

About WEDC

The Water, Engineering and Development Centre is one of the world's leading education and research institutes for developing knowledge and capacity in water and sanitation for sustainable development and emergency relief.

We are committed to the provision of effective, evidence-based and appropriate solutions for the improvement of basic infrastructure and essential services for people living in low- and middle-income countries. With over 45 years of experience, we offer expert advice and quality learning opportunities for sector professionals.

Founded in 1971, WEDC is based in the School of Civil and Building Engineering at Loughborough University, one of the top UK universities. Being a part of a leading university gives us a recognised platform of independence and quality.

What makes us stand out from the crowd is our outreach to practitioners. We use our knowledge base and our applied research work to develop the capacity of individuals and organizations throughout the world, promoting the integration of social, technical, economic, institutional and environmental activities as foundations for sustainable development.

Visit our website to find out more about our postgraduate and professional development programmes (MSc, Diplomas and postgraduate certificates available at the University or by distance learning); our research; our advisory services; our international conferences; and our extensive range of information resources which are free to download from our knowledge base.

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Developing
knowledge and capacity
in water and sanitation

GUIDE 9

9 – Writing reports: a guide

Writing reports

There are numerous different formats and styles of writing, from an informal letter or e-mail, to a formal government report. Each has its own purpose – to communicate to the intended audience. A good report could be defined as an *effective* one, that is, one that produces its intended results. If the author relates directly to the objectives by writing a well-structured document in clear language, it is more likely to gain attention and be effective. An effective report gives the writer, and the organization, a professional image, makes a good impression, and persuades others to take the work seriously. This guide will help you to write such a report.

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The water and sanitation sector can be very complex, with many different professionals working together at different times of the project cycle. Reporting the decisions, activities and outcomes of studies, visits, discussions and practical work helps communicate and record important information. A well-written report is easy to read and adds to the effectiveness of any project.

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**Loughborough
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Editing checklist

1. Objectives

- Are there clear objectives?
- Has the audience been identified?
- Does the report address the objectives and the needs of the audience?

2. Summary

- Is your summary short and clear?
- Does it cover the task, the scope, the main findings, the conclusions and the recommendations?

3. Introduction

- Do you refer to the Terms of Reference?
- Are the limits/scope of the report made clear?
- Have you given a brief background to the subject?

4. Main Text

- Is there an even balance between the sections?
- Is the 'story' or argument logical and easy to follow?
- Do the most important items have the most space?

5. Discussion

- Have you included all the main points?
- Are points made supported by evidence?
- Have you suggested explanations for any findings?
- Have you remained detached and provided a balanced view?

6. Conclusions/ Recommendations

- Have you summed up and drawn all your points together?

- Have you avoided introducing any new information?
- Are your recommendations constructive, clear and concise?

7. Format

- Is it easy to find information in your document?
- Are headings and numberings clear?
- Is the layout appealing?

8. Accuracy

- Are there any spelling mistakes?
- Do any figures presented add up?
- Are all references correct, in the text and at the end?
- Are abbreviations consistent?
- Are all sources of information listed alphabetically in the text?
- Are all references correct, in the text and at the end?
- Are abbreviations consistent?
- Are all sources of information listed alphabetically in the text?

9. Images

- Are the figures and tables clear and clearly labelled?
- Are they close to the relevant text?

10. Language and Style

- Is your document clear and easy to read?
- Will the readers understand it?
- Will the tone help you to achieve the report objectives?
- Is your vocabulary suitably varied?
- Can any unnecessary words or phrases be deleted?
- Are both grammar and punctuation correct?

Format

The layout or the look of the report is also important. Computer programs and printers enable reports of high visual quality to be produced. Some organizations will have a “house style” which sets out the fonts, line spacing, margins and other factors that should be used. Some programs enable fixed styles to be used for text and headings, which helps the writer be consistent through the whole document.

Fonts should be plain, such as Arial, Swiss or Helvetica. **Complex** or **UNUSUAL FONTS** can be distracting and difficult to read. Font size, line spacing and left justification also aid legibility. Consistent formatting of headings helps the reader to navigate their way through the document.



Too much solid text can be daunting to read so breaking it up into sections and using appropriate formatting can make the report more visually appealing. Diagrams and illustrations can be engaging to some readers and help explain issues. Too much variety however can be distracting.

Conclusion

Report writing is a skill, but one worth acquiring as it is a key professional competence. Good reports are easy to read and the reader understands the message that the writer wants to communicate. Poor reports are frustrating to read and fail to have the intended impact. Good project work has a reduced impact if it is not reported and shared.

Whilst formal reports will be mainly text written in a long narrative form, information can be placed in boxes to provide additional material, diagrams can illustrate points, and tables incorporated to present data. Indenting, italics, bold text and bullet points alter the way the reader views the text, differentiating between types of information.

Introduction

The purpose of a report is to communicate findings effectively – for example the results of research, a review of literature or recording the activities and outcomes of a visit to a project, conference, meeting or interview.

Reports may be written at regular intervals such as an annual report to sponsors or monthly progress reports for a project. Besides being informative, reports can persuade people of a particular point of view, provoke discussion on an issue or initiate change. A report is a very specific form of writing, which usually follows a clear and formal structure.

Types of reports

Whilst there are several different types of report, the basic format of most reports is the same with variations in the purpose and length of the document.

Project-based reporting

During a project, reports are required at various stages of the cycle.

A Briefing Note. External staff and other stakeholders need to ‘get up to speed’ and quickly familiarize themselves with a country/ project/ situation. These are short pieces of writing (one or two pages), but can refer to other documents as necessary. In an emergency, a rapid assessment of the current situation is required and this briefing document may be referred to as a Situation Analysis.

A Scoping / Feasibility Study. If a new project or venture is being considered, a preliminary step is a scoping study. These reports examine existing services and resources, identify where the gaps are and suggest potential solutions. This report is based on written sources, interviews and site visits.

A Terms of Reference (TOR) usually has a few paragraphs on the background of a piece of work, before describing in detail the work that is needed and the outputs that are expected.

