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Workforce nationalisation in Papua New Guinea: Security and logistics in resource organisations

Warren Doudle

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Chapter 3: Research Design and Method

3.1 Research Design Overview

One need not identify with a specific paradigm when undertaking qualitative research (Bryman, 2004). Qualitative research, broadly defined, means ‘any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification’ (Corbin & Strauss, 2008, p. 17). Qualitative research is a broad systematic approach that encompasses many research methods. It involves disciplined enquiry that examines people’s lives, experiences and behaviours, as well as the stories and meanings that individuals ascribe to them (Denzin & Lincoln, 2000). Qualitative research can also be used to investigate the functioning of organisations (such as relationships between individuals, individuals and groups) and broader social environments. This approach to research can involve the studied use and collection of a variety of empirical materials, including case studies, personal experiences, life stories, interviews, observations and cultural texts. Also known as ‘interpretivism’, the qualitative approach is a way to gain insights by discovering meanings through the intentional improvement of the researcher’s comprehension of the whole as a result of exploring the richness, depth and complexity of phenomena (Corbin & Strauss, 2008).

The research detailed here was undertaken using a mixed-methods approach that employed a case study, qualitative interviews and a survey. The researcher’s extensive experience in the industry enabled access to a sufficient number of research participants with relevant experience, thereby ensuring an adequate number of participants in the sample group for the survey and the smaller semi-structured interviews. The qualitative research sample was selected intentionally according to the needs of the study, which is a practice commonly referred to as ‘purposive sampling’ or ‘purposeful selection’. The purposive sample used throughout the research comprised individuals recently (within the past six years) exposed to security and logistics workforces in the resource industry in PNG. In purposive sampling, the researcher specifies the characteristics of a population of interest and then seeks to locate individuals who have those characteristics (Johnson & Christensen, 2008). Therefore, the respondents for the semi-structured interviews were selected from the main sample based on additional specific criteria further detailed in the instrument design. Specifically, the respondents were selected

because their high degree of experience could provide extensive information about the issues that were important to the research (Coyne, 1997). The sample size was determined first by considering how many participants met the set criteria, and then by determining how many could be contacted. The number estimated was reduced once contact details and experience were verified.

The case study concerns a recent project in PNG and provides public information on workforce composition, nationalisation plans and other KPIs for which the government requires annual reports. The data generated by the case study were used to create a base context of the size and complexity of the problem and to anchor further research. The case study is quantitative, as only the existing data from KPIs were addressed in this phase of the research to create a baseline for the research to progress. Case studies and qualitative interviewing are methods commonly employed in organisational research (Strang, 2015; Saunders et al., 2012). Therefore, these were appropriate methods for the purpose and goals of this study. Moving into the qualitative phase of the research, a sample group was selected, some of whom participated in semi-structured interviews. The semi-structured interviews assisted in finalising the survey questions and gaining a deeper understanding of some of the factors prior to the survey. Although all participants were known to the researcher, they were documented anonymously. All records of names and personal details were removed, and each participant was coded alphabetically (Punch, 2005).

3.2 Research Instrument Design

3.2.1 Phase 1: The Case Study

The case study was predominantly quantitative, as the existing data were from the project's KPIs, which were addressed to create a baseline for the subsequent qualitative research. A KPI is a concept used in most corporate contexts for corporately reportable and measurable data, including incidents, accidents, staff numbers, staff demographics, environmental incidents and more. The information was retrieved from the Government of PNG, the corporate website of the selected project, and the corporation's annual reports. This provided access only to data that had been checked and verified by responsible agencies—that is, data already released into the public domain. Such sources ensured the accuracy of the data, while removing the names of the selected

company and project from the process. Being assured of data integrity means having confidence that the data are complete, verified and remain unaltered (Committee on Science, Engineering, & Public Policy, 2009). In addition to quantifiably measured KPI data, the annual reports of the organisation reviewed in the case study were examined to identify any strategic plans, ongoing programs and potential themes that could be relevant to the study. Ethics approval was required, in principle, for the research; however, permission to access the data was not required because the data were all in the public domain. Nevertheless, I held an initial discussion on the proposed research with the relevant minister of the PNG Government, who verbally confirmed willingness to provide support for the study where required.

