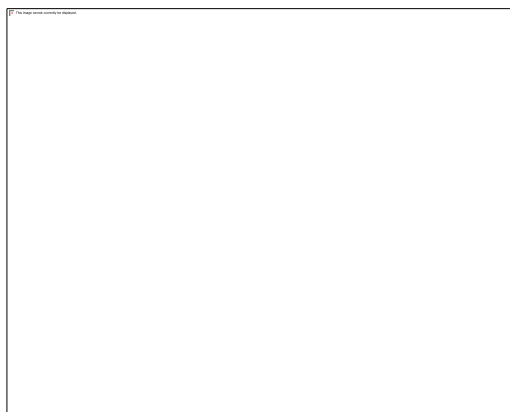


**BINDURA UNIVERSITY OF SCIENCE EDUCATION**

**DEPARTMENT OF NATURAL RESOURCES**

**PERCEPTIONS OF ENVIRONMENTAL IMPACTS OF COSMETICS  
AND PERSONAL CARE PRODUCTS IN CHINHOYI, ZIMBABWE.**

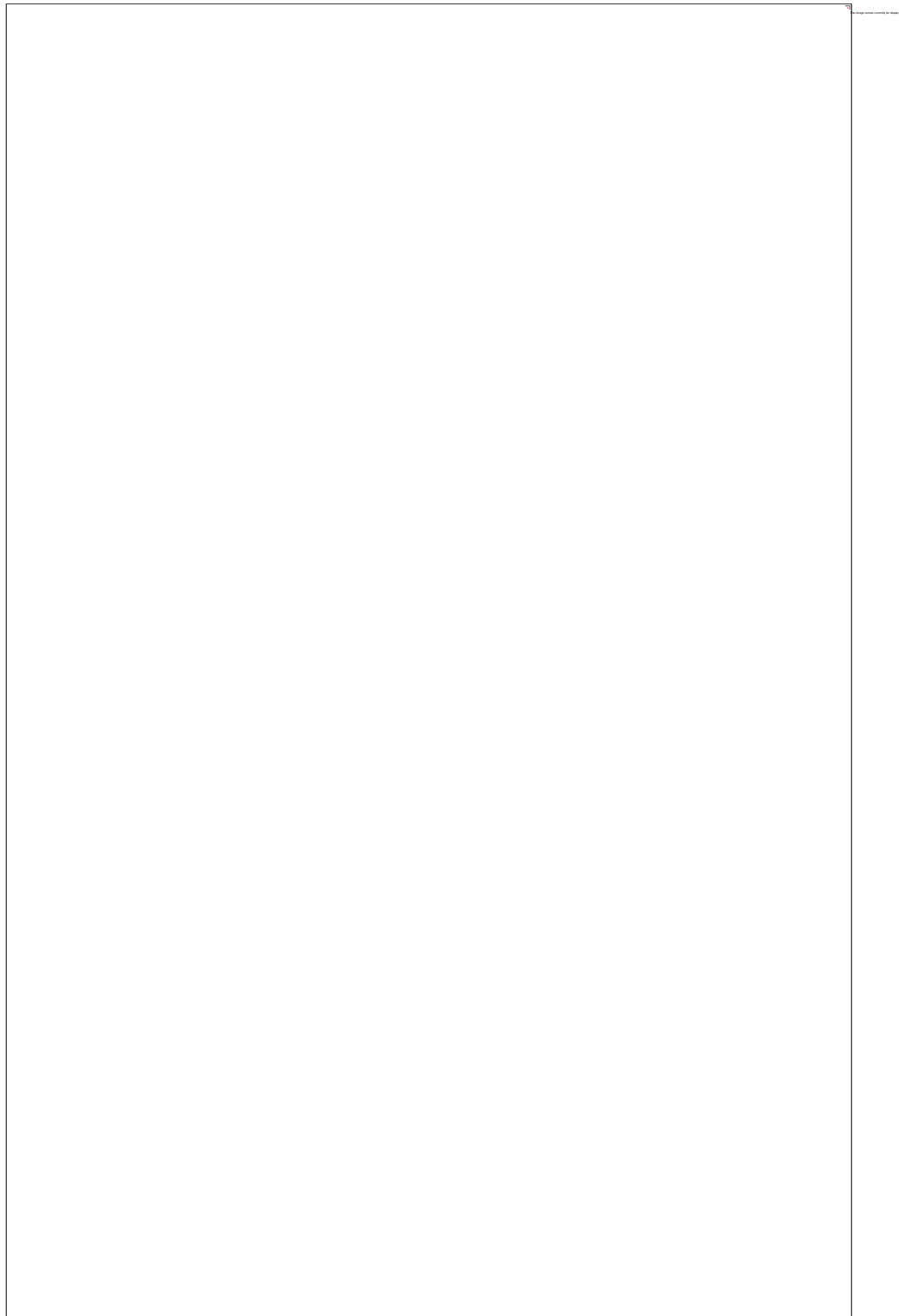


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***A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS OF THE BACHELOR OF SCIENCE HONOURS DEGREE IN  
NATURAL RESOURCES MANAGEMENT.***

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## **DEDICATION**

I dedicate my appreciation to the Almighty for giving me the strength and health it wasn't an easy journey but the Lord made it possible for me . My sincere appreciation goes to my family for the unwavering support,love,financial support, emotional support and encouragement which have been the driving behind my academic journey . A special thanks to my Supervisor Ms. Masona my mentor whose guidance and expertise have shaped my research and intellectual growth, your wisdom and mentorship have been invaluable. I also want to thank my friends for the academic support that contributed to my learning and growth . Lastly I want to thank myself for the hard work.

## ABSTRACT

This study highlights the perceptions of environmental impacts of cosmetics and personal care products in Chinhoyi Ward 1. The production, use and disposal of cosmetics and personal care products have significant impacts into the environment. However, consumer awareness and perceptions of these impacts are not well understood. This study will contribute to a more holistic understanding of the environmental impacts of cosmetics and personal care products, and could inform the development of more sustainable practices and policies in the industry. The aim was to assess consumers and salon workers' perceptions on the environmental impacts of cosmetics and personal care products. Mixed approach method was used in the research with simple random sampling of 60 households and 10 salons and purposive sampling for EMA and City council. Questionnaires and interviews were employed to gather thorough information about perceptions of environmental impacts of cosmetics and personal care products. Data was analyzed using SPSS and Microsoft Excel. The study notes that people are moderately aware of the environmental impacts of cosmetics and personal care products and they are no waste strategies / management for cosmetics and personal care waste. The common cosmetics used showed hair relaxer (16.5%), shampoo (25%), gloves (10.5%), wet wipes (16.5%), Makeup products (9.5%), Hair dyes (11.3%) and skin lightening products (9.7%) in households and wet wipes (14.3%), hair relaxer (28.6%), shampoo (28.6%), hair dyes (5.7%) and gloves (2.9%) in salons. The study of perceptions of environmental impacts of cosmetics and personal care products showed that the participant's attitude level is high whilst attitude and practices level are moderate. Waste management strategies/ practices being done are local council disposal (29.3%), dumpsite (15.3%), burning (25.9%), pit (12.1%) in households and local council disposal (58.3%) and pits (41.9%) in salons. There are no specific waste strategies practices for cosmetics and personal care products in Chinhoyi. The people are willing to use eco-friendly cosmetics and personal care products. The study recommends that they should be a strategic waste management plan for cosmetics and personal care products and education and awareness on the environmental effects of cosmetics and personal care products.

## Table of Contents

|                                                                         |      |
|-------------------------------------------------------------------------|------|
| ACKNOWLEDGEMENTS.....                                                   | ii   |
| DEDICATION.....                                                         | iv   |
| ABSTRACT.....                                                           | v    |
| LIST OF FIGURES .....                                                   | ix   |
| LIST OF TABLES .....                                                    | x    |
| LIST OF ACRONYMS AND ABBREVIATIONS .....                                | xiii |
| CHAPTER ONE .....                                                       | 1    |
| 1.1. Background to the study .....                                      | 1    |
| 1.2 Problem Statement. ....                                             | 2    |
| 1.3 Aim of the study.....                                               | 2    |
| 1.4 Objectives. ....                                                    | 3    |
| 1.5 Research Questions.....                                             | 3    |
| 1.6 Justification .....                                                 | 3    |
| 1.7 Ethical consideration.....                                          | 4    |
| CHAPTER 2 .....                                                         | 6    |
| 2.LITERATURE REVIEW .....                                               | 6    |
| 2.1 Introduction.....                                                   | 6    |
| 2.2 Common cosmetics and personal care products used in Africa .....    | 6    |
| 2.3 Environmental impacts of cosmetics and personal care products. .... | 6    |
| 2.3.1 Pollution of water resources and aquatic resources. ....          | 6    |
| 2.3.2 Deforestation.....                                                | 7    |