A Baseline Study or Survey is sometimes requested at the beginning of a project. This may be a strictly quantitative account of existing services in an area, to be compared with subsequent improvements. It could also be a more in-depth social record of knowledge, attitudes and practice (KAP), for example if your project aims to change behaviour in health and/ or hygiene practices.

Baseline surveys are an important step in environmental impact assessments. Formal site surveys are needed before infrastructure developments – the reports produced include considerable amounts of data.

Design Reports record the next stage of the project, setting out the proposed project in detail, explaining why specific decisions have been made.

Table 1. Comparing reports

Project Reports	Research Reports
Briefing Note/ Situation Report	Background Paper
Scoping Study/ Baseline Study	Literature Review
Terms of Reference	Position Paper
Progress Reports	Workshop/ Meeting Reports
Evaluation Report	Thesis/ Dissertation/ Paper

(Environmental) Impact Statements set out the probable ecological (and social) outcomes of the work.

Progress Reports record the activities and outcomes during a project. They will contain a narrative report as well as record issues such as expenditure, progress against the planned programme and achievement of milestones. This can be called a **Monitoring Report**. Where the project is related to supporting process (e.g. institutional reform) rather than construction, then a **Process Facilitation Report** would be written, recording key events and activities.

An Evaluation Report is usually requested at the end of a project to assess the overall effectiveness and impact (sometimes called an **Impact Assessment Study**). Comparisons are likely to be made with the baseline survey

(if any) conducted at the beginning of the study. In an evaluation, 'lessons learned' can be drawn out for the benefit of future work.

Research and policy reports

Besides the practical project-based reporting, there are reports based on research, advocacy and policy development. These often have a similar purpose to project reports but a different audience.

A Background Paper is for familiarization purposes. It might go into, for example, the history of a project, similar work in other countries or projects and key issues to be aware of. These short contributions are composed by experts, to advise decision-makers of the latest developments.

A (Literature) Review. A review can be purely a 'desk job', bringing together and assessing the information provided in various documents and perhaps drawing new conclusions from them.

A Position Paper. Such a document is useful to raise awareness on a subject that might otherwise be given low priority. A Position Paper usually describes the current situation regarding a certain issue, possibly highlighting areas where action might be needed, and targeted at policy makers. A Position Paper could be used as a political tool, being developed into a Strategy Paper or even draft policy.

A series of paragraphs forms a section, grouped under a heading. Their headings should be unambiguous – one-word titles can be misleading.

Writing style

For report writing, a different style of writing is used from personal communications. Whilst style is largely a matter for personal taste, there are a few conventions to be considered.

'Voice' refers to the style of language used – formal or informal, active or passive. In general, reports need to be quite formal to be taken seriously and the passive, impersonal voice will help.

Formal writing always uses the full form of phrases that are shortened in everyday speech. Thus, "don't", "can't" or "they're" should be written in full (i.e. "do not", "cannot" or "they are").

Formal reports are written in the third person (i.e. "the author thinks that..." rather than "I think that..." and "the reader should be aware that..." rather than "you will be aware that..."). The writing is also "passive" (i.e. "the survey was carried out" rather than "I carried out the survey").

However, long passages of passive text can become very dry to read, and it is easy to get carried away with very wordy sentences. In project reports (but not research papers) it is possible to alternate between both active and passive in a report – active statements are often more immediate, and energetic.

Consider the difference between:

"We discussed funding and did say that \$50,000 would cover the first job"

which is what might be said, and the more impersonal and less colloquial:

"At a meeting of all stakeholders, initial project funding was agreed to be set at \$50,000."

Various tests have been developed to measure the "readability" of a document. This involves counting the number of words per sentence and the number of syllables per word to calculate an index or score for the whole document.



"Therefore" is a useful word to explain a logical progression of ideas, but a long series of "therefores" can be difficult to follow, so using "then", "so", "consequently", "thus", "hence", "and so", or "as a result" may provide some variety.

"boreholes" – this type of replacement can give a very different meaning to your writing! There is no substitute for reading and re-reading text for typographical errors (typos), as well as for grammar, punctuation and general style.

Sentences

Good sentence structure is the key to clear expression, so, ideally, sentences should present ideas one at a time and each sentence should make sense on its own as when the meaning of a piece of writing is unclear, it is often because it is not written in proper sentences or the sentence is too long and rambling, with many sub-clauses (or issues in parentheses), so that the reader has forgotten where the sentence started and lost the thread of the argument as the writing becomes difficult to follow and it (the sentence) seems to wander around without ever seeming to come to a clear conclusion as well as losing all focus and direction so it is best to check that any sentence you have written is not too long as this will be very annoying to your reader and they will become distracted

This sentence is too long!



by the poor writing style and not focus on the message that the writer (or even writers) were trying to get across so if a sentence does get too long it is a good idea to break it down into several shorter sentences, each with a single idea (which has been mentioned before in this section) and ensure that each of these sentences follows on from the previous one.

Sections and paragraphs

After sentences, paragraphs are the building blocks of writing structure.

A paragraph is a cluster of sentences about one subject.

However, paragraphs should not be too short as this breaks up the flow of ideas.

A page of text is much more manageable for the reader if it is broken into several paragraphs, each with its own subject or idea.

These should follow on logically from one-another, leading the reader through the story or argument.

These paragraphs are too short!

A Conference/ Workshop/ Meeting/ Training Report – this is usually a straightforward account of who was present and what took place at a particular event.

A Research Thesis (PhD) or Dissertation (MSc) is a formal record of the process and results of a research project, which may be re-written as a journal paper.

A Fact Sheet is a short (about 4 pages) information or advocacy document, which clearly and simply puts across an idea, often a recent research topic or, on more general issues, for information. They will be accessed by a wide range of readers, from school-children to professionals and practitioners.

Each type of document has its own particular format that, with practice, can aid the writing of the report in terms of style and structure.

