

Unit 2

Sourcing information to guide examination of problem

Getting started

Now that we have clarified the real-world problem that we want to inquire about, we must now turn attention to a more formal body of knowledge to expand and deepen our understanding of what we have observed or experienced in the real-world. You will no doubt recall Thomas' (2000) explanation that "PBL projects are focused on questions or problems that "drive" students to encounter (and struggle with) the central concepts and principles of a discipline" (p.3). Drawing on such knowledge ensures that you do not restrict your view of the problem to what you see on the surface, but rather that you are better equipped to examine it from all relevant angles.

Learning Objectives

- Recognise the connection between the real-world problem and knowledge from more formal sources.
- Provide a rationale for using a framework to undertake the search for information.
- Identify a single word or short phrase that would serve as an appropriate overarching topic or theme to unearth deeper levels of meaning in the problem.
- Conduct an analysis of the main theme in order to yield different levels of sub-themes in the building of the framework.
- Describe the characteristics of each of these two subsidiary levels of themes.
- Demonstrate an understanding of how the Levels 2 and 3 sub-themes combine to guide the search for information.
- Prepare a summary of information collected, using the pattern provided.
- Differentiate between the approaches to doing project work between one that begins with a problem idea and one that starts with a topic.

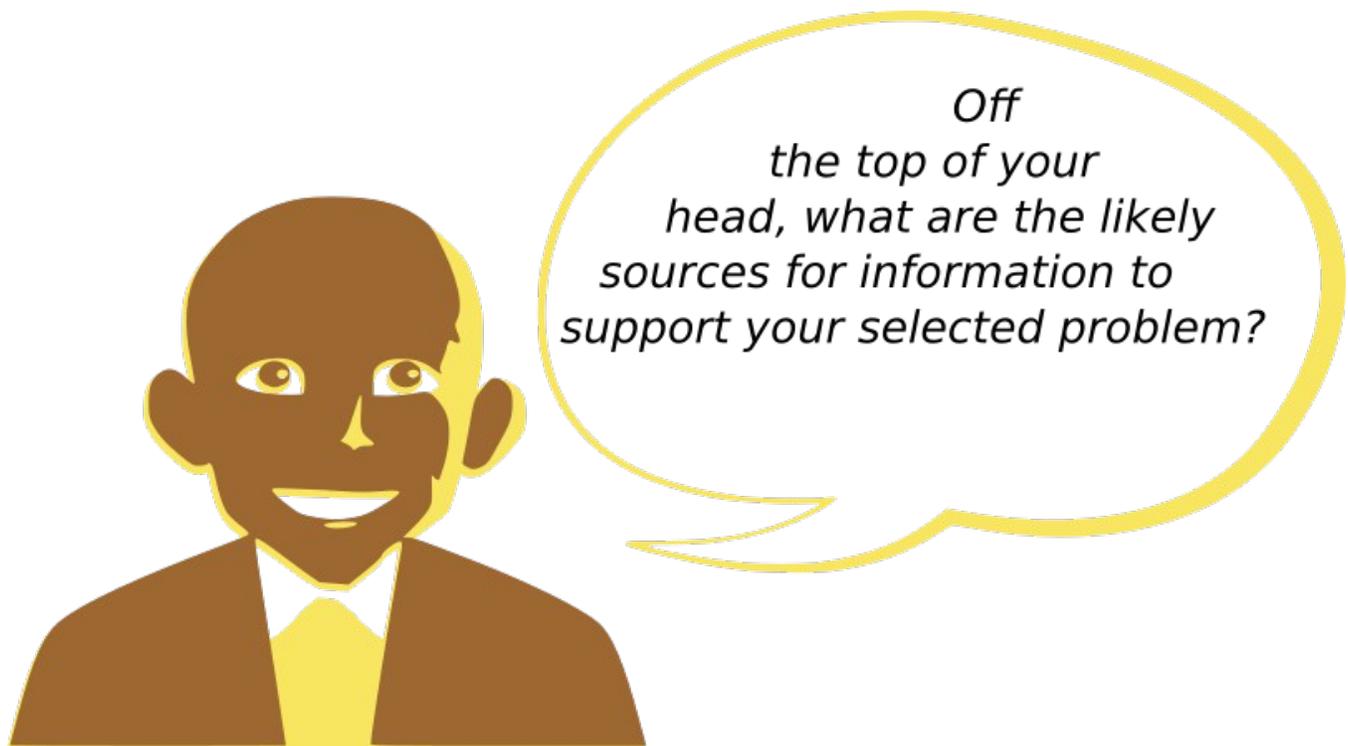
2.1 Preparing to conduct the search for information

One of the first tasks that you undertake after developing the problem statement and project objective is to lay the groundwork for conducting the search for more formal content. What are the concepts, principles and other information that are capable of taking understanding of the problem beyond the obvious surface details? What determines what is selected at this stage and what is not?