3.2.2 Phase 2: The Interviews (Qualitative and Semi-structured)

From the initial sample pool of 300, 10 participants were chosen for the semi-structured interviews on the basis of holding the following characteristics:

- exposure to multiple projects
- experience in training and workforce development
- previous work experience in key roles in PNG.

Their experience allowed for a depth of knowledge that enabled them to expand on themes critical to the research. The interview guide provided a structure for the interviews and the interview template. The interviews were conducted face-to-face over a 10-week period and were recorded using a data-recording device. All interview schedules and research received ethics approval prior to commencement.

3.2.2.1 Interview Guide

Eight principles guided the preparation stage for the interviews, as follows:

1. choose a setting with little distraction
2. explain the purpose of the interview
3. address the terms of confidentiality
4. explain the format of the interview
5. indicate how long the interview typically takes

6. provide participants with information about how to contact the researcher later if they wish to
7. ask participants if they have any questions before starting the interview
8. do not rely on memory to recall participants' responses (McNamara, 2009).

The application of these eight principles informed the development of the conduct checklist for the interview to maintain the consistency and quality of the semi-structured interview process. The interviews were conducted as follows:

- Each interview was approximately one hour in duration. Bookings were arranged with subjects for an appropriate time.
- Upon arrival, the subject received an overview of the research project, a profile of the researcher, and an outline of how the interview and follow up would occur.
- The subject received a copy of the consent form (approved by ethics) to sign, along with a copy to keep.
- The subject received the researcher's contact details.
- The interviews were recorded and transcribed.
- Feedback (if requested) was provided to subjects through a research outcome summary.
- The subject was given a final reminder of consent and the ability to withdraw at any time without penalty.
- Upon conclusion of the interview, each subject was asked if they had questions.
- Recordings and notes were checked to ensure completion.
- The subject was thanked.
- All data were stored anonymously and securely for later analysis.

Sound interview strategies help the researcher go beyond the obvious, low-level categories that do not produce new knowledge. Any competent interviewer shapes questions to obtain rich material and, simultaneously, to avoid imposing preconceived notions on that material (Charmaz, 2006). The interview quality was significantly enhanced by developing a sound structure for the interview process through using a guide that included well-developed and tested questions.

3.2.2.2 *Semi-structured Interview Template*

Potential Questions

1. Based on your observations, why do you think oil and gas organisations build dependence on expatriate staff?
2. Is it possible to develop an indigenous workforce in the early phase of the project so that they are better skilled for start-up? What has led you to have your opinion?
3. If indigenisation/nationalisation was to occur earlier through advanced mentoring, what do you think the cost difference would be between expatriates and nationals?
4. Which are the key factors that limit the nationalisation of security and logistical workforces?
5. Which factors would enable the early nationalisation of staff?
6. Which factors have enabled you to be successful in the past?
7. In your experience, which key activities promote a successful mentoring program in a resource company operating in PNG?
8. Do you have any other information or opinions regarding mentoring or nationalisation in PNG that have not already been discussed?

3.2.3 Phase 3: The Survey (Quantitative)

The survey sample group was drawn predominantly from managers and supervisors with recent exposure to security and logistics workforces in the resource industry in PNG. Of the 300 people identified, a sample size of at least 50 was needed to fulfil the research aims. It was intended that, if a response of fewer than 50 people was received, the sample size would be expanded by using the existing criteria until 50 was reached. Sample sizes that are larger than 30, but fewer than 500, are usually appropriate for most research (Sekaran & Bougie, 2010). Given that more than 50 respondents answered the survey, the survey was left open for a period of three months to gain as many additional responses as possible. A number larger than 100 was the optimum number, and this was achieved. While an initial draft of the survey questions was developed during Phases 1 and 2, it was not formalised until the case study and interviews were complete and fully analysed. This is shown in detail in Chapter 5. The

draft of the survey questions was developed further according to the framework created by and the results from the semi-structured interview template, in combination with the results of the case study. Ultimately, the final questionnaire could not be built and refined until the full literature review was completed and the early phases of the research were undertaken and analysed.