Length of reports

For a single project, a variety of reports may be produced for different audiences and be different lengths. A 100 page research dissertation may be re-written

Objectives. There are many facets to a good report, but a key factor is that there are clear objectives. By keeping these objectives in mind, unnecessary information will be rejected and only that which is needed to support the conclusions will be included.

as an eight page journal paper with a 10 line abstract. An evaluation of a project may be 50 pages long, with a five page executive summary and a two page Briefing Note.

The writing process

Know your audience

It is necessary to be clear who will be reading the report, as this will influence the style of writing. Consider:

- Who is going to read your report?
- Why are they reading the report?
- What are they hoping to find out?
- What do they already know?
- How will the report be used?
- What should happen as a result of the report?

Knowing the backgrounds, experience, interests and other characteristics, such as nationality or language, influences the report writing. For example, when writing about Asian water and sanitation practices for an African or European audience, certain cultural differences in the use of water would need to be explained. If writing only for an Asian audience, these issues would be understood.

A technical report aimed at people with a similar technical background can contain specialist terms, which might otherwise be considered jargon

and require more explanation. If it is for general consumption, a glossary of technical terms may be necessary. However, it is a useful rule never to make too many assumptions about the readers' understanding and always to explain why something is a good idea.

Time scale

Often the actual writing of a report is the part that takes the least time in the overall plan. Gathering the information, reading the background material and selecting the information to present can all be very time-consuming. Checking and revising the first draft of the report can also take more time than expected.

Delivering a report on time can be considered part of the 'art' of professional report writing. No matter how fine the report is, it will have a negative impact on the minds of the readers if it was due three weeks earlier. There will always be a trade-off between the 'ideal' report and the 'good enough' report that needs to be on the manager's desk by Monday morning. A timetable that is linked to the plan is therefore an important element of writing a report well.

Deadlines are good to set whilst report writing, to avoid endlessly striving for the right wording or the perfect diagram and never producing the document. Each chapter needs a separate deadline as four perfect chapters and two missing ones mean the whole report is

incomplete. Some allowance needs to be made for unforeseen circumstances. These deadlines can always be revised, so it is useful to keep track of progress to avoid rushing parts of the writing unnecessarily.

Planning the report

Many reports are based on a Terms Of Reference (TOR), scope or brief for the task, that is, why the report is needed and by whom. The TOR will usually contain a little background and then set out what is expected for completion of the task. It can be very short, such as a few sentences, or quite lengthy, with numerous attached reports that need to be read in conjunction with the text. It usually sets out a time-scale for the work.

It is important to stick to the boundaries of the objectives and not cover ground that is not asked for. If the scope is not clear and there is uncertainty about what questions the report should be addressing then clarification is necessary before any data-gathering or writing is started. This may seem obvious, but it is quite surprising how many reports do not address the issues that they set out to cover.

A great deal of time is invested in writing. This needs to be treated carefully by taking a copy, keeping a back-up and making sure it does not get lost.

confusing as this is not very precise. Scientific words such as "faeces" and "urine" are acceptable and convey the meaning more clearly. Slang or crude words such as "crap" and "shit" are simpler still but would not be acceptable in formal writing.

Spelling words correctly is less of a challenge if 'spell-checkers' on word

processing packages are used – provided the program is using the correct language. However, words can still be spelt correctly, but the sense lost. Homophones sound the same but mean different things (e.g. "their", "they're" and "there", "here" and "hear" or "practice" (noun) and "practise" (verb)). Spell-checkers can come up with surprising re-wordings if you slightly mis-spell a word, for example, "brothels" for

Know your audience

Engineers, social scientists and economists all have different interpretations of supply and demand. Engineers on a water supply project consider supply and demand as the quantity of water supplied. Demand is often expressed as litres of water per capita per day and can vary from as little as 10 l/c/d in a refugee camp to 500 l/c/d in some industrialized countries. This is often measured by looking at actual use in similar situations rather than asking what people "demand". Ideally, supply equals demand and often they are regarded as the same measurement.

Social scientists use the terms supply and demand to describe the way a project is delivered. A supply-driven project is organized by those in authority and concentrates on the delivery of services. It is measured in terms of amount of water supplied, numbers of latrines constructed, length of irrigation canal built. Demand-led projects concentrate on what people say they want and deliver the request in the manner the people ask for. The practice is not as simple as the theory. People have to be informed of the choices that are available, even to the extent of creating "demand". Sanitation is an example of a facility people may not know that they want until they are told about it. Demand in this sense is difficult to measure.

Economists have narrow definitions of supply and demand. Demand is the quantity of a commodity that people will buy at a certain price. Supply is the quantity of the same commodity that can be produced for a certain price. The relationship between supply and demand may be influenced by non-monetary factors, which economists attempt to measure and include in their models of the economy.

Long words and long sentences make the ideas harder to absorb immediately.

Words

The vocabulary used needs to reflect the ability of the reader. Subject specific terminology needs to be explained unless the readership for the document is likely to understand the words. A broad audience may consider these words as **jargon**.

Subject specific terminology does aid communication as complex ideas can be summed up succinctly. However, the gratuitous¹ use of prolix² words can obfuscate³ the meaning of the sentence and appear magniloquent⁴ or even grandiloquent⁵. A balance has to be made between using a precise word that may not be in common use and writing a bland piece of prose without drawing on the rich vocabulary of the English language. Reading a variety of books will help to expand vocabulary and identify different styles of writing. Glossaries can aid understanding of subject-specific terms and subject-specific dictionaries can provide succinct definitions.

At the other extreme from using unusual words is the repeated use of particular words. Repeating the same word can

¹ Uncalled for

² Lengthy, tedious

³ To obscure, to confuse

⁴ Grandiloquent in speech

⁵ Inflated and pompous in style or speech

Use or utilize?

It is tempting to use long words to make a report appear erudite but this can either make the writing difficult to read or even mislead if the word is not correct.