Essentially, you are sourcing information to deepen your awareness of the problem you are investigating by placing it in a wider context. That context is created out of the body of knowledge generated by persons who have studied real world situations like the one in which you have identified a problem, and have formulated broader ideas about them.

For example, if we take the problem to investigate factors influencing the decline in tourist arrivals, we may be interested in sourcing information about topics such as *visitor attractions, destination marketing and even public safety*. Why? Because, embedded in such topics (and these are not the only ones) are ideas about what a country does to attract tourists to that location. Thus, by choosing these, what we are automatically implying is that a country could adversely affect its tourist arrival numbers if it does not pay attention to these matters.

This information would provide the pool of ideas to be drawn on to develop the tools that you would use to go back into the real world to collect data as required by the project objective. But more on this latter task later. At this stage, what you are interested in, is identifying the topics or themes that would guide the information search.



*Off
the top of your
head, what are the likely
sources for information to
support your selected problem?*

Something to think about

2.2 Building a framework to guide the search for information

Depending on your particular learning style, your approach to searching for information may vary from mine. Some of you may be comfortable with a more free-flowing style in which you rely more on brainstorming. Those who may prefer a more structured approach may find the option of developing a framework useful. Such a framework would bring together, in an organised way, all the elements capable of setting you on the path of a meaningful search.

2.2.1 Finding a suitable theme or topic

In your mind's eye, think of a large circle and place the project objective at the centre of it. Then think of a single word or phrase that could give you a big picture view of the problem, taking you some distance away from the 'live action' and allowing you to look in (or down) from a broader (or higher) vantage point. That single word or phrase is the theme or topic that gives you a bird's eye view, allowing you to step away and see the problem from a range of perspectives.

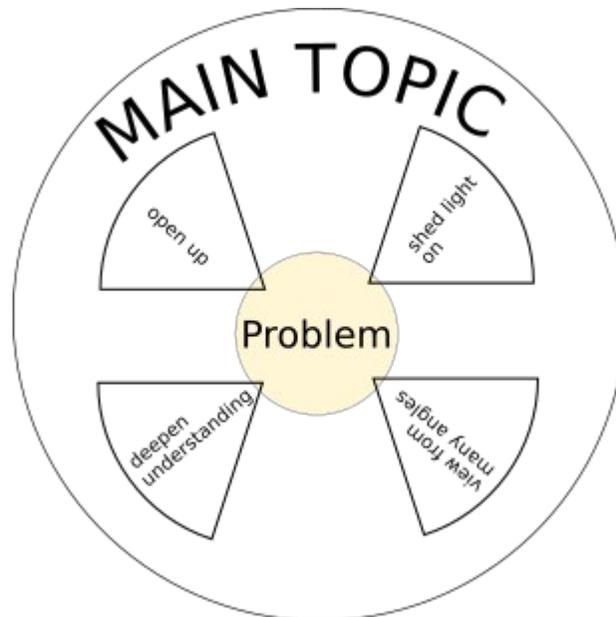


Figure 2.1: The problem in relation to the main topic/theme

You were able to single out that topic because of your ability to view issues beyond the specific situation that is front of you. There was also a good chance that you would make an appropriate selection based on your familiarity with the problem, your knowledge of the content area from which the theme was drawn, and your instinctive ability to look for and make connections.

While the content area may fall within a specific course that you are studying, it is also very likely that it may not, since authentic real-world problems do not fit neatly into the courses created by educational institutions. One hopes though that your experience as a student has equipped you to expand your awareness of what constitutes knowledge beyond the requirements of specific courses.

Following is a selection of problems with suggested themes or topics linked to each. You will recall that the first three problems were already converted into project objectives.

