



MANUSCRIPT TITLE

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Date

# Acknowledgements

I would not have made it without the help of many people.

If you want to thank someone in particular, this is the place. If not, the section can be removed.

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# Abstract

The abstract should succinctly summarize the research gap, the methods you employed, your results, conclusions, and recommendations. Don’t use acronyms if possible and keep the language as general as possible.

Keep the abstract to a maximum of 500 words.

The abstract stays on its own page.

# Introduction

Here you introduce the topic, give an overview of what you’re going to discuss, and why the topic is important. In the following sections you will introduce different components that require a specific discussion. Start from the most general and proceed to the most specific. For example, start with solid waste, then waste in Africa, then the informal waste collection systems in Durban.

## Background topic 1 (Solid Waste Management)

Here you can start with broad overview of SWM: what it is, which SDGs are important, some global statistics, etc. This is going to prepare the reader for the next sections which will provide more detail on specific sub-sectors or processes.

## Background topic 2 (SWM in Africa)

Maybe now you dive into the global differences in collection.

### Heading level three

Going down to level 3 is not something that you should need to do often, but in this case, maybe you want to have separate sub-headings for East Africa, West Africa, and North Africa. All of the 3rd level headings are similar and can be compared, and all of them are logically beneath the level 2 heading.

#### Heading level 4

There aren’t many instances when level 4 would be necessary, but just in case, here’s the format for it. Don’t go to Level 5 unless your life depends on it.

## Justification and Research Questions

In your final paragraph, you need to clearly frame the justification for the study—this should be obvious at this point from the clear discussion that you’ve presented thus far. Here, you spell it out in concise terms. Here, or in a separate sub-section you also spell out the specific research questions that you have, along with, if relevant, your hypotheses. The combination of the justification and research questions will be a clear and obvious bridge to the next section: Methods.

# Methods

This is arguably the most important section of your work. In the methods section you need to explain exactly what you did, how you did it and why you did it. Describe the work you did with enough detail that someone could replicate your work exactly. Be sure to include the types of chemicals you used, the equipment employed, and the experimental design and sampling plans. Below are some common sub-headings that are used, but the exact list will depend on your specific project design and method.

## Site selection

If you are collecting data outside of the laboratory, explain where your site is, how you decided on it, and what makes it especially interesting or important for answering your research questions. Photos and maps are usually appropriate here.

## Sample Size

Those of you conducting household surveys or monitoring programs will need to explain how you arrived at the number of samples that you included. There are various calculations that can be used, but usually, the explanation will relate to access, budget constraints, or logistics. Every explanation is fine as long as it is explained well.

## Ethics

If you have obtained ethical approval for your study, cite the approval number here. Otherwise, describe the potential ethical issues associated with your project and the steps you have taken.

## Experimental Design

Explain your overall research design: is it a qualitative, descriptive study? A randomized control trial? A 2 x 2 factorial field trial? As before, explain how you decided on this design and how it will help you answer your research questions.

### Experiment 1

This could also be referred to as phase one if you are not doing experimental work. If you are doing design work, this would be your first iteration and the steps you took to redesign it. Explain how you structured this work and what, if there is a second step, it does not address.

### Experiment 2

In phase 2, we will modify the pH of the anaerobic reactor by sequentially dosing 5 mg/L of calcium carbonate each day until the reactor fails.

# Results and Discussion

This is where you present your findings. As much as possible structure your results along the lines of your research questions. Start with the simplest results first and proceed to more complex ones. Tables and Figures should be clear enough that they need little explanation: do not simply re-write the numbers as text to fill space. Rather, highlight trends, outliers, or gaps.

## Discussion

Sometimes, the Discussion section is separate from the Results. Where to include it is personal, though it is often easier to include the discussion with the results. The discussion simply refers to the interpretation and contextualization of the results. You present your findings (results) and then explain what they mean; how they relate to what other people have found; how they match or contradict the literature. The discussion requires references to other published works. Results sections that only present data are fine, but when there are multiple results, it is sometimes difficult for the reader to bounce back and forth between the results and the discussion.