In this context and with the relevant data to support the final selection of questions for the survey, a final draft was completed and piloted to ensure reliability and design integrity before proceeding to the final survey phase. This enabled the final phase of the research to build on and confirm ideas and themes from the early work, while still allowing space for additional information to be presented. The survey was delivered to participants using SurveyMonkey, which is a secure online service designed to support the process.

Participants from the sample were emailed the link, which anonymously recorded the results using only a URL on the SurveyMonkey system. The survey design consisted of an introduction page that contained a privacy statement, research details and the contact information of the researcher, with an electronic acknowledgment of consent that conformed to the ethics application. SurveyMonkey and its data collection methods, security and processes align with the academic and legal standards in Australia, the United States and Europe. As a recognised and accepted tool for academic research, it was used to provide the survey data for this project. The last and most important aspect of this final stage of the research process was to allow the purposive sample of respondents to weight each of the themes presented from the research to demonstrate their opinion regarding the importance of each theme.

3.3 Data Analytic Strategy Overview

This research employed a mixed-methods approach, where each method addressed a different aspect of the research, as follows:

- case study: data analysis of the resource company's KPIs
- interviews: 10 semi-structured participant interviews to obtain perspectives on the key subjects and themes

- survey: 50 or more respondents to provide detailed confirmation of possible themes identified earlier.

The mixed-methods approach gave the research more depth and allowed the data to be triangulated. A mixed-methods approach is useful when neither a quantitative nor qualitative approach alone can address the problem adequately; thus, the strengths of both methods are used together to provide the best answer (Creswell, 2003). As discussed in the introduction, this study's use of three different approaches to data collection enabled me to obtain a much greater understanding of the problem. The mixed-methods approach offers enormous potential for generating new ways to understand the complexities and contexts of social experience, as well as enhancing the capacities of social explanation and generalisation. This approach can both draw on and extend some of the best principles of enquiry. In addition, the process benefited my attempt to develop constructivist epistemologies and to engage with thorny methodological issues, especially those dealing with questions of interpretation and explanation (Mason, 2006).

3.3.1 Phase 1: Case Study Data

The specific information targeted in the case study was annual workforce data, including, yet not limited to, the following:

- year of project
- length of project
- workforce size across the project
- workforce composition, such as national, expatriate or OCN
- nationalisation targets
- mentoring program size by organisation
- training organisation size
- total project expenditures
- total wage expenditures broken down into workforce groups.

The data were recorded in Microsoft Excel graphs that best displayed the information in a logical sequence, and were used to create a baseline for the research project. The data allowed hypothetical comparisons on potential cost savings, and enabled workforce

structures to be estimated for future projects. The request for information was initiated before the interviews, but was not concluded before the interview process began. While information from the case study did not influence the semi-structured interviews, it was reviewed carefully in relation to the interview results prior to the final survey being developed and piloted.

3.3.2 Phase 2: Interviews Data

The semi-structured interview process provided a number of possibilities. It was structured to address specific topics related to the focus of the study, while also leaving space for participants to suggest new phenomena that may have added to or altered the scope of the study. There is a great deal of versatility in the semi-structured interview, and the arrangement of questions may be structured to yield considerable and often multidimensional streams of data (Galletta & Cross, 2013).

Therefore, the semi-structured interviews formed the main focus of the initial research instrument design. The use of the potential template enabled the reliability of the questions to be validated for the survey, while also eliciting potentially new or more detailed information on each subject area. This information was documented in prepared workbooks, and the interviews were recorded using data-recording devices, and stored following transcription. All transcription of audio data was undertaken by an independent administrative assistant, and then checked by the researcher in its entirety to ensure consistency before the data analysis began. An independent review by a third-party consultant who can evaluate the codes and themes to determine the quality and effectiveness of the interview transcripts is often recommended (Creswell, 2003).

I will retain all captured data and supporting notes from the semi-structured interviews in a sealed envelope for a period of two years post-publication. Names will be retained on the original documents, such as consent forms, but all subjects will be identified with a single capital letter in the research, thereby maintaining the anonymity of the participants. The focus of the evaluation was on key themes. The information was presented through individual questions in the semi-structured interview. Each of the main texts from the 10 respondents were then marked accordingly, with a summary of key relevant themes. Table 3.1 provides a sample of the results presentation.