Project Objective (shortened form), with additional problem ideas	Theme/topic to guide building of framework
Factors influencing decline in tourist arrivals	Tourism industry
Impact of persistent flooding on residents of Community Y	Natural disasters
Students' reasons for disruptive classroom behaviour	Classroom management
Women's reluctance to leave abusive relationships	Domestic violence
Students' inability to detect cues in text	Reading Comprehension
People's dissatisfaction with performance of their MP.	Representative democracy

Table 2.1: Selected problems with related overarching themes

For some of the problems in my list the theme is fairly obvious, for example the tourism industry and reading comprehension. For others, it may not be as straightforward. What is important is that the chosen theme is capable of leading you along the appropriate path for sourcing the best possible information to guide your further investigation of the problem.

Self-assessment exercise 2.1

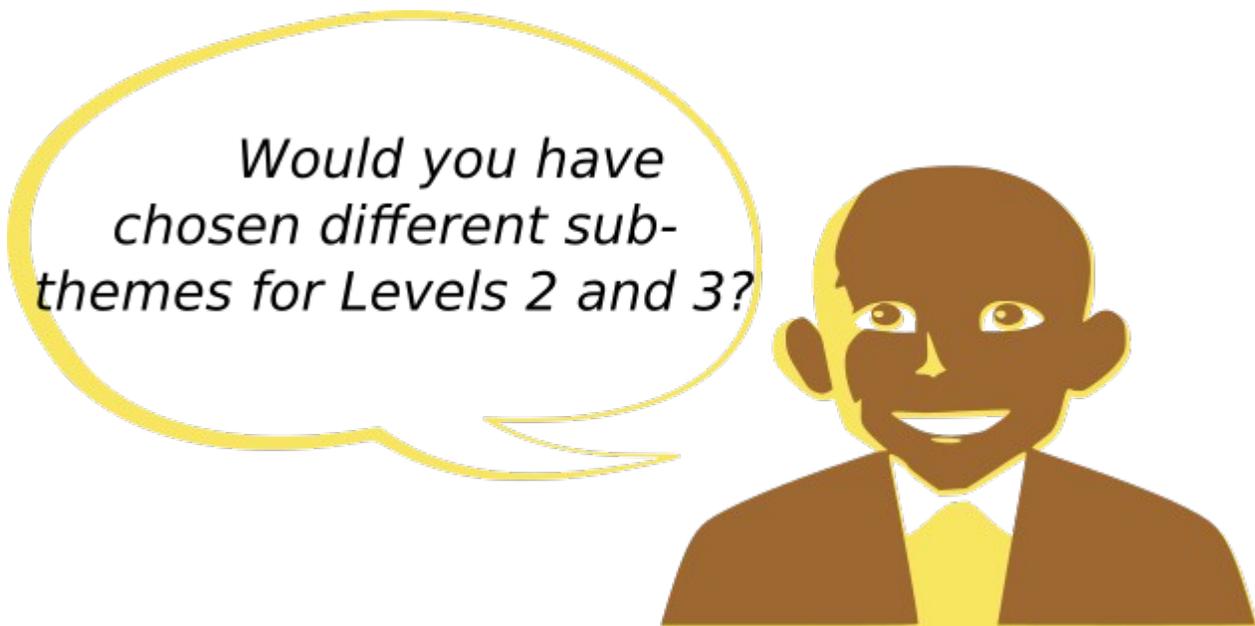
Return to the list of real-world problems you compiled in SAE 1.3. Recall that when you were developing a problem statement and project objective for one of those problems for SAE 1.8, we advised that you should not discard the other four. For each of these problems, identify a theme or topic that you would use to start the construction of the framework.

2.2.2 Dissecting the main theme

We have selected a particular term or phrase as the overarching theme since we see it as a complex idea embodying a cluster of subsidiary ideas that can serve as its extensions in the framework we are constructing. We therefore need to break it down to extract its constituent elements to free them up to do the work of guiding us in our search for the relevant information we need for our ultimate task, which is to investigate the problem. This exercise is essentially one of analysis in that we are unpacking a complex idea in order to draw out its constituent elements. In the table below, we analyse the themes for each of the first two problems identified earlier.