You *use* a hammer to bang in a nail; you *utilize* it to prop open a door – i.e. a purpose for which it was not designed.

become repetitious as each repetition of the repeated word becomes more noticeable and the repetition of the repeated words is repetitive. Using a thesaurus and dictionary helps to identify synonyms and select the right word.

Acronyms and abbreviations can also be confusing; these need to be spelt out in full when they are first used (e.g. “Water, Engineering and Development Centre (WEDC)”) and perhaps included in a glossary. Acronyms should only be used if they are either well known (e.g. UNICEF rather than the United Nations Children’s Emergency Fund) or they are going to be repeatedly used. If an uncommon acronym is only used once, it should only be spelt out in full. Acronyms should not be made up unless there is a specific reason for doing so.

Euphemisms are often used by people writing about issues such as sanitation. Words such as “human waste” may be

Iterative process. Plans are predictions of how the report will look. Sections will expand, alter and move around as the text is written. There is often more than one way to organize the material, but by thinking carefully about the audience and the objectives, the best design will gradually emerge. Reviewing the report from the perspectives of different readers will help ensure that the route through the document will be clear.

It is tempting to begin writing straight away but time taken thinking about the content, the order in which to present information, and the structure of the whole report will save time in the end. Having a plan will help ensure that no information is left out and will point out any possible areas of repetition.

It is particularly useful if there is a great deal of information for the reader to absorb or, if the report is being produced by a team, so each member knows which sections they are expected to produce and where they fit in.

Even for a very straightforward, short report, making a plan is good practice as there are always times when a piece of work might have to be left for a while so referring back to the plan will save time. The work may be taken over by another person, in which case a clear plan will let them see exactly what was intended.

Contents list. If there is a reasonably clear idea of the preliminary structure of the report, a more direct way of planning

is to make a draft of the contents page. This technique is also known as ‘outlining’. Chapters, sections and sub-sections provide the skeleton of the report, with brief notes under each heading about the content. Once more text is added, some re-ordering and re-titling may be necessary. A good rule of thumb is to avoid full pages of text with no headings – if this is the case, break it down into smaller segments. If there is a great deal of data to present, they would be better in the appendices, with a summary table in the text, to prevent the narrative flow being disrupted.

Headings. Documents can be divided up into sections or chapters. The title for each chapter is called a “first level” heading. These sections can be divided by “second level” headings and further divided with “third level” headings. Whilst further sub division is possible, too many layers can become complex. Sections are sometimes numbered (e.g. 2, 2.1, 2.2, 2.2.1, 2.2.2), but the level of heading should be obvious from the format of the text (e.g. size, font).

Heading one

text

Heading two

text

Heading three

text

Brainstorming in groups or using a mind map is a useful technique if it is not clear where to begin. It is particularly helpful for a team compiling a report, with each member having different ideas of how the report should look.

Using a large sheet of paper, the team write down everything that is to do with the report. At this preliminary stage they do not need to be concerned about the order, the key is just getting all the information out. Often a circular format, with a central issue and radiating sub-sections can be helpful. This process can go on for a long time, so having a time limit (e.g. half an hour) is a good idea. Once the brainstorm page or mind map is completed, links between certain issues are likely to become apparent and a plan will begin to emerge.

From this brainstorm page, an initial structure of writing can emerge, clustering material on the plan under sub-headings. A report is always drafted until the final report is produced, so noting down a preliminary order then re-arranging it later is fine. Often more logical steps or progressions only begin to emerge once the writing has begun.

Group Reports. When a team of professionals is asked to perform a task together, there is often only one report wanted. Usually in these situations, divisions are clear-cut, as each person will be looking at different aspects, but a brainstorming session before the fact-finding begins would still be the most

useful method of preparing a report outline or plan. It is important to ensure that all the team members have similar objectives in mind and that any overlaps between responsibilities are discussed and clarified.

Usually one person will take on the responsibility of bringing all the material together and editing the final document to make it a coherent whole. All contributors should be clearly listed at the front of the report.

The report content

Material for reports comes from a variety of sources; notes on paper, in documents on the computer, in journals and in the author's mind. All these need to be collected together, and assembled into the structure of the report.

It is possible to end up with far too much material, which can make a report unwieldy and difficult to read. It is useful to review each item of information and consider whether it really needs to be included to answer the objectives of the report.

Once the information is roughly assembled, the main points of each section can be noted down. This process may include some fine-tuning of the section headings and deciding what information can be excluded or relegated to the appendices. This activity needs to be kept short – it is only a rough draft, and does not need to be perfect.

then pilot studies followed by fuller data gathering. Each cycle will provide some knowledge of what works (or does not work). This refinement of knowledge, adding more detail and more depth with each iteration, is part of the wider research process.

Evaluation reports

There is an art to constructive criticism. When an external evaluator reports on a project, the writing needs to be approached in a very delicate and diplomatic way and particularly must be seen to be independent and unbiased. The evaluation report should use the evaluator's experience and the benefit of a fresh perspective to give advice on how the project could be enhanced.

Project workers will be apprehensive about the visit of the 'expert' and can quickly become defensive and dismissive if they read new criticisms in a report that were not discussed with them first in a sensitive and respectful way. Negative feedback that is not handled carefully can thus be very destructive. Some useful guidelines, therefore, are:

- Only give opinions where they have definitely been asked for.
- Give praise and encouragement first, for those parts of the work that are good.
- Always tell the people involved what is intended to be written – preferably in a dialogue – so there are no surprises.

- Describe a problematic issue rather than judging it in the text.
- Be specific about the points where there appear to be problems – generalizations are not helpful – and give some constructive ideas as to how best to solve them or improve the situation.
- Keep all criticisms 'structural' and avoid the personal.
- Do not hide or erase past mistakes but look for the 'Lessons Learned' and move on.

Writing the report

A report needs to be readable, with clear and concise language, well-constructed sentences and correct spelling and grammar. The 'tone' of the report is important – a professional report should be unbiased and well argued, with a consistent style.