|                                                                                          |    |
|------------------------------------------------------------------------------------------|----|
| 2.2.3 Air pollution.....                                                                 | 7  |
| 2.3.4 Animal Cruelty.....                                                                | 7  |
| 2.4 Consumer and Industry perceptions on cosmetics and personal care products. ....      | 8  |
| 2.5 Legislation governing Cosmetics and personal care products. ....                     | 8  |
| 2.5.1 EU Regulation on Deforestation-Free Supply Chains .....                            | 8  |
| 2.5.2 The Modernization of Cosmetics Regulation Act of 2022 (MoCRA).....                 | 9  |
| 2.5.3 Food and Drug Administration Authority Over Cosmetics .....                        | 9  |
| 2.5.4 Cosmetics Europe and Environmental Regulations.....                                | 9  |
| 2.6 Waste management strategies / practices of cosmetics and personal care products..... | 9  |
| 2.8 GAP IN LITERATURE.....                                                               | 10 |
| CHAPTER 3 .....                                                                          | 11 |
| 3.METHODOLOGY .....                                                                      | 11 |
| 3.1 Description of study area. ....                                                      | 11 |
| 3.2 Research Design.....                                                                 | 12 |
| 3.3 Sampling techniques. ....                                                            | 12 |
| 3.4 Data collection .....                                                                | 13 |
| 3.4.1 Observation.....                                                                   | 13 |
| 3.4.2 Questionnaires.....                                                                | 13 |
| 3.4.3 Interviews.....                                                                    | 13 |
| 3.4.4 Surveys.....                                                                       | 14 |
| 3.5 Data Analyses .....                                                                  | 14 |

|                                                                                                                              |    |
|------------------------------------------------------------------------------------------------------------------------------|----|
| CHAPTER FOUR: RESULTS .....                                                                                                  | 15 |
| <b>4.1 Introduction</b> .....                                                                                                | 15 |
| 4.2 Socio demographic.....                                                                                                   | 15 |
| 4.3 Common cosmetics used in households and salons.....                                                                      | 16 |
| 4.3. Knowledge Attitudes Practices Data Analysis .....                                                                       | 16 |
| 4.3.1 Cross-tabulation and Correlation Analysis .....                                                                        | 17 |
| 4.3.2 relationship between demographic variables and consumers attitudes.....                                                | 17 |
| 4.3.3 Educational level and Awareness of effects of cosmetics and personal care products<br>on the environment. ....         | 18 |
| 4.3.3 Environmental impacts of cosmetics and personal care products .....                                                    | 19 |
| 4.2.4 Cosmetics and personal care waste produced in salons and households .....                                              | 20 |
| 4.2.5 Waste disposal methods.....                                                                                            | 21 |
| 4.3.1 Willingness on paying higher price for cosmetics and personal care products with<br>minimal environmental impacts..... | 22 |
| 4.4 Data responses analysis from EMA and City Council.....                                                                   | 23 |
| 4.4.1 EMA and City Council .....                                                                                             | 23 |
| City Council. ....                                                                                                           | 23 |
| CHAPTER 5 : DISCUSSION.....                                                                                                  | 25 |
| 5.1 SOCIO-DEMOGRAPHIC.....                                                                                                   | 25 |
| 5.2 COMMON COSMETICS AND PERSONAL CARE PRODUCTS USED. ....                                                                   | 25 |
| 5.3 Knowledge, Attitudes and Practices on effects of cosmetics and personal care products<br>on the environment .....        | 25 |

|                                                                                          |           |
|------------------------------------------------------------------------------------------|-----------|
| 5.4 Waste Management strategies/ practices of cosmetics and personal care products ..... | 26        |
| CHAPTER 6: CONCLUSION AND RECOMMENDATION .....                                           | 28        |
| 6.1 Conclusion .....                                                                     | 28        |
| 6.2 Recommendations.....                                                                 | 29        |
| References.....                                                                          | 30        |
| APPENDIX.....                                                                            | 34        |
| <b>Appendix 1: Research Household questionnaire .....</b>                                | <b>34</b> |
| <b>Appendix 2: Research Salon questionnaire.....</b>                                     | <b>37</b> |
| Appendix 3.....                                                                          | 39        |
| INTERVIEW GUIDE .....                                                                    | 39        |

## LIST OF FIGURES

|                                      |    |
|--------------------------------------|----|
| Figure 3.1 : Map of study area ..... | 12 |
|--------------------------------------|----|

|                                                                    |    |
|--------------------------------------------------------------------|----|
| Figure 4.1 : Socio demographic.....                                | 15 |
| Figure 4.2 : Common cosmetics and personal care products.....      | 16 |
| Figure 4.3: Awareness of the potential environmental impacts ..... | 19 |
| Figure 4.4 : Environmental impacts .....                           | 20 |
| Figure 4.5 : Waste produced .....                                  | 20 |
| Figure 4.6 : Methods of disposal.....                              | 21 |
| Figure 4.7 : Willingness to pay higher price for cosmetics.....    | 22 |

## LIST OF TABLES

|                                                         |    |
|---------------------------------------------------------|----|
| Table 4.1 : Correlation of knowledge and attitudes..... | 17 |
|---------------------------------------------------------|----|

|                                                                                        |    |
|----------------------------------------------------------------------------------------|----|
| Table 4.2 : Chi square test on the relationship between demographic and attitudes..... | 18 |
| Table 4.3 : One-way Anova test for education and awareness.....                        | 18 |

## **LIST OF APPENDICES**

|                                            |    |
|--------------------------------------------|----|
| Appendix 1 : Household Questionnaire ..... | 33 |
| Appendix 2 : Salon Questionnaire.....      | 36 |
| Appendix 3 : Interview guide.....          | 38 |

## **LIST OF ACRONYMS AND ABBREVIATIONS**

EMA Environmental Management Agency

KAP Knowledge attitudes practices

# CHAPTER ONE

## 1. INTRODUCTION

### 1.1. Background to the study

The cosmetics and personal care industry is growing each and every day leading to the increased usage of cosmetics and an accumulation of their organic and inorganic waste residues in the environment. This presents potential environmental risks due to the use of various toxic chemical products (Jones, 2023). The worldwide environmental issues of climate change, waste, water shortages, habitat destruction, and air and water pollution are exacerbated by the cosmetics and personal care industries (Bilal et al., 2020). The beauty industry has a massive negative influence on the environment due to chemicals that bleach coral, animal testing, plastic pollution, and other issues (Juliano & A, 2017).

The production of cosmetics and personal care products leads to the over extraction of natural resources including water, minerals, and plants, depletion of natural resources, soil erosion, and habitat degradation can result to unsustainable extraction processes. Pollution of the air and water is caused by chemical reactions and packing materials (Jones, 2023). A large number of substances used in cosmetics come from petrochemicals or palm oil, the extraction of which can result in greenhouse gas emissions, deforestation, and biodiversity loss. Concerns over the permanence of microplastics and other non-biodegradable materials in the environment are also raised by their use (Rahim et al., 2022). Cosmetic product disposal, particularly packaging disposal, adds to pollution and the production of solid waste and also when a product is used, chemicals are released (Limbu & Ahamed, 2023)

Another significant worry is the use of hazardous chemicals in the production of cosmetics, including parabens, plasticizers, formaldehyde, Beta Hydroxy Acid, insecticides and coal tar (Groff, 2014). In addition, cosmetics manufacturing, shipping, and disposal all increase greenhouse gas emissions, which have an impact on climatic stability. The industry produces a significant amount of garbage, which includes single-use items and packaging materials made of plastic for example wet wipes, sanitary pads and diapers (Jones, 2023). Marine life is impacted by microplastics that end up in the ocean from exfoliating goods, such as polyethylene microbeads and animal experimentation is still widely used in the industry despite advancements, directly affecting nature (Rahim et al., 2022).

Furthermore, customers have a significant impact on the demand for personal hygiene and cosmetics, as well as any related environmental effects. Due to the potential negative effects of pollution, depletion of natural resources and overuse of water, consumers are shifting toward natural and organic products as a safer alternative as they become more aware of the health and hygiene benefits of using cosmetics and personal care products (Myxen et al., n.d.).

The influence of cosmetics on the environment is a complicated topic, and studies (Wijekoon & Sabri, 2021) indicate that some of the main obstacles to making sustainable purchases are a lack of options, excessive costs and the perception of quality of green cosmetics. The cosmetics industry's high rate of "green washing" also makes it more difficult for businesses to sway customer behavior (Yam & Ahamed, 2023).

Many cosmetics brands are now using eco-friendly packaging materials like glass, paper, and recycled plastic, which are recyclable or biodegradable and have a lower carbon footprint than

traditional virgin plastic packaging, as a result of awareness of the environmental effects of using cosmetics and personal care products. Consumer ignorance of the many chemicals used in cosmetics and the effects on health and the environment is a prevalent issue in the cosmetics industry (Lukas Gutierrez, 2023).

