the second most answered category, which concerned the small distance between their house and the street. This high rate of willingness to burn waste or even practicing of waste burning confirms what the literature suggested to find. Indeed, the literature led to the hypothesis that there would be waste burning in Colombo due to its simplicity or a lack of sufficient space to recycle (Boonrod, Towprayoon, Bonnet, & Tripetchkul, 2015b; Matter et al., 2013).



Figures 19 and 20: Burning places on the roadsides, Tabea Wäfler (2019)



Figure 21: Fire in the garden of a house, Tabea Wäfler (2019)

Finally, the other classifications on the figures 16 and 17 are also difficult to compare, because the collection of the UC in Figure 17 does include waste disposal as well as recycling on Figure 16. In sum, the most important disposal practices may be open dumping and recycling in Boralesgamuwa in 2019.

After collecting the waste from the household, the UC usually brought all the waste to the Karadiyana dumpsite (as indicated in the figure 16 with 89% of open dumping) as do seven local authorities out of thirteen in the Colombo District (Fernando et al., 2020). For each ton of waste taken to Karadiyana, the UC has to pay R 1500. As this expenditure is quite high, the UC decided to manage the waste differently. There are three types of waste: burnable waste, recyclable waste, and compostable waste. When the UC takes the recyclable waste (this includes plastic, polythene<sup>9</sup>, glass, metal and electronic items, cardboard, paper, and coconut shells) to a private factory, they can earn money and pay less to Karadiyana. This is the reason why the UC needs the waste to be segregated at the household level. In order to make the greatest profit from the sale of recyclable waste, the UC first decided to store these items. This storage makes it possible to sell larger quantities at high prices and to reduce transport costs.

After the recycling processes are complete, the UC brings the decayable waste to Karadiyana to make compost. Unrecyclable items are also brought to Karadiyana where they will be used to generate electricity.

Karadiyana landfill is located in the Colombo District (Figure 22). The entire landfill is approximately 10.12ha in size, making it is the biggest dumpsite in the Western Province (Figure 22-25) (Marasinghe, Perera, & Dayawansa, 2018). For this reason, this site was chosen to implement a new project to generate electricity and compost in 2017. Today, waste from about seven GN divisions is transported here, which adds up to 230-meter tons of waste per day, from which 180-meter tons are biodegradable waste. With the biodegradable waste, 10-meter tons per day of compost soil is produced (Figures 26 and 27). This transformation provides value to the waste, which opens a new economy through its sale. The collection of unrecyclable waste, which is also brought to Karadiyana, only began recently. This collection had already reached 2.2 million metric tons at the time of our visit and observations. The project to generate electricity out of it had not yet started at the time of our survey visit, but is planned to start in 2021 (Fernando et al., 2020)(Figure 28). It will be the first project to generate electricity out of waste in Sri Lanka. This project is planned to generate 10,000 kiloWatts per day of energy.

At the Karadiyana site 34 people are employed, of which 9 are women who work in administration.

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<sup>9</sup> Polythene is the most commonly known plastic type. It is a tough, light flexible synthetic resin made by polymerizing ethylene, chiefly used for plastic bags, food containers, and other packaging (Oxford Dictionary, 2020)





Figure 22: Boralessgamuwa (smaller red circle) located in the Colombo District (larger red circle)



Figure 23: Karadiyana landfill site, (Marasinghe et al., 2018)



Figures 24 and 25: Karadiyana landfill, Tabea Wäfler (2019)



Figures 26 and 27: Karadiyana transformation of food waste to compost soil, Tabea Wäfler (2019)



Figure 28: Karadiyana, project : Generation of electricity out of waste, Tabea Wäfler (2019)



### 4.3 Informal waste management

The data presented in this chapter is out of the questionnaire findings and observations, which is discussed with the literature.

Among the five informal waste collectors, only one was a woman. Even though, there was one woman worker, she did not conduct the collection in the streets as she owned a waste shop where users brought their waste for recycling, which confirms again the statement that no women conduct the garbage collection in the streets of Sri Lanka (Obadina, 2016; Ručevska et al., 2019). The waste shop is a place where people from the neighbourhood bring their waste. The other collectors went to the sampling area because it is close by, or because homeowners call them directly to come and collect their waste. The informal waste collectors go either by phone calls to the households, which presupposes knowing one another, by walking and shouting with a trolley, or by shouting with a speaker in a truck (Figures 29 and 30). People bring the waste to the shop owner because they know their place or because of other people who told them of this possibility.



Figure 29: Informal waste collector with a trolley  
Tabea Wäfler (2019)



Figure 30: Informal waste collectors with a truck  
Tabea Wäfler (2019)

Their collection path is not the same every time, as they react to phone calls from clients and modify their route as needed to meet the needs of their clients on that day. Because of this influence on their collection paths, they do not have a routine collection route that users can anticipate and plan ahead for. In addition to the phoned requests, the general collection area is influenced by selecting the neighbourhoods containing houses which are more likely to give waste based on past interactions, and when they pass through these neighbourhoods they will attempt to garner customers by shouting in the streets to announce their presence. The collectors give everyone the opportunity to give them waste. One collector explained why he does not go to every household in the area as follows:

*"I only go to the known houses. And other houses think that we are thieves. We don't knock and ask, we shout in the roads. So the people can come out if they are interested."* (Interviewee MIWC05)

Three out of the five collectors interviewed indicate they collect the waste every day, while the other two collect every day except Sunday. One explains Sunday is their day

off, while the other collectors say they will still collect if someone calls in order to earn enough money.

Among all homeowners interviewed, only 29% sell waste. This method of selling waste makes up 21% of the disposal methods (Figure 17). This confirms the existence of informal waste selling in Sri Lanka, which was documented previously (Bandara, 2011). The 71% not selling any waste explain their decision mainly using the reason that there is no one to whom they can sell, stating that no one buys waste in their area; like this interviewee said:

*“To whom can I sell it?” (Interviewee MG01)*

This shows the great discrepancy between the knowledge about the existence of an informal waste management system compared to the official waste management system among the household interviewees.

Among the interviewees who indicated that they sell waste, their main reason for selling it was economic advantage, which means they receive money or something else in return. All interviewed collectors said they paid the households for the waste they get in exchange. Some collectors adapt their payment to homeowners based on the prices of the recyclers, or they do estimations of the value of the waste based on waste type. Others pay by weight, waste type, and waste quality.

All the waste collectors interviewed explained their waste types chosen for collection, which were mostly metal, glass, paper, and plastic waste but also included battery and electronic waste, cardboard, polythene, coconut, books, PET and PVC waste for some collectors. These waste types were chosen because these waste types are possible to be reused through recycling, which permits the collector to earn money. One waste collector mentioned as well that vegetable waste is not collected, because it is difficult to store. Household interviewees said waste collected by informal waste collectors are mainly metal, glass, plastic and batteries. Other waste types collected are electronic waste, paper, cardboard, coconuts, books, polythene, PET, PVC, vegetable waste, shoes, and clothes. This discrepancy in waste types collected between different informal collectors leads to the different expectations from homeowners, and can cause tensions when these expectations are not met. While some of the homeowners indicated that the informal waste collectors do not have any expectations for them, some said that their expectation is for the homeowner to separate the waste into the different waste types and hand them over separately to the informal waste collectors. Indeed, all of the interviewed collectors said that the households should separate their different waste types. When their expectations are not followed by the households, some of the interviewed collectors say that the mixed waste is not accepted, nor are certain types of waste like vegetable waste. In contrast, other collectors say:

*“Often the households give us mixed waste, so we need to separate them. But we depend on the household waste so we take it even when it's not like expected.” (Interviewee MIWC05)*

Another difficulty faced by informal waste collectors is that of money. The price fluctuations between the waste collectors and the recyclers make it challenging for the informal collectors to regulate their prices with their clients, and can lead to difficulties

making profits from the practice. One collector explains that households always ask for more money than waste they give. Navigating these price fluctuations also causes rivalries between the waste collectors. Three of the interviewed collectors indicated they had rivalries in the informal waste collection business. One of the rivalries was between waste collectors who collect in the same area and take the waste and income of the others. One interviewee was not a collector who goes to the households, but instead was a waste shop owner who ran a business where people came to bring their waste in exchange for money. For her, the rivalry was explained by the difference between her business and the people who go to collect at the household level. The shop owner, however, gives money to the people bringing their waste instead of providing an exchange of goods (e.g. waste bucket) as the street collectors sometimes do. Concerning the price fluctuations, a collectors explains how he adapts to them:

*“According to the situation, I adapt the best way. For example, last time I paid for the households 35 R per kg of plastic and the recyclers gave only 30R per kg. So I had a negative. So I decided to stock the plastic and wait for a better price.” (Interviewee MIWC03)*

Another interviewee decided to do extra work such as gardening in case of financial difficulties caused by such rivalries. One collector commented on the potential for rivalry with the UC by saying that it is not a rival for him because the homeowners can still choose who they prefer to give the waste to, which provides him an advantage. One collector explained that he would wish to invest in a bell press machine to reduce the space necessary for storage, which is needed to stock and transport the waste; but waste collectors get rarely loans to invest in their businesses.

The collected waste from the informal collectors is transported to different recycling companies that specialize in processing each waste type. Some of the recycling facilities are located in Colombo, but some of the facilities are located far away and require the collectors to store up materials until they have a large load to recover the costs of transporting the waste so far. In some cases, for example that of metal or plastic, a person comes directly to the collector to take the sorted waste to its final destination for recycling.

## 5. Results

### 5.1 Description of the sample

The two zones, Egodawatta and Bodhirajapura, which were analysed in this thesis are further presented in this section. Then, the sample is described. The data presented in this chapter was gathered mainly through the observations and the questionnaires, while a few were obtained from the Urban Council. But more data or more recent data from the Urban Council concerning education, profession or sex was not available at the time of this publication.

In 2016 there were counted 3467 residents in Egodawatta, of which 1785 (52%) were female; and 2418 residents in Bodhirajapura, of which 1245 (52%) were female (Urban Council of Boralesgamuwa, 2016). The percentage indicates in almost an equal distribution between men and women, with an equal gender distribution in both Egodawatta and Bodhirajapura. This may have evolved between 2016 and the year of data collection in 2019.

The two road types which were observed during this study exhibit some differences. First Lane in Egodawatta is characterized by an overall better road and house quality compared to Cemetery Road in Bodhirajapura (Figure 31 and 32). First Lane is also a rather busy road with a lot of cars, tuk-tuk's, and pedestrians; and tuk-tuks drivers are often parked in access entrances to wait for work. Cemetery road, by contrast, is less busy; with light tuk-tuk traffic, some pedestrian traffic, and occasional scooters or bicycles passing through.



Figure 31: Egodawatta, First Lane, Tabea Wäfler (2019)



Figure 32: Bodhirajapura, Cemetery Road, Tabea Wäfler (2019)

Regarding geographic distribution, 59% of the interviewees were residents of Bodhirajapura and 41% of Egodawatta. During the study, the days spent collecting data for the household questionnaires were distributed equally between Bodhirajapura and Egodawatta to avoid a predominance of data from one. Note that 14% of the interviewees reported themselves to be Samurdhi holders. Their status as a poor household was confirmed in each case by my established Samurdhi test (See appendix 1: Household questionnaire: last question). Out of these 14% of Samurdhi holders corresponding to seven people, six are residents of Bodhirajapura. This confirms that Bodhirajapura has a greater number of poor households.

Of the 51 interviewees, 30 were women and 21 were men. As gender is an interesting factor of this thesis, it was important to interview men and women. In Egodawatta there was an almost equal distribution of female and male interviewees could be obtained, whereas in Bodhirajapura more women were interviewed than men (Figure 33). Concerning the ethnicity, 50 of the interviewees were Sinhala and one was Muslim. This result is not surprising, because the population of Colombo has a Sinhalese ethnic majority. Another factor considered in the study was marital status, with 82% of the respondents indicating they were married, 14% single, and 4% widowed.

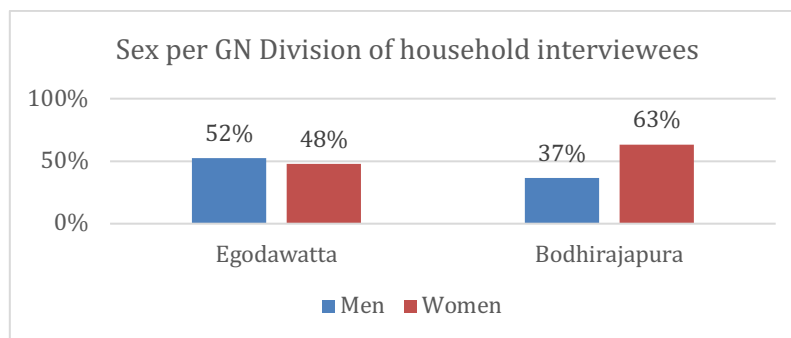


Figure 33: Sex per GN Division

The household respondent's ages were classified into five categories. Through this classification scheme (Figure 34), it can be identified that a large subset of the sample is aged 60 or greater, with 33% of the sample in this age category. In the lowest age category, the least people were interviewed. The age of the interviewees was not a criterion for their selection, any person who was available and motivated to participate was interviewed. A factor of interest was to compare the working people surveyed with the retired ones. In Sri Lanka, the retirement age for public sector employees is 60, whereas in the private sector the retirement age is 55 for males and 50 for females (Perera & Weerakkody, 2019). Comparing working people with retired people in the public sector, the ratio was 2/3 working people to 1/3 retired people (Figure 34: green and blue versus orange). Or, comparing working people with retired people in the private sector, the results were 51% working people and 49% retired ones (Figure 34: Green versus blue and orange). It is important to keep in mind moving forward then that one part of the information collected in these surveys was from the older generation, while another part was from the actual working people, and so this data may represent vastly different viewpoints.

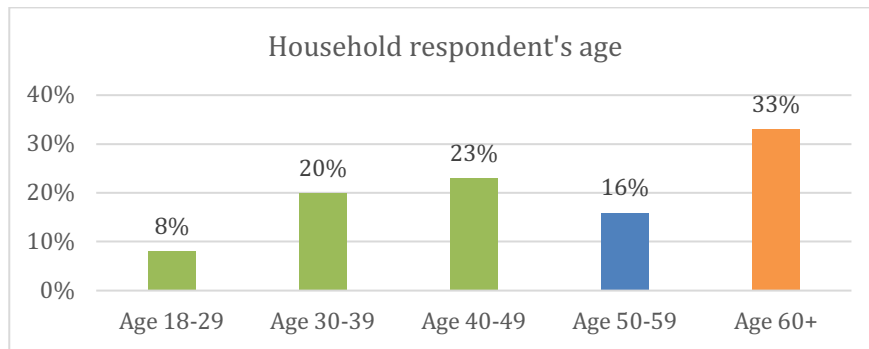


Figure 34: Household's respondent's age ; green : working people, orange : retired people

The age distribution of the interviewed people showed a lot of similarities between women and men. Indeed, male respondents had their highest percentage of representation in the age category 60+, and this was the same for female respondents. Furthermore, the lowest representation is for both genders in the 18-29 years old age bracket, but this same lowest percentage is also seen in the 50-59 years old for men (Figure 35). Indeed, the first three categories, (i.e. category 18-49 years old) are equally represented by both male and female respondents. In the higher two categories, (i.e. category 50-60+), are more female than male respondents (Figure 36).

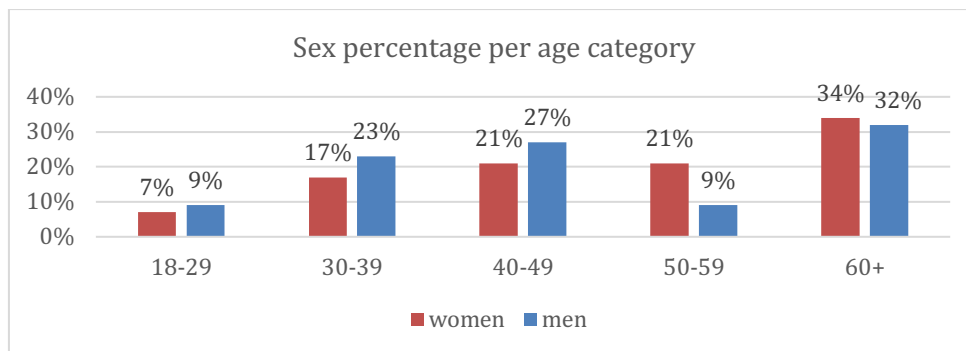


Figure 35: Sex percentage per age category

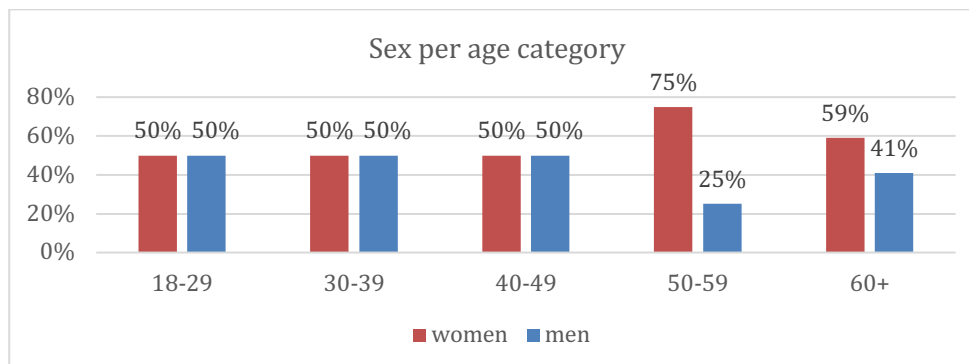


Figure 36: Sex per age category



The age distribution of the respondents reveals some demographic differences between Egodawatta and Bodhirajapura (Figure 37). Egodawatta shows 57% of the interviewees are in the age category 60+, which is more than half of the total interviewees from this area which are retired. The age category with the least respondents from Egodawatta is the category from age 40-59, where only 5% of all interviewees of Egodawatta are. In Bodhirajapura, the interviewees show a more equal age distribution: the age category with the highest response rate is 40-49 years old with 37%, and the category with the lowest response rate is 18-29 years old with 7% (Figure 37). Figure 38 shows that the first two age categories are equally represented between respondents from Egodawatta and Bodhirajapura. In contrast, the categories 40-59 are almost exclusively represented by respondents from Bodhirajapura, while the last category, 60+ is more represented by respondents from Egodawatta (Figure 38).