Table 3.1: Example of the Semi-structured Interview Results Presentation

Question 1	Based on your observations, why do you think oil and gas organisations build dependence on expatriate staff?
A	Answer
B	Answer
C	Answer
D	Answer
E	Answer
F	Answer
G	Answer
H	Answer
I	Answer
Summary	Summary of key themes or points made and the researcher's comments

It was important to include each interviewee's answers to demonstrate themes or ideas to support the conclusions drawn on each topic. This provided a logical and transparent analysis of each question, as well as support for each conclusion. Further, if there were any issues with the reliability of an interview, or if the interviewee withdrew consent, the interview would be terminated and documented accordingly. However, this did not occur in this research.

3.3.3 Phase 3: The Survey Data

The final content of the surveys was developed once the semi-structured interviews were completed and the questions were fully evaluated. The aim of the survey was to validate, evaluate and support the themes and concepts developed through the interviews and preceding research. If a concept or theme received widespread support from the sample group in the survey, it was considered validated; alternatively, if it did not receive widespread support, it was not considered validated. The data were used in their entirety, and were illustrated and displayed using SurveyMonkey's academic graphs and tables for each question.

No advanced statistical analysis was required to demonstrate the required information at this stage, as the primary use was to confirm basic responses to each concept. The results presented using SurveyMonkey analytics through weighted averages based on the use of a Likert scale were conclusive and suitable for the research. This was determined during Phase 3. The survey was delivered to participants using

SurveyMonkey—a secure online service designed to support the process. Participants from the sample were emailed the link, which anonymously recorded the results using only a URL on the SurveyMonkey system.

The survey design consisted of an introduction page that contained a privacy statement, research details and the contact information of the researcher, with an electronic acknowledgment of consent that conformed to the ethics application. SurveyMonkey and its data collection methods, security and processes align with the academic and legal standards in Australia, the United States and Europe. As a recognised and accepted tool for academic research, it was used to provide the survey data for this project.

3.4 Ethics

Ethics approval was granted for the research on 6 June 2017. The research conforms to Chapter 4.8 of the *National Statement on Ethics in Research*. There were no major ethical considerations in this research that could harm or affect an individual. However, some potential ethical issues that could affect the quality of data or results had to be considered. One was the potential loss or corruption of data. This was addressed through strong control measures, such as using a single computer and a hard drive backup with two locations for storage, scanning hard copies, and following physical security measures. The physical security measures included tethering laptops, locking away hard drives in a safe, protecting the laptop with a password, and encrypting data. The semi-structured interview participants are not identified in the research, and the research is not controversial, meaning that no input from the participants would be deemed negative in the industry. Thus, this was not a consideration for additional attention in this research. The final ethics consideration was the potential for respondents to the survey to return a non-constructive or purposively negative response. With such a small sample because of the purposive sample selection, a defective response from even one or two respondents could compromise the research results.

3.5 Research Methods Summary

The research instrument design and data analytic strategy were refined and expanded as the research progressed. They served as a compass to guide and give the data collection direction and structure in the early phase of the research. The use of a mixed-methods

approach and triangulation of data underpinned the strategy. Including only quantitative or qualitative methods would fall short of the major approaches being used today in the social and human sciences (Creswell, 2003).

The research gained perspective through the quantitative data gathered from the case study of an organisation. This assisted in developing a sense of the size and the percentages of the concepts being explored. Effectively, the data were secondary data and were presented simply in graph form as part of the data analysis. The semi-structured interviews of the key subjects were used to explore the problem in more detail, address the research questions, and help develop the final survey questions. Once all information from the first two phases was analysed, the survey was finalised and used to complete the triangulation of principal information. It was presented in an overview format. The research goal—to advance the current body of knowledge on indigenous workforce nationalisation programs in logistics and security mentoring programs in resource organisations in PNG—was addressed individually to ensure that a focus on results was maintained throughout the study.