## **1.2 Problem Statement.**

Cosmetics and personal care products are becoming more and more popular in Chinhoyi, there is increase of environmental pollution due to the consequent rise in the consumption of various products, including cosmetics and personal care items. However, there is currently a lack of comprehensive understanding regarding the perceptions and awareness of communities regarding the environmental impacts associated with cosmetics and personal care products. Therefore, the study investigates the knowledge, attitudes and behavior of people in Chinhoyi of environmental impacts of cosmetics and personal care products.

This knowledge gap hinders the development of effective strategies and interventions to promote sustainable practices and mitigate the adverse environmental consequences. Therefore, it is crucial to investigate the perceptions of the environmental impacts of cosmetics and personal care products in Chinhoyi, Zimbabwe. This research will address the knowledge gap and provide valuable insights for implementing targeted initiatives to conserve the environment and foster sustainable consumption practices in the region.

## **1.3 Aim of the study.**

To assess consumers perceptions on the environmental impacts of cosmetics and personal care products.

#### **1.4 Objectives.**

1. To identify common cosmetics and personal care products used in households and salons in Chinhoyi.
2. To evaluate knowledge, attitudes on effects of cosmetics and personal care products on the environment.
3. To identify waste management strategies/ practices of cosmetics and personal care products in Chinhoyi.

#### **1.5 Research Questions.**

1. What are the common cosmetics and personal care products used by households and salons in Chinhoyi?
2. How aware is the public of the environmental impacts of cosmetics and personal care products?
3. What are waste management strategies suitable for reducing cosmetics and personal care products waste?

#### **1.6 Justification**

The research outcomes will provide valuable insights into individuals' perceptions of the environmental impact of cosmetics and personal care products. This information can be utilized to devise strategies aimed at reducing the ecological footprint of the cosmetics industry. Moreover, the study will shed light on the influence of education, media, and other information sources in shaping people's awareness and perceptions of environmental impacts (Anderson, et al., 2016).

By addressing the knowledge gap and understanding people's perceptions of environmental impacts, targeted interventions can be implemented to minimize the negative ecological footprint associated with cosmetics and personal care products (Anderson, et al., 2016). This

knowledge can also influence individuals' inclination towards environmentally friendly products. Furthermore, comprehending consumers' attitudes and beliefs regarding eco-friendly products can enhance their environmental awareness (Wijekoon & Sabri, 2021).

The findings of this study can have significant implications for policy development and industry practices. Policymakers can utilize these insights to formulate regulations and guidelines that promote sustainable production, packaging and disposal of cosmetics and personal care products.

### **1.7 Ethical consideration**

It is crucial to obtain informed consent from participants prior to their involvement in the study. Participants should be provided with clear and comprehensive information about the research's purpose, procedures, potential risks and benefits. They should have the autonomy to freely decide whether to participate or withdraw from the study without facing any negative consequences. Throughout the research process, strict confidentiality should be maintained. This entails safeguarding participants' personal information, responses, and identities, ensuring anonymity. Data should be securely stored and reported in a manner that prevents the identification of individuals (Muhammad, 2023).

Respect for local customs, traditions, and cultural sensitivities, should be observed during the study. Researchers should strive to minimize their biases and prevent their personal opinions or preferences from influencing the design, implementation, or interpretation of the study. Objectivity and fairness should be upheld throughout the research process. The research findings should be reported accurately and transparently, without any misrepresentation or manipulation of data (Cacciattolo, 2015).



## **CHAPTER 2**

### **2.LITERATURE REVIEW**

#### **2.1 Introduction.**

Cosmetics and personal care products play a great role in our day-to-day living, enhancing our appearance and boosting self-confidence. Since 2004, the cosmetics sector has grown significantly and by 2028 it is predicted to bring in close to 129 billion dollars in sales (Niyitanga, et al., 2021). Skin moisturizers, lipsticks, nail polishes, makeup, shampoos, hair colors, toothpastes and deodorants are a few of the most often used personal care items.

#### **2.2 Common cosmetics and personal care products used in Africa**

In Africa, up to 20% of all cosmetic products marketed on the market fall into the important category of hair care and health which are top priorities for African customers. Shampoos, conditioners, hair oils and styling products are examples of popular items (Juliano & Magrini, 2017). The biggest and most varied market is also skin care consisting of different brands, goods, and formulae. African customers are looking for superior skin care products that meet their individual requirements which are soaps, sunscreens, cleansers, serums, moisturizers nail polish, lipsticks, concealers, foundation, face powder, blushes, mascara, sanitary pads , diapers, wet wipes and eyeliners. African beauty products are becoming more well-known since they provide colors that go well with a range of skin tone(Bilal et al., 2020)

#### **2.3 Environmental impacts of cosmetics and personal care products.**

##### **2.3.1 Pollution of water resources and aquatic resources.**

Growth inhibition is one of the most obvious signs of metal poisoning in fish larvae because it can prevent fish from growing in water that is high in heavy metals. Fish in water sources with low amounts of heavy metals will not perish they will experience long-term stress, which will cause their weight and size to decline (Rahim et al., 2022). In addition to producing abnormal characteristics like reduced athletic ability or structural damage, notably spinal deformities,

heavy metals can influence the survival and growth of young fish. This lessens their capacity to compete for food and habitat, which could eventually result in fish extinction (Juliano & Magrini, 2017a).

Hormones are mostly affected by estrogen which influence an animal's endocrine function and decrease sexual function. E2 residue is a kind of endocrine disruptor that has a major impact and is especially harmful to fish, (Urapong, et al., 2018)and (Zhou, et al., 2019). Fish liver, ovaries, and testes can collect E2, which can disrupt fish behavior naturally . When estrogen is present, male fish in rivers can exhibit feminine traits such vitellogenin induction and gonadal changes.

### **2.3.2 Deforestation**

Palm oil is one of the most common components used in beauty products due to its favorable benefits on the environment and the body. The large-scale production of cosmetics and personal care products has led to unsustainable farming as a result of the increased demand for palm oil. Natural forests have been devastated by the invasion of palm oil plantations, and numerous animal species have lost their native homes. Each year, 18 million acres of forest are consumed by packaging made of goods derived from trees. The numbers of native plants and wildlife are declining. (Juliano & A, 2017).

### **2.2.3 Air pollution**

Air contaminants called volatile organic compounds are present in deodorants, hair sprays, and perfumes. These items are a major source of carbon dioxide emissions and half of the volatile organic compounds released in 33 large centers come from household and beauty product emissions (McDonald & al, 2018).

### **2.3.4 Animal Cruelty**

Decades of research have documented cases in which laboratory animals cured terminal human illnesses whereby on people the treatment might still not be effective. Animal testing for cosmetics was once mandated by the Chinese government, although this legislation has mostly been modified recently(Bilal et al., 2020). The skin and eye irritation tests, require animals to be exposed to these substances whereby their shaved skin and eyes are used as a form of animal

testing. Naturally, they do not relieve the animals' discomfort while they are being restrained. In order to identify substances that are fatally poisonous to animals, researchers administer a deadly quantity of chemicals to them in a harsh experiment known as the "lethal dose test (Juliano & A, 2017).

## **2.4 Consumer and Industry perceptions on cosmetics and personal care products.**

The potential side effects of conventional products, consumers are shifting toward natural and organic products as a safer alternative as they become more aware of the health and hygiene benefits associated with the use of cosmetics and personal care products (Myxen et al., n.d.). Many cosmetics brands are now using eco-friendly packaging materials like glass, paper, and recycled plastic, which are recyclable or biodegradable and have a lower carbon footprint than traditional virgin plastic packaging, as a result of awareness of the environmental effects of using cosmetics and personal care products . Consumer ignorance of the many chemicals used in cosmetics is a prevalent issue in the cosmetics industry (Fernando & Hennayake, 2017) A number of major cosmetic companies have launched organic and natural cosmetic lines due to their lower economic impact and load compared to regular cosmetics. Of course, the producers use sustainable production techniques together with green chemical processes in their manufacturing. Honestly, for some beauty companies, launching natural or organic products is the simplest way to go green (Amberg & Magada, 2018).

The cosmetics industry is making significant strides in waste management by sustainable packaging switching to plant based, recycled and biodegradable materials. Putting zero waste principle being used by companies like Lush cosmetics. These initiatives demonstrate the cosmetics industries commitment to reducing its environmental footprint and promoting sustainability(Sanjeet,2023).