Everybody will write in a different way, depending on their education and experience. Report writers should be aware that they should adjust their individual style to suit the report. This goes beyond grammatical conventions to include choice of vocabulary and the tone of text. Reading other reports helps increase familiarity with different writing styles (good and bad).

Whilst there are conventions about writing style, the over-riding advice is "Keep It Short and Simple" – KISS. This applies to words, sentences and reports.

which should answer the research questions. These answers to the research questions should then help achieve the aim. It may be that the questions cannot be answered, or cannot be answered using the methodology chosen, but whatever the result, there will be new **knowledge**, which progresses towards the goal. This flow is represented by the upward arrows on the right-hand side of the figure.

The elements of this model do not map precisely onto the chapters of a research report. For example, the problem statement (goal), research aim and overall objectives (questions) are normally all included in the Introduction chapter. More detailed research questions may be included in the methodology, along with details of the planned activities. The literature review may be part of the production of data and included after the methodology (in the results chapter) or alternatively may precede and inform the methodology (as an extension to the introduction).

Report symmetry

The report can be seen as almost symmetrical. If the reader were to read the Introduction (Problem statement, research aim) and then skip directly to the concluding chapters (Conclusions and Recommendations) these should make sense even without the intervening chapters, because they are logically linked. The issues raised in the introductory chapter should be answered in the concluding chapter (Figure 8).

Similar symmetry can be seen between the Outputs and the Discussion, as the questions posed are subsequently answered, and the Input and the Results, showing how the planned activities resulted in the collection of the data.

This model is clear and logical and helps structure the report, even if the project did not proceed as smoothly as planned. In reality, there is repetition and adjustment in projects, as activities consist of several cycles, with data being gathered and analysed from literature,

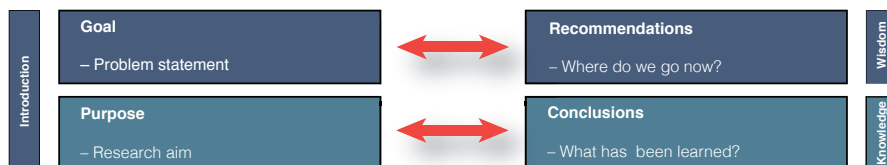


Figure 8. Issues in the introduction are answered in the conclusion

The first draft. Often the biggest hurdle with writing is getting started and this can be helped by writing the first draft as quickly as possible – in one sitting if possible. The bulk of the writing is produced without detailed consideration of spelling or style.

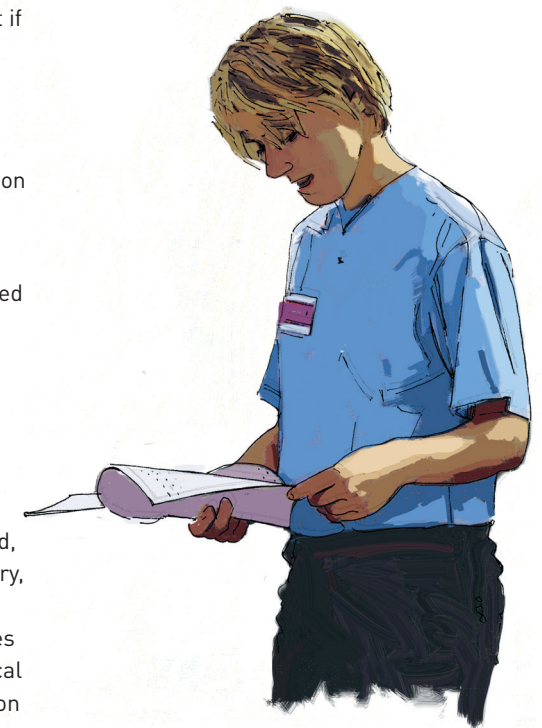
The second draft. Once the first draft is roughly assembled, take a break so that it can be approached with a fresh mind. At this stage the report is read looking at:

- the way the report addresses the objectives;
- the flow of the document – seeing it if tells a story;
- the logical development of the arguments;
- unnecessary or irrelevant information that could be cut or summarized;
- specific points to ensure they have been sufficiently described, explained and justified;
- facts and references, checking they are correct; and
- for language and style issues

For the second draft, the report can be fine-tuned, corrected, the style adjusted, the language simplified and, if necessary, the structure altered if some sections seem too bulky. This process often takes longer than the original writing. A critical friend can read through and comment on the text to see how clear it is.

Major structural issues need to be finalized then the focus can move to issues of style and language. Checking referencing and cross-referencing is one of the final tasks. There may need to be several re-readings and revisions before the document is finally completed.

Draft final report. Once the author(s) of the report are satisfied that the report is mostly complete, it can be circulated to a few people related to the project for comment. This allows the writer to check that the audience understands the report.



Organizing the information

The aim of any report is to present the information in a clear and logical way, so that the reader can progress through the 'story' without having to make jumps, cross-references or assumptions. This is especially true of research reports. With research, the outcome is (probably) not known to the researcher before the work starts. It is also not known to the reader – if it were, then research would not be required! The writer has to communicate and justify the findings in a clear way to the reader. Whereas the researcher may have taken a significant amount of time developing their ideas, often going down dead ends and following circular paths, the reader has to follow the final thought process in the time taken to read the report, so a clear, logical structure is important. Superfluous information needs to be omitted and essential information included at the correct point to support the argument.

Although research reports are assessed by knowledgeable people, they will want to know that the researcher is aware of the basics, without simplifying issues too much. As a guideline, the audience for a research dissertation is a fellow student; somebody who has completed the same course of study and knows the broad subject matter. From this common foundation, they can be led through the research.

Importance of structure. As an analogy, consider the construction of a pyramid (Figure 1). The structure culminates in a single point; the rest of the structure provides support to this point, layer upon layer. These are all based on a firm foundation. The same structure supports the findings of a research project.