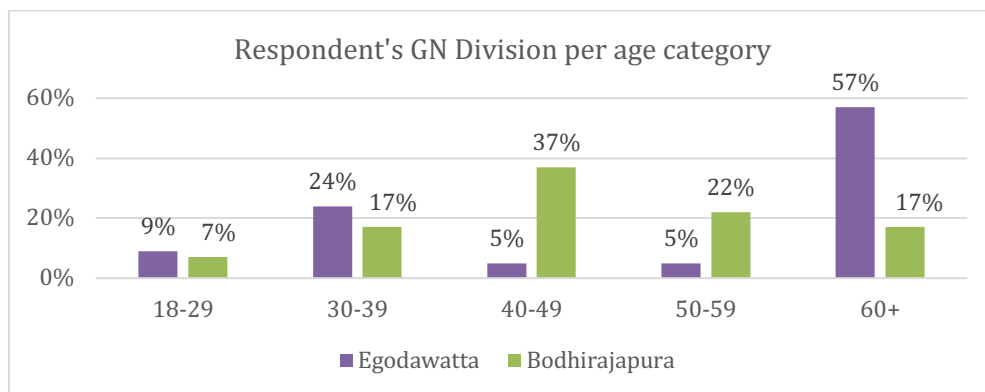


Figure 37: Respondent's GN Division per age category

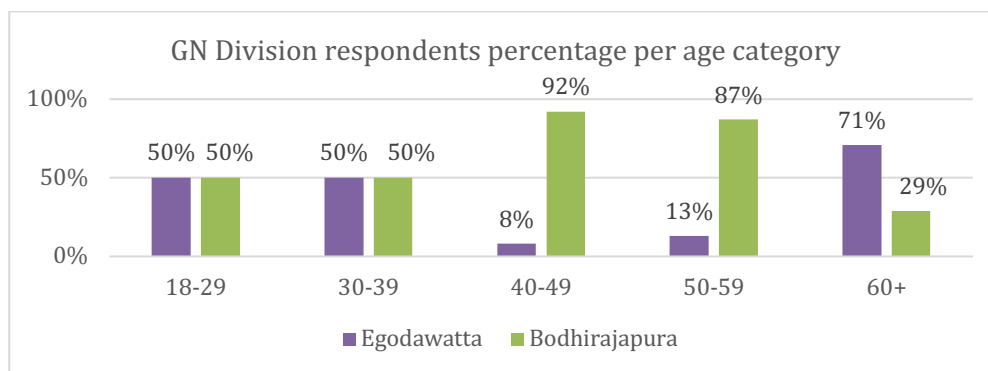


Figure 38: GN Division respondents percentage per age category

The most common household configuration had 5-6 persons and was composed of two generations (Figure 39 and 40). There were only a few households consisting of only 1-2 people. As Subramaniam & Sivayogan (2001) put forward in their paper about wife-beating in Sri Lanka, a lot of families are nuclear families<sup>10</sup>, which may indicate the breakdown of the typical traditional extended family structure as was usual in this area. In contrast, the size of the family (Figure 40) remains high, with about 66% of

<sup>10</sup> A nuclear family is a couple and their dependent children, regarded as a basic social unit (Lexico, 2020).

households having 5 or more people residing in the home, as well as almost one quarter (23%) of households reporting that they reside with their extended families (Figure 39).

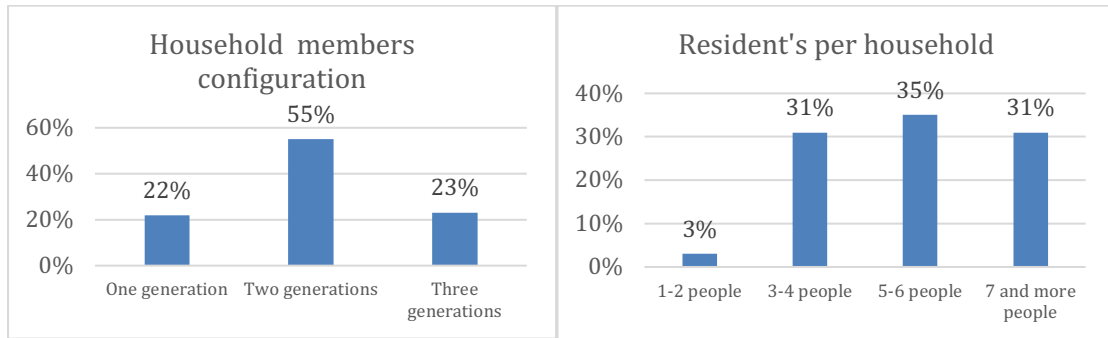


Figure 39: Households member configuration

Figure 40: Household's size

There are differences revealed between Bodhirajapura and Egodawatta concerning household member's configuration (Figure 41). One generation households are almost equally represented in both of the two sub-zones. However, two generation households were more interviewed in Bodhirajapura (64%) than in Egodawatta (36%). The prevalence of three generation households of Bodhirajapura was also higher than in Egodawatta. The distribution of household configuration indicates that for both Egodawatta and Bodhirajapura the most common configuration was two generation households (Figure 42). Only a few (17%) of the Bodhirajapura households interviewed households indicated to have only one generation at home, while in Egodawatta one generation households seem to be almost one third.

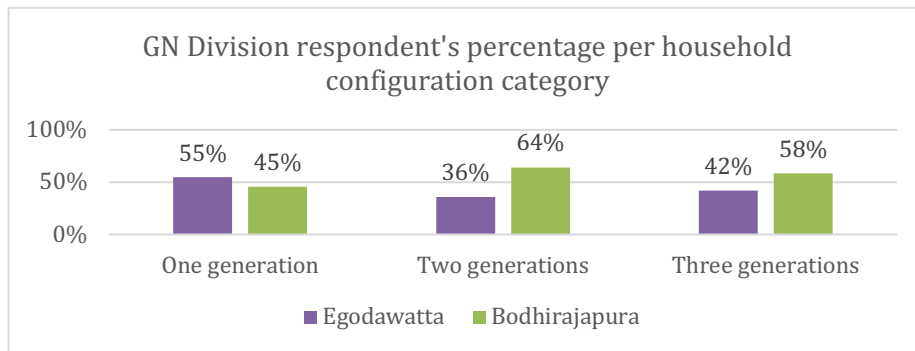


Figure 41: GN Division respondent's percentage per household configuration category

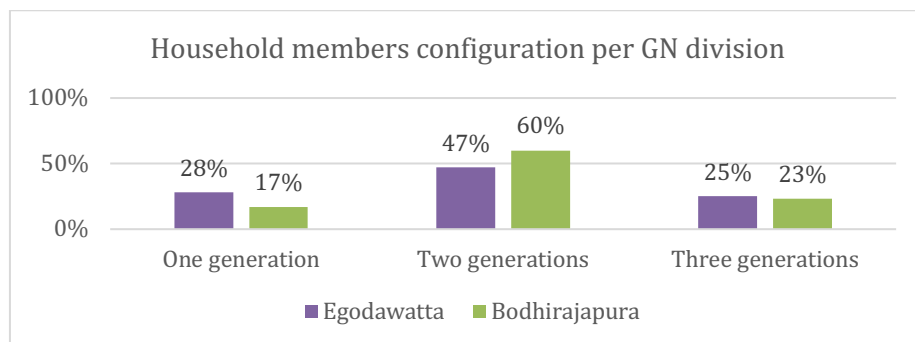


Figure 42: Household members configuration per GN Division

Concerning the number of residents (Figure 43), Egodawatta reveals an almost equal distribution the first three categories (1-2 people, 3-4 people, 5-6 people), but none of Egodawatta had seven or more household members. This distribution differs in Bodhirajapura, where more than half were households with 3-4 people. In Bodhirajapura there were also some households with more than 7 members. As shown in figure 44, the distribution per number of household members category, is almost or even equal between both sub-zones for the categories: 1-2 people and 5-6 people. This figure confirms also the prevalence of Bodhirajapura residents with 70% for 3-4 people and the exclusiveness of large households with more than 7 household members.

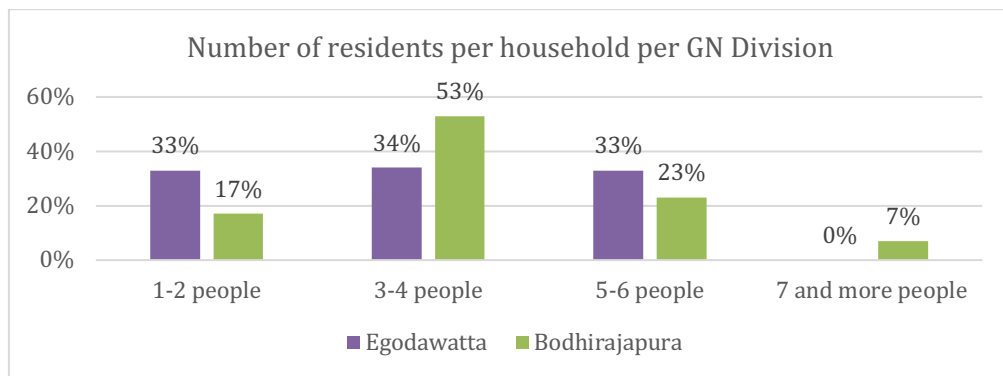


Figure 43: Number of residents per household per GN Division

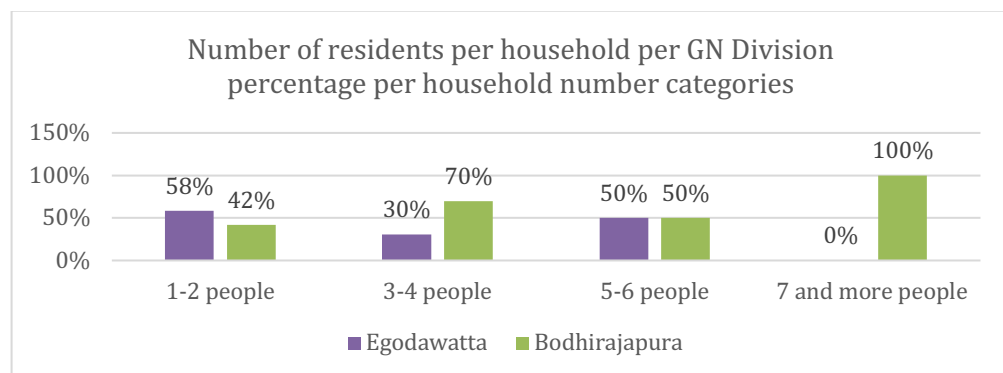


Figure 44: Number of residents per household per GN Division percentage per household number categories

In sum, Bodhirajapura tends to have larger households with a greater generational mix than Egodawatta. Indeed, Egodawatta tends toward a more nuclear family configuration. Note that some households had only women or only men (single-gender households).

Concerning the education level of respondents, the study revealed that 80% of the participants finished school up to the secondary level, 10% reported having only completed primary school, and 10% of the respondents have completed a university education. Almost 20% of all men achieved a university level education, while only 3% of all women did (Figure 45). Among, female interviewees 90% finished the secondary school and 7% only primary, while 14% of all men report having completed only primary school. The high percentage of women completing the secondary school education level, indicates that the education gap between men and women is indeed low concerning the secondary education level (Vithanage, 2015). But there is still a massive

gap at the university education level between men and women. The education level of Bodhirajapura and Egodawatta attained both for about 80% secondary level (Figure 46). Despite that, almost 20% of Egodawatta interviewees obtained university level and none achieved only primary level, whilst Bodhirajapura has 17% of its respondents reporting only primary level and only 3% reporting university level.

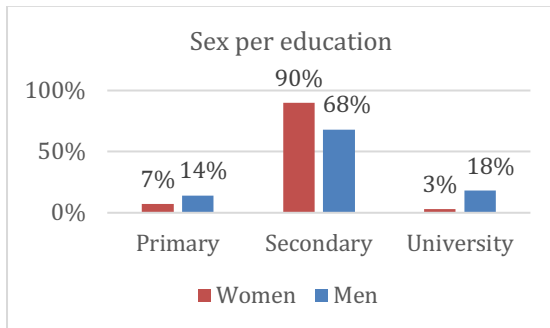


Figure 45: Sex percentage per education category

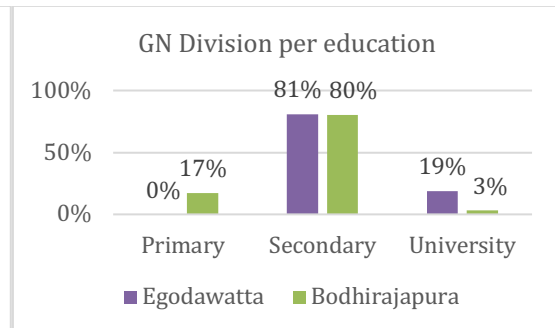


Figure 46: GN Division per education category

On the fifty-one people interviewed, most were unemployed (67%) (Figure 47). Besides the homemakers, retired people, students, and anyone who reported to be disabled and no longer work due to illness were also included in this category. Thus, only one third of the respondents were engaged in a remunerated job. Two thirds (21%) of these employed respondents had what we could categorize as middle-income job; such as technician, web-designer, or a supervisor of a cleaning service. The other third (10%) had low-income jobs such as tuk-tuk driver, host, or a fruit seller. The other respondents had high-income jobs such as an accountant (Figure 47).

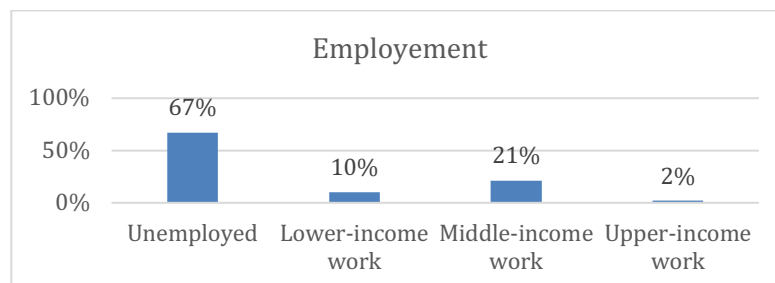


Figure 47: Employment

The distribution in these employment categories is similar in Egodawatta and Bodhirajapura (Figure 48). Note, however, that no one in Bodhirajapura had an upper-income job. In Egodawatta, 5% of respondents had an upper-income job. The distribution of men and women concerning their employment was quite unequal (Figure 49). While 59% of men were employed, only 14% of women were employed. Among the employed women no one had an upper-income job. Men were the most employed in middle-income work at 45%. Among the unemployed women, 16 out of 25 women who reported not working were housewives. The other six women did not indicate to have a job, and three were retired. In comparison, the unemployed men were four out of nine retired, one student, two unemployed, and two sick. The employment difference in paid work and unpaid work was unequal between men and women. Only housewives and no househusbands were interviewed. Furthermore, men are more likely to be engaged in paid work. This refers to the different role and

responsibilities among men and women in their productive and reproductive role as put forward in previously introduced studies (Adebo & Ajewole, 2012; Obadina, 2016; Wickramasinghe, 2000).

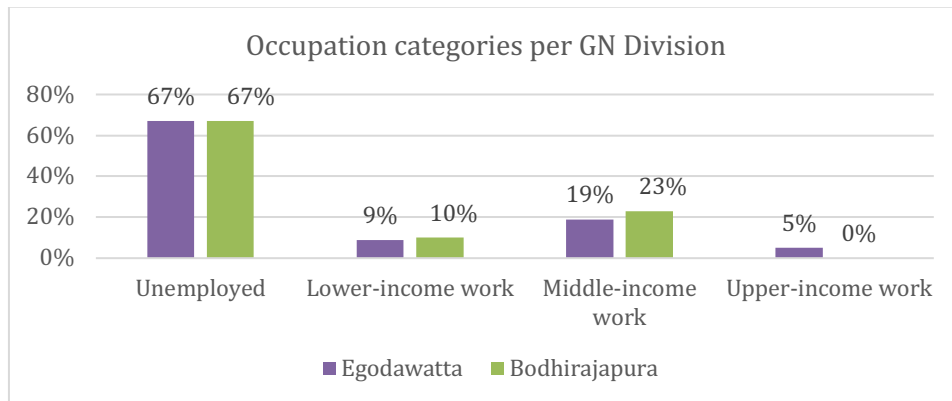


Figure 48: Occupation categories per GN Division

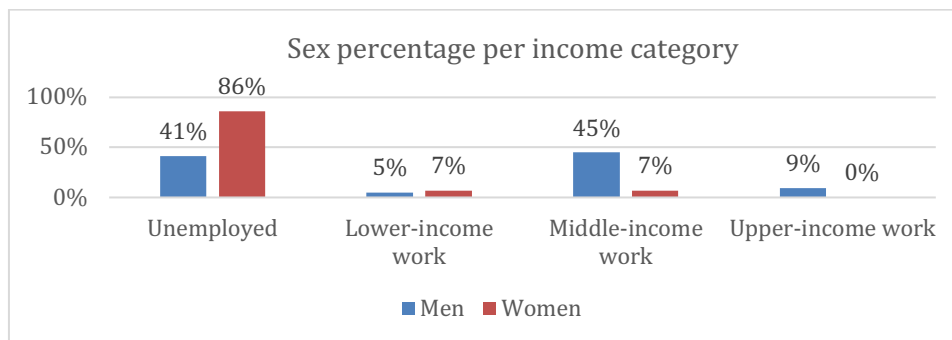


Figure 49: Sex percentage per income category

## 5.2 Household work

In this thesis, there are seven activities make up the totality of housework, these are: cleaning, cooking, household shopping, laundering clothes, gardening, childcare, and waste management. This definition is inspired by Oates & McDonald, (2006) as explained in chapter 2.1.