Project Objective (shortened form)	Level 1 - Main Theme	Level 2 sub-themes	Level 3 sub-themes
Factors influencing decline in tourist arrivals.	Tourism industry	Visitor attractions	Natural attractions, man-made attractions (including events).
		Destination marketing	Image and branding, target marketing.
		Public safety	Travel advisories, policing, crime detection.
Impact of perennial flooding on residents of Community Y.	Natural disasters	Vulnerability	Loss of livelihoods, especially agricultural production
			Health-related concerns: new flood-related diseases and challenges in managing existing conditions.
			Disruption of schooling

Table 2.2: Breaking down the main theme to extract sub-themes



Something to think about

There is no stipulated number of levels that you must adhere to when breaking down the main theme. What is important is that the details that you identify in the process can provide you with adequate cues to embark on your search for the required information. We are however suggesting that a 3-level framework could be useful in particular if you have little experience in doing project work.

Level 2 will yield one or more sub-themes which, though still somewhat broad, are less abstract than their parent. At the third level the details are becoming more specific and more concrete, and as such are closer to the level of the real-world problem. The exercise of building the framework therefore takes us, in the first

instance to a higher level of the relevant formal body of knowledge and returns us to a lower level that is more concrete.

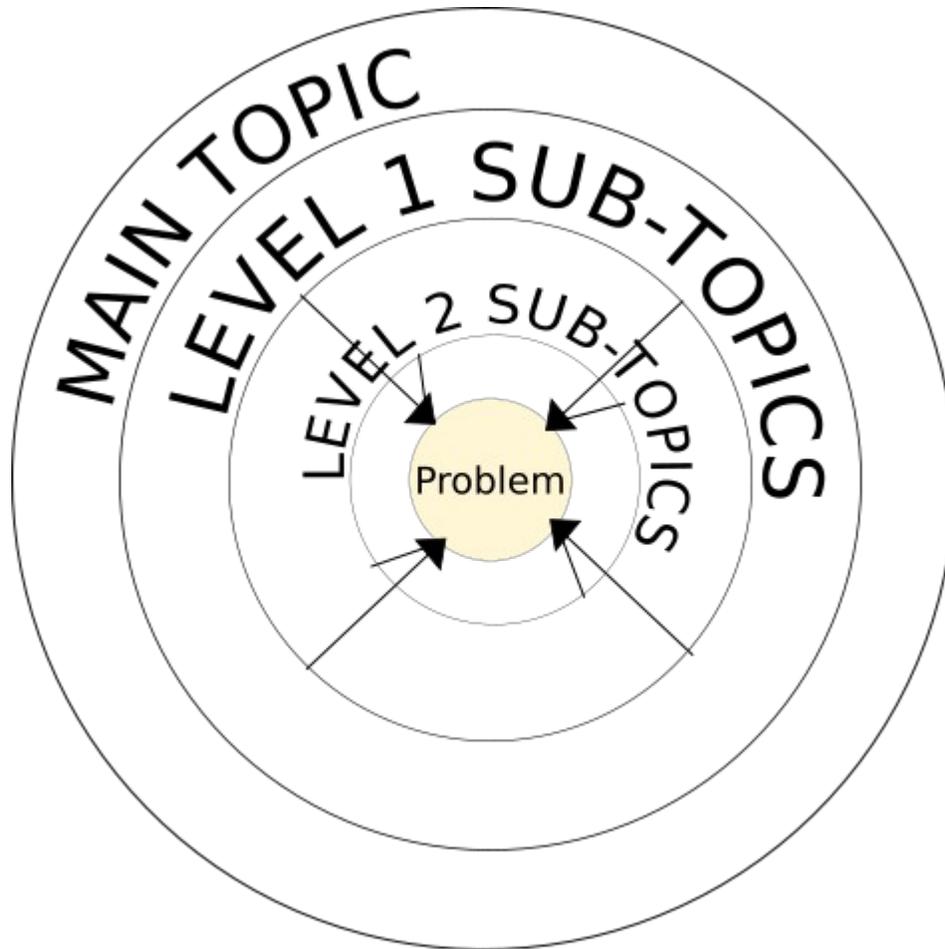


Figure 2.2: The problem in the context of a complete framework

Self-assessment exercise 2.2

Having identified the themes, you must now conduct an analysis to dissect each of them in order to unearth further details that would provide the cues for identifying and selecting sources for your further search for information.