## **2.5 Legislation governing Cosmetics and personal care products.**

### **2.5.1 EU Regulation on Deforestation-Free Supply Chains**

A new legislation from the European Union (EU) enforces due diligence for businesses that deal with commodities such as wood (and their derivatives), rubber, soy, palm oil, animals,

cocoa, and coffee. Ensuring that these items are not produced anywhere in the globe by deforestation or forest degradation is the aim. Retailers and manufacturers who use palm oil in cosmetics must show that their goods meet these standards in order to avoid possible fines or losing access to public support (Karamanidou et al., 2021).

### **2.5.2 The Modernization of Cosmetics Regulation Act of 2022 (MoCRA)**

In over 80 years, this legislation constitutes the most substantial reform to the personal care and cosmetics laws in the United States. It places additional obligations on people, such as reporting major adverse events and adhering to other safety regulations. The objective of MoCRA is to safeguard customers and encourage responsible practices within the business by augmenting transparency and safety (Karamanidou et al., 2021).

### **2.5.3 Food and Drug Administration Authority Over Cosmetics**

The FDA oversees cosmetics to ensure appropriate labeling and safety even if it has not authorized them. Cosmetics can be classified into specifically regulated cosmetics and controlled cosmetics according to the ingredients they contain. Controlled cosmetics are products containing ingredients that are potentially harmful if used concentrations exceed the allowed levels and require product notification before getting the permission to be put on the market (Karamanidou et al., 2021).

### **2.5.4 Cosmetics Europe and Environmental Regulations**

Cosmetics Europe recognizes the emergence of ambitious and radical environmental rules inside the European Union. The beauty and personal care industry needs to be ready for these legislation' effects, particularly with regard to environmental standards and sustainability (Karamanidou et al., 2021).

## **2.6 Waste management strategies / practices of cosmetics and personal care products.**

Recycling is a waste management technique that is being used in cosmetics industry in order to conserve the environment and avoid negative effects on society. As with other polymers and carbon-based products, the plastics are not biodegradable. It includes bottles and other materials that, when melted, can be used to make different things, such as chairs and tables made of plastic (Niyitanga, et al., 2021).

## **2.8 GAP IN LITERATURE**

There is a lack of information in the literature about how people perceive how cosmetics and personal hygiene products affect the environment. More thorough research is still needed to understand how consumers clearly perceive the environmental effects of cosmetics and personal care products, despite the fact that studies have looked at attitudes and behaviors toward eco-friendly and sustainable products. This requires understanding how consumers perceive the possible environmental implications of these items and how knowledgeable and aware they are of them, as well as how likely they are to change their purchase decisions in response to these perceptions. Global perspectives have been the focus of numerous studies on the effects of cosmetics and personal hygiene products on the environment.. Addressing these gaps in the literature would contribute to a more holistic understanding of the environmental impacts of cosmetics and personal care products, and could inform the development of more sustainable practices and policies in the industry.

## **IN CONCLUSION**

In overall the literature review points out the growing concern of consumers regarding the environmental impacts of cosmetics and personal care products. The cosmetics industry should adopt more sustainable practices, promoting transparency, and also providing ecofriendly alternative to meet consumer demands and to contribute to sustainability. There is need for education and awareness of effects of cosmetics and personal care products through various methods, social media, product packaging and radio.

## CHAPTER 3

### 3.METHODOLOGY

#### 3.1 Description of study area.

The study was conducted in Chinhoyi located in the Makonde District of Mashonaland West Province in central-northern Zimbabwe with a population of 103 657 people, situated on the western banks of the Manyame River around 116 kilometers northwest of Harare, Zimbabwe's capital and largest city on Highway A-1, the main route between Harare and Chirundu. Location: 17°20'59.0"S, 30°11'40.0"E (Latitude: -17.349722; Longitude: -30.194444). At an average elevation of 1,187 meters (3,894 feet) above mean sea level (Matamanda,A.R 2024). The region experiences mild climate conditions, the summers are far wetter than the winters. Based on available data, the average annual temperature in Chinhoyi is 20.7 °C | 69.2 °F. A. Reddish soils or ferric Acrisols are the two main soil types found in Chinhoyi ,these soils are distinguished by their reddish-brown color and are usually derived from worn granite.. Chinhoyi's soil is primarily sandy to sandy loam in composition, while sandy loam soils have a reasonable ratio of sand, silt and clay and offer moderate drainage and adequate fertility, sandy soils tend to contain larger particles and drain more quickly (Mwenje D 2017).



**Figure 3.1: Map of the study area.**

### **3.2 Research Design**

Qualitative research was used because it aimed to gather and analyze non-numerical (descriptive) data and numeric data in order to gain an understanding of individuals' social reality, including understanding their attitudes, beliefs, and motivation on the perceptions of environmental impacts of cosmetics and personal care products. This type of research typically involved in-depth interviews with EMA and Chinhoyi City Council in terms of waste management strategies being brought up to reduce waste of cosmetics and personal care products and questionnaires in order to collect data that is rich in detail and context.

Qualitative research was used to explore complex phenomena or to gain insight into people's experiences and perspectives on environmental impacts of cosmetics and personal care products. It was particularly useful when there was a need to understand the meaning that people attach to their experiences or when they want to uncover the underlying reasons for people's behavior and knowledge in this study.

### **3.3 Sampling techniques.**

Simple Random Sampling was used, with equal chance of selection for every member of the population. Randomization was the greatest way to lessen the impact of potential confounding variables, which helps to assure good internal validity. The population of ward 1 is 1556 people which comprises of 476 households. Purposive sampling technique was also used to select a

specific group of participants that helped the study meet its goals which were 10 Salons, Environmental Management Agency Chinhoyi and Chinhoyi Municipality. The participants were chosen on purpose, based on their expertise and characteristics. There was random selection of households from Ward 1 using random tables, households were assigned from 1 to 476, the number of 50 households sample size was determined. Salons were assigned from 1-10 based on the sample of 10 chosen from the CBD.

### **3.4 Data collection**

#### **3.4.1 Observation**

Observations were made in the area to observe the general status of the place. The participants were asked questions based on the household waste produced to obtain information about the attitude and practices on waste disposal and perceptions of environmental impacts of cosmetics. Direct observation designs were also made. All the activities were documented using materials such as a notebook, pen, and cell phone to take pictures. However, a cell phone was used with the permission of the participants.

#### **3.4.2 Questionnaires.**

Questionnaires were pre-tested before being distributed to the 50 participants. This helped in the identification of errors in the questionnaires which may affect the results of the study. Questionnaire review the knowledge of environmental impacts of cosmetics and personal care products within people. It also helped to identify knowledge, practices, attitudes, and challenges to effective waste management of cosmetics and personal care product waste. The data collected, was entered into Microsoft Excel for data analysis.

#### **3.4.3 Interviews.**

In person and cell phone interviews were used to collect more sensitive information. A disciplinary team of people consisting of residents, salon workers, EMA officials, and Chinhoyi City Council Officials were interviewed. The interviews were useful in waste disposal practices, knowledge and attitudes.

### **3.4.4 Surveys**

Surveys were used as a method of gathering data in many different fields. They were a good choice when needed to find out about the characteristics, preferences, opinions, or beliefs of a group of people. It was used to investigate find out what customers think about environmental impacts of cosmetics and personal care products and the waste management strategies. It also helped in researching personality traits, preferences and behaviors on cosmetics and personal care products.

### **3.5 Data Analyses**

In this study KAP Survey data analysis was done, data was first captured from questionnaires and interviews from the field, review of survey responses was done to check for any missing or inconsistent data. Incomplete records were addressed and removed to ensure data quality. Descriptive analysis was done by calculating frequencies and percentages for each response category to understand the distribution of knowledge, attitudes, and practices. Knowledge Analysis was done by focusing on questions related to knowledge and assessment of level of understanding among respondents, the overall knowledge score was calculated by assigning a value to each correct response and then summing up the scores to provide an overall measure of knowledge among the respondents.