Every household has to fulfil these activities with the exception of two of them, which are facultative: gardening, that presumes they have one; and caring for children, which also presumes they have children. In reality, 86% of the respondents did report to have a garden, which makes up the majority of respondents. Egodawatta and Bodhirajapura do not show a relevant difference, with 86%, and 87% of households reporting to have a garden, respectively. Concerning the kids, 51% of respondents indicated that they either do not have children, that their children do not need care, or that their children have already reached adulthood.

To analyse how households reach decisions about the division of labour between men and women, it is important to select only interviewees who are either the wife or the husband of a household. In this sample, 39 respondents fall in this category.

In the sample surveyed, 89% of respondents reported that the women cook regularly in the household, and none of the samples indicated that men cook regularly. It was rarely reported that the partners do it together or that they said to eat usually outside the home (Figure 50). Concerning household shopping, the distribution is more equal, but the women still strongly dominate with 46% of households reporting the woman is solely responsible (Figure 50). More than 1/3 of the interviewees fulfil the household shopping together, and in 18% of cases it is the man doing it (Figure 50). The waste management of the household is conducted 61% of the time by women, 23% both genders together, and 13% the man alone is routinely taking care of the waste management tasks (Figure 50). Concerning waste management in general, several literature (Adebo & Ajewole, 2012; Adewoyin, 2017; Amugsi et al., 2016) suggested that it is the sole responsibility of women, which is shown by my findings to be the case the majority of the time, represented by 61% of the interviewees. Moreover, 3% of the sample have a family member who is not living in the interviewed household who comes to carry out the waste management of the household (Figure 50). The observation mornings revealed that during each observation period both genders were observed handling waste, though during some periods slightly more women were observed handling waste than men. The observed activities of men and women in the streets were mainly the following: put garbage outside the house, near the gate (Figure 51); hand over garbage to the Urban Council collectors (Figure 52 and 53); and to take the empty buckets back inside the house. Only one woman was observed giving waste to informal collectors (Figure 54), and only one woman was observed feeding a fire with items picked up with a broom (Figure 55), never a man. The cleaning of the house was done 61% of the time by women, whereas almost a quarter of the interviewees said to do it both together (Figure 50). The garden work is principally done by women (56%), but also together by 22% of households, or only by men in 22% of households (Figure 50). Concerning garden work, (Tiwari, 2001) suggested, that it is done by both women and men, which was shown to be the case in 22% of the interviewed households. The person taking the most care of the laundry was women at 71% (Figure 50). Sometimes, both do it together, or rarely men do the laundry for the household. Finally, childcare is the task most dominated by women. Interviewees reported only 26% of the time to take care of the children together, and only 5% of households responded that the man is tasked with childcare regularly.

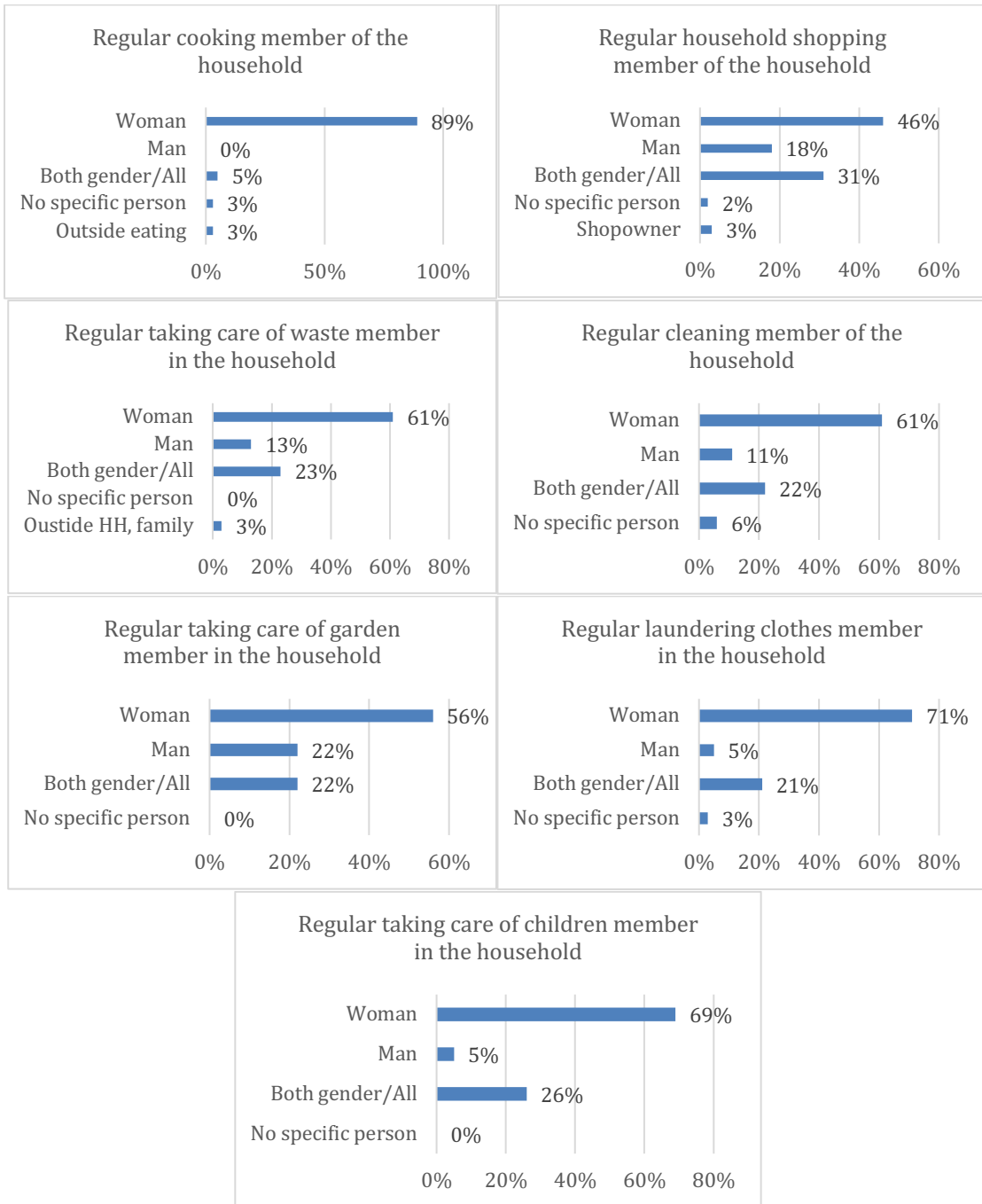


Figure 50: Member of the household regularly fulfilling the seven household chores





Figure 51: A women puts garbage outside near the gate, Tabea Wäfler (2019)



Figure 52: Household members give garbage to the UC, man on the photo is from the UC, Tabea Wäfler (2019)



Figure 53: Household members give garbage to the UC, men on the photo are from the UC, Tabea Wäfler (2019)





Figure 54: Women gives garbage to an informal waste collector, Tabea Wäfler (2019)



Figure 55: Waste burning in the garden of a house, Tabea Wäfler (2019)

But what is the final conclusion about who does the majority of the household work? Is it the man, or the woman? Figure 56 below illustrates that 77% of the interviewees estimate that the women in the household are doing more, compared to only 5% who said they think that men do more household work than women. This ratio between women doing more and men doing more, does confirm the majority of 65% of the household work which is actually done solely by women. The disaggregation into female and male respondents, did not show any significant difference. Both sexes agree that women are performing most of the household work.

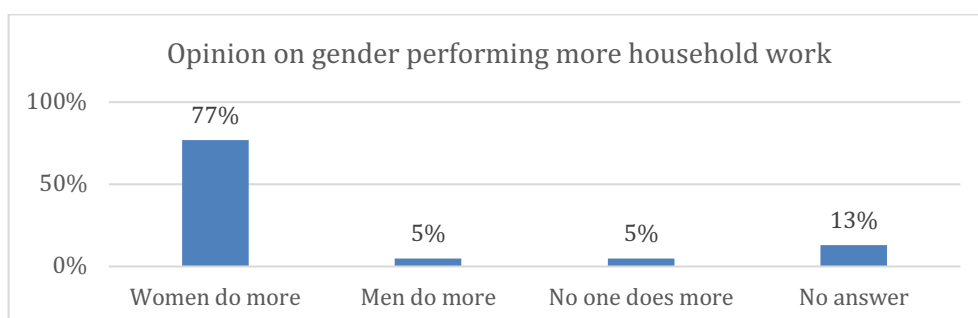


Figure 56: Opinion on gender performing more household work

In sum, women fulfil the seven household chores the majority of the time (Figure 57). This information refers to the traditional model, where the woman stays at home fulfilling the household chores. This confirms the suggestion that the division of household work is unequal between men and women (Surinya, 2000), where women remain to contribute more than men (Adebo & Ajewole, 2012; Attygalle et al., 2014; Obadina, 2016; Surinya, 2000; Teerawichitchainan, 2008; Vithanage, 2015). The second most reported response was that the chores were performed together. Finally, only 11% of men reported doing the household tasks. One factor may have an influence on the division of chores: whether the family has children to look after. Thus, the data was separated in “having children to look after” and the other interviewees who do not have children to look after. The results did not reveal any remarkable difference between “having children to look after” and the ones who do not have children to look after concerning cooking, cleaning, household shopping, and laundering clothes care. But for waste management and gardening a significant difference was shown (Figure 58 and 59). Indeed, the person regularly taking care of the waste evolves from 44% to 75% for women, and from 28% to 0% for men (Figure 58). For the gardening the difference is significant too, from 42% to 64% for women, and from 33% to 14% for men (Figure 59).

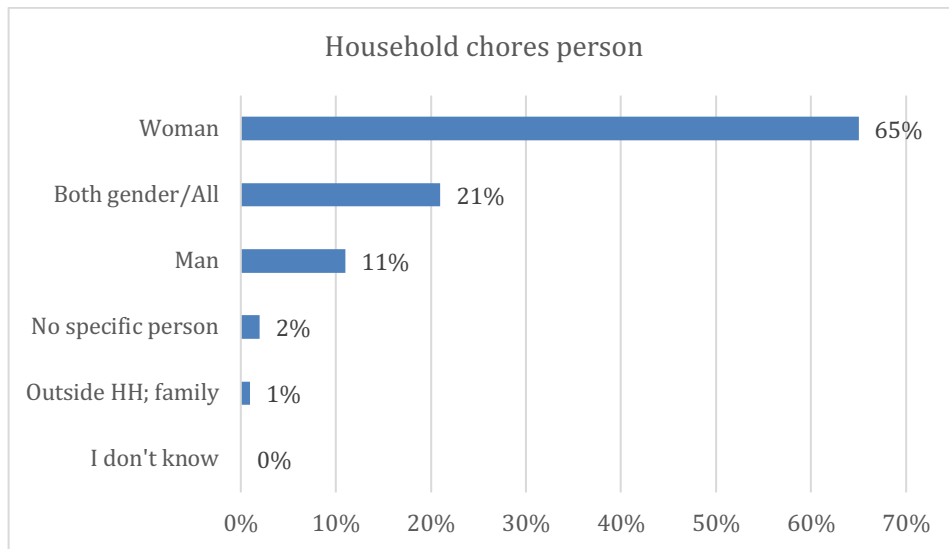


Figure 57: Member of the household doing regularly the household chores

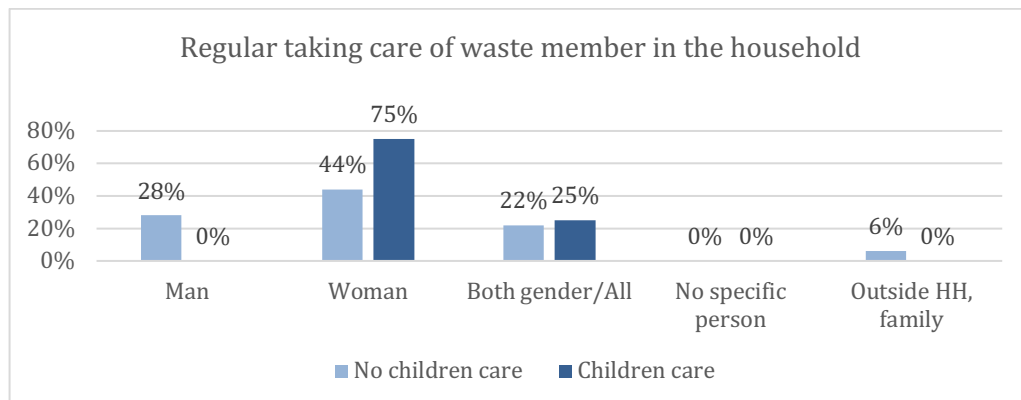


Figure 58: Regular taking care of waste member in the household

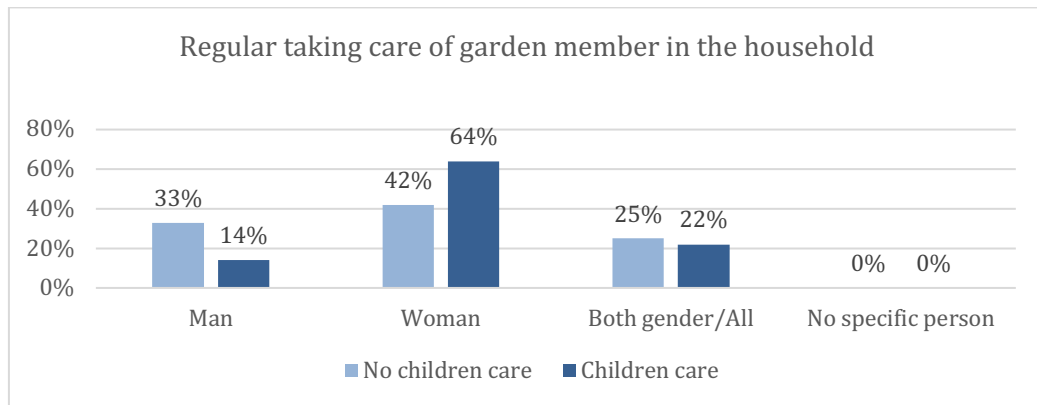


Figure 59: Regular taking care of garden member in the household

It was also interesting to investigate if the households do have domestic workers or not; and if they do, what tasks this person carries out and what gender this person is.

Most of the households interviewed (82%) did not have any **domestic worker** to help with the household chores. This may be because a considerable part of the households had housewives at home. Among the 40 households interviewed, 40% reported a housewife in the household. Among those who did have a domestic worker, 70% were men and 30% were women. The task which was most often carried out by domestic workers was gardening at 53%, followed by cleaning at 20% and cooking at 13% (Figure 60). No household had domestic workers doing the household shopping or the childcare for them, and only a very few domestic workers laundered clothes or performed waste management in another household. If one looks at the tasks carried out by female or male domestic workers, it can be revealed that male domestic workers are the only ones doing garden work (Figure 61); and for all the other tasks female domestic workers were preferred. Only 3% of the interviewed residents in Bodhirajapura indicated to have a domestic worker, compared to Egodawatta where 38% reported to have one (Figure 62). This difference may be explained by the income difference between these two zones.