2.2.3 Using the contents of the framework to source information

We cannot overemphasize the point that it is the framework that will guide the search for the new information. At the same time, it is also important to keep in mind that the whole exercise of building the framework started with the problem. Thus, as you use elements of the framework to conduct your search, you need to be mindful of the inherent interrelationship between that element and the problem or some aspect of it.

For example, in relation to factors influencing the decline in tourist arrivals, visitor attractions and its related sub-themes provide a useful launching pad since tourists are likely to choose to visit a destination based on the uniqueness, quality and accessibility of its attractions. Consequently, this aspect of the tourism product can play an important role in boosting tourist arrivals, or conversely, if they do not

meet expectations, can have the reverse effect, resulting in a decrease in the number of visitors.

Similarly, the concept of vulnerability occupies a key position when examining the effect of a natural disaster such as perennial flooding on a community. Vulnerability refers to the extent to which people and property are susceptible to the damaging effects of the disaster. In what aspects of their lives are people prone to be harmed when the community is flooded on a regular basis? In other words, what are the tangible dimensions of the concept of vulnerability as it pertains to a community that experiences flooding on an annual basis? Three such dimensions are suggested as Level 3 sub-themes, as listed in Table 2.1

Under the broad umbrella of the main theme or topic, what we see emerging as we put the framework to use, is that the Level 2 and Level 3 sub-themes combine to guide the search for relevant information. Moreover, as we look ahead to the data collection aspect of the exercise, it is the sub-themes from the lowest level of the framework that typically form the basis for building the data collection instruments. But more on that later.

Self-assessment exercise 2.3

You are now at the point where you will begin your search for material to locate the information you require and you will be using the cues generated in the development of the framework to guide that exercise. In particular, you would want to find information that reflects the Levels 2 and 3 sub-themes.

Write full references for each piece of material selected, including page number(s), paragraph number(s) and where provided headings and sub-headings.

Complete this SAE with a brief justification for each of the selections made.

2.3 Primary versus secondary sources

A question that arises at this juncture is, where do we source the required information? We can think of the sources as falling into two broad categories, namely primary sources and secondary sources. The information that we are getting from the first type is closely linked to the real-world context – it is described by people who were directly involved or by other persons who would have received the information from someone with direct knowledge of the situation or event. The key feature of this type is that it reports on or describes first-hand information about the event, person, object or experience. Sources that fall in this category include audio and video clips (podcasts), blogs, interviews, survey reports, newspaper reports. As you may have already observed, most of the information obtained to support the problem statement (see Unit 1) came from primary sources.

The information provided in secondary sources is not based on direct experience or observation of the real-world. Rather the authors of these works process what they gather from primary sources in order to develop higher-level descriptions, explanations, analyses, interpretations. Examples include books (whether hard-copy or electronic), journal articles, documentaries, theses.

While some works may normally fall into a specific category, for example books as secondary source material, there may also be instances where a book may be a primary source. An autobiography or a book containing speeches is a primary source. In addition, a work that is mainly a secondary source, may contain segments that are primary source material, for example, the section of a journal article in which the author reports on the research study that he/she carried out and on which the whole article is based. It is important to examine the material you are accessing carefully given what you know of the two types of sources.



Something to think about

Self-assessment exercise 2.4

Following are some articles that were identified for the problem about persistent flooding in a community. State which are primary sources and which are secondary sources. Read as many as you can, then identify segments in any of them that you consider to be appropriate, given the problem. Give reasons for the selections you make.

2.1 Resource Material

BBC News. Cyclone Idai: 'Massive disaster' in Mozambique and Zimbabwe. 20 March, 2019.

Caribbean News Service. Regional community development disaster response gets a boost. March 6, 2019.

UN Office for Disaster Risk Reduction (Denis McClean). Mauritius invests 2% GDP in resilience. 23 November, 2016.

Kouadio, I.K., Aljunid, S., Kamigaki, T., Hammad, K. & Oshitani, H. (2012). Infectious diseases following natural disasters: prevention and control measures. *Expert Review of Anti-infective Therapy*, 10(1), 95-104.

