UNIT 6

WRITING THE INTRODUCTION

The introduction of the report explains:

1) the general background about the topic of the report which provides information related to the research topic and the rationale for the study
2) the objective(s) of the report which states what the research hopes to accomplish

ACTIVITY

Read the following excerpt and identify the elements of the introduction mentioned above by answering the following questions:

1. What is the research topic?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. What is the rationale of the study?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3. What does the research hope to accomplish?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Example:

INTRODUCTION

Natural rubber production is a major industry in Malaysia. It contributes 2.3% of Malaysia’s total export value of primary commodities (Economic Report 1993/94). Rubber is produced by both the estate and smallholder sectors. However, production by the smallholder sector was very much less than that of the estates although it occupies 82% of the total planted area. For example, in 1992 the average yield per hectare for the smallholder sector was almost 30% less (Rubber Statistics Handbook, 1992) than the estate sector. One of the factors associated with higher production by the estates was good agronomic and processing practices. A few studies have been carried out to determine the adoption rate of rubber technology by the smallholders (Sulaiman Yassin et al., 1985; Raja Badrul Shah et al., 1986a and 1986b). Although these investigations revealed that technology adoption in the smallholder sector was generally low, specific constraining factors associated with technology adoption have not been examined in detail. This study was undertaken to fill that information gap.

Objectives of the Study
The general objective of the study was to determine the constraints faced by rubber smallholders in adopting technology, especially factors related to socio-cultural, economic, physical and technological attributes. Specifically, the study aimed to determine:

1. levels of technology adoption among smallholders; and
2. factors associated with technology adoption and rejection.

(Adapted from Rahim M. Sail and Mazanah Muhamad, 1994, Factors associated with non-adoptions of technology by rubber smallholders, Pertanika Journal of Social Sciences and Humanities 2(1), 29-41)
Useful Phrases for Writing the Introduction

Background

A few studies had been carried out to determine ... .
The study was undertaken to ... .
Based on ... .
This study is based on ... .
In response to suggestions/comments ... .

Objective(s)

The general objective of the study was to determine... .
The study aimed to determine... .
This study aims to ... .
This study investigates ... .
This study will determine ... .
This study will look into ... .
This study seeks to investigate ... .
The objectives of this study are ... .
The purpose/aim of this study is to ... .

Practice 1

The extracts below are introductions of research reports. In each extract, identify the elements of the introduction by answering the questions given below.

Extract 1

Title: The vascular wilt disease—a potential threat to oil palm in Malaysia

The vascular wilt disease of oil palm is caused by a strain of Fusarium oxysporum. It is a very devastating disease which has resulted in severe economic losses in numerous oil palm growing areas in Africa. At present, the disease is absent in Malaysia. There has been a great deal of interest among oil palm growers as to why the disease does not occur in Malaysia, even though F. oxysporum is prevalent in the soils of Malaysian oil palm plantations. Several hypotheses have been postulated to explain the absence of the disease in Malaysia. These include a more wilt-resistant line of oil palm, climatic conditions—evenly distributed rainfall with no severe drought season as in Africa which is not favourable for disease development, and the absence of the pathogenic strain of F. oxysporum in oil palm soils. However, there has been no scientific evidence to substantiate any of these hypotheses.
With the rapid expansion of the oil palm industry in Malaysia and its increasing importance to the economy of the country, the potential danger of the vascular wilt disease to the oil palm in Malaysia cannot be ignored. Although originally confined to Africa, the disease has spread to South America–Colombia (1966) and recently, Brazil (1984). Therefore, an understanding of the factors involved in contributing to the absence of the disease in Malaysia is essential for the determination of suitable control measures against the disease. With these considerations in mind, the present study was carried out to investigate the reasons why the vascular wilt disease of oil palm does not occur in Malaysia.

(Adapted from Berita Penyelidikan 2(3), 1988)

1. What is the research topic?

2. What is the rationale of the study?

3. What does the research hope to accomplish?
UNIT 7

WRITING THE PROCEDURE

The procedure of a report explains:

(1) how the data were collected
   i.e. the method used  - questionnaire, interviews, survey,
                          experiments, observations etc.

(2) how the data were analysed
   i.e. the instruments used for data analysis - statistical tools, categorizing into
   checklists, etc.

Note: However, the use of statistical tools for analysis may not be necessary depending
on the methods used. For example, data collected using interviews and
observation are usually not analysed statistically.

ACTIVITY

Read the following example and discuss the elements of the procedure by answering
the following questions:

1. Who are the subjects in this study?

2. What are the methods of data collection used in this study?
3. How were the data analysed?

TITLE: Factors associated with non-adoption of technology by rubber smallholders

METHODS

Data for the study were collected from four main sources: (i) the smallholders; (ii) key informant smallholders and field officers; (iii) field observation; and (iv) office records.