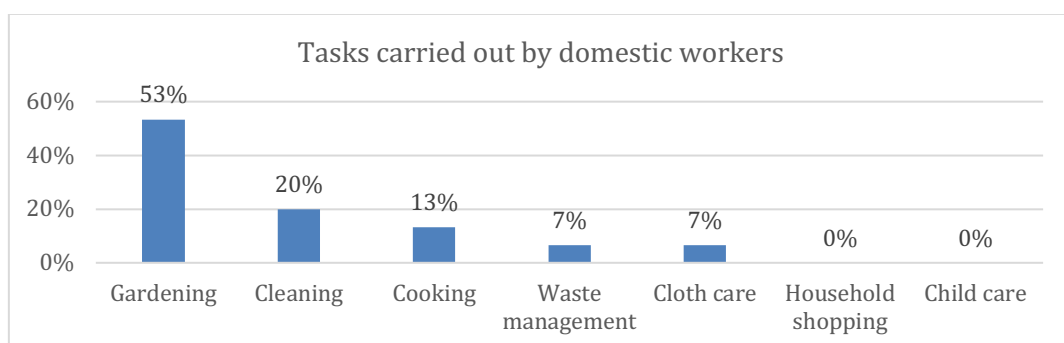


Figure 60: Tasks carried out by domestic workers in households

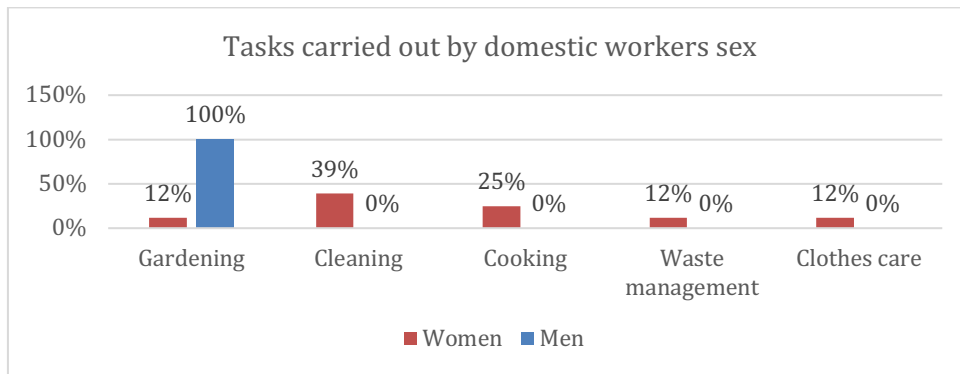


Figure 61: Tasks carried out by domestic workers sex

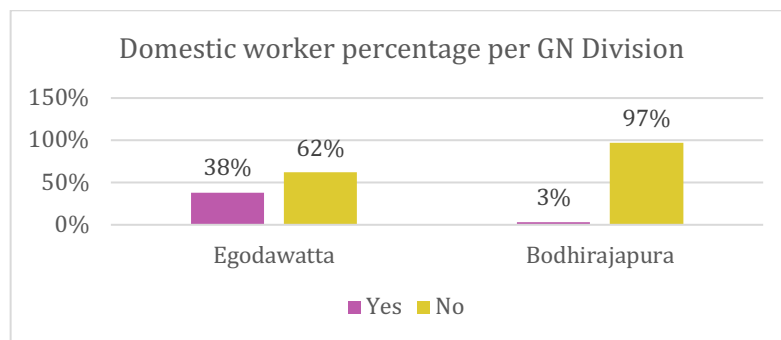


Figure 62: Domestic worker percentage per GN Division

### 5.3 Household involvement discourses

The reasons why a specific person is routinely fulfilling the household tasks was classified into various categories. Under this classification scheme, first all response categories are explained, and then each household chore is presented with their specific category answers and frequencies. Finally, the household division of labour and its satisfaction rating are presented.

First of all comes the category for 'gender roles', in which two sub-categories were established; 'traditional gender roles' and 'collaborative gender roles'. This 'gender role' category refers to the gender role concept introduced in chapter 2.1.1 (Surinya, 2000; Wickramasinghe, 2000). The sub-category 'traditional gender roles' refers to the different roles that men and women have in the traditional society. This means concerning household work, that the main part falls on women. The 'collaborative gender roles' sub-category suggests that women and men share the household tasks together. This means that both are involved in a shared work in the task.

Second, the 'capability' category refers to the concept of capability introduced in chapter 2.1.4 (Nussbaum & Sen, 1993; Robeyns, 2016). Respondents may have answered that a specific person is doing the tasks because others in the household may have a lack of capability to do it, or because the one who is carrying out the task may have capabilities that other ones do not have. The presence of adequate knowledge on the part of a specific person (or 'know-how'), as well as whether or not the person had

a driver's license were the primary capabilities mentioned by the interviewees which were included in this category.

Third, the category 'physical presence at home' was created. This reason was given as a response in the surveys many times, which led to the creation of a category itself post-hoc.

Fourth, a category for 'time availability' was created. The time that one household member may have or not have available to complete a task was a reason for certain interviewees to carry out the household chore or not. This category refers to the time availability concept introduced in chapter 2.1.2 (Teerawichitchainan, 2008).

Fifth, some interviewees explained the involvement of a specific person by 'their degree of interest' in completing the task. This means, that one interviewee may say that they carry the task out because they are interested in doing it. This category also includes interviewees who said that the other members of the household are not interested in doing it, thus the interviewee completes the task.

The last category is called 'other'. This category includes answers which were rare and not placeable in one of the existing categories.

All these created categories provide explanations for the involvement of men or women in the different tasks. In each of these cases, the interviewed person explained why a specific person is carrying out the task for the household. Rarely, for household shopping and for clothes care, the interviewee mentioned that each member of the household washes his or her own clothes or buys for his or her own needs. In these rare cases, the chore is done individually. As this explanation does not involve others in the reflection, these answers were excluded from the rest of the categories and will be mentioned and analysed separately for each chore.

To consider the responses for each chore, we will begin with **cooking**, where it turns out that the most answered category of men was 'capability' (see example 1 below), while the corresponding response for women was the 'physical presence at home' (see example 2 below) of the person carrying out the task (Figure 63). This explanation difference is huge between women and men. It seems that men believe that the person doing the task has certain capabilities that others in the household do not have, while women believe more that the person is doing the task because he or she is at home most often. The rest of the explanation categories mentioned do not show a relevant difference between men and women. The cooking is done 89% by women as shown in figure 50. Thus, most of the answers are to explain why women do this chore.

*Example 1: "I even do not know how to make a cup of tea." (male interviewee ME01)*

*Example 2: "There is no one else at home to cook." (female interviewee FHH01)*

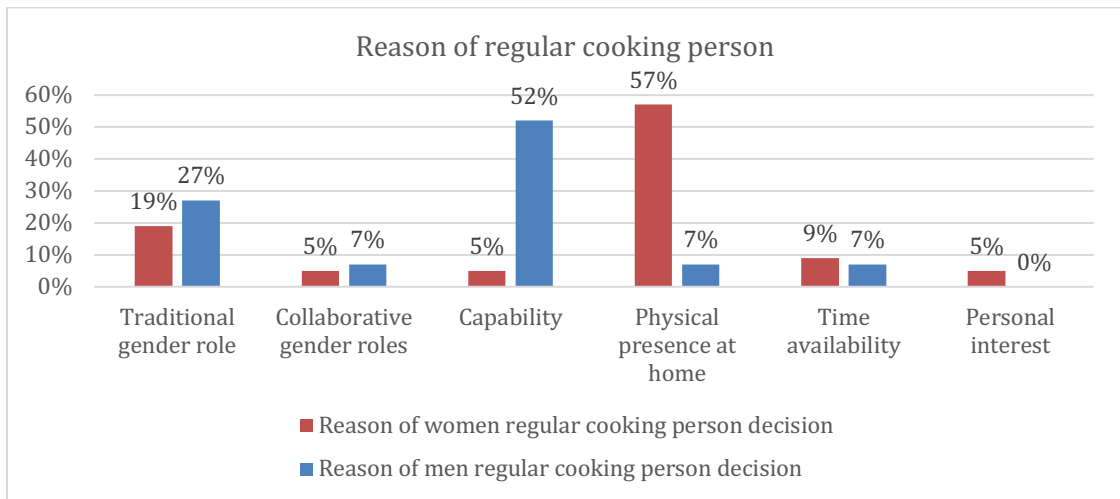


Figure 63: Reason of regular cooking person

The **cleaning** task of the household chores is mainly explained by the ‘time availability’ category by men (example 1 below) (Figure 64). Women instead explain their involvement the most with the ‘physical presence at home’, as they also did in regard to the cooking task. Another difference between the discourse of women and men is in regard to the traditional role, which is a stronger part of the female discourse compared to the male discourse (example 2 below).

*Example 1: “According to the time we have, we do it” (male interviewee ML01)*

*Example 2: “I have to do it, it’s just like that.” (female interviewee FHH01)*

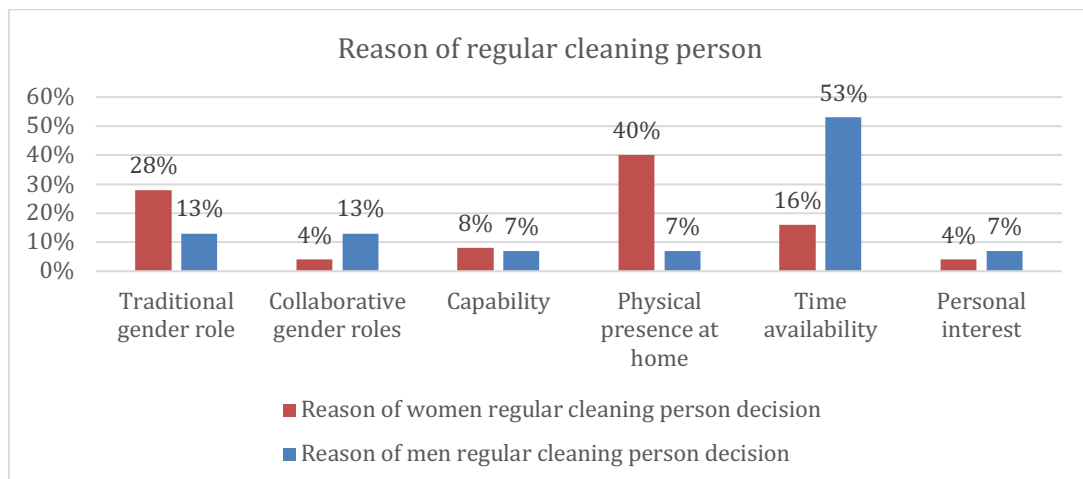


Figure 64: Reason of regular cleaning person

**Household shopping’s** reasons turned out to have a wider range of variation of responses (Figure 65). The reason given most commonly by men and women both was ‘capability’ (example 1 and 2 below), but for men this reason was more important than

for women, as it was also for cooking. In contrast, women explained their choice of the regular household shopping person also by the ‘traditional gender role’ and the ‘physical presence at home’ categories. Time availability was put forward as an explanation more by men to explain than by women, similar to the cleaning responses. Finally, two men said that in their household the household shopping is done individually. This means each member buys what he or she needs.

*Example 1: “Because the wife is sick - she has a knee problem.” (male interviewee ML01)*

*Example 2: “Because the mother knows what is needed in the house.” (female interviewee FFF01)*

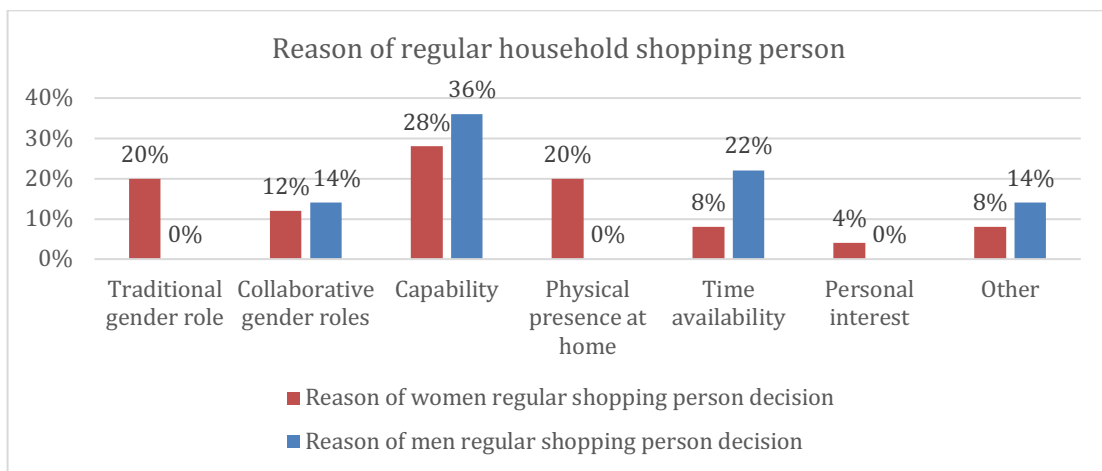


Figure 65: Reason of regular household shopping person

For men, the main reason cited for choosing the person they did for **laundrying clothes** chore was ‘time availability’ (example 1 below) (Figure 66) as it was for cleaning. The female discourse was more varied, with a combination of ‘physical presence at home’ and ‘capability’ being the most common responses. Indeed, the ‘physical presence at home’ (example 2 below) was the most pronounced reason to explain the choice of the person for laundrying clothes as well as it was for the cooking and cleaning. Finally, one woman and two men mentioned that they do the laundry each person for himself or herself in their household, individually.

*Example 1: “She does it because I don't have time.” (male interviewee MV01)*

*Example 2: “My father and my husband are not at home, therefore I have to do the it.” (female interviewee FNN01)*



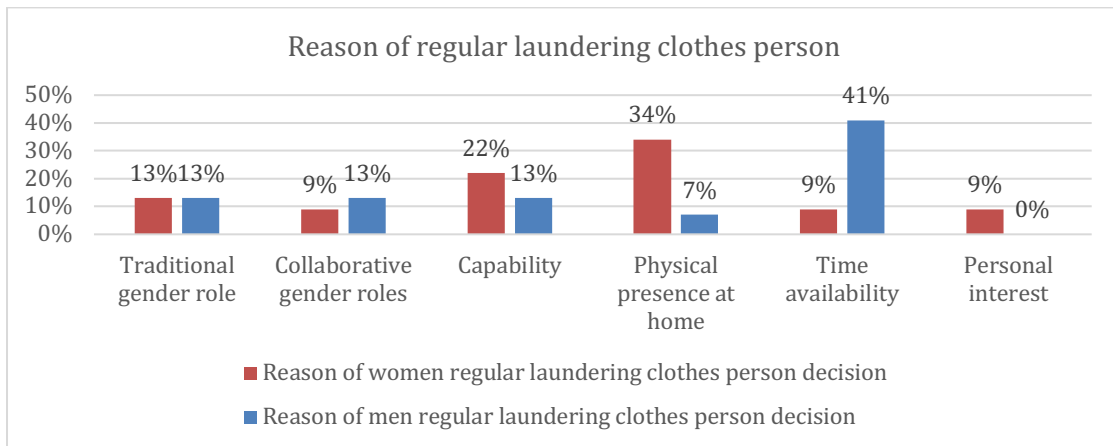


Figure 66: Reason of regular laundering clothes person

Concerning **garden care**, people mentioned very varied reasons, and this variation was also visible between both men and women (Figure 67). Men mentioned 'time availability' (example 1 below) and 'personal interest' (examples 2 below) the most to justify the person who does this chore regularly. Women on the other hand explained the choice most often by the 'traditional gender role' (example 3 below) and the 'physical presence at home'. The 'collaborative gender role' (example 4 below) was more commonly mentioned among men than among women. No one attributed the explanation to a 'difference in capabilities' between household members.

*Example 1: "Since I am at work, she does every household work." (male interviewee MB01)*

*Example 2: "I don't like to do that." (male interviewee ME01)  
"Because it is her hobby." (male interviewee MX01)*

*Example 3: "He is responsible for the garden." (female interviewee FL01)*

*Example 4: "Because there is not a lot to do, so we do it both. Because it is easy to do it together and we finish quickly." (male interviewee MV01)*

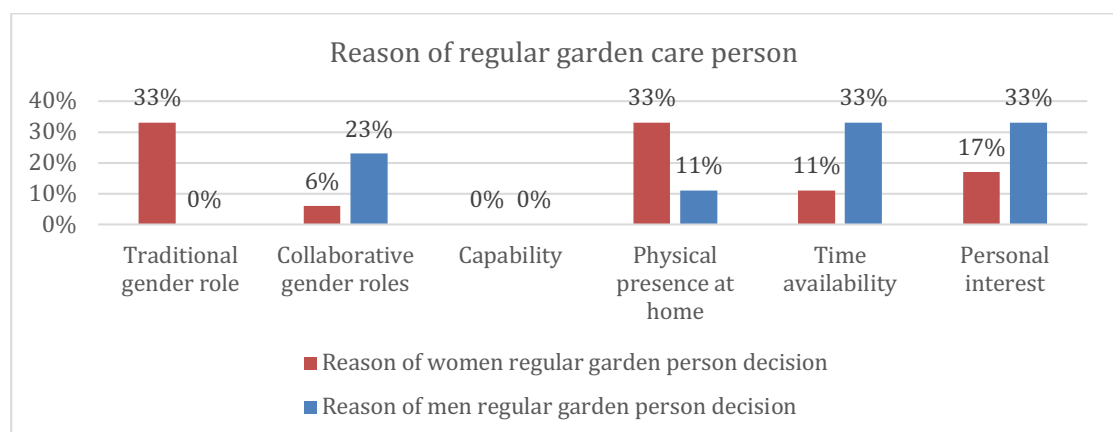


Figure 67: Reason of regular garden care person

The **child care's** reasons varied a lot between men and women (Figure 68). Males announced the most that the child care is performed as a part of a 'collaborative gender role' (example 1 below). Men justified child care the most with collaborative gender roles as compared to the other chores justification's given by men. Other explanations provided by men were the 'physical presence at home' and the 'time availability'. For women, their explanations were mainly characterized by the 'traditional gender role' (example 2 below) and the 'time availability' (example 3 below) responses.