Loayza-Alarico, M.J., Lescano, A.G., Suarez-Ognio, L.A., Ramirez-Prada, G.M. & Blazes, D.L. (2013). Epidemic activity after natural disasters without high mortality in developing settings. *Disaster Health*, 1(2), 102-109.

2.4 Summary of supporting information

The framework that you developed to guide your search for relevant information, would also serve as the plan for writing up about the information sourced. It is important that you provide a clear summary of this information since you would be relying on it to develop the instruments you will be using for collecting data.

2.4.1 The introduction

In your introduction to this summary, you will no doubt draw attention to the relationship between the problem and the main theme. There are several ways in which you can make this link. You may wish to emphasize the significance of the problem to its broader context: for example, the effect of declining tourist arrivals on the wider tourism industry. Alternatively, you may see the need to justify your choice of main theme given the nature of the problem: for example, classroom management as the context for examining disruptive classroom behaviour. In that regard, you may want to give the rationale why you chose that as the main theme, rather than, say, school culture and climate, that some may consider more appropriate. Whatever the thinking surrounding your choice of theme, you would want to establish the connection between it and the problem at the outset.

To conclude this introductory segment, you will briefly indicate the sub-themes that you generated from the main theme and which you may now use as sub-heads to organise the main body of the summary.

2.4.2 Main body of summary

As mentioned earlier, it is the Levels 2 and 3 sub-themes that will provide the basis for your search for appropriate information. Following are two possible sections in the main body of the summary. The first is in relation to the problem of the decline in visitor arrivals and the second, the effects of perennial flooding in a community.

Decline in visitor arrivals

Roberts, Best and Cameron (2015) take the position that visitor attractions are an essential component of the tourism industry and that they are the primary reason why leisure tourists would choose to visit a particular destination. In that regard, they contend that there are a number of factors determining whether an attraction is a success or a failure. These include location and access, buy-in from the local community and supporting tourism infrastructure. These factors would apply whether one is dealing with either of the two broad categories of visitor attractions, namely natural attractions or man-made attractions. With regard

to the second, one notes the special emphasis that the authors place on events as a sub-set of that category. Given that, as stated earlier, attractions are an essential aspect of the tourism industry, one would want to assess whether it bears any responsibility for the decline in arrivals. Further, one would want to determine whether any particular category or sub-category is falling short in terms of its capacity to attract visitors.

Effects of perennial flooding

The effect of natural disasters on the health condition of a population has occupied the attention of several analysts in the field of medicine. Focusing specifically on three major disasters, namely flooding, earthquake and volcanic activity, that occurred in Peru during the period 2005-2006, Loayza-Alarico, Lescano, Suarez-Ognio, Ramirez-Prada and Blazes (2013) conducted a study to identify health conditions for which medical consultations were held in the aftermath of each of these disasters. With regard to the post-flooding consultations, their study identified eight health conditions. While respiratory illness stood out, others such as conjunctivitis and psychologic disorders also received the attention of the consultants.

What this suggests is that analysts need to be alert to the possibility of a wider range of health-related conditions beyond the water-borne diseases that are typically the focus of attention after a major flood.

In organising this main section of the summary, you may find it useful to incorporate sub-heads drawn from the sub-themes of the framework.

2.4.3 The conclusion

In bringing the summary to a close, you would ensure that you itemise the areas that you would be drawing on to develop your instrument(s) for data collection.

Self-assessment exercise 2.5

Return to the sources you selected for SAE 2.3. and write a summary of supporting information for your project. This should be no more than about 3 – 5 pages long.

2.5 Starting the project with a topic or theme

Up to this point we have assumed that you the learner are the one responsible for identifying the problem to be addressed, based on your own experience and/or observation of the real-world. While that is a normal, widely accepted route to take when undertaking project work, it is also possible to have a topic as the starting point based on which you will identify an appropriate problem. At times your instructor/lecturer will set the theme or topic and leave it to you the student to identify a problem associated with that theme.

This alternative approach takes you along a path, moving from an abstract idea to a more specific, concrete formulation of a real-world problem. This approach is the opposite of what we did earlier where we moved from a concrete experience to the topic or theme that served as the higher-level idea for building the framework that we used for interpreting the problem. In an even more direct way than when the activity starts with a problem, this approach seeks to provide opportunity for you to demonstrate your grasp of key concepts and other aspects of the course content as you make linkages between these and real-world experiences.