## Tables, Figures, and Mathematics

Tables and Figures are key to communicating your results, so they need to be clear, organized, and well-presented. **Both Tables and Figures must always be referenced in text**. They should be referenced on the same page as they appear, in the worst case, they can be referenced on the adjacent page of the two-page document, so the reader does not need to flip five pages to find the desired figure/table. The above rule applies to the first reference of figure/table in text. You can refer to the tables and figures, you have shown earlier, as many times as you reasonably need.

## Tables

Tables are numerical values or text displayed in rows and columns. When appearing in a document Tables should be numbered and appear sequentially. Tables MUST be referred to by their number and not their location. It is not appropriate to ask a reader to refer to a Table “above” or “below” as printing, screens, and downloads may all modify the location and lead to heartbreak. **The Table title ALWAYS appears at the top**. One can remember the location by thinking of a “tabletop”; this helpful mnemonic ranks among the best rivalled only by: “right-tighty, lefty-loosy”. The title should be the same size and font as the main text, Times New Roman, italic. If there is not enough space on a page for a full Table, move it. Do not split it between two pages and force your reader to flip back and forth to remember what the column headings are. The word Table is always capitalized, to avoid confusion with actual tables. For an example of a well-formatted Table, see Table 3.1.

Table 3.1. Waste generation and collection in urban area of Africa for the year 2012

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Region | Generation | | Generation | Collection | % collected  - |
| Eastern Africa | 185.73 | 12.86 | | 4.92 | 38.25 |
| Western Africa | 175.37 | 27.02 | | 10.66 | 39.45 |
| Central Africa | 194.57 | 11.90 | | 4.83 | 40.56 |
| Southern Africa | 247.00 | 26.34 | | 13.05 | 49.54 |
| Northern Africa | 441.80 | 43.95 | | 32.27 | 73.41 |
| Sub-Saharan Africa | 200.67 | 78.12 | | 33.46 | 42.83 |

## Figures

Figures are everything else, be it a chart graph, a photograph, a drawing, or any other illustration or non-textual depiction. In APA, any type of illustration other than a Table is referred to as a Figure. Figures are, above all visual, representations of your work, so they must look good. If a picture is not of high quality, seriously consider if it is worth including. Before you include a photograph, think, what does it add? What weight does it bring to my description? Figures should be centred. They must have a descriptive title that can also include copyright information or a citation. Be concise in the title: sometimes a title that runs on to a second line is necessary, but it looks awful. The font in the figure (axes, legend, etc.) should be of similar (if not exactly the same) size as the main text font (this font). An example for referencing and licensing is given in Figure 3.1.

A tree in a grassy field

Description automatically generated

Figure 3.1 Tree on Mount Victoria Devonport, New Zealand. Image taken by [Daniel Schwen](https://commons.wikimedia.org/wiki/User:Dschwen) ([CC BY-SA 2.5](https://creativecommons.org/licenses/by-sa/2.5/deed.en)).

## Mathematics

All equations appearing in your manuscript should be numbered. Equations should also be treated as a part of a sentence. It is a good practice to describe all variables, together with their units, right after the equation. Example is provided as a complete paragraph.

According to the second law of thermodynamics, heat flows from the hot environment to the cold one as the temperature difference is equalized by diffusion. This is quantified in terms of a heat flux in as

( 3.1 )

where k is the thermal conductivity in , is the hot environment temperature in , is the cold environment temperature in , and is the separation distance in .

The numbering of Eq. ( 3.1 ) means that it is the first equation in Chapter 3. The next one will be Eq. ( 3.2 ). The first equation in Chapter 4 should be numbered as Eq. ( 4.1 ).