The foundations. Deciding where to start building up the evidence will require the author to think about the audience. The report should start at their level; if it starts at too advanced a level, beyond their existing knowledge, then there will be a gap between what the reader knows and the start of the logical structure of the report. This is like the pyramid floating in the air, with no connection with the ground. Alternatively, the report may underestimate the level of knowledge and may start at too basic a level. The writer is having to do extra work – and so is the reader. The foundations in this case are below the level that the audience requires (Figure 2).

The introduction of the report sets the scene and tells the reader "this is where

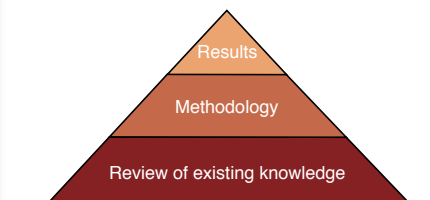


Figure 1. Think of a report as a pyramid

Facts versus opinion. A clear division must be made between facts and opinions about those facts. The latter should be presented in the 'discussion' section of the report.

When writing something that an individual knows or feels to be right, it is important not to assume that others may also think it right. It is necessary to state all the premises or reasons behind an argument and set out the benefits. Consider what those opposed might say in argument and explain why the chosen route is better.

Consider the difference in impact of the following two statements:

A "It makes far more sense for everybody to be paid on the same date each month."

B "Currently we pay staff in the regions on the 14th and 21st, and those in the capital at the end of each month. There is a high cost to the organization to pay the accountant for three sessions a month, plus her travelling expenses. The loss of convenience for the regional workers will be outweighed by the necessity to reduce their hours if this practice continues. It is therefore recommended that we pay all staff on the same date each month."

simplified model and may vary depending on the type of research and data collected.

The report needs to articulate clearly the project **goal**. This is likely to be a high-level issue and the project will only partially contribute to this goal. For example, if the goal is to improve the living conditions of people living in slums then research into suitable water supply techniques will help towards this.

The **aim** or **purpose** of the research is more specific and should be achievable within the resources and time available. To achieve this aim, the project will need to produce some **outputs**. These outputs can be expressed as responses to questions. **Inputs** will need to be provided to produce these responses. This last stage is the research or project activities.

The logic is "if I carry out these activities, then I should produce these outputs (answers to questions) and from these should produce the anticipated research aim, which should contribute (eventually) towards a wider goal". Each stage builds on the next.

The left hand side of the diagram is the foundation (introduction) and plan for the research (methodology) or project process. The activities are carried out and this should result in **data**. After presenting the results of the data collection, the subsequent analysis and discussion will produce **information**,

- Who are my audience and what are they hoping to find out?
- How will the report be used?
- What should happen as a result of the report?

References. Any work quoted in the report should be fully referenced, so that readers can locate the article or book for themselves. There are several standard formats for referencing, but the most common is to cite the author and date in the text, and then to list the articles by author, alphabetically at the end of the document.

Appendices. Material that is required for reference in the report, but would interrupt the flow of the main body of text, can go in an appendix. Examples are the Terms of Reference, survey data details where the key results have been presented in the text, transcripts of meetings or interviews, and so on.

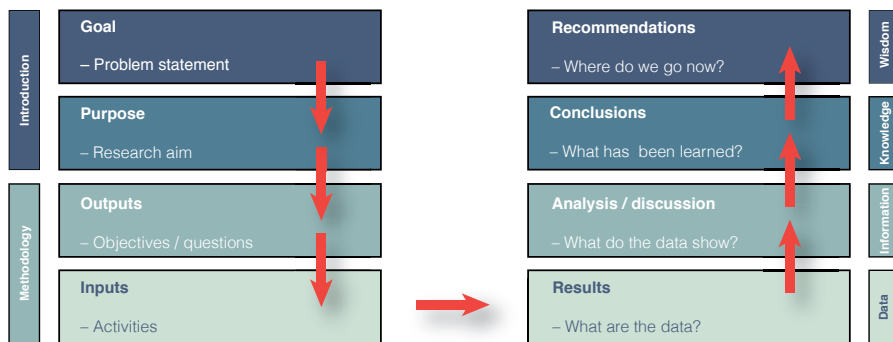


Figure 7. Structure of a (research) project

Only include these if they are genuinely supporting information. Appendices are usually numbered (1, 2, 3), or can be lettered (A, B, C), in the order in which they are referred to in the text.

Reporting on projects

Whilst the writer knows that reports flow from general introductions to specific recommendations, the constraints of standard report structures can cause confusion as it not always clear what should go in each section. “Results” and “discussion” can often seem to merge into each other, yet the former is mainly factual and the latter sets out the author’s interpretation of those facts.

Flow of logic

There is a structure to the process of projects and research, which can be illustrated using a logical framework approach (Figure 7). This logical process can be reflected in the report. This is a

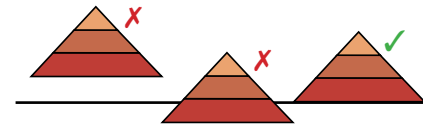


Figure 2. Determine the level of understanding of the audience

we are starting from”. It is information that the reader probably already knows but may need reminding of. Starting an introduction with “there are 1.2 billion people without adequate water” is fine for a report for a general audience, but for a report for fellow professionals, they will know this. Perhaps “the problem with inadequate water for millions of people is a complex one, involving many factors” may be better.

The known facts. The first layers of the report begin to focus onto the area under consideration. This involves what information is publicly available but perhaps not widely known by the audience. This often takes the form of a literature review. This review looks at the status of knowledge, summaries of facts, areas of agreement between different authorities, differences in opinions and gaps in the published literature. Areas that are missing in the literature can be more important than what is there – but it is difficult to demonstrate that there is a gap – it could be that the researcher has not looked hard enough.

There is no significant analysis of the information apart from setting out to communicate, compare and contrast existing knowledge. The audience may know some of this, but this section goes into more depth than would be expected to be known by a non-specialist.