*Example 1: "Because it is the duty of the family." (male interviewee MJ01)*

*Example 2: "Because I am the mother." (female interviewee FQ01)*

*Example 3: "Because of his job, he is not available." (female interviewee FE01)*

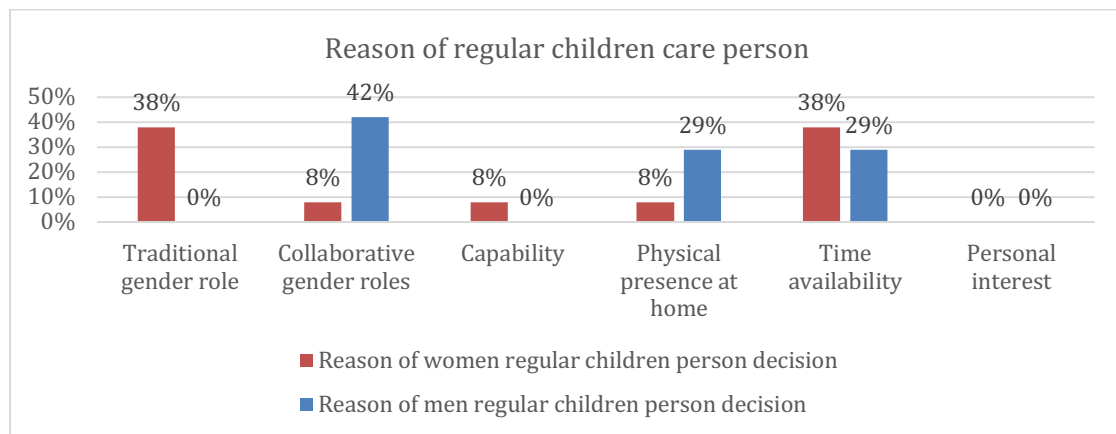


Figure 68: Reason of regular child care person

The choice of the regular **waste management** person is shown in figure 69. Women mentioned most often the 'physical presence at home' (example 1 below), which was followed by the 'capability' category (example 2 below). These explanations constitute more two-thirds of the explanations for women for this chore. In contrast, for men the reasoning was based more around the 'time availability' (example 3 below) category, followed by the 'physical presence at home' (example 4 below) category. Physical presence at home was a reason mentioned by both women and men as one of the main explanations for this chore's assignment. For men, 'time availability' and 'physical presence at home' make more than half of the total explanations.

*Example 1: "Because there is no one else at home" (female interviewee FN01)*

*Example 2: "Because my husband is sick." (female interviewee FMM01)*

*Example 3: "The one who is available at the time, will do it." (male interviewee MH01)*

*Example 4: "Because she is always at home." (male interviewee MA01)*

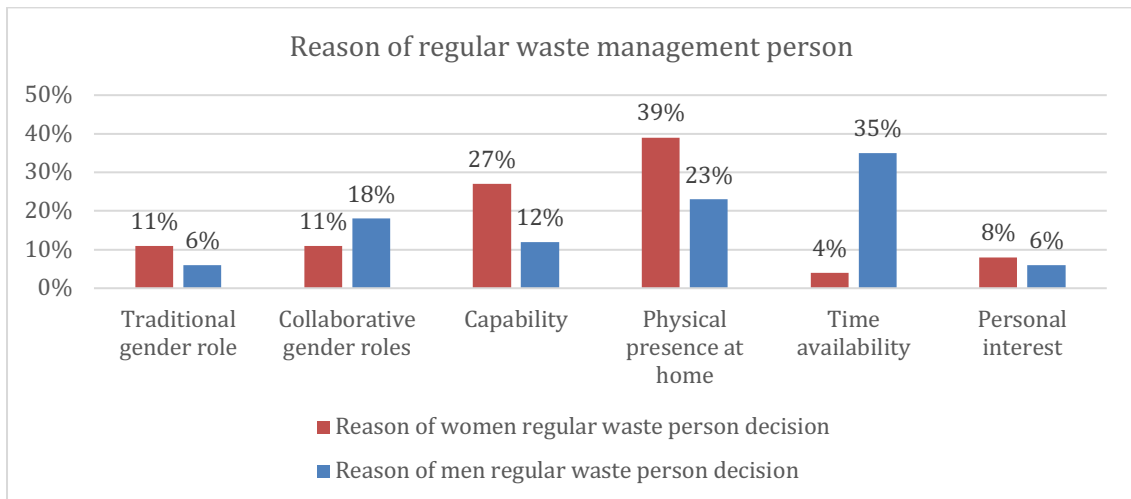


Figure 69: Reason of regular waste management person

In sum, the respondents gave a lot of varied explanations for the choice of the person doing the household chores regularly (Figure 70). One third of the female explanations were characterized by the 'physical presence at home' of the person carrying out the tasks regularly. Another explanation mentioned quite a lot was the 'traditional gender role'. These both categories together make up more than half of the female explanation responses. Sometimes, women justified the chore assignment using the 'capability' or the 'time availability' categories, and they seldom used the 'collaborative gender role' or the 'personal interest' categories. For men, one third of all explanations were justified using 'time availability'. Another explanation mentioned quite a lot was the 'capability'. These two categories together make up more than half of the male explanation. Sometimes, men justified the chore assignment using the 'collaborative gender role' category. Seldom, men explained the choice by the 'physical presence at home', the traditional gender role' or the 'personal interest'. In total, four men and one woman mentioned that they carry out specific tasks individually.

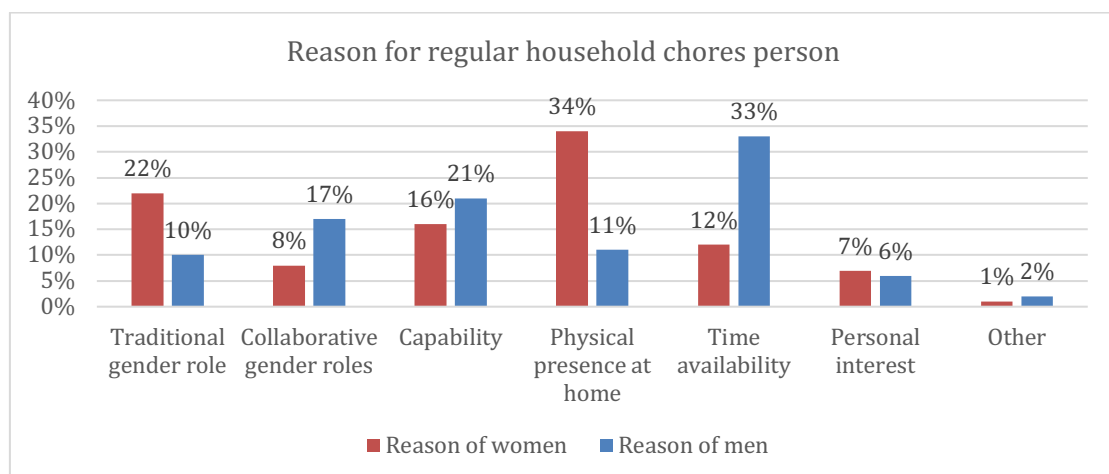


Figure 70: Reason for regular household chores person

Since some households reported the need to provide childcare while many other reported that they did not need to provide childcare, it was considered that this difference in household composition and duties may influence the explanations given

by these different households for who performs the chore. Because of this calculations were conducted to determine if the response rate varied significantly between the two different household composition groups, but no significant difference has been identified.

An interesting additional test would be to disaggregate the data of the explanations based on the sex of the person who is carrying out the task to see if the explanations are linked to the sex of the person carrying out the task as well as to the sex of the person responding. However, this disaggregation was not possible during this study for several reasons. First, the male and female interviewees did not speak in each case about themselves doing the tasks. Thus, their reflection was often concerning another member of the household. This reflection does not necessarily correspond to the explanation that the person fulfilling the task would provide. Second, the data was not sufficient to disaggregate into seven additional categories.

The question then arises: what do the interviewees say about **the household work division** among women and men? Almost exactly the same categories as for the explanation of each household chore could be reused. In figure 71 the different categories which could be established with the data are shown.

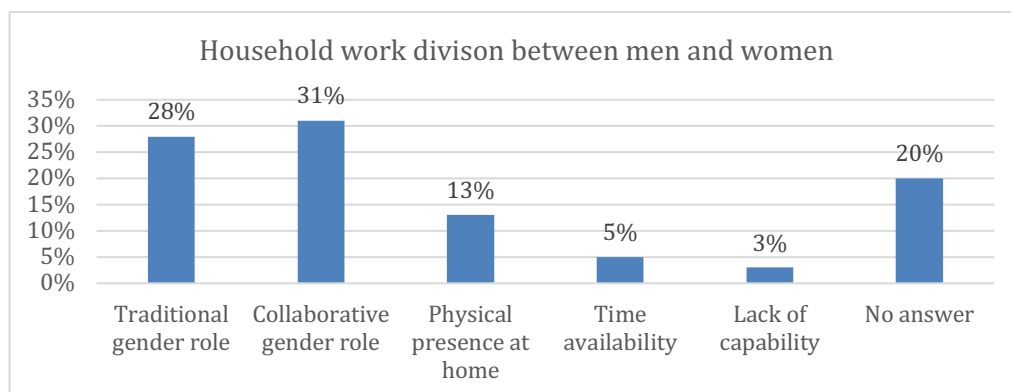


Figure 71: Household work division between men and women

The most common response was that of ‘collaboration’ (Figure 71). Some examples below show the thoughts of the interviewees:

*“There is no segregation as such, but we work in cooperation. We look for the work which is there and whatever the gender the person will do.” (female Interviewee FL01)*

*“Both of us are doing it equally.” (female Interviewee FU01)*

*“We share the household work all both together because it is not good to give the weight of the work to one person. We got together in a love affair and we got married. So we never give all the burden only to one person. We always share the work.” (male Interviewee MJJ01)*

A strong drive for task-sharing and equity can be observed from these answers. Another common category was the 'traditional gender role' category. Some examples below show the thoughts of the interviewees:

*"I am working outside; the wife has to do the priority [in the household]." (Interviewee MB01)*

*"Women do in each household more. I don't know why but every woman is like that." (Interviewee FH01)*

*"Women are trained to do the household work in Sri Lanka." (Interviewee FN01)*

*"I think women are better to do the household work than men. Males are employed, females are not, no? So employed people will be tired and so the wife will be engaged to the household work." (Interviewee MX01)*

*"Household work is mostly done by the women, because men are always out of the household for the work." (Interviewee FFF01)*

Rarely, interviewees mentioned the 'physical presence at home' as the explanation for their household work division. In this category interviewees explained that the women do the household chores, because she is the most at home. Seldom, 'time availability' was mentioned. Very rarely, the lack of 'capability' was provided as explanation of the division of household chores. This category was used to explain the division of the household work based on the fact that the man in the household was sick, so the woman carries out the tasks instead.

A separation between the female interviewees and the male interviewees concerning their perceptions of this household work division was established (Figure 72). The difference in the discourse between men and women concerning this question mainly focuses on two categories: 'collaborative gender role', which is the strongest category mentioned by males, and the 'traditional gender role' category, which was mentioned most often by women. The 'collaborative gender role' category makes up almost half of the men's explanations of their household work division, while for women this reason forms only one-fifth of their explanation. Male interviewees therefore believed, in most cases, that the division of work is done in a collaborative way. Moreover, men also explained also that household members do the chores according to their time availability. This category was never mentioned by female interviewees. In contrast to the men's responses, female interviewees explained their household division most by the 'traditional gender role' category. This category would suggest that women do all the household work. Some women also mentioned the 'physical presence at home' category as an explanation for their household work division, or infrequently the 'lack of capability'. In both cases this resulted in the woman carrying out the household work, either because she was at home or because the man was sick.

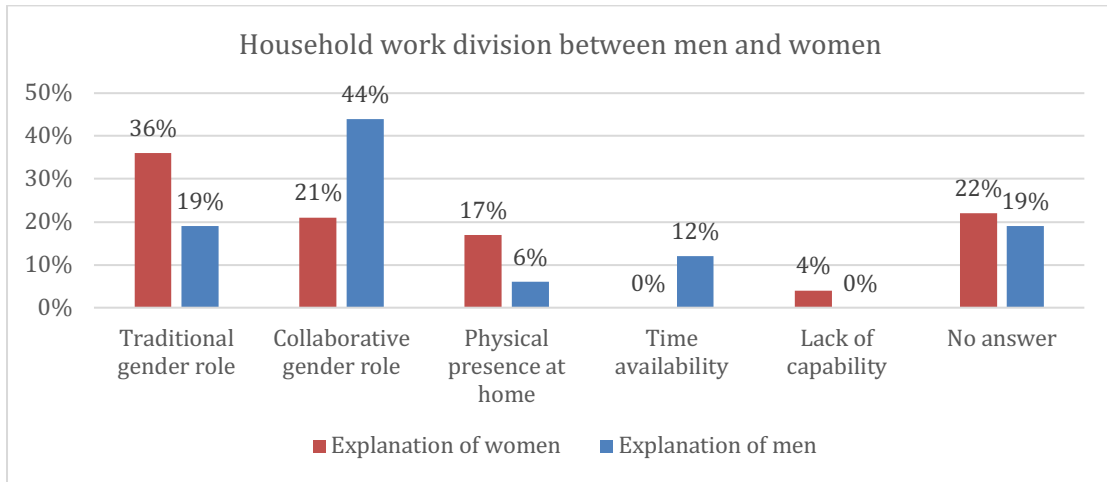


Figure 72: Household work division between men and women

The interviewees that responded that they were satisfied with their household work division constituted a large majority, at 85% of the total respondents (Figure 73). To see whether the sex of the interviewee does influence their satisfaction, the separation of the data into female and male respondents was established (Figure 74). Both female and male interviewees were mainly satisfied with the household work division. But a few female interviewees reported to be dissatisfied with the division. Compared to this, no male interviewee reported to be dissatisfied (Figure 74).

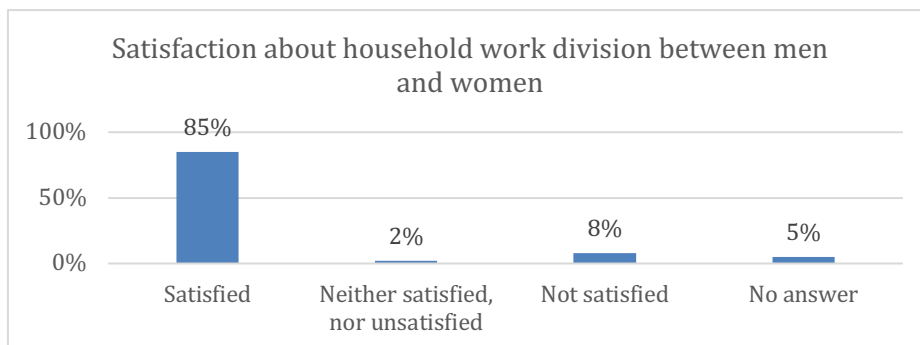


Figure 73: Satisfaction about household work division between men and women

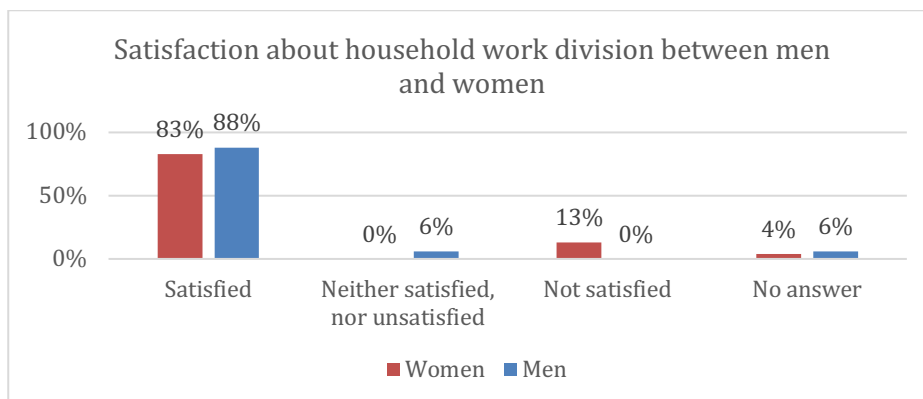


Figure 74: Satisfaction about household work division between men and women per sex of the respondent

To help explain that rating, a couple of sub-categories were established (Figure 75). The most selected category was the ‘traditional gender role’ category. This category was indeed the most said of female interviewees, while only a few male interviewees selected this category (Figure 76). The female interviewees in this category said, for example,

*“I am happy, because the others are also earning for the house. So everyone is fulfilling his duties, no one is lacking anything.” (female interviewee FNN01)*

*“Women do more, because they have an obligation to do the domestic work. Women are the owners of domestic work.” (female interviewee FII01)*

The second most common category was ‘collaborative gender role’ and the ‘efficiency’ of the chore performance was reported with a similar frequency (Figure 75). In the ‘collaborative gender role’, male interviewees (Figure 76) said for example,

*“In a family, we must divide it and work together, respect each other. The wife is not a slave, she is the partner of my life.” (male interviewee ME01)*

This quotation shows how important it is to the interviewee that there is equality between men and women in their household. The second sentence may refer to situations or traditions where this was a tendency.

The interviewees who explained their satisfaction level using the ‘efficiency’ category said that the chore being fulfilled brought them satisfaction. These interviewees do not accord any word to emotions of the household member’s doing or not doing the chores. The ‘collaborative gender role’ and the ‘efficiency’ category together are about one third of the male explanation, while female interviewees said this only rarely (Figure 76). One category said seldom and only by women, was that the ‘tasks are scary’. This woman indicated that she was dissatisfied with the household work division because she needed to do tasks which it scared her to have to perform (Figure 76).