According to the [NIST guide to the SI](https://www.nist.gov/pml/special-publication-811/nist-guide-si-chapter-7-rules-and-style-conventions-expressing-values), variables should be written in italic type and units in roman type, e.g., the temperature . The above guide specifies that the expression for the value of a quantity, the unit symbol is placed after the numerical value and **a space is left between the numerical value and the unit symbol**. The only exceptions to this rule are for the unit symbols for degree, minute, and second for plane angle: °, ', and ", respectively, in which case no space is left between the numerical value and the unit symbol.

## Licensing

Remember, it is your responsibility to comply with terms and conditions of the license of anything you include in your work. The very often used licenses are the variations of Creative Commons, referred to as CC, according to which you are free:

* to share – to copy, distribute and transmit the work,
* to remix – to adapt the work,

under the following conditions:

* attribution – you must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.
* share alike – if you remix, transform, or build upon the material, you must distribute your contributions under the same or compatible license as the original.

The example of how to fulfil the above conditions is provided for Figure 3.1.

## Hyperlinks and the final version for publishing

When you refer to a chapter, figure, table, or bibliography reference, please use the Word referencing capabilities. This will allow for automatic numbering of your entries (figures, tables, and equations) and will store the cross-references as hyperlinks. Your final PDF will be a document, the reader will actively interact with – the cross-references will make the reader’s life easier!

PDF files are the only acceptable format for publishing the scientific writing. The last action you will perform on your manuscript, before submitting it to the ETH research collection, is saving it as a pdf. When you do it in Microsoft 365, please make sure that you export your Word file to PDF with *Best for electronic distribution and accessibility* option selected. This way, all your work you did on inserting the hyperlinks will not be lost.

# Conclusions and Recommendations

This section doesn’t need to be long, but it needs to be concrete. Explain what you found, what you didn’t find, and what needs to be done next. No more than a page; two pages maximum.

# Few words on bibliography

The references come last. Using a reference manager while writing (GHE uses Zotero) will allow the flexibility to change between different styles in the same manuscript, while streamlining organization, and facilitating transparency with your co-authors or supervisor. When you are using a reference manager, it will create the reference list at the end of the document though you will need to check each reference to make sure the information is complete. Update within the manager and reload the list if necessary.

GHE uses APA 7th edition for our references. Please view the sample section below for a visual example of in-text citations. Citations should follow references to other author’s work, either in the form of a paraphrase, where you summarize their material in your own words, or a direct quote. Quotes should be used sparingly and very specifically. When you quote another author, you need to include the relevant page number at the end of the citation. When you mention an author by name in the text, the citation appears after the name, and you omit their name in the citation, and only include the year.

## Reference format

References should be left-justified, with the first line hanging. This helps to identify individual references and keeps them from flowing into each other. Apply the “References” style to your references or use the “copy formatting” function.

## Other tools

You can proceed a citation with (see,) if you don’t want to reference a specific work, but want to point the reader towards specific reading (i.e. look here). (cf.) as a prefix to a citation, in APA, works as a compare, as if you want to draw comparisons between two texts.

You can cite multiple authors at once, and it is often appropriate to do so, but do not be excessive. Concision is key, and that includes referencing. A wall of citations hurts the flow of manuscript. Gratuitous referencing is likewise bad. Unless it is a hallmark contribution within your field, or some grand theoretical piece that keeps getting built upon, I would seriously reflect on the necessity of including anything more than a decade old. Always think, what are the key, most topical sources to include?[[1]](#footnote-1)