This summary of existing knowledge needs to include everything that is built upon later on in the report. The researcher may come across information late in the research process that is used to support conclusions; this should be included at this introductory level to provide a logical order for the reader to follow, rather than leaving gaps in the summary of existing knowledge. Similarly, not all the information gathered is needed; do not include it unless it supports the later argument. If it is extraneous, it may confuse the reader, as they do not see where it is leading (Figure 3). Of course, just as with the pyramid, each layer is narrower than the one below, but it should not be excessive. This is a matter of judgement.

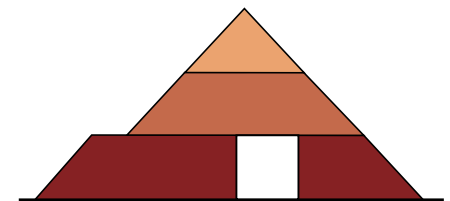


Figure 3. Provide support for the layers above – not too much or leaving gaps

The new facts. From this foundation of what is publicly known, the researcher can then focus on the unknowns. Using primary data collection, interviews, laboratory experiments, questionnaires, surveys, correspondence and measurements, the researcher can find out more about the subject.

The data need to be collected in the correct way to ensure that they have value. The collection process has to be recorded to demonstrate that the data produced is valid. The more robust the data collection method, the stronger are the conclusions that can be made (Figure 4).

Even if the theoretical method of data collection is strong, it can be difficult to obtain data in reality. The researcher needs to be critical of their work – identifying weak areas and potential errors. This is not to say that the work was poor, but to confirm the quality of the data. Some weak areas may be strengthened by looking at the problem from a different angle. Just as two

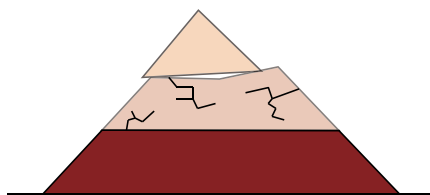


Figure 4. All the building materials have to be of good quality; weak data leads to weak conclusions

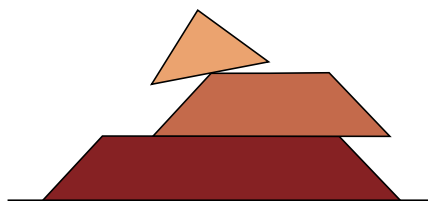


Figure 5. Analysis has to build on the known facts and support the conclusions

supports provide a stronger structure than a single support, then two different viewpoints of the same problem can indicate the quality of the results as each piece of evidence confirms the results from a different source. In research this is called triangulation.

Building on the evidence. Once all the factual material has been assembled, either directly from the data collection, or indirectly by looking at the literature, analysis can start. This has to build on the facts. If there are facts that are not going to be analysed and used in the conclusions, then the reader should not be confused with information that they do not need (Figure 5). The researcher may need to discuss why data cannot be used – this is part of the critique of the research methodology.

There is a marked change in the information once analysis starts. Whereas all the preceding layers have been factual or based on other people's views, this is where the researcher begins to put his/ her own opinions forward. They are drawing on the facts,

Acknowledgements. All help given towards the report should be mentioned, and individuals thanked. This may include thanks to administrative and support staff such as librarians and technicians, as well as colleagues who may have proofread the report.

Introduction. This section is also sometimes easier to write when the main body of text is already largely complete. The introduction is the place to set the scene, give the context and background, a broad overview of the material and to state the purpose – and limits – of the report. It may be helpful to refer to any Terms of Reference (perhaps with the TOR in an Appendix).

Main Body of Text. This sets out the factual account of events and/ or details the nature of the investigation. Each section should deal with a specific aspect, keeping main points separate and clear and distinguishing between the facts and the author's opinion. Research reports may have chapters on **methodology**, **literature review** and **findings** or **results**.

Avoid putting huge amounts of data or transcripts of discussions in the main text. They will break the flow and make the report unnecessarily long. These can be placed in tables, boxes or appendices, where they can be referred to from the text. Any figures or tables should be as close as possible to the section of text referring to them.

Analysis and discussion. This section identifies key issues, drawing on information from the main text and suggesting explanations, presenting the pros and cons of any arguments or conclusions that can be inferred. If the report is in several sections, it may be simpler to have a small discussion for each of these, drawing them all together in the conclusion.

Conclusions (or 'Lessons Learned' or Recommendations). This is the section people often turn to after reading the summary. It should be able to stand alone, presenting no new material, but drawing together all the threads of argument from the report and the discussion in a clear and logical manner. **Recommendations** should be practical and constructive, making clear what decisions need to be made, and by whom. Some authors find it helpful to separate out 'Action Points', to give greater emphasis on the outcomes expected. If there is a series of recommendations, it may help to list them in order of importance, and bullet or number them for ease of cross-reference. There should be no surprises here – all points will already have been made in the main text – this is just the bringing of them all together.

When making recommendations, consider:

- What questions is my report aiming to answer?

into perhaps five or ten pages. Abstracts take this a stage further by reducing the whole topic to a few hundred words. This distillation of the report will be read by many people so it needs to be concise but convey the main points. It may be the most important part of the report, as the best project will have no impact if nobody reads about it.

Structuring the Report

Once the general flow of information has been determined, it can be divided into sections. This helps the reader navigate their way through the document. Many organizations have a standard structure and format for their reports. The following are some commonly used sections:

- Title Page
- Summary or 'Executive' Summary
- Contents
- Introduction
- Main Body of Text
- Discussion
- Conclusions, 'Lessons Learned' and/or Recommendations
- References
- Appendices

Some of this may seem quite repetitive, but formal writing structure reflects the old adage that "if you want to tell somebody something, tell them what you are going to say, then say it, then

tell them what you said." This seemingly repetitive approach reflects the organization and preparation necessary to communicate complex information. This structure depends on the type of document being produced. A short fact sheet, for example, might only have an introduction, a main body of text and a conclusion.

Title Page. The title should give a precise indication of the subject matter and the type of report. This section also includes details of the writer, the date, the funding agency and other administrative data.

Summary or 'Executive' Summary. This is a form of précis or shortened version of the report, before or after the contents page. It should neatly and concisely sum up the main information presented in the report and the main conclusions or recommendations. The summary should be able to stand alone from the main body of the report – it is often the only part that many people read in full, so needs to be good. It is easier to write when the whole report is completed.