Attitude Analysis was done by analyzing the attitudes of the respondents by examining the distribution of responses for attitude-related questions. The mean scores were calculated to understand the general attitude towards the perceptions of environmental impacts of cosmetics and personal care products. Cross-tabulation and Correlation Analysis was done to explore relationships between knowledge and attitudes to examine if higher knowledge levels are associated with more positive attitudes. This analysis provided deeper insights into the relationships between knowledge, attitudes, and practices. Finally, an interpretation of the findings from the analysis was done and conclusions were drawn based on the results by use of bar graphs, scatter diagrams and tables to present statistical findings. Microsoft Office Excel and SPSS software were used for data presentation and analysis

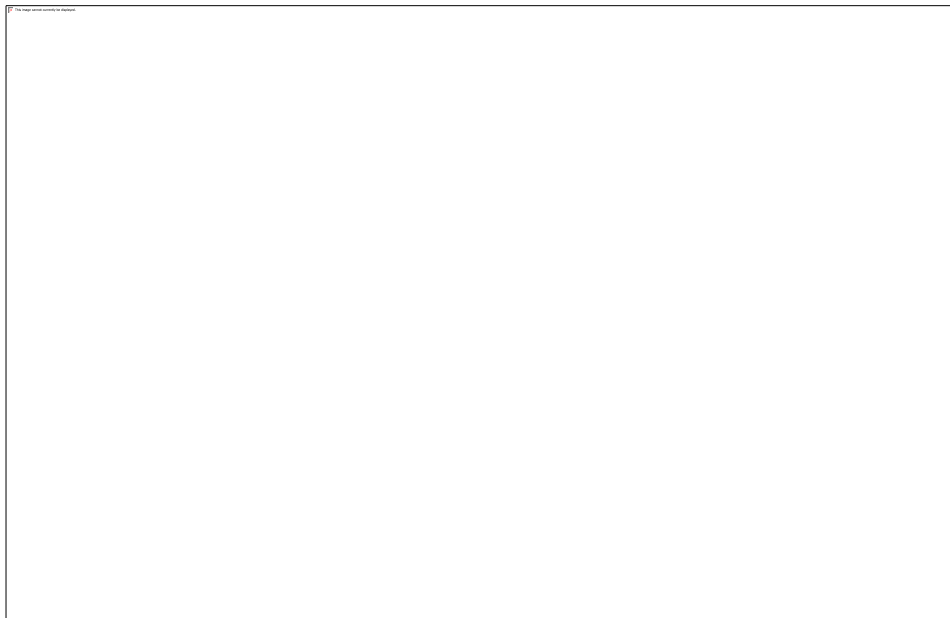
## CHAPTER FOUR: RESULTS

### 4.1 Introduction

In this chapter, the results obtained from the data was presented and analyzed. The study's discoveries will help bring attention to the impact of these products on the environment and propose solutions to minimize their negative effects. The data was presented using a variety of graphs and tables to make it easier for readers to interpret and understand.

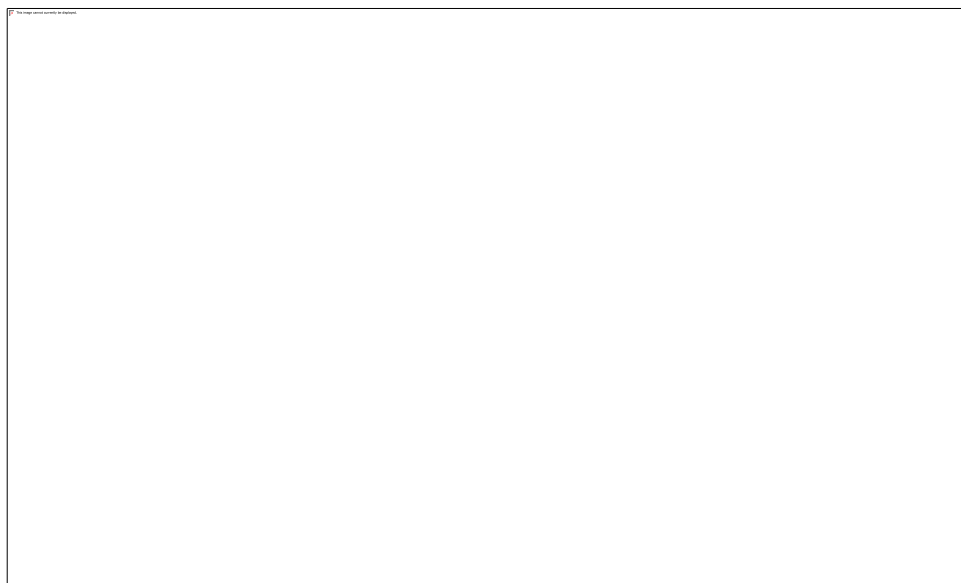
### 4.2 Socio demographic

The survey results regarding perceptions of environmental impacts of cosmetics and personal care products among salon workers and household consumers show a notable difference in the gender distribution of responses, 32% of respondents were male and 60% were female. This imbalance could be attributed to the fact that the beauty and salon industry is traditionally dominated by women (Figure 4.1).



### 4.3 Common cosmetics used in households and salons

These results show that individuals are most commonly using everyday products such as shampoo 27.7 % in households and 25% in salons followed by hair relaxer 18.8 % in households and 18% in salons, which have a significant environmental impact due to the chemicals used in their production and disposal. It is concerning that items such as wet wipes and skin lightening products are also frequently used, as they are typically single-use items that can contribute to waste and pollution. In salons, similar products are commonly used, with a focus on hair-related items like shampoo and hair dyes (figure 4.2 )



**Figure 4.2 shows common cosmetics used in households and salons**

### 4.3. Knowledge Attitudes Practices Data Analysis

The findings from the KAP survey data analysis revealed some interesting insights into the perceptions of environmental impacts of cosmetics and personal care products among consumers. The overall knowledge score among respondents was found to be moderate, with a mean score of 65% where by the score range is 1 to 5 with 1 being minimum,5 the maximum. Specific areas where respondents showed high levels of knowledge included understanding the impact of packaging on the environment and the benefits of using natural and organic ingredients. The mean attitude percentage towards the sustainability of the beauty industry was relatively positive, with a percentage of 84%. Respondents expressed a strong willingness to switch to more eco-friendly products and support brands that prioritize sustainability.

**Table 4: Mean attitude percentage**

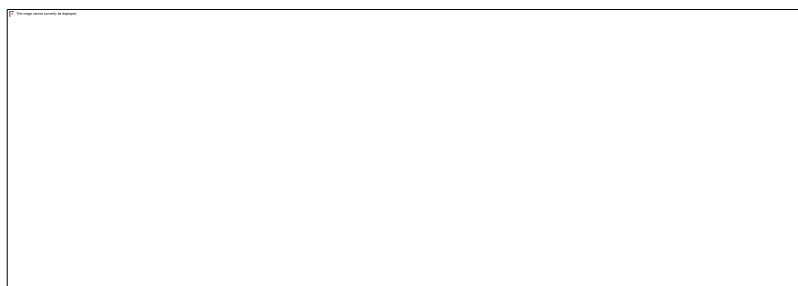
| Responses | Mean attitude percentage % |
|-----------|----------------------------|
| Yes       | 84                         |
| No        | 16                         |

#### **4.3.1 Cross-tabulation and Correlation Analysis**

##### **Pearson correlation analysis of Knowledge and Attitudes**

The results show a significant positive relationship exists between knowledge on and attitude towards the practice. Knowledge and practice illustrate moderate relationship whereas attitude and practice have a strong relationship. There was a significant correlation between knowledge levels and attitudes, with higher knowledge levels associated with more positive attitudes towards sustainability. Respondents who demonstrated a better understanding of environmental impacts were more likely to express a willingness to change their purchasing behaviour and support sustainable brands (table 4.1).

**Table 4.1: correlation of knowledge and attitudes.**



#### **4.3.2 relationship between demographic variables and consumers attitudes**

Chi-square test of independence was computed to assess the relationship between the demographic variables; gender, age, marital status, education, occupation, monthly income and locality with consumer's attitude. The Chi square test displays that only marital status has

rejected the null hypothesis. The cross tabulation of the variables will show either the hypothesis accepted or rejected. The results of Chi-Square were illustrated in Table 4.2

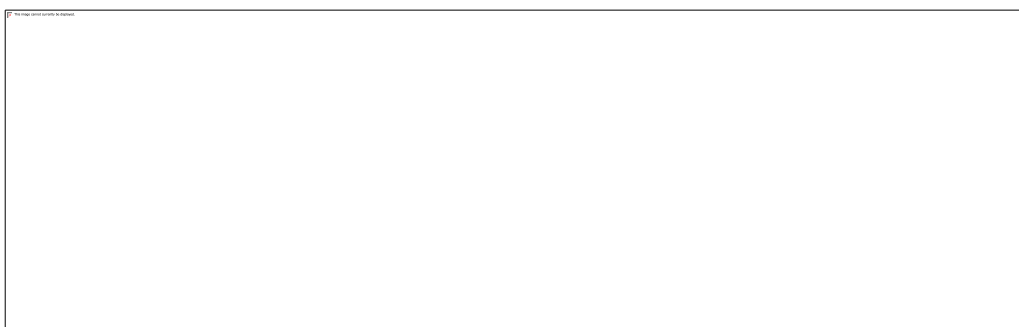
**Table 4.2: Results of Chi-square test on the relationship between demographic variables and consumers attitudes**