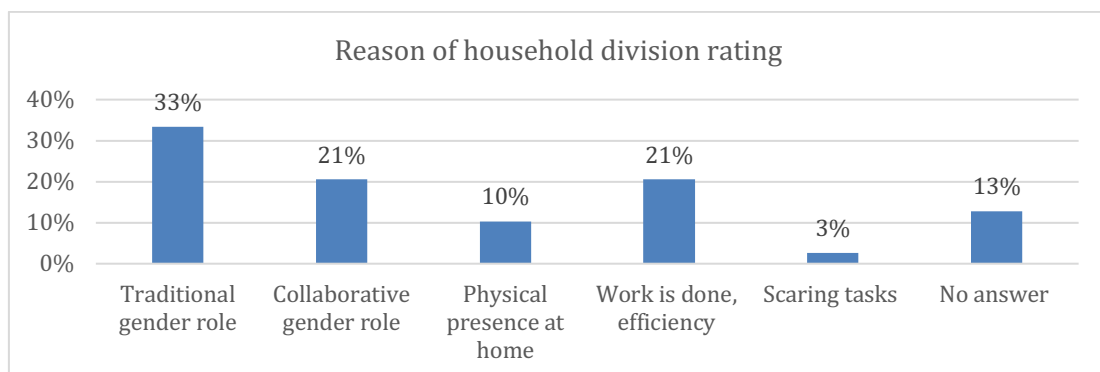


Figure 75: Reason of household division rating



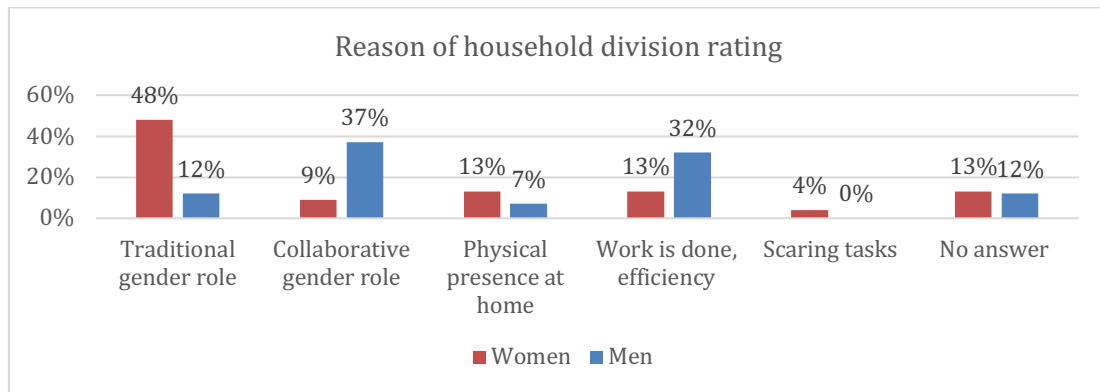


Figure 76: Reason of household division rating per sex of the respondent

The reasons for a choice regarding the hiring of **domestic workers** was explained by four male interviewees as being dependent on their specific ‘capabilities’. This ‘capability’ refers in all cases to the fact that women do exhibit reduced capability compared to men to in completing gardening tasks. One female interviewee talking about the reason they hired a male worker for gardening agreed with the ‘capability’ difference. The other interviewed woman said that the garden work is traditionally a man’s role. This ‘traditional gender role’ discourse was also held by one of the men interviewed talking about a female domestic cleaning worker, who was in his opinion more talented than men to perform this task. Two interviewed male residents explained their choice with a comment regarding an ‘economic advantage over the others’. In sum, the seven households which had garden domestic workers exclusively employed male workers. Three men and two women interviewed reported that ‘capability’ was the reason for this. One woman explained this with the ‘traditional gender role’ and one man explained his decision with the ‘economic advantage’ category. In addition to garden work, two female domestic workers were engaged among the interviewees. These two do the cleaning, the cooking and laundering of clothes. The interviewed man employer explained his choice using ‘economic advantage’, while the interviewed woman employer explained her choice with the ‘traditional gender role’ category. Unfortunately, as only a very few respondents could be interviewed concerning their hiring practices regarding domestic workers, no further interpretation can be done with that data.

#### 5.4 Gendered waste management

Waste management at the household level often includes two parts: storage of the waste and disposal of the waste. In each of these two parts, household members are involved to fulfil the different activities related to the waste management. In this chapter, four different waste types are shown for which multiple members of the household are fulfilling the different parts to complete.

Figure 77 shows the ‘vegetable waste **storage**’ sub-task of waste management, which is fulfilled in 77% of the cases by women. One part of the interviewees reported that this task is fulfilled by both sexes together, while only a very few households said that men perform this task. For the ‘paper storage’ sub-task, the involvement of women does not differ a lot from vegetable waste, although for paper men contribute more than for

vegetable waste. The sub-task 'battery and electronic storage' showed an even higher involvement of men than vegetable and paper waste, with 24% men compared to 60% women fulfilling the task. The 'cardboard and paper storage' sub-task were revealed to have almost the exactly the same patterns concerning the person fulfilling the task. The 'glass storage' sub-task was dominated by women, while it reveals to have the highest percentage of shared work compared to the other tasks. In contrast, the 'metal waste storage' sub-task was revealed to be the one sub-task where men contributed the most. Indeed, metal waste related tasks are completed by women in nearly half of cases, and men in the other half. Metal waste storage was never reported as a shared task. Polythene waste storage was almost exclusively fulfilled by women, as reported at 82% women completing the sub-task. Plastic storage was also fulfilled in most cases by women at 70%, and sometimes by men at 24%.

In sum, the household waste storage is a chore which is predominated by women at 70% (Figure 78). Furthermore, men contribute in some extent to the activities related to the household waste storage with 18% contributing solely and men and women sharing the chore at 9%. The data reveals that the waste type has an influence on the contribution of women and men in the task. Indeed, the involvement of men was strongest for metal waste storage, followed by battery and electronic waste, then plastic and glass waste. The responsibility of women is the strongest for polythene waste storage, followed by vegetable waste, plastic, and cardboard. Glass storage is the task which is the most commonly shared.

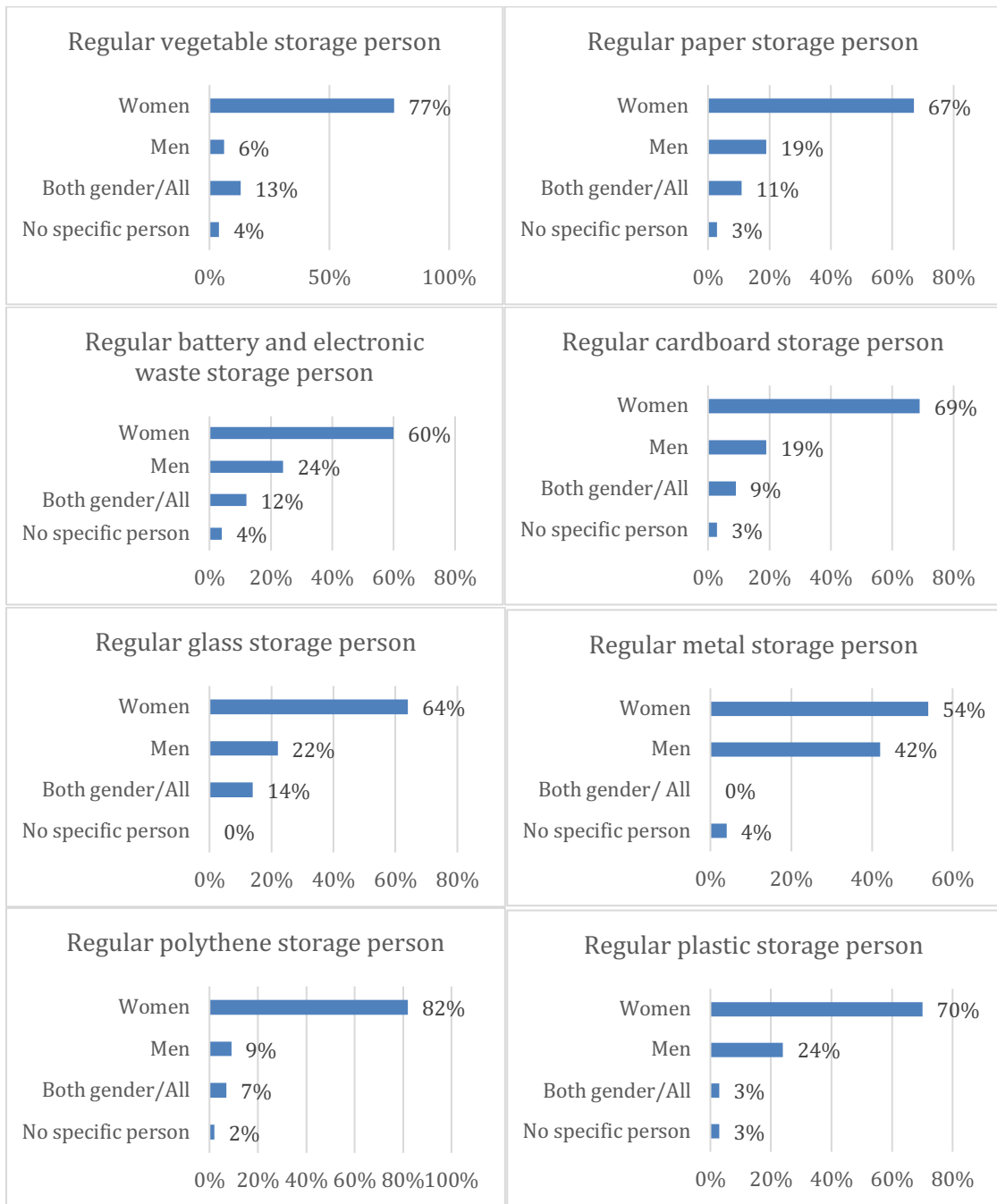


Figure 77: Regular storage person of different waste types

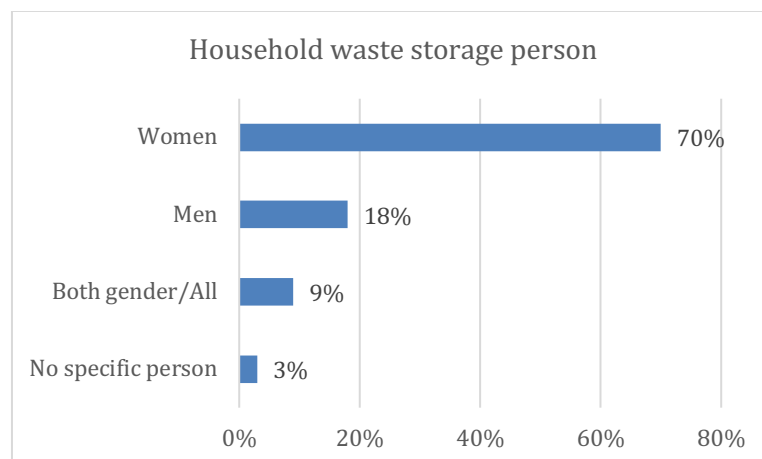


Figure 78: Regular waste storage person

Concerning the **disposal** of vegetable, women do the main part of this (68%) (Figure 79). Men contribute in almost one-quarter (24%) of the cases to this activity. For paper disposal, the involvement of women and men in the task is almost equivalent to that in vegetable waste. In the case of battery and electronic waste disposal, the involvement of women is less than for vegetable waste and paper (57%). Men are the sole contributors to this task in 29% of the cases. For cardboard waste disposal, women do contribute to almost the same percentage (58%) as for battery and electronic waste. In contrast, men contribute to the cardboard task in around one-third of cases (34%). For glass disposal, the involvement of women and men is quite similar to the paper disposal, but glass disposal reveals the highest percentage of task sharing with 10% compared to the other tasks. Metal waste disposal has the highest male involvement, with 43% of the interviewees reporting to be the one solely responsible for its handling. The involvement among men and women for polythene and plastic waste disposal shows a very similar pattern to that of cardboard.

In sum, two-thirds of all of the waste disposal sub-tasks are performed by women (Figure 80) and one-third by men. Waste disposal was rarely reported as a shared task. The waste disposal turns out to involve more men (30%) than the waste storage (18%). As a result, waste management tasks at the household level are performed mainly by women at 65% of households reporting that these tasks are conducted by women (Figure 81). Men perform the waste management in 24% of the households, and rarely waste management is a shared task.

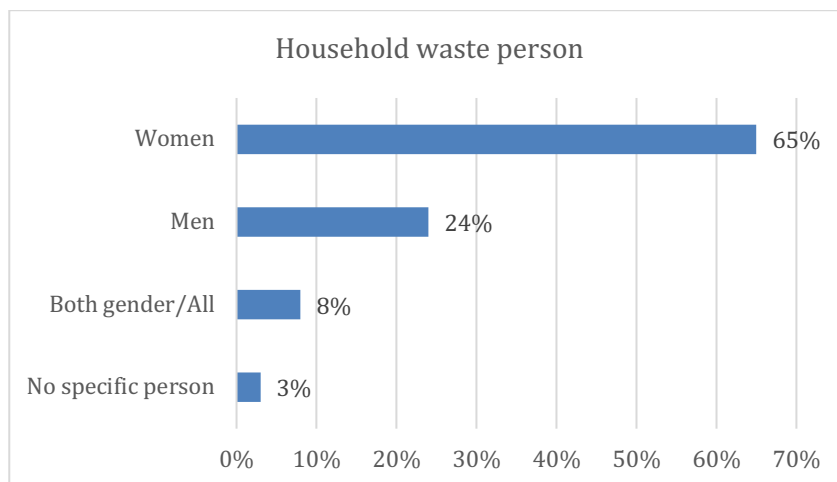


Figure 81: Household waste person

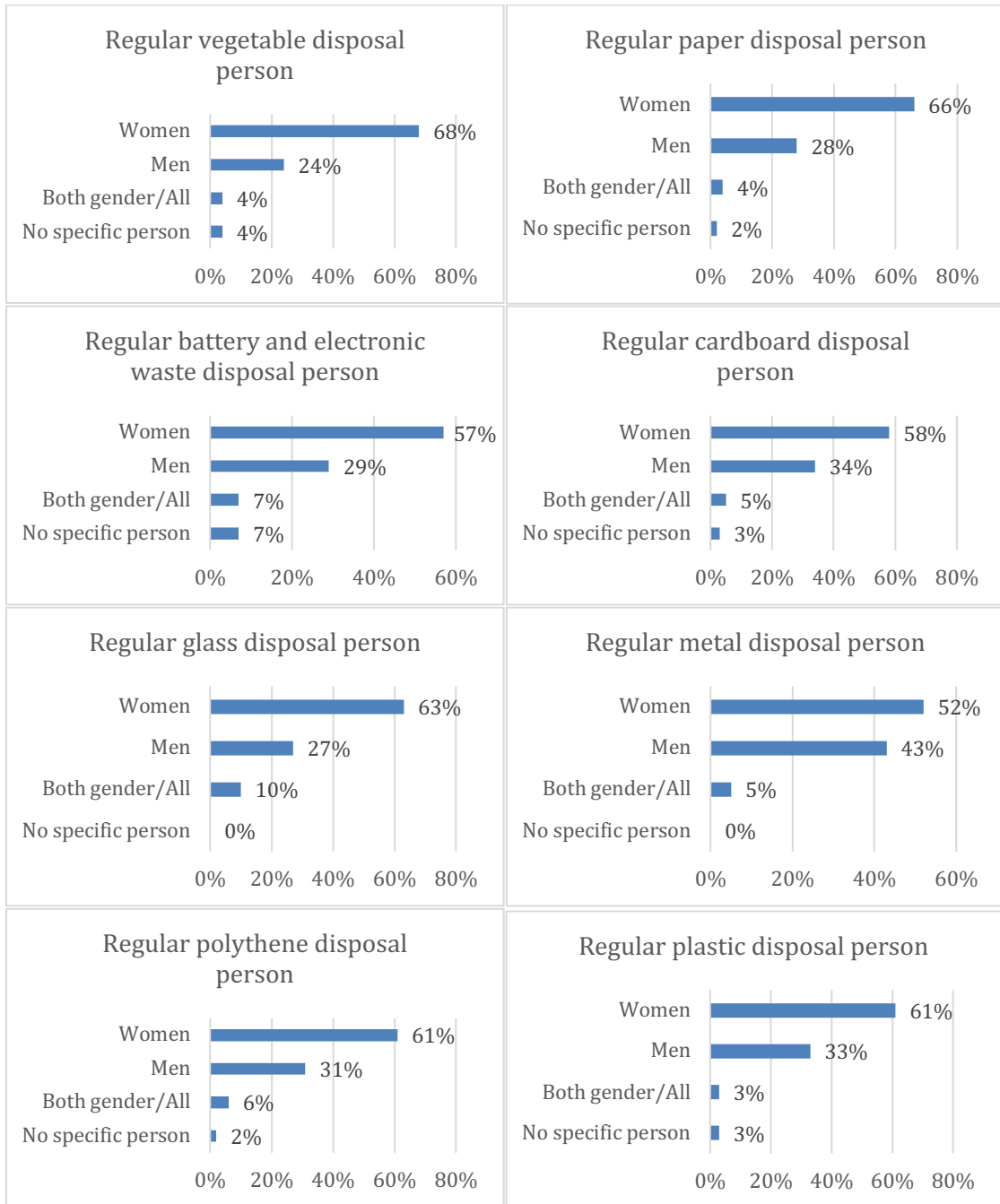


Figure 79: Regular waste disposal person

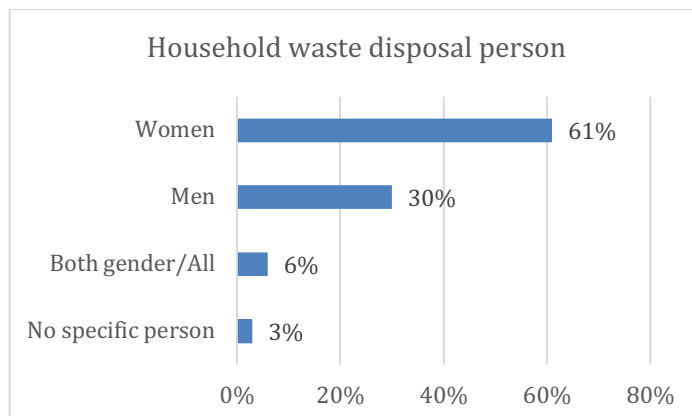


Figure 80: Household waste disposal person

## 6. Analysis and discussion

### 6.1 Gender and household chores

The household level or the 'home' is of high interest, not only because this were most of the waste is generated in Sri Lanka, but also because at this level, the relations between human and the environment are formed, negotiated, and challenged (Shillington, 2008; Warunasinghe & Yapa, 2016). At home, the household chores are suggested in literature to be unequally divided among men and women (Surinya, 2000). This unequal division was confirmed for each of the seven household chores in the questionnaire of this thesis. Several resources suggest that the major contribution to the household activities is made by women, except for in the case of gardening work (Adebo & Ajewole, 2012; Attygalle et al., 2014; Obadina, 2016; Surinya, 2000; Teerawichitchainan, 2008; Tiwari, 2001; Vithanage, 2015). This major contribution could be confirmed by the data of my thesis. Indeed, the total of all household chores revealed that women contribute to 65% to the household chores independently. This major contribution on the part of women was confirmed with the answers to another question in the questionnaire, where 77% of the interviewees agreed that women do more household work than men. The strongest difference in the contribution based on sex difference showed the cooking activity, with 89% of all interviewees mentioning that the woman of the household fulfils this task independently, while no interviewee said that men perform this activity independently. This unequal division of the household work causes a higher burden on women (Attygalle et al., 2014). This conventional or traditional domestic role of women (Ručevska et al., 2019) may be explained due to the sampling characteristics. In reality, the sample contains a strong representation of interviewees being in the '60 or greater' age category with this age category representing 33% of the total sample. These 33% of respondents may be influenced more strongly by traditional roles, while the younger households may perhaps differ in their roles. In addition to this, a larger number of housewives (16) compared to househusbands (0) were in the data. Furthermore, the separation of the collected data into households that reported 'having children to look after' and those with 'no need to care for children' showed an influence over waste disposal and garden activity. For both of these activities, the contribution of women increased from when there was "no children care" to "children care", whereas men's contribution to these chores declined. At least for these two activities, to have children to look after reinforces the larger involvement of women in the household and weakens the participation of men.