## Referencing Sample

Human activities on land are, without a doubt, the principal source of marine litter, and rivers are one of the primary channels funneling this waste to the sea (Crosti *et al.*, 2018; Emmerik & Schwarz, 2020). In addition to the impact that this pathway has had on the health of our riverine ecosystems, the growing flood of waste, and plastic waste in particular, has shaped a growing and evocative dialogue around the world’s oceans in crisis, which has captured immense popular and scholarly attention (see Kalina, 2020; Phelan *et al.*, 2020; Stafford & Jones, 2019). With this spotlight on our oceans, citizen knowledge and awareness around riverine and marine waste has become an increasing topic of study. For most investigations, spatial analysis has centered on the coastline, or most specifically the beach, the space where most respondents (urban, northern, middle class), encounter marine litter (Locritani *et al.*, 2019; Rayon-Viña *et al.*, 2018). Kusumawati et al., (2018) also centers their investigation on the beach, though within a South context, while Lewin *et al.*, (2020) and Ferreira *et al.*, (2020) also center on coastlines, but through the lens of recreational or subsistence fishing. As Ferreira *et al.*, (2020) point out, awareness and perception plays a key role in ecosystem management.

According to Bacchi, (2015), problematizations (the noun) generally refers to the outcomes of processes of problem formation, either in the way in which problems are framed, or governmental problematizing processes, while ‘problematize’ (the verb) tends to be used to describe what individuals or governments do in the face of problems. In other words, problematize may refer to the ways in which an individual puts an issue, object, etc. forward, or designate something, as problematic - “that, is to give a shape to something as a ‘problem’” (Bacchi, 2015).

# Bibliography

Bacchi, C. (2015). The Turn to Problematization: Political Implications of Contrasting Interpretive and Poststructural Adaptations. *Open Journal of Political Science*, *05*(01), 1–12. https://doi.org/10.4236/ojps.2015.51001

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Kalina, M. (2020). Treating the symptom: A Marxist reflection on “zero waste” and Sardinia 2019. *Detritus*, *9*, 4–10. https://doi.org/10.31025/2611-4135/2020.13918

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Lewin, W.-C., Weltersbach, M. S., Denfeld, G., & Strehlow, H. V. (2020). Recreational anglers’ perceptions, attitudes and estimated contribution to angling related marine litter in the German Baltic Sea. *Journal of Environmental Management*, *272*, 111062. https://doi.org/10.1016/j.jenvman.2020.111062

Locritani, M., Merlino, S., & Abbate, M. (2019). Assessing the citizen science approach as tool to increase awareness on the marine litter problem. *Marine Pollution Bulletin*, *140*, 320–329. https://doi.org/10.1016/j.marpolbul.2019.01.023

Phelan, A. (Anya), Ross, H., Setianto, N. A., Fielding, K., & Pradipta, L. (2020). Ocean plastic crisis—Mental models of plastic pollution from remote Indonesian coastal communities. *PLOS ONE*, *15*(7), e0236149. https://doi.org/10.1371/journal.pone.0236149

Rayon-Viña, F., Miralles, L., Gómez-Agenjo, M., Dopico, E., & Garcia-Vazquez, E. (2018). Marine litter in south Bay of Biscay: Local differences in beach littering are associated with citizen perception and awareness. *Marine Pollution Bulletin*, *131*, 727–735. https://doi.org/10.1016/j.marpolbul.2018.04.066

Stafford, R., & Jones, P. J. S. (2019). Viewpoint – Ocean plastic pollution: A convenient but distracting truth? *Marine Policy*, *103*, 187–191. https://doi.org/10.1016/j.marpol.2019.02.003

1. Qualitative data (such as quotes or paraphrasing from interviews) can be referenced in-text, i.e. (respondent, data), however it is more commonly done in notes. Journals may have preferences between footnotes or endnotes- check the journal guidelines. You can also use notes to add information you feel is important but may break up the flow of the paragraph—a bit too much of a tangent. Nonetheless, notes are a useful space for clarify remarks and you can often soften your tone a bit, but how they are used varies wildly between disciplines. At GHE we like the clever, but not gratuitous use of notes. I would say use endnotes if you are using them excessively, for data citing purposes, and footnotes if you are using them minimally for comments. Times New Roman, size 10, justified. [↑](#footnote-ref-1)