#### **4.3.3 Educational level and Awareness of effects of cosmetics and personal care products on the environment.**

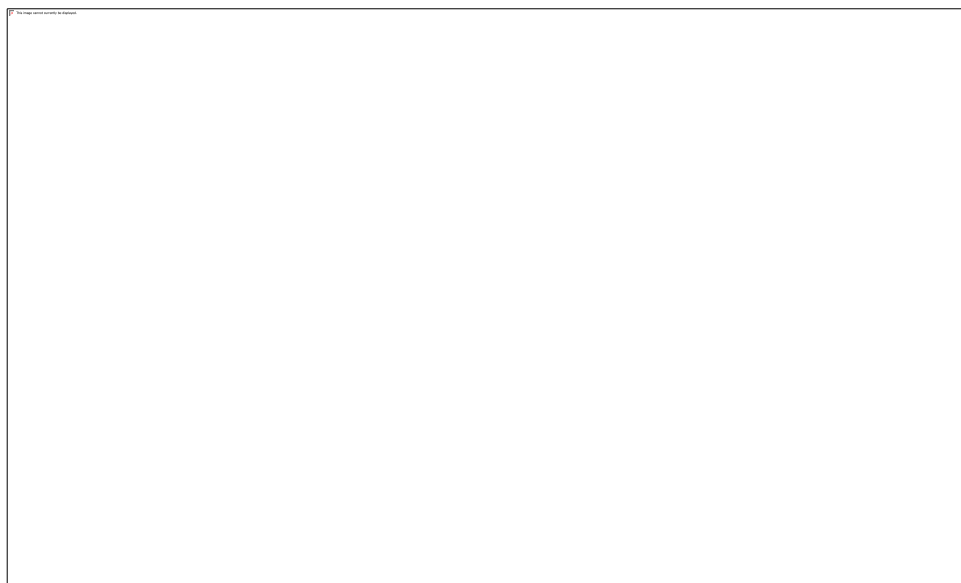
ANOVA Test was done between the independent variable educational level and dependent level Awareness with a hypothesis test  $H_0$ : There is a relationship between educational level and awareness,  $H_1$ : There is no relationship between educational level between awareness. F is larger meaning there is a great difference among the group means. The significance value P was set at  $P < 0.05$  indicating that there is a statistically significance difference among groups. Therefore, rejecting the null hypothesis and concluding that there is no relationship between educational level and awareness. (Table 4.3)

**Table 4.3 One-way Anova test for educational level and awareness of effects of cosmetics and personal care products on the environment.**



Overall, the findings from the KAP survey highlight the importance of education and awareness-raising in promoting sustainable practices within the cosmetics industry. By providing consumers with accurate information about the environmental impacts of beauty products, companies can empower individuals to make more informed choices and drive positive change towards a more sustainable future.

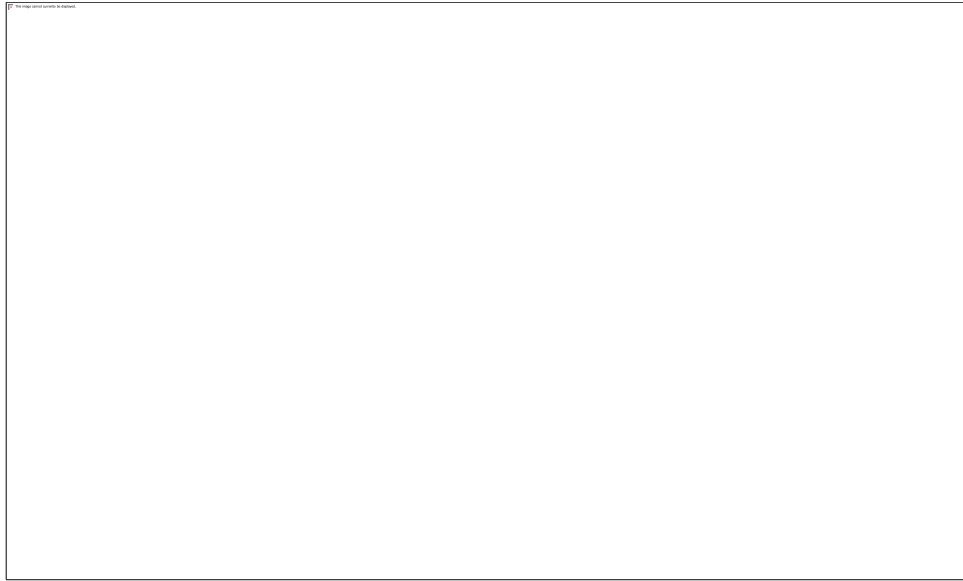
Most households were aware of the possible environmental effects of cosmetics and personal care products with 60% and 10% were uninterested. Sixty-three percent of salon personnel are unaware of the environmental effects of cosmetics and personal care products, whilst only 37 percent are aware of these effects as shown in (figure 4.3).



**Figure 4.3: Awareness of the potential environmental impacts in households and salons**

#### **4.3.3 Environmental impacts of cosmetics and personal care products**

The results from the survey indicate that the majority of respondents (31%) indicated water pollution for households and (50 %) land pollution for salons as the major environmental impact of cosmetics and personal care products, (figure 4.4)



**Figure 4.4: Environmental impacts of cosmetics and personal care products for households and salons**

#### **4.2.4 Cosmetics and personal care waste produced in salons and households**

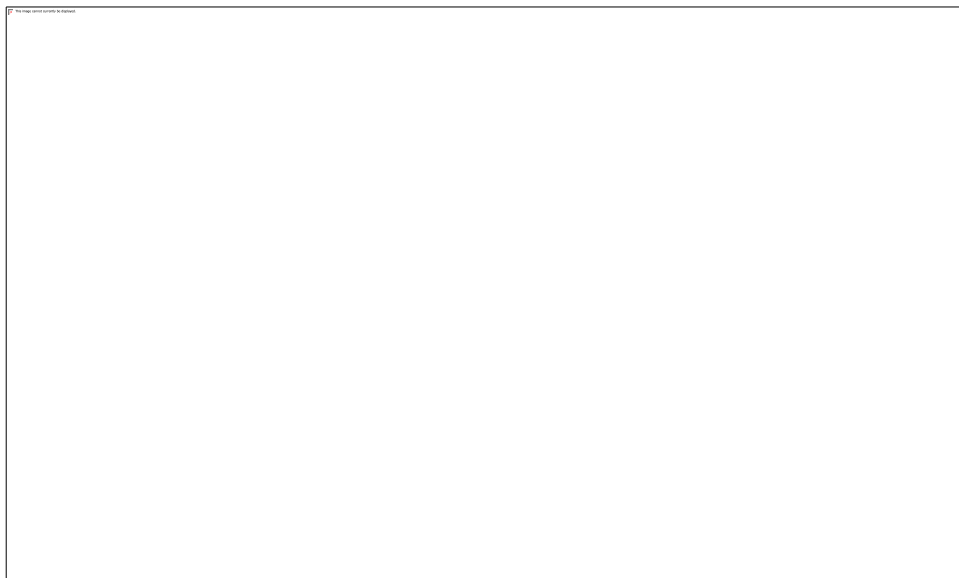
The survey results show that among the respondents who answered, the most commonly produced types of cosmetics and personal care products in households are those packaged in plastic containers. This high frequency (28%) of plastic container usage highlights the prevalence of plastic packaging in the industry, which can have significant environmental impacts due to plastic waste and pollution and hair products (30.3%) in salons, braids, and boxes were also mentioned, indicating a variety of products being produced as shown in (figure 4.5)



**Figure 4.5: cosmetics and personal care products waste produced in households and salons**

#### **4.2.5 Waste disposal methods**

The survey results show that in households, city council disposal is the most common method of waste disposal (58.33%) in salons and (29.3%) in households, followed by burning, dumpsite, and pit disposal methods. On the other hand, in salons, city council disposal is also the most prevalent method, with pit disposal being the least used as shown in (figure 4.6)

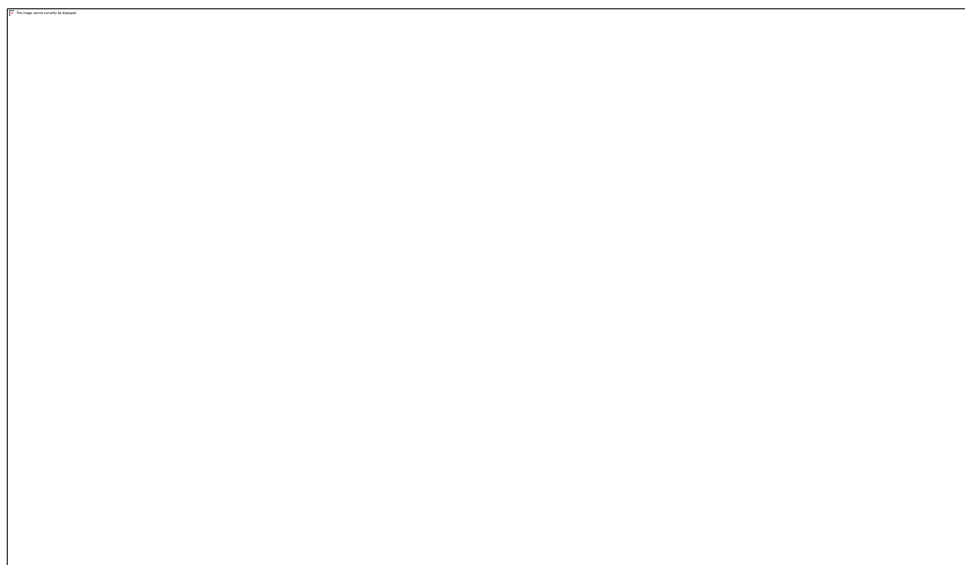


**Figure 4.6: methods of waste disposal for house holds**

### **4.3 ATTITUDES ON ENVIRONMENTAL IMPACTS OF COSMETICS AND PERSONAL CARE PRODUCTS.**

#### **4.3.1 Willingness on paying higher price for cosmetics and personal care products with minimal environmental impacts.**