The main subjects of this study were the rubber smallholders selected from four regions (northern, southern, western and central regions) of Peninsular Malaysia. The selection was carried out with the help of the local staff from the Rubber Research Institute of Malaysia (RRIM) and the Rubber Industry Smallholders Development Authority (RISDA). These smallholders were grouped into three categories: (i) those with immature holdings (trees less than 7 years); (ii) those with mature holdings (trees from 7 to 20 years); and (iii) those with old holdings (trees more than 20 years). The rationale for grouping the smallholders in such a manner was that some technologies are unique to each category. For example, deep planting technology is applicable to the immature holdings while opening tapping panels is applicable to mature holdings, and control upward tapping is applicable to old holdings.

RISDA field officers and smallholders leaders were also the subjects of the study as they served as key informants on smallholders’ problems and needs. Smallholder leaders comprised progressive farmers, Village Development and Security Committee members, religious and social leaders and other influential individuals in the community. It was assumed that these key informants were knowledgeable about rubber cultivation, constraints facing the crop, the smallholders and the community they worked and lived with.
The study relied heavily on the use of semi-structured interviews and discussions to gather in-depth qualitative data from smallholders, smallholder leaders and field officers. Field observation was also carried out on selected holdings to verify information gathered from the interviews and discussions, and from the review of field records obtained from the RRIM and RISDA district officers.

Technology adoption and rejection by smallholders was the focus of data analysis. Reasons for rejecting a technology were isolated and screened and this was done for the three types of holdings, i.e. immature holdings, mature holdings and old holdings. In all cases, percentages and means were used for the analysis.

(Adapted from Rahim M. Sail and Mazanah Muamad, 1994, Factors associated with non-adoption of technology by rubber smallholders, Pertanika Journal of Social Science and Humanities 2(1), 29-41.)

Useful Phrases for Writing the Procedures

Field observation was carried out to........
This report is based on findings of ..........
Data were obtained through the use of ........
Data for the study were collected from .........
The experimental site was .............

Practice 1

Read the extracts below and answer the questions given to identify the elements of the procedure in the report.

Extract 1

Title: Rooting pattern and distribution of absorbing roots of papaya
Objectives: 1. to determine the general pattern of root distribution
            2. to determine the concentration of absorbing roots of matured papaya trees on sandy loam soil
UNIT 8

WRITING THE FINDINGS

The findings of your study are usually presented in the results section. This is the longest and most important section of the research report where you will present the findings of your study in both figures and written text.

Figures (graphs, tables, and diagrams) present the complete findings in numerical terms while the text helps the reader to focus on, and discuss the salient points of the results. The written text usually consists of two important elements: reference to data and salient points. These elements can be seen in the following example.

ACTIVITY

Discuss the elements of the findings in the example below by answering the following questions:

1. Write out the statement which makes reference to the data

2. List the salient points mentioned in your own words.
Title : Factors associated with non-adopter of technology by rubber smallholders

RESULTS

The discussion and interview sessions conducted with selected smallholder leaders and field officers (key informants) revealed the following factors as associated to the non-adoption of recommended technology: attitudinal factors, physical and labour constraints, land ownership and financial constraints, inappropriate technology and inefficient information dissemination techniques. These factors are summarized in Table 2.

1) Attitudinal Factors

Informants from all the districts rationalized that often a recommended technology is rejected when the practice called for laborious and time-consuming work. Root disease treatment by trenching, for example, is one technology that is avoided because of this factor. Another often cited reason (91% of the focus group) has to do with the availability of subsidy. Many smallholders indicated that a recommendation like fertilizer and pesticide application was practised only when the relevant inputs were subsidized. Apart from these two attitudinal indicators, a lack of interest in any technology recommended was also reflected in a majority of the focus groups interviewed. Most of them were not interested in attending courses, demonstrations, etc. which were carried out to deliberate on the technology. While some were reported to be interested, being doubtful about the expected benefits and concerned with the cost involved, they were deterred from adopting any new technology. The rate of technology adoption was also found to be affected by their reluctance to change due to over-familiarity with old practices.