Contents. A simple listing of all the sections in the report, with their page numbers, so that the reader can find their way round the document. Figures and Tables may also be listed. If you are using many abbreviations and acronyms (e.g. WEDC, UNDP), or technical terms (e.g. Aqua privy, infiltration gallery, non-revenue water) it may also be worth listing them here in a **glossary**.

discussing them and deciding what they mean. This section has to be strong, as it distinguishes the research report from just a simple data collection exercise. The evidence has to be tested, looking at arguments for and against a position, trying to prove what is "true".

Reaching the summit. The ultimate purpose of the research report is to put forward some well-supported conclusions (Figure 6). The argument and evidence should be strong enough for the reader to agree and not conclude that the researcher has jumped to some unsupported viewpoint.

Whilst it may be desirable to come up with some new and wonderful perspective on the research subject, the answer may be a "no" rather than a "yes". This is still a very valid research outcome. If after careful work, the conclusion is that something will not work or a proposal cannot be justified, then this is important – especially to other researchers who can then build on your work. A "no" helps them avoid a path that

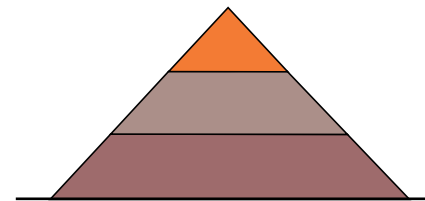


Figure 6. People look to the top

does not lead anywhere – provided it is well supported and the reasons for this conclusion fully explained.

Summarizing the report

The whole report may be well argued with balance between all the different facets, but this may mean that it is too long for some readers. "Executive summaries" are written to allow a reader, such as a fellow researcher, to gain a broad overview of the project. They may want to go on and read the full report or they may decide it is not what they were looking for. Some people will only ever read this summary – hence the term "executive summary" to indicate that some decision-makers will only have the time to read the key points and not the whole report.

The art of summarizing information, or précis, is a skill, which has to be learnt and practised. The aim is to reduce a long piece of text to a few short paragraphs that cover all the key points. The previous points apply but the writer has to be much more critical about what to include.

A good summary will entice the reader to delve further into the document. It should thus not be a collection of sentences pulled from the text, but the ideas distilled and re-written in shortened form. All detail, examples and peripheral text must be left out. The order of presentation may also change from that in the original.

Although “cutting and pasting” from your main document may seem an easy option, this will not result in a good summary. It is better to start with a blank sheet and think about the main points that need to be communicated. Allow sufficient time to write a summary as it is often harder to write two pages than ten pages; each word and sentence has to count.

As there will be many things in the main report, it is easy to overlook some of the basic information that is required for the summary, even such simple aspects as titles and authorship. Abbreviations need to be spelt out in full to begin with (a common problem resulting from cutting and pasting techniques) or even not used at all if they are unusual.

Writing a précis

- Read the whole document carefully
- Reflect on the content and decide what the summary is to be about
- Skim the document again, picking out key points, and making notes on the important points but re-phrasing them
- Re-order the information, which can be different to the original
- Write the summary from the notes.

Thinking about the audience is important. Whilst the main report will be read by somebody who is interested and knowledgeable about the subject (such as a colleague), the executive summary will have a wider audience. The readership may not be expert in the area, so the starting foundation needs to be lower and the writing style clear and simple.

The structure needs to be explicit, to show what work has been done, but, due to limitations of space, some aspects may have to be completely omitted or just alluded to. Unless the project process was unusual, it can just be referred to using “standard” or “commonly-accepted” methods rather describing the methodology in detail. Similarly writing “a wide-ranging literature review shows...” may be sufficient unless there are particularly important aspects of the literature review process (such as keywords) that need to be explained.

The reader will have to trust that the basics are correct; it is the new material (and an indication that it is supported by good evidence) that they will want to learn about. This does not mean that the summary starts with the main findings – it is a summary of the whole research process, so there has to be enough evidence all the way through the summary to show that the conclusions can be supported and an indication of the strength of that support.

Summarizing the summary. Executive summaries summarize a 100 page report

“The **abstract** should not be a table of contents in prose, neither should it be an introduction. It should be informative. Tell the reader what the research was about, how it was undertaken and what was discovered, but not how the paper is organized. The main findings must be summarized. If there are too many of them, then just exemplify them in the abstract. The essential elements ... are:

- Background: A simple opening sentence or two placing the work in context.
- Aims: One or two sentences giving the purpose of the work.
- Method(s): One or two sentences explaining what was done.
- Results: One or two sentences indicating the main findings.
- Conclusions: One sentence giving the most important consequence of the work.

The following guidelines ... may help to overcome some of the most frequent problems:

- Do not commence with “this paper...”, “this report...” or similar. It is better to write about the research than about the paper. Similarly, do not explain the sections or parts of the paper.
- Avoid sentences that end in “...is described”, “...is reported”, “...is analysed” or similar. These are simply too vague to be informative.
- Do not begin sentences with “it is suggested that...”, “it is believed that...”, “it is felt that...” or similar. In every case, the four words can be omitted without damaging the essential message.
- Do not write in the first person in any form. Thus, not only should you avoid “I”, but also “we”, “the author”, “the writer” and so on. Again, this is because the abstract should be about the research, not about the act of writing.

Here is a spoof abstract containing some of the worst practices in abstract writing:

This paper discusses research which was undertaken in the author’s country. A theoretical framework is developed from a literature search and this is used by the authors as the basis of an analytical model. The researchers collected data within this framework and analysed it according to the precepts laid down by earlier researchers in the field. The data is used to demonstrate that our understanding can be significantly increased and this is discussed in the light of previous work. Conclusions are drawn and it is shown that these may be useful for practitioners.”

Source: Taylor & Francis Group

http://www.tandf.co.uk/journals/authors/rcme_abstracts.asp