The survey results show that 50% of respondents are willing to pay a higher price for cosmetics and personal care products that have minimal environmental impact, 30% of respondents are not willing to pay a higher price, indicating a need for more education and awareness campaigns on the importance of choosing environmentally friendly products 20% of respondents who are uncertain may be open to learning more and could potentially be swayed towards supporting products with minimal environmental impact (figure 4.7).



**Figure 4.7: willing to pay a higher price for cosmetics and personal care products that have minimal environmental impact**

## **4.4 Data responses analysis from EMA and City Council**

### **4.4.1 EMA and City Council**

In analysing the responses given by the EMA during the interview it is evident that the organization perceives the environmental impacts of cosmetics and personal care products as significant and detrimental to the environment. The worker highlights the issues of waste production, air pollution, and water pollution associated with the production, use, and disposal of these products. The worker also emphasizes that there are currently no specific waste disposal strategies in place for these products, which creates a gap in addressing their environmental impact.

EMA has taken steps to raise awareness about the environmental impacts of cosmetics and personal care products through various channels such as electronic and print media, workshops, exhibitions, and meetings. The organization also mentions lobbying for regulations and statutes to ban certain harmful personal care products. To minimize the environmental impacts of cosmetics and personal care products, the organization suggests implementing proper waste disposal practices, developing legal frameworks for reducing disposal of these products, and creating dedicated waste disposal areas at dumpsites. Additionally, the worker mentions the need for dedicated waste recycling initiatives to recycle waste from these products.

Overall, the responses from the EMA demonstrate a comprehensive understanding of the environmental issues associated with cosmetics and personal care products and propose effective solutions to minimize their negative effects on the environment. The organization's efforts to raise awareness and advocate for proper waste management practices are commendable in addressing the environmental impact of these products.

### **City Council.**

In analysing the responses given by the City Council during the interview it is evident that the organization knows the environmental impacts of cosmetics and personal care products as significant and detrimental to the environment. The w highlights the issues of waste production, air pollution, and water pollution associated with the production, use, and disposal of these products. They don't have specific waste disposal strategies in place for these products, they

just collect waste in one truck and dispose at the main dumpsite which creates a gap in addressing their environmental impact. Bindura City Council also highlighted on the education and awareness programs that they do on monthly bases, during the clean-up campaigns, engagements with the key stakeholders to help with bins and educating the society.

## **CHAPTER 5 : DISCUSSION**

### **5.1 SOCIO-DEMOGRAPHIC.**

The survey results regarding perceptions of environmental impacts of cosmetics and personal care products among salon workers and household consumers show a notable difference in the gender distribution of responses. For the saloon survey most of the respondents were females (figure 4.1), This imbalance could be attributed to the fact that the beauty and salon industry is traditionally dominated by women. As such, it is likely that a larger percentage of salon workers are female and would therefore be more likely to participate in a survey related to cosmetics and personal care products. Additionally, women are often more interested in beauty and skincare products, which may also explain the higher female participation in the survey

### **5.2 COMMON COSMETICS AND PERSONAL CARE PRODUCTS USED.**

The findings show that individuals are most commonly using everyday products like shampoo hair dyes, wet wipes, skin lightening products, soaps, lotions, perfumes, gloves, diapers and hair relaxers, this is because Chinhoyi is an urban area which is enroute to Zambia where most of the cosmetics come from hence easy to access personal care products. Use of the cosmetics is at its peak because of the young generation and university students because this has become an essential part of daily routines. Similar research of the Impact of Green Cosmetic, Personal Care Products, and their Packaging on Consumers' Purchasing Behavior in Luzon, Philippines stated that everyday products like wet wipes, shampoos, soaps, skin moisturizers, and perfumes have been identified as related to the cosmetics and personal care industry (Myxen et al., n.d.).

### **5.3 Knowledge, Attitudes and Practices on effects of cosmetics and personal care products on the environment.**

The research showed that knowledge on effects of cosmetics and personal care products on the environment was moderate. This is shown by the KAP survey study which was done which showed to be moderate, with a mean score of 65%. Specific areas where respondents showed high levels of knowledge included understanding the impact of packaging on the environment and the benefits of using natural and organic ingredients as similar to the study of Knowledge, perceptions and consumption behaviour of cosmetics of Sri Lanka by Udayanga et al., (2023).

The findings shows that there was a significant correlation between knowledge levels and attitudes, with higher knowledge levels associated with more positive attitudes towards sustainability. Respondents who demonstrated a better understanding of environmental impacts were more likely to express a willingness to change their purchasing behaviour and support sustainable brands. Respondents expressed a strong willingness to switch to more eco-friendly products and support brands that prioritize sustainability with the mean attitude score towards the sustainability of the beauty industry was relatively positive with 84%.

## **5.Environmental impacts**

The results from the survey indicate that the majority of respondents are aware of the environmental impacts of cosmetics and personal care products, such as water pollution, land pollution, depletion of aquatic resources, deforestation, depletion of natural resources. This is because of education awareness, newspapers, road shows, cosmetics and personal care products packaging and internet similarly to the study (Juliano & Magrini, 2017) who found that cosmetics are being used every day, and are continually released into aquatic environment posing the most pressing ecological problems and impacts like land pollution, air pollution, deforestation.

### **5.4 Waste Management strategies/ practices of cosmetics and personal care products**

The findings shows that they are no specific waste management strategies of cosmetics and personal care products because the majority dispose waste in refuse bins that is collected by the City Council, while others burn waste or dispose on open areas if the local authority don't collect the waste. The local authority and Environmental Management Agency (EMA) states that they don't have specific waste disposal strategies in place for these products, they just

collect waste in one truck and dispose at the main dumpsite which creates a gap in addressing their environmental impact. This shows that cosmetics and personal care products waste is overlooked and the least of concern in Chinhoyi. A study was done in New Zealand (Gamage & Mahagamage, n.d.) where by it was noted that majority of people dispose cosmetic waste in open areas creating landfills.

## **CHAPTER 6: CONCLUSION AND RECOMMENDATION**

### **6.1 Conclusion**

Field observation showed that the common cosmetics and personal care products used by households and salons in Chinhoyi are shampoo, hair dyes, wet wipes, skin lightening products, soaps, lotions, perfumes, gloves, diapers and hair relaxers and the majority that uses cosmetics are women more than men. This imbalance could be attributed to the fact that the beauty and salon industry is traditionally dominated by women. As such, it is likely that a larger percentage of salon workers are female and would therefore be more likely to participate in a survey related to cosmetics and personal care products. Additionally, women are often more interested in beauty and skincare products, which may also explain the higher female participation in the survey (Juliano & Magrini, 2017).

There is moderate awareness of the public on the environmental impacts of cosmetics and personal care products in Chinhoyi. This is due to individuals with a higher educational level, which is an ordinary level of education, having a better understanding of environmental issues and the impact of cosmetic products on the environment making them more likely to be aware of the harmful effects of certain ingredients in cosmetics and personal care products, as well as the importance of sustainable and eco-friendly alternatives (Ribeiro et al., 2022).

The study also found out the waste management strategies suitable for reducing cosmetics and personal care products waste which the majority stated recycling, reuse and reduction of single use products such as wet wipes this is also supported by the study about waste management by (Reid et al., n.d.).

## 6.2 Recommendations

- The Local authority should put in place waste management strategies for cosmetics and personal care products waste.
- Information on the effects of cosmetics and personal care products should be provided by EMA and Local Authority and given to the society.
- There is need for more education and awareness on the issues of cosmetics and personal care products.
- The cosmetics and personal care industries should abide to the cosmetics and personal care products manufacturing rules and regulations.
- Research to determine the concentration of personal care products ingredients in water and soil close to dumpsites.
- There is need for further studies on the effects of cosmetics and personal care products in Aquatic resources.