(Adapted from Rahim M. Sail and Mazanah Muhamad, 1994, Factors associated with non-adopter of technology by rubber smallholders, Pertanika Journal of Social Sciences and Humanities 2(1), 29-41)
TABLE 2
Factors associated with non-adoption of technology from the perspectives of key informant smallholders

<table>
<thead>
<tr>
<th>Attitudinal</th>
<th>Baling</th>
<th>Grik</th>
<th>Tapiing</th>
<th>Temah Merah</th>
<th>Besut</th>
<th>Segamat</th>
<th>Muar</th>
<th>Jasir</th>
<th>Temefoh</th>
<th>Serenban</th>
<th>Sepang</th>
<th>%**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preference for less laborious and time-consuming work</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>100</td>
</tr>
<tr>
<td>Dependency on subsidy</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>91</td>
</tr>
<tr>
<td>Not interested in the technology</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>82</td>
</tr>
<tr>
<td>'Wait and see' attitude</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>56</td>
</tr>
<tr>
<td>Used to 'old' practice</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Physical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uneconomic size of holdings</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>82</td>
</tr>
<tr>
<td>Scattered holdings</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Hilly holdings</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Accessibility of holdings</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Technology not available locally</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Labour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Old age</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>82</td>
</tr>
<tr>
<td>Insufficient labour</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Holdings Ownership</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-ownership</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Absentee landlord</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Financial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology recommended expensive</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>100</td>
</tr>
<tr>
<td>Insufficient money to purchase input</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>73</td>
</tr>
<tr>
<td>Appropriateness of Technology</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Extension Service &amp; Communication Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not aware of technology</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td>64</td>
</tr>
<tr>
<td>Insufficient information on technology</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td>73</td>
</tr>
<tr>
<td>Lack of advisory service</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>45</td>
<td></td>
</tr>
</tbody>
</table>

**%**: Percentage of response “yes” of the total number of districts

x: Responses given by the districts.

Note: In some reports a short discussion or comment on the findings may also be included in this section. The discussion / comments may generalize from the results, explain possible reasons for the results or compare the results with other studies.
Useful Phrases for Writing the Findings

Reporting the findings

This study indicated... .
Responses from...... are summarized in table...
This is evident in... .
It is evident that... .
It is observed that... .
It can be seen that... .
From the data gathered... .
From the information available... .
From the pie-chart/table/graph... .
Based on the data/pie-chart/table/graph... .
There is overwhelming evidence to show that... .
As evident from the data/pie-chart/table/graph... .

Discussing the findings

It seems that... .
It most likely that... .
This suggests... .
This means that... .
This is probably because
This probably explains why... .
Perhaps this is because... .
Apparently/Possibly... .

Practice 1

Discuss the elements of the findings in the following extracts by answering the questions given.

Extract 1

Title : The vascular wilt disease—a potential threat to oil palm in Malaysia
Objective : to investigate why the vascular wilt disease of oil palm does not occur in Malaysia.

The results of the tests showed that isolates of \textit{F. oxysporum} from Africa were pathogenic to the Malaysian oil palm seedlings under normal soil moisture conditions and under water stress. The Malaysian oil palm seedlings were very susceptible to the vascular wilt disease as 75-90\% of the inoculated palms were infected. The infected palms showed typical external and internal symptoms of the vascular wilt disease.
UNIT 9

WRITING THE CONCLUSION

This section of the report ties together all the salient points mentioned in the findings.

ACTIVITY

Read the example below and discuss the conclusions made in the report by answering the following questions:

1. In your own words, explain the factors associated with the non-adoption of technology by rubber smallholders.

2. In this section, the writer indicated that certain groups of people need to change. In your own words, explain who they are and why the writer felt that they need to change.
DISCUSSION

The study showed that it is difficult for rubber smallholders to adopt new technology because they are faced with several constraints, namely inadequate labour, inadequate finance, inadequate information on the benefits of a technology, small-sized operation, and remoteness of holdings. In addition, the period of uncertainty for the outcome of adopting a technology in rubber cultivation (from six months to 10 or 15 years) increases the complexity and difficulty in making decisions among the smallholders.

It was also found that the attitude of rubber smallholders in adopting a technology is also a constraining factor. Among the attitudinal factors that affect their decision of whether to adopt or reject a technology are their dependency on subsidy, their preference for less laborious and time-consuming work, and their ‘wait-and-see’ attitude.

The study also showed that extension agents themselves face numerous contraints in their effort to disseminate technology information. Therefore, it can be concluded that not only the smallholders’ knowledge, belief, and practices in technology need to be changed, but those of the extension agents as well. In fact, this study showed that many extension agents needed to be equipped with knowledge and skills of current technologies as well as effective dissemination strategies.

(Adapted from Rahim M. Sail and Mazanah Muhamad, 1994, Factors associated with non-adoption of technology by rubber smallholders, *Perianika Journal of Social Sciences and Humanities* 2(1), 29-41)

Useful Phrases for Writing the Conclusion

The study showed ...
It can be concluded that ...
In summary ...
In general ...
In conclusion ...
In a nutshell ...
To summarize ...
Thus / Therefore / Hence ...
The conclusions are ...
The following conclusions can be drawn ...