According to the literature, **garden** work is an exception concerning the contribution of women and men in that chore (Tiwari, 2001). The author (Tiwari, 2001) suggests in his study that both women and men are involved in garden work. The garden work in the questionnaire revealed that 56% of women fulfil this task, 22% of men perform the task, and 22% of household perform the gardening as a shared work. The separation of the data into household that reported 'having children to look after' and those with 'no need to care for children' showed that for garden work, women complete this chore in 42% of households when no children need care and 64% of households when children need care, while men complete this chore in 35% of households when no child care is needed, and when child care is needed they contributed in only 14% of households. In

both cases, women and men contributed in together to some extent to complete gardening activity. Besides being one of the two tasks where having children to look after had an influence on the contribution of men and women to the task, gardening showed the highest rate of male contribution with 22% of households reporting that men performed this task independently in the interviewed households. These information show that gardening really does have certain characteristics which distinguish it from other household chores. Garden work turns out to be the one chore where men contribute the most compared to the other household chores. Women and men contribute solely to some extent, and conduct shared work to some extent; although both members of the household do contribute to the garden work, the work is still not shared equally between sexes.

Concerning **shared work**, (Dissanayake, 2011) one author has put forward that the entry into education for women resulted in slow gender role transmission in the Sri Lankan society, where household responsibilities began to be seen as shared between husband and wife. Indeed, the education level of the interviewees turned out to show that 93% of the women finished secondary school, which was high compared to men where 86% of respondents completed secondary school. The higher number of women at the secondary education level shows that Sri Lanka has already done a lot to bridge the education gap between men and women even though at the University level, men still predominate with 18% of male respondents having completed a university education compared to 3% of my interviewees. The gender role transmission to more shared household work, which Dissanayake (Dissanayake, 2011) told, can be identified in the data of this thesis; indeed, for each household chore, men contribute independently to some extent as a regular member of the household carrying out that task, except for in the case of cooking. Moreover, for each household chore some interviewees mentioned that the task is shared among men and women in the household. For the total of all household chores, one fifth (21%) of chores were reported as being shared. The highest shared part of the household chores was household shopping, with 31% of all interviewees mentioning that both men and women do that chore regularly.

Concerning **domestic workers** the literature suggested that households would delegate the waste activities of the household to a domestic worker first thing in the case that they can afford a domestic worker (Beall, 1997). The data of this thesis showed a low number of households who could afford domestic workers (18%). Among those who could afford one, only 7% reported to enlist their help for waste work. Here again, the gardening was the chore which revealed strong differences with the other chores. Among the domestic worker's activities 53% was gardening, which was done only by male domestic workers. Other chores where domestic workers were employed only women were hired, and in these cases for cleaning, cooking, waste management, and laundering clothes.

Finally, the first **hypothesis** explaining an unequal division of household work will be found in Colombo, where the major contribution will be the one of women, was confirmed with the data of this thesis. This major contribution in household work hinders women to enter more into their productive role compared to men (Maclaren & Thu, 2003; Moore, 2008; Yates & Gutberlet, 2011). With the gardening work being an exception, where the hypothesis suggested that both men and women will be involved,



and where this hypothesis was partially confirmed. One part of the hypothesis was that gardening work is an exception to the idea that the majority of work would be completed by women, which was confirmed with this thesis. However, when we made this hypothesis, it was in anticipation that the work would be a shared one, and this part of our hypothesis was not correct according to the data in this thesis. The other part of our hypothesis says that men and women are both anticipated to participate in the garden work, and this was confirmed with 56% of women reporting to perform the task independently, 22% of men reporting to complete the task independently, and 22% of households reporting that the work was shared among men and women. There were also three chores out of the questionnaire data which showed a higher amount than anticipated of shared work among men and women: household shopping (with 31%, the highest), waste management (23%), and child care (26%). Thus, the exception with the highest shared work would be household shopping instead of gardening according to the household questionnaires. But, concerning the contribution of men to garden work, it turns out that garden work reveals the highest amount of men doing the gardening independently, with 22% compared to the other chores. Finally, the major contribution of men to the household is in the form of gardening compared to the other tasks. This was also the case for domestic garden workers, where exclusively male domestic workers were hired among the interviewees. However, for all other tasks where domestic workers were hired, women were preferred.

## 6.2 Gendered household chores discourses

Different theoretical frameworks explain unequal involvement in household work. In reality, literature suggests several concepts which explain the different involvement of women and men in the household chores. The collected data about the explanations for why a particular member of the family was selected as the regular person to conduct various household chores revealed that a variety of those concepts are used to explain the involvement of a particular member of the household. Some concepts were more often used to justify the the discourse of men, while others were more commonly used for women.

For **women**, the most used concept to explain the involvement of a particular person in the household chores is the 'physical presence at home' (34%). This concept turned out to be the predominant concept used to explain the cooking (57%), the cleaning (40%), the laundering of the clothes (34%), the gardening (33%) and the waste management (39%) among female interviewees. The 'physical presence at home' is a concept that did not appear in the literature as such. Indeed, this concept was revealed to be a repeated answer from my interviewees, thus a category was established with that explanation type post hoc. Compared to male interviewees, female interviewees mentioned that category extremely often. Adebo & Ajewole (Adebo & Ajewole, 2012) explained in their study, that there is a belief on the part of men that women stay home often and are therefore responsible for household activities. This belief refers to men and would suggest that male interviewees report that women are physically present at home and therefore do the household activities. This means that my data shows the strong opposite of this belief. Only for two chores, the household shopping chore and the children care, was the female discourse stronger characterized by other categories such as the 'capability' for the household shopping and the 'traditional gender role' and

the 'time availability' for the child care. The household shopping was the only chore where men and women's discourse mainly agreed, reporting that the person fulfilling that task regularly had a difference in his or her 'capability' which is why this specific person does that task regularly. For the child care, female interviewees mainly explained that they were the person expected to look after them regularly based on the 'traditional gender role' ideology, which suggests that women look after the children; and the 'time availability', which suggests that the household members look after the children according to their time availability to do so. The 'traditional gender role' ideology makes up a great part of the female discourse (22%). For gardening (33%) and for child care (38%), it explains the choice of the person even according to the majority of female interviewees. This traditional gender role suggests that women and men have specific roles attributed in the society. Globally, these roles suggest that women are responsible for the household work, while men are responsible for the main income of the household. Concerning the question of what women think about the household work division in their home, they answered at 36% that women and men in their household have their traditional roles. This was the most reported answer concerning this question among the female interviewees. Women were generally satisfied with the household work division even when the division was unequal, as the literature suggested (Kroska, 2003). The main reason for their satisfaction was that of the gender role ideology (48%). This means that the female interviewees were generally satisfied because each sex has his specific roles in society, and this makes them happy.

For **men** the most important concept used to explain the involvement of women and men in household chores was the 'time availability' concept (33%). This concept turned out to also be the dominant concept used to explain the following specific tasks: cleaning (53%), laundering clothes (41%), gardening (33%), and waste management (35%) among male interviewees. Time availability means that the regular member doing the task does it because that person seems to have more time available compared to the other members of the household to fulfil the task. 'Capability' was the concept making up another great part of the male discourse. Indeed, 21% of men mentioned capability with respect to all household chores. Concerning cooking and household shopping the reason mentioned most often by male interviewees could be classified in 'capability concept, with 52% and 36% of responses respectively. According to men, cooking and household shopping require capabilities that not every household member has. Another special case is the child care, where male interviewees said at 42% that the person or the people who looks after the children regularly does so because it is a collaborative gender role (42%). This means that child care is considered by male interviewees to be mainly a shared task, in comparison to the other chores, where the male answers were less indicative of a collaborative gender role. Moreover, the gardening task was seen as having a high level of 'personal interest' with (33%) of male interviewees reporting that the person fulfilling that task regularly does it out of personal interest. Such a strong personal interest discourse was not present for any other task discussed. Concerning the household division of work, male interviewees responded with reasons which fall in the collaborative gender role ideology 44% of the time. This means that male interviewees mostly think that their household work division is a shared one. All of the men were satisfied with their household work division.

As varied as the concepts suggested by the literature are, so varied were the answers of the collected data. Indeed, this great variety made it difficult at times to identify clear patterns concerning specific tasks. The exception was the cooking task, where female interviewees agreed at more than 50% for a way to explain the one cooking regularly. This explanation differed from the male one, but the male explanation also showed a clear pattern for that task. In addition, male interviewees for cleaning also agreed by a great majority. In general, men and women expressed ideas adhering to the same categories, but to a radically different extent. While women found that the 'physical presence at home' and explanations adhering to the 'traditional gender role' ideology were the most important ways to explain the involvement of a regular member in the household, men found that the 'time availability' and the 'capabilities' of the household member do explained best the involvement of the regular household chore person. 'Physical presence at home' was a more feminine explanation, as it was used to explain the commitment to all tasks strongly by women compared to men with the exception of child care, where men used this concept more than women. This was the same for 'time availability' with men, with the exception of cooking and child care, where 'time availability' was a more feminine explanation. The 'traditional gender role' ideology was revealed to be a great part of the feminine discourse for each chore except for cooking. This category was also the most reported explanation of women when they explained the division of household work in general. In contrast, the 'collaborative gender role' category was a strongly masculine discourse, because for each chore it was more often reported by men than by women. Furthermore, most men said that they saw the division of their household work in general as a collaborative one.

The large majority of the interviewees, both male and female, were satisfied with their household work division; only a few female interviewees reported that they were dissatisfied. This was not surprising, because in the literature it is said that female interviewees are in general satisfied even if they carry out more household work than their partners (Kroska, 2003). This does not mean, however, that women would not find some chores unpleasant, disempowering, or that they would not struggle to fulfill the tasks (Bandara, 2011; Kroska, 2003; Truelove, 2011b). Another explanation may be that women are more likely to do the chores out of obligation, while men are more likely to do the chores out of choice, which would explain their difference in the evaluation (Kroska, 2003).

For certain specific tasks, male and female interviewees agreed to some extent. First, male and female discourses concerning household shopping were both mainly characterized by the capabilities the person or the people have who carry out the task regularly for the household. This was the only task where men and women's main responses were the same. 'Capability' was for female interviewees and for male interviewees the second most reported category concerning the laundering of clothes. For cooking and cleaning, the second most reported response for female and male interviewees was the 'traditional gender role' ideology. Among the main concepts for female and male interviewees was for children care to be dependent on the 'time availability' of the person performing the chore. Among the main responses for female and male interviewees concerning waste management was the physical presence at home.

Finally, as the **hypothesis** suggested, all of the different concepts including gender role ideology, time availability, and capability were found in Colombo. But, finding the main reason for chore distribution to be based on gender ideology was a hypothesis that was not supported by my thesis data.

First of all, when one looks at the separation made in this thesis between traditional gender role ideology and collaborative gender role ideology, one may find that the answers anticipated were not the main reasons provided by the female and male interviewees, as explained in the following paragraph.

The 'traditional gender role' ideology contributed to a great extent to the female discourse (about one-fifth in total) for each chore analysed, but it was only predominant for gardening and child care in the female discourse. Male interviewees' discourse was for each chore less characterized by the 'traditional gender role' ideology than for female discourse, except in the case of cooking, where the male discourse was slightly more characterized by the 'traditional role' ideology. Furthermore, for the household shopping chore, the gardening, or the child care, the male interviewees never used that concept to explain why the specific member of the household fulfils this task regularly. In addition to these observations, it was found in the female discourse about the general household work division that 36% reported 'traditional gender role' ideology compared to the only 19% of men. Thus, a difference between male and female discourse concerning the traditional gender role ideology can be observed, where female discourses include this explanation in a great frequency compared to men, where this explanation way is rare.

Concerning the 'collaborative gender role' ideology, it was a stronger part of the male discourse (almost 20%) than for the female one (only 8%) in general. Indeed, for every chore, the 'collaborative gender role' ideology marked the masculine discourse more than the feminine one without exception. Furthermore, male interviewees have put forward ideas adhering to the 'collaborative gender role' at 44% concerning the general household division of work compared to women's 21%. Comparing the data concerning these two categories; the 'collaborative gender role' ideology data suggested work was shared among men and women and the 'traditional gender role' ideology suggested that women do the household chores; to the data of the sex of the member of the household carrying out the tasks regularly it can be revealed that women do the large majority of the household chores, which corresponds more to the traditional gender role ideology. Thus, globally the female discourse seems to correspond more to the reality than the male one.

When these two categories (the 'traditional gender role' ideology and the 'collaborative gender role' ideology) are put together to the gender role ideology, then this category still remains neither for male interviewees nor for female interviewees to be the main reason. For both, it is the second most reported category for their discourses; for females this comes after the 'physical presence at home' category, and for males it comes after the 'time availability' category. This category was present in both discourses at around 30%, with a slightly higher percentage for the female discourse.

Finally, each of the suggested concepts was confirmed in Colombo by the data, but the 'gender role ideology' was not found to be the one primarily responsible for characterizing the discourses of men and women. As a matter of fact, it was the 'time availability' category that mainly characterized the male discourse, and another

category not suggested by the hypothesis, the 'physical presence at home' that mainly characterized the female discourse.

### 6.3 Gender and household waste management

Waste management is part of the household chores. Waste management as a chore revealed a largely uneven division between the involvement of men and women in that task. As a matter of fact, women contribute to 61% to this chore solely, while at 13% of men contribute solely and 23% of the interviewees said to share the waste management chore among male and female household members. This response pattern was not surprising, because literature about waste management explained that women mainly deal with household waste (Darj et al., 2017; Maclaren & Thu, 2003). This uneven division between women and men was intensified in the case where the household had children to look after, compared to the homes where no child care was needed.

The explanations given by female and male interviewees differed. Female interviewees explained mainly that they were the person doing the chore regularly, because of his or her 'physical presence at home' (39%), followed by his or her specific 'capabilities' (27%). In contrast, male interviewees explained the person doing the chore regularly mainly by their 'time availability' (35%), followed by their 'physical presence at home' (23%). For both, the 'physical presence' was an important explanation of the person mainly engaging in that task. This confirmed the literature: women are often at home, and therefore they are not only the greatest waste generators of the household, but also responsible for the waste management (Adebo & Ajewole, 2012). Further, one source (Beall, 1997) explains the sole waste management responsibility of women by the fact that women are linked to dirt and disorder, which also correspond to waste. This link may refer to the category 'traditional gender role ideology', which was a rare part of both female and male discourses. Despite this, the traditional gender role ideology was stronger in women's discourse (11%) than in men's (6%). Beall (1997) also said that men are never involved in waste management at household level and this concept was refuted with my data; men do make a small contribution (13%) to the waste management independently, and in almost a quarter of the interviewed cases men contributed in a shared way to the waste management.