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## APPENDIX

<https://ee-eu.kobotoolbox.org/x/lClfjiaV>

### Appendix 1: Research Household questionnaire



Good morning/afternoon. My name is Isheanesu H Mugabe, and I am doing my final year student at Bindura University of Science Education (Registration: B200468A). I am undertaking research in Chinhoyi Ward 1 medium density suburb. as required by the programme's curriculum. The research is entitled "*Perceptions of environmental impacts of cosmetics and personal care products*". If you are willing to take part, I invite you to assist me with information on this subject, and the information you are going to give me will be classified as confidential. The study findings will aid in raising awareness on environmental impacts of cosmetics and personal care products, and in making recommendations on measures to reduce effects of cosmetics and personal care products on the environment.

**Date:** .....

**Questionnaire ID:** .....

*INSTRUCTION: Please tick on the appropriate answer and fill in where ever possible.*

#### SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

1. Gender: Male ☐ Female ☐

2. Age class: <20 years ☐ 21-40 years ☐ 41-60 years ☐ >40 years ☐
3. Marital status: Married ☐ Divorced ☐ Single ☐ Widowed ☐
4. Highest educational level attained: None ☐ Ordinary ☐ Advanced ☐ Tertiary ☐
5. Residence period in study area: <5 years ☐ 6-10 years ☐ >10 years ☐
6. Employment status: Employed ☐ Unemployed ☐
7. Work experience: <1 year ☐ 1-5 years ☐ 6-10 years ☐ >10 years ☐
8. Major livelihood strategy: Formal employment ☐ Informal employment ☐ Farming ☐ Mining ☐ Fishing ☐ Gold panning ☐
9. Which sanitary facility do you use? Flush ☐ BVIP ☐ Pit latrine ☐ Bush ☐

## SECTION B: KNOWLEDGE ON ENVIRONMENTAL IMPACTS OF COSMETICS AND PERSONAL CARE PRODUCTS.

10. What are the common cosmetics and personal care products you use? *Please select as many as necessary* Hair relaxer ☐ Shampoo ☐ Hair dyes ☐ gloves ☐ wet wipes ☐ Diapers ☐ Makeup products ☐ Skin lightening creams ☐ Other (*please specify*)  
.....
11. Are you aware of the potential environmental impacts of cosmetics and personal care products? Yes ☐ No ☐
12. If yes, how did you get the awareness? School ☐ Work ☐ Community ☐ Public awareness ☐ social media ☐ Environmental education campaigns ☐ Product packaging ☐
13. What are the environmental impacts of cosmetics and personal care products? *Please select as many as necessary.* Water pollution ☐ Air pollution ☐ Land pollution ☐ Aquatic resources ☐ Deforestation ☐ Depletion of natural resources ☐
14. What type of cosmetic and personal care product waste do you produce? *Please select as many as necessary* Plastic containers ☐ Boxes ☐ Microplastics ☐ Heavy metals ☐ Hair ☐ Braids ☐ Weaves ☐ Other (*please specify*)  
.....
15. How often do you use cosmetics and personal care products.....?
16. How do you dispose your waste? Burning ☐ City council disposal ☐ Pit ☐ Dumpsite ☐ Other (*please specify*) .....

17. Do you know where your household waste water is drained to? .....

**SECTION C: ATTITUDES ON ENVIRONMENTAL IMPACTS OF COSMETICS AND PERSONAL CARE PRODUCTS.**

18. Are you willing to pay a higher price for cosmetics and personal care products that have minimal environmental impact? Yes ☐ No ☐ Don't know ☐

19. Are you concerned about the environmental impacts of cosmetics and personal care products? Yes ☐ No ☐ Don't know ☐

20. What do you consider when buying cosmetics? eco-friendliness ☐ Price ☐ Quantity ☐ Positive reviews ☐ Local availability ☐ Brand name ☐

**SECTION D: PERCEPTIONS ON ENVIRONMENTAL IMPACTS OF COSMETICS AND PERSONAL CARE PRODUCTS.**

21. Are you concerned about the environmental impacts of cosmetics and personal care products? Yes ☐ No ☐

22. Do you think there is enough information available to consumers regarding the environmental impacts of cosmetics and personal care products? Yes ☐ No ☐ Don't know ☐

23. Would you be interested in learning more about sustainable alternatives to traditional cosmetics and personal care products? Yes ☐ No ☐

24. What do you think should be done in order to reduce the effects of cosmetics and personal care products? Recycling ☐ Sustainable beauty brands ☐ Awareness ☐ Natural and organic products ☐ Don't know ☐

**END OF QUESTIONNAIRE ..... THANK YOU**

<https://ee-eu.kobotoolbox.org/x/lClfjiaV>

## Appendix 2: Research Salon questionnaire



Good morning/afternoon. My name is Isheanesu H Mugabe, and I am doing my final year student at Bindura University of Science Education (Registration: B200468A). I am undertaking research in Chinhoyi ward 1 medium suburb, as required by the programme's curriculum. The research is entitled "*Perceptions of environmental impacts of cosmetics and personal care products*". If you are willing to take part, I invite you to assist me with information on this subject, and the information you are going to give me will be classified as confidential. The study findings will aid in raising awareness on environmental impacts of cosmetics and personal care products, and in making recommendations on measures to reduce effects of cosmetics and personal care products on the environment.

**Date:** .....

**Questionnaire ID:** .....

*INSTRUCTION: Please tick on the appropriate answer and fill in where ever possible.*

### SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

1. Gender: Male ☐ Female ☐
2. Age class: <20 years ☐ 21-40 years ☐ 41-60 years ☐ >40 years ☐

3. Marital status: Married ☐ Divorced ☐ Single ☐ Widowed ☐
4. Highest educational level attained: None ☐ Ordinary ☐ Advanced ☐ Tertiary ☐
5. Working Experience: <5 years ☐ 6-10 years ☐ >10 years ☐

## SECTION B: KNOWLEDGE ON ENVIRONMENTAL IMPACTS OF COSMETICS AND PERSONAL CARE PRODUCTS.

6. What are the common cosmetics and personal care products you use in the salon? *Please select as many as necessary.* Hair relaxer ☐ Shampoo ☐ Hair dyes ☐ gloves ☐ wet wipes ☐ Skin lightening products ☐ Other (please specify).....
7. Are you aware of environmental impacts of cosmetics and personal care products? Yes ☐ No ☐
8. If yes, how did you get the awareness? School ☐ Work ☐ Community ☐ Public awareness ☐ social media ☐ Environmental Education Campaigns ☐ Product Packaging ☐
9. What are the environmental impacts of cosmetics and personal care products? *Please select as many as necessary.* Water pollution ☐ Air pollution ☐ Land pollution ☐ Aquatic resources ☐ Deforestation ☐ Depletion of natural resources ☐
10. What type of waste do you produce in the salon? *Please select as many as necessary.* Plastic Containers ☐ Boxes ☐ Microplastics ☐ Heavy metals ☐ Weaves ☐ Hair ☐ Braids ☐ Other (please specify).....
11. How do you dispose the waste generated from the salon's cosmetics and personal care products? *Please select as many as necessary.* Burn ☐ Local council disposal ☐ Pit ☐ dispose on open area ☐
12. Where does waste water generated in the salon drain to? .....
13. Do you use any eco-friendly or sustainable products in the salon? Yes ☐ No ☐

## SECTION C: ATTITUDES ON ENVIRONMENTAL IMPACTS OF COSMETICS AND PERSONAL CARE PRODUCTS.

14. Are you willing to educate your clients about the environmental impacts of the products in the salon? Yes ☐ No ☐ Don't know ☐
15. Are you willing to use any eco-friendly products and practice sustainable waste disposal management strategies? Yes ☐ No ☐ Don't know ☐

16. Do you think awareness campaigns on environmental impacts of cosmetics and personal care products are necessary in salons? Yes ☐ No ☐ Don't know ☐
17. What do you consider when buying cosmetics? eco-friendliness ☐ Price ☐ Quantity ☐ Positive reviews ☐ Local availability ☐ Brand name ☐.
18. What measures have you put in place to reduce cosmetics and personal products waste produced \_\_\_\_\_ in \_\_\_\_\_ the salon.....

**END OF QUESTIONNAIRE ..... THANK YOU**

### **Appendix 3**

#### **INTERVIEW GUIDE**

##### **Interview Questions**

1. How does your organization perceive the environmental impacts of cosmetics and personal care products ?
2. What specific environmental issues do you believe are associated with the production , use , and disposal of cosmetics and personal care products ?
3. What step has your organization taken to raise awareness about the environmental impacts of cosmetics and personal care products?
4. Are there any waste disposal strategies or practices of cosmetics and personal care products in place?
5. What are the most effective ways to reduce the environmental impacts of cosmetics and personal care products?

