University of South Africa
College of Agriculture and Environmental Sciences

WRITING A PROPOSAL

A guide for staff and students

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For the
College of Agriculture and Environmental Sciences

University of South Africa

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Welcome to the Online Electronic Resource for:

How to Write a Proposal

INTRODUCTION

Dear student, you are set to embark on the exciting journey in which you will endeavour to write your first research proposal. This will probably not be the only proposal that you will be required to write in your career – so the more tips that you can pick up in this round, the better. A research proposal is an integral part of a postdoctoral qualification at UNISA. **Every student who is enrolled for either a Master's or a Doctoral must complete a research proposal before proceeding to the actual research part of the study.**

THE AIM OF THIS DOCUMENT IS TO GUIDE YOU IN WRITING EACH OF THE SECTIONS OF A RESEARCH PROPOSAL FOR YOUR MASTER'S AND DOCTORAL STUDIES.

We will give attention to each of the parts of a proposal and complete them step by step. I will try to guide you through the process by making use of an example. You will be expected to participate actively by following the example, but applying the activities to your own research proposal. If you do, you will have a complete draft of your proposal at the end of the process. Simply reading this document will be of little to no value. So climb on board and let's get started. **But be prepared, it is going to take quite some time**. You have an entire year to complete the research proposal. It is not something that you can do in a few days or even a few weeks.

Have some paper and a pencil, sharpener and eraser handy. You will need these to **create your own PLANNING DOCUMENT**. The planning document will serve as guide to **writing THE PROPOSAL**. You will only start **writing each of the parts of the proposal once you have completed the relevant planning activities and your supervisor is satisfied with your work**. A clear distinction is made between activities forming part of the planning phase (and hence not shown in the written proposal) or those that form part of final Proposal.

But first – there are a few preliminary questions to be answered.

- **Why** do you want to write a proposal? When using this guide, the major reason would be to fulfil the first part of your Master's or Doctoral degree. The bottom line is that you need permission to continue with the next module – conducting the research and writing the thesis*. You thus have to write a document that **convinces the reader** that the **research problem is important and must be solved** and that you know **what** you want to do and **why** the research needs to be done; **how** it will be done; **when** and **where** it will be done. This information must be incorporated in the research proposal.

THE RESEARCH PROPOSAL IS A BLUEPRINT FOR THE RESEARCH PROJECT

It defines exactly what you are going to do, why you are going to do it and how you are going to do it

* **Although the term 'dissertation' refers to the manuscript produced for a Master's degree, and a 'thesis', to a Doctoral degree manuscript; the term *thesis* will be used throughout this document to denote both.**

STRUCTURE OF A PROPOSAL

Each UNISA department may have its own unique requirements for a proposal. In general, however, the proposal consists of three parts, namely: The preliminaries; the body of the proposal comprising the narratives; and the 'additional'.

The **Preliminaries** include the title page, the contents page, and a list of tables and figures.

The **Body** of the proposal consists of narratives. It is usually divided into:

1 The title
2 Introduction
Background
Research problem
Motivation/justification/rationale for the research
{The gap in research is given in either the research problem or in the motivation}
Purpose of the study/hypothesis/aim and objectives
Importance/Significance of research results
Possible delimitations/limitations and assumptions
(not necessarily in this sequence)
3 Preliminary literature review
4 Study area, research design and methodology (data collection & analysis)/Materials and methods
5 References**

The **Additional** include:

6 Chapter layout
7 List of activities and time frame
8 Budget
9 Appendices (if relevant)

The references are usually placed at the end of the Proposal.

IT IS IMPERATIVE THAT YOU CONTACT YOUR SUPERVISOR TO FIND OUT HIS/HER REQUIREMENTS FOR THE PROPOSAL. DEPENDING UPON THE DISCIPLINE, YOUR SUPERVISOR MIGHT WANT YOU TO USE ANOTHER STRUCTURE OR DIFFERENT HEADINGS. IF THERE ARE NO SPECIFIC REQUIREMENTS, YOU ARE FREE TO MAKE USE OF THIS STRUCTURE

The length of the proposal depends on whether you are writing it as part of a Master's or a Doctoral study. A proposal for an M study should not be more than 20 pages. That for a Doctoral will be longer - up to a maximum of 35 pages - including the references and figures.

I am sure that you are itching to start with your proposal. However, there are a few preliminary activities that must be completed before you will be able to start to plan and write your research proposal.

PRELIMINARY ACTIVITIES

Before progressing further, you need to:

- **define your research problem.** Some tips on how to identify a research topic are given in the Guide on writing a Concept Note. This is available on https://www.unisa.ac.za/sites/corporate/default/Colleges/Agriculture-&-Environmental-Sciences/Open-Resources. Ensure that the project is do-able. Is it **feasible** in terms of scope, cost, time and available resources? Don't go too big. You alone cannot solve all the water scarcity problems in South Africa. You alone will probably not be able to find the cure for cancer. Limit the scope of your study or the geographical extent of your study area.

- have **read** extensively so that you know exactly what **previous research** has been done on this topic. It is important that you consult **academic research articles** and other academic works – such as theses or academic books – not only popular magazine articles. **It is a good idea to analyse and summarise each article using the seven basic research questions:**

- Who were the authors?
- When was the research conducted?
- Where was it conducted?
- Why was the research conducted? (What was the research problem?)
- How was the research conducted? (What design/methodology was used and why?)
- What did they find? (their results)
- What recommendations did they make for further studies (which gaps remain)?

This exercise will help you to fully comprehend the contents of each article and the general layout and structure of a scientific work. Only once you have read widely will you be able to understand **what has been done and what has not been done** and thus what the **gap** is that you can fill with your research. Although your initial focus will be on the results obtained in the study, you should also take note of the **language** used by the authors. Read "around" (wider than) your topic and research problem. You might notice interesting links or new variables or gaps in research. Also have a good look at other proposals, dissertations and theses. If you write a good **proposal,** you have in fact, started writing the first part of your thesis.

- **know what you want to say**. If you don't, you will not be able to write an intelligible sentence! So think about what you want to say. It helps to actually talk to someone and tell them what you want to do. Ask them to repeat this back to you. Ensure that they have understood you correctly. If not, you have not explained it well enough. Go back to the drawing board and clarify your thoughts. *If you can say it – you can write it.*

- **Know your audience/reader** i.e. your supervisor(s) and the examiners. It is always a good idea to imagine that your reader is an intelligent person who is not necessarily an expert in your field of study or may not even live in your country. This implies that you will have to write the proposal so that it supplies all the background information needed by the reader in a simple and straightforward manner and that the facts presented are in a logical sequence and easy to understand. Supervisors don't have time to struggle through a long, involved document. Be clear and concise. Remember the KISS principle: *Keep it short and simple.*

- Keep in mind that you will have to put a lot of effort into your proposal. This takes time. Give yourself sufficient **time** to **THINK**, **PLAN** and to **WRITE** the proposal.

THUS:

KNOW WHAT YOU WANT TO SAY

AND

WRITE FOR THE READER

THUS

PLAN YOUR DOCUMENT

NOW YOU CAN START WORKING ON YOUR PROPOSAL

But keep in mind that your will create 2 documents – a PLANNING DOCUMENT in which all activities relating to the planning of your proposal will be captured. This information will be used to write the PROPOSAL (DOCUMENT). Not all steps in the planning process will be shown in the final proposal.

PLANNING AND WRITING THE PROPOSAL

I will attempt to lead you through the process of developing your research proposal in 20 steps. We will follow the traditional structure of a proposal (p 2), but leaving most of the 'preliminary' sections until last. This is because you first need to write the body of the proposal and the 'additional' before you can decide on the final title, the contents page etc.

Each section will start with a **planning phase.** The relevant planning activities should be completed in your **planning document**, where after you should discuss this with your supervisor. With his/her permission, you can then **write** it up in the **Proposal document**.

STEP 1: THE PROVISIONAL TITLE

At this stage, you will have read the document on *how to write a Concept Note*, and your will have a good idea of the topic that you want to research. It is possible that this will be refined over time, as your research becomes more focused and you read more articles. However, while working on your proposal, use a **provisional title**. Writing the final title is the last step in the proposal writing process. We will get to it later in this document.

ACTIVITY 1: Write the preliminary title of your proposal at the top of your planning document.

STEP 2: OBTAINING AN OVERVIEW OF YOUR PROJECT

You initial idea of your research topic was probably sparked by some incident, something that you read about or something that you observed. There is thus a story behind the research and you must tell the reader (your supervisor) about this.

Here is the background to the example that I am going to use throughout this document.

EXAMPLE

Once, a long time ago, a group of doctors and epidemiologists decided to compile a map of the occurrence of cancer in South Africa. Their aim was to try to identify cancer 'hotspots' since this could possibly give them an indication of the cause of specific types of cancer. They collected cancer incidence data from across South Africa and plotted the information on maps (one map for each kind of cancer). They found that a small town in the Northern Cape had an unusually high prevalence of cancer (Toens et al., 1998). The town is located in an extremely arid area with no surface sources of water in the vicinity. The main economic activities consisted of sheep farming and mining. A team of environmental experts travelled there and conducted a survey of the activities of the local people to try to ascertain what the people with abnormal leucocyte (white blood cells) counts had in common. Food, water and the air were tested for the presence of contaminants. They found that the groundwater contained high concentrations of arsenic and uranium – both of these minerals are toxic and may cause mutations in cells - possibly leading to cancer. The source of the minerals was natural, originating from specific geological formations found throughout the region. These Basement Granites are often high in metals such as gold, silver, copper, zinc, tin and lead, and hence many mining areas are underlain by arsenic-containing geological formation. It is not known whether there any other mining areas in South Africa where people are exposed to potentially hazardous levels of toxic minerals such as arsenic.

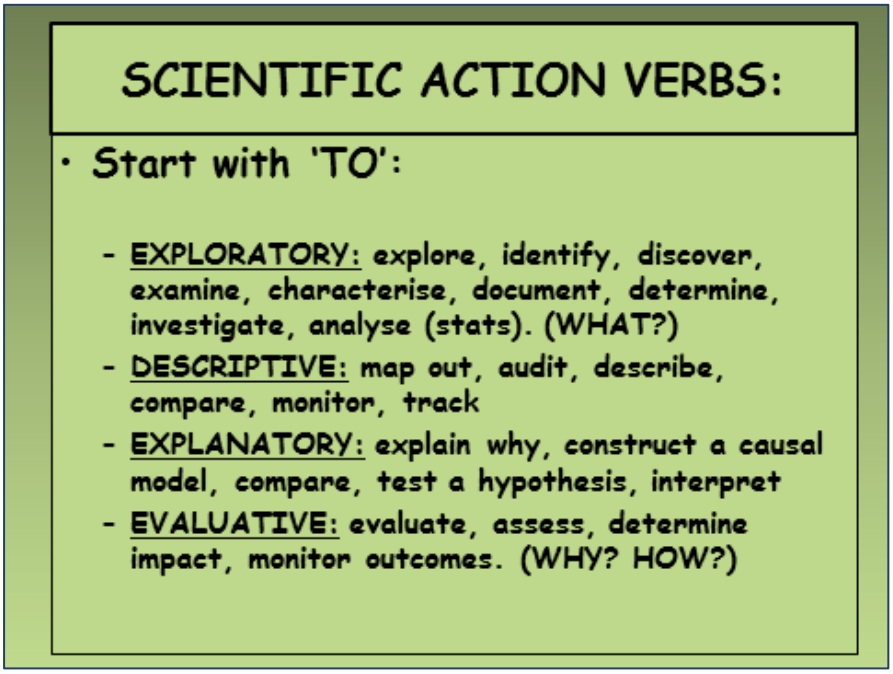
This research problem was investigated by one of my Master's students, Mrs Deborah Ali. Her dissertation was entitled: *Toxic elements in the food chain: exposure pathways to infants in selected areas of Limpopo Province (2010).* (Infants are one of the most vulnerable groups of society and hence they will be first to exhibit signs of toxicity). Her study focused on the three most toxic elements, arsenic, mercury and lead.

Deborah's study forms the basis for the following examples.

Let's start by defining the ambit of your research. **What is the research problem? What do you want to do? What will it achieve? Why do you want to do it?** (The reason for conducting the research does **not** include 'because I want to get a PhD or an M degree'; or 'because I will be able to be promoted' - it must be aimed at solving a research problem.)

The proposal is a scientific document and therefore it must be written using scientific language. For example, the aim and objectives are always written using a scientific action verb e.g. 'The aim of the study is to (followed by an action verb)' and then the rest of the aim. Use of a scientific action verb 'tells' the reader that you are conducting a research activity since these are mental, and not physical, activities.

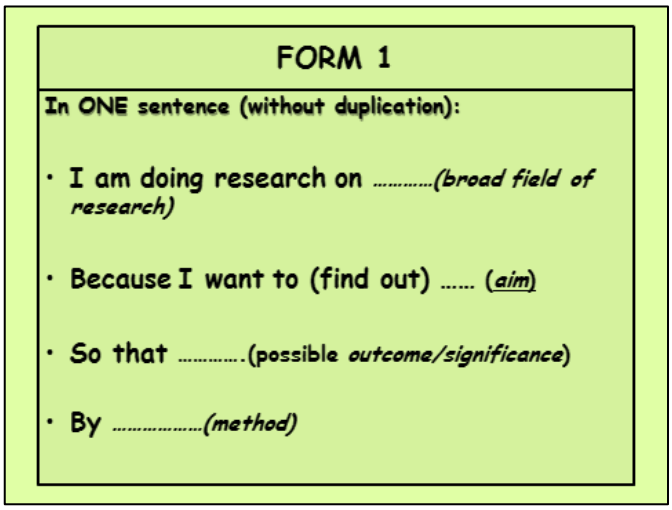
SCIENTIFIC ACTION VERBS



Note: The aim of your research may **NEVER** be to **CONVINCE ANYONE OF ANYTHING**. Research is about finding an answer to a research problem. A dissertation, thesis or article **reports on** the problem, the process that you used to find an answer to the problem, the results of your research and the resultant findings. **This must be done in an objective manner.**

Although you might think that you know exactly what your research is about, do you really?

FORM 1 WILL ALLOW YOU TO TEST WHETHER YOU KNOW EXACTLY WHAT YOU WANT TO DO AND, IF NOT, WILL ASSIST YOU TO DO SO.

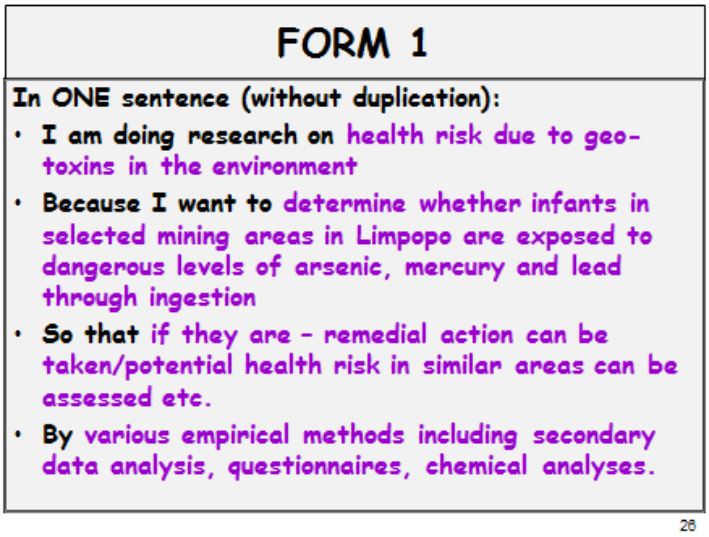


The first point: ***I am doing research on***… indicates the **broad research field** within which your project falls. This sentence will keep you focussed so that you stay within your specific sub-discipline, and, once you have completed the research, will indicate which journals you should consider for submission of your article.

The second point: **Because I want to**……. This reflects the **aim** of the study and should start with a scientific action verb. The aim is the overarching goal of the entire study. It reflects the main research question. There is usually only one aim.

The third point on Form 1: **So that**… gives an indication of the ultimate **significance of the study and the possible use of the research results**. What will you be able to do with the results once the research has been completed? The last thing that you want is for someone at your graduation to say "so what?" Did you write a thesis so that you could have a book that can stand on a shelf and gather dust? No – you want your research to be useful. State how you envisage the results could be used - in not more than one sentence. There may be a number of outcomes for your research. Pick one.

EXAMPLE *In Deborah's study: Form 1 would look like this:*



ACTIVITY 2: IDENTIFY THE IMPORTANT ELEMENTS OF THE STUDY

Complete FORM 1 for your research. It is important that you can complete each point in 1 sentence only with little or no duplication. If you can't say what you want to do in a single sentence - you don't know what you want to do!!! SO THINK HARD AND TRY TO COMPLETE FORM 1. This activity usually takes a considerable amount of trial and error. It forms part of the PLANNING process and must be completed in your PLNNING DOCUMENT.

Once you have completed this, you will have a guide on what your research is about. **KEEP IT HANDY** because once you start writing, you may go off at a tangent. FORM 1 will keep you on track.

PLANNING AND WRITING THE BODY OF THE PROPOSAL

THE INTRODUCTION

The Introduction is the first major part of the proposal on which you are going to work.

The Introduction focuses on the RESEARCH PROBLEM

Tell the readers the story so that they can understand the research problem. This will provide background to the introduction.

It is not possible to write effectively if you have not planned what you want to say. This provides logic and structure to your work.

PROPER PLANNING PREVENTS POOR PERFORMANCE.

Now, let us move onto the actual PLANNING of the first part of the INTRODUCTION i.e. THE BACKGROUND

STEP 3: PLANNING THE STRUCTURE AND CONTENT OF THE BACKGROUND AND MOTIVATION

This step comprises of five activities constituting the planning phase of this narrative part of your proposal. You must complete these in your planning document.

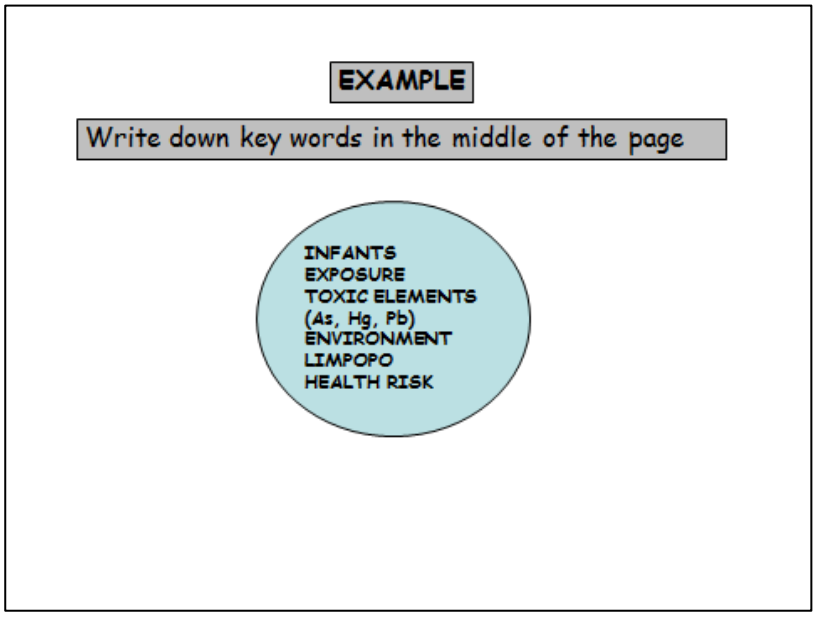
A **MIND MAP** is the major tool that can assist you with planning not only the Background and Motivation but also the Literature Review. You can access a number of mind maps on the internet but it is easy to draw one as shown on the last page of this document.

ACTIVITY 3.1: Use FORM 1 and underline the most important words in the aim. Now use the mind map and put these key words in the centre circle.

EXAMPLE

In Deborah's study I would be as follows:

> *To determine whether infants are exposed to dangerous levels of arsenic, mercury and lead by ingestion at selected areas of Limpopo.*



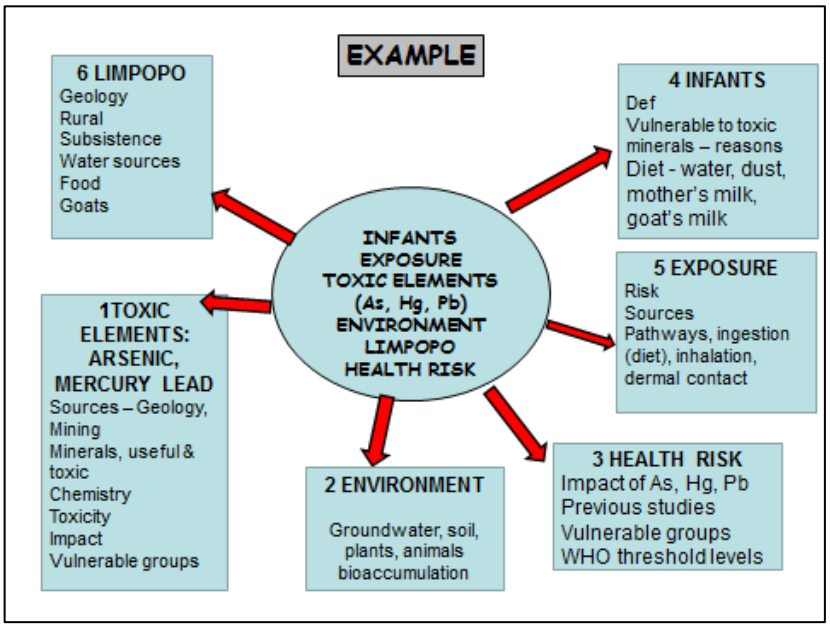
There might be one or two other key word that is not included in the aim of your study. Include them in the centre circle of the mind map. In the example, the term 'environment' has been added to the key words.

The next step is to decide on **what the reader needs to know** about each of these key words. These facts need to be mentioned in the Introduction. *In Deborah's study, the reader needs to*

*know what an infant is. Some scholars define an infant as a baby of 1 year or less; others use the age of 2 to distinguish an infant – and others, 5 years. When writing the Introduction, you must indicate which definition you are going to use. The reader also needs to know that an infant is extremely vulnerable to toxins and the reasons therefore. There are a number of reasons for this. One of these is because infants have a limited diet – mainly water, dust (especially when they start crawling), and milk. In some rural areas, mother's milk is supplemented with goat's milk. (*This needs to be highlighted in the Introduction. Other reasons for vulnerability can be discussed in the Literature Review.)

An example of a mind map with this information is shown below.

EXAMPLE



ACTIVITY 3.2: "Dissect out" each of the key words for your proposal and complete the mind map as show in the example. Include this in your planning document.
Each of the blocks represents a 'topic' to be discussed in the proposal. Use these 'topic' as headings in further exercises/activities.

Keep in mind that the Introduction must read like a story. It is thus necessary to put the facts – the information that you must 'tell' the reader - **in a logical sequence**. This is not an easy process and your will have to use trial and error to come to a satisfactory sequence. Keep in mind that one topic/heading must 'flow' logically into the next.

ACTIVITY 3.3: Number the headings in the sequence in which they should be discussed.
In Deborah's proposal, she started by discussing each of the toxic elements and providing information on its presence in and impact on the environment (groundwater, soil etc).

CREATING AN OUTLINE FOR THE BACKGROUND

It is likely that your mind map is not very neat or elegant at this stage. To create order from this chaos, construct a **'contents page'** for the Background from the mind map. Keep the contents of each 'topic' together, but arrange them in a logical sequence. Use heading and sub-headings for each topic. Note this down in your planning document.

In Deborah's study it would look something like this:

EXAMPLE:

Chapter 1 INTRODUCTION

1 Minerals

- *(a) Source – geology – chemical composition of earth's crust*
- *(b) Useful/precious minerals - mining*
- *(c) **Toxic minerals** are associated with precious metals and mining*
- *(d) Most toxic = arsenic (As), mercury (Hg) & lead (Pb)*

2 Toxic minerals in the Environment

- *(a) Toxic minerals in the soil, groundwater, plants, animals*
- *(b) Bioaccumulation in plants and animals – food chain*
- *(c) Impact on plants & animals* (RESERVE FOR LITERATURE REVIEW)*

3 Toxic minerals and health*

Some impacts of toxic minerals - just sufficient to illustrate how harmful they are and that disease (such as cancer) may only exhibit 30 to 40 years later. Has impact on society and economy of country. It is thus vital to identify possible exposure to toxic minerals so that remedial action can be taken timeously

Most vulnerable sectors – aged, pregnant women & infants

4 Infants

- *(a) Definition*
- *(b) Reasons for vulnerability – physiology & exposure i.e. sources and pathways: ingestion most important.*
- *(c) Limited diet – water, dust, milk, goats' milk.*

5 Limpopo

- *(a) South Africa's mineral wealth – Limpopo= most mineral rich*
- *(b) Main economic activities – mining – examples - only Province with mercury mine*
- *(c) Population (also high number of infants)*
- *(d) Rural population – subsistence agriculture, water sources = springs, dams, wells, boreholes (thus groundwater), maize, goats.*

GAP

ACTIVITY 3.4: Construct the 'contents page' for the Introduction of your study in your planning document.

THE GAP, MOTIVATION AND RESEARCH QUESTION

The GAP refers to research that has NOT been done. If you have read sufficient literature, it should be clear which questions still need to be answered. It is possible that research on a specific topic has been conducted elsewhere, but the problem has not been tackled in South Africa. It is also possible that previous research has been conducted on specific variables, but not others. The gap in research needs to be stated clearly in the proposal.

The **MOTIVATION** indicates why the research should be conducted. What will be consequences of not conducting the research?

Points 1 – 5 (above) Deborah's Contents page provide the BACKGROUND to the study. At the end of point 5, it should be clear to the reader that infants in certain mining areas may be exposed to geo-toxins by ingestion of water, dust, mother's milk and – possibly – goat's milk. The Limpopo is the Province with the most and the most diverse mining activity and seems to be have the highest potential risk. *In Deborah's study, she would by now have indicated the **GAP:** i.e. Although a considerable amount of research has been conducted on the presence of geo-toxins in the environment and their impact on environmental and human health, very little has been in South Africa, and none have been conducted in Limpopo.*

The following section - **THE MOTIVATION** - indicates why the study must be done. In Deborah's study, the motivation/justification for the study is clear i.e. heavy metals pose a serious health, social and economic risk. Not knowing whether geo-toxicity forms part of the food chain in a specific area, could have serious consequences. There is a strong justification for conducting the study in Limpopo since all the potentially hazardous conditions exist in mining areas in Limpopo.

The **RESEARCH QUESTION thus arises**:

> *Are infants (most vulnerable) in previous mining areas (potentially hazardous areas w.r.t toxic minerals) in Limpopo exposed to dangerous levels of geo-toxins (such as arsenic, mercury or lead) by ingesting them from groundwater, dust, mother's milk or goat's milk?*

This automatically leads to the aim (see Form 1): This study aims at determining whether infants in specific areas in Limpopo are at risk due to ingestion of geo-toxins associated with mining.

ACTIVITY 3.5: Add the GAP where it 'fits' best and end the contents page with the RESEARCH QUESTION and the AIM. Keep in mind that this is part of the planning document.

This activity concludes the Planning stage for the Background and Motivation for your proposal. Before continuing, it would be opportune to discuss the work with your supervisor and to make the required adjustments to the planning document.

STEP 4: WRITING THE FIRST PART OF THE INTRODUCTION

Activities 3.1 to 3.5 of the PLANNING DOCUMENT provide the guidelines for and input into the actual proposal.

NOTE:

THE ENTIRE INTRODUCTION SHOULD NOT EXCEED ABOUT ¼ OF THE LENGTH OF THE PROPOSAL.

You have to write clear and concisely. The entire Introduction is focused on the Research Problem.

All relevant, additional information can be discussed in the Literature Review.

WRITING THE PROPOSAL

THE TITLE: Write the provisional title. This may change later on.

THE BACKGROUND AND MOTIVATION:

Start writing the proposal using the 'content page' (activity 3.5) of your planning document, as guide. The content page will provide you with the basic 'skeleton' for the first part of the Introduction (the Background and Motivation). The headings and sub-headings are already in a logical sequence. What remains is for you to write the Introduction using your proposal's outline (as shown in the contents page) and add the 'flesh' to the 'skeleton' using appropriate literature. Take care not to plagiarise the material. You will thus have to understand the literature so that you can summarise and paraphrase it. The Policy for copyright infringement and plagiarism can be consulted by clicking on this link https://www.unisa.ac.za/sites/corporate/default/Colleges/Graduate-Studies/M-&-D-policy-and-procedure-documents.

Keep in mind that the Introduction must have a clear, useful and exciting message and be presented and constructed in a logical manner so that readers can grasp the significance easily. By the end of the Introduction, the reader should understand:

- What the study is about
- That there is a real problem
- That must be solved
- How the study will be conducted to solve the problem, and
- What the consequences would be of not solving the problem.

ELEGANT WRITING:

According to Kapp (2007:93), the narrative part of the Introduction should have the following structure:

> ***Opening moves:*** (quotation, provocative fact, general but interesting fact, event or anecdote). This is aimed at catching the interest of the reader. It must obviously be relevant to your study.
>
> ***Establishing common ground:*** This comprises of the information presented to the reader. It includes all the points given in the 'contents page'. You should start by general information. Always start with the general and move to the specific; from the global to the local; from the past to the present. Increasingly, 'feed' the reader with more information – some of which might be known to the reader, but some might not. If you write logically, you will ensure that the reader understands everything that you are writing. Keep in mind that **all the information must be referenced.**
>
> ***Disruption:*** This where you indicate what has not been done – what is the GAP? What is the Research Question?
>
> ***Resolution:*** What are you going to do to fill the Gap in knowledge – i.e. the AIM.

With all this in mind, you may start writing the Introduction. But first: refer to the OER on "GUIDE FOR SCIENTIFIC WRITING" which is available on the College website at https://www.unisa.ac.za/sites/corporate/default/Colleges/Agriculture-&-Environmental-Sciences/Open-Resources **.**

Also note the use of bridging/linking sentences to ensure that the Introduction is easy to read and to understand:

> The first part of the Introduction, namely the Background, should be written so that it 'flows', with one idea leading to the next. At least one paragraph should be devoted to each of the topics. Use headings and subheadings when writing the first draft of the Introduction. You may remove these later on – depending upon what your supervisor's requirements. Nevertheless, even when you remove the headings, the work still needs to flow. 'Bridging' or 'linking' sentences can be used for this. *Note that in the contents page of Deborah's introduction, the first 'topic' ends with indicating the most toxic*

naturally occurring elements, namely, As, Hg and Pb. The next 'topic' starts with the occurrence of these elements in soil….. and ends with their bioaccumulation in plants and animals (the food chain). This flows to the next 'topic' that starts with the impact of toxins in food and their impacts on human health. There is thus a link between one topic and another. A sentence linking two or more topics will help the reader to follow your thoughts. Ensure that there is cohesion within the document and that all information is focused on the research problem to be solved.

ACTIVITY 4: Write the background, motivation, the gap in knowledge, research question and aim (not necessarily in this sequence). All facts must be cited.

You should start working on the reference section (see later).

STEP 5: THE AIM/HYPOTHESIS AND

The aim and hypothesis is based on the research question.

A **hypothesis** is an **educated** guess of the answer to the research question, **based on existing theories or models.** Statistical hypothesis testing techniques are used to determine whether the hypothesis can be accepted at a specific level of significance. An **Aim** is a statement of intent – what do you intend achieving in the study.

Some supervisors want you to write the research question as well as the aim and hypotheses in the proposal itself whereas others prefer you to describe only the aim of the study. **Ask you supervisor what she/he requires.**

I will confine further discussions in this document, to the term 'AIM'.

As mentioned previously, the research question automatically leads to the **AIM. THE AIM IS THE OVERARCHING GOAL OF THE RESEARCH**. IT IS ALWAYS WRITTEN IN THE FORM OF "TO" followed by a SCIENTIFIC ACTION VERB (see p.9) and then the rest of the sentence.

The aim corresponds to point 2 on FORM 1. In Deborah's study, it would be: *To determine whether infants in selected mining areas in Limpopo are exposed to dangerous levels of As, Hg and Pb through ingestion.*

When writing the aim of your study - check whether it still corresponds to that in FORM 1. If not, modify FORM 1 or your contents.

In order to achieve the aim of the research, you will have to conduct a number of small research projects. These are called the **OBJECTIVES** of the study. Objectives are the sub-aims or sub-questions i.e. the questions that must be answered to obtain and answer to the main research

question. They form the steps that must be carried out so as to achieve the aim. They must thus be directly related to solving the research problem/achieving the aim. Each objective is a unique (small) research project of its own with its own sub-objectives, methodology, results etc. There are usually two or more objectives in a study.

EXAMPLE: *In Deborah's study, she had to carry out three steps to enable her to answer the research question. Each of these is an objective, namely: To*

1 ***identify*** *potentially contaminated areas in Limpopo. (Note that the method used included superimposing geological and mining maps. Potentially contaminated areas were those with basement granites and with mining activity since this is where the arsenic, mercury or lead concentrations could be high.)*

2 ***determine*** *the extent of potential contamination of the components of infants' food chain (groundwater, soil, plants, mother's and goat's milk) in potentially contaminated areas. (The method used for this Objective included collecting samples and analysing them for As, Hg and Pb.)*

3 ***assess*** *the health risk posed to infants living in potentially hazardous regions of ingesting dangerously high levels of As, Hg and Pb.*

The aim and objectives MUST always start with a scientific action verb. **They should not be written as Methods.** Thus it would be **INCORRECT** to write Objective 2 as: To **collect** samples of groundwater or To **analyse** the content of As, Hg and Pb in groundwater. Collecting and analysing are NOT scientific action verbs.

Implementing a programme or ***drafting*** a policy are NOT scientific actions and hence are not objectives. They can, however, be **OUTCOMES** of the research. Similarly, ***writing*** an article and ***presenting*** a conference paper are **OUTPUTS (tangible)** from the research – and not Objectives.

The number of Objectives will depend on the aim of the study. Take care that you do not have too many Objectives – because you might then be stating sub-objectives as Objectives. In the example (above), note that in the 2nd Objective: "*Determine the extent of potential contamination of the components of the food chain for infants.* Groundwater, soil etc. are grouped together into a single objective since all of these elements form part of the food chain. It would be clumsy to split objective 2 into five different Objectives.

ACTIVITY 5: Add the aim and objectives for your study to the planning document. Interrogate each to ensure that each links directly to the main research question and that they are stated in a logical sequence (the same sequence as that in which they will be carried out). Thereafter add this to the written part of the proposal.

STEP 6: THE SIGNIFICANCE OF THE STUDY

There is a fundamental difference between the terms *motivation* and *significance*. As indicated earlier, **Motivation** applies to the **reasons why** the research needs to be conducted. Thus it is the motivation **FOR** the study. **Significance** applies to why the **RESULTS** are important. Thus: the significance **OF** the study. The significance will inform what actions can/could be taken to solve the original research problem. Note that these actions will probably NOT be scientific actions and thus should not include scientific action verbs.

Give a considerable amount of thought to defining/stating the significance of the research. It might be difficult to know exactly how the results could be used, since you have not yet conducted the research yet and thus don't know what the findings will be. Refer back to the 3rd point on FORM 1 – so what? This refers to the significance of the results.

In Deborah's study, the possible risk posed by geo-toxin consumption would be quantified. If it was found that infants were indeed at risk of ingesting dangerous amount of geo-toxins, the health authorities and clinics would be informed so that feeding protocol of infants could be changed. This could have a positive impact on the current and future health of the community members. If infants are not at risk, then the status quo should be maintained.

ACTIVITY 6: Note the significance the possible outcomes of your study. (Do this in you planning document.)

STEP 7: DEFINING/IDENTIFYING DELIMITATIONS, LIMITATIONS AND ASSUMPTIONS

"Delimitation" refers to the scope or boundaries of the study. It is sometimes obvious from the title or aim. In Deborah's study it is clear that the study only involves infants; the only toxins included in the study are As, Hg and Pb; the study is limited to exposure by ingestion and that the study will be carried out in Limpopo. It should be made clear that 'infants' include new-borns to babies of 1 year and that the only potential contamination sources were water, dust, mother's milk and goat's milk.

You always have to **inform the reader of WHERE the study will take place, unless it is already mentioned elsewhere. You don't have to elaborate on the characteristics of the study area at this stage.** For example - just indicate that your research will be conducted in the laboratories or greenhouses at the Unisa Science Florida Campus. You should not provide any detail here since you will have ample opportunity to do this in the following section. (The study area may well be stated when delimiting the study – if relevant.) In Deborah's study, it would be Limpopo Province.

"Limitations" refer to weaknesses of the study. Each research design has its own strength and weaknesses. There may also be other limitation involving the type of available equipment etc.

"Assumptions" refer to suppositions – things that you take for granted. *In Deborah's study it was assumed that infants living in the study area would have the same profile in terms of weight and diets at each development stage, as in other rural areas in South Africa.*

Don't worry too much about this section. Limitations and assumptions will become clear once you have started conducting the research. Just jot down any thoughts that you have concerning these items.

ACTIVITY 7: Indicate where the study will be conducted (in the planning document and in the proposal) and note any other delimitations, limitations and assumptions for you study in the planning document. You will add to these as you progress with your proposal.

The Proposal should now have a provisional title and the Introduction (i.e. the Background, Motivation, Gap in research, Aim, Objectives, Study area and Significance.)

To reiterate:

Keep in mind that the entire Introduction is focussed on the research problem. This part of the proposal should not exceed about ¼ of the length of the proposal – approximately 5 pages. You don't have space to write a long narrative for the Introduction – you must get to the point – what is the problem to be solved by the research? (The following section, the Literature Review, is the section in which can elaborate on all aspects mentioned in the Introduction.)

Once you have completed all these steps you have achieved one of the most important milestones of a proposal – namely PLANNING and WRITING the first draft of the Introduction.

CONGRATULATIONS!

NOW

CONTACT YOUR SUPERVISOR AND SUBMIT THE INTRODUCTION FOR COMMENT. THIS WILL ALLOW YOUR SUPERVISOR TO UNDERSTAND

EXACTLY WHAT YOU WANT TO RESEARCH (THE AIMS AND OBJECTIVES), WHY YOU WANT TO DO THIS AND WHERE YOU WANT TO DO IT AND 'SO WHAT"? – WHY IS IT IMPORTANT.

Once you have the approval of your supervisor you may progress to the next step.

STEP 8: PLANNING AND WRITING THE LITERATURE REVIEW

The Literature Review is usually the longest part of the research proposal (about 1/3 to ½ of the narrative), since this is the section where you will give detailed information about the topic and the problem. In this section you must provide the reader with sufficient information so that he/she can understand all the elements of the study.

Go back to **FORM 1** and note the first part: I am doing research on…. . The Literature Review is the section in which you discuss the **topic** (rather than just the problem). Some overlap between the Introduction and the Literature Review is inevitable.

Like the actions needed for the Introduction (STEP 3), the Literature Review must also first be **planned before it can be written.** You should use exactly the same method as previously used for the Introduction i.e. a mind map. Fortunately, you have already done most of the planning, as reflected in the 'contents page' (activity 3.4). Now you have the opportunity to elaborate on those sections that were not discussed in detail in the Introduction. The entire Literature Review is based on literature and thus you will tell the reader what other researchers found/discovered. Therefore all **facts must be referenced.**

EXAMPLE: *In Deborah's case, most of the Literature Review consisted of a discussion of previous research on the occurrence of the three toxic minerals in the earth's crust in different areas of the world. She discussed each toxin separately – eg. Arsenic: its chemical structure, occurrence in the food chain (groundwater, soil, plants and animals – and eventually in humans). Special emphasis was placed on its occurrence in mother's milk and goat's milk since these are potential sources of infant contamination. She also indicated what the World Health Organisations' threshold limits as well as South African Water Quality Guidelines for arsenic. This informed the reader as to whether the concentration of As found in the food chain and in humans are dangerous to human or environmental health. Thereafter she discussed mercury (Hg) and then lead (Pb).*

Moreover, in the Introduction, she just mentioned that one of the reasons for the vulnerability of infants to toxins is their limited diet. In the Literature Review, she discussed all the reasons for their vulnerability (such as kidney function, body mass, ratio of surface area to mass etc.); infant diet etc.

So each of the 'subtopics' in the original contents page (such as definition; reasons of vulnerability; and infant diet) become a topic in their own right. Each must not be 'dissected out' to determine what must be discussed in the Literature review. You may need to do a new mind map for the Literature Review, or you could just add another tier to the original mind map or Contents Page.

ACTIVITY 8.1: Plan the Literature Review using a mind map; decide on the sequence in which each section will be discussed and create a 'contents page' for the Literature review.
ACTIVITY 8.2: Use this 'contents page' to write the Literature Review for the proposal. Add new references to the Reference Section of your proposal.

NOW:
ALLOW TIME FOR YOUR PROPOSAL TO MATURE

Put the proposal (containing the Introduction and Literature Review) aside for at least a week and then read the proposal again.

It is probable that you will find errors or gaps in the information provided. Some sentences might not make sense. Do the necessary corrections. It should be clear to you at this stage what belongs in the Introduction and what should be moved to the Literature Review. The Introduction should not exceed about 30% of the narrative part of the proposal.

TIP

Keep in mind that the proposal must be an informative work. It must be accurate and unbiased.

Make it interesting to the reader.

Insert relevant pictures, maps, photos to illustrate your discussions– but don't overdo it.

Be enthusiastic about your study (but don't use flowery language)

CONTACT YOU SUPERVISOR AND SEND HIM/HER THE NEXT INSTALLMENT OF THE PROPOSAL CONSISTING OF THE PROVISIONAL TITLE, INTRODUCTION AND THE LITERATURE REVIEW. THE SUPERVISOR(S) SHOULD NOW BE FULLY CONVERSANT WITH THE TOPIC, THE PROBLEM, AND WHAT YOU AIM TO DO.

INCLUDE THE PROVISIONAL REFERENCE LIST.

STEP 9: THE STUDY AREA

You may exclude this section if it is not relevant to the research.

You have already mentioned the study area in the Introduction. Keep in mind, that your supervisor might not be familiar with your study area.

Describe those aspects of the study area that are **relevant** to the research. When writing on a specific aspect, keep all related information together i.e. if you are describing economic situation in your study area, don't 'jump' to population characteristics etc. Keep everything to do with population together and everything to do with economic activities together in separate paragraphs. Insert graphs or diagrams where possible. *A picture is worth a thousand words.*

A map of the study will also be very useful. Remember to include a small map of South Africa, indicating the location of the study area as well as a scale, lines of latitude and longitude and an N arrow.

Remember to cite previous work and add to the Reference list.

ACTIVITY 9: Describe the study area (if relevant) in the proposal document and include necessary diagrams or maps.

STEP 10: THE METHODOLOGY/MATERIALS AND METHODS

Here we must distinguish between **laboratory-based** v other types of research. Whereas laboratory-based research (usually conducted by researchers in the Life Sciences) makes use of the heading **MATERIALS AND METHODS**, most other research uses the heading **METHODOLOGY.** Nevertheless, all researcher carry out three distinct steps in the research process. These include:

- **RESEARCH DESIGN**
- **DATA COLLECTION**
- **DATA ANALYSIS.**

You will have obtained information on the Methodology to be used in your study from reading articles or from previous knowledge. You already have some inkling on the methods/technique to be used in your stud – as indicated on FORM 1: namely, '**By**….'

This section (the Methodology) requires a considerable amount of thought and planning.

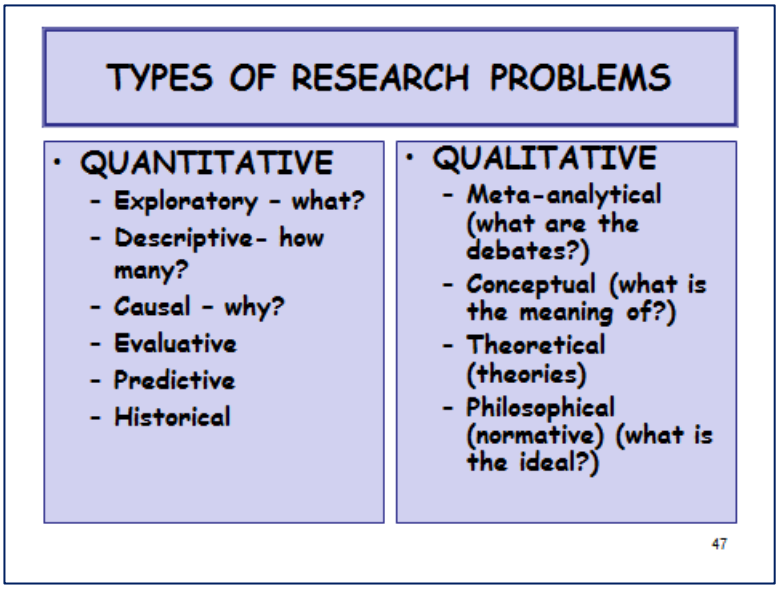
THE MORE EFFORT YOU DEVOTE TO THIS, THE EASIER THE ACTUAL RESEARCH PROCESS

❖ RESEARCH DESIGN

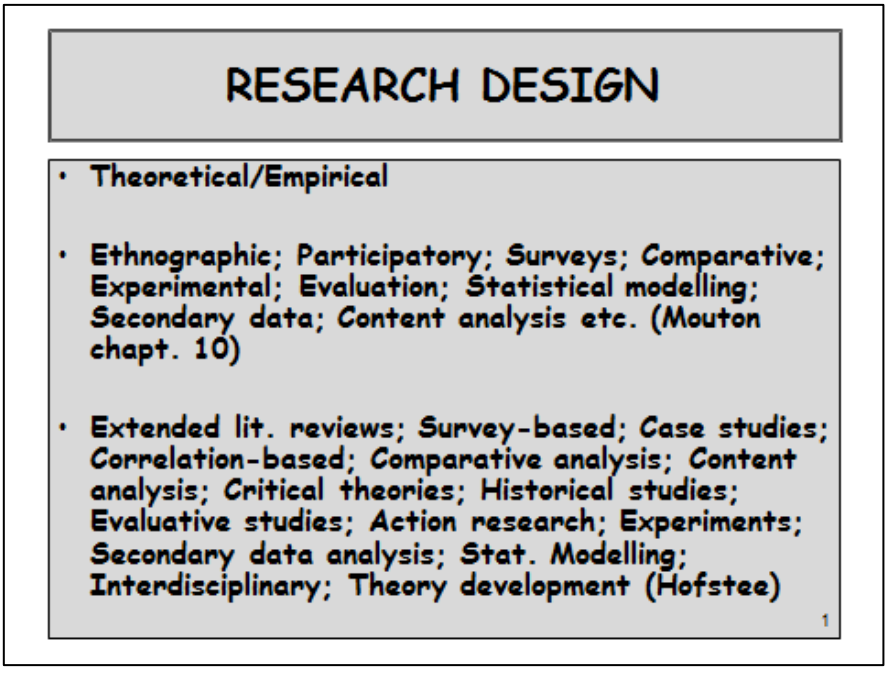
A research design is a strategic framework or plan that guides research activity to ensure that sound conclusions are reached (Terre Blanch *et al*., 1999). Research designs are either empirical (quantitative) or non-empirical (qualitative) or a mixture of both. The latter may be applicable if some of the Objectives are qualitative in nature and others, quantitative.

According to Terre Blanch *et al.* (1999:563), quantitative research involves "collecting data (or coded into numerical forms) and to which statistical analyses may be applied to determine the significance of the findings. In contrast, qualitative research attempts to preserve the integrity of narrative data and attempts to use the data to exemplify unusual or core themes embedded in contexts". Most (but not necessarily all) of the research carried out in the College of Agriculture and Environmental Sciences is empirical in nature.

The type of design is often dictated by the type of problem that you are trying to solve.



There are a number of different types of research designs. Mouton (2001) and Hofstee (2006) identify the following types:

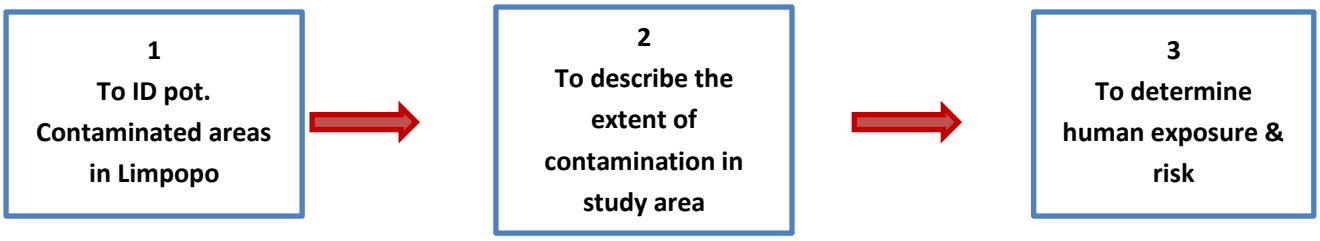


ACTIVITY 10.1: Use a good research textbook to identify the research design(s) and associated sampling methods, statistical analyses, strength and weaknesses. Note these in your planning document.

❖ PLANNING THE DATA COLLECTION AND ANALYSIS:

The first step in planning the Data Collection and Analysis section of your proposal is to decide on the sequence in which the research must be carried out. One way of doing this is to construct a flow diagramme and then to decide whether the objectives must be done in first, second etc.

EXAMPLE: *Again, using Deborah's study as an example: There were 3 objectives which had to be carried out sequentially: she had to complete Objective 1 before she could do Objective 2. Likewise, she needed information from Objective , as input into Objective 3. THUS the Objectives had to be carried out sequentially.*



ACTIVITY 10.2: Construct a flow diagram showing all the steps to be followed in your research process. Use the Objectives as basis. Decide whether the Objectives must be carried out sequentially or does it not matter in what sequence the research is done. Do this exercise in your planning document. THIS WILL ENABLE YOU TO WRITE THE METHODOLOGY IN THE CORRECT SEQUENCE.

The next step is to take each Objective at a time, and then to decide:

- What data do I need to do this?
- Where are the data?
- How will I get the data?
- What will I do with the data?

The first three points constitute the data collection phase and the last one, the data analysis phase.

A considerable amount of research conducted in the College of Agriculture and Environmental Sciences, make use of **QUESTIONNAIRES**.

> A questionnaire is a powerful research tool for conducting informal or semi-structured interviews, in administering printed questionnaires and in experimental studies involving participant evaluations or responses (Bradburn *et al*., 2004). The design and formulation of questions requires a considerable amount of planning. The questions asked must be relevant to the study, must conform to ethical standards and must be

unbiased. (It is vital that you do not structure the questions so as to suggest responses/answers that may support your hypothesis. You might not even be aware of such bias and that is why you need an impartial expert to assist you or to check your questionnaire). The questionnaire must also be structured to facilitate computer-assisted survey information collection. **Obtain the input from experts**. It is not something that you can do quickly. Your entire study can fail due to a poorly constructed questionnaire.

If relevant: ACTIVITY 10.3: PLAN YOUR PRELIMINARY QUESTIONNAIRE. DISCUSS THIS WITH YOUR SUPERVISOR. ENSURE THAT ALL QUESTIONS ARE RELEVANT

Remember: **YOU MUST INCLUDE A COPY OF THE QUESTIONNAIRE AS AN ADDENDUM TO YOUR PROPOSAL.**

When writing the methodology which includes a questionnaire survey, first describe the questionnaire. What were the main subsections? What kind of questions were asked? – Why?

Thereafter, describe how you decided on the sample size. How big is the population? What kind of sampling will be used? How big will the sample be? How are you going to distribute the questionnaires and who will collect them? How are you going to analyse the data? **Will the resulting information allow you to answer the Research Question?**

ACTIVITY 10.4: For each Objective decide on the type of data required, how you will obtain the data and what you are going to do with them. Note these in the planning document. Check that you have not left out important information. Once you have carried out the data collection and analysis, will you be answer the Research Question/achieve the Aim?

The next activity is to interrogate each of the Objectives, one at a time, and note the exact research activities that must be conducted for that Objective. This takes considerable time and effort.

EXAMPLE: *In Deborah's study the first Objective was to identify potentially contaminated areas in Limpopo. To do this, she would have to carry out the following research activities:*

1 Obtain a detailed geological map of Limpopo from either the Council for Geosciences (CGS) in Pretoria. Identify areas underlain by Basement Granites.

2 Obtain a mining map of the Province (also from the CGS or the Dept. of Mining). Identify areas with high mining activity.

3 Overlay (1) and 2) and compile a map showing potentially contaminated areas.

4 Select at least two broad study areas by means of random sampling.

5 In the selected broad study areas, compile a list of all towns and villages. Data will be obtained from StatsSA.

6 Use random sampling to identify 2 or 3 villages in each broad study area.
7 Conduct a field trip to ensure that the villages conform to the criteria required, i.e. the villagers use groundwater; they are subsistence farmers; that they keep goats; and that goat's milk is used for infants. These will then constitute the study areas.
8 Show the location of these villages on a map.
(The research design for this objective thus involved secondary data analysis. Activities 1, 2, 4, 5 and 7 constitute data collection. Activities 3, 6 and 8 comprise data analysis.)

For the following Objective, the data collection stage involved undertaking field trips and the collection of samples of water, soil, dust, plants, goat's milk and mother's milk using standard sampling protocols. The data analysis stage would comprise chemical analyses of all samples for As, Hg and Pb.

Indicate clearly how you will determine the sample size/decide on the layout of plots/exactly how you will collect specimen etc. If your research is laboratory-based, note the method to be used to e.g. isolate compounds etc., reagents to be used, the equipment that will be required. (Check if all are available at UNISA). If you are going to use statistical analysis for the DATA ANALYSIS phase – indicate which ones will be used and indicate why they have been selected. Indicate which statistical packages will be used. (Is this available at UNISA?) Note these in your Planning document.

NOW – STAND BACK FOR A MOMENT AND TAKE STOCK OF WHAT YOU WILL HAVE TO DO. IS THE STUDY FEASIBLE? – WILL YOU BE ABLE TO CARRY OUT ALL ACTIVITIES IN THE TIME AVAILABLE FOR RESEARCH? DO YOU HAVE THE NECESSARY RESOURCES?

ACTIVITY 10.5: For each Objective, note the research activities to be carried out in the correct sequence. Write these in the Planning Document in point form.

❖ WRITING THE METHODOLOGY/MATERIALS AND METHODS

IF THE OBJECTIVES MUST BE EXECUTED SEQUENTIALLY, YOU SHOULD WRITE THE METHODOLOGY IN THE SAME SEQUENCE/ORDER AS THAT IN WHICH THEY WERE DONE - OTHERWISE THE READER WILL NOT UNDERSTAND WHAT YOU ARE DOING.

IF THE SEQUENCE IS NOT RELEVANT; WRITE THE METHODOLOGY IN THE SAME ORDER AS THAT IN WHICH YOU INTEND CONDUCTING THE RESEARCHT.

ACTIVITY 10.5: Use the information in the planning document to write the anticipated research design, data collection and data analysis for each of your Objectives. This forms an important part of the proposal. Ensure that it is written in a logical and clear manner. DO NOT CONFUSE THE READER. At this stage your Proposal consist of a provisional title, an Introduction, Literature review Methodology and a preliminary list of references. Submit/discuss this to your supervisor.

Note the following as given in chapter 10 of Mouton (2001).

- THE OBJECTIVES DEFINE THE DESIGN
- THE DESIGN CONTROLS THE DATA AND METHODS TO BE USED
- EACH TYPE OF DESIGN HAS ITS OWN STRENGTHS AND LIMITATIONS

It is possible that the actual research will divert from this plan – but you should at least have some idea of how the research could be done – based on experience, logic and literature. Talking to other people might also help you to get a clearer picture of **how** you could carry of the research. This is the best that you can do at this stage.

STEP 11: WRITING THE REFERENCES

THESE ARE USUALLY PLACED AT THE END OF THE PROPOSAL but you should add to the reference list every time you cite research. Thus, start working on the references from the beginning of this proposal writing exercise and add to them as you progress.

There is an entire document on the UNISA College web that can be downloaded and which shows you exactly how to do a references list. Keep in mind that there are a number of referencing systems – and journals often have their own referencing systems. It is possible that another referencing system is used for your subject field. Contact your supervisor and ask him/her. Note that there are extremely strict rules regarding referencing. Every comma, full stop, colon and dash has meaning, as do spaces and italics. **Detail and consistency are paramount.**

ACTIVITY 11: COMPLETE the reference section for your proposal. CHECK THAT THERE ARE REFERENCES FOR INFORMATION CITED IN THE PROPOSAL. Ensure that the references are arranged in the correct sequence and prescribed format.

EXCEPT FOR THE ADDITIONALS, THE TITLE AND REFERENCES, YOU HAVE COMPLETED THE NARRATIVE SECTION OF THE PROPOSAL

CONGRATULATIONS!!!

THE ADDITIONALS

STEP 12 THE TIME-FRAME

The time frame is based on the activities that you identified in the Methodology section of the Proposal. Here you mist indicate **what** activities will be carried out and **when** they will be done. Remember to add activities such as writing articles or attending conferences. Fortunately, you have already planned this when planning your Objectives and Methodology - so all you have to do now is to create a Gantt chart or some other table showing the time-frame for each activity.

An example is given below:

Year	Obj	Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1	1	Obtain geol. & mining maps												
		ID pot. study area												
		Obtain list of villages in stud area												
		ID pot. Villages by												

		sampling												
		Fieldtrip to ensure conformation to criteria												
	2	**Collection of samples**												
etc	**etc**	**etc**												

Instead of suing Gantt chart, you can use any other technique to indicate what you are going to do (activities), and when you are going to do it. Be realistic. Each activity usually takes longer than you anticipated.

A Master's degree should take about 2 years, and a Doctoral, 3 - 5 years. In this exercise you will have to estimate when you will reach each stage of the PROPOSAL. Remember to leave sufficient time for writing the chapters and an article. Don't wait until the end of the research project before starting to write. Once you have a set of results, write it up – as a Chapter (and possibly as an article). These times frames should be included in the Gantt chart. Also remember to allocate time for you to submit a chapter to your supervisor, for him/her to check this, and for you to make the corrections. Keep in mind that it takes as long to write a thesis as it takes to do the research. Be lenient – add a week or two to any activity – just in case something happens to delay you. If you intend attending a conference, indicate more-or-less when it will be. Ensure that you have ample time for the entire project. If not – consider cutting down on the scope of your research.

It may also be prudent to indicate your **OUTPUTS** and when you expect to be able to deliver them. Outputs include chapters, articles, conference presentations, reports and reporting, etc. Allow yourself enough time to prepare for these.

ACTIVITY 12: Compile a time frame for your activities for each of the objectives for the duration of your study. Plan it well before writing it in the proposal.

STEP 13: THE BUDGET

The budget is based on the activities that must be executed for each Objective. USE THE GANTT CHART AND PUT A COST TO EACH ACTIVITY.

A budget is compulsory for the proposal since it will provide an indication of how much you will require for your study. This will enable you to decide whether your project is economically feasible and will assist you when applying for a bursary. Budget items usually fall under the following headings: **Salaries and wages** (e.g. for field workers), **capital expenses** (equipment - check what

is available at UNISA and note any additional equipment needed); **Subsistence and Transport (S&T); Running expenses**.

Will you have to pay for secondary data? When you go on a field trip, what apparatus will be required to collect and store samples? How far are you going to travel (what is the travel costs/km)? Will you have to stay over – thus how much are you going to need for accommodation and subsistence? How many people will be travelling with you? The document on 'How to plan your budget' is available on the College webpage at https://www.unisa.ac.za/sites/corporate/default/Colleges/Agriculture-&-Environmental-Sciences/Open-Resources'. Once you have completed your budget, you will be able to decide whether your project is feasible. Do you have sufficient funds? If not – you might have to limit the scope of your project. Also keep in mind that you will have to pay University registration fees. Take that into account when doing your budget.

ACTIVITY 13: Use EXCEL or a similar program to draw up a budget for all items/activities mentioned in the proposal. Do each year separately. Follow the steps in the online Guide. Include the budget in your proposal.

STEP 14: CHAPTER LAYOUT

The generic layout of the chapters for Ms or Ds are:

Chapter 1: Introduction. The Introduction that you have written for the proposal can be used as a basis for the thesis. You will obviously make changes as your read more and the research takes on a 'life of its own'. The first chapter also includes the motivation, research question, the gap in knowledge, the aim, objectives etc. Note that the past tense is used in the thesis whereas the future tense is used in proposal. For example, in the proposal, the aim **is** to…. whereas in the thesis, the aim **was** to…

Chapter 2: Literature Review. You will obviously make use of the proposal as basis and include more information. Keep in mind that reading articles and other literature only comes to an end once you have written the first draft **of your thesis**. The Literature Review is usually the longest chapter in the thesis. The information contained in this chapter originates from literature. Most of the references will be cited in Chapter 2.

Chapter 3: (Study area) and Methodology/Materials and Methods.

The METHODOLOGY separates the literature from your own work. So everything that comes after Chapter 3, reflects the results that YOU obtained.

Chapters 4, 5 …….: These chapters contain the results and relevant discussions. Depending upon the study, you **may** need to devote and entire chapter to the results and discussions pertaining to one particular an Objective. So, if you had three Objectives, Chapter 4 would be devoted to Objective 1; Chapter 5 to Objective 2 and Chapter 6 to Objective 3 etc. If the research for a particular Objective is not quite so extensive, you could combine the results and discussion for more than one Objective into Chapter 4. It is not necessary to 'dump' all the results into one chapter. It makes it difficult for the reader. Use an appropriate heading to indicate which objectives you are going to discuss.

Final chapter: Conclusion (summary, conclusions and recommendations).

This is followed by the list of references and any appendices.

PLEASE NOTE: you do not have to use the headings as given above, you may use your own Chapter headings. Consult your supervisor.

ACTIVITY 14: Plan the chapter layout for your thesis in the Planning document. When you are satisfied with it, write it in your Proposal.

STEP 15: GOING BACK TO THE BEGINNING: THE TITLE

Now that you know what you intend doing in your research project, you can revise the provisional title if necessary. Is it still in agreement with the provisional title in FORM 1?
Ensure that it is:

- Short but descriptive (**try** for less than 15 words)
- A true reflection of the content
- Contain important variables
- Is free from jargon or abbreviations.

ACTIVITY 15: Write the final title and replace (if necessary) the provisional title

Check that there is a link/flow between the title, the background, motivation, the research problem, gap in knowledge, aims and objectives, methodology (data collection and analysis) and significance. Internal cohesion is vital. There should always be that 'golden thread' weaving through all parts of the proposal and keeping them together.

FINAL ACTIVITIES

STEP 16: AGEING AND MATURING THE DRAFT PROPOSAL

Now that you have written the first draft of the proposal:

- Put it away for a while (at least a week) and read what you have written.
- Give the proposal to someone to read, and take note of their critique.
- Ensure that you 'save' the document often and make backups.
- Plan each section of the proposal and then discuss it with your supervisor. Then write the section in your proposal and submit it to your supervisor. Make corrections timeously.
- Check submission dates and procedures.
- **REVISE, REVISE, REVISE.**
- Have your final document edited.

When reading through the proposal, ensure that there is a 'golden thread' running through the entire document. Everything should be focused on defining and solving a research problem.

Does it make sense? Good – so now you know what you want to do and FORM 1 makes sense.

ACTIVITY 16: Revise the draft proposal where necessary.

STEP 17: COMPLETING THE COVER PAGE

ACTIVITY 17: Complete the cover page of your proposal (see example attached).

STEP 18: AVOID COMMON MISTAKES

Take note of the **COMMON MISTAKES** made by students and ensure that you have not made them.

- Topic does not 'fit' into the focus of the Department
- Not feasible
- You do not have the required skills (knowledge of analytical techniques, GIS, statistics etc.)

- No clear aims and objectives
- Muddled thinking
- Lack of logic
- Inadequate knowledge – have not read enough
- Wrong contents to headings
- Language poor/lack of editing
- Title, introduction, aim, objective and methods not collated
- Flaws in research design
- Methodology ‘wooly’; inadequate explanation of methods
- Bias/subjectivity
- Plagiarism/insufficient referencing

ACTIVITY 18: Read through your proposal and ensure that you have not made any of these mistakes. Move the Reference Section to the end of the Proposal.

STEP 19: SUBMIT THE DRAFT PROPOSAL

Note: you have been working on the first draft of your proposal. GOOD. Now – submit it to you supervisor and wait for comment.

ACTIVITY 19: Make the required necessary changes.

STEP 20: SUBMIT THE FINAL PROPOSAL

ACTIVITY 20:

CELEBRATE

YOU HAVE DONE YOUR BEST. IT IS OUT OF YOUR HANDS AND YOU CAN NOW GET ON WITH YOUR LIFE.

GOOD LUCK AND ENJOY THE JOURNEY

Compiled by Prof Jana Olivier 2018

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EXAMPLE OF TITLE PAGE OF CONCEPT NOTE:

TITLE:

TOXIC ELEMENTS IN THE FOOD CHAIN: EXPOSURE PATHWAYS TO INFANTS IN SELECTED AREAS OF LIMPOPO PROVINCE

For the degree: MSc (Environmental Management)

In the Department of Environmental Sciences

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Mind map