There are two points to be noted about an approach to project work that begins with a topic. First there is the assumption that you are already very familiar with the topic and its related concepts and principles. As a result, you are adequately equipped to identify key related subsidiary topics and/or themes. While you may feel the need at this stage to review some relevant material on the topic, this is only to refresh your mind and/or for clarification. However, should you find yourself having to do a thorough study on the topic at this stage, that is a signal that you are not ready to undertake a project in this area.

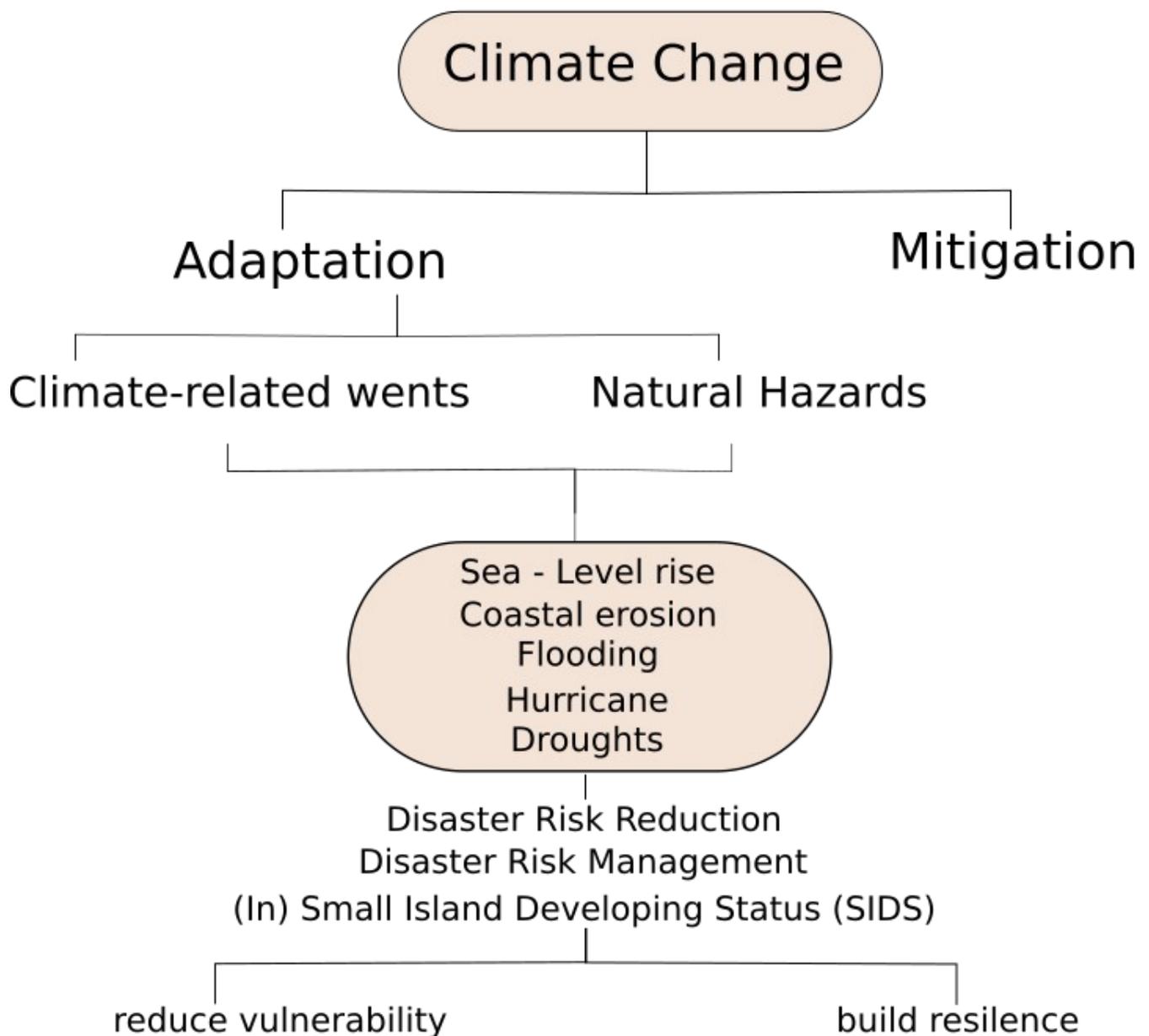
Secondly, while it is true that the exercise is not being initiated with a problem that you, the learner, have identified, it is very likely that you have already encountered typical problem ideas in your prior study around the topic. Hence, identifying a problem may not necessarily be that difficult. Alternatively, the content gleaned from your formal study has led you to recognize issues in your own real-world context that warrant further examination. Whichever it is, it is very likely that potential problems related to the topic are already lurking in the back of your mind. Consequently, as you are seeking to break down the topic, how you approach this task may indeed be influenced by an idea of a problem even though that idea may not be completely well formulated in the initial stages.

Similar to when you were working in the opposite direction, there is need to build a framework going forward, and in the process generating different levels of sub-topics. One important difference in the current scenario though, is that, since the problem was not your starting point, you may not be in a position to decide how many levels of sub-topics will constitute the framework. That will be determined in large measure by the type of topic provided. The higher and more abstract the level of the initial topic, the more subsidiary levels would be required to arrive at a problem idea that meets the criteria of being authentic and of the real world.

2.5.1 Climate change: topic to demonstrate top-down approach

The topic we are using to illustrate this alternative approach to initiating the project activity is climate change. The following chart outlines one possible route for tracing the path from this main topic through sub-topics/themes and ultimately to a problem idea.

Breakdown of selected topic - Climate Change



Problem idea - Capacity of local government bodies to assist communities to minimise impact of natural hazards on their lives

Figure 2.3 – Breakdown of selected topic, Climate change

The following excerpts are intended to ensure that we all have a basic understanding of the topic. In the first explanation, climate change is linked to the actions of human beings as follows:

The principal way in which humans are understood to be affecting the climate is through the release of heat-trapping

gases into the air.

<https://www.theguardian.com/environment/2010/dec/21/what-is-climate-change>

Another source expands this way:

Climate change encompasses not only rising average temperatures but also extreme weather events, shifting wildlife populations and habitats, rising seas, and a range of other impacts. All these changes are emerging as humans continue to add heat-trapping greenhouse gases to the atmosphere, changing the rhythms of climate that all living things have come to rely on.

<https://www.nationalgeographic.com/environment/global-warming/global-warming-overview/>

Two terms that are immediately introduced as we begin the breakdown process are adaptation and mitigation. These are briefly explained as follows:

There are two main policy responses to climate change: mitigation and adaptation. Mitigation addresses the root causes, by reducing greenhouse gas emissions, while adaptation seeks to lower the risks posed by the consequences of climate change.

<http://www.theguardian.com/2012/feb/27/climate-change-adaptation>

As you may have already noticed, arriving at a problem idea from a topic that is as multi-dimensional as *climate change* could mean that the breakdown process may entail more levels than the three previously recommended. In such a case, one may need to decide to set the bar for defining the framework at a lower level, even as one acknowledges the original topic that was set.

Starting with a topic renders the process of identifying the problem a top-down exercise. Nonetheless, the requirement of fleshing out the problem idea into a full problem statement, as well as that of examining the real-world experience through the lens of a formal body of knowledge still apply whatever the route taken to arrive at the problem. In short, developing a problem statement, formulating a project objective and producing a clear summary of relevant information are all still applicable.

The information-gathering exercise that we have just completed leads into the data collection aspect of the project. However, we will defer that until Unit 4. In Unit 3, we will examine how others have undertaken the task of investigating a problem.

Key Takeaways

- More formal content required to deepen understanding of the problem.
- A framework provides a structured approach for conducting search for this information.
- The main topic of the framework is analysed to reveal lower level subsidiary topics.
- Sub-topics across levels combined to provide means for accessing information.
- In accessing sources for the new information, need to be aware of the two main categories of sources – primary and secondary sources.
- Primary sources yield first-hand information about the real-world.
- The authors of secondary sources process real-world information to provide higher-level content.
- In organising the information gathered, important to point out how it would subsequently be used for developing data collection instruments.
- Projects may also be initiated with a topic rather than a problem.
- The exercise therefore proceeds in a top-down manner, culminating in the identification of a real-world problem.
- Once the problem has been identified, the same project activity tasks are applicable.