Waste management at the household level may consist of several steps: waste storage for a length of time until waste disposal. The separation into two steps and into various waste types permitted us to analyse the data in a more precise way to determine the involvement of men and women in the waste management chores. The data showed that women's contribution is higher than men's for each step and for each waste type. This confirms what literature said, that women mainly deal with household waste and are responsible for the waste management (Adebo & Ajewole, 2012; Amugsi et al., 2016; Beall, 1997; Darj et al., 2017; Maclaren & Thu, 2003). Although the women were dominant in each step and for each waste type, when one compares the different waste types and steps, the collected data revealed some differences in the involvement of women and men. Comparing first the storage and the disposal step, it was revealed that women contributed more to the storage than to the disposal of the waste. In contrast, men contributed more to the disposal step than to the storage part. As for storage, women contributed the most for polythene waste. Regarding disposal, women contributed the most for vegetable waste. At the storage stage as well as at the disposal

step, men contributed the most for metal waste management (storage: 42%, disposal: 43%). This was their largest contribution to the household waste management. There was a contribution by men in each step and for each waste type, which refuted the idea that men never contribute to waste management at the household level (Beall, 1997). In addition, the data revealed that waste management was rarely a shared task, be it regarding to the storage or the disposal of waste. Each type of waste showed to a small extent that the task was shared, with the exception of metal storage, which was never a shared task. This shows that waste management was, to some extent, a shared chore. Among the household chores, waste management was reported to be a shared task at 23%, while the total of waste storage and waste disposal calculated together was found to be only 7.5% a shared task. This difference can be explained by the difference in precision of the data. The first figure of 23% shows an assessment of the overall management of household waste, while the 7.5% gives a precise figure, as every single part has been assessed. Thus, the second data should be considered as a more reliable result, as they come from a larger sample. In any case, shared household waste management appears to be being slowly adapted in Sri Lanka, as indicated in Dissanayake's study (Dissanayake, 2011).

The answer to the first hypothesis of this work and this last hypothesis confirm that women are not only more involved in household chores, but also for each step and for each waste type in the household waste management (Thirumarpan & Dilsath, 2016; Tiwari, 2001). The role of household waste management falls therefore mainly on women. This shows an example of a huge gender difference at the household level, where household chores and especially waste management is mainly a woman's role (Hovorka, 2006; Jhpiego, 2018). This main responsibility of women compared to men is also demonstrated by a gender division of spaces, where women occupy the greatest involvement in, and so the greatest responsibility for, the household (private space), which consequently includes the waste management; as compared to men who are more involved in their productive role outside of the home (Rocheleau et al., 1996). This major involvement of women in the household chores and especially in the household waste management entails many consequences for women. First, waste management at the household level includes some dirty and even dangerous tasks for human and environmental health, like waste burning or handling of broken glass (which was suggested in the literature and confirmed in the questionnaire) (Maclaren & Thu, 2003; Moore, 2008; Yates & Gutberlet, 2011). Furthermore, the different roles played by women require different needs for women (Attygalle et al., 2014; Obadina, 2016). As women are mainly responsible for the household, including waste management, they need access to possibilities for waste collection and disposal. Nevertheless, interviewees of households announced difficulties due to the fact that the Urban Council waste collection does not come on time, on the day announced, or comes simply with a too low of a frequency. This makes it difficult for homeowners to handle their waste at home. This low collection frequency was also confirmed by the UC supervisor, who told that a new goal is to increase the collection frequency. Despite this goal being set, homeowners and especially women are challenged by this situation, which increases the burden on women (Bandara, 2011; Truelove, 2011b; Vidanaarachchi et al., 2006). This situation may be a subordinated reason, why interviewees reported to burn waste, or why observations revealed open waste dumping in the roads even though the majority of the interviewees wanted to follow

the law and expectations of the UC. Waste burning or waste dumping may be seen as a simple solution, as was also suggested in literature (Boonrod et al., 2015b; Matter et al., 2013). This gendered experience of women and men where women are mainly involved and responsible concerning the household waste management finally has influences on the environment as well (Rocheleau et al., 1996). For a sustainable waste management system to work, women should therefore be enabled to formulate and express their views, and to participate in decision-making (Tiwari, 2001).



## 7. Conclusion

The importance of sustainable solid waste management is underlined by its necessity to reduce the negative impacts on health, water, sanitation, social inequalities, and on the environment. In Sri Lanka, households are the primary source of municipal solid waste. Households are central sites of analysis, because this is the place where the relation between members of the household and natural environment are formed, negotiated, and challenged (Shillington, 2008). Nowadays, the necessity of considering gender issues has increased, and this dimension is lacking in the waste management analysis at household level. Thus, this research aimed to answer the question: in what way are household waste practices in Sri Lanka gendered?

Feminist Urban Political Ecology was an appropriate framework to approach this question. This framework combined with several concepts of household division of labour made it possible to examine the relationship of waste and society via a lens of differences in gender in everyday practices at household level (Blaikie & Brookfield, 2016; Hovorka, 2006; Truelove, 2011b). In the specific urban context of Boralesgamuwa in Colombo, Sri Lanka; gendered roles, responsibilities, and discourses could be revealed thanks to FUPE (Rocheleau et al., 1996).

To answer the issue of gendered waste practices, 51 household questionnaires, five Urban Council collectors' semi-structured interviews, five informal waste collectors' semi-structured interviews, and one semi-structured interview with the supervisor of the Urban Council were conducted. As a complementary method, direct observation was employed in the streets of Boralesgamuwa, where this case study was located.

The expected major contribution of women compared to men in household chores and specifically in storage and disposal of different waste types at the household level was confirmed by the collected data. Female and male interviewees explained this unequal involvement among men and women in household chores differently. Male respondents tried to explain the involvement mainly by the time availability of the person performing the task and his or her specific capability. Female respondents, instead, think that the person who is physically at home performs the most chores and does this because it is her traditional role. Male discourse seems to consist mainly of practical aspects compared to the female discourse.

The main contribution being made by women does not exclude that men contribute independently to some extent to the tasks, or that the tasks are in some cases shared among women and men in the household. Despite this commitment from men, this study reveals that the inequality among men and women in the household waste management is pervasive. Women face the main responsibility for taking care of the household, and therefore for the household waste management. This gendered role and responsibility for waste at household level (Rocheleau et al., 1996) indicates that men and women are involved in, and affected by, waste management differently (Amugsi et al., 2016). As women usually take care of the household waste, their work burden increases with the difficulties in the waste management situation in the country. Women should therefore be recognized for their major contribution towards waste management, which would permit them to integrate themselves in waste management policies, enabling women to formulate and express their views and to participate in

decision-making processes concerning sustainable waste management (Amugsi et al., 2016; Tiwari, 2001). Furthermore, specific awareness programs already established can help to improve their participation in environmental protection activities, to minimize waste generation, and to improve recycling rates. This will lead to effective self-protection, and indirectly contribute to sustainable development in Sri Lanka (Maclaren & Thu, 2003).

In further studies, these findings about household division of chores could be compared to other parts of Sri Lanka or to other countries, which could reveal cultural differences or anomalies related to the rate of development of the country. In addition, at the household level, more women were performing the household tasks and thus the waste management. But the next step- waste collection - showed that almost exclusively men were performing that part of the cycle. Thus, it could be interesting to analyse the whole cycle of waste management to address the question of gender distribution. This analysis could be compared to other parts of the country to reveal if there is any influence caused by education or employment.

## 8. References

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## Appendix

### Appendix 1 : Household Survey

#### Household Survey

CODE:.....

**Begin:** Explain that we are doing a research about waste management in Boralesgamuwa. Ask if he/she has some minutes to answer some questions?

→ do if possible alone with the person (without influence)

→ record: no other use than for my research

#### General question about the household/respondent

1. Date: ...../...../2019
2. Gender: F/M
3. Ethnicity: Tamil/Sinhala/other: .....
4. Age: .....
5. With whom do you live here? .....
6. Number of residents: .....
7. Marital status: single/married/widowed/divorced
8. Roadname, Number & GN Division .....
9. Occupation/Profession of men in household: .....
10. Education level of men in household: primary, secondary, Technic, University
11. Occupation/profession of women in household:.....
12. Education level of women in household: primary, secondary, technic, University
13. Income level: Samurdhi /not Samurdhi
14. Since how many years do you live here? ..... years
15. Presence of other people during survey: .....

#### Household chores

16. Do you have any cleaners or maids?  
Yes/No
- 16.1 If yes: Gender of this person F/M
- 16.2 If yes: Why did you choose this specific person?
- 16.3 If yes: What kind of tasks does this person carry out for you?  
(If person complete all 7 household tasks (cooking, cleaning, shopping, cloths, gardening, child, waste), go directly to **question 24**)
17. Who cooks regularly within your household?
- 17.1 Why is it this particular person who cooks regularly within your household?
18. Who cleans regularly the house within your household?



18.1 Why is it this particular person who cleans regularly within your household?

19. Who does regularly the household shopping for your household?

19.1 Why is it this particular person who cleans regularly within your household?

20. Who does regularly the cloths care for your household?

20.1 Why is it this particular person who cleans regularly within your household?

21. Do you have a garden? Yes/No

(If no: Go to question 22)

21.1 Who takes care regularly of your garden?

21.2 Why is it this particular person who takes care of the garden regularly within your household?

22. If child in household: Who does regularly take care of the child/children?

22.1 Why is it this particular person who takes regularly care of the child/children within your household?

23. Who takes regularly care of your household waste for the storage and afterwards?

23.1 Why is it this particular person who takes regularly care of the waste storage and afterwards within your household?

24. What do you think about division of household work between men and women?  
Women do more/Men do more/Satisfied/Not Satisfied with division: Reason?

## Management of waste

### ➔ Vegetable

25. How do you store vegetable waste?

25.1 Why do you do this way?

25.2 Who stores the vegetable waste within your household?

25.3 What do you do after storage with vegetable waste?

25.4 Why do you do this way?

25.5 Who takes care of the vegetable waste after storage?

### ➔ Paper

26. How do you store paper waste?

26.1 Why do you do this way?

26.2 Who stores the paper waste within your household?

26.3 What do you do with paper waste after storage?

26.4 Why do you do this way?

26.5 Who takes care of the paper waste after storage?

### ➔ Battery and electronic

27. How do you store battery and electronic waste?

- 27.1 Why do you do this way?
- 27.2 Who stores the battery and electronic waste within your household?
- 27.3 What do you do with battery and electronic waste after storage?
- 27.4 Why do you do this way?
- 27.5 Who takes care of battery and electronic waste after storage?

➔ **cardboard**

- 28. How do you store cardboard waste?
- 28.1 Why do you do this way?
- 28.2 Who stores cardboard waste within your household?
- 28.3 What do you do with cardboard waste after storage?
- 28.4 Why do you do this way?
- 28.5 Who takes care of cardboard waste after storage?

➔ **glass**

- 29. How do you store glass waste?
- 29.1 Why do you do this way?
- 29.2 Who stores glass waste within your household?
- 29.3 What do you do with glass waste after storage?
- 29.4 Why do you do this way?
- 29.5 Who takes care of the glass waste after storage?

➔ **metal**

- 30. How do you store metal waste?
- 30.1 Why do you do this way?
- 30.2 Who stores metal waste within your household?
- 30.3 What do you do with metal waste after storage?
- 30.4 Why do you do this way?
- 30.5 Who takes care of the metal waste after storage?

➔ **Polythene**

- 31. How do you store polythene waste?
- 31.1 Why do you do this way?
- 31.2 Who stores polythene waste within your household?
- 31.3 What do you do with polythene waste after storage?
- 31.4 Why do you do this way?
- 31.5 Who takes care of polythene waste after storage?

➔ **plastic**

- 32. How do you store plastic waste?
- 32.1 Why do you do this way?
- 32.2 Who stores plastic waste within your household?
- 32.3 What do you do with plastic waste after storage?
- 32.4 Why do you do this way?
- 32.5 Who takes care of plastic waste after storage?

33. Ask only if never said to burn: Do you **burn** any waste? Yes/No

33.1 If no: Why?

33.2 If yes: what type of waste?

33.3 If yes: why do you burn it?

34. Ask only if never said to sell: Do you **sell** any waste?

34.1. If no: Why?

34.2. If yes: what type of waste?

34.3. If yes: why do you sell it?

→ Ask them to show us how they do with waste (storage & after) physically (ask to do picture)

veg:

pap:

battery:

cardb.:

glass:

metal:

polythene:

plastic:

### **Authority**

35. What does the municipality expect from you concerning waste management?

### **Collection service**

36. Do you have a collection service for your household waste? Yes/No

37. Do you pay for this service? Yes/No

38.1 If yes: Why did you engage this service?

38. Who is the collection service? (name of enterprise)

39. What type of waste does the collection service take?

40. What do they expect from you?

41. When do they come? (day and time)

42. Do they come regularly? Yes/No

### **Satisfaction about waste management**

43. How satisfied are you with the waste management within your household?

Very dissatisfied

dissatisfied

moderately satisfied

satisfied

completely satisfied

44. Why do you rate your waste management like this?

45. Do you encounter any difficulties regarding waste management within your household? Explain.

46. Have you any wishes concerning waste management within your household? Explain.

Thank you for your time and your precious answers!  
Ask if man/women of household would be interested to do it too?  
If yes -> note place/ask when this person is at home

**AFTER SURVEY**

Feeling: How was the survey for us: How did we feel?

How do we think felt the respondent? Were he/she honest?

Samurdhi estimation based on the following criteria:

	<b>+1</b>	<b>0</b>	<b>-1</b>
<b>House quality</b>	Good, solid	Middle	Bad (leaves, alu) etc
<b>Owner of vehicle</b>	Car	Tuk, bike	No
<b>Profession</b>	High	Middle	Low position
<b>Education</b>	University	Technic	Primary/secondary
<b>Gate</b>	Present & Solid	Present	Absent
<b>Samurdhi</b>	No		Yes
<b>Garden</b>	Yes		No

points:

-7 to -1 → Samurdhi confirmed

## Appendix 2 : UC : Waste collectors : Interview guide

### UC : Waste collectors : Interview guide

CODE : MUCWC

→ Do only survey with people who collect in Bodhirajapura and or Egodawatta

#### General questions about the respondent

1. Date: ...../...../2019
2. Institution: Urban Council: Department:
3. GN Division/Roadname: .....
4. Gender: F/M
5. Age: .....
6. Profession/position: .....
7. With how many people do you collect: ..... Gender:  
.....
8. Since when do you work for the UC: .....
9. Presence of other people: .....

#### Attendances from UC

10. In what does consist your job? (what are you asked to do)
11. Did the expectations from the UC evolve since you work for them?  
(if yes: what kind of changes? Do you know why changes?)
12. In which area do you collect the waste? (specific -> roadnames)
13. Do you collect the waste from every household in this area? Yes/No  
13.1 If no: Why not?
14. Which day do you collect in which area? (regular?)

#### Household waste collection

15. What type of waste do you collect?
16. Where do you bring the collected household waste?
17. What do you expect from the households regarding waste?
18. What do you do if the household do not follow these expectations?  
(e.g. household does not separate? Does not put in the provided bag?)
19. What kind of difficulties do you encounter collecting waste?  
(e.g. vehicle broken, waste is not separated from households etc)

Thank you for your time and your precious answers!

AFTER SURVEY

Feeling: How was the survey for us: How did we feel?

How do we think felt the respondent? Were he/she honest?

## Appendix 3: Informal waste collector interview guide

Informal waste collector

Code: IWC

### General questions about the respondent

1. Date: ...../...../2019
2. GN Division/Roadname: .....
3. Gender: F/M
4. Age: .....
5. Samurdhi: Yes/No
  
6. What is your **profession**? Full time/additional income  
(full – time waste collector or waste collection additional income)
  
- 6.1 If additional: How did you decide to become waste collector?
  
7. Do you have any **rivalry** in waste collection? Yes/No
- 7.1 If yes: What kind of rivalry do you have?
- 7.2 If yes: What do you do?
  
8. In which **area** do you collect waste?
  
9. Why this area?
  
10. Do you always follow the same path? Yes/No
- 10.1 If yes: Which one is it exactly? Why?
- 10.2 If no: Why not?
  
11. Do you collect the waste of every household in this area? Yes/No
- 11.1 If no: Why not?
  
12. On which day do you collect waste? Why? Regular? On what does it depend?  
(e.g. every day, depend on needs, regular? etc)

### Household waste collection

13. What type of waste do you collect?
  
14. Why do you collect this type of waste?
  
15. How do you reach the households?  
(e.g. waling in street and cry “waste”, with wheelbarrow)
  
16. Do you pay the households for the waste? Yes/No
- 16.1 If yes: how much?
  
17. What do you **expect** from the households regarding waste?  
(e.g. to separate the waste, put it in front of house)

18. What do you do if the households do not follow these expectations?  
(e.g. I do not take it)
19. **Where** do you bring the collected household waste?
20. What kind of **difficulties** do you encounter in waste collection?

Thank you for your time and your precious answers!

#### AFTER SURVEY

Feeling: How was the survey for us: How did we feel?

How do we think felt the respondent? Were he/she honest?



## Appendix 4: Observation sheet

### Observation criterias – what do I observe?

#### General information

1. Date: ...../...../2019
2. Day: M/TU/W/TH/F/S/SUN
3. Observation time: .....
4. Roadname & District: .....
5. Road & House quality estimation: very good/middle/bad

#### Observation of households

6. Which gender do I observe handling with waste? F/M/both  
a) If both: How many men? And how many women? F:..... M:.....
7. How old are people handling with waste? .....
8. What do they do with the waste?
9. Do I observe any bins? Yes/No  
a) If yes: How many in this road? .....
10. Do I observe any places of dumped waste? Yes/No  
a) If yes: what type of waste is there?  
Plastic/paper/vegetable/battery & electronic/cardboard/glass/metal  
b) If yes: Which type of waste is the most abundant one? .....

#### Observation of collector service

11. What's the name of the collecting company? .....
12. How regularly do they collect the household waste? .....
13. Do they collect at each household of the road? .....
14. What kind of waste do they collect?  
Plastic/paper/vegetable/battery & electronic/cardboard/glass/metal
15. Which gender is working for the collection service? F/M/both  
a) If both: How many men? And how many women? F:..... M:.....
16. How do I estimate their age? .....
17. Other observations: